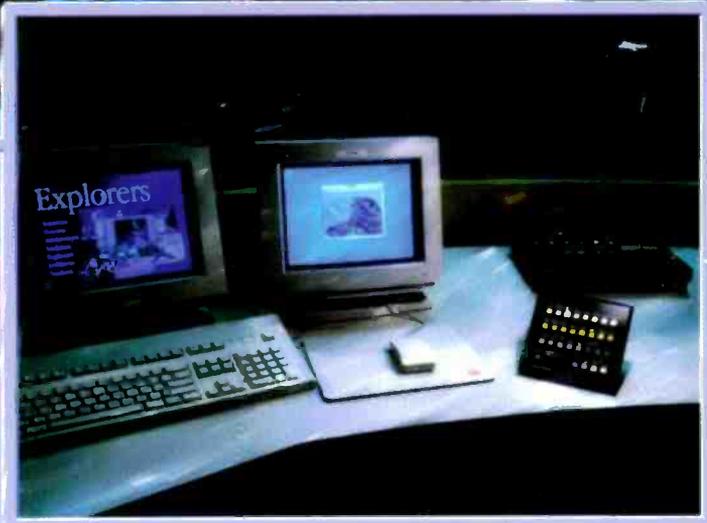


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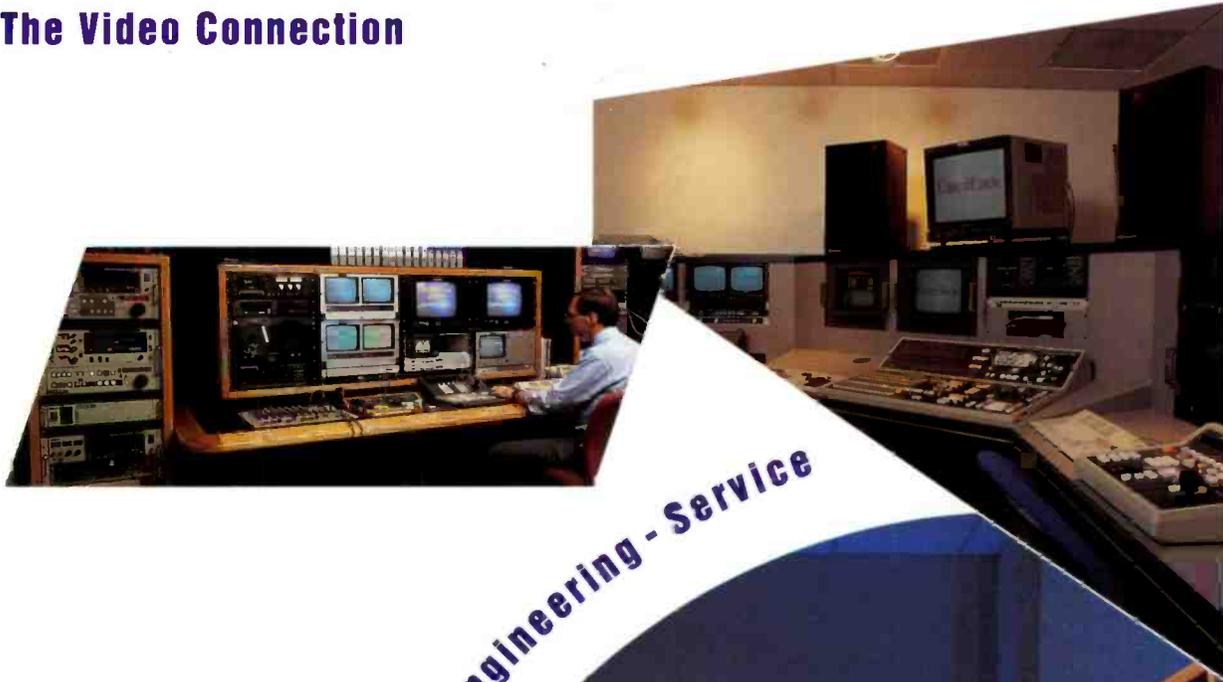
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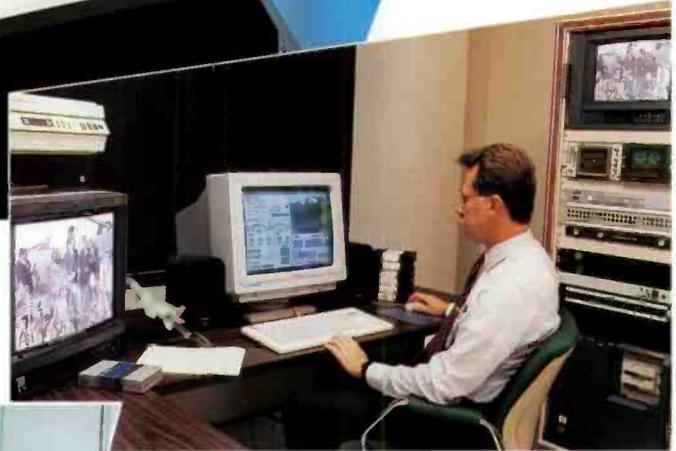
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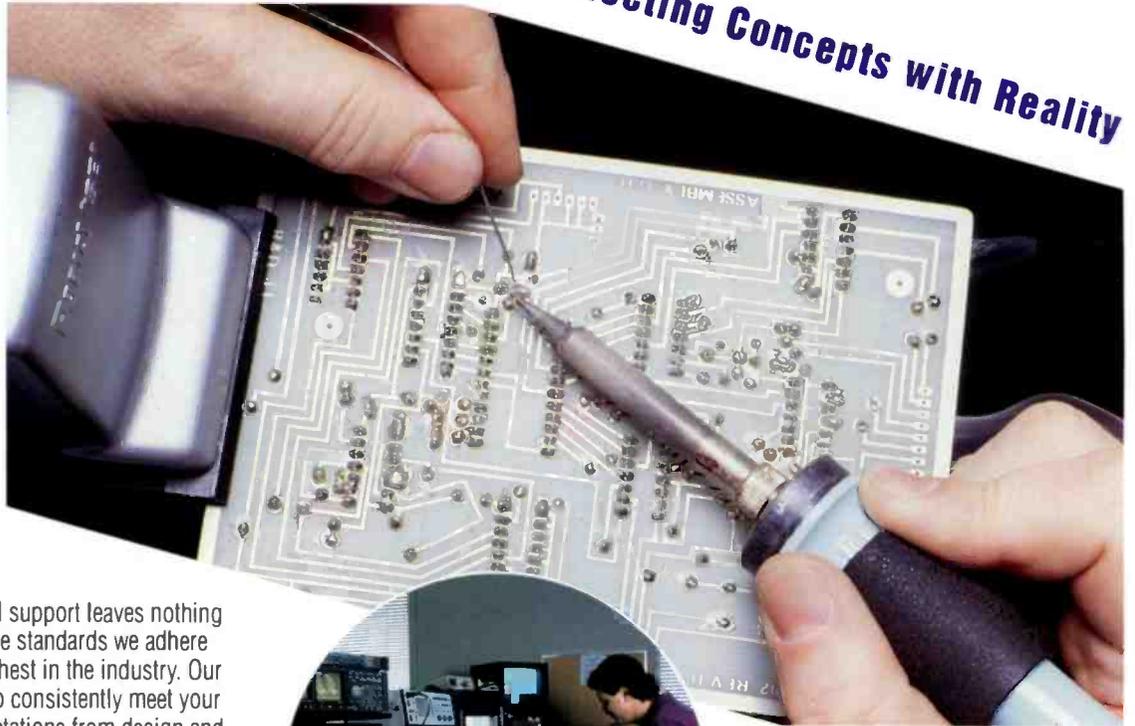
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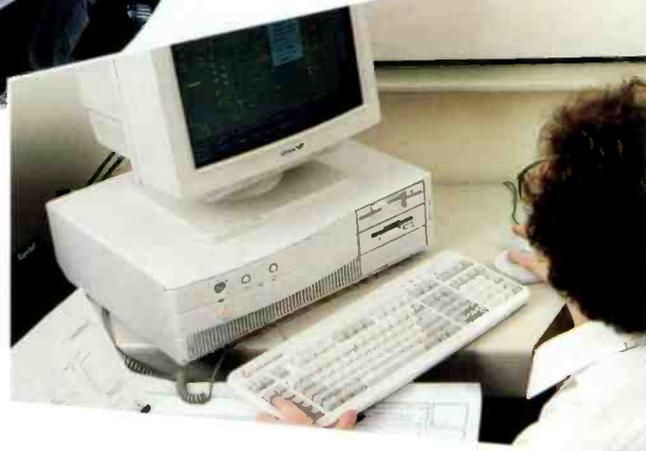


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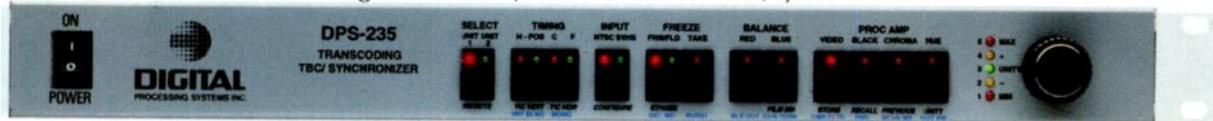
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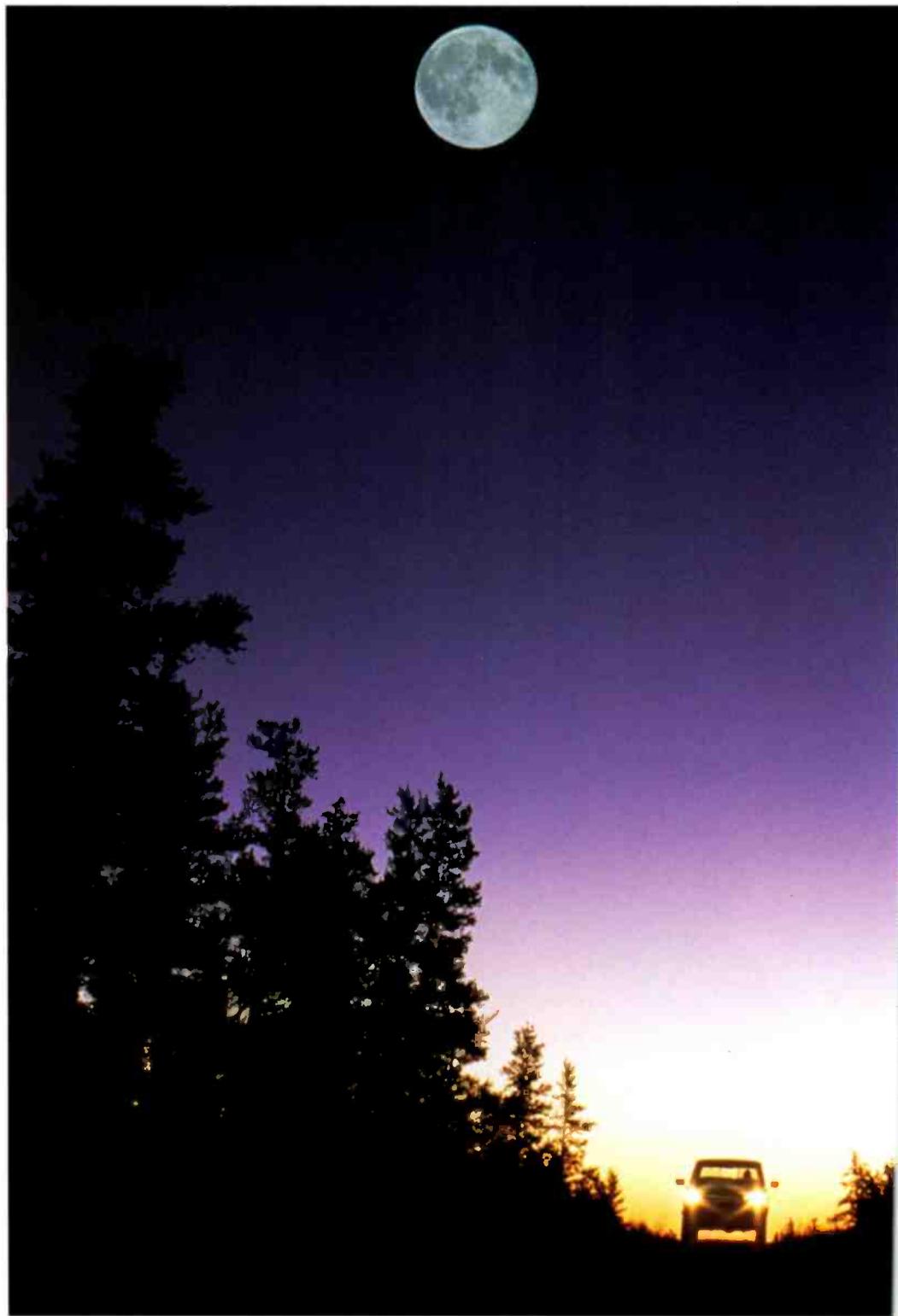
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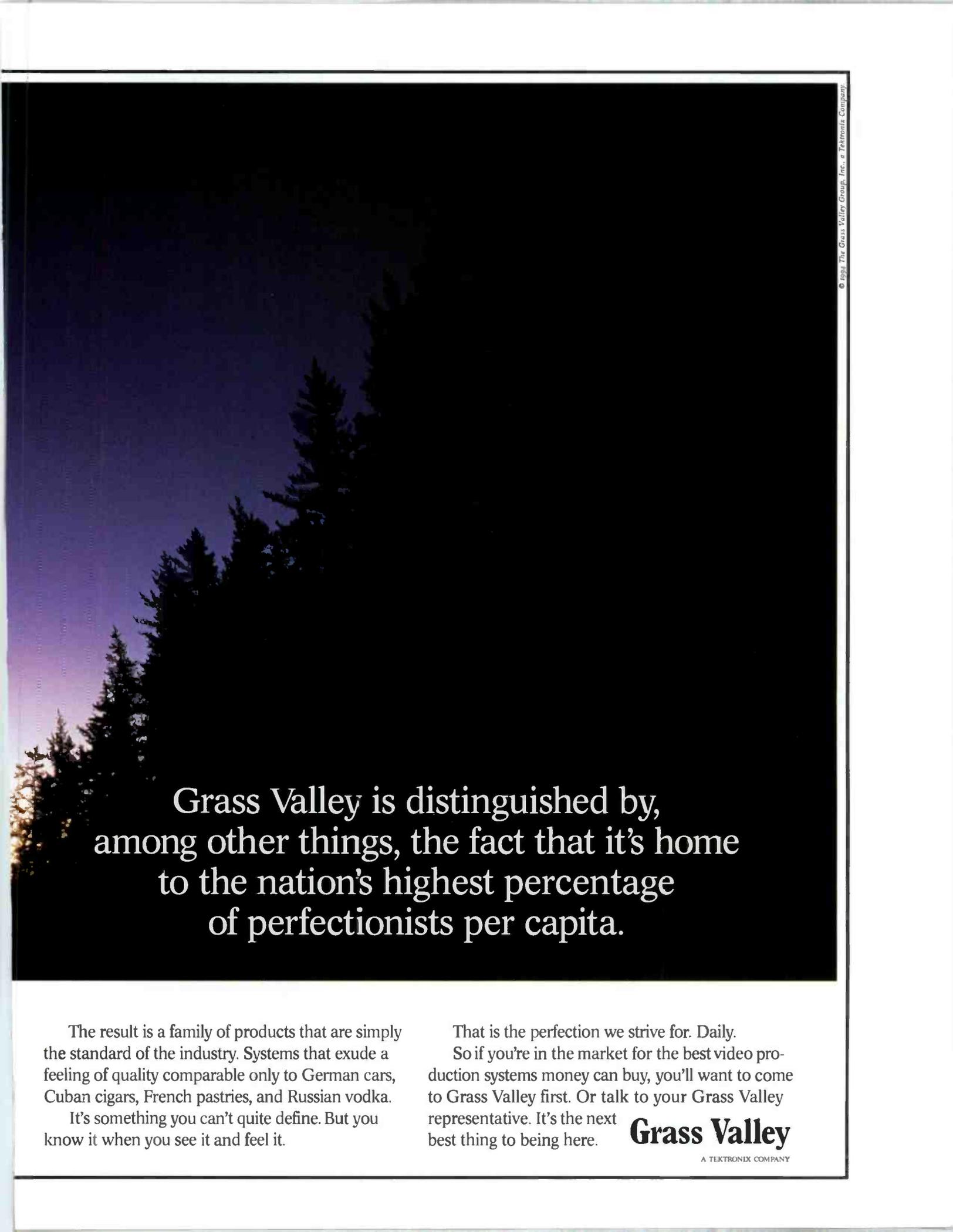


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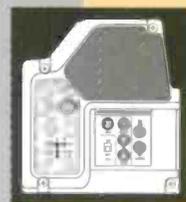
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An embossed classical column capital, likely Corinthian, featuring acanthus leaves and a decorative top molding.

**TECHNOLOGY
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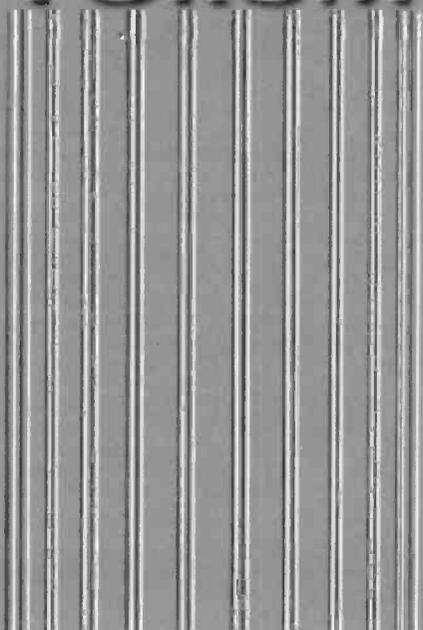
An embossed classical column shaft with vertical fluting, positioned below the capital and text.

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GLOSSARY



A-B Roll: Videotape editing arrangement where scenes on tape are played alternately on VTRs A and B and recorded on VTR C. Typically, the final output recorded on VTR C contains some scenes from VTR A and some scenes from VTR B with transitions (cuts, mixes, wipes, etc.) between the scenes.

Aberrations: Certain aberrations degrade the image formed by a lens.
Absorption Loss: In telecommunications, attenuation of the optical signal within the fiber optic transmission medium. Usually specified in terms of dB/km.

AC/DC Coupling: May also be called simply DC coupling. Coupling between circuits which accommodates the passing of both AC and DC signals.

Adaptive Multichannel Prediction: A method of audio, multichannel data reduction exploiting statistical inter-channel dependencies.

Adaptive Segmentation: A subdivision of the digital representation of an audio signal in variable segments of time.

ADC: Abbreviation of analog-to-digital converter.

Address: 1. A precise frame location on a videotape, usually identified by a time code number. 2. A memory location or device identifier in microprocessor and computer terminology.

ADSL: Asymmetrical Digital Subscriber Line. Technology that allows video to be sent over the phone company's twisted pair copper wire to the home. Depending on a customer's distance from the central office, data rates of 1.5, 3 or 6 Mbps can be achieved. Supports a low data rate return channel and concurrent unimpaired phone use while receiving video.

Alliasing: Undesirable "beating" effects caused by sampling frequencies being too low to faithfully reproduce image detail. Examples are:

- i). Temporal aliasing—e.g. wagon wheel spokes apparently reversing, also movement judder seen in standards converters with insufficient temporal filtering.
- ii). Raster scan aliasing—twinkling effects on sharp horizontal lines. Raster scan aliasing and its horizontal equivalent are often seen in older digital effects devices as detailed images are compressed, due to insufficient filtering. Aliasing is also often used to describe the unpleasant stepped images if unfiltered angled lines are presented upon the raster lines of a TV system.

Allocations: The assignments of frequencies by the FCC for various communications uses to achieve a fair division of the available spectrum and to minimize interference among users.

Amplitude: The magnitude of a signal in voltage or current. Frequently expressed in terms of peak, peak-to-peak or RMS.

Analog: The characteristic of varying continuously along a scale as opposed to increasing or decreasing in fixed steps. Voltage, pressure, speed, etc. are often measured in analog terms. A continuously variable system or device. Continuous tone film and a volume control on an average radio or record player are analog.

Analog-to-Digital Converter: (ADC, A/D, A-to-D) A circuit that uses digital sampling to convert an analog signal into a digital representation of that signal.

ANSI: American National Standards Institute

Anti-Aliasing: A procedure employed to eliminate or reduce, by smoothing and filtering, the aliasing effects. Aliasing, which is a disturbing effect created on a video image where vertical lines are either too close together or where a lot of high frequency information is concentrated in a limited area of the screen (like from computer generated text and graphics) creates "beating," "crawling" and strobing interference.

Aperture: The opening of a lens which controls the amount of light reaching the surface of the pickup device. The size of the aperture is controlled by the iris adjustment. By increasing the f-stop number (f/1.4,

f/1.8, f/2.8, etc.) less light is permitted to pass to the pickup device.

APL (Average Picture Level): The average level of the active video (portion of video between blanking pulses), expressed as a percentage or in IRE.

Archive: Long-term off-line storage. In digital systems, pictures are generally archived onto some form of hard disc, 1/2" magnetic tape, floppy disc or 8mm cartridge.

Artifacts: Undesirable elements or defects in a video picture. These may occur naturally in the video process and must be eliminated in order to achieve a high quality picture. Most common are cross color and cross luminance.

ASCII: American Standard Code for Information Interchange. A 128-character set that includes the upper case and lower case English alphabet, numerals, special symbols, and 32 control codes. Each character is represented by a 7-bit binary number. Therefore, one ASCII-encoded character can be stored in one byte of computer memory.

Aspect Ratio: 1. The ratio of television picture width to height. In NTSC and PAL video, the present standard is 4: 3. 2. The ratio of wipe pattern width to height.

Assemble Edit (Assemble Mode): An editing mode that replaces all signals on the record tape (video, audio, control and time code tracks) with new signals. See also Insert Edit.

Astigmatism: The uneven foreground and background blur that is in the image.

Asynchronous: Lacking synchronization. In video, a signal is asynchronous when its timing differs from that of the system reference signal. A foreign video signal is asynchronous before it is treated by a local frame synchronizer.

ATM: ATM is believed to be the future standard for voice, data and video communications switching.

Attenuator: A circuit that provides reduction of the amplitude of an electrical signal without introducing appreciable phase or frequency distortion.

Audio Bridge: In telecommunications, a device that mixes multiple audio inputs and feeds back composite audio to each station, minus that station's input. Also known as a mix-minus audio system.

Audio-Follow-Video (AFV): An operational mode in which audio and video switchers are tied together so when the operator selects the video source, the audio simultaneously and automatically switches to the same source.

Auto Assembly: In video editing, the editing system automatically records all edits listed in the edit decision list. This allows the operator to complete an edit decision list and then let the editing system perform all of the recording automatically.

Axis: Relating to digital picture manipulation, the X axis is a horizontal line across the center of the screen, the Y axis is a vertical line and the Z axis is in the third dimension, perpendicular to the X and Y axes and indicates depth and distance.

B-picture: Bidirectionally Predictive-coded Picture; an MPEG term for a picture that is coded using motion compensated prediction from a past and/or future reference picture.

Background Video: 1. Video that forms a background scene into which a key may be inserted. 2. A solid color video output generated by the background generator within a device, such as a production switcher, for use as background video in key effects.

Back Light: A fixture that is often not properly applied or overlooked completely. The main function of the back light is to separate the individual subjects from the background and give them depth and dimension.





Back Porch: The portion of a video signal that occurs during blanking from the end of horizontal sync to the beginning of active video. The blanking signal portion which lies between the trailing edge of a horizontal sync pulse and the trailing edge of the corresponding blanking pulse. Color burst is located on the back porch.

Backward Compatibility: A new coding standard is backward compatible with an existing coding standard if existing decoders (designed to operate with the existing coding standard) are able to continue to operate by decoding all or part of a bitstream produced according to the new coding standard.

Bandwidth: The complete range of frequencies over which a circuit or electronic system can function with minimal signal loss, typically less than 3dB. The information carrying capability of a particular television channel. In PAL systems the bandwidth limits the maximum visible frequency to 5.5MHz, in NTSC, 4.2MHz. The CCIR 601 luminance channel sampling frequency of 13.5MHz was chosen to permit faithful digital representation of the PAL and NTSC luminance bandwidths without aliasing.

Baseband: The frequency band occupied by the aggregate of the signals used to modulate a carrier before they combine with the carrier in the modulation process.

Base and Fill Lights: Base and fill lights, commonly referred to as "scoops," provide a soft-edged field of light which is used to provide basic illumination of the subject, to fill in the areas not highlighted by the key light, to illuminate the background and to soften shadows caused by key lights.

Baud: A unit of signalling speed equal to the number of signal events per second. Baud is equivalent to bits per second in cases where each signal event represents exactly 1 bit. Often the term baud rate is used informally to mean baud, referring to the specified maximum rate of data transmission along an interconnection. Typically, the baud settings of 2 devices must match if the devices are to communicate with one another.

Bearding: Video distortion that appears as short black lines extending to the right of bright objects within a scene.

BER: Bit Error Rate. The ratio of received bits that are in error relative to the total number of bits received. It is used as a measure of noise induced distortion in a digital bit stream. BER is expressed as a power of 10. For example a 1 bit error in 1 million (10^6) bits is a BER of 10^{-6} .

Betacam SP: A Superior Performance version of Betacam. SP uses metal particle tape and a wider bandwidth recording system. The interconnect standards are the same as Betacam. There is also limited tape interchangeability with standard Betacam.

Bias: Current or voltage applied to a circuit to set a reference operating level for proper circuit performance, such as the high frequency bias current applied to an audio recording head to improve linear performance and reduce distortion.

Binary: A base 2 numbering system using the 2 digits 0 and 1 (as opposed to 10 digits (0-9) in the decimal system). In computer systems, the binary digits are represented by 2 different voltages or currents, 1 corresponding to 0 and another corresponding to 1. All computer programs are executed in binary form.

Bipolar: A signal that contains both positive-going and negative-going amplitude. May also contain a 0 amplitude state.

Bit (Binary Digit): The smallest part of information in a binary notation system. A bit is a single 1 or 0. A group of bits, such as 8 bits or 16 bits, compose a byte. The number of bits in a byte depends upon the processing system being used. Typical byte sizes are 8, 16 and 32.

Bitmap: A pixel-by-pixel description of an image. Each pixel is a separate element. Also referred to as a raster image.

Bit Rate: Bps, Bytes per second-8 bits bps, bits per second. The digital equivalent of bandwidth, bit rate is measured in bits per second. It is used to express the rate at which the compressed bitstream is

transmitted. The higher the bit rate, the more information that can be carried.

Black also Color Black, Blackburst: 1. A composite color video signal. This signal has composite sync, reference burst and a black video signal which is usually at a level of 7.5 IRE (0.05V) above the blanking level. 2. Fade-to-black between scenes.

Blanking (BLKG): 1. The time period when picture information is shut off. Blanking is a voltage level which is at or below black picture level and acts as a signal to turn off the scanning beam. Synchronizing pulses which control invisible retrace of scanning are active during the blanking period. 2. A standard signal from a sync generator used to create blanking in video.

Blanking Level: Also known as pedestal, the level of a video signal which separates the range that contains the picture information from the range that contains the synchronizing information. The level of the front and back porches. Zero IEEE units.

Block: An 8-row by 8-column orthogonal array of pixels.

Blooming: 1. The defocusing of regions of the picture where brightness is excessive. 2. On video monitors, adjusting the white levels so they are just at the point of leaving gray and becoming white.

BNC: Abbreviation of Bayonet Neill-Concelman. A cable connector used extensively in television and named for its inventor.

Bridge: 1. A type of network circuit used to match circuits to each other, ensuring minimum transmission impairment. 2. To place one circuit parallel to another.

Brightness: In NTSC and PAL video signals, the brightness information at any particular instant in a picture is conveyed by the corresponding instantaneous DC level of active video. Brightness control is an adjustment of setup (black level, black reference).

Broadband: 1. Having an essentially uniform response over a wide range of frequencies. 2. Capable of handling frequencies greater than those required for high grade voice communications (higher than 3 to 4kHz).

Buffer: 1. A circuit or component which isolates one electrical circuit from another. 2. A digital storage device used to compensate for a difference in the rate of flow of information or the time of occurrence of events when transmitting information from one device to another. 3. In telecommunications, a protective material used in cabling optical fiber to cover and protect the fiber. The buffer material has no optical function.

Burst (Color Burst): 7 to 9 cycles (NTSC) or 10 cycles (PAL) of subcarrier, placed near the end of horizontal blanking to serve as the phase (color) reference for the modulated color subcarrier. Burst serves as the reference for establishing the picture color.

Burst Flag (BF): A pulse used to gate the color reference subcarrier (burst) onto the back porch of each horizontal blanking interval. Also called burst gate (BG).

Burst Vector: In composite video signals, the amplitude and angle of the color reference signal.

Bus: 1. A conductor or group of conductors which provides an electronic pathway between two or more devices. 2. In data communications, a network in which stations are arranged along a linear medium (e.g. a length of cable) 3. In computer architecture, a path over which information travels internally among various components of a system.

Byte: Unit of memory in a computer. Consists of 8 bits. Generally, one byte expresses image intensity at one point (pixel) of an image in one channel. Or it can represent one letter, number or symbol in the ASCII code.

C-Band: A range of microwave frequencies, 3.7-4.2GHz, commonly used for satellite communications. Also see K-band.

Cable Equalization: The process of altering the frequency response of a



video amplifier to compensate for high frequency losses in coaxial cable.

Cable Ready: In accordance with the Cable Act of 1992, the FCC will issue a new definition of "cable ready" in April, 1994, which shall include standards for: A decoder interface connector, the ability to tune all channels up to 1,002MHz, and improved tuner performance and shielding.

Camera Control Unit (CCU): A separate electronics frame connected to a video camera head to supply it with power and control. The CCU also provides encoding and/or processing of the video signal. Operator controls available at the CCU usually include video levels, color balancing and iris control.

Candlepower: The unit measure of an incident light.

CAP: Competitive access provider. Companies which offer telecommunication services to bypass the local phone company and tie directly into a long distance carrier. Services are usually used by large companies for high volume voice and data traffic. CAPs usually install fiber in major metropolitan areas. Teleport, a large CAP company, is now owned by Cox, TCI and other cable companies.

Capacitor: A device that stores electrical energy. It allows the apparent flow of alternating current while blocking the flow of direct current. The degree to which it allows AC current flow depends on the frequency of the signal and the size of the capacitor. Capacitors are used in filters, delay line components, couplers, frequency selectors, timing elements, voltage transient suppression, etc.

Cardioid: A type of microphone with sound pickup characteristics resembling a heart-shape sphere. The cardioid microphone is used in specific applications where a pickup characteristic of this kind is needed.

Carrier Wave: A single frequency wave which, when transmitted, is modulated by another wave containing information.

CAV (Component Analog Video): A video format in which 3 separate video signals represent luminance and color information. Each signal consists of an analog voltage that varies with picture content. Also called analog component.

CCD: Abbreviation of Charge Coupled Device. A device that stores samples of analog signals. Used in cameras and telecines as an optical scanning mechanism. Advantages include good sensitivity in low light and absence of burn-in and phosphor lag found in CRTs.

CCD Array: A device that mounts many CCDs together to allow for capture of many pixels at the same time. Currently, 4 megapixels CCD arrays are in production. This means that 4,194,304 pixels of light can be converted into digital values at the same instant in such an array.

CCD Color Scanner: An input scanner using a lens and a linear CCD array to produce the scan raster. The array (one pixel wide by several thousand long) is "stepped" sideways across the focal point of the lens, each step producing one complete scan line signal.

CCIR 601: An international standard for component digital television that was derived from the SMPTE RP125 and EBU 3246E standards. CCIR 601 defines the sampling systems, matrix values and filter characteristics for both Y, Cr, Cb and RGB component digital television. It establishes a 4:2:2 sampling scheme at 13.5MHz for the luminance channel and 6.75MHz for the chrominance channels with 8-bit digitizing for each channel. These sample frequencies were chosen because they work for both 525-line 60Hz and 625-line 50Hz component video systems. The term 4:2:2 refers to the ratio of the number of luminance channel samples to the number of chrominance channel samples; for every 4 luminance samples, the chrominance channels are each sampled twice. The D1 digital videotape format conforms to CCIR 601.

CCIR 656: The international standard defining the electrical and mechanical interfaces for digital television equipment operating according to the CCIR 601 standard. CCIR 656 defines both the parallel and serial connector pinouts as well as the blanking, sync and multiplexing schemes used in both parallel and serial interfaces.

Character Generator: Reproduces recognized font styles from a

computer type keyboard—usually provides multiple screen storage and is capable of background colorization from video display.

Checkerboard Assembly: In video editing, a nonsequential method of auto assembly. The computerized editing system records and edits from the videotape playback reels currently in use, leaving gaps that will be filled later by subsequent reels. Also called B-mode assembly. See Auto Assembly.

Chip: An integrated circuit in which all the components are micro-fabricated on a tiny piece of silicon or similar material.

Chroma Crawl: An artifact of encoded video also known as dot crawl or cross luminance. Occurs in the video picture around the edges of highly saturated colors as a continuous series of crawling dots and is a result of color information being confused as luminance information by the decoder circuits.

Chroma Gain (Chroma, Color, Saturation): In video, the gain of an amplifier as it pertains to the intensity of colors in the active picture.

Chroma Key (Color Key): A video key effect in which one video signal is inserted in place of areas of a particular color in another video signal. For example, a weatherman stands in front of a blue wall with a camera focused on him. The camera signal feeds a chroma keyer which detects the blue in the blue wall and replaces it with video from another camera, such as video of a weather map. Thus, the finished key makes the weatherman appear to be standing in front of the weather map.

Chromaticity: The attribute of light combining hue and saturation, independent of intensity. The color perceived is determined by the relative proportions of the 3 primary colors. The color quality of light, defined by wavelength and purity.

Chrominance: The color part of a signal, relating to the hue and saturation but not to the brightness or luminance of the signal, e.g. black, gray and white have no chrominance, but any colored signal has both chrominance and luminance. U,V: Cr,Cb; I,Q: (R-Y, B-Y) represent the chrominance information of a signal. See: YUV and YIQ.

Chrominance-to-Luminance Intermodulation (Crosstalk, Cross-Modulation): An undesirable change in luminance amplitude caused by superimposition of some chrominance information on the luminance signal. Appears in a TV picture as unwarranted brightness variations caused by changes in color saturation levels.

Clamp, Clamping: The circuit or process that restores the DC component of a signal. A video clamp circuit, usually triggered by horizontal synchronizing pulses, re-establishes a fixed DC reference level for the video signal. Some clamp circuits clamp sync tip to a fixed level, and others clamp back porch (blanking) to a fixed level. A major benefit of a clamp is the removal of low-frequency interference, especially power line hum.

Clear Channel: A transmission path in which the full bandwidth is available to the user.

Clip: 1. In keying, the trigger point or range of a key source signal at which the key or insert takes place. 2. The control which sets this action. To produce a key signal from a video signal, a clip control on the keyer control panel is used to set a threshold level to which the video signal is compared. 3. In digital picture manipulators, a menu selection that blanks portions of a manipulated image that leave one side of the screen and "wrap" around to enter the other side of the screen.

Clipping Level: An electronic limit to avoid overdriving the audio or video portion of the television signal.

C-Mount: A C-Mount is generally the standard mounting means for attaching a lens to a camera. Normally, a C-Mount uses a 1"-32 thread. With a C Mount, the dimension from the banking shoulder of the lens mounting thread to the image plane of the camera is 0.69" regardless of the kind of lens used.

CMYK: A color encoding system used by printers in which colors are expressed by the "subtractive primaries" (cyan, magenta and yellow) plus black (called "K" or keyline since black, keylined text appears on this





layer). The black layer is added to give increased contrast and range on printing presses. See RGB.

CODEC: Code/Decode. An encoder plus a decoder is an electronic device that compresses and decompresses digital signals. CODECs usually perform A to D and D to A conversion.

Color Difference Format: A video signal set that includes color difference signals. Betacam and MII, for example, are names of 2 widely used color difference formats.

Color Difference Signal: A video color signal made by subtracting luminance and/or color information from one of the primary color signals (red, green or blue). In the Betacam color difference format, for example, the luminance (Y) and color difference components (R-Y and B-Y) are derived as follows:

$$\begin{aligned} Y &= 0.3 \text{ Red} + 0.59 \text{ Green} + 0.11 \text{ Blue} \\ R-Y &= 0.7 \text{ Red} - 0.59 \text{ Green} - 0.11 \text{ Blue} \\ B-Y &= 0.89 \text{ Blue} - 0.59 \text{ Green} - 0.3 \text{ Red} \end{aligned}$$

The G-Y color difference signal is not created because it can be reconstructed from the other 3 signals. Other color difference conventions include SMPTE, EBU-N10 and MII. Color difference signals should not be referred to as component video signals. That term is reserved for the RGB color components. In informal usage, the term component video is often used to mean color difference signals.

Color Field: In the NTSC system, the color subcarrier is phase-locked to the line sync so that on each consecutive line, subcarrier phase is changed 180° with respect to the sync pulses. In the PAL system, color subcarrier phase moves 90° every frame. In NTSC this creates 4 different field types in PAL there are 8. In order to make clean edits, alignment of color field sequences from different sources is crucial.

Color Frame: In color television 4 (NTSC) or 8 (PAL) properly sequenced color fields compose one color frame.

Color Phase: The timing relationship in a video signal which is measured in degrees and keeps the hue of a color signal correct.

Color Subcarrier: The 3.58MHz signal which carries color information. This signal is superimposed on the luminance level. Amplitude of the color subcarrier represents saturation and phase angle represents hue.

Color Temperature: Indicates the hue of the color. It is derived from photography where the spectrum of colors is based upon a comparison with the hues produced when a special metal body is heated from red through yellow to blue, which is the hottest. Color temperature measurements are expressed in Kelvin.

Comb Filter: An electrical filter circuit that passes a series of frequencies and rejects the frequencies in between, producing a frequency response similar to the teeth of a comb. Used on encoded video to select the chrominance signal and reject the luminance signal, thereby reducing cross chrominance artifacts, or conversely, to select the luminance signal and reject the chrominance signal, thereby reducing cross luminance artifacts. Comb filtering successfully reduces artifacts but may also cause a certain amount of resolution loss in the picture.

Component: The normal interpretation of a component video signal is one in which the luminance and chrominance are sent as separate components, e.g. analog components in MII and Betacam VTRs, digital components YCRCB in CCIR rec 601. RGB is, however, also a component signal. Component video signals retain maximum bandwidth, unlike composite systems.

Composite: A composite video signal is one in which the luminance and chrominance information have been combined using one of the coding standards: NTSC, PAL, SECAM, etc.

Composite Sync: A signal consisting of horizontal sync pulses, vertical sync pulses and equalizing pulses only, with a no-signal reference level.

Composite Video: A mixed signal comprised of the luminance (black and white), chrominance (color), blanking pulses, sync pulses and color burst.

Contention: Multiple devices transmitting over the same media must contend for the right to transmit. Contention relies on statistical probability to manage resource sharing.

Contrast: The range of light and dark values in a picture or the ratio between the maximum and the minimum brightness values. Low contrast is shown mainly as shades of gray, while high contrast is shown as blacks and whites with very little gray. It is also a TV monitor adjustment which increases or decreases the level of contrast of a televised picture.

Control Track Frame Pulse: A pulse laid down on videotape by a videotape recorder to identify the frame locations on the videotape. This enables the VTR to lock up correctly framed during playback.

Cross Color: This defect manifests itself as spurious rainbow patterns on highly textured objects like a striped shirt or tweed jacket. Cross color defect is attributed to the make-up of the NTSC signal which mixes the high luminance and chrominance information in the same composite baseband spectrum.

Crosstalk: 1. Undesired transmission of signals from one circuit into another circuit in the same system. Usually caused by unintentional capacitive (AC) coupling. 2. Signal interference from one part of a videotape to another.

CT/Continuous Tone: A picture file. CT is an abbreviation of continuous tone (also called contone). CT files are created by either scanning a picture into the system or by generating a CT image internally. Each pixel in a CT file uses one byte each for its red, green and blue values, allowing up to 256 density levels per color and more than 16 million different mixture colors.

Cyclorama Lights: Cyclorama lights are designed to create a smooth lighting effect on a backdrop or cyclorama.

D1: A component digital videotape recording format that conforms to the specifications set in the CCIR 601 standard.

D2: An 8-bit composite digital videotape recording format in which the composite video signal is digitized by sampling it at the rate of 4 times the frequency of subcarrier ($4f_{sc}$). The $4f_{sc}$, frequency in NTSC is 14.3MHz and 17.7MHz in PAL.

D3: An unofficial term for a composite digital videotape recording format invented by Panasonic.

D5: A component digital videotape recording format that conforms to the specifications set in the CCIR 601 standard; Panasonic format.

D-to-A Converter: DAC—a device used to convert digital signals to analog signals.

D-Picture: DC-coded Picture; a picture that is coded using only information from itself (intra-field or intra-frame coded). Of the DCT coefficients in the coded representation, only the dc-coefficients are present. Proposed use is to enable viewable pictures in fast forward and rewind.

DAT: Digital Audio Tape. A system developed initially for recording and playback of digitized audio signals, maintaining signal quality equal to that of a CD. Recent developments in hardware and software might lead to a similar inexpensive system for video recording and playback.

Data Broadcasting: Use of NTSC TV signal to deliver high volume digital data. Currently broadcasters use the VBI to carry low volume data.

Data Communications: 1. The movement of encoded information by means of electronic transmission systems. 2. The transmission of data from one point to another over communications channels.

Data Compression: A technique that provides for the transmission or storage, without noticeable information loss, of fewer data bits than were originally used when the data was created.

dB (decibel): A measure of voltage, current or power gain equal to 1/10

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of a Bel. Given by the equations $20 \log V_{out}/V_{in}$, $20 \log (I_{out}/I_{in})$, or $10 \log \text{out}$ Pin.

DBS: Direct Broadcast Satellite. The provision of broadcasting from a satellite directly to a consumer user, usually using a small aperture antenna.

DCT: Discrete Cosine Transform. Mathematical algorithm which is used to generate frequency representations of a block of video pixels. The DCT is an invertible, discrete orthogonal transformation between time and frequency domain. It can be either forward discrete cosine transform (FDCT) or the inverse discrete cosine transform (IDCT).

DCT Coefficient: The amplitude of a specific cosine basis function.

Decoded Stream: The decoded reconstruction of a compressed bitstream.

Decoder: A device used to recover the component signals from a composite (encoded) source. Decoders are used in displays and in various processing hardware where component signals are required from a composite source, i.e., composite chroma keying of color correction equipment, etc.

Decryptor: A descrambler or decoder designed to restore a scrambled and encrypted signal to its original form. (Also descrambler)

Degauss: To demagnetize recording and playback heads and tape.

Delay Line: An artificial or real transmission line or equivalent device designed to delay a wave or signal for a specific length of time.

Demagnetize: To remove magnetism; to erase magnetic tape.

Demodulator: TV demodulators strip the video and audio signals from the carrier frequency. The composite video and audio can then be used as any other video or audio feed for studio use.

Depth of Field: The front to back zone in a field of view which is in focus in the televised scene. With a greater depth of field, more of the scene (near to far) is in focus.

Dequantization: The process of rescaling the quantized DCT coefficients after their representation in the bitstream has been decoded and before they are presented to the inverse DCT.

Deserializer: A device that converts parallel digital information to serial.

Differential Gain: A change in subcarrier amplitude of a video signal caused by a change in luminance level of the signal. The resulting TV picture will show a change in color saturation caused by a simultaneous change in picture brightness.

Differential Phase: A change in subcarrier phase of a video signal caused by a change in luminance level of the signal. The hue of colors in a scene change with the brightness of the scene.

Digital: Circuitry in which data carrying signals are restricted to either of 2 voltage levels, corresponding to logic 1 or 0. A circuit which has 2 stable states: high or low, on or off.

Digital Components: Component signals in which the values for each pixel are represented by a set of numbers.

Digital Disc Recorder: A system mainly intended for post-production purposes, allowing a person to record short scenes on a digital disc. The advantages of this system for editing purposes are extremely fast access to any point on the disc, elimination of dropout and very fast shuttle speed back and forth. Several digital formats of data storage exist, developed specifically for the disc recorder by the manufacturer, without a universal standard.

Digitizing Pad: A device that translates drawings from a tablet and stylus to a digital video format.

Disc: A flat circular plate, coated with a magnetic material, on which data may be stored by selective magnetization of portions of the surface. May be a flexible, "floppy" disc or rigid "hard" disc.

Dispersion: The characteristic of a light-conducting medium that causes

the medium to transmit light of different frequencies at different velocities. Dispersion causes the refractive index of a given medium to vary as a function of wavelength. As it relates to optical fiber, this property influences both the effective numerical aperture and the bandwidth of an optical fiber.

Display Order: The order in which the decoded pictures should be displayed. Normally this is the same order in which they were presented at the input of the encoder.

Distortion: Changing the size of a file in a non-proportional manner. Also known as "Anamorphic Scaling."

Distribution Amplifier (DA): A device used to replicate an input signal, typically providing 6 outputs, each of which is identical to the input. May also include delay and/or cable equalization capabilities.

Dither: A low level which is added to an analog signal prior to sampling. Typically consists of white noise of one quantizing level peak-to-peak amplitude.

DLC: Digital loop carrier. Multiplexed digital circuits which deliver digital information from a CO to an end user over twisted pair of copper wire phone lines.

Dolby: A technique developed by Dolby™ Laboratories which improves the signal-to-noise ratio of a recording by a nonlinear raise of the volume of specific frequencies in quiet passages before recording, and lowering them to their original levels during playback. The lowering process automatically reduces any noise that was introduced as a result of recording or playback.

DOT 1: A halftone dot (used in color separations). Halftone dots are often confused with pixels but the two are not related. Pixels have fixed size but variable density. Halftone dots have fixed density but variable size. This gives the illusion of a continuous tone image when viewed from a distance. There is no fixed relationship between the number of pixels and the number of halftone dots per inch, but a halftone dot can resolve detail smaller than itself (by varying its shape), so for best detail there should be at least twice as many pixels per inch as halftone dots.

DOT 2: The minimum addressable point in a dot matrix printer. Dot matrix printers build up an image as a mosaic of tiny dots, each of equal density. To express tone levels, these have to be formed into halftone dots.

DOT 3: A pixel in an input scanner or continuous tone output device (e.g., dye-sublimation printer). Scanner resolution is sometimes quoted in DPI (Dots Per Inch) but this can be misleading because here the word "dot" really means "pixel." When referring to a continuous tone scanner, DPI should be changed to PPI (Points Per Inch or Pixels Per Inch) or even to LPI (Lines Per Inch) to avoid confusion.

Dot Pitch: The distance in millimeters between individual dots on a monitor screen. The smaller the dot pitch the better, since it allows for more potential dots to be displayed, giving you better resolution.

Downlink: The communications path from a satellite to its ground station or from a transmitter to a studio.

Downstream Keyer: A keyer that inserts the key after the effects system video output. This enables the key to remain on-air while the background and effects keys are changed behind it.

DPI or DPM: Dots Per Inch (Pixels Per Inch) or Dots Per Millimeter. Can either relate to pixels in an input file or line screen dots (halftone screen) in a prepress output film. See DOT.

DRAM: Dynamic Random Access Memory. DRAM has to be refreshed at a periodic rate.

Drop-Frame Time Code: SMPTE time code format that continuously counts 30 frames per second but drops 2 frames from the count every minute except for every tenth minute (drops 108 frames every hour) to maintain synchronization of time code with clock time. This is necessary because the actual frame rate of NTSC video is 29.94 frames per second rather than an even 30 frames. See Non-Drop Frame Time Code.

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Dropout: A momentary loss or deterioration of video or audio during playback on a tape machine. Caused by momentary loss of tape contact with the playback head or by flaws in the tape.

DS0: Digital Service, Level 0: A standard for digital communications channels in North America which communicate at 64 Kbps.

DS1: A telephone company format for transmitting information digitally. DS1 has a capacity of 24 voice circuits at a transmission speed of 1.544 megabits per second.

DS3: A telephone company format for transmitting information digitally. DS3 has a capacity of 672 voice circuits at a transmission speed of 44.736 megabits per second.

Dubbing: Transcribing from one recording medium to another.

DVE: Abbreviation of Digital Video Effects. A registered trademark of Nippon Electric Company.

Dynamic Range: The difference between the smallest amount and the largest amount that a system can represent. The dynamic range of an EIM system is the difference between the lightest highlight and the D-Max that the system can scan, manipulate and write.

Edit Code: A tape retrieved code added to original recorded material utilizing a time structure—such as SMPTE time code.

EDL: Abbreviation of Edit Decision List.

E-E Mode: This stands for "electronics to electronics" and is a VTR mode in which the VTR processes the signals it would normally use during recording but does not actually record onto the tape.

EEPROM: Abbreviation of Electrically Erasable Programmable Read Only Memory. A type of memory chip that can hold data even when power is removed. The memory can be erased electronically so new data can be stored.

EFP: Abbreviation of Electronic Field Production, meaning to produce a video production in the field instead of in a studio.

EIA: Electronic Industries Association (formerly RMA or RETMA). The organization which determines recommended audio and video standards in the United States.

EIA Sync: RS-170 sync; the standard waveform for broadcast equipment in the United States.

Encoded: The encoded video signal is formed by starting with an RGB signal from the color television camera. This RGB signal is then processed through an I and Q encoder which converts the RGB into a composite NTSC signal. The encoded signal has all of the elements of the composite video signal: sync, burst, chroma and luminance.

Encoder: A device that superimposes electronic signal information on other electronic signals.

Encryption: The rearrangement of the bit stream of a previously digitally encoded signal in a systematic fashion to make unrecognizable the information until restored upon receipt of the necessary authorization key. This technique is used for securing information transmitted over a communication channel with the intent of excluding all other than authorized receivers from interpreting the message. Can be used for voice, video, and other communications signals.

ENG: Abbreviation of Electronic News Gathering. Using a portable video camera and recorder to record news events in the field.

Equalizer: 1. Equipment designed to compensate for loss and delay frequency effects within a system. 2. A component, or circuit, which allows for the adjustment of a signal across a given band.

External Key: A video key that uses an external key signal (a signal coming from a source outside the device in question) to cut the key hole and a separate fill signal to fill the hole.

Fiber Optic: A transmission designed to transmit signals in the form of

pulses of light. Fiber optic cable is noted for its properties of electrical isolation and resistance to electrostatic and electromagnetic interference.

Field: One-half of a television picture. One complete vertical scan of the picture, containing 262.5 lines. 2 fields make up a complete television picture (frame). The lines of Field 1 are vertically interlaced with Field 2 for 525 lines of resolution.

Fill: In video keying, the fill is the video signal that is inserted into the "hole" cut in the background video by a key signal. See Key.

Fill Light: A fill light is used in studio lighting to mask the "mistakes" created by the individual doing the lighting. It is the job of the fill light to cover up and fill the shadow created by the key light.

Film Recorder: A device for converting digital data into film output. Continuous tone recorders produce color photographs, either as transparencies, prints or negatives. Halftone recorders produce film with halftone dots that can be used to make printing plates.

FITL: Fiber in the loop. Telco term for fiber deployment in the local subscriber loop.

Flash Memory: Non-volatile, digital storage. Flash memory has slower access than SRAM or DRAM.

Flat Bed Scanner: An optical scanner that moves the original image and keeps the sensors (usually a CCD array) in place.

Flicker: An annoying picture distortion, mainly related to vertical syncs and video fields display. Some flicker normally exists due to interlacing; more apparent in 50Hz systems (PAL). Flicker shows also when static images are displayed on the screen, i.e., computer generated text transferred to video. Poor digital image treatment, found in low quality system converters (going from PAL to NTSC and vice versa) creates an annoying flicker on the screen. There are several electronic methods to minimize flicker.

F Number: In lenses with adjustable irises, the maximum iris opening is expressed as a ratio (focal length of the lens)/(maximum diameter of aperture). This maximum iris will be engraved on the front ring of the lens.

Focal Length: The distance from the center of the lens to a plane at which point a sharp image of an object viewed at an infinite distance from the camera is produced. The focal length determines the size of the image and the angle of the field of view seen by the camera through the lens. That is the distance from the center of the lens to the pickup device.

Forced Foreground: A feature of some keyers. Uses a mask to force key fill video to appear wherever the mask occurs and completely inhibit background video.

Format: In recording of video, C, U Matic, Betacam, M, Betacam SP, MII, D1, D2, D3, D5, Digital Betacam, Beta, VHS, Hi8, 8mm and S-VHS are all current formats.

Forward Compatible: A new coding standard is forward compatible with an existing coding standard if new decoders (designed to operate with the new coding standard) continue to be able to decode bitstreams of the existing coding standard.

Frame: 1. The total area of the picture which is scanned while the picture signal is not blanked. 2. A complete TV picture consisting of 2 fields; a total scanning of all 525 lines of the raster area; occurs every $\frac{1}{60}$ of a second (625 lines, $\frac{1}{50}$ sec. in Europe and many other countries).

Frame Buffer: Memory used to store a complete frame of video.

Frame Rate: The rate at which frames are being displayed.

Frame Relay: A type of fast packet switching technology with simplified error detection capability. It requires more intelligence to reside in the receiving terminal.

Frame Synchronizer: A digital buffer that, by storage and comparison of sync information to a reference, and timed release of video signals, can continuously adjust the signal for any timing errors.

GLOSSARY



Frequency: The number of complete cycles of a periodic waveform that occur in a given length of time. Usually specified in cycles per second (Hertz).

Frequency Modulation (FM): Modulation of a sine wave or "carrier" by varying its frequency in accordance with amplitude variations of the modulating signal.

Fresnel Lens: A specially constructed lens which produces a soft-edged concentration of light; used as a lens in a spotlight lamp housing.

Front Porch: The blanking signal portion which lies between the end of the active picture information and the leading edge of horizontal sync.

FSN: Full Service Network. A switched digital network system that combines voice, data and video delivery over a single "pipe."

FTTC: Fiber to the curb. Installation of optical fiber stopping just short of the home.

Gain: Any increase or decrease in strength of an electrical signal. Gain is measured in terms of decibels or number of times of magnification.

Gamma Correction: A process used with video and computer graphics images to correct brightness and internal microcontrast within the image. Gamma correction allows a change of ratio between the brightest red component in an image and the weakest red.

Gamut: The range of voltages allowed for a video signal, or a component of a video signal. Signal voltages outside of the range (i.e., exceeding the gamut) may lead to clipping, crosstalk or other distortions.

Gate: 1. A signal used to trigger the passage of other signals through a circuit. 2. A digital logic device whose output state depends on the states of the logic signals presented to its inputs.

smeasured in terms of decibels or number of times of magnification.

Gbps: Gigabits per second. Billion bits per second.

General Purpose Interface (GPI): 1. A parallel interconnection scheme that allows remote control of certain functions of a device. One wire per function. 2. May also refer to any non-specific interface between equipment. Usually refers to a serial connection (RS-232 or RS-422 format) between computer modules.

Generations: The number of times a video clip is copied or processed. In analog systems, extensive efforts are made to keep generations to a minimum, since each copy or process adds noise and other artifacts.

Genlock: Genlock is a process of sync generator locking. This is usually performed by introducing a composite video signal from a master source to the subject sync generator. The generator to be locked has circuits to isolate vertical drive, horizontal drive and subcarrier.

Geostationary Orbit: An orbital location of a communications satellite fixed above the earth's equator at 22,300 miles out. The satellite's position is constant relative to a point on the earth.

Ghost: A shadowy or weak image in the received picture, offset either to the right or to the left of the primary image. It is the result of transmission conditions where secondary signals are created and received earlier or later than the primary signal caused by a reflected RF signal.

GHz: GigaHertz. One billion cycles per second.

Gigabyte: Unit of computer memory consisting of about one thousand million bytes (a thousand megabytes). Actual value is 1,073,741,824 bytes.

Gray Scale: A series of tones which range from true black to true white, usually expressed in 10 steps.

Grid: A crosshatch of metal pipes for hanging lights in a studio.

Ground Loop: A condition when two or more paths to ground exist and

a voltage is induced unequally in these paths, causing interference, such as hum, buzz or noise.

GUI: Graphic User Interface. A computer software system that relies on menus, icons, and a pointing device (mouse) for user interaction. The foundation for the Macintosh™ personal computer and IBM PCs operating with Microsoft Windows™ 3.0.

H Blanking Width: The width in terms of time occupied by horizontal blanking. The period of time from the end of active video of one line to the beginning of active video of the next line. During this time, the electron beam in a camera or monitor is turned off as it returns or retraces to the other side of the raster to begin a new scan.

HDTV: High Definition Television. The SMPTE in the USA and BTA in Japan have proposed a high definition television product standard: 1125 lines at 60Hz field rate 2:1 interlace; 16:9 aspect ratio; 30MHz RGB and luminance bandwidth; tri-level syncs.

Headend: The electronic equipment located at the start of a cable television system, usually including antennas, earth stations, preamplifiers, frequency converters, demodulators, modulators and related equipment.

Helical Scan: A method of recording video information on a tape, most commonly used in home and professional VCRs.

HGA: Hercules Graphics Adaptor.

Hi-Color: An advanced computer graphics format, beyond VGA and Super VGA, allowing a display of 32,000 colors on the screen at 640 x 480 and 800 x 600 pixels resolution. An even higher number of simultaneous colors displayed on the screen—64,000—is also offered by some card manufacturers. The number of color shades simultaneously displayed on the screen exceeds the color resolution of the human eye, which can resolve about 4000 different color shades.

Hi8: 8mm professional NTSC recording format.

Horizontal Drive also Horizontal Sync: This signal is derived by dividing subcarrier by 227.5 and then doing some pulse shaping. The signal is used by monitors and cameras to determine the start of each horizontal line.

Horizontal Resolution: Chrominance and luminance resolution (detail) expressed horizontally across a picture tube. This is usually expressed as a number of black to white transitions or lines that can be differentiated. Limited by the bandwidth of the video signal or equipment.

Horizontal Retrace: At the end of each horizontal line of video, a brief period when the scanning beam returns to the other side of the screen to start a new line.

Horizontal Sync Pulse: The synchronizing pulse at the end of each video line that determines the start of horizontal retrace.

House Sync: Television sync generated within the studio and used as a reference for generating and/or timing other video signals.

H Phase: 1. The horizontal phase relationship of one piece of equipment to another for studio timing purposes. 2. The phase of horizontal sync in relation to subcarrier. See SC/H phase.

Hue (Tint, Phase, Chroma Phase): One of the characteristics that distinguishes one color from another. Hue defines color on the basis of its position in the spectrum, i.e., whether red, blue, green or yellow, etc. Hue is one of the 3 characteristics of television color: see also Saturation and Luminance. In NTSC and PAL video signals, the hue information at any particular point in the picture is conveyed by the corresponding instantaneous phase of the active video subcarrier.

Humbucker: A circuit (often a coil) that introduces a small amount of voltage at power line frequency into the video path to cancel unwanted AC hum.

Hybrid Circuit: A circuit that looks very much like a subminiature printed



circuit board and is composed of a mix of thick film and surface mounted components. Hybrids make possible improved performance, extended reliability and economy of space. Use of hybrids permits design of equipment such as entire processing amplifiers (GVG 7510 Series) on single PC modules.

Icon: In a Graphical User Interface (GUI), an on-screen symbol that represents a program file, data file or some other computer entity or function.

IEEE: Institute of Electrical and Electronic Engineers.

IEEE Scale: A waveform monitor scale with the IEEE standards and the recommendations of the TV Broadcasters and Manufacturers for coordination of Video Levels.

Impedance: The total of the resistive and reactive opposition, measured in ohms, that a circuit presents to the flow of alternating current at a given frequency.

Input Scanner: An optical device used to convert drawings or photographs into high resolution digital data. Various types including "array," "drum" and "flying-spot" use different methods to illuminate the image in a pattern of parallel lines or "raster." The reflected or transmitted light is analyzed through red, green and blue filters and digitized into a stream of "pixels." The digital signal can be stored for later processing or sent directly to a film recorder. Input scanners vary in sharpness, color fidelity, speed, cost and ease of operation. High level models allow full control of tone, color and sharpening plus the option to produce either CMYK or RGB signals. Lower priced models are RGB only and may deliver generally lower quality.

Interactive: Involving the active participation of the user in directing the flow of the computer or video program. A system which exchanges information with the viewer, processing the viewer's input in order to generate the appropriate response within the context of the program—as opposed to a *linear* program in which the viewer passively watches from beginning to end.

Interface: 1. To connect two or more components to each other so the signal from one is supplied to the other(s). Feeding a signal between units that run on different standards. 2. The place where two systems or a major and a minor system meet and interact with each other.

Interlaced: Short for interlaced scanning. Also called line interlace. A system of video scanning whereby the odd- and even-numbered lines of a picture are transmitted consecutively as two separate interleaved fields.

Interlaced Scanning: A bandwidth reducing technique in which each adjacent line of a complete picture (one frame) is transmitted, processed and displayed in alternate fields.

Intermodulation Distortion (IMD): Distortion that results when two or more pure tones produce new tones with frequencies representing the sum and/or difference of the original tones and their harmonics.

Interpolation: In digital video, the creation of new pixels in the image by some method of averaging the values of neighboring pixels. This is necessary when an image is digitally altered, such as when the image is expanded or compressed.

IOD: Information on demand.

IRE (Institute of Radio Engineers): Units of measurement dividing the area from the bottom of sync to peak white level into 140 equal units. 140 IRE equals 1 V p-p. The range of active video is 100 IRE.

Iris: The amount of light transmitted through a lens is controlled by an adjustable diaphragm, or iris, located in the lens barrel. The opening is referred to as the aperture, and the size of the aperture is controlled by rotating the aperture control ring on the lens barrel. The graduations on the lens barrel are expressed in terms of the focal length *f* of the lens divided by the diameter of the aperture at that setting. This ratio is called the *f*-number.

ISDN: Integrated Services Digital Network. A CCITT standard for integrated transmission of voice and data. Bandwidths include basic rate (144 Kbps) and primary rate 1.544 (North America) and 2.048 (Europe).

ITV: Interactive TV. A service to allow viewers to interact with televised programming. For example, a viewer could play along with a game show, choose which camera to view during a sports event, or request additional information from an advertiser.

IVDS: Interactive Video Delivery System. Interactive video services delivery that is radio based. The FCC has started lotteries for 2 providers per broadcast in major market areas. Winners are allotted 0.5MHz of spectrum (between 218.0 and 219.0 MHz).

Jitter: Small and rapid variations in a waveform due to mechanical disturbances, changes in the characteristics of components, supply voltages, imperfect synchronizing signals, circuits, etc.

JPEG/MPEG: Standards of storage and retrieval of compressed still and video images, as used in multimedia, video and computer graphics applications. The standards are based on specific hardware and software algorithms.

Kbps: Kilobits per second. Thousand bits per second.

Kelvin: Also expressed as Kelvins or K, the unit of measurement of the temperature of light. In color recording, light temperature affects the color values of the lights and the scene that they illuminate.

Key: 1. Also called key source or key cut. A signal that can be used to electronically "cut a hole" in a video picture to allow for insertion of other elements such as text or another video image. The key signal is a switching or gating signal for controlling a video mixer which switches or mixes between the background video and the inserted element. 2. The composite effect created by cutting a hole in one image and inserting another image into the hole.

Key Frame: An effect that has been stored in memory, similar to a snapshot photograph. Individual key frames can be strung together to create an overall key frame effect similar to animation.

Keying: The process of replacing part of one television image with video from another image, i.e., chroma keying and insert keying.

Key and Back Lights: Key and back lights provide the main source of illumination on the subject from the front, side and rear. The most important lighting fixtures in the studio, they must provide maximum variety in beam shape and size and be easily adjusted to meet different lighting requirements.

K Factor: A specification rating method that gives a higher factor to video disturbances that cause the most observable picture degradation.

KHz: Kilohertz. Thousand Hertz.

Kilobaud: A unit of measurement of data transmission speed equalling 1000 baud. See Baud.

Kilobyte: 1024 bytes (2¹⁰).

LAN: Local area network.

LASER: Stands for Light Amplification by Stimulated Emission of Radiation. A device that utilizes the natural oscillations of atoms or molecules between energy levels for generating coherent electromagnetic radiation in the form of light waves generally in the ultraviolet, visible or infrared regions of the spectrum.

Latency: Signal delays introduced due to end-to-end signal processes (e.g. codec signal processing, protocol conversions, etc.).

Layering: Combining several video sources into an effect at one time. Each layer of video can be cropped, keyed, sized, positioned or made





transparent to expose the source video of the next lower layer.

Legal Signal: A video signal in which each component remains within the limits specified for the video signal format (i.e., does not exceed the specified gamut for the current format).

Level: In MPEG, a level is a defined set of constraints on the values which may be taken by the parameters of this specification within a particular profile. A profile may contain one or more levels.

Level 1 Gateway: Video dial tone related term defined by the FCC. A telco's Level 1 Gateway service provides basic tariffed common carrier service (including transport, switching and interconnection) between a customer and a video programming service provider.

Level 2 Gateway: Video dial tone related term defined by the FCC. The Level 2 Gateway is an optional telco video gateway offering enhanced services which are not subject to tariff regulation. A telco cannot provide its own video programming but it can determine which video programmers participate in its video dial tone gateway. Level 2 Gateway may include premise equipment (e.g. set top box) as part of the service offering to customers.

Light-Emitting Diode (LED): A junction device that emits light when biased in the forward direction.

Linear Key: A luminance key effect in which the shaping of key source edges is preserved to take full advantage of anti-aliased character generators and digital video effects devices which generate shaped key signals. A linear (input=output) key control signal from an external device controls the multiplier that is inserting the key.

Line Time Linear Distortion: An unwarranted change in video signal amplitude that occurs in a time frame between 1 and 20µs. The result is a gradual left-to-right shading of the TV picture.

Liquid Crystal Display (LCD): A screen for displaying text/graphics based on a technology called liquid crystal, where minute currents change the reflectiveness or transparency of the screen. The advantages of LCD screens are: very small power consumption (can be easily battery driven) and low price of mass-produced units. The disadvantages are: narrow viewing angle, slow response (a bit too slow to be used for video), invisibility in the dark unless the display is backlit, and difficulties displaying true colors with color LCD displays.

Local Loop/Local Subscriber Loop: Telecom circuit providing connectivity between subscriber and the local central office switching center.

Looping: A term indicating that a high impedance device has been permanently connected in parallel to a video source.

Loss Budget: 1. The amount of anticipated signal loss over a given fiber optic path, including attenuation, connector loss, splice loss and other losses. 2. The amount of signal loss fiber optic transmission equipment can sustain before exceeding the operating specifications.

LTC (Longitudinal Time Code): Another expression for the SMPTE time code signal recorded onto the third audio track of a videocassette tape.

Lumen: A measurement of light quantity, taken at the source of light against a predetermined constant. Lumens per square foot equals footcandles.

Luminance: The measurable, luminous intensity of a video signal. Differentiated from brightness in that the latter is non-measurable and sensory. The color video picture information contains 2 components: luminance (brightness and contrast) and chrominance (hue and saturation). The photometric quantity of light radiation.

Luminance Key: A key effect in which the portions of a key source that are greater in luminance than the clip level cut a hole in the background video.

LUT/Look Up Table: A cross-reference table in the computer memory that transforms raw information from the scanner or computer and corrects values to compensate for weakness in equipment or for differences in emulsion types.

Lux: A unit of measuring the intensity of light. (1 FC-10.76 lux).

MII (M2), MII Format: Second generation camera/recorder system developed by Panasonic; also used for just the recorder or the interconnect format. MII uses a version of the (Y, R-Y, B Y) component set.

MAC: Multiplexed Analog Components; a system in which the components are time multiplexed into one channel using time domain techniques, i.e., the components are kept separate by being sent at different times through the same channel. There are many different MAC formats and standards.

Mask: A temporary stencil restricting the action of various functions to a selected area within the picture. Masks can be drawn manually (with a stylus or mouse) or created automatically keyed to specific density levels or hue values in the picture, similar to photographic lith masking in an enlarger. In some systems the mask is also referred to as a feature.

Match-Frame Edit: An edit in which a scene already recorded on the master is continued with no apparent interruption.

Matrix: A logical network configured in a rectangular array of intersections of input/output leads. In routing switchers, a signal switching frame configured such that any frame input may be selected at any frame output. In a color television set or an encoded chroma keyer, the section that combines the luminance and color signals and transforms them into individual red, green and blue signals. In the TV set, these signals are then applied to the picture-tube grids. In the encoded chroma keyer, these signals are used to generate a chroma key.

Matte: A solid color signal that may be adjusted for chrominance, hue and luminance. Matte is used to fill areas of keys and borders.

Matte Generator: A video generator that produces a solid-color output which can be adjusted for hue, chroma and luminance.

MBps: Megabytes per second. Million bytes per second or 8 million bits per second.

Mbps: Megabits per second. Million bits per second.

Megabyte: Unit of measurement for computer memory consisting of approximately one million bytes. Actual value is 1,048,576 bytes. Kilobyte x Kilobyte = Megabyte.

Megahertz (MHz): One million hertz.

Metal Tape: Tape using iron in its pure metallic form, instead of as an oxide, and offering excellent frequency response and wide dynamic range.

MFM: Multicarrier Frequency Modulation. FM radio and TV are examples of MFM.

Microsecond (µS): One millionth of a second. 1×10^6 or 0.000001 second.

Microwave: Electromagnetic waves with frequencies above one GigaHertz. Used for line-of-sight, point-to-point or point-to-multipoint transmission of signals.

Mix/Effects (M/E): A subsystem of a video production switcher where a composite of 2 or more images can be created. Each M/E typically includes crosspoint buses, keyer(s) and mixer.

MMDS: Multipoint Multichannel Distribution Systems. A video delivery system that uses microwave radio channels to broadcast signals over relatively small distances.

Modem: Modulator/demodulator. A device that uses frequency shift keying to modulate a low rate digital signal onto a carrier suitable for telephone line transmission. It can also receive low rate digital signals by demodulating the received carrier.

Modulation: The process by which some characteristic (i.e. amplitude, phase) of one RF wave is varied in accordance with another wave (message signal).



GLOSSARY



Moire: 1. A wavy or satiny effect produced by the convergence of lines. It usually appears as a curving of the lines in the horizontal wedges of a test pattern. It is a natural optical effect when converging lines in a television picture are nearly parallel to the scanning lines. 2. Optical disturbance caused by interference of similar frequencies.

Monitor: 1. A television that receives its signal directly from a VCR, camera or separate TV tuner for high quality picture reproduction. Does not contain a channel selector. 2. A special type of television receiver designed for use with closed circuit TV equipment.

Monochrome: Black and white video. A video signal that represents the brightness values (luminance) in the picture, but not the color values (chrominance).

Montage Effect: In digital picture manipulators, a recursive effect that develops overtime. A composite picture made up of several different key frame pictures.

Mosaic Effect: In digital picture manipulators, an effect where the picture seems to be made up of a number of small squares or tiles.

MPEG1: Standard (1991) for compressing (in principal) progressive scanned images. Bit rate is 1.5 Mbps.

MPEG2: Upcoming standard for compression of progressive scanned and interlaced video signals over a large range of compression rates with a range of bit rates from 1.5 to 100 Mbps.

Multiplex: 1. A technique for transmitting two or more signals at the same time or on the same carrier frequency. 2. To combine two or more electrical signals into a single composite signal.

Multiplexer: An optical system allowing a number of film and slide projectors to feed video information into the same video camera.

Multiscan Monitor: A monitor (mainly for computer uses) which synchronizes to different sync frequencies, allowing the use of different graphics formats on a single monitor, provided the proper graphics card is used.

Musicam: MPEG1/MPEG2 sanctioned audio encoding system.

Narrow Band: A narrow frequency band typically comparable to the 3KHz bandwidth of a telephone channel.

Nanometer: 1×10^9 meter. Used in telecommunications as a measurement of signal wavelength.

Neutral Colors: The range of gray levels, from black to white, but without color. For neutral areas in the image the RGB signals will all be equal, in color difference formats the color difference signals will be zero.

Node: A branching or exchange point for networks.

Noise Gate: Sophisticated circuitry which discriminates between unwanted low energy noise signals and the signal being processed. Noise gates and automatic noise gates are integrated into high quality processing devices.

Non-Drop Frame Time Code: SMPTE time code format that continuously counts a full 30 frames per second. Because NTSC video does not operate at exactly 30 frames per second, non-drop frame time code will count 108 more frames in one hour than actually occur in the NTSC video in one hour. The result is incorrect synchronization of time code with clock time. Drop frame time code solves this problem by skipping or dropping 2 frame numbers per minute except at the tens of the minute count.

Non-Interlaced: The process of scanning whereby every line in the picture is scanned during the vertical sweep.

Nonlinearity: The amount by which the measured output video signal, subjected to any load within its capacity, differs from an ideally linear output.

Notch Filter: An arrangement of electronic components designed to

attenuate a specific frequency band. Also called a "band stop filter."

NTSC (National Television Systems Committee): Organization that formulated standards for the NTSC television system. Now describes the American system of color telecasting which is used mainly in North America, Japan and parts of South America. NTSC television uses a 3.57945MHz subcarrier whose phase varies with the instantaneous hue of the televised color and whose amplitude varies with the instantaneous saturation of the color. NTSC employs 525 lines per frame and 59.94 fields per second.

NTSC Color Bars: A pattern generated by the NTSC Generator, consisting of 8 equal width color bars. Colors are white (75%), black (7.5% setup level), 75% saturated pure colors red, green, and blue, and 75% saturated hues of yellow, cyan, and magenta (mixtures of 2 colors in 1:1 ratio without third color).

Numerical Aperture: A number that defines the light gathering ability of a specific fiber. The numerical aperture is equal to the sine of the maximum acceptance angle.

NVOD: Near video on demand. Transmission of a program such as a movie at frequent intervals so that the wait time is minimized. The availability simulates VOD although true VCR functionality such as pause, fast forward, and rewind are not available. A pseudo-pause may be offered by allowing the viewer to switch to the next closest scheduled playing time if they wish to pause their viewing.

Off-Line Editing: Editing that is done using inexpensive, non-broadcast quality equipment to produce an edit decision list (EDL) which will be used later for assembling a broadcast quality program using more expensive, high quality equipment.

Ohm: The unit of resistance. The electrical resistance between 2 points of a conductor where a constant difference of potential of 1V applied between these points produces in the conductor a current of 1A, the conductor not being the source of any electromotive force.

On-Line Editing: Final editing session in which the finished program master is assembled from the original production material.

On-Line Storage: Storage of large amounts of digital data on devices that are permanent parts of the network, thus permitting rapid retrieval of the data. Magnetic discs that provide "random access" are usually used for this purpose.

ONU: Optical network unit: Optical to electrical signal converter.

Optical Scanner: A device that analyzes the light reflected from or transmitted through copy, art or film, and produces an electronic signal proportional to the intensity of the light or color. The scanner converts each picture element into a number.

Output Impedance: The impedance a device presents to its load. The impedance measured at the output terminals of a transducer with the load disconnected and all impressed driving forces taken as zero.

Overscan: A video monitor condition in which the raster extends slightly beyond the physical edges of the CRT screen, cutting off the outer edges of the picture.

P-picture: Prediction-coded picture. An MPEG term to describe a picture that is coded using motion compensated prediction from the past reference picture.

Packet Switching: A type of data communications in which small defined blocks of data, called packets, are independently transmitted from point to point between source and destination, and reassembled into proper sequence at the destination.

PAL (Phase Alternate Line): The name of the color television system in which the E_y component of burst is inverted in phase from one line to the next in order to minimize hue errors that may occur in color



transmission. PAL-B (also called PAL-I) is a European color TV system featuring 625 lines per frame, 50 fields per second and a 4.43361875MHz subcarrier. Used mainly in Europe, China, Malaysia, Australia, New Zealand, the Middle East and parts of Africa. PAL-M is a Brazilian color TV system with phase alternation by line, but using 525 lines per frame, 60 fields per second and a 3.57561149MHz subcarrier.

Peak-to-Peak (p-p): The amplitude (voltage) difference between the most positive and the most negative excursions (peaks) of an electrical signal.

Pedestal: 1. In the video waveform, the signal level corresponding to black. Also called setup. 2. A pulse (usually with a flat peak) that elevates the base level of another waveform.

Perspective: A digital picture manipulator effect that modifies an object's shape in order to create the illusion of disappearing points.

Phase (Chroma Phase, Hue, Tint): The relative timing of a signal in relation to another signal. If the time for one cycle of a signal is represented as 360° along a time axis, the phase position for the second signal is called phase angle expressed in degrees. The subcarrier phase of TV colors can be adjusted and this changes the hue of the colors themselves.

Phase Locked Loop (PLL): A circuit containing an oscillator whose output phase or frequency locks onto and tracks the phase or frequency of a reference input signal. To produce the locked condition, the circuit detects any phase difference between the 2 signals and generates a correction voltage that is applied to the oscillator to adjust its phase or frequency.

Photo Multiplier (PM): A highly light-sensitive device. Advantages are its fast response, good signal-to-noise ratio and wide dynamic range. Disadvantages are fragility (vacuum tube), high voltage and sensitivity to interference. PM scanners give higher resolution, better shadow and highlight detail and faster productivity than other types. PMT/Photo-multiplier tube technology is basically older vacuum tube technology.

Pipe: General term to indicate any type of fixed transmission media such as twisted pair, coax or fiber.

Pixel or Picture Element: The smallest visual unit that is handled in a raster file, generally a single cell in a grid of numbers describing an image (see Raster). In a component system, care should be taken to define a pixel as each individual sample of luminance or chrominance or "Picture Element." "Square" pixels result when an image is scanned with equal resolution in both directions, i.e., the scanning frequency (number of scan lines per inch) is equal to the sampling frequency (number of samples per inch along the scan line). When scanning frequency is not equal to sampling frequency, rectangular pixels result.

PLUGE (Black Set): Abbreviation for picture line-up generation equipment used for aligning monitors and other video devices. In some versions of color bars, PLUGE is the black set at the bottom of the red bar that contains bars that are blacker than black, black, and whiter than black. Used to adjust monitor brightness by watching the PLUGE so that the whiter than black bar is just visible and both the black and blacker than black bars are no longer distinct.

PMT (Photo Multiplier Tube): A device that can sense light in a very small quantity and convert the light into proportional electrical voltages (see Photo Multiplier).

PON: Passive optical network. Fiber in the loop technology for splitting the signal strength of a laser transmitter to serve multiple photodetector receivers.

POP: Point of presence. Long distance company switching centers which connect to LEC networks.

Posterize, Posterization: A digital video effect where all possible colors are converted to as few as 4 different colors, producing a poster effect.

Preroll: A specific amount of time allowed for tape machines to run prior to an edit in order to get them up to speed and synchronized for the edit. In preparation for the edit, tapes are cued to a point ahead of the

edit point to provide a proper preroll. The amount of preroll required varies with each type of VTR.

Preview Bus: A standard function on better quality video special effects generators which allows the operator to select any of the video sources attached to the device and to set up and preview all special effects prior to actual use. The preview bus is operated through a series of switches on the special effects generator, each of which is assigned to a specific input. Each input signal can be previewed on its own monitor by pressing the relevant switch. This is a rapid and effective method to check work before going on the air.

Primary Colors: A small group of colors that, when combined, can produce a broad spectrum of other colors. In television, red, green and blue are the primary colors from which all other colors in the picture are derived.

Program Bus: In video and audio switchers, a row of crosspoint pushbuttons used to select the on-air video or audio background output of the switcher or mix/effects. Also called program background bus.

Programmable General Purpose Interface (GPI): An interconnection scheme (usually serial) that allows remote control of certain selectable functions of a device by some other device that can be programmed to select the desired functions.

PROM: Abbreviation of Programmable Read Only Memory. A ROM that can be programmed by the equipment manufacturer (rather than the PROM manufacturer).

Pulse: A current or voltage which changes abruptly from one value to another and back to the original value in a finite length of time. Used to describe one particular variation in a series of wave motions.

Pulse Distribution Amplifier: An amplifier designed to boost the strength of the sync as well as other control signals to the proper level for distribution to a number of cameras, special effects generators and terminal equipment.

QAM: Quadrature Amplitude Modulation. Method for modulating two carriers. The carriers can be analog or digital.

Quantizing: The process of sampling an analog waveform to convert its voltage levels into digital data.

Radio Frequency (RF): A term used to describe incoming radio signals to a receiver or outgoing signals from a radio transmitter (above 150Hz). Even though they are not properly radio signals, TV signals are included in this category.

RAM (Random Access Memory): The part of a computer's memory that may be used for temporary storage of information, with data accessible independent of position on the mass storage medium. This is the computer's "work area." A higher RAM memory usually offers faster image manipulation or faster background processing in high resolution retouching systems.

Ramp: A video test signal that graduates from low luminance to high luminance used to measure luminance linearity.

Raster: 1. Pixel based image information file, in which the image is expressed by a very fine grid of numerical brightness values. Each grid cell, or pixel, is stored as a set of numbers for CMYK, RGB, or intensity, hue and saturation values. Content of image, tint and hue are recorded pixel by pixel in order of location.

Read Before Write: A feature of some videotape recorders that plays back the video or audio signal off of tape before it reaches the record heads, sends the signal to an external device for modification, and then applies the modified signal to the record heads so that it can be re-recorded onto the tape in its original position.

Reflected Light: The scene brightness or the light being reflected from a



scene. Usually it represents 5 to 95% of the incident light, and it is expressed in footlamberts.

Registration: An adjustment associated with color sets and projection TVs to ensure that the electron beams of the 3 primary colors of the phosphor screen are hitting the proper color dots/stripes; also, a similar adjustment of the tubes in color cameras.

Repeater: 1. A receiver/transmitter that receives a signal from another transmitter and relays (retransmits) it to another receiver or a receiver/transmitter. 2. In fiber optics, a device that converts a received optical signal to its electrical equivalent, reconstructs the source signal format, amplifies and reconverts it to an optical output signal. The purpose is to restore the light amplitude, compensating for normal loss in fiber.

Resolution: A measure of the ability of a camera or television system to reproduce detail—the number of picture elements that can be reproduced with good definition.

Retrace: The return of the electron beam in a CRT to the starting point after scanning. During retrace, the beam is typically turned off. All of the sync information is placed in this "invisible" portion of the video signal. May refer to retrace after each horizontal line or after each vertical scan (field).

RGB, RGB Format, RGB System: Red, Green and Blue: The basic parallel component set in which a signal is used for each primary color; or the related equipment or interconnect formats or standards. The same signals may also be called "GBR" as a reminder of the mechanical sequence of connections in the SMPTE interconnect standard.

RIP (Raster Image Processor): Used to convert vector images to raster images in computers using both kinds of image files.

Rise Time: The time taken for a signal to make a transition from one state to another; usually measured between the 10% and 90% completion points of the transition. Shorter or "faster" rise times require more bandwidth in a transmission channel.

RMS: Abbreviation of Root Mean Square. A measure of effective (as opposed to peak) voltage of an AC waveform. For a sine wave it is 0.707 times the peak voltage. For any periodic waveform, it is the square root of the average of the squares of the values through one cycle.

ROM: Abbreviation of Read Only Memory. A memory device that is programmed only once with a permanent program or data that cannot be erased.

Routing Switcher: An electronic device that routes a user-supplied signal (audio, video, etc.) from any input to any user-selected output. Inputs are called sources. Outputs are called destinations.

RP-125: A SMPTE parallel component digital video standard.

RS-170A: A document prepared by the Electronics Industries Association describing recommended practices for NTSC color television signals in the United States.

RS-232: A standard, single-ended (unbalanced) interconnection scheme for serial data communications.

RS-250B: In telecommunications, a transmission specification for NTSC video and audio.

RS-422: A standard, balanced interconnection scheme for serial data communications.

Safe Title Area: 80% of the TV screen, from the center of the screen; that area of the display screen (and therefore of the camera scanning area) which will reproduce legible title credits no matter how it is adjusted.

Satellite Downlink: The communications path from a satellite to its ground station.

Satellite Uplink: The communications path from a ground station to its satellite.

Saturation (Chroma, Chroma Gain, Color): 1. The intensity of the colors in the active picture. The voltage levels of the colors. The degree by which the eye perceives a color as departing from a gray or white scale of the same brightness. A 100% saturated color does not contain any white; adding white reduces saturation. In NTSC and PAL video signals, the color saturation at any particular instant in the picture is conveyed by the corresponding instantaneous amplitude of the active video subcarrier. 2. The point on the operational curve of an amplifier at which an increase in input amplitude will no longer result in an increase in amplitude at the output.

Scalability: Characteristic of a compression algorithm that permits the decoding of subsets of the total stream. In the case of scalable video decoding, the picture quality of the decoded subset is commensurate with the amount of information bits that the subset carried. In MPEG, the minimum subset that can be decoded is called the base layer. Each of the other bitstreams in the set is called an enhancement layer.

Scanning: The rapid movement of the electron beam in a pickup device of a camera or in the CRT of a television receiver. It is formatted in a line-for-line manner across the photo sensitive surface which produces or reproduces the video picture. When referred to a video surveillance field, it is the panning or the horizontal camera motion.

SC/H Phase (Subcarrier to Horizontal Phase): In NTSC video, the phase relationship of the subcarrier to the leading edge of horizontal sync. SC/H phase is correct when the zero crossing of subcarrier is aligned with the 50% point of the leading edge of sync. In PAL video, the SC/H phase is defined as the phase of the E_U component of the color burst extrapolated to the half amplitude point of the leading edge of synchronizing pulse of line 1 of field 1.

Scoop: A large bowl shaped unit—often made of aluminum—into which a lighting unit is placed so that it will reflect light over a wide area.

SCSI: Small computer systems interface.

SECAM: Abbreviation of Sequential Couleur Avec Memoire (sequential color with memory). A color television system with 625 lines per frame and 50 fields per second developed by France and the U.S.S.R. Color difference information is transmitted sequentially on alternate lines as an FM signal.

Sepia: A process used in photography to generate a brownish tone in pictures, providing an "antique" appearance. The same idea has been electronically adapted in video special effects generation. A color picture or a black and white picture can be colored in sepia.

Sequential Assembly: In video editing, a sequential method of auto assembly. The computerized editing system records all edits listed in the edit decision list in order from first to last, requesting source tapes as they are needed. Also called A-mode assembly. See also Auto Assembly.

Serial: Time-sequential transmission of data along a single wire. Analogous to a railroad train, where each car (data bit) follows the other in single file.

Serial Digital: Digital information that is transmitted in serial form. Often used informally to refer to serial digital television signals.

Serial Interface: A digital communications interface in which data is transmitted and received sequentially along a single wire or pair of wires. Common serial interface standards are RS-232 and RS-422.

Serializer: A device that converts parallel digital information to serial.

Serial Port: A computer I/O (Input/Output) port through which the computer communicates with the external world. The standard serial port is RS-232 based and allows bi-directional communication on a relatively simple wire connection as data flows serially.

Setup (Black Reference, Black Level): 1. The specified base of the active picture signal which is at reference black level. Called setup because it is placed 7.5 IRE units above blanking (zero IRE) in NTSC video. 2. The basic operating configuration of a system.

SGO: Second Generation Original or Second Original. Usually refers to a





film output made from a computer data file that represents image quality as good as the original camera transparency or negative.

Sidebands: The frequency bands on both sides of a carrier within which the energy produced by the process of modulation is carried.

Signal-to-Noise Ratio—S/N: A S/N ratio can be given for the luminance signal, chrominance signal and audio signal. The S/N ratio is the ratio of noise to actual total signal, and it shows how much higher the signal level is than the level of noise. It is expressed in decibels (dB), and the bigger the value is, the more crisp and clear the picture and sound will be during playback.

Single-Mode Fiber: An optical glass fiber that consists of a core of very small diameter (usually 2-10 microns) and a cladding approximately 20 times the thickness of the core. Such fibers are normally used only with laser sources because of their very small acceptance cone. Since the cone diameter approaches the wavelength of the source, only a single mode is propagated.

Skewing: Due to loss or distortion of equalizing pulses and serrations found mainly in multi-generation videotapes, the upper third of the video picture is "flagging" sidewise or skewing. To overcome the problem for consumer equipment, the television is equipped with an "AV channel." Selecting this channel for VCR viewing purposes changes certain time constants in the sync regeneration circuits, allowing viewing without skewing. In the professional studio this problem is solved using a TBC.

SMPTE: Society of Motion Picture and Television Engineers.

SMPTE Time Code: Time code that conforms to SMPTE standards. It consists of an 8-digit number specifying hours: minutes: seconds: frames. Each number identifies one frame on a videotape. SMPTE time code may be of either the drop-frame or non-drop frame type. In VGV editors, the SMPTE time code mode enables the editor to read either drop-frame or non-drop frame code from tape and perform calculations for either type (also called mixed time code).

Snow: 1. Random noise on the display screen, often resulting from dirty heads. 2. TV signal breakup caused by weak video reception.

Soft Edge Masking: A process used in image processing to increase the apparent sharpness of an image. The computer analyzes the pixels and makes soft edges of objects into sharp edges.

SONET: Abbreviation of Synchronous Optical Network. A telecommunications standard.

Spectral Bandwidth: In telecommunications, the spectral bandwidth for single peak devices is the difference between the wavelengths at which the radiant intensity is 50% (or 3dB) down from the maximum value.

Spectrum Analyzer: An instrument that measures the amplitudes of the components of a complex waveform throughout the frequency range of the waveform.

Split Edit: An edit in which the audio in-edit point is different from the corresponding video in-edit point.

Split Screen: A special effect utilizing two or more cameras so that two or more scenes are visible simultaneously on each part of the screen.

SRAM: Static Random Access Memory. SRAM does not have to be refreshed so it can operate in standby mode resulting in lower power consumption than DRAM.

Staircase: A pattern generated by the NTSC generator, consisting of equal width luminance steps of 0, +20, +40, +60, +80, and +100 IEE units and a constant amplitude chroma signal at color burst phase. Chroma amplitude is selectable at 20 IEE units (low stairs) or 40 IEE units (high stairs). The staircase pattern is useful for checking linearity of luminance and chroma gain, differential gain and differential phase.

Standard, Interconnect Standard: The specific signal configuration, reference pulses, voltage levels, etc. which describe the input/output requirements for a particular type of equipment. Some standards have been established by professional groups or government bodies (such as

SMPTE or EBU). Others are determined by equipment vendors and/or users.

Start Bit: A bit preceding the group of bits representing a character used to signal the arrival of the character in asynchronous transmission.

Stripe Filter: A chrominance tube system in which the target area of the tube is divided into sequential stripes for RBG and Y, and can therefore derive a color signal by using only one pickup tube.

Subcarrier: Also SC, 3.58, 3.58CW—This is the basic signal in all NTSC sync signals. It is a continuous sine wave, usually generated and distributed at 2V in amplitude, and having a frequency of 3.579545MHz. Subcarrier is usually divided down from a primary crystal running at 14.318180MHz, and that divided by 4 is 3.579545. All other synchronizing signals are directly divided down from subcarrier.

Subcarrier Phase Shifter: Special circuitry designed to control the phase relationships of the two portions of the encoded color signal so they maintain their correct relationship during recording, transmission and reproduction.

S-Video: Superior Video, a widely accepted set of Y/C signals used to connect video equipment, providing a higher quality signal free of the cross luminance/color problems associated with composite video signals.

Switcher: Term often used to describe a special effects generator, a unit which allows the operator to switch between video camera signals. Switchers are often used in industrial applications to switch between video cameras monitoring certain areas for display on one monitor; these kinds of switchers do not have sync generators.

Sync: The portion of an encoded video signal that occurs during blanking and is used to synchronize the operation of cameras, monitors and other equipment. Horizontal sync occurs within the blanking period in each horizontal scanning line and vertical sync occurs within the vertical blanking period.

Sync Generator (Sync Pulse Generator, SPG): Device that generates synchronizing pulses needed by video source equipment to provide proper equipment or studio timing. Pulses typically produced by a sync generator include subcarrier, burst flag, sync, blanking, H & V drives, color frame identification and color black.

T1: In telecommunications, the paired cable used to transport DSI service.

T Channels: A series of standardized data channels, originally devised to carry digital voice. Includes the T1 and T3 channels.

T1 Channels: In North America, a digital transmission channel carrying data at a rate of 1.544 million bits per second. In Europe, a digital transmission channel carrying data at a rate of 2.048 million bits per second. AT&T term for a digital carrier facility used to transmit a DS-1 formatted digital signal at 1.544 Mbps.

T3 Channels: In North America, a digital channel which communicates at 45.304 Mbps commonly referred to by its service designation of DS-3.

Tally: 1. A lamp which lights to indicate that the associated video source is in use. Typical locations of tally lamps are on the front of video cameras and in the crosspoint pushbuttons of video switchers. 2. The acknowledgement returned to the control panel or terminal that an operation has been executed.

TBC (Time Base Corrector): This piece of equipment corrects the timing irregularities that occur during VCR playback. Time base correction is not necessary for direct playback from a VCR to a TV set.

TCM: Time compression multiplexing. A technique for video storage in which chrominance information is compressed and time multiplexed with the uncompressed luminance signal.

TDM: Time Division Multiplex. A time-sharing of a transmission channel by assigning each user a dedicated segment of each transmission cycle.

GLOSSARY



TDMA: Time division multiple access. Uses TDM to allow multiple signal originators to contend for access to use the transmission media.

Tearing: A lateral displacement of the video lines due to sync instability. Visually it appears as though parts of the images have been torn away.

Telecine: Telecine is a device mainly designed to convert film to video. The movie film in advanced telecine machines is sampled digitally and converted to video, frame after frame, in real time. One of the most popular digital systems used in professional telecine machines is called "flying-spot," allowing almost a transparent conversion to video. The main problem encountered in film-to-video conversion is the frame rate. Movie film has a frame rate of 18 or 24 frames per second, and neither the PAL nor NTSC systems has a similar frame rate. In order to have a good conversion, interpolation and other techniques are used in the telecine device.

Teleconferencing: Electronically-linked meeting conducted among groups in separate geographic locations.

Teleprompting: Text shown on a television monitor to assist a performer or speaker.

Terabyte: Billion bytes or 8 billion bits.

Terminate, Termination: To complete a circuit by connecting a resistive load to it. A video termination is typically a male BNC connector which contains a 75 ohm resistive load. When there are looping inputs, any unused looping input must be terminated in 75 ohms to ensure proper signal levels and to minimize reflections.

Test Pattern: Optical guide for TV camera reference alignment.

Texture Mapping: The ability of a digital picture manipulator to create textured surfaces that can be applied to shapes.

TFT Screen: TFT stands for Thin-Film-Transistor. This technology is used mainly for manufacturing flat computer and video screens that are superior to the classic LCD screens. Color quality, fast response time and resolution are excellent for video.

Time Base Error: Horizontal rate flutter of a video signal caused by tape stretch and inherent imperfections in the tape transport mechanism of a videotape recorder.

Time Base Stability: The maintenance of the scanning process to very close tolerances.

Time Code Editing: By recording a sequential time code along with the video and audio material, you can obtain a more precise reference for editing. Each frame has its own number or code which tells the time in hours, minutes, and seconds, and includes a frame number. The world standard code is called SMPTE (Society of Motion Picture and Television Engineers) and has also been adopted by the IEC (International Electrotechnical Commission). Time codes permit very fast and accurate editing. Automatic editing is possible under computer control.

Timeline: An effects control feature that enables the operator of a switcher or digital picture manipulator to pre-program a series of timed events, such as auto transitions, E-MEM recalls and GPI triggers, and then replay them.

Title Generator: Commonly a black and white camera is used to shoot titles which are electronically superimposed on the video picture while shooting or during editing. Title color can be selected and changed independently. More sophisticated equipment generates characters directly.

T-Pulse to Bar: A term relating to frequency response of video equipment. A video signal containing equal amplitude T-pulse and bar portions is passed through the equipment and the relative amplitudes of the T-pulse and bar are measured at the output. A loss of response is indicated when one portion of the signal is lower in amplitude than the other.

Tracking: The angle and speed at which the tape passes the video heads.

Transcoder: A device that converts one form of encoded video to another, e.g., to convert NTSC video to PAL. Sometimes mistakenly used to mean translator.

Transducer: A device that converts one form of energy into another. For example, in fiber optics, a device that converts light signals into electrical signals.

Translator: A device used to convert one component set to another, e.g., to convert Y, R-Y, B-Y signals to RGB signals.

Transponder: The electronics of a satellite that receives an uplinked signal from the earth, amplifies it, converts it to a different frequency, and returns it to the earth.

Triaxial: A connector comprised of three concentric conductors, an inner conductor, intermediate conductor and outer conductor, separated by dielectrics.

TTL (Transistor-Transistor Logic): A term used in digital electronics mainly to describe the ability of a device or circuit to be connected directly to the input or output of digital equipment. Such compatibility eliminates the need for interfacing circuitry. TTL signals are usually limited to two states, low and high, and are thus much more limited than analog signals.

TVRO: Television receiver only. Consists of an antenna, a preamplifier and a satellite receiver. Also refers to the C-band backyard earth station user base.

Twinax: A connector which has two insulated inner contacts (male and female) surrounded by a common ground.

Twisted Pair: A cable composed of two small insulated conductors twisted together. Since both wires have nearly equal exposure to any interference, the differential noise is slight.

Unbalanced: Frequently, a circuit having one side grounded. A circuit, the two sides of which are electrically different.

Underscan: Decreases raster size H and V so that all four edges of the picture are visible on the monitor.

Upstream: 1. Placed ahead of other devices in a video signal path. 2. Describes the location of keyers in a mix/effects level or in the overall switcher architecture. 3. Relates to the priority of the video signals as they are combined through the video production switcher.

Valid Signal: A video signal which will remain legal when transcoded to any other format. A valid signal is always legal, but a legal signal is not necessarily valid. Signals which are not valid will be processed without problems in their current format, but problems may be encountered if the signal is transcoded to a new format.

Variable Bit Rate: Operation where the bit rate varies with time during the decoding of a compressed bit stream.

Vector Image: An image system that uses basic geometric shapes like rectangles, lines, circles, ellipses and polygons to create a graphic image. The vector image usually contains very little data, like the starting point (pixel) of the object, what kind of object it is, its size and color. When the image is rasterized, the vector information is converted into a bitmap using an RIP (Raster Image Processor). Rescaling can be performed with greater accuracy than with raster data. Also called "object oriented."

Vectorscope: Round (green) oscilloscope to align amplitude and phase of the 3 TV color signals (RGB).

Velocity of Propagation: Speed of signal transmission. In free space, electromagnetic waves travel at the speed of light. In coaxial cables, this speed is reduced due to the dielectric material. Commonly expressed as percentage of the speed in free space.

Vertical Interval: The portion of the video signal that occurs between





the end of one field and the beginning of the next. During this time, the electron beams in the cameras and monitors are turned off (invisible) so that they can return from the bottom of the screen to the top to begin another scan.

Vertical Interval Switching: When one video signal is replaced by another, the switching process causes a random interruption in the first video signal (which may be in the midst of a frame) and a random entrance into the second video signal (also in the middle of a frame). The result is a jump in the picture when the edited tape is played. This situation is amplified when the tape is copied, and the disturbance on playback is much more serious. To avoid this problem, switching is performed at a very specific point—during the vertical blanking retrace period—which is also known as the vertical interval. This allows complete replacement of a whole frame by a second whole frame and the switching process is very smooth.

Vertical Resolution: Chrominance and luminance detail expressed vertically in the picture tube. Limited by the number of scan lines.

Vertical Retrace: The return of the electron beam to the top of a television picture tube screen or a camera pickup device target at the completion of the field scan.

Vertical Sync Pulse: A portion of the vertical blanking interval which is made up of blanking level and 6 pulses (92% duty cycle at -40 IEEE units) at twice the horizontal sync pulse repetition rate. Synchronizes vertical scan of television receiver to composite video signal. Starts each frame at same vertical position (sequential fields are offset ½ line to achieve interlaced scan).

Vestigial Sideband Transmission: A system of transmission wherein the sideband on one side of the carrier is transmitted only in part.

VGA: Video Graphics Array.

Video Bandwidth: The highest signal frequency that a specific video signal can reach. The higher the video bandwidth, the better the quality of the picture. A video recorder that can produce a very broad video bandwidth generates a very detailed, high quality picture on the screen. Video bandwidths used in studio work vary between 3 and 12MHz.

Video Distribution Amplifier: A special amplifier for strengthening the video signal so that it can be supplied to a number of video monitors at the same time.

Video Gain (White Level, White Bar, Reference White): The range of light-to-dark values of the image which are proportional to the voltage difference between the black and white voltage levels of the video signal. Expressed on the waveform monitor by the voltage level of the whitest whites in the active picture signal. Video gain is related to the contrast of the video image.

Video Wall: A video wall is large screen made up of several monitors which are placed close to one another, so when viewed from a distance, form a large video screen or "wall."

Video Waveform: The pictorial display on a special oscilloscope of the various components of the video signal, used to check the integrity of the signal and signal components.

VITC (Vertical Interval Time Code): Contains the same information as the SMPTE time code. It is superimposed onto the vertical blanking interval, so that the correct time code can be read even when a helical scanning VCR is in the pause or slow mode.

VITS (Vertical Interval Test Signal): A signal that may be included during the vertical blanking interval to permit on-the-air testing of video circuit functions and adjustments.

VOD: Video on demand. A service which allows a user to view whatever program they want whenever they want it with VCR-like control capability such as pause, fast forward, and rewind.

VR: Virtual reality. Computer generated images and audio which are experienced through high-tech display and sensor systems and whose imagery is under the control of a "viewer."

VS/AM: Vestigial Sideband AM. Amplitude modulation generates an upper and a lower sideband. To save spectrum space, most of the lower sideband in a TV signal is filtered out. The remaining, lower or vestigial, sidebands (approximately 1.75MHz) are kept to avoid impairment of the television signal.

VTR: Video Tape Recorder. The term "VTR" includes reel-to-reel and cassette type.

WAN: Wide area network.

Waveform Monitor: Oscilloscope used to display the video waveform.

Wavelet: A particular class of filters that are used for signal decomposition in sub-band coding based compression systems.

White Balance: An electronic process used in video cameras to retain true colors.

Wideband: Large bandwidth, capable of carrying many TV signals and large quantities of data; typically a signal of 6MHz.

Wow and Flutter: Wow refers to low frequency variations in pitch while flutter refers to high frequency variations in pitch caused by variations in the tape-to-head speed of a tape machine.

Write: A function of copying a file from disc to tape. Also sometimes used to describe the transfer of information from the internal computer memory to a disc.

Y/C: A set of video signals that contain a separate Y, which is luminance, and C, which is chroma. Usually the chroma is at 3.58MHz, as in the S-Video signal, but it can also be at 688kHz in the ¼" dub format.

Y, C1, C2: A generalized set of CAV signals: Y is the luminance signal, C1 is the first color difference signal and C2 is the second color difference signal.

Y, I, Q: The set of CAV signals specified for the NTSC system: Y is the luminance signal, I is the first color difference signal and Q is the second color difference signal.

Y, P_B, P_R: A version of Y, R-Y, B-Y specified for the SMPTE analog component standard.

Y, R-Y, B-Y: The general set of CAV signals used in the PAL system as well as for some encoder and most decoder applications in NTSC systems; Y is the luminance signal, R-Y is the first color difference signal and B-Y is the second color difference signal.

Y, U, V: Luminance and color difference components for PAL systems; Y, B-Y, R- with new names; the derivation from RGB is identical.

Z Axis: The Z axis is in the third dimension, perpendicular to the X and Y axes and indicates depth. See axis.

Zero Dispersion Point: In telecommunications, the wavelength where material dispersion is minimal. With standard fiber optic cable, that wavelength is 1310 nanometers.

Zero Suppression: In telecommunications, techniques that limit the number of consecutive data 0's that may be transmitted. For DS1 without B8ZS, 15 data 0's is the maximum allowed.

Zoom Ratio: A mathematical expression of the two extremes of focal length available on a particular zoom lens.

THE DIGITAL BETACAM® FORMAT and the Breakthrough of Coefficient Recording



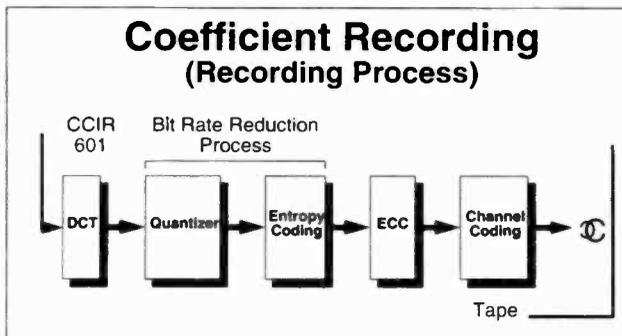
Courtesy of:
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By Harry Morishita
Betacam Product Manager

Digital Betacam recording began as Sony's response to strong demands from the European television industry for a practical and affordable digital component VTR. Since then, Sony has received quite favorable reactions and even stronger interest from the American television community for this "workhorse" digital component VTR concept.

Realizing the half-inch nature of this new format led Sony to its most unique feature, and its name, which instantly differentiates it from other digital VTR formats. It has the ability to play back the industry's popular choice for analog component recording—the Betacam SP® format.

The new format shares Betacam's component nature and cassette form, and is thus named "Digital Betacam." Digital Betacam equipment provides a level of technical performance which fills the needs of current 4:3 aspect ratio pictures, and provides a path to future 16:9 aspect ratio pictures.



Coefficient Recording Technology

A digital VTR is required to handle and record a much larger amount of information than an analog VTR. Increasing recording capacity or density by adding more heads, for instance, is one of several options available in developing a digital VTR format. But increasing the number of heads would also increase the recorder's complexity and cost. This solution is impractical given the "workhorse" concept, which requires durability, easy maintenance and, above all, cost effectiveness.

A practical and affordable half-inch "workhorse" digital component VTR requires a different approach made possible by a key breakthrough technology. That breakthrough is Coefficient Recording technology.

Coefficient Recording is a unique and sensible form of bit rate reduction (often called "data compression") for professional video applications. There are various approaches to bit rate reduction, but Sony's Coefficient Recording system offers a number of significant information handling schemes that differentiate it from other manufacturers' applications of algorithms to their digital bit stream. These features make the Coefficient Recording algorithm suitable for the stringent quality demands of professional video applications.

Data compression algorithms are application specific. In Sony's application, utilizing both statistical logic and maximizing data retention, including "less significant" picture information, Sony ensures data can be managed more effectively. Defining information which is "less significant" differs from application to application. In the case of production VTRs, there are important fundamental requirements that must be met, such as:

- High picture quality, especially multi-generation quality
- Single frame insert editing capability
- Visible picture in shuttle/search mode

Bit rate reduction schemes designed for applications such as video image transmission or still image transfer do not require this level of accuracy. Coefficient Recording was created only after a careful study of current and future broadcast and production industry requirements, because it has to fit a number of important workhorse applications. Space does not allow for a full discussion of the specific advanced algorithms and signal procedures employed in Coefficient Recording, but there are several key facts to keep in mind:

- *The scope*—Coefficient Recording is an intrafield scheme, in which all of the compression algorithm's calculations are completed within each specific field. Thus, unlike prominent compression schemes such as MPEG, Coefficient Recording does not introduce artifacts related to image motion.
- *Post transform reduction*—Discrete cosine transform (DCT) is an algorithm employed by Sony which does not change the bit rate. As with any DCT-based algorithm, the coefficients in the original video signal are reduced in the frequency domain after transform has been applied.
- *Apples and oranges*—Traditional recording processes, such as the full-bit-rate D-1 format, process images on a pixel-by-pixel basis. Sony's Coefficient Recording technology groups pixels together into conveniently processed blocks, so discussion of individual pixel processing becomes irrelevant to a discussion of picture quality.
- *Standard bit rates*—One of the interfaces provided by the Digital Betacam format is the SMPTE 259M serial digital interface. This interface carries up to 10-bit resolution 4:2:2 digital component signals, commonly referred to as CCIR-601. The Coefficient Recording process adopted by Sony preserves the low frequency component of the original signal. A shallow range is recorded and reproduced without further distortion. Graphics and other electronically generated signals clearly benefit from 10-bit signal processing.
- *Evaluation*—The amount of picture quality lost through the Coefficient Recording process is wholly dependent on image content. Audiences around the world have made their own subjective evaluations of Sony Coefficient Recording through demonstrations, including major SMPTE section meetings in the United States and Canada.

We have demonstrated that the process is almost transparent. When test signals such as color bars, flat field, shallow ramp or zone plate are recorded with our Coefficient Recording system, we see no quality degradation. But, again, performance is content dependent.



▪ *Multiple generations (now processed)*—First-generation picture quality is maintained throughout multiple generations of Coefficient Recording and playback, as long as the picture content in each field remains unchanged (non-process mode dubbing). Simple cuts-only editing is but one example where first-generation quality can be maintained even into the realm of a 100th generation copy.

▪ *Applications*—The only truly transparent digital system is one that records and processes the full-bit-rate signal, normally achieved with some form of cost penalty. The Digital Betacam format, like its analog equivalent, resorts to a form of signal processing that relies upon the redundancy present in the TV signal.

Digital Betacam technology is positioned as a workhorse format capable of fulfilling all the needs of the broadcaster and most of the tasks required by the production and post-production world. During multilayering and special effects requiring heavy processing, workhorse processing will be satisfactory for most applications.

DVW-500 and DVW-A500: Digital Betacam VTRs

The first recorder models to be launched from Sony's Digital Betacam product line will be the DVW-500 and DVW-A500. The DVW-A500 is an editing recorder which has analog Betacam (SP metal and original oxide) tape playback capability, while the DVW-500 is strictly a digital model for editing applications. Both are equipped with versatile signal interfaces and numerous features.

For example, serial digital component input/output, analog component input/output and NTSC composite output are all

standard. The DVW-500 and DVW-A500 are also equipped with NTSC inputs with an optional plug-in decoder. Sony has also introduced 2 similar player-only models, the DVW-510 and DVW-A510.

On the audio side, Digital Betacam recorders have 4 independently editable channels of 20-bit digital PCM tracks (non-compressed). Digital jog sound is a standard feature. Serial digital embedded audio, AES/EBU digital and analog interfaces are included to address any and all possible system requirements for maximum flexibility.

Many of these features represent new ideas, such as a pre-read function for video and audio, program playback, auto alignment capabilities and automated scanning and stationary head cleaning. The physical mechanism for these features is mounted onto the newly developed transport. This transport represents Sony's third generation digital transport and its fourth generation analog component transport.

The 2 analog compatible models are designed without compromising on either analog playback or digital playback/recording performance, because a common mechanical platform exists between analog and Digital Betacam recording.

The Digital Betacam format employs revolutionary technology such as Coefficient Recording with an evolutionary approach for the benefit of our analog Betacam facility installations. Digital Betacam recording is but the latest step on Sony's evolutionary path from the original Betacam format to its extension for Betacam SP technology, through the inclusion of a Serial Digital Interface in the BVW-D75 and, now, Digital Betacam recording.

Comparison of Transmission and Production Format Characteristics

Standard	Use	Horizontal Resolution	Signal	Format	Aspect Ratio
ATV	Transmission	600+	Digital	Component	16:9
HDTV	Production	1000+	Digital or Analog	Component	16:9
NTSC	Transmission & Production	525	Analog	Composite	4:3

Component Digital as a Bridge to the Future

Standard	Use	Horizontal Resolution	Signal	Format	Aspect Ratio
ATV	Transmission	600+	Digital	Component	16:9
HDTV	Production	1000+	Digital or Analog	Component	16:9
Component					
Digital	Production	300+/400+	Digital	Component	16:9 & 4:3
NTSC	Transmission & Production	525	Analog	Composite	4:3



WHY D-3/D-5? UNCOMPROMISED FULL BIT RECORDING



Courtesy of:
Panasonic Broadcast & Television Systems
Company

By Alec Shapiro
General Manager, Marketing
Panasonic Broadcast & Television Systems
Company

After spending painstaking time, effort and dollars to create and post today's most innovative programs and commercials, the potential for unwanted distortions or artifacts in the final product is hardly desirable. Compression artifacts in the video image are an unpredictable but very real possibility with current compression-based digital VTRs.

Digital VTRs were developed to provide crystal clear, degradation-free images for recording over hundreds of generations, eliminating the creative limitations imposed by analog recorders. Every time an image is compressed, then decompressed, the possibility exists that the image will be altered or degraded, similar to what occurs in the analog recording process. Panasonic's position on compression is that we believe in the "closer to the viewer" rule—compression is acceptable closer to the viewer but is to be avoided at the opposite end of the "chain"—high-end post production.

Panasonic's D-3 and D-5 formats are full-bit rate composite and component digital formats that utilize the same innovative technology. D-3 has been in use for over three years and has gained worldwide user acceptance. The virtues of D-5 are just now being realized. Like D-3 VTRs, the D-5 1/2" component digital VTR has none of the technical constraints that could be imposed by compression. D-5 offers the highest quality—and recording transparency—available to meet the post-production community's most demanding applications. D-5 is the only component digital format that offers fully transparent, 10-bit recordings without compression (bit rate reduction). Its performance clearly exceeds D1, while maintaining complete machine-to-machine compatibility with D-3. D-5 also fully exploits the power of the 10-bit serial digital interface.

The Panasonic D-5 VTR has a two-hour recording capacity at a data rate approaching 300 Mbps, and is based upon the field-proven D-3 1/2" composite digital format. This unique VTR offers record and playback modes for both the standard 4:2:2 CCIR 601 signal (13.5 MHz sampling/10-bit quantizing—270 Mbps), and the proposed extended 4:2:2 signal (18 MHz sampling/8-bit quantizing—288 Mbps), exceeding the imaging quality of the 8-bit processing D-1 format. Digital video signal processing at sample rates of 13.5 or 18 MHz is user selectable. The D-5 VTR is suitable for recording both 4:3 and 16:9 pictures, and offers playback of D-3 composite digital recordings in the component domain using an optional transcoder. The component digital I/O conforms to the CCIR-601 SMPTE 125M standard and fully conforms to the revised CCIR-601 and CCIR-656 standard specified to 10-bit resolution for both parallel and serial interfaces.

In addition, the digital processing, channel coding, shuffling, error correction and concealment techniques are the same as those used by D-3 machines. A common transport and similar head arrangements—including identical track pitch—allow D-3 tapes to play back in a D-5 VTR. This interrelationship provides a systems migration path and reinforces a corporate philosophy to preserve and extend the equipment life cycle.

D-3 technology platform

Since the transition to component could be envisioned by the developers of D-3, D-3 was created not only to satisfy the ever present demand for a cost-effective composite digital format, but also to form a base or platform for the D-5 component digital format.

In addition to the physical similarities between D-5 and D-3 VTRs, the signal processing techniques developed for D-3 such as "state of the art" 8-14 modulation coding are utilized in D-5. Other popular D-3 digital VTR features such as pre-read, insert editing, four independent audio channels, user setup memories, multicue, and the control panel menu structure are the same on D-5 machines.

The application of field-proven D-3 technology to the D-5 component recorder eliminates any concern about ruggedness,

interchange performance, format robustness and overall reliability. The additional recording capacity required for component recording (virtually double composite recording) is simply achieved by doubling the linear tape speed and reconfiguring head assemblies while maintaining the same track width. Achieving higher levels of circuit integration (VLSI) for signal processing allows the same form-factor (VTR size) to be maintained.

The sophisticated low tension head-to-tape interface successfully developed for D-3 requires virtually no changes for the component recorder: scanner rotation speed is the same as that of the D-3 recorder, as is tape tension and fundamental transport design.

D-5's operating modes

The three basic operating modes for the D-5 recorder are:

(1) Recording and playback of digital audio and 13.5 MHz sample rate digital component video (CCIR 601) in full 10-bit form. In this mode the component VTR is suitable for the highest quality applications for both 4:3 aspect ratio and 16:9 aspect ratio pictures. Eight-bit video from existing devices is passed transparently.

(2) Recording and playback of digital audio and digital component video with a digital sample rate of 18 MHz. While Panasonic is not actively proposing such a signal structure, we have provided a manually switchable record mode to process the increased video sample rate, which would then be auto-selected on subsequent playback. Should the current interest in 18 MHz develop into a 16:9 production standard, the capability already exists.

(3) Playback of D-3 composite digital recordings in the component digital VTR. Playback compatibility can easily be achieved without any technical compromise in either the choice of parameters for the component format itself or in the D-3 playback quality.

Mixed D-3/D-5 operations can be performed in a very elegant manner without the need for complex external switching, systems or peripheral equipment. But of much greater importance, this compatibility protects the investment in current and future productions on the D-3 format, simplifies systems design, and allows field acquisition to be made on an all-digital format. The very high quality attainable from D-3 digital audio and video in the field ensures that the high performance available from a totally digital production center is best exploited. The D-5's uncompressed data processing allows the full CCIR-601 10-bit video signal to be recorded along with 20-bit digital audio, exceeding the quality of 8-bit D-1. This ability of D-5 to record uncompressed 10-bit digital video signals is essential to ensure transparent performance during complex post-production operations.

At this year's NAB, Panasonic demonstrated a D-5 VTR using 4:1 compression from an external device for recording and playback of "true HDTV (1125/60) pictures. It is estimated that future television systems will have a data rate of about 1.2 Gbs. This 1.2 Gbs data rate, reduced by a 4:1 ratio, provides a 300 Mbs signal that the D-5 machine can easily record on the same compact D-3/D-5 cassette with two hours duration. The lack of any internal compression within the D-5 digital VTR eliminates the potential for unwanted and unpredictable interaction between differing compression schemes.

D-5 product family

The first D-5 product, the AJ-D580 studio VTR, is available. Like D-3, a total family of D-5 products is planned including a studio version of a D-5 VTR without AT and a portable unit, similar in design to the AJ-D320 D-3 field portable VTR.

End users can count on Panasonic to continue to advance and build upon these digital formats in a responsible manner.

THE TRANSITION TO 16:9 An Affordable Approach



Courtesy of:
Sony Business & Professional Group
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By Elizabeth Coppinger, Manager
Systems Integration Marketing

A closer look at ATV

The terms "ATV" and "HDTV" are frequently used interchangeably to indicate a 16:9 picture. In reality, they are quite different. HDTV is a 16:9 picture with at least twice the horizontal and twice the vertical resolution of the 525 studio origination picture. The 1125/60 production standard that has been formalized by SMPTE 240 and 260M is the best example of HDTV. ATV, on the other hand, refers to the transmission standard that will be adopted by the FCC for delivery of 16:9 pictures. The number of lines of ATV is still undecided. Unlike NTSC, which is both a production and transmission standard, ATV is strictly a transmission standard.

This de-coupling of the transmission and production standards offers certain advantages to the broadcaster. HDTV will become the high-end production standard of choice for ATV transmission over time. In the near term, however, broadcasters can choose to use a production format that, when up-converted to the ATV transmission signal format, offers adequate picture quality. This also enables broadcasters to use existing equipment rather than having to purchase all new equipment to handle the bandwidth requirements of the ATV standard.

Although the final ATV standard has not yet been selected, there are certain characteristics of ATV that will make signal quality a critical issue in a plant's transition plan. All of the proposed ATV transmission schemes use component digital signals as the input source to the ATV encoder. Therefore, ATV will carry none of the artifacts associated with NTSC and will have greater chrominance and luminance resolution. The ATV encoding will also entail significant compression of the incoming video signal.

Some may mistakenly think that because the signal will be compressed, the quality of the input is not important, provided it has a 16:9 aspect ratio. Actually, just the opposite is true. The improved picture quality of ATV is but one factor to consider. A movie broadcast via ATV will not only have a 16:9 aspect ratio, but will also have a high luminance spatial resolution and a high chrominance resolution, as well as greatly improved picture quality due to the elimination of the artifacts.

In addition, due to the high level of compression inherent in ATV encoding, a source signal with a low signal-to-noise ratio (S/N) may not hold up well. In fact, signals with a S/N ratio lower than about 50 dB could begin to exhibit artifacts. As compression becomes increasingly important in video distribution, any product to be distributed over ATV, via cable or by any other method involving a high level of compression should be produced with as high a S/N ratio as possible.

Signal quality is a critical issue both for ensuring the "shelf life" of

program production masters and for maximizing the outlets for distribution. No analog NTSC videotape production format can provide the signal quality required by ATV transmission due to their sometimes low S/N ratio (dependent upon number of generations of recording), inherent artifacts and severely limited color bandwidth. Composite digital eliminated the S/N problem but retained the artifact and color bandwidth limitations. 525 component digital, on the other hand, is an ideal choice to provide a transition format from NTSC to ATV. Although it does not have the spatial resolution of HDTV, it has the large advantage of having no NTSC encoding artifacts and a much improved color resolution.

Beginning to plan/the new choices

Using 525 component digital to record in 16:9 widescreen (525WS) provides a flexible and affordable approach to 16:9 production. Component digital is ideal for both production in the 4:3 NTSC environment and "future-proofing" for 16:9 production with ATV transmission or any other distribution that requires compression.

The only format that has supported component digital recording has been D-1 and its use by broadcasters has been limited by the relatively high cost of VTRs. Digital Betacam® equipment dramatically changes the economics of using component digital by making it affordable and practical for a wide variety of applications.

D-2 composite digital VTRs can also be adapted for component digital recording and playback through the use of the recently introduced DFX-C2 signal processor. The DFX-C2 is an external box that connects to the digital input and output of a D-2 machine, allowing it to record a component digital signal. This enables a facility to accommodate a 525WS system while also retaining its NTSC capability, thus providing the important flexibility to convert gradually into an ATV compatible system.

In addition to signal quality, flexibility of plant operation is another important consideration. ATV channels will probably begin broadcasting sometime between 1996 and 1999 and NTSC will remain on the air until at least the year 2008, according to recent FCC statements. This will require a plant to provide as many as 9 years of 2-channel operation. The conversion plan must take into account the flexibility required to handle the increasing use of 16:9 programming, on-going dual-channel 16:9/4:3 operation and the eventual phase-out of NTSC.

With careful planning, routine equipment purchases can be made now with an eye toward ATV so that when the time arrives for a full transition, much of the needed equipment will already be in place. Gradual conversion of a facility to component digital 525WS allows you to continually upgrade without sacrificing ATV compatibility.

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Component					
Digital	Production	300+/400+	Digital	Component	16:9 & 4:3
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ILLEGAL COLORS

What They Are and How to Prevent Them



Courtesy of:
Hewlett-Packard Company

Do you do work in one video format and deliver the end product to your customer in another video format? If you do, you have probably created illegal colors. This article will help you understand what illegal colors are, how they occur, what they can do to your video image and, finally, how you can prevent them.

What is an illegal color?

An illegal color is a color that, when coded into a specific format, is outside the practical limits set for that format. In other words, certain colors cannot be represented in certain formats. This would be okay if it were not for the fact we work in many video formats, and what is legal in one format is not necessarily legal in another format. As an example, if you originate images in component RGB and deliver the end product to your customer in composite NTSC, you run the risk of creating illegal NTSC composite colors.

To give you a better understanding of how this can occur, we will briefly describe what constitutes a legal color for the following three formats: SMPTE 125M (4:2:2), analog RGB component and analog composite NTSC.

4:2:2 color space

SMPTE 125M specifies that the luminance and color difference values of a pixel are represented by 10-bit digital words. These 10-bit words can accommodate a range of values from 0-1023 decimal. The values from 0-3 and from 1020-1023 are reserved for synchronization. This leaves the values from 4-1019 as the legal range of values in the 4:2:2 color space used to define color. Luminance and color difference values outside this range cannot be represented and are illegal 4:2:2 colors.

In Figure 1, luminance is plotted against chrominance magnitude for all legal 4:2:2 colors. Legal 4:2:2 colors are inside the area bounded by the solid line and the y-axis. You'll notice that a few of these colors are nonsensical (e.g., luminance < 0). Nevertheless, these are legal in the 4:2:2 format and can occur.

As a practical matter, it is rare for the user to encounter illegal 4:2:2 colors. When they do occur, it is usually the result of setting an improper keying level or a bit error in the actual 4:2:2 data.

RGB component color space

RGB component values are represented by a set of 3 unitless values of 0-1, with zero representing no amount of the particular component color and 1 representing the maximum amount of that color. For example, RGB component values of (1,1,0) specify 100% of red, 100% of green and 0% blue. Together this combination makes up 100% yellow.

An illegal RGB color occurs when any of the normalized component values is less than 0 or greater than 1. Values outside these limits can occur when the color space you are working in is something other than RGB. For example, 105% white is legal in the 4:2:2 color space and is represented as YCrCb = (984, 512, 512). This transforms to the RGB color space as (1.05, 1.05, 1.05). Since these values are greater than 1, they represent an illegal RGB color.

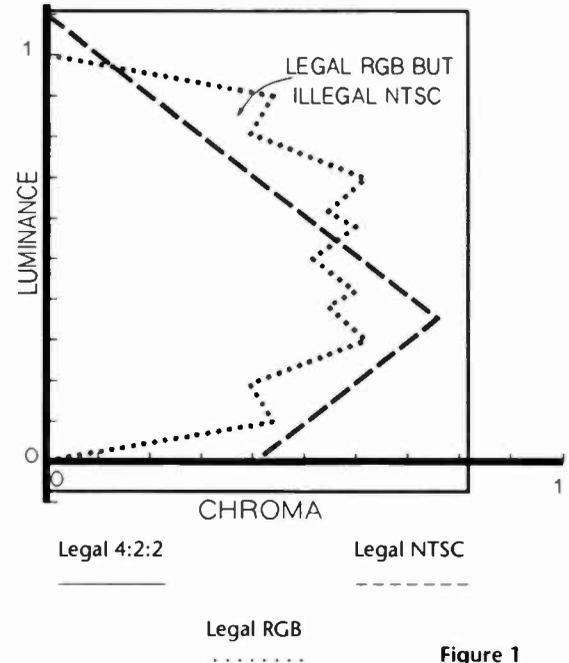


Figure 1

Legal RGB colors are shown in Figure 1 as the area bounded by the dotted line and the y-axis. Each of the outer vertices on the dotted line represents one of the 100% saturated, 100% amplitude colors. Clockwise from luma = 1, chroma = 0 they are: white, yellow, cyan, green, magenta, red, blue and black (luma = 0, chroma = 0).

Analog composite color space

The analog composite format encodes the luminance and chrominance components of a color onto one signal. The resulting magnitude of this signal depends on the color being encoded. There are limits on how large this resulting signal can be. A composite signal that is too large can stress the dynamic range of magnetic tape and transmission modulators. When the dynamic range limitations are exceeded the signal is clipped, causing distortions frequently referred to as tearing, smearing or audio buzzing.

Figure 2 shows the resulting analog composite waveform for 100% NTSC color bars. The limits of NTSC modulation are 120 and -40 IRE. As you can see, both 100% yellow and 100% cyan exceed this limit and are illegal composite colors.

A reasonable safety margin to prevent unwanted clipping and distortion would be 10 IRE. This leads to limits of 110 and -30 IRE. The area bounded by the dashed line in Figure 1 represents those colors that have a resulting composite amplitude of between 110 and -30 IRE.





Legality from one format to another

Figure 1 shows that the legal color spaces for our three formats do not match up with one another. This is the source of the problem. For example, legal 4:2:2 includes both legal RGB and legal NTSC. This means that any legal RGB or legal composite NTSC color is guaranteed to be legal when converted to 4:2:2.

The reverse, however, is not the case. Legal 4:2:2 signals are not guaranteed to be legal RGB or legal composite NTSC.

A more important conclusion is that legal RGB and legal NTSC do not overlap each other completely. In other words, what is guaranteed to be legal RGB is not necessarily legal NTSC and vice versa.

100% yellow is an example of a legal RGB color that is not legal NTSC. 100% yellow (RGB= 1,1,1,0) has a resulting analog composite peak magnitude of 131 IRE that is well over our example NTSC limit of 110 IRE. This type of illegal color frequently occurs in commercial work where clients insist on bright, highly saturated colors.

On the other hand, 110% white is an example of a legal analog composite color that is an illegal RGB color. 110% white (peak magnitude = 109.25 IRE) is described in the RGB format with the illegal RGB magnitudes of (1.1,1.1,1.1).

Preventing illegal colors

Working in one format and delivering the final product to your customer in another format creates the potential for illegal colors. If the illegal colors are not removed from the signal before the translation to the customer's format occurs, clipping will cause picture distortion and change the end product in an unpredictable way.

Ensuring legal colors is not always easy. You can check for illegal composite colors on a waveform monitor but you run the risk of missing something. An alternative to this approach is Hewlett-Packard's Quality Advisor AQ100. This product operates in the 4:2:2 domain and calculates the resulting composite amplitude for every pixel. Those that are illegal can be highlighted on a separate RGB monitor to show you where the illegal colors are. The product can also automatically correct illegal colors to the nearest legal value as the 4:2:2 data passes through the Quality Advisor.

Illegal colors are worth understanding. Preventing them up front during the post production process will save you money when compared with redoing a large run of distorted VHS tapes that look different from what the client expected.

100% Color Bars (NTSC)

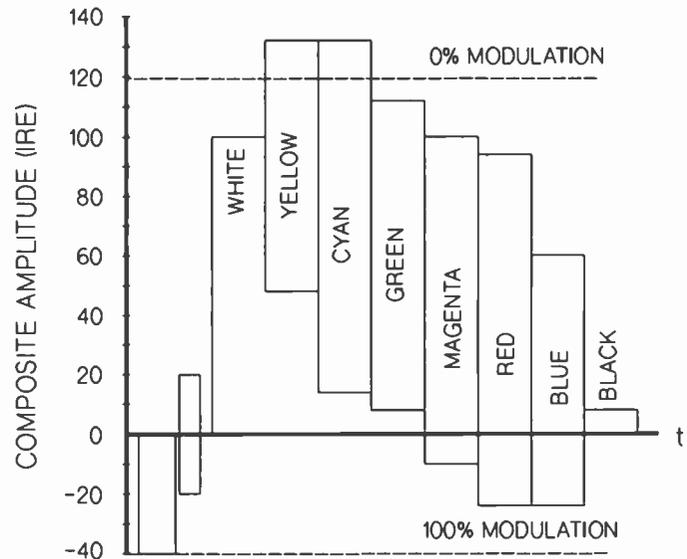


Figure 2

BEYOND BARS: TEST SIGNALS PROVIDE A REFERENCE FOR SYSTEM EVALUATION



Courtesy of:
Tektronix, Inc.
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By Larry Harrington

Most folks consider them obnoxious. After all, who hasn't dozed off watching late night television only to be startled by the blare of the 400Hz tone—you know, the one after the tranquility of "The Star Spangled Banner"—accompanying the video test signals used to check systems after programming finishes? It's hard to expect viewers to appreciate, especially at 4 a.m., that those annoying pictures and sounds are for their benefit.

Color bars are the most ubiquitous of all test signals. When not following a TV station sign-off, they are most often perceived as a pre-program place holder—something like a blank electronic film leader. But, as technical pros know, color bars provide both serious at-a-glance confirmation of signal-path completion and confidence of video signal acceptability.

Merely observing bars on a TV monitor, however, is a subjective assessment. The monitor will display a signal problem, but it reveals little about the source, nature or degree of the signal impairment. To extract detailed information about video signal fitness requires careful examination of one or more test signals on a waveform monitor and/or vectorscope.

Color bars are only one of many test signals. Test signals are precisely defined electronic signals that serve as performance measurement benchmarks. The purpose of each signal is to make one or more types of video distortion easy to see and quantify.

Testing 1, 2, 3

The principles behind video signal testing are quite simple. The output of a test signal generator is applied to the input of a piece of video equipment or distribution system. The test signal, after passing through the components, is displayed on a waveform monitor and vectorscope. Any significant change in the signal becomes fairly conspicuous, and the type of change gives many clues about the possible source of the problem.

Color bars are handy for setting up such equipment as TBCs.

However, measuring the performance, such as the bandwidth of a TBC, requires more specific testing. Periodic measurement of overall system performance helps spot minor problems before they grow into noticeable picture problems. The result is consistently higher picture quality.

What test signals ensure video signal quality? Color bars are most obvious. They monitor or measure several amplitude, timing and color parameters. However, no one test signal defines all of the amplitude and timing relationships of the NTSC signal. Signal path impairments and system performance are often best detected with several types of test signals.

The types of signals suited for an application depend mainly on 2 factors: the environment and the video format.

Standard values

Most studios, production and post facilities use a variety of equipment and systems. These require a correspondingly broad selection of signals for setup, maintenance and calibration.

Calibrating a picture monitor requires SMPTE color bars and a crosshatch (convergence) signal. Color bars are used to set chroma, hue and brightness adjustments. The convergence signal helps align the red, green and blue beams. The multiburst signal is used to check the picture monitor's horizontal resolution.

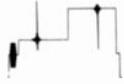
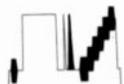
Observing technical values within a system on a waveform monitor or vectorscope requires a generator with test signals, such as pulse-and-bar, modulated staircase, multipulse or multiburst. However, evaluation with each test signal is time-consuming.

Combination signals, such as NTC 7 Composite, FCC Composite and NTC 7 Combination, contain 2 or more test signals as elements on each video line. Each element of a combination signal is basically a narrow version of regular signals, allowing 2 or more to fit side by side on a single line of video.

Test Signal	Signal Shape	Use and Benefits
Color Bars		General amplitude and timing measurements. Most widely available test signal. Used in all aspects of system setup and testing from ENG/EFP units to the broadcast transmitter.
Blackburst		Commonly used for synchronizing video gear. Also used for noise measurements.
Multiburst		Contains packets of six different frequencies. Used for basic frequency-response checks of equipment and distribution paths in ENG/EFP and studio work.





Test Signal	Signal Shape	Use and Benefits
Modulated staircase		Available in 5- and 10-step forms. Tests differential gain/phase and luminance linearity. Used in ENG/EFP, studio and distribution.
Pulse and bar		Used for amplitude, timing and distortion measurements. Modulated pulse portion tests chrominance-to-luminance gain and delay. Used in ENG/EFP, studio and distribution.
Multipulse		Contains pulses modulated at different frequencies for comprehensive measurement of amplitude and group delay errors over the video baseband. Especially important for transmitter testing.
(sinX)/X		Provides frequency-response and group-delay test coverage of all baseband frequencies. Can be used as a VIT signal, making it ideal for in-service transmitter testing.
NTC 7 Combination		Combines multiburst and modulated pedestal for frequency-response and distortion tests. Designed for distribution and transmission system testing.
NTC 7 Composite		Contains various signal elements allowing amplitude, phase and some distortion measurements. Designed for studio and distribution testing. Rise time too fast for broadcast transmitter use.
FCC Composite		Offers the same uses and benefits as the NTC 7 composite signal. Its slower rise time makes it appropriate for VITS use with broadcast transmitters.
Modulated Ramp		Used the same as modulated staircase, but provides finer-grained results.
Sweep		Provides a continuous sweep of video baseband frequencies, usually with embedded 1MHz markers. Used for detailed frequency-response testing, but is not VITS-compatible.
Bow tie		Component analog video (CAV) test signal used for high-precision measurement of component channel gain and delay inequalities.



Many generators also produce matrix test signals that combine 2 or more signals in a single field of video. Different matrix signals are available for transmission/system testing and picture monitor setup applications. A matrix typically consists of 40 or more consecutive video lines of 1 signal, followed by the same number of lines of the next signal, throughout the active video lines of a field.

Like the combination signals, matrix signals speed the process of equipment and system evaluation/adjustment. With several signal types, you can observe multiple problems (or the absence of multiple problems) without changing the test signal.

Continuous technical monitoring of a source is enhanced with vertical interval test signal (VITS) insertion. By including 1 or 2 test signals on unused lines in the vertical interval, you can make objective judgements about the quality of the signal degradation instantaneously, at any point in the program. Most TV stations and networks use VITS to monitor and evaluate technical parameters without interrupting programming.

Once you've decided which signals and formats you need, there are still more considerations for choosing a test signal generator. Space is always important; usually the smaller the generator's package size, the better, provided the unit supplies the signals you need.

Depending on the complexity of the facility, other video gear in the system may need to be genlocked. Some test signal generators eliminate the need for an extra distribution amplifier (DA) by providing multiple blackburst outputs.

System performance checks require only a few other signals. The NTC 7 Composite and Combination signals or a system test matrix signal can provide all components necessary for quick checks of system linearity, insertion gain, frequency response, differential phase and gain, chrominance-to-luminance gain and delay and other short- and long-time distortions.

More than test

Other signals and functions provided by test signal generators can simplify several routine production tasks. A safe-title/safe-action area signal helps operators position and size critical parts of a scene so that they don't appear somewhere off the edge of the presentation screen. Blacking tapes is a task that some generators can reduce to the push of two buttons. (You need only press Record on the VTR and select a countdown sequence on the generator.)

Evaluating the performance of 2-wire (Y/C) or 3-wire analog component systems requires special signals in the appropriate component form, in addition to the composite signals. The bow tie is an essential signal for 3-wire component systems designed specifically for precise amplitude and timing adjustments. An economical alternative to multiple test signal generators is a multiformat generator with signals in NTSC, Y/B-Y/R-Y and Y/C formats.

Cameras usually don't require external test signals, but in the studio they must be genlocked to the system. In smaller facilities or EFP applications, a generator with multiple blackburst outputs might eliminate the need for a separate master sync generator or DA. A blackburst input to a production switcher is commonly used as the source for a fade to black.

Distribution distortions

Distribution paths can be subject to myriad distortions. A distribution path may be as simple as a camera output looped through a monitor to a switcher and terminated, or as complicated as a 1000-machine duplication system. That's why multipurpose combination signals, such as the FCC and NTC 7 Composite and the NTC 7 Combination, are widely used as VITS in transmission testing.

Multiburst (which is a part of the NTC 7 Combination signal), multipulse and (sinX)/X are all used extensively for frequency-response testing of various distribution systems. Multipulse and (sinX)/X indicate group delay as well, but (sinX)/X requires a spectrum analyzer or automated video measurement set for display. Big ticket items, such as spectrum analyzers or automated measurement systems, often aren't a liability because many other standard transmission and distribution tests require these instruments. To optimize performance, particularly in this era of higher resolution formats, good test equipment is a basic requirement, not an option.

Maintaining performance

Maintenance areas have some special requirements. Flexibility is the key as the proliferation of interconnect and recording formats continues.

It's not uncommon to find composite NTSC gear in use side by side with component analog or Y/C gear. Although all of this gear has NTSC inputs and outputs, equipment in each video format requires test signals in the same format to fully exercise its circuitry. In addition to the luminance and color difference signals primarily used with component analog video equipment, the time-compressed versions (CTCM or CTDM, the actual recording formats used) must also be available.

Serial digital video is finding favor as an interconnect format within many video facilities. With it comes the need for yet another test signal format and, of course, new testing issues. Serial digital requires the same analog test signals—you simply need to convert them to the new digital format and add a number of very complex digital goodies to the vertical interval.

Operational equipment in need of routine maintenance or troubleshooting can't always go to the shop. So, with the proper signals and formats, a small, lightweight package can make it a lot easier to bring the tools to the problem.

The economics of testing

One thing is certain today—viewers expect high video quality. And they expect it all the time. Gone are the days when a single, snowy TV channel was revered as a miracle of modern technology, when occasional problems from technical difficulties were tolerated. Today, home viewers fix technical difficulties on their own without leaving their armchairs by switching channels with remotes. Viewers of corporate and other non-broadcast video have similar expectations and reactions, except instead of tuning out with a remote control, they tune out their brains.

Reliable, high quality, uninterrupted video—the type clients pay for—requires extensive testing and preventive maintenance to catch and fix declining system performance before visible picture impairment occurs. Once quality starts to slip, so will the attention of your viewers, as well as future business from your clients.

Producing video without adequate test and measurement gear is as risky as driving a car with dirty windows. Today's digital-based test signal generators provide many high precision signals in small, economical packages. Waveform monitors and vectorscopes come in a variety of affordable packages, and sometimes both functions are combined for even greater economy. With compact, easy-to-use gear, the serious video producer can't afford not to use test equipment—every day.

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IMAGING REDEFINED



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By Curtis Chan

Today's camera technology has something for everyone, whether you're looking at upgrading your EFP/ENG camera or you simply want to "kick some tires" to see what's new. The most significant advances in camera technology come in the form of CCD and DSP technology.

The benefits of using CCDs and DSP are overwhelming: CCDs are immune to image burn and have uniform focus from corner to corner. CCDs, coupled with DSP technology, have higher light sensitivity with better S/N than the tubes of the past. With the aid of autofocus, camera matching among different cameras has become commonplace.

Examples of these new-generation systems include JVC's KY-27 and GY-X2U series, which are capable of producing quality pictures down to 21x and 31x, respectively. Sony's new additions include the 3-chip CCD-VX3 and EVW-300 Hi8, Betacam SP 2000 Pro series and the BVW-300A, featuring Hyper HAD (Hole Accumulated Diode) technology for increased sensitivity. From Hitachi comes the SK-H5, featuring HARPICON; the Z-ML1, which uses the 3/8-inch MS HISELVICON pickup tube for low-light conditions; and the SK series of broadcast ENG/EFP cameras. Ikegami is promoting the HK-377 ultra-wideband studio / field CCD camera system and its lower 300 series. Other new additions include BTS' LDK 90-series ENG/EFP frame transfer cameras and Panasonic's AQ series 3/8-inch 3-CCD digital processing cameras.

CCD fundamentals

If you check out the specifications of various cameras, you will find that resolution, S/N and sensitivity of most cameras are quite similar. Despite similar specifications, there are differences other than price between cameras in the \$10,000 and the \$40,000 range. Many of these differences deal with how the image that reaches the CCD is processed to make the final picture. Tubes have a continuous pickup area. With CCDs, however, points of light are sampled to make the final image. The sampling process causes aliasing artifacts that reduce the overall resolution of the final image.

One technique, used to reduce aliasing, involves removing the high-frequency detail that causes the aliasing before it reaches the CCD. An optical filter placed in front of the prism reduces the fine detail, but compromises must be made between resolution and alias suppression. Lower-priced cameras provide filtering in only one direction, usually horizontal. Others provide horizontal and vertical filtering. Some high-end production cameras also provide filtering along the 45° diagonals to further improve resolution.

A second technique for reducing aliasing is called spatial offset. This involves mounting the red and blue CCDs in line with each other and the green CCD offset horizontally by one-half pixel. When the red, blue and green images are mixed, the picture information is in-phase; however, the alias products are out-of-phase. Spatial offset effectiveness, which is dependent on color content, is changing constantly. A combination of optical low-pass filtering and spatial offset works best for overall alias reduction.

Increasing sensitivity

One of the challenges facing camera companies is how to maximize

the amount of light that falls onto each of the pixels of a CCD sensor or the photo-conductive element. Within a CCD's pixel substrate surface area, approximately one-third is taken up by the light-sensing element, and the remaining two-thirds is taken up by other elements, such as the vertical shift registers, transfer gates, control lines and channel stops.

Cameras such as Hitachi's FP-C10 or the Z-one-B and JVC's KY-27 resolve this through the use of a micro lens. The lens is mounted over each pixel and redirects light into the CCD's photo sensor area, increasing sensitivity. Most cameras are based on two types of sensors: FT (field transfer) and microlens FIT (field interline transfer). Of the two, FT has a greater surface area of light-sensitive material.

To improve sensitivity further, JVC's LoLux technology combines about 24dB of electrical gain with a system for mixing adjacent pixels together. This increases the sensitivity another 6dB without noise. Mixing the pixels actually reduces the noise, because noise between adjacent pixels is random.

The battle for higher-sensitivity cameras has taken another step with the introduction of Hitachi's HARP (High-gain Avalanche Rushing amorphous Photo conductor) and HISELVICON technologies. Jointly developed by NHK and Hitachi, the HISELVICON tube uses a patented photoconductive film target. Unlike a conventional tube, this technology relies on the principle of Avalanche Multiplication Effect to produce large amounts of signal current from low levels of incident light. The target is composed of materials that are similar to the HARP technology, resulting in sensitivities about 30 times greater than that of a SATICON tube.

The Sony Betacam series uses a Hyper HAD (Hold Accumulated Diode) sensor CCD to improve sensitivity. This new CCD permits high-quality pictures to be captured in very-low-light conditions. Not to be outdone, BTS, Ikegami and Panasonic also offer similar solutions using top-quality 1/2-inch and 3/8-inch 3-CCD solutions. BTS' LDK-series cameras use Frame Transfer sensors and DSP technology; Ikegami's HK series cameras employ newly developed FIT CCDs; and Panasonic also produces impressive specs, matching its competition using 3/8-inch Interline Transfer (IT) CCDs.

The electronic shutter

Vertical smear in CCD imaging has been eliminated by implementing an electronic shutter effect within the CCD structure. Without some type of shutter, charges accumulated by each pixel can change as the information is being transferred from the sensing area to the storage area, causing smear to appear. The electronic shutter lets the operator obtain a sharp, clear picture with little blur, even when shooting a rapidly moving object. Newer cameras permit continuous adjustment of the shutter speed in 1H steps for shooting computer monitors without flicker.

DSP update

DSP has done for cameras what the computer has done for word processing. Through the use of LSI technology, newer cameras provide excellent picture quality, consistency and reliability, along with centralized control and reduced size and weight. One of the major benefits of DSP cameras is that they require minimal routine





maintenance. DSP makes setup easy for the operator or engineer, reducing mechanical alignment by as much as two-thirds.

Today's DSP cameras have three layers of memory for reference, verification and instant recall. The settings are usually stored in EPROM, so readjustment is unnecessary. Camera operators can instantly determine the state of the camera by looking at the alphanumeric readout in the viewfinder or outputting it to a monitor. If adjustment is required, the operator can make instant changes to memory. With the newer cameras, even the factory presets can be changed and users can burn in their own settings.

In addition to easier setups, another bonus is the autoshooting modes, which are becoming popular in some ENG/EFP camera lines. For example, JVC has implemented several automation features, such as variable scan view, enhanced automatic level control (ALC), full-time autowhite and full autoshooting. The enhanced ALC allows continuous automatic shooting in all light levels. In addition to variable gain, the ALC also incorporates an extended electronic iris (EEI) with a continuous variable shutter. DSP has allowed the ALC to have an aperture priority mode, whereby an iris opening can be selected and the camera automatically achieves the desired video level.

Sony joins the auto club with automatic iris control, autoblack to maintain balance at high-gain levels and white balance with dual white-balance memories for each of the four filter wheel positions. Not to be outdone, Hitachi also offers several auto modes, including Auto Knee to compress extreme highlights, which prevents white clipping, auto iris to control exposure, six auto white-balance memories and iris auto close, which closes the lens iris to protect the HISELVICON tube any time the camera isn't being used.

One size fits all

No longer do you have to buy a camera for every occasion. With the advancement in DSP and other related technologies, the basic camera platform can dock to multiple tape formats. For instance, several ENG/EFP camera units easily dock to Betacam SP, MII, Hi8 and even S-VHS with the addition of a VTR adapter, which is

nothing more than a cosmetic shell. Also, there are detachable lenses to fit every occasion, detachable viewfinders, a variety of remote CCUs and the option of going multicore or triax. For example, Hitachi's Z-one-B/C and FP camera line, with the aid of adaptors, can mate to Betacam, MII, Hi8 and S-VHS. Similarly, JVC's KY-27 can also adapt to S-VHS, Hi8 and Betacam.

16:9 cameras

The latest issue to be aware of is 16:9's possible effect on the teleproduction community. The 16:9 cameras solve a number of issues. First, Europeans are reluctant to buy anything that isn't wide-screen, because more and more productions are shot in the wide-screen format.

A question of concern is whether existing cameras can be adapted to 16:9 production, and, if so, what type of conversion is needed. In some cases, the conversion process requires only that the CCD block be replaced and the viewfinder be modified. The camera lens and CCU remain the same. In others, anamorphic lenses are attached, the viewfinder is modified and distorted 16:9 pictures are recorded in a 4:3 mode. Later, these pictures can be viewed undistorted on 16:9 screens.

Conclusion

Progress in DSP and CCD has played a significant role in the advancement of camera technology. As we move forward, one of the greatest opportunities for market differentiation for the wide-screen camera will be in local program production, sports coverage, special events and corporate productions. Local wide-screen production will involve new approaches to ENG and EFP production techniques and new set designs.

As we move into the era of all-digital facility, camera technology will increase at an astounding rate. At the heart of the advancement will be progress that is centered around the core technologies, DSP and CCD developments. Stay tuned for more.

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DESKTOP VIDEO EDITING



Courtesy of:
FAST Electronic U.S., Inc.

The computer, like the traditional video editing suite, once occupied an entire room. It had levers and electrical switches that churned out solutions to numeric problems. These electrical switches and relays gave way to chips and faster mechanisms for calculating information. A similar revolution has been under way in the video industry.

The past two years have seen a dramatic increase in the number and sophistication of desktop video products available for professional use. These new products have varied greatly in the manner in which they have addressed the marketplace, from consumer to broadcast. Stressing the integration of the powerful IBM/compatible PC and Macintosh computer platforms into video production, these systems have enabled one person to accomplish tasks once only trained specialists could complete.

Desktop video has made many promises. Because of their use of popular computer platforms, these systems have made video editing more accessible to the creative user, who perhaps did not have the technical knowledge to run a traditional system. For the first time ever, all basic video editing functions such as machine control, video editing and mixing, digital effects, graphics and character generator were combined on a single board for PC and Macintosh platforms. Desktop video has also enabled technicians to put their own creativity into a job, with the result that more users have become involved in video.

But today, more and more users are looking to the digital future of desktop video. Nonlinear editing, with its attendant promises of cut and paste simplicity and lightning-fast access times, is the high tech tool that the industry is clamoring for.

The most successful desktop editing systems to date have been **linear editing systems** in which VTRs function as players and recorders. For the actual editing process, analog signals are digitized on the board, processed in real time and converted back into an analog signal for recording. The computer stores only timecode information and individual frames, not actual motion video and audio sequences. However, as the use of digital storage media continues to grow, nonlinear editing will no doubt eventually replace linear editing systems.

Nonlinear editing

Standard recorders record video signals on video cassettes and provide only linear access to information (in the order it was recorded). This method of recording and accessing information leads to longer winding times. Thus a considerable amount of time is wasted during the editing process. Other disadvantages of linear and mechanical recording are pre-roll times and difficulties in cueing to specific points on a tape.

In contrast, nonlinear recording of video to hard disk and other digital storage media provide the user with direct and accurate access to any information recorded on the disk. Fully digital editing eliminates annoying winding times in the studio and simplifies the editing process. Users can also preview entire editing sequences, and the storage media is not subjected to the same wear and tear as tape.

The limitations of nonlinear editing systems

Critics of nonlinear systems reject these obvious advantages and claim that these systems:

- Offer limited recording quality
- Are too expensive

- Are difficult to integrate in today's production processes

Limited recording quality

In the digital recording of video, between 18 and 22 MB of data are generated per second. Today's PC architectures simply cannot process this amount of data. Therefore, the data generated is reduced using various mathematical processes, called compression algorithms. The resulting compression ratio is a trade-off between the quality of the digital video and the amount of data generated: the lower the compression ratio, the higher the quality and amount of data generated per time unit.

In the past, compression rates of 10:1 could be achieved only with sophisticated and expensive technologies. Due to the limited quality, nonlinear systems could only be used as proofing platforms and for generating edit decision lists (EDL) for offline editing.

High price of systems

In the past, nonlinear systems were relatively expensive due to the high demands placed on base processors and storage media (high read/write rates, capacities in the gigabyte range). Economic factors faced by vendors also kept prices high (pricing policies, low number of units, long development phases, project business). The "intermediary product" EDL generated by such a system is thus very expensive.

The difficulty of integrating nonlinear systems in today's production processes

Nonlinear systems are isolated solutions in today's studio environment. Specially trained personnel prepare EDLs on nonlinear systems. The edit list is then processed step by step using standard editors and tape machines. There is no link between the systems. EDLs do not permit certain information (audio, effects, etc.) to be communicated beyond the limits of the system. Until now two studios or editing systems have been required to complete a production: a nonlinear editing system for the first edit and EDL generation and a traditional online system to control tape machines and the production of a master from original footage.

Conclusions

Based on the current drawbacks which exist in regard to nonlinear editing, the successful system must provide the means to work flexibly with not only digital but analog source material as well. Combining machine control for analog decks with the compression codec for nonlinear editing in the same system would ensure the absolute integrity of the editing process from start to final master. This sort of mixed-mode operation would always guarantee the highest quality in the finished product, while giving the ease of random access for flexible decision making. Such a system would dispense as much as possible with proprietary hardware by using standard hard drives and functioning in regular desktop computers.

Judging by the rapid development of desktop video technology in the past two years, such mixed mode systems are only months away. Businesses planning purchases of desktop technology can protect their investment by insuring that any system purchased is capable of functioning in both the digital and analog worlds.



DIGITAL ANIMATION RECORDERS

Low-Cost/High-Quality Solutions for Real-Time Animation Recording



Courtesy of:
Matrox Electronics Systems, Ltd.

By Darin Crosby
Marketing Assistant
Matrox Video Products Group

As computer technology merges more with the video and film production industries, considerable effort has been aimed at employing microcomputers to enhance animation construction and to reduce the complexity of printing animations to tape. Powerful graphics software like 3D Studio, Animator PRO, LightWave 3D and others are capable of creating complex, awe-inspiring animations that can improve almost any pure-video production. Until now, however, printing these animations to tape required the painstaking, time-consuming process of frame-by-frame recording.

As the name implies, frame-by-frame recording techniques print animation sequences to tape one frame at a time. Animations are huge files—a single three-dimensional still image can require up to one megabyte of storage space, and it takes thirty of these to produce one second of real-time motion. To preview or record the sequence in real time, a system's transfer time must approximate 20-30 megabytes per second. You can see the problem—not too many personal computers are capable of transfer rates this high. As a result, frame-by-frame recording is used with expensive frame-accurate VCRs.

Enter compression technology. Animation recorders using compression algorithms such as JPEG are changing all this. Several products are now on the market that allow the real-time recording of animations directly from the computer. Depending on the package, animators can preview sequences in real time, edit frames, rotoscope on live video and send broadcast quality results to a standard VCR.

Using this new technology, a ten-second animation will take, remarkably, ten seconds to record. This may seem less than spectacular for those of you unfamiliar with the traditional frame-by-frame method, but it represents a significant benefit to animators. Single-frame recording can take up to 30 seconds per frame to put to tape (about four hours for a fifteen-second animation). This is because the tape must be moving over the heads to record the image. The process goes something like this: preroll the tape a few frames before the desired one, play the tape and record on the designated frame, roll the tape back for the next one and, finally, cue up the next image in the animation sequence and start again. Not only does this take time, but all the back-and-forth motion over the same portion of tape causes considerable wear and tear on both the tape machine and the tape (mechanical glitches and tape dropouts are common occurrences). After spending a good portion of the day at the tape machine, one master copy is produced—and all subsequent copies must be dubbed from it (unless the animator spends another four hours printing a new one). The result of all this is a lowered signal-to-noise ratio, increased maintenance expense and a lot of lost time.

If an error has been made, either in the original sequence or by missing a frame when recording, it cannot be picked up until the process is complete. Changing or adding a frame afterward requires that all following frames be re-recorded as well. Digital animation technology has greatly simplified this entire process.

Through a compression technology such as JPEG, a video image is compressed to a size that a microcomputer can manage by eliminating information that exceeds human visual perception. JPEG divides an image into 8 by 8 pixel blocks and encodes it using a Discrete Cosine Transformation (DCT). DCT is based on human visual limitations—our visual system is more sensitive to luminance (brightness) and low frequency information than it is to chrominance (color) and high frequency data. Using DCT, JPEG eliminates much of the high frequency and color information. It is a lossy affair—a compression term that means the original data cannot be retrieved. What is saved ranges from 5 to 95 percent of the original image. Some experts believe that almost 95 percent of the data in an image can be removed without noticeable loss in resolution. Of course, this is subjective—users must decide what level of resolution is satisfactory for a given production. In general, the loss of resolution in an image compressed by a factor of ten through JPEG is not noticeable.

Motion-JPEG is simply an extension of this process: as far as a computer is concerned, motion video is only 30 still images displayed each second. It is becoming the standard for animation recorders because it allows broadcast-quality video output while providing random access to individual frames for editing purposes. Similar JPEG engines are the heart of nonlinear editing suites like the Matrox Studio, Avid Media Composer and EMC Primetime Editor, among others.

Animation recorders that use motion-JPEG include the Matrox Animation Xpress (MAX) from Matrox Video Products Group, Bandit from Fast Forward Video, and the Personal Animation Recorder (PAR) from Digital Processing Systems. Other systems exist that utilize proprietary compression schemes (such as Visual Systems' VTV-2000). In addition to real-time recording, some digital animation recorders include a frame grabber and frame buffer that allow real-time frame capture for rotoscoping on live video. This can be an important feature to look for—not only is rotoscoping with video simplified, but editing of individual frames (animation or video) on-screen is possible. The animator can check the sequence for NTSC-legal colors and artifacts (image distortions caused by signal sampling and compression), and trim, combine, insert or extract frames before recording.

The goal of this new technology is to increase the efficiency, productivity and creativity of video and animation production. If video professionals can spend less time on the mechanics of the job and more time on higher-level tasks, the final product will be more attractive and creative, will cost less to produce and will take less time to complete. Production houses will certainly value the money and time savings these solutions offer, and the viewer will appreciate the results without ever knowing the technological marvels used in their creation.



WHERE ARE WE HEADED?

Image Acquisition in the Digital Domain



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In Motion Magazine

By Jon Silberg

How far away are we from all-digital production? The '90s have already been a decade of quantum leaps in the use of digital technology in motion picture and television production. Companies such as Avid, EMC2, Lightworks and Montage continue to develop and market nonlinear editing systems revolutionizing postproduction. While only a few years ago many directors and producers shied away from inaccurate and unwieldy convergence systems, today's nonlinear editing systems that can run in true 24 fps with an image quality debatably indistinguishable from Betacam SP, have more features and series that are being cut that way.

Furthermore, DAT recorders and nonlinear systems are revolutionizing the way sound is recorded and mixed. And Kodak's photo CD technology is being heavily touted as a medium for storing, manipulating and transporting still images.

It's becoming common practice in features and episodic television to digitize the material and cut it nonlinearly in a fraction of the time it would have taken less than a decade ago. Companies such as Zoetrope hardly workprint anything anymore because they are able to preoffline scenes as they come out of the video tap and then cut the film nonlinearly so they come away with a list for the negative cutter while workprinting virtually nothing.

Companies such as Apple and Raster Ops are coming out with software to manipulate digitized audio and videosignals. The possibility for increased image quality and expedited postproduction in the digital domain suggests that the next logical step in this forward movement is in production—image acquisition.

Ken Carter, who has worked for several video manufacturers and is now working toward developing and marketing fully digital still cameras, says his experience going back to the dawn of digital postproduction has been that traditional video companies have shied away from new computer based technology only to regret it later. He sees many applications growing out of Apple's QuickTime and is very impressed by some of the things Avid is doing.

Of course, digital image acquisition is a technology in its infancy. Although products that will facilitate tapeless production are uncommon, some predict there will be soon, and could and should be now. "I've worked in broadcast video for many years and I've fought many battles and I've realized that computer people understand video better than video people understand computers," says Carter.

Chris Cave, VP and managing director of National Cave Art, a division of National Video Center, in New York City, agrees. "This stuff will come from innovative young companies, not the kind of old companies that release a bell this year and a new whistle next year."

At this point the key to the future lies in compression, which has come much further in just the last two years than many imagined possible. JPEG now compresses at a 3:1 ratio and can deal with 60 fps rather than the former thirty. Eric Peters, Avid's Chief technology officer, says, "The key is efficiency. How good a picture can you get and how much space does it take to store." It is physically possible right now to digitize a video signal from a camera and store an uncompressed digital image into a Harry or an Abekas, but this

would be a very expensive and unwieldy proposal with an uncompressed image taking up gobs of memory.

With software such as Apple's Quicktime you could store much more information, but the image quality is not satisfactory for many purposes. Mark Flores of A.D.I., Advanced Digital Imaging in Anaheim, CA, spoke of that company's plans to outfit someone with a camera, a Mac and special boards so images can be shot right into the Mac. "At this point this sort of thing is just not practical for production," says Flores, who sees it as a very viable means of production some time in the future.

Avid, at the forefront of digital post, is trying to pioneer this field of digital image acquisitions. They are pushing the concept of DNG (Digital News Gathering) to replace the traditional ENG. In Europe, they are already using Avid technology to shoot into and broadcast out of. Among others, the BBC is doing this as is a small Belgian television station. "Their studio," says Peters, "is the size of a two-car garage and they reach 200,000 homes." He sees the future television stations operating out of spaces the size of a radio station in part because real-time digitizing and random access editing enable one machine to do the work of many.

Many people debate the question of what an acceptable quality is for digital images. It obviously depends on your application. If you're layering D-1 or D-2 quality images you will most likely not be happy with a 10:1 or even 3:1 compression ratio. If you require film images you wouldn't be satisfied with any currently available video image even uncompressed. But for applications such as news, commercials, infomercials and possibly music videos Cave says, despite the fact that there are no official standards at the moment, in his opinion, "JPEG looks very good."

He predicts that JPEG and other compression schemes will continue to look better and use less memory. He believes that the future will see images shot and stored on disc or in a direct memory bubble chip with no access time whatsoever. Cave says the giants in the field of production would be crazy if they weren't working toward this goal but he doesn't expect the big guys (especially those with a vested interest in selling tape) to lead the way.

"People could be shooting broadcast level all digital recordings right now," says Cave. "It's companies like Avid, RasterOps and MAC who say, 'to hell with this.' They're the guys to actually bring this technology out into the marketplace." One successful experiment with digital, nonlinear based image acquisition was performed by Northern Sky Productions, a production company and beta test site for Avid which used their Avid Media Composer 8000, a portable nonlinear editing unit for shooting a series of commercial spots. By shooting right into the Avid they were able to edit the spots as they shot them. Eric McDonald, director of the spots, says, "I really see digital technology blurring the lines of production and postproduction." Northern Sky did 13 spots for a Louisiana-based law firm using a rolling mobile case they designed for what was primarily an editing unit. With his setup you could send any signal Betacam or D-2 with audio and timecode and it would digitize and store the picture and sound in real time using JPEG compression. A prebuilt sequence indicating how the spots were designed allowed editing between takes.





The production was entirely tapeless (they laid it down on Beta in case of a problem but they never had to use that tape) and it was ready for delivery at the end of the shooting day.

For the type of finished product required in those spots McDonald definitely sees this as the way to go in the not-too-distant-future. "There are still some concerns at the moment. There's the possibility of a system crash—it's a lot of information going into the system—but it didn't happen and I think the chances will be reduced as they fine tune the system."

This sort of technology suggests a possibility of going way beyond this simple commercial shoot. While there are still people who need to finish on film, the possibilities of being able to manipulate images nonlinearly present many options.

Kim Aubry, vice president in charge of engineering at Zoetrope says, "Francis Coppola has always been a big proponent of 'electronic cinema.'" At Zoetrope, picture and sound are finished nonlinearly.

With the exception of a few shots which are screened for the DP, Coppola's recent films have been finished entirely on video to the point where a screening of the workprint is simply a question of printing and conforming just the shots that were decided on in video.

Zoetrope still uses Hi8 tape to actually store the original images and the reason is space. In *Dracula* they shot well over 200,000 feet of film and they recorded the video tap. While Aubry is intrigued by the idea of putting all that stuff into an Avid, he doesn't see it as being a practical option for some time.

"The hardware cost for digitally storing reasonable resolution pictures and sound of all of this material is still prohibitive," says Aubry. "Even the relatively large physical size and incompatibility between differing digital drive formats and software protocols make all-digital storage less practical than analog storage. All of *Dracula's* tap recordings, dailies and edited versions live on two small shelves

of Hi8 video cassettes in an office. But, I have no doubt that as things progress, all digital systems that can handle the truly massive storage requirements of a feature film will emerge."

If the industry becomes a tapeless production, everything harkens back to compression. Avid's Eric Peters says that microchip technology presents finite limits to how good an image you can store and how much physical space you can store it in. As JPEG is getting better pictures in less storage time, companies like IBM, Laser-Pacific and Philips, among others, are looking into MPEG compression for purposes of releasing more information in less space using CDs and CD-ROM as the medium.

Peters sees the possibilities to shoot and edit all digital, all random access productions expand as the chips that enable compression advance. "We're talking about chips that can do well over ten billion calculations. I see compression increasing every time we get an order of magnitude of increased chip power."

Moreover, as we move into the 3-D domain, the acquisition of content broadens and complicates the issues of usage, rights and distribution. Human characters, particularly celebrities, may be terrified by what could be done with 3-D virtual data bases of themselves. Entrepreneur Gregory Panos, who specializes in virtual reality, has special expertise in human figure and personality digitization. "Your 'PersonaForm' is the ultimate reference document of who you are in life. This 3-D database can be used in motion picture effects (like *T2*), missing persons, fitness training, plastic surgery, interactive venues..."

PersonaForm, set to debut in Beverly Hills, is primarily a service bureau designed to acquire, fine tune and maintain 3-D databases of famous people. Not only do the databases contain shape information of one's body, but most important, facial expressions and body motions are acquired and stored in a PersonaForm construct. As Panos points out, "No longer taking visual and sound information off of film or tape, the future points to the direct acquisition and digitization of people, places and things right into the computer system as digital data."

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SQUEEZING THE PICTURE: VIDEO COMPRESSION

Stuffing five pounds in a 2-pound bag.



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By Patrick E. Walker

Desktop digital video is available today in two major forms, commonly called *software-only* and *hardware-assisted playback*. Software-only playback uses the computer's CPU to deliver low-quality (less than VHS tape equivalent), windowed (usually $\frac{1}{8}$ to $\frac{1}{4}$ screen), and less than full-motion (about 15 to 30 frames per second (fps) on a fast i486) video for playback from CD-ROM or over a network. Generally, software-decoded video is employed for multimedia publishing and desktop video conferencing applications, where the developer desires to reach a wide community of users who may not possess dedicated video-decoding hardware in their machines.

Of more interest to the broadcasters is hardware-assisted digital video. To decompress and display better quality digital video, computers use add-on hardware boards with dedicated and extremely fast video DSP chips. Compression algorithms that require hardware-assisted decoding are of two main types:

1. **Interframe:** such as Production Level Video (PLV) and the various MPEG algorithms. These use combinations of key, motion-predicted and interpolated frames to achieve high compression ratios and low data rates.
2. **Intraframe:** such as TrueMotion and the many forms of motion JPEG. These systems compress every frame (and, sometimes, every field) of video individually. These algorithms provide quality video and offer the advantage of frame-accurate editability. The cost, however, is data rates two to 10 times higher than interframe algorithms.

In addition to algorithm types, another issue of compression is the symmetry of the process. With symmetric algorithms, the compression process requires the same amount of clock time as the decompression (playback). On the other hand, the asymmetric compression process requires considerably more clock time than decompression. Because most of the horsepower is required for compression, asymmetric decompression can be done on low-cost computer equipment.

Interframe algorithms

Common interframe algorithms include:

- **Production Level Video:** PLV is a digital video algorithm that was developed as part of Intel's Digital Video Interactive (DVI) technology in 1989. In 1991, an improved version (PLV-2) was released. PLV can provide VHS-quality video at 30fps on a full-screen display. In this mode, the resolution is 256 x 240 pixels. Horizontal pixel interpolation, a 5:4 pixel aspect ratio and horizontal line doubling are used to achieve a full VGA screen 640 x 480 pixel display.

A PLV bitstream is generated by using a modified Vector Quantization (VQ) approach and consists of at least one key (or reference) frame every 120 frames, followed by predicted frames every third frame. Between the predicted frames are interpolated frames at the highest compression ratio. PLV is designed to deliver motion video at a data rate of 1.2Mb/s (the normal 1X CD-ROM rate). By doubling the average frame size and data rate, PLV can reduce artifacts and achieve even better motion smoothness.

PLV is compressed on a computer driven by a CCIR-601 frame server. The frame server is loaded from broadcast-quality tape

formats. Using an 8-node Intel iPSC-860 machine, it takes about one hour to compress one minute (1,800 frames) of digital video product.

PLV is in wide use in kiosks, CD-ROM-based interactive learning systems, multimedia databases and video network applications. Playback is accomplished through the IBM/Intel ActionMedia-II playback board or one of the several clones.

- **MPEG-1:** The Motion Pictures Expert Group (MPEG) completed years of committee work in 1991, and MPEG-1 video was approved as an ISO standard in late 1992. MPEG-1, like PLV, is designed to enable full-motion, full-frame video playback from a CD-ROM at 1.2Mb/s. MPEG-1 employs a Source Input Format (SIF) for motion video and associated audio rates up to 1.5Mb/s yielding picture quality comparable to or slightly better than VHS.

- **MPEG-2:** MPEG-2 is being developed as a standard for high-quality video delivery in broadcast and production applications. Final adoption of the committee recommendations is expected this year, including specification for the audio component of the standard. MPEG-2 will operate at full CCIR-601 resolution (or greater) and at data rates from 2Mb/s to 20Mb/s. MPEG-2 is the data compression technique specified for HDTV by the Grand Alliance.

ISO is expected to approve the MPEG-2 standard this year, and chips and systems are presently in development by several major vendors.

Two types of redundancy exist in full-motion video—redundancy within a single frame and redundancy between adjacent frames. MPEG, like PLV, uses three different types of frames: (I)nter Picture, (P)redicted and (B)idirectional.

I-type frames are compressed using only the information in that frame using a Discrete Cosine Transform (DCT). A rolling second of MPEG-1 video will contain at least two I frames. P-type frames are derived from preceding I frames (or from other P frames) by predicting motion forward in time. P frames are compressed to approximately 60:1. Bidirectional (B) interpolated frames are derived from the I and P frames, based on previous and next frame referencing. B frames are required liberally to achieve the low average data per frame and low data rate necessary for CD-ROM delivery.

The number of I, P and B frames constituting an MPEG bitstream is variable, depending on the decoding/encoding chip manufacturer and the type of video being compressed. In some applications, only I and P frames are used, resulting in the 4.7Mb/s video some have called MPEG-1.5.

MPEG-1 generally operates at a resolution of 320 x 240 pixels, with interpolation and line doubling to achieve full-screen playback. Recently, several companies have introduced real-time compression boardsets for PC class computers. These single-pass systems normally accept composite or Y/C video input. Because of the emerging availability of compression and low-cost playback boards, use of MPEG-1 video is expected to increase rapidly this year.

Intraframe algorithms

Intraframe compression algorithms process every frame of video (sometimes every field) identically. Therefore, intraframe





compressed video can be used for frame-accurate applications in the same manner as analog video. The only control over data rates, however, involves varying the resolution or frame rate of the video capture and compression process. For high-quality results, intraframe video data rates can be as high as 20Mb/s (6.8 minutes per gigabyte of storage). Two intraframe approaches include:

1. *TrueMotion*: an intraframe-only extension of the compression algorithms available for the Intel i750 environment. Microcode is used to reprogram the i750 chips just prior to playback of a video file. It operates at a 640 x 480 playback resolution on a VGA monitor, and uses a nonDCT algorithm to yield video that appears quite similar to video from a laser videodisc. The data rate at the 640 x 480 pixel resolution is 4.8Mb/s (28.4 min/Gb). The Power!Video compression station has been developed for compressing TrueMotion on a PC-class computer equipped with an ActionMedia II capture and compression board. It can compress a minute of video in about five minutes.

2. *Motion JPEG*: The Joint Photographic Experts Group (JPEG) has established a standard for still image compression that, like MPEG, uses a DCT algorithm. By using fast JPEG compression and decompression chips from various vendors, several board manufacturers have capture and compression systems that can process video in real time at 30fps (or 60 fields per second in recent products). Compression ratios for VHS quality usually run at about 20:1, and data rates normally exceed 1MB/s. Because of the high data rate and storage requirements, motion JPEG puts great demands on drives, buses and processors, and is not used much for distributed multimedia.

Because JPEG was standardized for still images, there is no associated audio processing standard nor synchronization technique for motion JPEG. Individual board manufacturers have adopted different techniques, resulting in unique bitstreams that are not compatible with those of other vendors. Nevertheless, motion JPEG is widely accepted for closed-environment applications, such as video editing. Most non-linear desktop editing systems today make use of motion JPEG boards.

Comparing compression systems

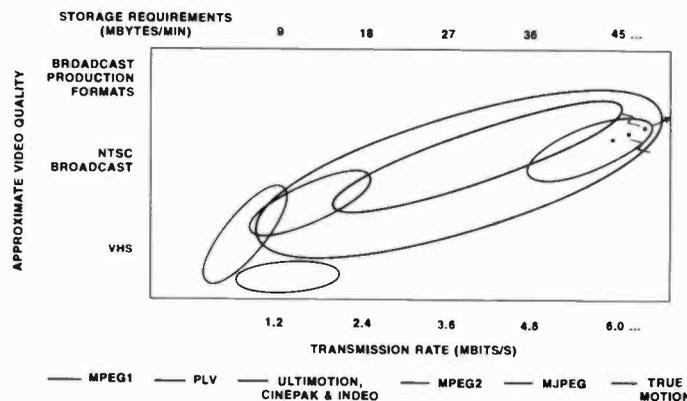
Table 1 shows various methods of compression and how they compare with one another. Although Ultimotion and Quicktime are

not mentioned in the text, they fall into the same category as Indeo. All are software-decodable video that play at low-quality rates. Low-quality video is used for applications that are better at one-quarter screen or less because the pixelation and jerkiness are apparent at full screen playback.

One thing to remember when considering compression schemes is the compression ratio. Sony and Ampex use 2:1 ratios in the Digital Betacam and DCT formats. At 2:1, the compression is virtually transparent. Many desktop system manufacturers are saying that ratios of 8:1 are barely noticeable. Compression schemes all look good at low ratios, but as those are increased, the quality decreases. The reasons behind increased ratios are simple: reduced file size and limited system throughput. Both of these factors influence and, to some extent, govern the range used on various systems. In addition, realize that there are two sides to the compression coin. Those on one side are looking at final image quality and accepting compression as a means around technical limitations. However, the other side is quite forgiving of final quality and sees compression as the means of storing large amounts of information in limited space. Today's systems encompass various compromises between these two extremes.

With both hardware-assisted and software-only playback of digital video today, users have a range of compression algorithms from which to choose for their application. Although there is much written about a standard in the digital video compression market, users tend to choose whichever algorithm closely fits their application and satisfies the various factors of data rate, quality and playback costs (such as the hardware, software and platform). However, the issue of video quality is and will always be an important consideration when choosing a digital video compression system.

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Video quality vs. data rate and storage requirements for various compression schemes.



Table 1.

Details of common video compression schemes in use today. Quality level is relative and dependent on compression ratio used.

VIDEO COMPRESSION METHODS							
Method	Frame Rate Frames/s	Data Rate Mb/s	Resolution Pixels	Synchronized Audio	Special Hardware	Compression	Quality
Ultimotion	15	1.2	160 x 120	Y	None	Symmetric	Good
Cinepak (Quicktime 1.5)	15-24	1.2-4	320 x 240	Y	None	Asymmetric (150:1)	Good
Indeo (VFW)	15-30	1.2-4.8	160 x 120- 320 x 240	Y	None	Symmetric or Asymmetric	Good
PLV	30	1.2	256 x 240 (640 x 480)	Y	i750	Asymmetric (60:1)	Better
MPEG-1	30	1.2	320 x 240 (640 x 480)	Y	C-cubed CL450/950	Asymmetric 15:1 on PVS	Better
MPEG-2	30	2-20	720 x 480	Y	Y-TBD	Asymmetric	Best
Motion JPEG	30	4.8-10	160 x 120- 640 x 480	N	C-Cubed CL550/560	Symmetric	Good to Better
TrueMotion	30	4.8	384 x 480 (768 x 480)	Y	i750	Asymmetric (10:1)	Better to Best
Laserdisc	30	181.6	640 x 480 480 H lines	Y	Videodisc Player	N/A	Better

Pixel resolutions indicated in parenthesis are full-screen images obtained through horizontal interpolation and line doubling. Pixels used in PLV have a 5:4 aspect ratio, which accounts for the different number of pixels involved.

MULTIMEDIA AUTHORING SYSTEMS



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Digital Video Magazine
(formerly Desktop Video World)

By Mark Fritz

Multimedia computing has evolved over the years step by step, media by media. Thirty years ago, at the dawn of the first authoring systems for CBT (computer-based training), multimedia was really monomedia. In those days, the only media possible was text, plus whatever crude graphics you could create by arranging dots and dashes and other ASCII characters. Today, multimedia authoring systems offer a variety of tools for combining graphics, animation, audio and video to create sophisticated interactive applications.

Not for programmers only

The "systems" part of the term *authoring systems* is also the result of evolution. Originally, if you wanted to create an interactive computer application, you had to use one of several specialized authoring languages. Unfortunately, this meant you also had to be a programmer. Soon, however, the demand for authoring software that could be used by nonprogrammers, especially trainers and teachers, led to the development of authoring systems, which are often built "on top of" an authoring language, sometimes simply by giving users a menu of commands from which to choose.

For our purposes, we've set several criteria for what a product should include for it to be called a multimedia authoring system. It should provide sophisticated interactivity, including the ability to create "branches," either through the use of built-in logic or variables; the ability to track and store user responses, or at least provide access to a database that can store user responses; access to an underlying scripting language, or at least the ability to go beyond a set number of standard functions to allow some measure of customization; and the ability to incorporate both analog and digital video, preferably full-frame, and output it to videotape.

Authoring systems can be categorized according to the type of user interface they offer. In most cases, the type of interface also determines how easy the authoring system is to use. The three major categories are: *language-*, or *script-based/command-driven*; *menu-driven*; and *icon-based*. Almost all authoring systems fall into one of these categories; even hybrid products that combine a little of each type have a dominant orientation. A few new products, such as Macromedia Director, use a fourth kind of user interface, the *timeline*, which has been borrowed from presentation graphics products.

An example of a script-based/command-driven authoring tool is Multimedia Grasp from Paul Mace Software. Although the product provides pull-down menus for functions such as save, open file, edit and so on, the application development itself (the authoring) is accomplished primarily through English-like commands typed into the computer with a text editor.

Menu-driven tools spare you the chore of memorizing commands, but they do not necessarily make the authoring process easier. Instead of typing, you choose commands with the mouse from menus, which can be equally tedious and time-consuming; most programs provide equivalent "keyboard shortcuts" for many functions.

Icon-based authoring systems offer recognizable symbols that represent programming commands or entire routines. Authoring then becomes a matter of dragging icons from the "library" or "toolbox" area of the user interface into the work area. In place of a control script of commands, you build a flowchart of icons.

To confuse the lines of pedigree even more, a whole new category of multimedia-capable software has sprung up in recent years. It all began with Claris's HyperCard. This revolutionary tool started the "hypertext" craze, which, as the ability to incorporate other media was added, quickly evolved into "hypermedia." With hypertext, you can create a hot spot or a button that, when clicked on, takes you via a "link" to another piece of text that might be stored anywhere in your hypertext database. Moving through text information in this way is appropriately called "jumping." The same principle allows hypermedia buttons to launch media events (for example, jumping to a video clip file and starting it).

Power versus ease of use

The tradeoff between power and ease of use is the central issue in choosing which authoring system to buy. Begin by deciding how sophisticated your multimedia applications will need to be. That decision will narrow the list of tools you'll want to consider. With a menu-driven authoring system such as Tempura Media Author (Mathematica), you don't have to be a programmer and struggle at the micro level where every change in your application demands a line, or many lines, of code. But simplified authoring systems reduce programming options to a menu of the most-used commands. It's like buying one-size-fits-all clothing. You pay a price for simplicity—decreased flexibility, power and customization.

For creating unique, specialized multimedia applications, you may want the kind of power you can get only from an authoring or programming language. With a language, however, you pay the price of time—time spent learning it and time spent using it. If you want both ease of use and power, you'll have to pay top dollar: two cases in point, icon-based Authorware Pro (Macromedia) and IconAuthor (AimTech), both priced at \$5000.

When deciding which authoring system to buy, insist on the following: support for video overlay cards that allow you to overlay graphics and text on video; support for digitizer boards that allow you to "grab" and digitize still images and video clips and store them on a hard disk; the ability to drive videodisc players and VTRs so you can bring analog video into your applications; and the ability to use audio in your applications, particularly MIDI files. Microsoft Windows has built-in support for most of these things, which is why Windows-based authoring systems have become so popular recently. DOS, however, requires software developers to add special routines or device drivers to drive a videodisc player, play back MIDI files and so on. Not all authoring systems are created equal when it comes to the integration of multimedia, and this often separates the cheap products from the expensive ones.

Another thing that separates expensive authoring systems from inexpensive ones is the degree of sophistication of tracking, or user feedback/response management features. The importance to you of tracking will depend on the nature of your application. If you are creating an application to be used in a point-of-purchase kiosk, for instance, your sales force will probably want sophisticated user-response capabilities for gathering and storing names, addresses and telephone numbers of respondents. If you're creating a game, you might want to track high scorers.

All in one or one at a time?

Another consideration in choosing an authoring system is how much production capability you will need from it. Do you need an all-in-one program that gives you all the media capabilities in one package or an integrator that simply lets you combine elements created with other programs? Again, price is a consideration here. The integrator products are cheaper than the all-in-one products, but you must factor in how much it will cost to buy the other separate software packages you're going to need. You may need to spend \$495 for a paint program, another \$495 for an animation tool and so on. If you prefer to use the media production tools that you're familiar with already, however, using an integrator can be a real advantage. Most authoring systems fall between the two extremes, offering some built-in capabilities for rudimentary graphics, typography or animation, but forcing you to go to another package for more sophisticated work.

Essentially, the search for a multimedia authoring tool is the search for the compromise that best suits your programming ability (or lack thereof), your vision of the finished product and your budget.

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PUT THE POWER OF PHOTO CD TO WORK ON YOUR COMPUTER



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Petersen's PHOTOgraphic Magazine.

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The personal computer and various software programs have made it possible to do amazing things with photographs—all you need is a way to import these digitized images onto the desktop. Photo CD represents an easy, affordable, fast way to accomplish this.

There are lots of ways to put data into a computer—among the most popular are via the keyboard, via floppy disks in built-in floppy-disk drives, via telephone lines with a modem and via compact discs in built-in or add-on accessory CD-ROM XA drives. Most major CD-ROM XA drive manufacturers now offer Photo CD-compatible drives, making it simple to put Photo CD images into popular personal computers.

If your computer application wasn't designed with Photo CD compatibility, Kodak offers Photo CD Access Software, an inexpensive product that gives users of many such applications access to Photo CD images. A number of computer hardware vendors are building Photo CD capability into PC-compatible software, so that users of these products can access Photo CD images merely by inserting the Photo CD disc into the CD-ROM XA drive, with no additional software needed.

Once you've put your image in the computer, you can—through programs such as KODAK PHOTOEDGE Photo CD Software and ADOBE PHOTOSHOP Software—manipulate it to your satisfaction (i.e., retouch, sharpen, soften, increase or decrease contrast, crop, improve color rendition, change size, change resolution and save in any of five image-file formats) or alter it through special effects such as making color images black-and-white or vice versa, reversal (making a positive image negative or vice versa), mirror-image viewing, flopping left-to-right, adding or deleting elements, etc.

Image manipulation requires a lot of computer memory. Eight megabytes of RAM will allow you to use image-manipulation programs, but things will run rather slowly. Serious photo manipulators have 68 megabytes of RAM in their computers. But even if your computer does not have this memory capacity, you might be able to find a facility near you that rents time on compatible equipment. For example, the Center for Creative

Imaging in Camden, Maine, conducts complete workshops in digital photographic image manipulation.

Photo CD not only makes it easy to input images into a computer, but those images are of high reproduction quality. The scanners that have traditionally been used to put photos into home computers are more difficult to use, and cannot reproduce nearly the image quality of Photo CD. What is more, reproduction-quality scanners cost far more than a CD-ROM XA drive for Photo CD. Photo CD Master discs store images at five levels of resolution for various applications—lower levels for quicker access and higher levels for better quality. The recently introduced Pro Photo CD Master disc adds an even higher resolution level for professional applications. We here at PHOTOgraphic Magazine have already published several articles for which the color photographs were submitted on Photo CD.

Desktop-publishing operations—where page layouts are prepared on desktop computers, from design through film of each page for the printer—will find Photo CD an ideal way to input reproduction-quality photos into their computers for manipulation and import into layouts. Whether you publish a semi-annual newsletter from your home or a monthly magazine from a big office, Photo CD can make your job easier.

During the coming year, Kodak plans to introduce smaller 80 mm Photo CD discs (standard Photo CDs, like audio CDs, are 120 mm in diameter) for CD-ROM XA drives in future laptop computers. And recordable Photo CDs are in the offing, which will allow users to author their own Photo CDs combining still images with text, graphics and sound.

Note: KODAK and PhotoEdge are trademarks.

For information call 1-800-CD-KODAK.

THREE LEVELS OF H.320 IMPLEMENTATION



Courtesy of:
GPT Video Systems

By Cindy A. McGonagle

H.320 is the umbrella standard for videoconferencing, and most, if not all, videoconferencing manufacturers claim H.320-compliance. But—buyer beware—all H.320-compliant codecs are not the same!

They're not the same, because H.320 has three levels of compliance—minimum, optional and maximum. And, picture performance is impacted depending on where in those three levels a videoconferencing manufacturer chooses to comply. As investors—or potential investors—in videoconferencing, we all need to take a better look at H.320. (See following chart).

Essentially, H.320 specifies a common denominator for videoconferencing systems...a common ground upon which all videoconferencing manufacturers must meet. This is the minimum level of system design necessary to ensure that all standards-compliant videoconferencing systems can communicate and work together. At this minimum level, the standard does not specify any functional elements which affect picture performance and quality. These are left to the skill of the manufacturer.

In the optional level, the standard specifies some performance features, but for the most part leaves the level of design sophistication to the manufacturer. Thus, there is sufficient latitude within the specification to allow for inexpensive, low-quality implementation or more complex, high-quality implementation.

And finally, in the third level which is the maximum level of H.320, the standard specifies factors for enhanced performance and better picture quality.

It's imperative to remember that a video system is in compliance with the H.320 standard as long as it conforms to the minimum level of design. Further, it will perform adequately at this lowest level—without either the optional or maximum features included. It is these options, however, which distinguish a basic video codec from a high-quality performer, and which allow for market competition based on price and performance. Here are some of these "distinguishing" features:

Pre and post processing on video and audio

Pre and post processing are a complex screening process to reduce background picture and audio noise. The process is not required under minimal implementation of the ITU-T (CCITT) standard and can, therefore, be omitted altogether while still adhering to H.320. The problem is, if pre processing is omitted, the coding loop can spend significant time coding and then transmitting the "noise" caused by an inexpensive camera or low light, instead of real videoconference motion. In addition, pre processing encompasses "spatial and temporal interpolation" which facilitate smoother motion and optimum resolution. On the reverse side, post processing predicts and compensates for picture degradations caused by rapid motion, such as turning your head quickly on screen. This is particularly important at low data rates.

Full search motion compensation

Motion compensation is a process which provides for smooth motion on the video screen. Essentially, motion compensation moves a block of pixels (these are segments of the picture) in response to motion rather than re-writing the picture information into a new location. This function is vital at lower data rates, because it minimizes the amount of effort required for the codec to refresh the picture. The ability to decode a motion compensated signal is mandatory under the standard. The ability to encode for motion compensation is optional.

Keep in mind that the encoding function is where the power is. If you were to see two different manufacturer's codecs communicating with each other, you may attribute the better image quality to the one which is displaying that image. Actually, the opposite is true! Image quality is a function of the sending codec, not the receiving codec. If one codec has the ability to do motion compensation on the encoding side and the other does not, the better image will be seen on the codec that is not encoding motion compensation, but is merely decoding the motion compensation

The Differences Among H.320 Codecs

<u>Level 1 = Minimum</u> QCIF (176 x 144)	<u>Level 2 = Mid Level</u> CIF (352 x 288)	<u>Level 3 = Highest (GPT)</u> CIF (352 x 288)
7.5 Frames/Second	up to 15 Fps	up to 30 Fps
300-3400 Hz audio	50-7000 Hz audio	7000 Hz audio
56/64 kbps data rate	up to 384 kbps	up to 1.544 Mbps
no motion compensation	limited motion (6 x 6=36)	full motion (30 x 30=900)
n/a	n/a	pre/post processing on both encoder and decoder



received from the more powerful codec. The image on the codec which is encoding motion compensation will be much worse, because it wasn't sent an encoded image. This is analogous to the fact that the worst barber often has the best haircut, since someone else cuts his hair!

Narrowband versus wideband audio

The H.320 standard specifies two different audio standards—G.711 and G.722. A manufacturer is in compliance with the standard if the codec complies with G.711 only. However, whether or not a manufacturer can achieve G.722 as well as G.711 will directly impact the audio quality of the videoconference, and—as all video manufacturers will admit—good audio is crucial to a videoconference. Specifically, G.711 specifies coding for telephone-quality (a.k.a., narrowband, 3 kHz) audio.

Another important point is that high-quality codecs are limited by the connecting codec. For example, a codec which achieves G.722 will have to drop down to G.711 when connecting with a codec that can only achieve G.711.

QCIF versus CIF resolution

QCIF (quarter common intermediate format) and full CIF (full common intermediate format) are formats for overcoming incompatibility problems between regional television standards, specifically between NTSC and PAL. According to the H.320 standard, QCIF is a requirement for compatibility, but full CIF is an option.

When a manufacturer chooses QCIF or full CIF as a format, picture quality is directly impacted. If a codec has full CIF capability, it is using the best compromise (between NTSC and PAL) possible. That is because full CIF provides a picture resolution of 288 lines, each compromising 360 pixels. This is as opposed to QCIF. Here the

number of CIF lines are halved and the number of pixels per line are halved. This gives an overall resolution of half times a half CIF, or QCIF (144 lines and 176 pixels)—in other words, a quarter of the resolution! As with audio, a high-quality codec that typically achieves CIF resolution must drop to QCIF if the connecting codec is capable only of QCIF.

Frame frequency

Frame rate is the number of times per second the codec refreshes the picture. Frame rate can vary between 7.5 frames per second (fps) and 30 fps. The higher the frame rate, the smoother and faster the motion. If a lower frame rate is used, motion will often be "jerky." Frame frequency is not specified under the H.320 standard, and so it is left to the manufacturer to provide any frame frequency. Significantly, as with audio and CIF resolution, frame rate must be the same between the connecting codecs in order for communication to occur. Therefore, a low-quality codec operating at 15 fps will force a high-quality codec to drop from 30 fps to 15 fps for communication.

Conclusion

The exclusion of pre and post processing, full search motion compensation and the others are just a few examples of how videoconference system manufacturers may produce a lower cost product at the expense of picture quality, while still maintaining adherence to H.320. The caveat, of course, is buyer beware. Basic adherence to the H.320 standard is not enough to guarantee quality and performance. It is maximum implementation of the ITU-T H.320 standard which counts.





Courtesy of:
Video Images

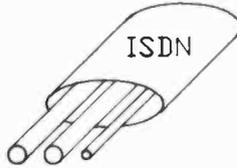
DATA NETWORK SERVICES

Switch 56



2 x 56 Kbps
= 112 Kbps

ISDN BRI



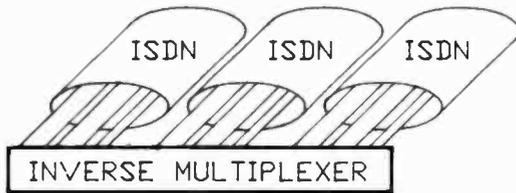
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= 128 Kbps

1/4 T1



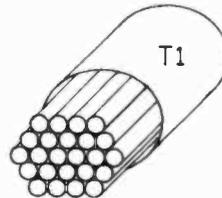
6 x 56 Kbps
= 336 Kbps

384 CONNECTION



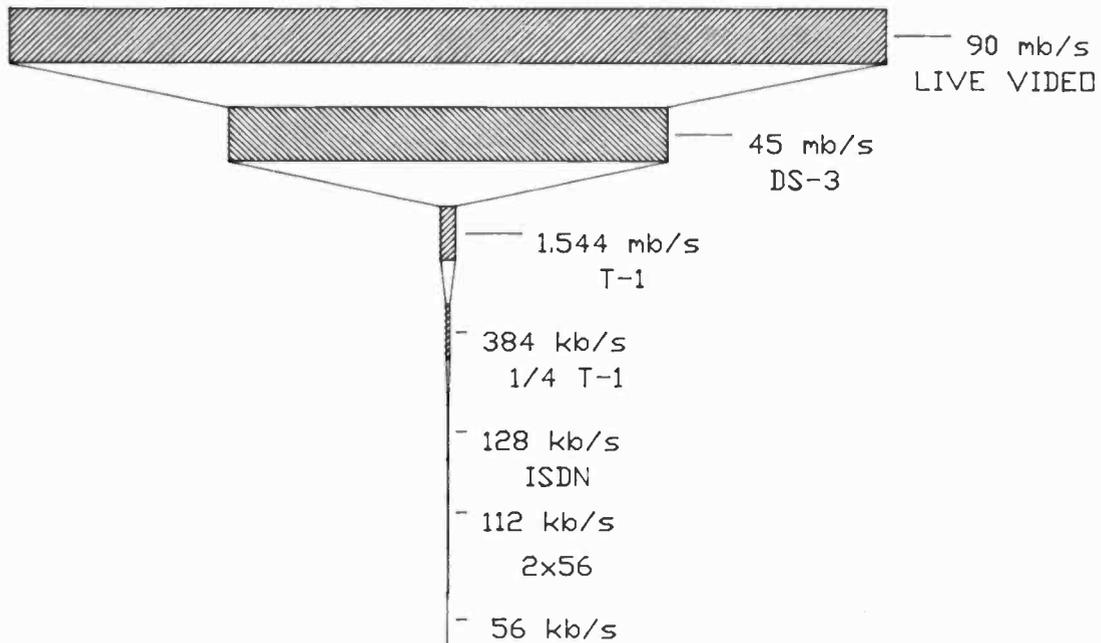
6 x 64 Kbps
= 384 Kbps

T1 / PRI



T1 = 24 x 56 Kbps
PRI = 24 x 64 Kbps

RELATIVE BANDWIDTHS



CABLE MANAGEMENT PROVIDES PROTECTION AND SOLVES FIBER OPTIC PROBLEMS



Courtesy of:
Telect, Inc.

By Glen Larson
Telect Fiber Optic Program Manager

Though fiber optic technology has been around for some time now, it really has been the telephone operating companies that originally recognized the importance of fiber's huge bandwidth and how it could most effectively use their established right-of-ways to install a fiber optic network that could outperform any copper-based systems currently in operation. This was made possible thanks to numerous joint developments by manufacturers and these telephone companies.

The networks they built used single mode fiber which has a core size of 8-10 microns. This small core allowed for increased bandwidth and easy upgrading by simply changing out the electronic equipment. The first systems used multiplexers that could convert a T1 transmission rate (1.544M byte/sec.) to a T3 transmission rate (45M byte/sec.) evolving to Synchronous Optical Networks (SONET)

which carries transmission rates to 2.4G byte/sec. (2488.32M byte/sec.) (figure 1). Lab tests show that this will also evolve to even larger data transmissions over fiber.

With all the Telephony network deployments, requirements for special fiber handling became increasingly critical with each upgrade. In recent years, we've read about service blackouts due to cable dig ups—typically a fiber optic cable that a back hoe has dug up. Unfortunately, the only problem with fiber optic cable is that it's undetectable by today's cable tracers.

So, why use fiber optics outside the telephony arena? Data users, private network planners, cable television companies, utility companies, and educational facilities ask this question daily. To review fiber's practicality, we need to look at its advantages:

Advantages

Bandwidth	Can electronically upgrade huge data transmission capacity (without having to recable).
Low Loss	Typical fiber optic cable loss: 0.5dB/km for single mode; 3.0dB/km for multimode. Ideal for long transmissions where you can reduce or eliminate repeaters.
Security	Fiber optics show instant fail or signal degradation at any micro bend or break, and cannot be tapped like copper wires.
Size/Weight	Fiber optic glass strands are typically 125 microns in diameter. (Human hair is 75 microns.) A 12-fiber outside plant cable is about 3/8" in diameter. In comparison, 900-pair copper cable is 3" in diameter and carries less data.
Electromagnetic Immunity	Photons are transmitted over fiber. Electrical surges do not affect fiber. A key feature for utility companies.
Visual Obstructions	Eliminates obstructions such as microwave towers.
Eliminates FCC Licensing and Frequency Allocations	Fiber is cable based and is not transmitted by airwaves.
Maintenance	None required.

While fiber optics has many distinct advantages, there are also some disadvantages. However, by keeping accurate field records and properly handling cable in a head-end office, you can greatly reduce potential problems. Fortunately, fiber optic cabling has improved over the past several years, but technicians still need to learn how to handle delicate fiber optics.

Bellcore Standards

Bell Communications Research (Bellcore) has spent many years working with fiber optic cable, hardware, connectors, and splices, and has published numerous fiber optic articles and guidelines. One of these guidelines describes the bend radius of a glass fiber. According to Bellcore, you should maintain a minimum of 1.5" for any fiber cable. Exceeding this bend radius will disperse the optical signal and create high loss or break the fiber. Although fiber cable is known for its tensile pull strength, bending is still inherently fragile. In fact, the manufacturers-recommended bend radius of multifiber cable is typically 20X the size of the cable diameter—a good point to remember when planning cabling routes in buildings, ducts, and conduits.

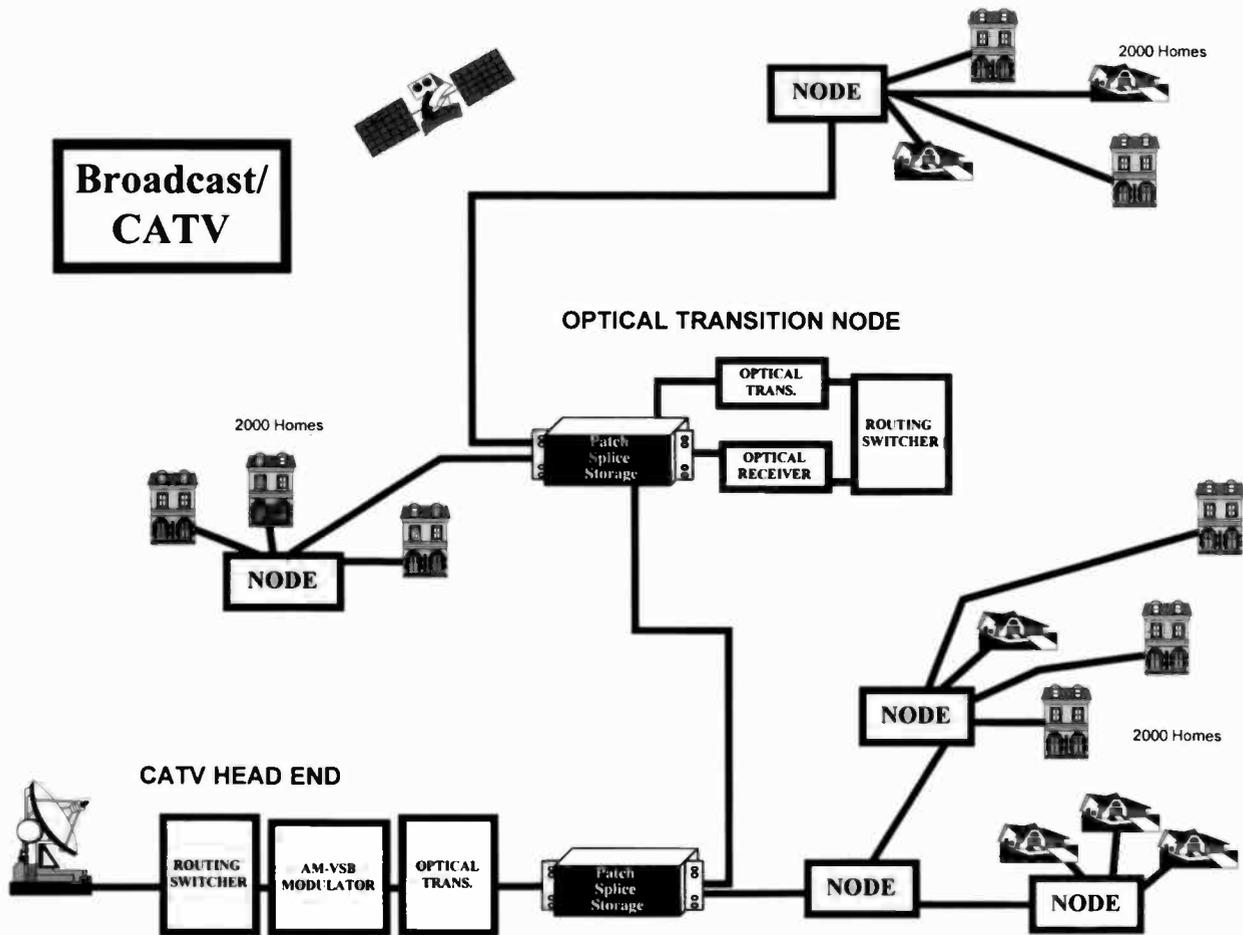
Disadvantages

New Fiber Optic Technologies	No history available for some new technologies.
Fiber Optic Handling	Requires some skilled training using expensive equipment for splicing and connectorization.
Cable Based	Requires right-of-ways from utilities. Fiber cable can be dug up if not detected. The high bandwidth capacity of fiber optic systems, failures in the cable or electronics can result in thousands of customers losing service.



Once you install, test and terminate the cable backbone, splicing is mechanically done in a centrally located splice vault or splice panel. When complete, splices are usually permanent. Therefore, it's important to place the splice vault or panel in a secure area away from traffic. (The splice usually feeds a pigtail—a cable with a connector on one end—that leads to either a patch panel or the transmission equipment.) Unfortunately, this is one of the most commonly overlooked cable management areas. From splice point to transmission equipment, fiber may travel several floors, several rooms, or just a few bays across a room to the equipment. Since this is normally a high traffic area, it can cause several failures. Luckily, fiber optic patch panels are an inexpensive way to prevent failures. Usually, they are the main connection from the transmission

point to the outside plant cable. However, if there's a problem with a fiber in the equipment room, or if there's a failure in the field, you can easily reroute the signal by locating the patch panels and routing around the problem. Often, a cable in the equipment room is installed improperly because it was either struck by an object, pulled along a sharp edge, or failed due to poor cable management. A good cable management system that provides the necessary critical bend radius will pay for itself many times over once system errors begin. By using the proper internal and external cable management routing to all patch and splice panels, you will alleviate virtually all system failures.



"HELLO— WHAT WAS THAT?"



Courtesy of:
Video Corporation of America

By Mark Fletcher

"Hello—what was that? I'm sorry. Could you say that again?" These are all familiar sayings we have used when we use our speaker phones for audio conferences. Simply put, they just don't work. Fortunately there is an inexpensive solution. Portable audio conferencing systems are now available from several manufacturers. The prices of the systems range from \$995.00 to \$1,500.00. Although this may sound expensive at first, let me relate a story that puts this into perspective.

I set up a meeting with a customer who was interested in purchasing 1.3 million dollars worth of data projectors. It had taken a long time to get all the critical players together for a meeting and at the last second the customer had to cancel. I was very disappointed because I had pulled together quite a few people from around the country to meet with him to answer his few remaining questions. I decided to hold the meeting using the speaker phone to connect us—big mistake! The phone kept clipping off the audio and we quickly realized the only thing we were accomplishing was frustrating everyone involved. The failure to communicate meant rescheduling the meeting, which happened three weeks later.

That created a window of opportunity for the competition. The sale started to unravel at this point, and eventually I lost it—a 1.3 million dollar sale because I tried to use a speaker phone as a teleconferencing system.

Whether you are looking for a less frustrating way to communicate with your co-workers or an inexpensive alternative to the expenses of traveling, you should look at a professional quality audioteleconferencing system to conduct your business.

When using a teleconferencing system the first noticeable improvement is sound quality. There are several reasons for this. An audio conferencing system uses professional unidirectional microphones and quality speakers. The business telephone you are using as a speaker phone probably costs less than \$150.00. The mics and speakers in these sets need to be cheap to keep the instrument at a low price point.

The second noticeable improvement is the system's ability to allow all participants to talk at the same time. This is called full duplex.

This two-way, simultaneous audio transmission greatly improves the flow of information. The telephone you use is only half duplex. Half duplex technology allows the transmission of audio in both directions but not at the same time. In order to carry on a conversation, the telephone flips the direction of transmission to the speaker. If both people are speaking, it will pick the loudest source. This may lead to a shouting match.

There are additional features found on portable audio teleconferencing systems. The most popular features include a mute, so you can carry on a conversation in private, an output for a tape player so the meeting can be recorded, user adjustable volume control, automatic gain control (which keeps an even audio level as you increase or decrease your distance to the mic), and an input for a wireless microphone. You should check with your dealer to find out what is available.

Hardware is important but planning is essential. Before a conference takes place you should do the following:

- Run a test of the equipment to make sure it functions properly and you feel comfortable using it
- Fax any written material that needs to be discussed before the meeting begins
- Introduce all participants' names and titles
- Begin with the goal to be accomplished
- Have an agenda to work from and a time frame for meeting the goal(s) set forth
- Speak in a natural voice
- Think about location of participants; you may be spanning 2 or 3 time zones. This affects the schedule of the meeting
- Keeping unused microphones muted helps keep ambient noise from interfering with the conference



WHAT IS DIGITAL AUDIO?



Courtesy of:
Tascam/TEAC America, Inc.
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Sound travels through the air as minute, rapid variations in pressure. The faster the variations, the higher the pitch, and the bigger the variations, the louder the sound. The variations are cyclical in nature, and if you were able to see them as they pass by a single point, they'd look like a continuously changing wave. So we talk about sound being a "waveform."



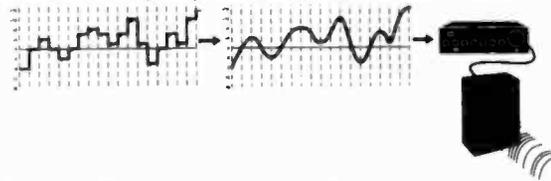
Digital audio is a method of representing the continuous waveform of sound as a series of discrete numbers. In some ways it's similar in principle to movies or television: in those media, moving images are broken up into individual still pictures, or "frames." When viewed at the proper speed, somewhere from 24 to 30 frames per second depending on the medium, our brains fuse those images into one continuously changing image.

Digital audio also uses "snapshots" of sound, called "samples," to represent the waveform. But it's more complex than film because of the nature of the way we hear. Sounds are "analog" in nature, continuously varying, with no discrete "jumps" from one pressure level to another, and that's what we expect to hear. Ears can't be fooled the way that eyes can—a sound that "flickers" won't sound right, no matter how fast the flicker is.



A sound wave getting digitized

This means that digital audio isn't a complete medium for delivering sound information to our ears: it is an "intermediate" medium, and some form of conversion to or from an analog signal must be done at both ends of the chain. A microphone creates analog signals by turning the variations in air pressure into continuously varying electrical signals. In a digital audio system, this "analog" of the real sound gets converted into digital data. At the listening end, the digital data is converted back to an analog voltage which can then be sent to an ordinary amplifier and speaker so we can hear it.



A digital recording being turned back into sound waves

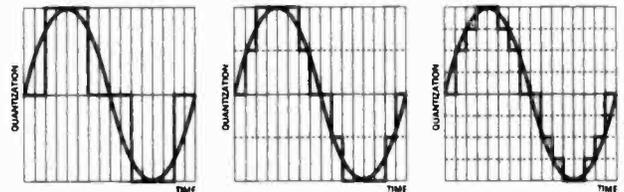
The process of converting analog audio to digital numbers ("A-to-D conversion") involves measuring the instantaneous volume ("amplitude") level of the sound many times each second, and recording that level as a number. This process is called "sampling" and each number that is created in the process is called a "sample" or a "word."

The fidelity of the conversion process is determined by 2 major factors: the range (the maximum and minimum values) of the numbers available for a given sample and the speed at which the samples are taken.

WORD LENGTH

How does the range of numbers affect the sound quality? When it comes to representing the volume of a sound, analog audio has infinite resolution—that is, there are an infinite number of values it can take.

Whenever you take a sample of the amplitude, you are actually making an approximation. How close that approximation is depends on the range of numbers you have available to you. If you can use only the numbers 1, 2, 3 and 4, your approximation is going to be very crude. If you can choose from any of 65,536 different numbers, your approximation will be quite good.



The higher the resolution of quantization, the more accurate each approximation of the signal level will be

The difference between the approximation you make and the actual value of the signal before you converted it is called "quantization error." We usually hear it as noise. The greater the range of values you have available for samples, the lower the quantization error, and therefore, the lower the system's noise floor. The difference between the maximum level that can be sampled and the noise produced by quantization error is the signal-to-noise ratio of the analog-to-digital converter.

Digital samples are expressed in binary code—strings of ones and zeroes—which is the way electronic switches and computers work. (If anyone tells you his digital audio system is better because it works with twos and threes, he's pulling your leg!) Each digit in a binary word is known as a "bit." As it happens, there is a formula that links the number of bits a converter uses to create a digital sample with the maximum theoretical signal-to-noise ratio of the converter:

$$S/N \text{ ratio in dB} = 1.76 + (\text{number of bits} \times 6.02).$$

This can be (and usually is) approximated into:

$$S/N \text{ ratio} = 2 + (\text{number of bits} \times 6).$$

Therefore, a converter that uses 8-bit digital words has a potential signal-to-noise ratio of about 50dB, which is about what an AM radio is capable of; a 12-bit converter has a ratio of 74dB, or about that of a good cassette deck; and a 16-bit converter has a ratio of 98dB, which is about the dynamic range of a symphony orchestra.

These are all theoretical "ideals"—in reality, there are other factors, such as the fact that electronic components and circuits don't behave perfectly all the time, that tend to lower these numbers slightly.

As far as the number of numbers a converter can create is concerned, you calculate that by raising 2 to the power of the number of bits in the system: an 8-bit system can have 2^8 , or 256 values; a 12-bit system 2^{12} or 4096; etc.

The industry standard for recording digital audio is 16 bits: that's what CDs, DATs, multitrack digital decks and digital audio tracks on modern video decks use. We don't really need more than 98dB of dynamic range in any listening environment, professional or consumer, so this is fine.

However, since "real-world" 16-bit systems rarely achieve the

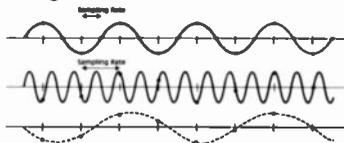


dynamic range they are capable of in theory, if we really want all of that dynamic range—true 16-bit performance—it would help if we had a couple of extra bits to play with. And even in a digital system, noise is cumulative. If you mix together a lot of digital sources, the noise from each of them will add up, possibly compromising the fidelity of the mix. So the more processing and mixing is done to a digital signal, the more need there is for those extra bits. Therefore, many digital applications, like signal processing, all-digital mixing consoles and even some recording systems, use longer words of 18, 20 or even 24 bits. Those extra bits help to make sure the final product—which is more than likely going to be a 16-bit recording—is truly as good as a 16-bit digital audio recording can be.

Shorter word lengths are acceptable in some situations. Using shorter word lengths means that more sound can be stored within a given amount of memory and it makes systems easier to design. Many digital samplers, such as electronic musical instruments which play back sampled sounds in response to keystrokes or MIDI commands, use 12-bit samples and sound perfectly okay, because the dynamic range demanded of them is not as large as what is required from a master recording. One early digital recording format, known as "EIAJ" or "PCM-F1," allowed for 2 different word lengths: 14-bit and 16-bit. The shorter length reduced the dynamic range by 6dB, but it gave the system 2 extra bits for detecting and correcting errors.

SAMPLING RATE

The other major factor in determining the fidelity of an analog-to-digital converter is how quickly the samples are taken. If a waveform is to be sampled accurately, there have to be at least 2 samples taken of the waveform, according to a rule known as the Nyquist Theorem. Turn that around, and we see that the sampling rate of a system must be twice as high as the highest frequency of the sound that is being sampled. If this rule is not observed, "foldover" or "aliasing" occurs, which consists of unwanted frequencies showing up in the digital signal.



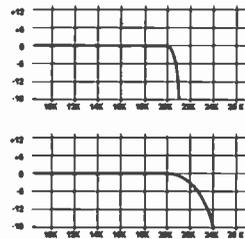
Trying to sample a sound higher than half of the sampling rate produces errors, because the converter cannot get 2 samples of each cycle. This is called "aliasing."

Above is an illustration of how aliasing occurs. If we take a converter with a sampling rate of 20kHz and feed it an analog signal at 15kHz, the samples that are taken don't represent different parts of a single cycle, they represent different parts of different cycles. The converter doesn't know this and assumes the samples are from within a single cycle. The frequency of the signal the converter thinks it's looking at happens to be equal to the difference between the input signal and half of the sampling frequency, or 5kHz. This is a far cry from 15kHz. Obviously, this situation is something to avoid.

The frequency response of the human ear, at its best, extends to about 20kHz. Therefore, to cover the entire range of possible frequencies, sampling rates in digital converters must be at least 40kHz. It is entirely possible, however, that sounds above 20kHz may be generated in a recording situation (just because we can't hear them doesn't mean they're not there), and so to prevent those unheard sounds from causing aliasing, they need to be filtered out. Ideally, this should be done with a "brick-wall" analog low-pass

filter, which simply eliminates all frequencies above 20kHz.

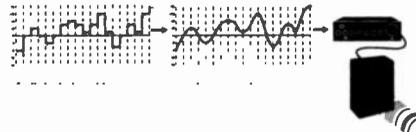
On a practical level, however, such a filter is impossible to build, and even if it were practical, it would probably introduce some kind of distortion (most likely phase-related) in frequencies below 20kHz. To get around this, sampling rates are usually higher than 40kHz, and filters that don't have to work quite so hard—their frequency response slopes down above 20kHz, instead of trying to abruptly cut everything off—are employed to prevent aliasing.



The higher the sampling frequency is above the audible range, the gentler the slope of the anti-aliasing filter can be

The most popular sampling rates for digital recording are 44.1 kHz and 48kHz. You may come across lower sampling rates in certain applications. As with shorter word lengths, lower sample rates mean less room is needed for storing signals and circuits are easier to design. Some signal processors (like digital reverbs) use a lower sampling rate on the principle that very high audio frequencies don't reverberate much in nature, so they can be ignored by the processor.

You can also find slower sampling rates used in some broadcasting applications, like Direct Broadcast Satellite, which is in use in Asia and Europe and carries 32kHz digital audio. Although it's not used very much, the Digital Audio Tape (DAT) specification allows for 32kHz sampling (as well as 12-bit operation) either to double the capacity of a tape, or to allow recording of 4 channels of audio. Finally, you may encounter odd sampling rates like 44.056kHz. These are used when digital audio is being synchronized with video.



A digital signal becomes an analog waveform through a digital-to-analog converter

CONVERTING IT BACK

The reverse process—creating analog signals out of digital ones so we can hear them—is called "D-to-A conversion." The numbers are fed into a device which generates a voltage whose level corresponds to the value of the sample. This results in a waveform that looks like a staircase. This waveform is smoothed by a low-pass filter which takes out all the high harmonics above 20kHz and turns the steps into straight lines or smooth curves. This signal is now a nearly perfect reproduction of the original input signal and it can be sent to an amplifier and speakers, and then to your ears.

This article is just the basics of how digital audio works. There are many other facets of digital audio recording. Please call your PSNI dealer for more information.

THE PROCESS OF PROCESSING



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By Roy W. Rising

Part #1

For years, many audio operators have been tight-lipped about their trade secrets and special techniques for processing sound. Some are this way because they stumbled upon what they thought was unique; others are this way because they really did not understand it well enough to explain what they were doing. It is time to sweep back the curtains and illuminate the process of processing.

The tools

Devices used for processing include:

- Filters
- Equalizers (EQs)
- Compressors
- Limiters
- Comp/limiters
- Peak limiters
- De-essers
- Gates
- Noise reducers
- Comb filters
- Black boxes

Filters

Audio filters are used to remove specific ranges of sound. Extremely steep slopes—12-, 18- or 24dB/octave—are found in high pass (HP) and low pass (LP) units. An alternate, and simpler parlance for these devices, is low cut (HP) and high cut (LP).

Typical low-cut (HP) applications are for the elimination of ac hum, rumble from air conditioning or mic boom racking and tegrapped mic-handling noise. Settings of 120Hz to 180Hz are suitable for dialog channels, depending on the steepness of the slope.

High cut (LP) usage helps with clothing rustle and similar upper-range annoyances. Settings around 8kHz mask problems from such sources as paper bags, leather coats and bed sheets.

The UREI 565T filter set gives you 18dB/octave HP up to 200Hz and LP down to 2kHz. Also, two notch/peak filters provide 5%, 10% and 50% of center frequency notches or peaks in three ranges, covering 20Hz to 20kHz. These can remove tone-like whines that are louder than program. A balance control is provided for oscilloscope adjustment of asymmetrical coherent noises.

Keep in mind that this device is of the unbalanced T configuration. Sometimes a utility transformer is needed on the input, output or both. Also, the 565T headroom is less than expected for a line-level unit. A -10dB/600Ω environment (with downstream gain recovery, if needed) is helpful.

Another use for HP/LP filters is simulation of sounds from various on-camera sources. A television, radio or stereo is not expected to sound as good as the overall program. Telephone voices heard by an on-camera character must be filtered. These applications benefit from 18dB/octave units that offer HP/LP settings to 2kHz—the upper range of fundamentals for speech.

Equalizers

The equalizer, quite possibly the Winchester of processors, has

developed into an assault weapon capable of great harm. The simple tone controls on modest consumer equipment usually do as much as is needed from an EQ. Three-band EQs are more than enough for 99% of all applications. Four-band units should be approached with caution.

Another danger is introduced when too many EQ parameters are adjustable. Choices of shelving or peaking on the upper and lower ranges are dangerous. Simple tone controls are shelving devices. Even an adjustable hinge frequency for top and bottom can be hazardous. For decades, 1kHz has worked as a universal center frequency.

Variable Q for peak/dip controls widens (low Q) or narrows (high Q) the affected range. Keep in mind that phase distortions introduced by steep slopes—those greater than 6dB/octave—are noticeable and irreversible. One-third-octave graphic EQs cannot surpass 2dB differences between adjacent sliders without exceeding this slope.

For best results, set all Q controls to their lowest value. Increase the setting only if you have a reason and are sure that you understand the results. Set the hinge frequency of the HF section as low as possible, and switch it to shelving if the choice is offered. Dial the LF section to its highest hinge point and select shelving.

For speech, use EQ to adjust various voices to an average as heard. Check the results on another system, or at least from somewhere else in the room. Too many EQ errors come from acoustical problems caused by the monitors and various reflections in the room.

Compressors

An audio compression amplifier is an almost-smart device that changes its characteristics according to certain preset conditions. Usually, three parameters are adjustable: threshold, compression ratio and gain. Threshold determines the audio level where compression begins. Ratio selects the amount of input-to-output correction that occurs. Gain is the loss or amplification of the device, with or without compression.

When operating in a +4dBm environment, a threshold of -20 means that compression will occur for input signals above -16dBm. A ratio of 4:1 means that above the threshold a 4dB increase at the input will yield a 1dB rise at the output. When a compressor is inserted into a lower-level environment, it may be necessary to add some gain to overcome noise and passively attenuate the signal and noise after the compressor.

When a compressor is located electrically between the sources to be compressed and the submaster or master over these elements, the amount of compression may be adjusted by manipulating the surrounding controls. (Some compressors offer input and output knobs instead of threshold and gain.) Advancing the sources while reducing the sub or master will result in more compression. This is often easier than reaching to the compressor to change its threshold. But be careful: Pushing the inputs might overload something *before* the compressor, resulting in distortion the device cannot prevent.

Limiters

Most simply, a limiter may be thought of as a compressor with an





infinite compression ratio. Above the threshold, no increase of output occurs with *any* increase of input. Most limiters must be used cautiously. Sudden transition from normal dynamics to hard limiting at the threshold can offend the ear. The brain perceives this much the same as listening fatigue.

Heading the other direction, when the signal that causes limiting goes away, the sudden increase of gain brings up background sounds. This is described as pumping or breathing. Listen carefully for these signatures, and back off the sources when they are noted.

One way to offer hard limiting without the noticeable side effects is to provide a gradual transition from unity gain, through smoothly increasing compression ratios, into limiting. The first successful example of this was the Babcock/Teletronix/UREI LA1 and LA2A. This vacuum-tube leveling amp remains a popular fixture in the side racks in most photos of successful recording studios.

The transistorized successor to the LA2A was the UREI LA3A. It remains my favorite, and I don't mind its noise figure. Raising its gain and attenuating the noise is worth the bother. I have said in this column previously that UREI would be well advised to introduce an LA3B that uses contemporary op-amp technology.

The excellent and popular DBX 160X from AKG Acoustics has an Over Easy mode that is supposed to give you a gradual, rather than hard, transition into limiting. I have observed many operators who aren't using this. They say it doesn't sound as good as the normal mode.

Comp/limiters

Most contemporary units deliver a continuously selectable ratio from 1:1 to infinity:1 (and beyond in some products). Some systems throw in other adjustments, such as side-chain EQ. This is a trick that lets you tell the device to act only when above-threshold sounds in a particular frequency range are present.

Adjustable attack and release times may be offered to further fine-tune behavior to the sound. These can be used to help eliminate the signature effects of hard limiting. However, many products employ preset very-fast attack and well-chosen release times. As with EQs, too many adjustable parameters may lead to less effective usage.

Peak limiters

This circuit, which is usually built into a compressor or limiter, senses extremely fast waveform rise times: the beginning of a gunshot or door slam, for example. The ear automatically protects itself from this assault and hears the remaining energy envelope. A peak limiter acts by briefly reducing gain to protect downstream electronics and storage devices. LEDs are the most suitable indicators of a peak limiter's action.

A very effective peak unlimiter was included in some consumer pre-amps of the '70s. It sensed the fast transients and briefly added gain. Someone should revive the concept and apply it to the digital reissue of early analog materials.

Part #2

De-essers

Sometimes you will encounter a voice that delivers an excessive level on sibilants, which results in an annoyance called sibilance. Sibilance usually comes from the pronunciation of s sounds, but may also come from z, sh, zh or ch sounds. Some speakers actually whistle these sounds.

Sibilance, although annoying, is normally not a problem. However, sometimes the extra signal at these upper frequencies can cause trouble. Recording and transmission systems that use pre-emphasis, the boosting of upper frequencies, can be overloaded (satellite transmission and analog recording are examples). For satellites, the result is called splatter, an unpleasant HF clipping that resembles crinkling paper.

A de-esser is a special class of compressor and can be a valuable tool in these circumstances. It senses excess energy in the 7kHz to 8kHz range and reduces gain in this region while the unwanted signal is present. The Orban Associates 526A is a simple and effective example. It provides a gain control and de-ess threshold. LEDs display its action and peak output level. An in/out switch allows comparison but may introduce pops. The 526A, intended for use in a line-level environment, is transparent while protecting against sibilant overload.

Gates

You might think of a gate as something like the opposite of a compressor. It reduces gain when the signal is below, rather than above, some threshold. The result is the reduction or complete cut-off of the signal path between words.

Sometimes, a program contains excessive background noise. When useful information is present, the ear tends to accept the information and ignore the noise. Between times, the noise calls attention to itself. Careful use of gating helps reduce the noise.

Most gates cover the whole audio range and offer gain, threshold and depth controls. Some add attack and release times. Basic technique begins by setting the depth for about 6dB and adjusting threshold for detectable improvement between words. By slowly increasing the depth, you can find a point where the action changes from detectable to noticeable. Back off a little; this is as good as it can be. Sound should be heard but not noticed.

Noise reducers

There are advanced gates, which offer individual action in separate bands of the audio spectrum. Perhaps the most popular is a system from Dolby Laboratories. For a long time, Dolby Type A Noise Reduction was known to be an effective encode/decode system for tape hiss. By introducing the Cat. No. 43 controller, Dolby made it possible to manually adjust the behavior of Type A in the encode or decode process.

The controller consists of five sliders. One is for threshold; the others adjust action in four bands: below 80Hz, 80Hz to 1kHz, 1 kHz to 8kHz and above 8kHz. Operating in the decode (playback) mode, pulling down the various sliders determines the depth of gain reduction in the ranges. Place threshold at its lowest setting for best



sensitivity.

The Cat. No. 43 is effective for delicately reducing ambiance, including reverberance and some PA wash. Dolby more recently has offered the 430 series background noise suppressor system. It uses a modified version of Dolby SR, a combination of fixed and sliding bands. The 430 uses only two sliders to adjust LF and HF noise reduction, which surrounds dominant mid-frequency signals. Some users feel that they still have better control with the Cat. No. 43.

Comb filters

One bothersome kind of noise comes from ac power systems. 60Hz hum, sometimes accompanied by 120Hz, 180Hz and 240Hz components, usually can be treated with filters, such as the UREI 565T, which was described in Part #1 of this article. When more harmonics are present, we call it buzz. This can render the signal unusable.

The Roland SN-550 Digital Noise Eliminator includes a comb filter that effectively removes ac buzz. Separate threshold controls are provided for each stereo channel. The filter may be line-locked or adjusted in $\frac{1}{2}$ Hz steps, from 40Hz to 80Hz. When used carefully, the results are amazing.

The SN-550 also provides 5-band noise reduction on each channel. Performance seems tailored more for music track noise reduction than for speech. Each overall threshold is adjustable, but separate controls, such as Dolby's, would be helpful. Maybe there will be an SN-550B with a Cat. No. 55 controller.

Black boxes

This is a name given to the family of processors that offer some special treatment of audio material without explaining just what they are doing. The Aphex Aural Exciter and its successors are examples. Simply stated, if you like what they do, use them. As with many processes, check the results in more than one place. Sometimes the gadget overcomes a local problem while damaging the final results.

The processing chain

Audio for video most often contains dialogue. Much of the program we hear is quite unlike the sound that reaches the mic. Usually,

there has been some careful treatment to eliminate distractions and assure that the message is delivered. This is often accomplished by sending all dialogue through a series of processors.

The sequence of devices is important. For example, if a low-cut filter follows a compressor, it is possible that the compressor will be actuated by the rumble that is later removed. The result is a sound that doesn't "feel" right. So the filter should precede the compressor. Similarly, a de-esser removes sounds that could cause compression. EQs may remove or add level in some ranges, but when used to mold various voices to an average, placement before compressors is safe.

To work best, gates and noise reducers depend on extremely fast rise times at the beginnings of sounds. Placement after a low-cut filter, extremely fast attack compressor or peak limiter can diminish their effectiveness. Black boxes often work best at the end of the chain, where their magic is applied to the overall sound that has been made as good as possible.

Sometimes, one or more devices lack sufficient headroom to handle uncompressed speech. The best protection technique reduces level at the head of the chain and makes up gain at the end. However, this can add noise. It may be necessary to place the offending device after a compressor. Listen carefully for unwanted artifacts.

When you set up the chain, remember that everything you, or some device, does to the sound must have a good reason. Most processes are irreversible. If you are the recordist, whose work will be further processed in post, try to confer with the downstream operator. Find an opportunity to visit a session to learn about secondary processing. Your interest will be welcome.

If you are mixing the final product, try not to slip into assurance that your standard practices are always correct. Listen to each project with fresh ears, and seek to prove the process wrong from time to time. Our transition into digital delivery systems promises to change the process of processing.

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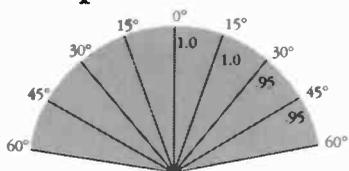


PROJECTION SCREEN SURFACES



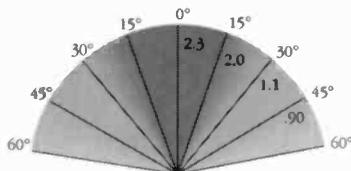
Courtesy of:
Draper Shade & Screen Co., Inc.

Draper Front Projection Screen Surfaces



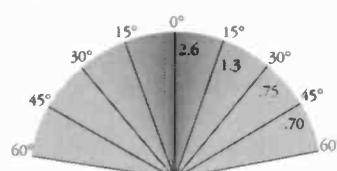
Matt White

Matt white: fiberglass base, flexible, or rigid types available for all front screens. Most versatile screen viewing surface. Washable, flame and mildew resistant.



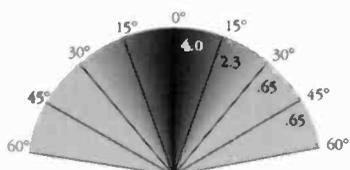
M2500

The advantages of matt white—broad viewing angles, excellent resolution—plus added brightness.



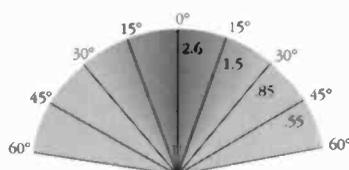
Glass Beaded

Brighter on-axis viewing than matt white, with some loss of clarity. Flame and mildew resistant. Cannot be cleaned. Available on most roller-operated screens, as well as Clarion.



Reflex 4000

World's brightest viewing surface, specifically designed for LCD and video projection. Flame and mildew resistant. Available on selected screen models.



Contrast 2400

A rigid, high-gain, high-contrast surface available only in Clarion. Grey tone deepens dark colors; reflective qualities brighten lighter tones.

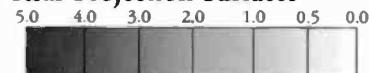
Chart Values

The fan-shaped charts on this page indicate gain values at various points, measured in degrees from projection axis. Gain is a measure of brightness as compared to a block of magnesium carbonate, which serves as a standard for gain of 1.0.

Front Projection Surfaces



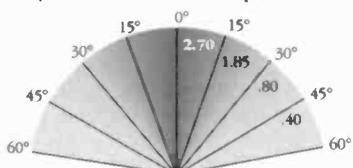
Rear Projection Surfaces



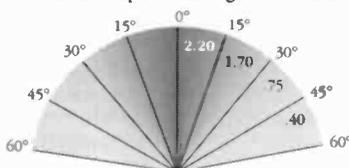
Draper Rear Projection Surfaces

Cinescreen Optical Coatings

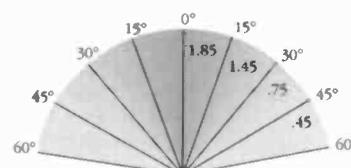
(See your dealer for more complete information on Cinescreen optical coatings and their uses.)



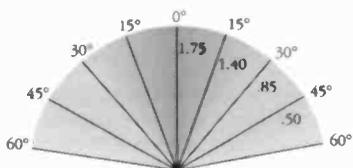
Cine 25



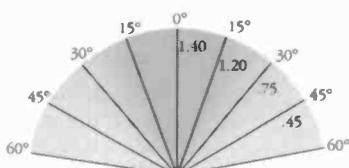
Cine 20



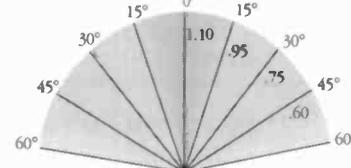
Cine 18



Cine 15



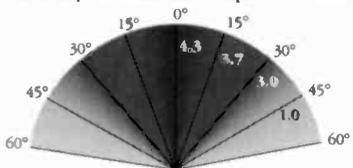
Cine 13



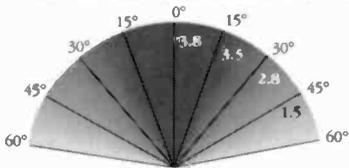
Cine 10

DiamondScreen

(Refer to your dealer for complete information on DiamondScreen and DiamondScreen with Black Matrix)



DiamondScreen



DiamondScreen with Black Matrix

USING FILTERS: The Power of Lighting for Video



Courtesy of:
Rosco Laboratories
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By Jim Meyer

Have you ever wondered why two industries—film and video—with so much in common can, at times, be so dissimilar? The art of producing motion pictures on film has many of the same characteristics as video production. Yet sometimes it seems that less emphasis is placed on the creative and technological advantages of lighting for professional video production. When it is emphasized, the benefits are obvious.

When you turn on the television and flip through the channels, you'll notice a clear difference in the texture and feel of different programs. Certain shows, such as *Civil Wars* and *Quantum Leap*, for example, have a distinct look that can be greatly attributed to the lighting. Other shows, however, seem flat and lacking in production value.

Some may dismiss these differences in production value, attributing them to the equipment, but even the most sophisticated film and video cameras cannot selectively alter the properties of individual light sources. To do so, you must evaluate each light source to determine its relationship to the scene and to the other sources. Then, you can change the properties of each source to obtain the results you desire. Finally, you can use camera optics or electronics for overall broad correction of the image.

One way to manipulate individual light sources is by using light-control filters. These tools allow you to balance the color temperature of different light sources, reduce their intensity, diffuse them for softer contrast and add color effects. However, to be able to use them effectively, you must familiarize yourself with the various categories available.

Balancing multiple light sources

Blue filters are the most commonly used filters for color correction. They are typically used to raise the color temperature of a 3200°K light source, such as tungsten, to balance with a 5500°K light source, such as daylight or HMI. Different degrees of blue filters are available, such as Full Blue, Half Blue and Quarter Blue, for different lighting scenarios.

Don't mix blue filters made by different manufacturers. Although they may have the same name and CTB designation, their photographic performance and fade characteristics can vary significantly. This is a result of differences in the manufacturing process and proprietary blend of dye components.

Amber filters can reduce color temperature from 5500°K to 3200°K. They are usually used on windows to balance incoming daylight to a tungsten reference source. They can also be used on artificial light sources, such as HMIs, to balance the color temperature to tungsten. As with blue correction filters, the amber filters come in graduated series for a range of correction possibilities.

Shooting with fluorescent lights

Plusgreen filters are designed specifically for shooting under fluorescent lights. Fluorescent lights have the same color temperature as daylight (5500°K) but are not in a continuous spectrum and have an excess green cast. When used as a primary light source (such as in a factory, large office area or supermarket), you can correct the "green daylight" emitted by simply resetting the camera's white balance or with electronic color correction in post-production.

If you supplement fluorescents with other 5500°K sources (daylight or HMI), it is possible to increase the green components of the additional lights with green filters. When using fluorescent lighting with 3200°K sources (such as tungsten), first raise the color temperature of the added source, and then apply a green filter to

match your reference. In either case, you must then make an overall color correction to eliminate the green daylight.

When practical, you can also reduce the green cast of fluorescents by filtering them with *Minusgreen* (magenta) filters. Fortunately, fluorescent lights no longer pose the problems they once did for video professionals.

Using filters for effects

In addition to color correction, several other categories of light-control filters are extremely useful lighting tools.

Neutral-density (ND) filters reduce the intensity of light without changing color temperature. They're usually applied to windows to bring the exterior light level within the exposure range of the interior light level. ND filters are also available with color-corrective components to simultaneously reduce light intensity and provide color temperature correction.

Diffusion filters modify the harsh quality of light by spreading or dispersing the beam to soften its shadow-casting properties and reduce contrast. Different gradations are available for a wide range of effects.

Color-effects filters are used for aesthetic purposes and are available in hundreds of different shades. Use them alone, with other color effects filters, or with patterns to create numerous background effects.

Selecting color-effects and diffusion filters is generally subjective, because it is predominantly an artistic choice. Selecting color-balance filters, on the other hand, requires technical considerations.

There are 3 steps you should follow to determine what filters you'll need to balance different light sources in a particular scene. Include them in your scouting reports when planning location shots to ensure that you're prepared:

1. *Establish your reference source.* The dominant light source in the scene is generally treated as the reference source for balancing light and color temperature compensation. Usually, the reference source is either 3200°K (tungsten) or 5500°K (daylight or HMI), because these are most prevalent. It is possible to balance light sources to any reference source, such as fluorescents or discharge lamps, if necessary. However, for efficiency and economy, it is usually best to begin with either a tungsten or daylight reference.
2. *Measure the Kelvin temperature of all of your light sources.* This is best accomplished with a 3-color temperature light meter, but a vectorscope is also useful. If you don't have access to one of these instruments, contact filter manufacturers for reference literature.
3. *Select the appropriate filters.* You'll need to balance the different light sources in the scene with your reference source. You can refer to manufacturers' swatchbooks and reference literature, or consult your filter manufacturer or dealer to determine the appropriate filtration materials.

Remember, your main objective should be to achieve an overall balance with the reference light source. You can apply diffusion and color-effects filters to achieve color temperature balance.

Filter techniques

Let's describe an example of balancing color temperature using 2 different light sources. Suppose your set is an actual office with a window in the background. To avoid shooting in green daylight, turn the ceiling fluorescent lights off and use three 1000W tungsten lights as your reference source (3200°K). You can apply RoscoSun



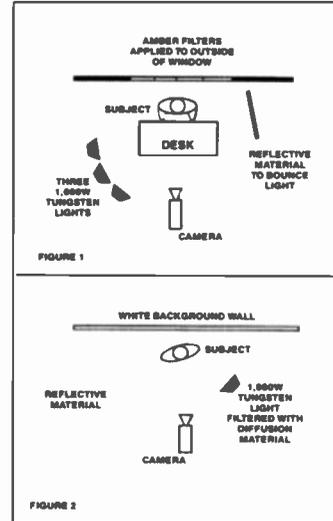
CTO (an amber filter) to the window to reduce the color temperature of the daylight from 5500°K to match the tungsten lights at 3200°K.

The amber filter applied to the window will remove the blue cast caused by the higher color temperature of the daylight. Figure 1 shows possible placement of lights, reflective material and camera relative to the subject and the window.

Although there are basic guidelines for lighting techniques and filter use, there are no set formulas for all subjects and situations. The best way to determine what works is to familiarize yourself with the technical and artistic aspects of lighting through the vast array of information available. Then, you can begin to gain personal experience through experimenting and consulting other videographers.

Fortunately, filters are relatively inexpensive. Your biggest investment will be in time and patience. However, the value added to your images will be an excellent return on your investment.

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VIDEO RESOLUTION/REFRESH RATE TIMINGS CHART

Courtesy of Mitsubishi Electronics America, Inc., Systems & Peripherals Division

By Greg Burket

Resolution (non-interlaced)	Vertical Refresh	Horizontal Scanning Frequency	Video Standard
640 x 480	60Hz	31.5kHz	VGA (IBM)
640 x 480	67Hz	35.0kHz	Apple
640 x 480	72Hz	37.0kHz	VGA high refresh (VESA)
800 x 600	56Hz	35.2kHz	Super VGA
800 x 600	60Hz	37.9kHz	Super VGA (VESA)
800 x 600	70Hz	44.5kHz	SuperVGA high refresh
800 x 600	72Hz	48.0kHz	Super VGA high refresh (VESA)
800 x 600	76Hz	52.4kHz	
832 x 624	75Hz	49.7kHz	Apple
1024 x 768	60Hz	48.4kHz	Extended VGA
1024 x 768	66Hz	53.9kHz	Apple third-party

Resolution (non-interlaced)	Vertical Refresh	Horizontal Scanning Frequency	Video Standard
1024 x 768	70Hz	56.5kHz	Extended VGA high refresh
1024 x 768	72Hz	57.9kHz	Extended VGA high refresh (VESA)
1024 x 768	76Hz	61.4kHz	SPARC compatible
1152 x 870	75Hz	68.7kHz	Apple 2-page
1152 x 900	66Hz	61.8kHz	SPARC compatible
1152 x 900	76Hz	71.7kHz	SPARC compatible high refresh
1280 x 1024	60Hz	64.0kHz	
1280 x 1024	70Hz	74.6kHz	
1280 x 1024	72Hz	78.1kHz	
1280 x 1024	76Hz	82.0kHz	
1600 x 1280	60Hz	79.3kHz	



COMPUTER VIDEO INTERFACING AND SYSTEMS



Courtesy of:
Extron Electronics
© Extron Electronics

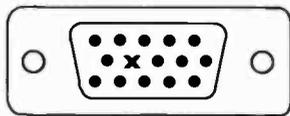
Graphics Standards

The internal graphics or graphics card in a computer determines the resolution of the computer's display. If a computer's main function is to display text, such as the case with banking terminals, then a lower resolution graphics or graphics card will be utilized. If the objective of the terminal or computer is to display graphics such as animation, charts, graphics and digitized pictures, then a higher resolution graphics standard will be used. This is all determined by the computer manufacturer's market objective for their product. Of course, the higher the resolution the higher the cost of the display. Thus, in many cases, the market is customer driven by application demand, but also, in some cases, it is market driven by manufacturers, depending on chip and technology costs. For example, if more manufacturers are using higher resolution video drivers in their designs and demand and supply is adequate, a higher resolution graphics standard may be less expensive than a lower resolution format. A basic rule of production is the more you sell, the lower it costs to produce it. In the development of graphics and graphics card standards since 1982, both of these factors have been the case. While demand increased every time a higher graphics standard was introduced, eventually the new "standard" became the norm for all manufacturers in the industry and prices always eventually came down.

The following section describes the "stepping stones" of graphics and development as defined by IBM PC and IBM PS/2 computers.

VGA

VGA "Video Graphics Array"—The VGA graphics standard was introduced as the standard output for IBM PS/2 series computers. With the introduction of the PS/2 Model 30, 50, 60, 70 and 80 in 1987 utilizing VGA graphics permanently mounted in the motherboard of the computer's CPU, a new standard resolution was born, and every graphics card manufacturer had VGA compatible cards on the market by 1988. Most VGA cards were/are retrofitable to all IBM PC and compatible computers using the standard IBM bus. These third-party VGA card manufacturers allowed current IBM PC, PC XT, PC AT and compatible users to utilize the same higher PS/2 graphics without having to buy a PS/2 computer.



15 Pin HD (female)

Specifications:

H. frequency: 31.5kHz

V. frequency: 70/60Hz

Signal: Analog

Max. resolution: 640 x 480

Colors: 64-color palette, 16 displayable

Pin configuration

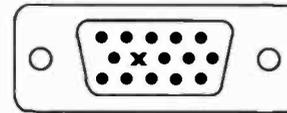
pin 1—Red	pin 9—No Pin
pin 2—Green	pin 10—Ground
pin 3—Blue	pin 11—ID Bit
pin 4—ID Bit	pin 12—ID Bit
pin 5—N/C	pin 13—H. Sync
pin 6—Red Return	pin 14—V. Sync
pin 7—Green Return	pin 15—N/C
pin 8—Blue Return	

Common characteristics: All VGA compatible cards have 3 modes of operation: Mode 1: 640 x 350, 70Hz refresh (vertical); Mode 2: 640 x 400 or 320 x 200, 70Hz refresh (vertical); Mode 3: 640 x 480, 60Hz refresh (vertical).

The mode utilized is determined, in most cases, by the software being used (software default). By providing EGA and PGA emulation modes, VGA cards can utilize software compatible only at those lower resolutions and display them "full-screen" on the computer's local monitor. Because VGA software really didn't fully saturate the market until 1989, these emulation modes were helpful for all current software applications. VGA utilizes either an IBM 8503 monochrome monitor or the 8512 or 8513 color monitors.

IBM 8514/A

IBM 8514/A Display Adaptor Card—The IBM 8514/A display adaptor card is a high resolution VGA card utilizing 4 modes of operation. Introduced in 1987, the 8514/A is an alternative high resolution graphics card to VGA for IBM PS/2 Models 50, 55, 60, 65, 70, 75 and 80. Because the 8514/A was somewhat expensive, coupled with the fact that very little software was developed for it, it never became an IBM clone "standard" card.



15 Pin HD (female)

Specifications:

H. frequency: 31.5/35kHz

V. frequency: 60/70/87/43Hz

Signal: Analog

Max. resolution: 1024 x 768 interlaced

Colors: 256,000-color palette, 256 displayable

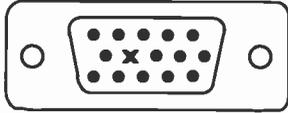
Pin configuration

pin 1—Red	pin 9—No Pin
pin 2—Green	pin 10—Ground
pin 3—Blue	pin 11—ID Bit
pin 4—ID Bit	pin 12—ID Bit
pin 5—N/C	pin 13—H. Sync
pin 6—Red Return	pin 14—V. Sync
pin 7—Green Return	pin 15—N/C
pin 8—Blue Return	

Common characteristics: The IBM 8514/A displayed the 3 VGA modes and a fourth mode of 1024 x 768 at a 43Hz refresh rate. This 43Hz fourth mode introduces a slight flicker to the display, thus making it more applicable for graphics rather than text applications. The 8514/A display adaptor utilizes an 8514 monitor.

Super VGA

Super VGA Cards—Every major third-party graphics card manufacturer has introduced since 1988 what can be categorized as a Super VGA card. Super VGA cards are either higher resolution VGA cards or standard VGA cards with more color capability. In fact, the IBM 8514/A graphics card is categorized as a Super VGA card. Because the IBM "standard" VGA is a 640 x 480 maximum resolution card with a 64-color palette, a Super VGA card must be categorized as any VGA type card with a resolution higher than 640 x 480 or with more than a 64-color palette.



15 Pin HD (female)

Most specifications:

H. frequency: 31.5-48kHz
 V. frequency: 60-87Hz
 Signal: Analog
 Max. resolution: 1024 x 768 non-interlaced
 Colors: Up to 256,000-color palette, 256 displayable
 Manufacturers: Video-7, AST, Paradise, IBM

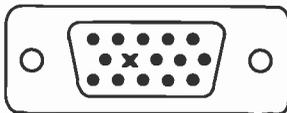
Pin configuration

pin 1—Red	pin 9—No Pin
pin 2—Green	pin 10—Ground
pin 3—Blue	pin 11—ID Bit
pin 4—ID Bit	pin 12—ID Bit
pin 5—N/C	pin 13—H . Sync
pin 6—Red Return	pin 14—V. Sync
pin 7—Green Return	pin 15—N/C
pin 8—Blue Return	

Common characteristics: The graphics resolution is either determined by software default or by manual pre-set dip switches. Utilizing a Super VGA card does not mean all programs suddenly have better graphics. The software program must be able to display the higher resolution modes or the Super VGA card will default to standard VGA modes. Super VGA cards utilize high resolution multi-scan monitors ranging in frequency from 31-48kHz.

IBM XGA and XGA-2

IBM XGA "eXtended Graphics Array"—The XGA and XGA-2 graphics standards were introduced by IBM in 1990 as the standard output of IBM PS/2 Models 90 and 95. As with VGA in other models of the PS/2, XGA is built permanently on the mother-board of the CPU. Touted as a higher resolution VGA or enhanced VGA graphics mode, XGA is IBM's answer to industry Super VGA cards. Now, IBM includes either the XGA or XGA-2 cards in all models of PS/ 1 and PS/2 computers.



15 Pin HD (female)

Specifications:

H. frequency: 31-61kHz
 V. frequency: 43/87Hz
 Signal: Analog
 Max. resolution: 1280 x 1024
 Colors: 256,000-color palette, 256 displayable

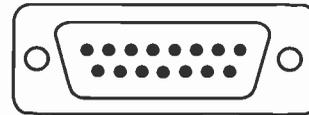
Pin configuration

pin 1—Red	pin 9—No Pin
pin 2—Green	pin 10—Ground
pin 3—Blue	pin 11—ID Bit
pin 4—ID Bit	pin 12—ID Bit
pin 5—N/C	pin 13—H . Sync
pin 6—Red Return	pin 14—V. Sync
pin 7—Green Return	pin 15—ID Bit
pin 8—Blue Return	

Common characteristics: Like the 8514/A, XGA resolution is determined by either software default or manual settings. The XGA utilizes the 8515, a 13" high resolution color monitor.

Original Mac II

Original Mac II—Originally the Macintosh II, introduced in 1987, contained only an analog RGB and composite sync output. As the first high resolution color display from Apple, the Macintosh II was ordered either with a color or monochrome display monitor.



15 Pin "D" (female)

Specifications:

H. frequency: 35.1kHz
 V. frequency: 68Hz
 Signal: Analog
 Max. resolution: 640 x 480
 Colors: monochrome or color, 1.6 million-color palette, 256 displayable

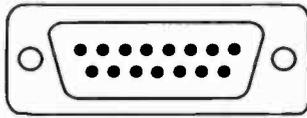
Pin configuration

pin 1—Red Ground	pin 9—Blue
pin 2—Red	pin 10—N/C
pin 3—C. Sync	pin 11—N/C
pin 4—Sync Ground	pin 12—N/C
pin 5—Green	pin 13—Blue Ground
pin 6—Green Ground	pin 14—N/C
pin 7—N/C	pin 15—N/C
pin 8—N/C	

Note: The original Mac II color computer was capable of accepting third-party graphics cards manufactured by companies like SuperMac, Radius and RasterOps.

Macintosh IIx, IIcx, IIci, IIsi, IIfx, Quadra and Centris

Macintosh IIx, IIcx, IIci, IIsi, IIfx, Quadra and Centris—The introduction of the new series of Macintosh computers in 1989 and 1990 introduced an unusual output configuration. The new Mac II card now utilized in all Mac II computers when ordering a separate RGB monitor contains an RGB composite sync output and separate horizontal and vertical sync output. The monitor attached determines whether the composite or separate horizontal and vertical sync output is used.



15 Pin "D" (female)

Specifications:

H. frequency: 24 and 35-68kHz
 V. frequency: 68Hz
 Signal: Analog
 Max. resolution: 640 x 480, 1280 x 1024
 Colors: Monochrome or color, 1.6 million-color palette, 256 displayable

Pin configuration

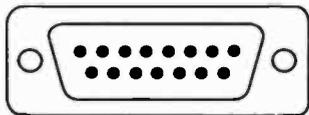
pin 1—Red Ground	pin 9—Blue
pin 2—Red	pin 10—ID Bit 03
pin 3—C. Sync	pin 11—C. & V. Sync Ground
pin 4—ID Bit 01	pin 12—V. Sync
pin 5—Green	pin 13—Blue Ground
pin 6—Green Ground	pin 14—H. Sync Ground
pin 7—ID Bit 02	pin 15—H. Sync
pin 8—N/C	

Common characteristics: The monitor that is connected determines the pin configuration utilized. Some monitors utilize composite sync output and some utilize separate horizontal and vertical sync outputs.

Note: Only the Mac IIsi or Mac LC are capable of outputting 24kHz (512 x 384) resolution. This occurs only when the 12" color monitor is connected to the 15-pin output. All other color monitors run at 35kHz.

High Resolution Macintosh II Cards

High Resolution Macintosh II Cards—As with IBM computers, there are third-party graphics card manufacturers for Macintosh II computers. These high resolution Mac II cards are either enhanced Mac II video output cards or even higher resolution than standard Mac II resolution.



15 Pin "D" (female)

Specifications:

H. frequency: 35-53kHz
 V. frequency: 60-70Hz
 Signal: Analog
 Max. resolution: 1024 x 768
 Colors: 1.6 million-color palette, 256,000 displayable
 Manufacturers: SuperMac, RasterOps and Radius

Pin configuration

pin 1—Red Ground	pin 5—Green
pin 2—Red	pin 6—Green Ground
pin 3—C. Sync	pin 7—N/C

pin 4—Sync Ground	pin 8—N/C
pin 9—Blue	pin 13—Blue Ground
pin 10—N/C	pin 14—N/C
pin 11—N/C	pin 15—N/C
pin 12—N/C (Green— SuperMac only)	

Common characteristics: Although most high resolution Mac II cards have a 15-pin "D" output for RGB, some have a 9-pin "D" gray scale (ECL) output. All of these cards are either 100% compatible with the Apple high resolution RGB card or have higher resolution enhanced modes.

PowerPC

The PowerPC is a new generation of high performance Macintosh computers with cross platform compatibility that allows users to run DOS and Windows applications with performance similar to that of Intel 386 and 486 computers.

The PowerPC microprocessor, created through an alliance between Macintosh, IBM and Motorola, utilizes a "reduced instruction-set computing technology," known as RISC. RISC offers significant performance increases and new capabilities while remaining compatible with existing software and peripherals.

The PowerPC's RISC chip makes the Macintosh computer run 25% faster than the Pentium chip and 10 times the speed of a Quadra 950 when performing the floating-point operations of most multimedia applications.

PowerPCs utilize the Macintosh System 7 operating system, so they have the same user interface as other current Macintosh systems. The PowerPC supports nearly all current Macintosh printers, networking cards, and other hardware accessories.

Currently, RISC chip upgrades are available for Mac IIsx, Centris 610, 650 and 660av; Quadra 610, 650, 660av, 800 and 840av; and the Performa line. Upgrades will eventually be available for most Macintosh computers.

SGI—Silicon Graphics Inc.

SGI high resolution workstations provide advanced graphics capabilities—previously limited largely to engineers, scientists and other visual professionals—at prices comparable to high-end PCs. SGI workstations allow users to produce and manipulate realistic, three-dimensional and four-dimensional color images, and to interact with them in real-time. SGI workstations utilize high-performance RISC CPU's and high-end graphics technology. They deliver anywhere from 10 MIPS (Million Instructions Per Second) to 200 MIPS, depending on which SGI workstation you use.

Silicon Graphics Indigo

Connector Type: 13W3

Video: Analog

Sync: TTL

Pin configuration

pin A1—Red Signal
pin A2—Green Signal
pin A3—Blue Signal
pin 3—Composite Sync
pin 4—H. Sync
pin 5—V. Sync

Supports 50, 60, 72, 76Hz, NTSC, PAL, and STR_RECT. Also supports video format files available in the /usr/gfx/ucode/NG1/vof directory.

**See the Multimedia Section
beginning on page 395 for:**

- Desktop Video/Editing
- Projection
- Computers
- Presentation
- Graphics
- Interfacing
- Electronic Imaging
- Control Systems



**VIDEO • AUDIO •
CONFERENCE
PRODUCTS**

Abekas

A Carlton Company

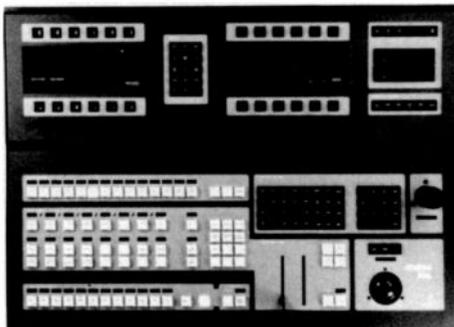


DIGITAL VIDEO EQUIPMENT



ASWR 8100 Component Digital Switcher

- Mid-size edit suite with 10-bit CCIR 601 video processing
- 3 powerful keyers for video layering capabilities
- Graphically assisted user interface
- Multi-level operation allows simultaneous mix and wipe transitions within the M/E
- Provides a full program/preset function with downstream key and fade to black
- Capable of operating in either 525- or 625-line standards
- Supports up to 16 primary inputs in serial or parallel component digital, and RGB or YUV component analog formats
- reTouch™ color correction option provides 7 color correctors, each with gain, lift and gamma adjustments in either RGB or YUV color space
- You can posterize, solarize, black and white clip, false color and luma tint
- Extensive luma key and 4:4:4 chroma key capabilities in each keyer
- You can select linear or matte key modes, soften, position and size key signals horizontally and vertically and exchange key layer priorities
- Sub-pixel processing within mBoss™ key border generator creates smooth border edges and extra wide borders and shadows with variations
- Time-Frame™ effects editors provides 4 independent switcher effect timelines, plus remote synchronization of external Abekas disk recorder and digital effects for advanced effects sequencing
- Optional dual framestores can store a full frame of video, key or mask, and offer strobe freeze function with variable duty cycle



A84+ Component Digital Switcher

- Dedicated to the exacting demands of post production
- Unique video layering architecture with innovative step-saving control system
- 10-bit 4:4:4 internal keying paths and patented key processing techniques
- Provides the finest picture quality available
- Flexibility, with simultaneous unrestricted luminance and chroma

- keying, key masking, color correction, key border, and profiled mix or wipe transitions on every multi-element video layer
- All without resorting to non-real time operation
- Preview entire multi-layer effect in real time
- Adjust individual switcher layer, disk and effect timing directly from the A84+ panel, using Timeline Edit software
- LINC™ integration software allows full control of the optional AS7 Digital Video Effects System and digital cache recorders
- The A84+ also has features like serial digital, NTSC, D2 and YUV/RGB format converters, and an Extended SMPTE Editor Interface Protocol that provides switcher snapshot and remote control of all switchers functions
- Upgrades available for A84s



Hexus Digital Disk Recorder

- 10-bit CCIR 601 product disk system
- 4:2:2:4 and 4:4:4:4 capability
- Switch between 525/60 and 625/50 operation
- Modular architecture lets you choose the disk system suited to your requirements: from a base model with two 1-minute channels to the fully configured 6-channel machine
- Can be controlled by a single VTR timeline from your editor or from a switcher using LINC protocol
- All 6 channels can be accessed by either SCSI or Ethernet for high speed computer graphics transfers
- Each of the 4 video inputs has a source timecode reader with VITC and LTC reference capabilities
- Clips automatically
- Ideal for graphics and telecine
- Each channel has remote control using Sony or SMPTE remote protocols
- Optional Graphic Disk Control panel offers random access editing on any of the disks
- Optional Super Slo-Mo board provides dual channel, 4-field interpolated motion capability
- 4-channel audio module is available as a plug-in module featuring a RAM based audio store with rock 'n' roll audio jog to mark audio sync
- By adding SIMMs, RAM cache capability can be expanded as required to track up to 56 clips in each channel (over 1500 clips in a fully configured machine)

Not All PSNI Members Are Authorized Abekas Representatives

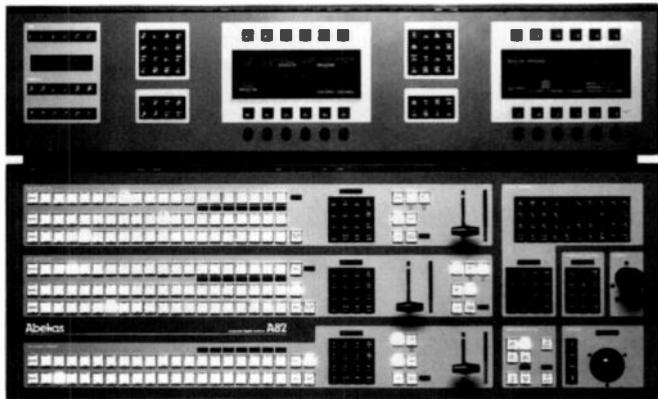
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DIGITAL VIDEO EQUIPMENT

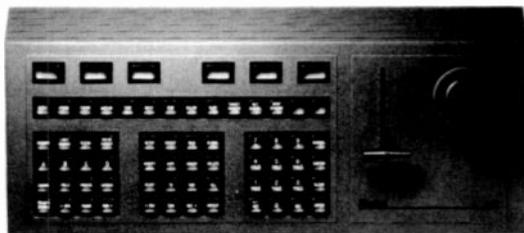


Abekas
A Carlton Company



A82 Composite Digital Switcher/ A83 Component Digital Switcher

- Digital power for unmatched quality in digital composite or component applications
- Each M/E features 2 full-function keys with key border generators and luminance framestores in each keyer
- Solid performance of multi-format, NTSC, D2, D1, 525/625, 4:3, 16:9, and YUV/RGB capabilities, parallel or serial input and output, and 10-bit video processing paths
- Modular design lets you network multiple control panels or multiple chassis to build large multi-user, multi-mix/effects systems
- Releasing M/E modules to other control panels means the resources from the signal systems can be shared between edit bays or studios
- With our effects processing buses, digital effects from the Abekas A57 can be seamlessly integrated into an M/E for over the shoulder box effects, or to provide flying keys
- LINC™ integration software connects optional digital cache recorders, digital effects, character generator, and more with the switcher's panel control and effects timelines
- Other interfaces permit LINC control of selected VTR's, digital routing switchers and audio systems

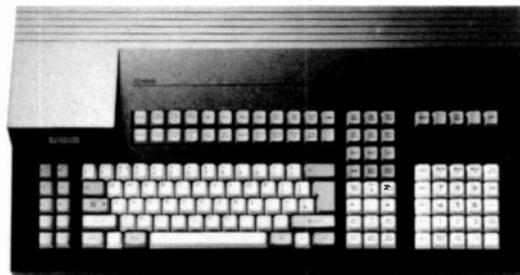


A57/A51+ Digital Special Effects Systems

- Featuring common control systems and compatible effects, these machines also offer 2 new features
- Process 16 x 9 images within the Anamorph™ format processing feature
- On-air mode allows rapid, single button access to effects
- Highest signal quality available in NTSC, D2 or component digital formats
- Frame-based image processing
- 10-bit, 8:4:4:8 video and key paths
- Multi-level motion detection
- Internal wipes, wide-range defocus, color correction, A to B input key, and A+B to background keys are possible

- Other exciting effects include independently sizeable 3-D drop shadow, light sources, video montage, sparkles, motion blur, strobe, soft-edged borders, mosaics, and posterizing
- SuperWarp™ adds ripples, bursts, splits, cylinder, oil drop effects and a single-channel dual-sided page turn

The A51+ provides a wide range of 3-D effects, smooth motion, and simple-to-use controls, including a straightforward on-the-air shot-box for live applications. Options include a multi-channel video combiner with intersecting picture plane and light source effects. And a key channel with independently sizeable 3-D Drop Shadow. Plus, exciting WARP or SuperWarp nonlinear effects, like bursts, ripples and single-channel turns are also available.

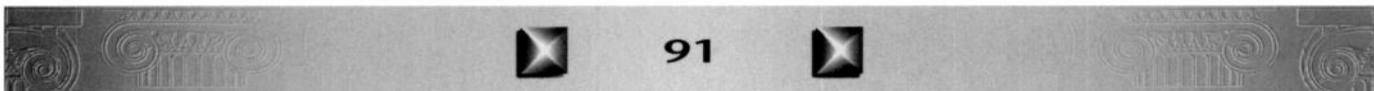


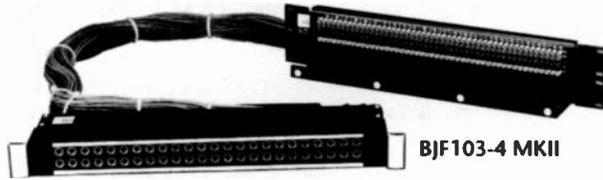
A72 Turbo Digital Character Generator

- Industry standard for speed and flexibility
- You can type up to 3X faster, and modify attributes up to 18X faster than on the already fast A72
- Increases on-screen memory of the A72 by 8X, for virtually unlimited page density and complexity
- FontMaker™ and IconMaker™ software programs are available to provide a direct bridge from Macintosh graphics to video
- With FontMaker, you can convert any Postscript Type 1 typeface to the A72 format
- IconMaker converts Postscript and TIFF format graphics to A72 icons
- You can change size, color, and text attributes instantly, without waiting for rendering
- Simple to operate
- Large selection of standard typefaces from a leading typeface foundry
- Full color 4:4:4:4
- Provides a second framestore for more complex effects like cuts, wipes, and variable dissolves between 2 pages of text
- Supports external data entry and control via the RS-232/422 ports
- CCIR-601 I/O is also available
- An expansion chassis can be added for high density removable media and additional disk drive storage

Not all PSNI Members Are Authorized Abekas Representatives

Call For Pricing
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





BJF103-4 MKII

Standard BJF MkII Patchbays

■ All BJF Patchbays listed below have 4" cable harnesses ■ BJF Patchbays are available with 3' 4-8', 10', 12', 15', 20' and 25' harnesses ■ Add \$10.00/ft. to price

1.75" Panels with 2 x 24 Array of Longframe (1/2") Jacks

- BJF103-4MkII** Normals brought out, UP-3NMkII termination \$893.00
- BJF107-4MkII** Normals strapped at jacks, UP-3MkII termination 708.00

3.5" Panels with 2 x 24 Array Longframe (1/2") Jacks

- BJF203-4MkII** Normals brought out, UP-3NMkII termination \$893.00
- BJF207-4MkII** Normals strapped at jacks, UP-3MkII termination 708.00

1.75" Panels with 2 x 48 Array Bantam Jacks

- BJF303-4MkII** Normals brought out, UP-96NMkII termination \$1663.00
- BJF307-4MkII** Normals strapped at jacks, UP-96MkII termination 1294.00

Video Panels

Blank Panels

- PPI1224RS** 1.75" panel, 2 rows, 48 positions \$ 98.00
- PPI2224RS** 3.5" panel, 2 rows, 48 positions 98.00
- PPI2226RS** 3.5" panel, 2 rows, 52 positions 109.00
- SJ2000N** Dual, self-normaling, non-terminating, nickel finish 33.40

With SJ2000N

- PPI1224RS-N** 1.75" panel loaded with 24 SJ2000N jacks \$939.00
- PPI2224RS-N** 1.75" panel loaded with 24 SJ2000N jacks 922.00
- PPI2226RS-N** 1.75" panel loaded with 26 SJ2000N jacks 989.00
- SJ2000N-75** Dual, self-normaling, non-patched port terminated to 75 ohm resistor, nickel finish .. 37.71

With SJ2000N-75

- PPI1224RS-75N** 1.75" panel loaded with 24 SJ2000N-75 jacks \$1020.00
- PPI2224RS-75N** 1.75" panel loaded with 24 SJ2000N-75 jacks 1020.00
- PPI2226RS-75N** 1.75" panel loaded with 26 SJ2000N-75 jacks 1107.00



**V.A.M.P.—
Video, Audio
Modular
Patchbay**

■ Chassis accepts 20 video and audio modules ■ Audio module features unique QCP terminations ■ Video module comes with the ADC SJ2000 self-normaling coax jack ■ ADC supplies blanks for unused positions to give the appearance of a fully loaded patchbay ■ Offers all the flexibility you need in a single bay ■ Ideal if you have limited or changing patching requirements or need audio and video patching in the same bay

- VC-1** V.A.M.P. chassis \$110.00
- VA-1** V.A.M.P. audio module 39.00
- VV-1** V.A.M.P. video module with SJ2000N-75 jacks ... 41.00
- VV-2** V.A.M.P. video module with SJ2000N jacks 39.00
- VV-3** V.A.M.P. video module with CJ2011N jacks 39.00
- VB-1** V.A.M.P. blank module 1.00

C.A.P.S. Component Analog Patching System

ADC has developed the C.A.P.S. to provide an error-free, flexible patching system for component analog video environments. The C.A.P.S. will perform flawlessly in various types of component analog systems including RGB and Y, R-Y, B-Y.

Choose from a wide selection of C.A.P.S. types: delay compensated—eliminates patching timing errors; modular patchbays—cost effective patching for small systems; fully loaded patchbays for large systems; RGB plus sync; terminated and non-terminated jacks.

■ C.A.P.S. unique plug design guarantees error-free patching ■ Color keyed rear BNC interface—works with any cable type and eliminates connection errors ■ C.A.P.S. color keyed jacks allow easy access to individual video components for effects or testing ■ Universal Designation Strip System lets you designate your circuits the way you want

Panels

- CPPV-8** 8 RGB group delay compensated \$2310.00
- CV-8-N** 8 RGB group with SJ2000N jacks 1012.00
- CV-8-NJ** 8 RGB group without jacks 225.00
- CV-8-N75** 8 RGB group with SJ2000N-75 jacks 1095.00
- CV-6-NS** 6 RGB group with SJ2000N jacks 1012.00
- CV-6-N75S** 6 RGB group with SJ2000N-75 jack 1095.00

Modules

- CV-M-N** 1 RGB group with SJ2000N jacks \$121.00
- CV-M-N75** 1 RGB group with SJ2000N-75 jacks 132.00

Chassis

- CV-CM** For CV-M-N and CV-M-N75 module \$110.00

Accessories

- CPPV-B** Blank module \$ 6.00
- CVPC-2** Video patch cord, 2' 54.00
- CVPC-3** Video patch cord, 3' 54.00
- CVPC-4** Video patch cord, 4' 54.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MICROPHONES



C426B

C522MS

UM52

Stereo Condenser Mic System

C426B Large-diaphragm mic with FET preamplifier. 9 polar patterns selected via remote control. 20-20kHz \$3999.00
C522MS Mid-side stereo mic with one front facing cardioid and 2 side cardioid capsules. Separate shockmounted assembly minimizes low frequency noise. 1699.00
UM52 MS stereo matrix box with continuous stereo spread adjustment, headphone level control, switchable bass-cut and battery check in a belt-pack design. Works with C522/MS or any other MS mic 1149.00
C522MS + UM52MS Mid-side stereo mic and matrix box combo 2799.00



SE300B

CK91

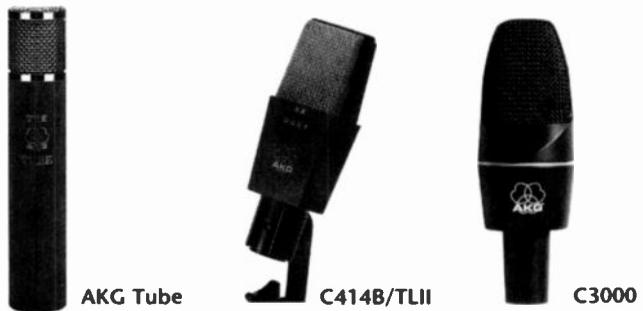
CK92

CK93

CK94

Blue Line Condenser Microphones

C391B, SE300B Powering module with CK91 capsule. 12-48V cardioid with switchable bass rolloff/attenuator, 3 positions . . \$438.00
C3970B, SE300B Powering module with CK970 capsule. 12-48V omnidirectional lavalier with switchable bass rolloff attenuator, 3 positions 458.00
C397CB, SE300B Powering module with CK97C capsule. 12-48V cardioid lavalier with switchable bass rolloff attenuator. 3 positions 458.00
SE300B Powering/output module 259.00
CK91 Cardioid capsule 179.00
CK92 Omni capsule 179.00
CK93 Hypercardioid capsule 179.00
CK94 Figure-eight capsule 179.00
CK97C Miniature cardioid capsule. 199.00
CK970 Miniature lavalier capsule, omni 199.00
CK97CVR Mini cardioid capsule, with 15" gooseneck. 199.00
CK98 10" shotgun capsule 279.00
A91 Swivel joint for CK90 capsules 169.00
MK90/3 + H98 Extension cable set, 10' 179.00
VR91 Fixed 15" extension tube 169.00



AKG Tube

C414B/TLII

C3000

Large Diaphragm Condenser Microphone Systems

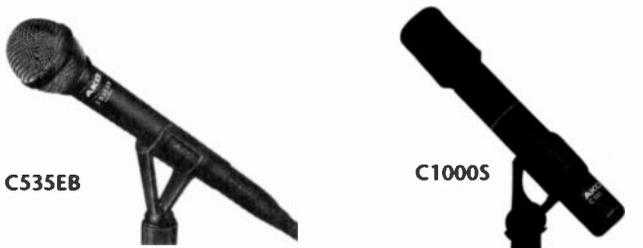
The AKG Tube Low noise vacuum tube with 9 polar patterns and 3 bass rolloff positions. 20-20kHz \$2999.00
C414B/ULS 4 selectable patterns, 20-20kHz 1199.00
C414B/TLII Same as above, transformerless. 1499.00
C414B/TLII Same as above, stereo, matched pair. 3199.00
C3000 Dual pattern, -10dB pre-attenuation 699.00

C451 Modular Condenser Microphones

C451EB + CK1 Cardioid combination with built-in bass rolloff switch black finish. 20-20kHz. \$589.00
C451E Preamp only, no bass rolloff, black finish. 299.00
C451EB Black preamp 379.00

C460 Modular Condenser Microphones

C460B + CK61ULS Cardioid. Dynamic range of over 120dB. Built-in 4-position switch. 4 directional patterns may be added. Flat frequency responses \$649.00
C460B + CK62ULS Omni 649.00
C460B + CK63ULS Hypercardioid 649.00
C460B Preamp. 479.00



C535EB

C1000S

Condenser Microphones

C535EB Cardioid vocal mic. 4-position output level/bass rolloff switch. Switch between -42dBm or -56dBm. 20-20kHz \$469.00
C578EB Short shotgun. 2-position bass rolloff switch, black finish. 20-20kHz 469.00
C1000S Cardioid/hypercardioid with on/off switch. 12-48V phantom powerable. Non-reflective dark gray finish. 20-20kHz. . . 429.00



C562BL

C562CM

Boundary Layer Microphones

C547BL Directional boundary type \$499.00
C562BL Hemispherical boundary type. Condenser transducer mounted in a flat round plate 569.00
C562CM Hemispherical ceiling mount boundary. Similar to above, but without the flat round plate 199.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MICROPHONES/ HEADPHONES



C401



C408



C410

Micro Mic Condenser Microphones

- C401 Acoustic contact pickup with XLR. 10Hz-5kHz \$159.00
- C402 Acoustic high-frequency pickup with XLR. 2500Hz-20kHz . 169.00
- C406 Clip-on instrument mic with XLR. Flat response, hypercardioid. 20Hz-20kHz. 239.00
- C406/B As above with 3.5mm mini-plug, for use with B9 power supply 179.00
- C407 Professional miniature lavalier with XLR. 7mm diameter. 20Hz-20kHz. 169.00
- C407/B As above with 3.5mm mini-plug, for use with B9 power supply 119.00
- C408 Clip-on drum mic with XLR. Rugged, shock-suspended design. 80Hz-20kHz 249.00
- C409 Clip-on wind instrument mic. Hypercardioid with XLR. 20Hz-20kHz 249.00
- C409/B As above with 3.5mm mini-plug, for use with B9 power supply 189.00
- C410 Headset mic with XLR. Featherweight only 0.9 oz. without connector. Boom secures behind the head. Matte black finish. 20Hz-20kHz 299.00
- C410/B As above with 3.5mm mini-plug, for use with B9 power supply 249.00
- CK410 As above with stripped and tinned leads 229.00



D 70 ME



D 90 S

Dynamic Microphones

- D70ME Cardioid instrument mic for home recording and reinforcement. 50Hz-18kHz \$ 99.00
- D90S Cardioid with on-off switch 149.00
- D95S Hypercardioid with on-off switch. Instrument or vocal. 70Hz-18kHz 169.00
- D112 Bass drum mic, cardioid. Handles 168dB sound pressure levels 20Hz-17kHz 299.00
- D190E Cardioid. Excellent for speech or music. 30Hz-15kHz. . 189.00
- D190ES Cardioid with on-off switch 199.00



C747



C580



D541



D58E

Gooseneck Microphones

- C747 Prepolarized condenser, pencil-type hypercardioid, 38Hz-18kHz. Highest quality speech, instrument reinforcement and recording \$499.00

- C647E Prepolarized condenser, cardioid, 38Hz-18kHz. Highest quality, speech and reinforcement. Designed for detachable mounting with integrated XLR phantom power adaptor . . . \$429.00
- C647 Comb. Designed for permanent mount. Built-in sectional gooseneck. Available in black or white 249.00
- C621E Prepolarized condenser, cardioid, 70Hz-20kHz. High quality speech reinforcement. 249.00
- C621 Comb: Designed for permanent mount. Available in black or white 269.00
- C580E Prepolarized condenser, hypercardioid, 60Hz-15kHz, with XLR preamp. High quality speech reinforcement 219.00
- C580 Comb. Designed for permanent mount. Available in black or white 229.00
- D541 Dynamic, cardioid, 140Hz-17kHz. Paging, conference systems podiums, mixing consoles. Designed for permanent mount POR*
- D541E Designed for detachable mounting with XLR connector POR*
- D58E Dynamic close talk, hypercardioid, 70Hz-10kHz. Communications, paging and talkback applications in noisy environments. Satin nickel finish 149.00
- D58E/Black As above except in matte black finish. 149.00



K270S



K500



C410Q

Stereo Headphones

- K141/2 Dynamic supra-aural monitor headphone. Accepted standard of the professional recording industry. Self-adjusting headband, single-sided cable. 97.5dB. 20Hz-20kHz \$119.00
- K240M Circumaural monitor headphone. For professional recording, broadcast studios and in the home. Precise bass and distortion-free. Self-adjusting. Dynamic moving coil. 20Hz-20kHz 169.00
- K240DF Dynamic circumaural studio monitor headphone. Meets the IRT criteria. Each set is individually measured and uses hand selected and matched components to maintain close tolerances. Self-adjusting headband. Single-sided cable. 20Hz-20kHz 169.00
- K270S Circumaural playback headphone. With 2 optimized transducer per channel for high end response. Self-adjusting headband with auto on/off switch. 92dB, 20Hz-29kHz 199.00
- K500 Professional dynamic circumaural headphone. Enhanced sensitivity, large diaphragm transducer with open design to eliminate resonance coloration. 15Hz-27kHz, 120 ohms impedance. 229.00
- K400 Professional dynamic circumaural headphone. Highly accurate, large diaphragm open design, similar to K500. 20Hz-26kHz, 120 ohms impedance. 189.00

Headphone/Boom-Microphone Set

- K270HC/CONN Studio quality high-fidelity boomset, with condenser vocal mic. Mic can be switched on or off silently by pushing the mic arm up or down. Headphones automatically switch off when taken off. 20Hz-20kHz, 200 ohms impedance. . . \$459.00
- C410/Q High-fidelity, lightweight monitor headset. Q monitor headphones are 200 ohms impedance and can be easily driven from a mixer headphone output or similar low output headphone amp. 359.00

*Price on Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PORTABLE SOUND SYSTEMS

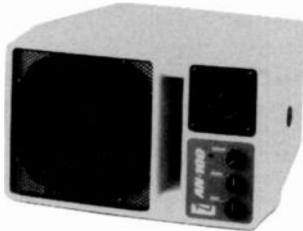


Powered and Unpowered Sound Systems

AN-1000X 2-Way Powered Monitor ■ Frequency response: 70Hz to 20kHz ± 3dB ■ Amplifier: 50W power MOSFET ■ Sensitivity: 103dB at 1W, 1 meter ■ Charcoal gray or platinum beige. \$409.00

AN-1001X Unpowered Monitor Speaker ■ Line input 1/4" phone (unbalanced) ■ Charcoal gray or platinum beige ■ Metal grille ■ Front volume control ■ Frequency response: 70Hz to 15kHz ± 4dB with less than 0.15% THD ■ Can deliver SPL in excess of 100dB at 1m ■ 5 1/2"H x 8"W x 8 1/2"D. \$149.00

AN-100 Powered Monitor Speaker ■ Must order mic separately ■ 2-way powered speaker with 1/4" phone microphone and instrument-level inputs, plus 2 RCA-type summing line-level inputs ■ Features a 25W MOSFET amplifier, separate bass and treble controls and shielded-magnet speaker ■ Available in platinum beige only \$187.00



AN-100W Wireless AN-100 ■ Includes receiver only (must order mic and transmitter separately) ■ Built-in wireless receiver (2 selectable channels) and antenna 367.00

AN-1001X/70 Unpowered Monitor Speaker ■ For use with 70.7V systems ■ Charcoal gray or platinum beige 169.00

Explorer Sound Systems

PA-2500 Explorer Sound System ■ AC powered ■ 50W amplifier ■ 2-way speaker system ■ Separate bass and treble controls ■ Inputs include a balanced, low-impedance XLR mic input with phantom power, an unbalanced 1/4" phone mic input and a line-level input with 1/4" phone and RCA jacks ■ RCA line output ■ Switched 8 ohm speaker output \$ 699.00

PB-2500 Explorer Sound System ■ Battery powered ■ 30W amplifier ■ 2-way speaker system ■ Separate bass and treble controls ■ Inputs include a balanced, low-impedance XLR mic input with phantom power, an unbalanced 1/4" phone mic input and a line-level input with 1/4" phone and RCA jacks ■ RCA line output, but no speaker output ■ Built-in charger included. 759.00

PA-2500W Wireless Explorer ■ AC powered (order mic and transmitter separately) ■ Built-in wireless receiver and antenna . . 1049.00

PB-2500W Wireless Explorer ■ Battery powered (order mic and transmitter separately) ■ Built-in wireless receiver and antenna. 1109.00

P-2501 Explorer Companion Speaker ■ Unpowered speaker for use with Explorer sound systems ■ Speaker cable (SC-30) not included 349.00

AN-1000X and AN-100 Series Accessories

RM-1 Rackmount Kit (single) ■ Adapts any of the "1000X" series to mount in standard equipment rack (5 1/2"H x 19"W). Satin black finish \$55.00

RM-12 Rackmount Kit (dual) ■ Adapts any 2 of the "1000X" series to mount side by side in standard equipment rack (5 1/2"H x 19"W). Satin black finish. 63.00

SB-1 Swivel Mount Bracket for "1000X" Series ■ U-shaped metal bracket which supports the "1000X" via hand fasteners screwed into sides of "1000X" (1/4-20 tee nuts hidden under covering).

Includes: bracket, 2 1/4-20 hand fasteners and 2 nylon friction clutch washers. Black satin finish \$ 50.00

SS-250 Speaker Stand ■ Collapsible 109.00

CC-450 Speaker Stand Bag ■ Holds 2 speakers and 1 mic stand . . 94.00

CC-100 Carrying Bag ■ Cordura nylon bag with storage compartment 37.00

SC-50 Speaker Cable ■ 50' length. 39.00

MIC-90P Handheld Microphone ■ Dynamic balanced, low impedance ■ Unidirectional pickup pattern 99.00

HS-1 Carry Handle ■ Black \$31.00

WH-1000 Handheld Microphone/Transmitter ■ For AN-100W, with power on/off/mute switch . . . \$169.00

WL-1000 Body-Pack Transmitter ■ Must order mic separately. For AN-100W \$139.00

CM-1000 CollarMic™ Microphone ■ For use with WL-1000 (3.5mm plug). Requires phantom power. \$125.00



CM-1000

HBM-30 Headband-Type Microphone ■ For use with WL-1000 (3.5mm plug). Electret mic element. Requires phantom power. \$39.00

LM-30 Lapel Microphone ■ For use with WL-1000 (3.5mm plug). Electret mic element. Requires phantom power. 39.00

SB-3P Swivel Wall Mounting Bracket ■ Platinum beige 21.00

SB-3 Swivel Wall Mounting Bracket ■ Black. 21.00

Explorer Accessories

MIC-90 Handheld Microphone ■ For use with Explorer's Mic 1 input ■ Dynamic, balanced, low impedance mic with unidirectional pick-up pattern ■ Has ball-shaped grille and windscreen ■ Includes 20' cable with male and female XLR connectors. \$ 99.00



MIC-90P Handheld Microphone ■ For use with Explorer's Mic 2 input ■ Same as MIC-90, with 1/4" phone plug for use with Explorer's 1/4" input jack. \$ 99.00

CM-1000XLR CollarMic™ Microphone ■ With belt-pack XLR module ■ Low-profile mic with an adjustable gooseneck that fits around the neck with a tiny mic element that extends up to the mouth ■ Includes a belt-pack XLR module ■ Mic extension cable (EX-50M) not included 270.00

SS-450 Heavy-Duty Speaker Stand ■ Heavy-duty structural aluminum with black anodized finish ■ Adjustable height from 38"-79", 75 lb. load capacity 169.00

VL-25 Vinyl Slipcover ■ Heavy-duty cover. 35.00

CC-450 Speaker Stand Bag ■ Holds 2 speaker stands and 1 microphone stand 94.00

MSB-201 Mic Stand ■ Floor model with extension boom ■ Collapsible microphone stand with 33" long boom ■ Adjustable height from 36"-63" ■ Black chrome finish 65.00

EX-50M 50' Microphone Extension Cable ■ Low noise cable with high-density braided shield ■ Has XLR connectors; 1 male and 1 female. 59.00

SC-50 50' Speaker Cable ■ Heavy-duty 18-gauge cable with strain relief housed in vinyl jacket. Weatherproof male phone plugs on each end 39.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



BATTERIES/CHARGERS

Digital Logic Series Gold Mount Batteries

- Each digital battery has a built-in microprocessor that communicates directly with the InterActive chargers for reliability, performance and life
- Fuel computer and InterActive Viewfinder "Fuel Gauge" accurately computes the state of charge of the battery and continually informs the operator of remaining capacity through an integral LCD or LED display
- Battery Management: Digital batteries can display and print out a variety of data including serial number, date of manufacture, number of charge/discharge cycles, present available capacity, cell temperature and calibrated capacity
- All digital batteries should be charged only with Anton/Bauer InterActive Logic Series chargers models MP-4D, Quad Dual and Q2
- Earlier models of the Magnum Quad, MP-4, MP-8 and CMFC can be made digital compatible with a software update

Digital Pro Pac

- Recommended for all applications
- Premium heavy-duty Pro Pac cells

Digital Pro Pac 14 Logic Series NiCad Battery
14.4V 60Wh 5 1/4" x 4 1/2" x 3 3/4" x 5 1/4 lbs. Typical run time: 2 hours at 27W, 3 hours at 18W, 4 hours at 14W \$595.00

Digital Pro Pac 13 Logic Series NiCad Battery
13.2V 55Wh 5 1/4" x 4 1/2" x 3 3/4", 4 1/2 lbs. Typical run time: 2 hours at 25W, 3 hours at 17W, 4 hours at 13W \$575.00



Digital Trimpac

- Extremely thin and lightweight (less than half the width and almost half the weight of a Pro Pac)
- Has more effective energy than 2 NP style slide-in batteries
- Not recommended when powering an Ultralight or camcorders rated above 24W

Digital Trimpac 14 Logic Series NiCad Battery 14.4V 40Wh
6 1/2" x 4 3/4" x 1 3/4", 2 1/2 lbs. Typical run time: 2 hours at 20W, 3 hours at 13W \$385.00

Digital Trimpac 13 Logic Series NiCad Battery 13.2V 36Wh
6 1/2" x 4 3/4" x 1 3/4", 2 1/2 lbs. Typical run time: 2 hours at 18W, 3 hours at 12W \$375.00

Digital Compac

- Almost half the size and weight of a Pro Pac
- More effective energy than 2 NP style slide-in batteries
- Not recommended when using an Ultralight

Digital Compac 14 Logic Series NiCad Battery 14.4V 40Wh
4 1/2" x 3 1/2" x 2 3/4", 2 1/2 lbs. Typical run time: 2 hours at 20W, 3 hours at 13W \$365.00

Digital Compac 13 Logic Series NiCad Battery 13.2V 36Wh
4 1/2" x 3 1/2" x 2 3/4", 2 1/2 lbs. Typical run time: 2 hours at 18W, 3 hours at 12W \$355.00

Logic Series Gold Mount Batteries

- Identical to digital versions with respect to size, weight, capacity, Impac case construction and application
- Advanced MicroCode logic circuits and ACS sensor networks of these batteries communicate directly with all Logic Series chargers
- These batteries do not, however, include the digital microprocessor features such as the integral diagnostic program, "Fuel Computer", LCD/LED display and InterActive viewfinder "Fuel Gauge" circuit

Pro Pac 14 NiCad battery 14.4V 60Wh \$525.00

Pro Pac 13 NiCad battery 13.2V 55Wh 505.00

Trimpac 14 14.4V 40Wh 295.00

Trimpac 13 13.2V 36Wh 285.00

Magnum 14 NiCad battery 14.4V 72Wh 575.00

Magnum 13 NiCad battery 13.2V 66Wh 555.00

Compac 14 NiCad battery 14.4V 40Wh 285.00

Compac 13 NiCad battery 13.2V 36Wh 275.00

Logic Series VTR Type Batteries

- Professional choice for all BP-90 type applications

Pro Pac 90 NiCad VTR Battery 12V 48Wh
3 1/2 lbs. Typical run time: 3 hours at 14W \$330.00

Logic Series Microprocessor Fast Chargers

- Interactive Digital Communication: The battery transmits instantaneous diagnostic data to the charger including state-of-charge, calibrated capacity and cell temperature, as well as critical identification and history data including cell formulation, battery age, number of past charge/discharge cycles and rated capacity:
 - 4 or 2 position, 1-hour sequencing fast charge
 - 5 fast charge termination systems
 - Automatic balance and rejuvenation mode
 - Lifesaver maintenance mode
 - Cold battery safety mode
 - Future technology programmable
 - Auto line select (90-260V)
- PLM (power loss memory with display)
- Power interrupt alarm



MP-4D With LCD and Diagnostic Port

- Priority battery function allows the operator to select a specific battery for immediate charging
- Multifunction LCD displays vital battery and charger data
- With the DM-4 Test/Discharge module attached, the MP-4D can perform programmed diagnostic routines involving automatic charge and discharge of Anton/Bauer batteries and those from other manufacturers \$2370.00

Quad Lifesaver 4-Position, 1-Hour Fast Charger

- Has all the essential features of the MP-4D that consistently assure optimum performance, dependability and extended life
- Designed to be very affordable by eliminating certain features not directly essential to the charging process \$1295.00



Note: The MP-4D and Quad can charge in any combination up to 4 Anton/Bauer Gold Mount batteries and/or Pro Pac 90 (BP-90 type) VTR batteries. The accessory NPCM module charges 4 NP style batteries in addition to the preceding for a total capability of 8 batteries.

Dual 2-Position Fast Charger

- Includes all the Digital InterActive technology and features of the Quad above in a more compact 2-position design = 9" x 2 1/2" x 7" = Weight: 3.75 lbs. = 115/230V, 50/60Hz auto line select \$995.00



DM-4 Automatic Test/Discharge Module

- Microprocessor-based accessory, connects to the diagnostic port of the MP-4D charger
- Diagnostic programs identify and the revitalization routines address virtually all major battery anomalies including "memory," accelerated self-discharge and cell imbalance \$425.00

Note: Anton/Bauer does not recommend using BP-90 type or any other 12V batteries for powering cameras or camcorders.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TEST EQUIPMENT/ PORTABLE LIGHTING



Diagnostic Accessories

DataTap = LCD power meter = Slim, lightweight Data-Tap (about 1" thick and 12 oz.) has a dual Gold Mount interface that allows it to be sandwiched between any Gold Mount battery and any camera/camcorder or other device with a Gold Mount = Integral LCD automatically resets to zero every time a fresh battery is mounted and then indicates and retains the precise amount of power (in hundredths of ampere hours) that has been drawn from the battery = Operator can determine remaining run-time at a glance = Any battery can be accurately calibrated right on the camera by noting the ampere hour indication upon depletion = May also be used for battery testing and calibration with the ADM below \$375.00

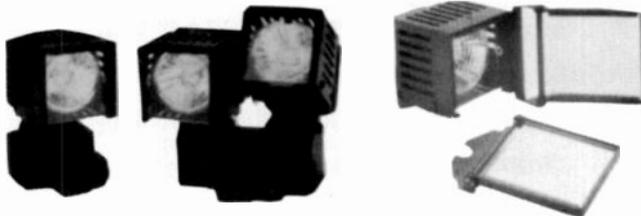
ADM (Automatic Discharge Module) = Load circuit and built-in automatic cutoff safely exercise batteries through a full discharge cycle = Coupled with the DataTap, the ADM becomes a calibration and diagnostic instrument = LCD DataTap will display battery capacity while a DC output to a DMV/chart recorder can provide other diagnostic information = Automatically fully discharges all Snap-On type 13-14V batteries and Pro Pac 90 (BP-90 type) VTR batteries = All other 12-14V batteries including Power Strap can also be accommodated by using optional CA-30 cable = Weight: 3.25 lbs. \$295.00



Ultralight 2 Camera Mounted Light

= Designed specifically for camera mounting = Compact super lightweight (only 10 oz.) version of the Ultralight system shares many of the features and accessories of the original Ultralight = Patented universal mounting system for 1/4-20 or shoetype mounting standard, eliminating the need for special studs or adaptors = With the head module removed, the Ultralight 2 can be folded into itself like a pocket knife and practically disappears into the camera handle = The Ultralight 2 can remain mounted and connected to the camera at all times even when the camera is in the case = Integral PowerTap cable plugs directly into the PowerTap receptacle on all Gold Mounts and is available in 2 lengths as indicated below = Complete with universal mounting system, 1 head module, 1 BAB bulb (25W flood), and integral PowerTap cable

UL2-20 With integral 20" PowerTap cable \$195.00
 UL2-28 With integral 28" PowerTap cable 195.00
 UL2-HM Extra quick change head module for UL2. To fully realize the versatility of the Ultralight System, it is highly recommended that additional head modules be part of every system. (Not for use with original UL-S or UL-D models) 75.00



Original Ultralights

= 3/8" stud mounting system = Ideal for a wide variety of applications in addition to camera mounting = Available in both single and dual head versions = Feature a choice of power source: 12-14V, 30V and 115/230AC = Integral connector accepts a variety of power cables (must be ordered separately) = Available separately or in complete lighting kits

ULS Ultralight Single Single base and head module. Includes 1BAB (25W flood) bulb \$195.00
 ULD Ultralight Dual Dual Base with 2-head modules, 2 switches and single power input connector. Includes 2 BAB (25W flood) bulbs. 350.00

UL-HM Ultralight Head Module Extra quick change rugged aluminum module house alternate or spare bulbs. Not for use with Ultralight 2. \$75.00

Bulbs for Ultralight

Low Voltage (12/14V) Bulbs are available in 3 Focus Types
Triple Focus Bulbs – The ESX, EYR and EYF/FPA bulbs provide 3 beam/output options: 1) Spot (15°) – plain bulb. 2) Medium Spot (approx. 21°) – with #1 diffuser (UL-DF). 3) Flood (36°) – with wide-angle adaptor (UL-WA) which covers most zoom lenses in the extreme wide position.
Dual Focus Bulbs – The EXZ bulb provides 2 beam/output options and is a good all around bulb. 1) Medium Flood (24°) – plain bulb. 2) Full Flood (36°) – with wide-angle adaptor (UL-WA).
Single Focus Bulbs – The BAB, EYP and EYC bulbs provide full flood (36°) – plain bulb.

Purpose/Type	Bulb Code	Watts	Ft. Candles @ 5'		Amps	Run Time w/4AH Battery
			Spot	Med. Flood		
Triple Purpose	ESX	25	200	85* 30**	1 1/2	120 min.
	EYR	50	400	170* 60**	3 1/2	60 min.
	EYF/FPA	85/75	700	300* 120**	6 1/2	35 min.
Dual Purpose	EXZ	60	–	175 70**	4 1/2	45 min.
Single Purpose	BAB	25	–	– 35	1 1/2	120 min.
	EYP	50	–	– 65	3 1/2	60 min.
	EYC	85/75	–	– 125	6 1/2	35 min.

All above data measured at 14 V.
 *With #1 diffuser (ULDF)
 **With wide-angle adaptor (UL-WA) Note: (1) 14.4V wattage rating. (May be greater than the 12V ratings indicated on the actual bulb).

30V Bulbs – While the low voltage bulbs offer maximum versatility, the following bulbs can be used with a 30V battery belt to provide excellent results in certain applications. Not for use with Ultralight 2.

Purpose/Type	Bulb Code	Watts	Amps	Ft. Candles @ 5'	Run Time w/4AH Battery
Extra high output. Full flood. Needs no adaptor.	EXS	200	6 1/2	400	35 min.
Long runtime Flood only.	EKP-ENA Note 1.	80	2 1/2	140	90 min.

Note: Bulbs EKP-ENA must be used with UL-WA wide-angle adaptor. The beam pattern of the plain bulb is unacceptable.
 All Bulbs (12-14/30V, spot/medium/flood) \$28.00

Ultrakits

= Portable lighting packages that include either an Ultralight Single or an Ultralight Dual in a custom fitted case complete with a battery belt and all necessary accessories = The Ultrakit 13-S/D includes one 13V power strap 13 battery belt while the 30V Ultrakit 30-S/D includes the heavy-duty 30/13 battery belt.
Ultrakit 13-S/D 13V Ultralight Kits Includes:
 = PowerStrap 13 battery belt: 13.2V 55Wh (fast charge compatible)
 = MicroCharger (PSMC) overnight charger, 115/230 with integral wall plug = Power cable (ULC-L) power strap 13 to Ultralight, 5' = Bulb (BAB) 25W flood (2 BAB bulbs included with dual kit) = Case, heavy-duty shipping/carrying type with custom cut foam interior
 Ultrakit 13-S Single \$675.00
 Ultrakit 13-D Dual 795.00

Ultrakit 30-S/D 30V Ultralight Kits Includes:
 = 30/13 batter belt: 30V, 120Wh (switchable to 13.6) = Built-in 115/230V overnight charger (fast charge compatible) = Power cable (ULC-30/13 battery belt to Ultralight, 5' = Bulb (EKP/ENA) 80W flood (2 EKP/ENA bulbs included with dual kit) = Case, heavy-duty shipping/carrying type custom cut foam interior
 Ultrakit 30-S Single \$1285.00
 Ultrakit 30-D Dual 1395.00

Note: Filters, focus adaptors, spare head modules, handles and mounting studs must be purchased separately.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PRODUCT APPLICATIONS GUIDE

CAMERA/CAMCORDER MODEL #	POWER WATTS	MAXIMUM BATT. VOLT.	QUICK-RELEASE GOLD MOUNT	BATTERY RUN TIMES (HOURS) ¹			NOT REQUIRED FOR UL-2 LIGHTING ² POWER TAP ³		POWER SUPPLY
				MAGNUM	PRO PAC	COMPAC/TRIMPAC	BRACKET	CABLE	
HITACHI									
Z-ONE	12	14.4	CB-C1	6	5	3 1/2	BRSHOE	20"	SPS 3/6
SK-F1/F2/F3, Z-ONE W/BVVS	27	14.4	SP BETA PKG.	2 1/2	2 1/2	1 1/2*	BRSHOE	28"	SPS 3/6
FP-C10	11	14.4	CB-C10	6 1/2	5 1/2	3 1/2	BRSHOE	20"	SPS 3/6
FP-C10 W/HR C10	19	14.4	QRSP200	3 1/2	3	2	BRSHOE	20"	SPS 3/6
FP-C10 W/AG 7450	34	13.2	QRAB7450	2	1 1/2	1*	BRSHOE	28"	SPS 6
FP-C10, Z-ONE W/BR S422	25	13.2	QR-27	2 1/2	2 1/2	1 1/2*	BRSHOE	20"	SPS 3/6
ZML-1	28	14.4	CB-31	2 1/2	2	1 1/2*	BRSHOE	20"	SPS 6
IKEGAMI									
HL-53/55	13	14.4	QPY-79E	5 1/2	4 1/2	3	BRSTUD ^{1/2}	20"	SPS 3/6
HL-53/55 W/BVVS	26	14.4	SP BETA PKG.	2 1/2	2 1/2	1 1/2*	BRSTUD ^{1/2}	28"	SPS 3/6
HC-340	15	14.4	OEM SUPPLIED	4 1/2	4	2 1/2	BRSHOE	20"	SPS 3/6
HC-340 W/PVV1	25	14.4	QRSP200	2 1/2	2 1/2	1 1/2*	BRSHOE	20"	SPS 3/6
HC-340 W/BVVS	28	14.4	SP BETA PKG.	2 1/2	2	1 1/2*	BRSHOE	28"	SPS 6
HC-340 W/EVV9000	23	14.4	QRSP200	3	2 1/2	1 1/2	BRSHOE	20"	SPS 3/6
HC-340 W/AG 7450	38	13.2	OEM SUPPLIED	1 1/2	1 1/2	1*	BRSHOE	28"	SPS 6
HC-340 W/BR S422	28	13.2	QR-27	2 1/2	2	1 1/2*	BRSHOE	20"	SPS 6
HL-43/57	16	14.4	OEM SUPPLIED	4 1/2	3 1/2	2 1/2	BRSHOE	20"	SPS 3/6
HL-43/57 W/BVVS	29	14.4	SP BETA PKG.	2 1/2	2	1 1/2*	BRSHOE	28"	SPS 6
HLV55	22	14.4	QRSP200	3 1/2	2 1/2	1 1/2	BRSHOE	20"	SPS 3/6
JVC									
KY-27	13	14.4	QR-27	5 1/2	4 1/2	3	BRSHOE	20"	SPS 3/6
KY-27 W/BRS411	27	13.2	Q-410	2 1/2	2	1 1/2*	BRSHOE	28"	SPS 3/6
KY-27 W/BRS420	25	13.2	Q-420	2 1/2	2 1/2	1 1/2*	BRSHOE	20"	SPS 3/6
KY-27 W/BRS422	26	13.2	QR-27	2 1/2	2	1 1/2*	BRSHOE	20"	SPS 3/6
KY-27 W/PVV1	23	14.4	QRSP200	3	2 1/2	1 1/2	BRSHOE	20"	SPS 3/6
KY-27 W/BVVS	26	14.4	SP BETA PKG.	2 1/2	2 1/2	1 1/2*	BRSHOE	28"	SPS 3/6
GY-X1TC	22	13.2	Q-X1	3	2 1/2	1 1/2	BRSHOE	20"	SPS 3/6
GY-X2	25	13.2	QR-27	2 1/2	2 1/2	1 1/2*	BRSHOE	20"	SPS 3/6
PANASONIC									
AG-DP800	17	14.4	QR-DP800	4 1/2	3 1/2	2 1/2	BRSHOE	20"	SPS 3/6
AJ-D310	40	14.4	QR-D310	1 1/2	1 1/2	1*	BRSTUD ^{1/2}	20"	SPS 6
AQ-10/20	18	14.4	QRANAQ	4	3 1/2	2	BRSTUD ^{1/2}	20"	SPS 3/6
AQ-10/20 W/AU-410	33	14.4	AB-13	2 1/2	1 1/2	1*	BRSTUD ^{1/2}	28"	SPS 6
WV F250	18	13.2	QRANACLE	3 1/2	3	2	BRSHOE	20"	SPS 3/6
WVF500/700	18	14.4	QRANACLE	4	3 1/2	2	BRSHOE	20"	SPS 3/6
WV F250 W/AG-7450	41	13.2	QRAB7450	1 1/2	1 1/2	1/4*	BRSHOE	28"	SPS 6
WVF500/700 W/AG-7450	41	13.2	QRANAQ	1 1/2	1 1/2	1/4*	BRSHOE	28"	SPS 6
WVF250W/AU45H	28	13.2	QRAU45H	2 1/2	2	1 1/2*	BRSHOE	20"	SPS 6
WVF500/700 W/AU410	33	14.4	QRANAQ	2 1/2	1 1/2	1*	BRSHOE	28"	SPS 6
WVF500/700 W/PVV1	28	14.4	QRSP200	2 1/2	2	1 1/2*	BRSHOE	20"	SPS 6
WVF500/700 W/BVVS	31	14.4	SP BETA PKG.	2 1/2	2	1 1/2*	BRSTUD ^{1/2}	28"	SPS 6
WVF500/700 W/AU45H	28	14.4	QRAU45H	2 1/2	2	1 1/2*	BRSHOE	20"	SPS 6
AQ-11D	11	14.4	QRANAQ	6 1/2	5 1/2	3 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
SONY									
BVP-5/7/50/90	13	14.4	QRDXCM3A	5 1/2	4 1/2	3	BRSTUD ^{1/2}	20"	SPS 3/6
BVW-505/507/550/570/590	27	14.4	SP BETA PKG.	2 1/2	2 1/2	1 1/2*	BRSTUD ^{1/2}	28"	SPS 3/6
BVW-200/300/400	22	14.4	QRSP200	3 1/2	2 1/2	1 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
BVW400A	22	14.4	QRSP400A	3 1/2	2 1/2	1 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
DXC-325	12	14.4	QRDXC325	6	5	3 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
DXC-327/537	12	14.4	QRDXC327/537	6	5	3 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
DXC-325/327/537W/EVV9000	20	14.4	QRSP200	3 1/2	3	2	BRSTUD ^{1/2}	20"	SPS 3/6
EVW300	17	14.4	QRSP200	4 1/2	3 1/2	2 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
DXC-537 W/BVVS	25	14.4	SP BETA PKG.	2 1/2	2 1/2	1 1/2*	BRSTUD ^{1/2}	28"	SPS 3/6
DXC-327/537W/AG-7450	35	13.2	QR-AB7450	1 1/2	1 1/2	1*	BRSTUD ^{1/2}	20"	SPS 6
DXC-327/537W/BRS422	25	13.2	QR-27	2 1/2	2 1/2	1 1/2*	BRSTUD ^{1/2}	20"	SPS 3/6
DXC-327/537W/PVV1	22	14.4	QRSP200	3 1/2	2 1/2	1 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
BVW-D600	24	14.4	QRSP400A	3	2 1/2	1 1/2	BRSTUD ^{1/2}	20"	SPS 3/6
DVW-700	29	14.4	QRD 700	2 1/2	2	1 1/2*	BRSTUD ^{1/2}	20"	SPS 6

An Important Word About Run-Time: Always select a battery that provides 2 hours or greater operation for the specific application. Surveys of video professionals consistently indicate that the batteries significantly failing to meet this 2 hour minimum will invariably prove to be unsatisfactory and inefficient due to the inordinate number of battery change disruptions.

* - The more powerful ProPac and Magnum batteries are highly recommended for these applications. As a general rule we caution against selecting a battery that cannot consistently provide at least 1 1/2 hours of run-time for the application.

1 - Battery-run-times are based on the respective manufacturers' power specifications. Actual run-time may vary due to a variety of relevant factors.

2 - Required for Original UltraLight only. NOT required for UltraLight 2.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CASES



Anvil® Cases—A ZERO Corporation Company

From heavy-duty transit to lightweight carrying cases, Anvil has developed a comprehensive range of product lines to serve such diverse industries as video production, broadcast, computer sciences, aerospace, telecommunications, microwave technology, test evaluation, military, government and commercial.

Anvil designs each case to exact specifications for uncompromising fit and quality. Case interiors are custom designed to provide maximum shock absorption and vibration resistance. Quality control is assured through numerous inspections during and at the conclusion of the manufacturing process. If your equipment is worth protecting, it's worth using an Anvil Case.



A.T.A. Computer, Video and Audio-Visual Cases

Anvil builds a strong case around any computer, broadcast, video or audio-visual system, or any combination of equipment requiring protection for travel or storage. Just submit the manufacturer's name and model number from your equipment and we'll provide you with a case that will ensure your components are ready when you are, every time.

E.I.A. Rackmount Cases

Anvil offers a variety of cases for standard 19" rackmount components. Front and rear removable covers are standard for easy access and ventilation. Available in non-shockmount or shockmounted configurations. If weather is a concern, Anvil now offers the weathertight, rotationally molded RotoRack for outdoor field applications. The RotoRack is fully equipped with elastomeric shock isolators for protection from vibration and shock.

Anvil Product Lines

A.T.A.—Anvil's most popular line, fully compliant with Air Transport Association 300, category 1 specification.

Transitainer—Rotationally molded weathertight cases, fully compliant with Air Transport Association 300, category 1.

M.A.C.C.—Military applications cases and containers that meet or exceed applicable portions of MIL. STD.-810 C/D.



Transitainer

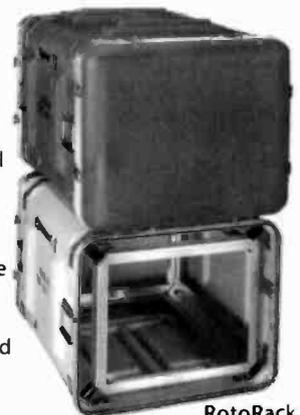
RotoRack—Rotationally molded weathertight shockmounted rack cases.

Forge II—Ideal for local or occasional travel not involving air transport.

Reinforced Forge—Designed for exhibits and displays.

Anvilite II—Lightweight carrying case used primarily for relatively inexpensive and lightweight items.

Fibre—Available in rugged vulcanized fiber or less expensive CH fiber.



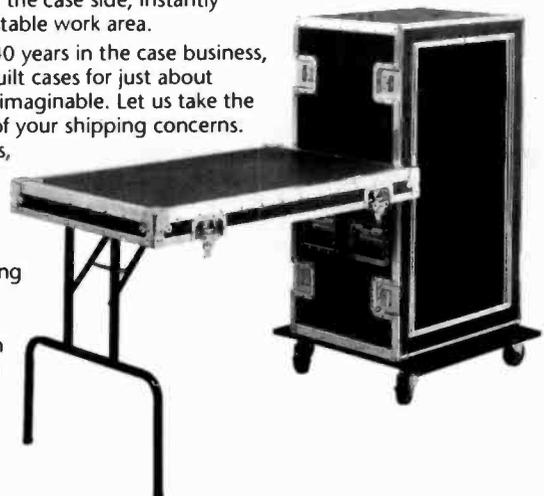
RotoRack

M.I.C.S. Modular Interlocking Case System

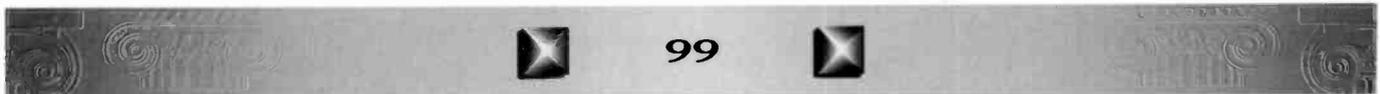
M.I.C.S. cases convert quickly and easily from shipping containers to work centers. Lid removes easily, hinged leg assembly swings into position and all components lock securely in place. Lid is then attached to the case side, instantly creating a stable work area.

With over 40 years in the case business, Anvil has built cases for just about everything imaginable. Let us take the worry out of your shipping concerns.

Most orders, custom or standard, are expedited from drawing board to shipping dock within 10 working days.



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





TRIPOD STANDS

Performer Series Tripod Stands

The Performer Series tripod includes an all-metal CAD engineered base matched with choice of tubing and the famous Atlas wearproof clutch (3-piece) to withstand stage and studio handling. Unique Glide'n Lock legs position and lock automatically without separate knob for fast setup and tear-down (no separate parts to misplace). Assembly is finished in video-preferred, non-reflective ebony and includes high density rubber feet to help isolate unwanted vibration to the microphone.

- TL34E 34"-63"H, 2-section tube \$100.87
- TL34-3E 26"-63"H, 3-section tube, folds to only 23 3/4" 113.43

MICROPHONE FLOOR STANDS

▪ Will accept all microphones and microphone holders with 3/8"-27 threads ▪ All stands feature stainless steel tubing ▪ Available with choice of rust resistant chrome plating or non-reflective ebony finish (E) where noted ▪ Ebony finish is ideal when stand reflections caused from stage lights are undesirable ▪ Wearproof clutches allow height adjustment with locking control ▪ 1-piece edge bases for stability ▪ Self-leveling pads reduce vibration and protect surfaces

MS-10C/MS-10CE "Leader" Stands

Cost efficient assemblies ▪ Dependable performance in music, entertainment, business, education and social functions ▪ MS-10C includes chrome finished tube and circular cast iron base ▪ MS-10CE is supplied with ebony finished tube and circular cast base

MS-11C/MS-12C/MS-12CE

General Purpose Stands With Grip Action Clutch

▪ Low profile stands feature grip action clutch for quick height adjustment and low silhouette cast base for high stability ▪ MS-11C is supplied with chromed tubing and chrome finish base ▪ MS-12C consists of chromed tube and ebony base ▪ MS-12CE features ebony finished tube and base

MS-20/MS-20E Heavy-Duty Stands With Circular Base

▪ Long-life stage and studio stands with extra height extension incorporate heavy-duty 1 1/4" diameter tube assembly with grip action clutch, top adaptor and low contour high stability cast iron base ▪ MS-20 features chromed finish tube and ebony base ▪ MS-20E includes ebony finished tube and base

Model	Height Span	Base	Lbs.	Price
MS-10C(10CE)	35"-63"	10" Dia. Round	9	\$44.93
MS-11C	34"-62"	10" Dia. Round	9	60.03
MS-12C(12CE)	34"-62"	10" Dia. Round	9	44.93
MS-20(20E)	37"-66"	12" Dia. Round	14.5	97.63

STUDIO QUALITY MICROPHONE BOOM STANDS

SB-36/SB-36W Professional Studio Boom With Air Suspension System

▪ Heavy-duty stands for stage and studio application include integral piston type air suspension system for effortless height adjustment ▪ Models are equipped with 2-piece horizontal chromed tube assembly, 6 lb. adjustable/locking microphone counterweight, heavy-duty swivel, adjustable chrome plated vertical height tube with grip action clutch and 1-piece cast iron triangular base with ebony finish and chrome cover ▪ Model SB-36 is without casters for stationary applications ▪ SB-36W includes premium quality rubber casters for silent mobility ▪ Both models are supplied with guide clips for microphone cable attachment

SB-11WE Economical Studio Boom

High quality stand is ideal for the budget conscious musician and recording enthusiast. Model incorporates a 2-section horizontal directional boom for optimum microphone positioning, integral counterweight, thread-on Performer Series swivel clamp, adjustable vertical height tube assembly with wearproof grip action clutch and high

stability triangular base with shock absorbing swivel casters. Entire assembly is finished in non-reflective ebony epoxy.

Model	Height Span	Boom Length	Base	Lbs.	Price
SB-36	50"-74"	62"	17" Triangular	36	\$333.45
SB-36W	50"-74"	62"	24"	40	384.55
SB-11WE	43"-68"	60"	24"	26	272.80

Performer Series Booms

High caliber design of the Performer Series is more than just a boom to hang your mic on. It combines upbeat styling with an all-metal CAD engineered swivel clamp to offer the greatest in user appearance and flexibility. Use these booms to upgrade your current equipment or mix and match with new Performer Series tripods. Assemblies include unique swivel clamp with Glide'n Position tubing that locks with 1-hand knob adjustment. Position vertically and horizontally with an extra-strength steel T-bar knob for no-fail locking. Achieve smooth tube length positioning, without scratching or marring tube finish, with the innovative Performer Series clamp. Metal assembly is made in the U.S.A. and finished in non-reflective ebony. Tubes are offered in chrome or ebony (E) where noted. Counterweights for the PB11, 15 and 21 Series are fixed 3/4-lb. weights. The PB25 Series includes a 2 lb. adjustable counterweight.

PB11XE	16 1/4"-24 1/2"L, ebony	\$63.13
PB15	34"L, chrome	55.23
PB15E	34"L, ebony.	55.23
PB21X	25 1/4"-38 1/2"L, chrome	63.13
PB21XE	25 1/4"-38 1/2"L, ebony	63.13
PB25	34 1/4"L, chrome	67.08
PB25X	32"-51 1/2"L, chrome.	84.43

DESK AND BANQUET STANDS

DS-1 Executive Stand. Attractively styled stand with polished white Carrera marble base and chrome finish tube compliments any desk, conference table or dais. Includes protective desk pads and standard microphone thread termination.

DS-2 Vibration Isolating Stand. Low silhouette stand features an integral tension variable mount to reduce conductivity of external mechanical vibrations. High stability die-cast metal base with protective pads includes notched area for convenient placement of cards or pens. Fixed height tubing is chrome finished. Base is supplied in non-reflective ebony.

DS-5 General Purpose Stand. Fixed height stand includes traditional circular cast iron base and chrome finish tubing for application with any standard microphone.

DS-7/DS-7E Adjustable Stands. Versatile stands have a vertical height adjustment from 8" to 13" and include grip action clutch and ebony finish cast iron base. DS-7 features chrome tubing. DS-7E is supplied with ebony finished tubing.

DS-14 Contemporary Stand. Professionally styled stand includes die-cast wishbone shaped base with ebony finish and fixed height chrome tubing.

TS-8 Banquet Stand. Adjustable stand provides quick height variation from 4 1/2" to 26" to meet a variety of oratory needs. Includes grip action clutch, chrome tube assembly and 8" dia. low silhouette chrome base.

Model	Base Size	Height Span	Tube Style	Lbs.	Price
DS-1	7"Lx5"W	4"	Marble	2	\$48.50
DS-2	6"Lx4"W	4"	Cast Zinc	2	34.70
DS-5	6" Dia.	5"	Cast Iron	3	17.33
DS-7	6" Dia.	8"-13"	Cast Iron	3	25.35
DS-7E	6" Dia.	8"-13"	Cast Iron	3	25.35
DS-14	Wishbone	3"	Cast Iron	2	26.55
TS-8	8" Dia.	14 1/2"-26"	Chrome	5 1/2	55.98

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CABINETS/ LOUDSPEAKERS



ATLAS / SOUNDOLIER
ATAPCO SECURITY & COMMUNICATIONS GROUP

200/WA200/WA202 Series Knocked-Down or Welded Cabinets With Front Door and Adjustable Rails

- Built for strength, utility and economy ▪ Manufactured to E.I.A. standards ▪ 16-gauge CRS construction ▪ Inside (usable) dimensions 17½"W x 17¼"D x vertical panel space
- Includes 1-pair 11-gauge CRS mounting rails tapped 10-32 ▪ UL listed versions available on many models ▪ Stocked in scratch-resistant black textured enamel — other colors available
- Ideal for telecommunications, broadcasting, manufacturing, testing, research, educational and institutional applications

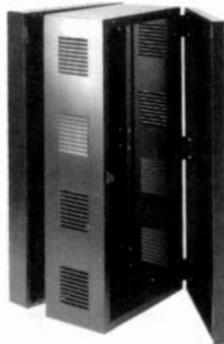
Cost-efficient, transmitter racks with solid steel front door (110 Series) and front-to-rear adjustable mounting rails (230 Series). Series 200 is shipped knocked down — Series WA200 is welded. Both are available less door. Extra-depth Series WA202 models are structurally identical to the WA200 Series, except for their 25½" depth. Available in 3 vertical panel space heights. Outside dimensions of 200/WA200 models are 22¾"W x 18½"D.



300/320 Series Assembled Sectional Wall-Mounting Cabinets

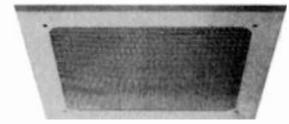
- Save floor space by wall mounting electronic controls and equipment ▪ Sturdy 16-gauge CRS welded construction
- 1-piece front and rear sections strengthened with corner-angle braces; reinforced center section; and electric welded seams and miters ▪ Includes side louvers to ventilate equipment ▪ Includes 1 pair of 11-gauge CRS mounting rails tapped 10-32 and hardware ▪ Equipped with conduit knockouts for easy wiring access ▪ Includes mounting holes for simple wall positioning
- Right hinging assemblies may be inverted for left hinging applications ▪ Stocked in scratch-resistant textured black enamel finish
- House and protect electronic switching, monitoring, lighting, sound and communications controls in school auditoriums, health-care facilities, clubs, meeting areas, factories, warehouses, public buildings and recreational areas

Because of their right- or left-hand hinging capability, these units offer full functional and mechanical flexibility for wall-mounting standard 19"W rack equipment. Series 300 and 320 cabinets are available in 2 overall depth configurations (with 11" and 15"D center sections, respectively) and 5 panel space heights. The 3 taller models include 11-gauge mounting supports, the 2 tallest models include additional gusset supports. Removable hinge pins allow recessed installation of rear section. Front door is 2"D and includes cylinder lock. All models are shipped completely assembled and are available without front door (suffix model with LD). Optional doors are available for replacement and for LD Series cabinets.



EQ Series 8" Music Loudspeaker Systems

- Developed to meet the sound industry's need for high fidelity ceiling loudspeaker systems with conventional installation and architectural integrity ▪ Cost efficient 8" system combines high performance loudspeakers with ported bass reflex ceiling enclosures and a choice of flush grilles to achieve professional quality sound reproduction in an attractively packaged ceiling loudspeaker system ▪ Ideal for foreground music and sound reinforcement applications wherever enhanced audio quality is desired to create listener appreciation in stores and boutiques, restaurants, nightclubs, hotels, lecture halls, meeting rooms, airports, recreation facilities and performing arts centers



EQ818

This 50W system is comprised of an 8" diameter woofer, a 4" diameter high frequency piezo transducer and an acoustically matched ported enclosure to deliver optimum response, sensitivity and power handling. The high performance loudspeaker assembly is factory mounted to a subplate and offered with choice of 3 professional quality line matching transformers. Bass reflex enclosure EQ818-BX (order separately) is manufactured from 20-gauge CRS, lined with 1½" thick fiberglass and finished in textured black enamel. The blackbox measure 11¼" diameter x 8" deep and includes teflon leads with connectors for installation in plenum ceilings and a separate junction box for convenient connection to conduit systems. Attractively styled companion baffles (order separately) are constructed of 22-gauge CRS and finished in white semi-gloss enamel. EQ61 measure 13¾" diameter and EQ164 is 16" square. To assure prime appearance in suspended ceilings, optional load bearing tile bridge EQ81 is recommended.



EQ818-BX
(Bass Reflex Enclosure)

FD70W 8" Loudspeaker/ Transformer/Baffle Package

Packaged with pre-assembled baffle, 8" loudspeaker with 5 oz. ceramic magnet (30Hz - 18kHz) and 70.7/25V transformer.



CALL FOR PRICING.
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





audio-technica®



MICROPHONES/MIXER

AT803b Sub-Miniature Clip-on Electret Condenser (Omni)

- Sensitivity: -49dBm ▪ Impedance: 400 ohms ▪ Max. Input SPL: 130dB, 1% THD
- S/N: 45dB/1kHz/1µbar ▪ Battery: 1.5V N Type, 4-month life ▪ Switch: On/off audio/battery ▪ Connector: XLRM
- Frequency Response: 30-20,000Hz
- Also operates on 9-52VDC phantom power \$185.00



AT803c Ultraminiature omnidirectional unterminated for wireless and other applications; bulk packed with tie clip and windscreen \$85.00

AT805b Miniature Clip-On Electret Condenser (Omni)

- Sensitivity: -57dBm ▪ Impedance: 600 ohms ▪ Frequency Response: 50-15,000Hz ▪ Max. SPL: 130dB, 1% THD ▪ S/N: 50dB/µbar ▪ Battery: 1.4V Mercury cell, 600 hours life ▪ Switch: On/off ▪ Connector: XLRM \$88.00

AT831b Sub-Miniature Clip-on Electret Condenser (Cardioid)

- Sensitivity: -50dBm ▪ Impedance: 400 ohms ▪ Max. Input SPL: 130dB, 1% THD ▪ S/N: 45dB/1kHz/1µbar ▪ Battery: 1.5V N Type, 4-month life ▪ Switch: On/off audio/battery ▪ Connector: XLRM
- Frequency Response: 40-20,000Hz (close); 70-20,000Hz (distant)
- Also operates on 9-52VDC phantom power ▪ Requires output cable
- Power supply has mounting brackets or clips \$195.00

AT831c Miniature Cardioid

- Unterminated for wireless and other applications; bulk packed with tie clip and windscreen \$87.00

AT831R Miniature Cardioid Remote Powered Condenser Microphone

- Sensitivity: -42dBm ▪ Impedance: 200 ohms ▪ Frequency Response: 50-18,000Hz ▪ Max. Input SPL: 141dB SPL, 1kHz at 1% THD ▪ Phantom Power Requirements: 9-52VDC, 2mA typical
- S/N: ≥65dB \$235.00

AT813R Remote-Powered Electret Condenser (Cardioid)

- Sensitivity: -49dBm ▪ Impedance: 200 ohms ▪ Max. Input SPL: 141dB, 1% THD ▪ S/N: 50dB/1kHz/1µbar ▪ Power Requirement: 9-52VDC phantom power ▪ Connector: XLRM ▪ Frequency Response: 30-20,000Hz ▪ For vocal/recording \$228.00

AT815R Electret Condenser Line/Gradient (Unidirectional)

- Sensitivity: -43dBm ▪ Impedance: 200 ohms ▪ Max. Input SPL: 140dB, 1% THD ▪ S/N: 50dB/1kHz/1µbar ▪ Power Requirement: 9-52VDC phantom power ▪ Connector: XLRM ▪ Frequency Response: 40-20,000Hz \$420.00

AT825 OnePoint X/Y Stereo Field Recording

- Elements: Fixed-charge, back plate permanently polarized condenser ▪ Sensitivity: -46dBm ▪ Impedance: 200 ohms balanced
- Frequency Response: 30-20,000Hz ▪ Open Circuit Sensitivity: 4.5mV ▪ Channel Balance: <2dB ▪ Max. Input SPL: 126dB, 1kHz at 1% THD ▪ S/N: <67dB, 1kHz/1 Pa ▪ Battery Type: Use only "leakproof" AA/UM3 1.5V battery ▪ Battery Current: 2mA ▪ Battery Life: More than 1,000 hours (alkaline battery) ▪ Phantom Power Requirements: 5-52VDC, 2mA typical (each channel) \$500.00



ATM27HE/29HE Hi-Energy® Hypercardioid Dynamic Microphones

- Wide-range moving coil dynamic mics with hypercardioid pickup patterns ▪ Hi-Energy neodymium magnets to ensure lowest mass for exceptional transient response ▪ Engineered to meet the needs of professional musicians and sound engineers in high-quality recording and sound reinforcement applications ▪ Smooth and natural proximity effect for fuller sound and reduction of feedback ▪ Frequency response: 50Hz-15kHz ▪ Output of -56dBV (1 Pascal) ▪ Standard integral 3-pin XLRM connector ▪ 200 ohms

- ATM27HE Ball shaped for vocal. \$160.00
- ATM29HE Stick shaped for instruments. 145.00



AT-MX341 SmartMixer® Automatic Microphone Mixer

- Microprocessor-controlled ▪ Automatic switching ▪ 4-channel ▪ 2 modes of operation can be independently switched on the front panel pre-select switches ▪ With priority switches down, only 1 mic at a time is allowed to be on ▪ With priority switches up, the mics are disconnected from the control bus ▪ Microprocessor attenuation is factory set at 8dB but can be internally adjusted between 6 and 20dB ▪ A combination of the 2 modes may also be used ▪ 1 or more mics can have a controlling position with switches up while all other mics are switched down ▪ Despite mode of operation, the last active microprocessor will remain on ▪ Mixer can be cascaded with a link cable and special connectors on the rear panel, allowing any number of mics to be controlled by 1 microprocessor at the end of a string of mixers ▪ Female XLR balanced inputs and a line-level output through a male XLR connector ▪ 7-light LED output level meter ▪ Master threshold control sets the level at which the lockout bus is activated ▪ Each microprocessor input has an independent gain adjustment on the front panel ▪ TTL logic output on each channel. \$799.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIRELESS MICROPHONE SYSTEMS



audio-technica.



ATW-1031 UniPak™ Body-Pack Systems

▪ Offers 2 basic transmitter types to meet specific needs ▪ Operates in the 169-216MHz range, where 15 frequencies are available for multiple input applications with minimum interference ▪ Included connecting cable features a locking-type miniature plug to assure no interruptions during use ▪ Cable provides audio connections from guitar or other high-impedance source ▪ DC bias for electret condenser microphones also available at the input jack ▪ Exclusive circuitry prevents the noise burst typically heard when the transmitter is switched ▪ Separate trim controls permit matching guitar and microphone levels to the transmitter input ▪ Transmitter is powered by a 9V alkaline battery that offers 10 hours of normal service ▪ Operates in the VHF high band and is available in 15 crystal-controlled frequencies ▪ Selectivity and noise rejection permit full use of up to 9 channels simultaneously ▪ High S/N ratio and low distortion insure wide dynamic range and superb output quality ▪ A-T muting system assures minimal noise even if the transmitter is switched off during a performance ▪ Range is up to 1500'

ATW-1031 Basic System ▪ Inputs for mic and line-level/Hi-Z instruments ▪ ATW-R10 diversity receiver ▪ ATW-T31 UniPak transmitter with instrument cable and vinyl pouch. \$690.00

ATW-1031-830 Lavalier System ▪ Mic clip and windscreen ▪ ATW-1031 system with MT830cW ultra-miniature wide-range omnidirectional condenser microphone. \$745.00

ATW-1031-831 Lavalier System ▪ Mic clip and windscreen ▪ ATW-1031 system with MT831cW miniature wide-range unidirectional microphone. \$760.00

ATW-10310-M35 High-SPL Clip-On Instrument System ▪ ATW-1031 system with ATM35cW UniPoint® High-SPL unidirectional microphone ▪ AT8418 universal instrument clip. \$800.00

ATW-1031-M71 Headworn Microphone System ▪ Windscreen ▪ ATW-1031 system with ATM71cW front-of-mouth entry headworn miniature cardioid condenser microphone. \$790.00

ATW-1031-M73 Headworn Microphone System ▪ Windscreen ▪ ATW-1031 system with ATM73cW side-of-mouth entry headworn miniature cardioid condenser microphone. \$850.00

ATW-1031-851 Plate Microphone System ▪ ATW-1031 system with AT851cW UniPoint plate microphone for conference, podium or tabletop use. \$850.00

ATW-1031-857 Lectern/Desk Stand Microphone System ▪ ATW-1031 system with AT857AMLcW UniPoint miniature cardioid gooseneck microphone ▪ 3/8"-27 threads attach to microphone stand or mounting flange. \$880.00

ATW-1031-XLR Input System ▪ Converts a standard Lo-Z microphone to wireless ▪ ATW-1031 system with XLRf-type cable to plug into XLRM-type output of any standard low-impedance mic. \$699.00

ATW-1032 Dynamic Cardioid Microphone System ▪ With stand clamp ▪ ATW-R10 receiver and ATW-T32 handheld transmitter. \$799.00

ATW-1235 UniPak Body-Pack Systems

▪ Compander circuits create an "Invisible Link" between performer and audience with hard-wired sound quality ▪ FM deviation improves S/N ratio for greater headroom and dynamic range ▪ Choice of 20 VHF frequencies for minimum interference ▪ True diversity reception with 2 independent RF sections ▪ Special muting circuits eliminate "thumps" even when transmitter is switched off or on while channel is live ▪ 2 receivers mount side by side in single rack space ▪ Receiver antennas mount on front, back or remotely from unit ▪ Ground-lift switch solves hum problems when ground loops are encountered in the field ▪ 1500' range (minimum 200' range under adverse conditions) ATW-T36 handheld transmitter uses Hi-Energy® A-T dynamic element with internal pneumatic shock mount ▪ ATW-T35 UniPak™ transmitter includes Super Hi-Z input ▪ ATW-T35 UniPak transmitter accepts any dynamic or condenser microphone, line-level device or instrument output



ATW-1235 Basic System ▪ Inputs for mic and line-level/Hi-Z instruments ▪ ATW-R12 diversity receiver ▪ ATW-T35 UniPak transmitter with instrument cable and vinyl pouch. \$690.00

ATW-1235-830 Lavalier System ▪ Mic clip and windscreen ATW-1235 system with MT830cW ultra-miniature wide-range omnidirectional condenser microphone. \$745.00

ATW-1235-831 Lavalier System ▪ Mic clip and windscreen ▪ ATW-1235 system with AT831cW miniature wide-range unidirectional microphone. \$760.00

ATW-1235-M35 High-SPL Clip-On Instrument Mic System ▪ ATW-1235 system with ATM35cW UniPoint High SPL unidirectional microphone ▪ AT8418 universal instrument clip. \$800.00

ATW-1235-M71 Headworn Microphone System ▪ Windscreen ▪ ATW-1235 system with ATM71cW front-of-mouth entry headworn miniature cardioid condenser microphone. \$790.00

ATW-1235-M73 Headworn Microphone System ▪ Windscreen ▪ ATW-1235 system with ATM73cW side-of-mouth entry headworn miniature cardioid condenser microphone. \$850.00

ATW-1235-851 Plate Microphone System ▪ ATW-1235 system with AT851cW UniPoint plate microphone for conference, podium or tabletop use. \$850.00

ATW-1235-857 Lectern/Desk Stand Microphone System ▪ ATW-1235 system with AT857AMLcW UniPoint miniature cardioid gooseneck microphone ▪ 3/8"-27 threads attach to microphone stand or mounting flange. \$880.00

ATW-1235-XLR Input System ▪ Converts a standard Lo-Z microphone to wireless ▪ ATW-1235 system with XLRf-type cable to plug into XLRM-type output of any standard low-impedance mic. \$699.00

ATW-1236 Dynamic Cardioid Microphone System ▪ With stand clamp ▪ ATW-R12 receiver and ATW-T36HE handheld transmitter. \$799.00

Individual Components

ATW-R10 Diversity receiver for ATW-1031 series \$499.00

ATW-R12 Diversity receiver for ATW-1235 series 499.00

ATW-T31 UniPak transmitter for ATW-1031 series 320.00

ATW-T35 UniPak transmitter for ATW-1235 series 320.00

ATW-T32 Handheld mic/transmitter with dynamic element for ATW-1031 series. 425.00

ATW-T36HE Handheld mic/transmitter with Hi-Energy® dynamic element for ATW-1235 series 425.00

Full line accessories available—call for availability.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DYNAMIC MICROPHONES*

Classic Series

- M 58 ■ Omnidirectional moving coil dynamic ENG/EFP mic ■ Internal shockmount ■ 40-20,000Hz \$279.00
- M 59 ■ Hypercardioid handheld interview mic for ENG/EFP with Nextel non-reflective finish ■ 50-16,000Hz 529.00
- M 101 ■ Omnidynamic mic for studio and film... 349.00
- M 130 ■ Dynamic studio mic ■ Figure-8 characteristic ■ 40-18,000Hz ■ Double ribbon element..... 789.00
- M 160 ■ Dynamic studio mic Hypercardioid characteristic ■ 40-18,000Hz ■ Double ribbon element..... 749.00
- M 201 ■ Dynamic studio mic ■ Hypercardioid moving coil characteristic ■ 40-18,000Hz 439.00
- M 260 ■ Dynamic unidirectional mic ■ Hypercardioid characteristic ■ 50-18,000Hz ■ Ribbon element 489.00

TourGroup™ Series Vocal Microphones

- M 69TG ■ Dynamic unidirectional/studio mic ■ Hypercardioid characteristic ■ 50-16,000Hz ■ Black \$379.00
- M 88TG ■ Vocal and brass mic, excellent feedback rejection 629.00
- M 300 ■ Cardioid vocal/instrument mic 279.00
- M 380TG ■ Large diaphragm, figure 8 instrument mic..... 419.00
- M 420TG ■ Rack toms and percussion mic ■ Hypercardioid, dynamic unidirectional..... 339.00
- M 422TG ■ Snare, hi-hat percussion mic ■ Supercardioid, dynamic unidirectional 209.00
- M 424TG ■ Small diaphragm instrument mic ■ Supercardioid..... 179.00
- M 700TG ■ Dynamic unidirectional mic ■ Hypercardioid polar pattern..... 399.00

TourGroup-X™ Series Vocal Microphones

- TG-X 20 ■ Vocal and instrument hypercardioid mic ■ 45-16,000Hz ■ Internal coil wiring \$259.00
- TG-X 30.11 ■ Omnidirectional headworn mic with pre-amp ■ 45-16,000Hz ■ For hands-free use 429.00
- TG-X 30.16 ■ Omnidirectional headworn mic for wireless transmitter..... 299.00

- TG-X 35.11 ■ Cardioid headworn mic with pre-amp ■ 45-16,000Hz ■ For hands-free use..... 429.00
- TG-X 35.16 ■ Cardioid headworn mic for wireless transmitter 299.00
- TG-X 40 ■ Hypercardioid vocal/instrument mic ■ Rugged construction ■ 35-16,000Hz ■ Internal coil wiring..... 329.00
- TG-X 50 ■ Hypercardioid mic kick drum mic ■ 30-18,000Hz ■ 280 ohms impedance ■ Ideal for close miking of musical instruments and speaker cabinets 399.00
- TG-X 60 ■ Hypercardioid vocal mic ■ 40-18,000Hz ■ Internal coil wiring 399.00
- TG-X 80 ■ Hypercardioid vocal mic ■ 30-18,000Hz ■ Internal coil wiring 469.00

*Note: Where applicable, switchable versions are available for an additional \$10.00.

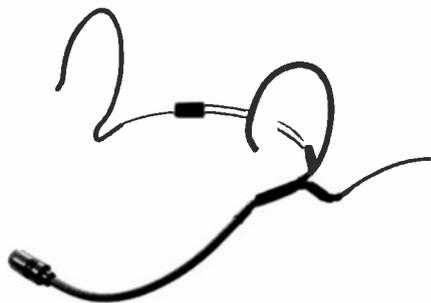
CONDENSER MICROPHONES

- MCE 80TG ■ Cardioid condenser vocal mic battery/phantom powered \$ 549.00
- MCE 81TG ■ Phantom only version of MCE 80TG 459.00
- MC 711 ■ Omnidirectional system mic 999.00
- MC 713 ■ Cardioid version of MC 711 1119.00
- MC 740 ■ Studio quality, large diaphragm condenser microphone ■ 5 selectable polar patterns: Cardioid, Wide-cardioid, Hypercardioid, Omnidirectional and Figure-8 ■ 10dB attenuation pad ■ 2-position bass roll-off switch ■ Requires 48V phantom power ■ MKVII clamp ■ 40-20,000Hz..... 2439.00

- MC 742 ■ Stereo version of MC 740..... \$5279.00
- MC 834 ■ Cardioid transformerless side-fired mic ■ Exceptionally low noise ■ Switchable 10/20dB attenuation ■ Elastic suspended condenser system ■ 30-20,000Hz..... 1419.00
- HEM 191/192 ■ Adjustable gooseneck mounted mic ■ Easy positioning ■ Lightweight design ■ Comfortable ■ No fatigue profile ■ High SPL capability ■ Prevents overload and distortion ■ Fast transient response ■ Accurately captures signal ■ Phantom powerable from 8 to 52VDC ■ HEM 192 cardioid or HEM 191 omni version 469.00

Acoustical Boundary Microphones

- MPS 40.01 ■ Half-spherical polar pattern ■ Unobtrusive low profile design ■ Wide range, smooth response ■ High SPL capability..... \$ 659.00
- MPC 50 ■ Half-spherical polar pattern ■ High SPL capability ■ Microphone installed flush with panel surface ■ XLR connection ■ Phantom or self-contained powering ■ On/off switch ■ Power pilot LED 1189.00
- MPC 60/1 ■ Omni-condenser version of MPC 50 1589.00
- MPC 60/3 ■ Cardioid-condenser version of MPC 50 1589.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HEADSETS/ HEADPHONES



beyerdynamic



DT 108



DT 109

PROFESSIONAL BROADCAST AND INTERCOM HEADSETS

DT 108* Dynamic Headset

Dynamic single-muff headset with built-in dynamic boom mic (200 ohm) ■ Designed for live remote broadcasting, studio, film and TV, 2-way communication ■ Standard headset for most intercom systems

DT 108	.....	\$289.00
DT 109*	Same as the DT 108 in a dual-muff configuration	349.00
DT 109.4	Same as the DT 109 with built-in balanced preamp	409.00
DT 109.5	Same as the DT 109 but with balanced mic 200/400 ohms	369.00

DT 108.4 Dynamic Headset

Same as DT 108 but supplied with built-in amplifier for carbon-level mic inputs found on many ENG cameras ■ 200 or 600 ohm balanced mic line ■ Available in 400, 600, 2000 or 6000 ohm headphone impedance ■ Straight, non-detachable, open ended cable

DT 108.4	\$399.00
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*Note: DT 108 and DT 109 are available in the following impedances: 8, 50, 100, 200, 400, 800 and 2000 ohms.

DT 190 Sports Headset Microphone

Dual earcup headset microphone ■ Designed for on-the-air applications where isolation from ambient noise and the highest levels of speech intelligibility are required ■ Adjustable microphone boom permits quick adjustment when worn by user ■ Available in mono, dual mono or stereo

DT 190	.....	\$399.00
DT 180	Single-muff version of DT 190	379.00



BROADCAST/STUDIO MONITORING HEADPHONES

DT 48* Dynamic Headphone

Closed design ■ For professional applications ■ Considered the standard headphone for use in live recording, film monitoring, broadcasting and ENG work ■ 16Hz-20kHz ■ Supplied with 3m straight (K), non-detachable cable terminated in 1/4" connector

DT 48	\$479.00
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*Note: Specify straight (K) or coiled (WK) cable, stereo or mono wiring and impedance.

Stereo: 8, 25 and 200 ohms; Mono: 16, 50 and 400 ohms

DT 100 Circumaural Studio Headphone

Closed design ■ Comfortable for extended use ■ 10' cable with 1/4" stereo connector supplied ■ Used in audio recording and monitoring applications ■ 30Hz-20kHz

DT 100	\$239.00
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DT 102 Dynamic Single-Cup Headphone

Dynamic, single-muff communication headphone ■ Designed for monitoring broadcast, TV, theater and discos ■ 30Hz-20kHz

DT 102	\$179.00
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DT 150 Circumaural Stereo Headphone

Combines rugged, field serviceable construction of DT 100 with digital performance transducers ■ 5Hz-35kHz frequency response ■ Use for studio or on-location applications ■ Replaceable ear cushions and headband pad ■ Detachable cord

DT 150	\$269.00
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Stereo: 8, 50, 100, 200, 400, 600, 800 and 2000 ohms
Mono: 16, 100, 200, 400, 800, 1200, 1600 and 4000 ohms



DT 505 Mini Earphone Monitor

Dynamic mini earphone supplied with ear loop (OB 506) and straight, open ended cable ■ Mono only ■ Optional ST 505 "steto-clip" available for binaural listening ■ 50 ohm impedance

DT 505	\$49.00
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Cables

K100.07	Straight 10' (3m) cable with 1/4" phone jack wired in stereo	\$36.00
WK100.07	Coiled 10' (3m) cable with 1/4" phone jack wired in stereo	45.00
K109.0	Straight 5' (1.5m) cable open-ended for DT 108/109	35.00
K109.00	Straight 10' (3m) cable for DT 108/109	39.00
WK109.00	Coiled 10' (3m) cable open-ended for DT 108/109	45.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MCA-b 3V
Single Channel VHF Amplifier \$467.26

MSCA 2V
Single Channel VHF Amplifier \$343.63

MCA-Ub
UHF Strip Amplifier \$927.39



AP Series Agile Audio/Video Processors

■ Complementary products to the AM modulators ■ Accept any UHF or VHF television input in the 50-806MHz range and process signal to any TV channel in the 50-550MHz range ■ Suitable for advanced SMATV and CATV systems with available options. \$1665.99

OC-8c Headend Combiner (Passive)

■ 600 MHz ■ 8 broadband input ports ■ Radiation-proof passives \$255.39

OCA-8b Headend Combiner (Active)

■ 8 broadband input ports \$498.06



AM Series Agile Audio/Video Modulators

Model	Output Level	Spurious Content	Frequency Range	Price
AM60-450	60dBmV	>58dB Below Visual Carrier	50-450MHz in 0.250MHz Increments	\$1288.72
	63dBmV	Below the Threshold of Visibility as Set Forth on "W" Curve		
AM60-550	60dBmV	>58dB Below Visual Carrier	50-550MHz in 0.250MHz Increments	1424.49
	63dBmV	Below the Threshold of Visibility as Set Forth on "W" Curve		
AM40-450	42dBmV	>58dB Below Visual Carrier	50-450MHz in 0.250MHz Increments	1272.04
AM40-550	42dBmV	>58dB Below Visual Carrier	50-550MHz in 0.250MHz Increments	1152.93

Note: Channels below 50MHz available upon request

Splitters

Product		Specifications									
Model	Stock No.	No. of Outputs	Frequency Range (MHz)	Splitter Loss (dB)	Input Return Loss (dB)	Isolation Between Outputs (dB)	Power Passing Capability	80dB RFI Shielded	Connector Orientation	Application	Price
CRS-2	4032	2	5-600	3.5 (5-500MHz) max. 4.0 (500-600MHz) max.	17 min.	27 min.	N/A				\$ 5.77
CRS-3	4033	3	5-600	5.2 (5-500MHz) max. 5.5 (500-600MHz) max.	17 min.	27 min.	N/A	Yes	In-line	SMATV/ CATV	6.11
CRS-4	4034	4	5-600	7.2 (5-500MHz) max. 8.0 (500-600MHz) max.	18 min.	27 min.	N/A				11.48
CRS-8	4038	8	5-600	12.0 (5-450MHz) max. 13.5 (450-600MHz) max.	14 min.	27 min.	N/A				20.84



Directional Couplers

Product		Specifications										
Stock No.	Tap Value (dB)	Frequency Range (MHz)	Isolation Tap-to-Tap (dB)	Isolation Output to Tap (dB)		Thru-Line Loss (dB)		Tap Down Loss (dB)		Input Return Loss (dB)	Price	
DCW-1 Output				5-470MHz	470-900MHz	5-470MHz	470-900MHz			5-470MHz	470-900MHz	
4889-4	4	5 to 900	N/A	20	18	3.5	4.0	3.0 ± 0.5 (5-470MHz)	3.0 ± 1.0 (470-900)	15	12	\$12.07
4889-6	6			22	20	3.0	3.5	6.0 ± 0.5 (5-470MHz)	6.0 ± 1.0 (470-900)	15	13	
4889-9	9			24	20	1.2	1.6	9.0 ± 0.5 (5-470MHz)	9.0 ± 1.0 (470-900)	15	16	
4889-12	12			30	24	0.9	1.5	12.0 ± 0.5 (5-470MHz)	12.0 ± 1.0 (470-900)	20	18	
4889-16	16			30	26	0.7	0.7	16.0 ± 0.5 (5-470MHz)	16.0 ± 1.0 (470-900)	20	18	
4889-20	20			36	30	0.6	0.7	20.0 ± 1.0 (5-900)		20	18	
4889-24	24			36	30	0.5	0.6	24.0 ± 1.0 (5-900)		20	18	
4889-27	27			40	30	0.5	0.6	27.0 ± 1.0 (5-900)		20	18	
4889-30	30			40	30	0.5	0.6	30.0 ± 1.0 (5-900)		20	18	

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA SUPPORT EQUIPMENT



bogen
Bogen Photo Corp.

3191 Professional Cine/Video Tripod

▪ Tandem legs ▪ Retractable, spring-loaded spike tips ▪ Lightweight (11 lbs.) ▪ Handles cameras up to 22 lbs. when used with the 3066 Cine/Video Fluid Head ▪ Features a 100mm diameter claw-ball leveller, variable leg angles within a 180° arc, quick-flip lever locks, stainless steel fittings with high-quality castings, and built-in leg straps for convenient transport ▪ Tripod folds to 38½" and extends to 59" without head



3066 Cine/Video Fluid Head With Quick-Release Plate

▪ Professional quality, designed for cine and video cameras weighing up to 22 lbs. ▪ Large, removable platform has a mounting stud that travels in a 3½" slot and facilitates balancing at the camera's center of gravity ▪ Series of closely-spaced locking detents on the platform ▪ Pans smoothly 360° ▪ Panning drag can be adjusted by means of a simple adjustment screw ▪ Vertical drag is adjusted by a large pawl-controlled lever ▪ Tilting range is 60° up to 90° down ▪ Detent which can be set to limit the downward movement to 45° ▪ Separate locks, independent of the drag system, provide a positive hold in any position

3191	3191 tripod without head	\$500.00
3192	3191 black anodized tripod without head	530.00
3194	3191 tripod with 3066 head	905.00
3195	3192 black anodized tripod with 3066 head	935.00

3066 \$405.00

3068 Universal Cine/Video Tripod

▪ Weighs only 11 lbs. ▪ Extends to 67" ▪ Rigid center brace construction ▪ Steel extension legs lower the center of gravity ▪ Legs are furnished with convertible cushion/spike tips ▪ For precise positioning a centerpost permits 9¼" of extension ▪ Variable-angle center brace system allows minimum elevation of the tripod platform as low as 17¼"



3063 Mini Fluid Head With Quick-Release Plate

▪ Measures 5" x 5" x 5" (excluding handle) ▪ Lightweight (3¼ lbs.) ▪ Pans and tilts smoothly ▪ Camera platform features a quick-release mounting plate with locating pin ▪ Comes with a versatile handle which is positionable on either side and can be separated into 2 individual segments, each 9" in length ▪ Can be tilted 45° up and 90° down continuously, with detent at 45° ▪ Has separate pan and tilt locks ▪ Vertical drag is continuously adjustable ▪ 11 lb. rating



3065	3068 tripod with 3066 head	\$684.95
3069	3068 tripod with 3066 head and 3067 dolly	944.95
3068	3068 tripod without head	279.95
3118	3068 tripod with 3063 head	421.95

3063 \$157.95

3046 Series Professional Tripods

▪ Aluminum double-strut, center-braced 2-section tripod. The design offers remarkable rigidity coupled with light weight (only 8¼ lbs.) ▪ Ideal for educational and industrial studio applications ▪ Extends to 68½" with the mini fluid head ▪ Folds to a compact 32" for traveling ▪ Legs are furnished with convertible cushion/spike tips



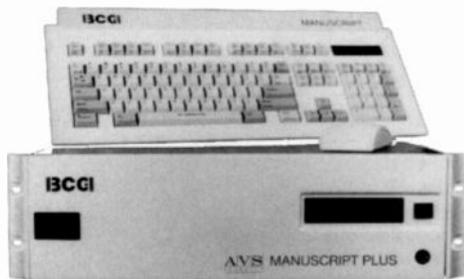
3046	3046 tripod without head	\$219.95
3140	3046 tripod with 3063 head	377.90
3142	3246 black anodized tripod with 3063 head	396.90
3246	3246 black anodized tripod without head	238.95

3067/3198 Deluxe Cine/Video Dollies

▪ Designed for use with the Professional Cine/Video, Universal and Heavy-duty Tripods ▪ Individually braked 5" wheels with cable guards and a unique leg-locking system ▪ Easy to assemble and disassemble for transporting ▪ Tripod legs are captured in a 38" diameter circle ▪ Doorway clearance needed for the fully assembled dolly is 39½" ▪ A version of the Deluxe Cine/Video Dolly is also available for tripods in the 3181, 3185 and 3190 Series

3067	Deluxe Cine/Video Dolly	\$260.00
3198	Deluxe Cine/Video Dolly for tripods with spiked feet	262.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Manuscript Character/Graphics Generators

- AGT fonts ▪ Instantly resizes fonts ▪ On-line sizing 4 to 400 scan lines
 - Choose from 10 to 200 typefaces ▪ Creates transparencies up to 256 levels ▪ 16.7 million colors ▪ 24 color stores per page for edge, character, block and background colors ▪ Builds graduated backgrounds ▪ Anti-aliasing of fonts and graphics ▪ Internal linear keyer ▪ Page transitions: zip, cut, fade, reveal, push and wipe ▪ Automatic sequencing ▪ Smooth rolls and multi-line crawls (12 speeds each) ▪ 44 Latin-based languages
 - Displays any character at a rotation angle of 1-360° ▪ Mirror or reflection images ▪ Y/C or composite outputs (Component YCrCb or RGB for Plus and MSX models only) ▪ Nanosecond rating: better than 10ns (Plus and MSX); better than 18ns (Junior, Manuscript and Elite) ▪ Word processing functions ▪ Font and logo compose (Plus and MSX models only) ▪ Hard disk drive ▪ 3.5 floppy drive
- Junior RISC processor based character generator, 10 AGT font master typefaces \$ 4,950.00
- Manuscript Same as the Junior but has color gradation capability. 5,950.00
- Elite A Manuscript with YUV outputs, countdown clock, logo compose (7025) and master typefaces (7090). Designed for UVW stations . . 7,950.00
- Manuscript Plus More powerful version of the Manuscript offering improved resolution (better than 10ns), component compatibility, logo compose (7025), 10 additional master typefaces (7090) and the ability to accept 7092, 7093 and 7030 options 10,950.00
- MSX Full featured character/graphics generator with integrated still store, color frame grab, camera entry and paint touch-up system (7030 Grab & Paint) 15,950.00

Options

- 7020 Speed sub-titling (For all models) \$3,495.00
- 7025 Logo compose. (For Junior, Manuscript and Elite) 1,995.00
- 7030 Grab & Paint. An integrated still store, frame grab, camera entry and paint system. (Upgrades the Plus to the MSX) 5,495.00
- 7040 Color gradations. (Upgrades Junior to Manuscript) 1,095.00
- 7050 Upgrades Manuscript to the Plus 5,795.00
- 7055 Upgrades Elite to Plus chassis and performance 3,250.00
- 7090 Pre-selected 10 pack of master typefaces (For Manuscript and Junior only) 1,095.00
- 7091 Customer-selected number of and style of Latin-based language font master typefaces for permanent use. (Minimum purchase of 2 typefaces required) ea/150.00
- 7092 Customer-selected number of and style of Cyrillic, Hebrew or Greek language font master typefaces for permanent use. (Minimum purchase of 2 typefaces required) ea/290.00
- 7093 Customer-selected number of and style of Arabic or Thai language font master typefaces for permanent use. (Minimum purchase of 2 typefaces required) ea/1,050.00
- 7095 Annual rental of typeface library. (Over 200 typeface masters) 1,495.00



MOCCE, Inc. Key Power Multi-Layer Keyers

▪ CKM-4 Series keyers are all variations of a 4-input device which can be utilized in any post-production suite no matter what type of production switcher is used ▪ Each is a free standing unit requiring no modifications to your switcher or other production equipment ▪ 4 distinct layers can be generated by 4 separate keyers ▪ Any combination of synchronous key

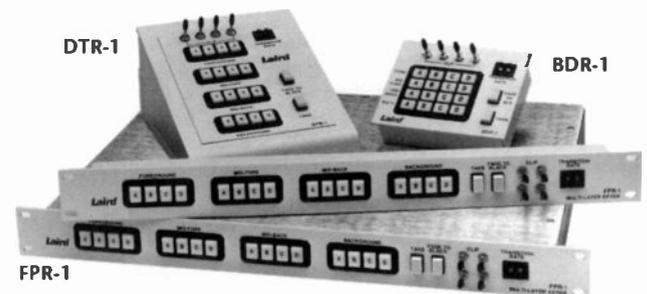
sources may be stacked in any order ▪ Inputs may be taken from any video source with or without associated key signals ▪ Sources may include DVEs, still stores, character generators, paint systems, chroma keyers, cameras, VTRs, etc. ▪ Can be used as a stand-alone keyer/switcher/fader in conjunction with an editing system utilizing its built-in GPI control interface ▪ Instead of just superimposing video signals, the upper layers cut a hole and fill over lower layers not only in the background video, but in all video sources under the foreground ▪ All CKM-4 Series keyers offer flexibility in changing layer priorities ▪ Layers may be interchanged instantaneously by simply preselecting sources on the control panel and pressing the Take button ▪ GPI contacts in parallel with the Take and Fade buttons allow the presets to be executed by an edit system or other external controller ▪ Executes external keys from sources that provide a key signal and internal keys (self-key) from sources that provide only a video signal ▪ The internal key is a luminance key with adjustable clip level ▪ Able to execute 4 different self-keys at 1 time, including graphics on tape with a drop shadow in any layer combination ▪ All of these layers may be recorded with 1 pass of the videotape machine ▪ Extremely versatile and easy to operate ▪ Control panels contain 4 sets of illuminated switches, each of which represents 1 of the 4 priority levels within the key "stack" (background, mid-back, mid-fore and foreground) ▪ The switches within each set represent the 4 input channels, permitting any of the inputs to be assigned to each level ▪ When steadily illuminated, these buttons indicate the active input on each layer ▪ When a new input selection is preset by pushing 1 of the buttons, that button will flash until the preset is executed by pushing the Take button ▪ 4 clip level adjustments on the panel allow the key level to be adjusted on each of the inputs ▪ The control panel is available in 3 package configurations for rackmounting, desktop mounting or for installation in a GVG-style accessory bridge ▪ Each control panel is supplied with a 25' cable for connection to the CKM-4 chassis ▪ Available in both composite and component versions

CKM-4DB Composite Keyer

▪ 4-input, 4-layer keyer plus: fades keys on or off, dissolves keys from 1 state to any other state (including in-between layers), 0 to 99 frame adjustable rate master fade to black ▪ System also includes preview video output ▪ Includes choice of control panel from list below \$3,895.00

CKM-4CD Component Keyer

▪ Full component, 4-input, 4-layer keyer plus: fades keys on and off, dissolves keys from 1 state to any other state (including in-between layers), 0 to 99 frame adjustable rate master fade to black ▪ System also includes preview video output ▪ Includes choice of control panel from list below . . \$4,995.00



Control Panels

- FPR-1 Control panel, 1 1/4" x 19" front panel, electronic chassis or remote mountable. Includes 25' cable. Not for 3 1/4" component version chassis \$150.00
- DTR-1 Control panel, 6" x 8" desktop remote control. Includes 25' cable. 150.00
- BDR-1 Control panel, 4" x 5" GVG bridge drop-in remote control. Includes 25' cable. 150.00
- CC 25-25 Additional 25' remote extension cable for above 120.00

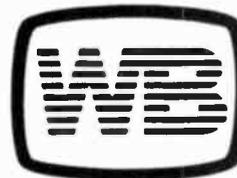
Single Channel Keyers

- K-110 "Cuts only" keyer with GPI control for use with any video or key source. 1/4 rack space. \$ 495.00
- K-120 Downstream keyer/fader with transparency capability. Includes choice of remote controls 895.00
- K-121 Same as K-120 with Y/C compatibility. Includes choice of remote controls 1,095.00
- DTR-125 Desktop remote control for K-120/121 195.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

STUDIO LIGHTING SYSTEMS

- Power Distribution
- Grids & Grid Hardware
- Fixtures & Accessories
- Dimming & Control
- Curtains & Curtain Tracks
- Grip & Gaffer Equipment



WALTER BREWER CORPORATION
 Television & Motion Picture
Lighting Systems Integrators
 Design • Engineering • Sales



WBC Scoops

14" and 18" focusing type scoops; 1000W and 2000W. All-aluminum construction combines strength with light weight and high heat dissipation. UL listed.



Services Available

Standard Studio Packages complete with drawings and material take-offs.

Custom studio lighting design, engineering, installation and commissioning.

Standard and custom lighting packages for teleconferencing, private production, training, church and school environments.

Remote power generation, location lighting systems, mobile lighting equipment trucks & trailers.

Fee-based consultation in studio lighting design and engineering.

Fee-based, hands-on instruction in equipment utilization and lighting techniques.

WBC Light Hangers

2 types available: 100 lb. capacity Pole and 200 lb. capacity Telescoping. Both extendable from 5' to 15'. Telescoping operable from studio floor.



WBC Studio Ladders

All-steel construction. 9 models available to reach grids from 8' to 16' high. Large top platform. Locking casters. Exceed OSHA safety standards.



WBC Connector Strips

Rigid steel construction with UL listed wiring and connectors. 10', 13' and 16' lengths with four, five and six 20 amp pigtails, respectively. Custom lengths available.



WBC Cycs Curtains & Curtain Tracks

Seamless cycloramas to 125' long and 28' high. Choice of 3 colors. Seamless scrim in white or black also available. Curtain track, hardware and accessories in standard and custom configurations.



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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

BTS

Broadcast Television Systems



CCD CAMERAS/REMOTE CONTROL SYSTEM

LDK 9SR Full-Size CCD Studio Camera

- Top-of-the-line, full-size CCD studio camera
- Applicable for any live or recorded TV broadcast or series production
- FT-5SR Series CCD sensors deliver high pixel density
- 700 TV lines resolution
- 62dB+ S/N
- Cameras may be linked via BTS's System 9000 camera control system
- Remote control interface features RS-232 or RS-422 serial interface for camera robotics and station automation systems
- Assignable operator



control panel allows camera assignment via a panel-top switch; rotary controls for iris, master black, black and gains, gamma, etc.; extensive remote knee slope and point; remote white clip; and diagnostic information port

- Master control panel enables multiple cameras to be operated from a single control point, including direct monitoring access
- Dynamic white shading, an intelligent file data base using iris and focal length feedback, corrects white shading artifacts
- Patented adaptive notch filter in base station encoder produces significant cross-color reduction
- 8-position removable effects filter cassette makes filter changes easy

LDK 910SR CCD Convertible Studio Camera

- Provides outstanding versatility as either an in-studio or a location production camera system
- Features FT-5SR Series CCD sensor, delivering high pixel density
- 700+ TV lines of resolution
- High S/N ratio
- Compact, rugged and reliable
- Automatic black shading and black balance for consistent picture quality
- Unique pivoting knee circuit adapts both the knee point and compression ratio to the highlight content of the picture for film-like picture quality
- In the field, individual cameras may be used with a VTR and a local remote control panel (LCP). LCPs permits precise control of iris, master black and individual red and blue painting for perfect field performance
- Uses wide-band RGB triax cabling for superior remote control nearly 1½ miles from its base station

Series 9000 Remote Control System

- Flexible remote control system designed exclusively for BTS LDK CCD cameras
- From simple 1-camera setup to complete multi-camera operations, Series 9000 provides maximum control and flexibility for unparalleled artistic freedom in any situation
- Enables video operators to manage the parameters of up to 8 cameras simultaneously or individually, or apply the parameters of 1 camera to all cameras
- System consists of a Base Station, Master Control Panel (MCP) and either joystick or rotary-controlled Operational Control Panels (OCPs)
- Permits individual camera control from discrete camera OCPs, or all cameras from a single MCP
- MCP displays include operational, maintenance and diagnostic setup information
- Connection between an MCP and the control system is a simple 2-wire bus for fast and flexible OCP assignments without rewiring the system
- Individual camera parameters may be stored on a removable RAM card and recalled through the MCP
- Based on the Open Systems Interconnection (OSI) concept
- All system components are integrated via a high-speed data loop

LDK 9P Frame Transfer CCD Portable/EFP Studio Camera System

- Matches the LDK 9SR in capabilities, yet is a lightweight (14 lbs.) EFP system
- 3 FT-5SR high-resolution CCD sensors
- 700 TV lines resolution
- 2000 lux at f/5.6
- 62dB S/N
- Complete RGB triax capabilities
- Full compatibility with LDK 9 studio cameras
- Unique personal scene file card for perfect setups
- Soft skin detail
- Optional 4:2:2 digital serial video output
- Switchable 4:3 standard and wide-screen 16:9 letterbox format
- In EFP mode, can use Betacam SP and MII on-board VTRs
- Comprised of a camera and triax base station



LDK 93SR Multipurpose Portable CCD Camera System

- For both studio and field production
- Can be set up as a studio camera or ENG/EFP camcorder operating under triax or multicord operation and/or local or remote operation
- Interfaces with System 9000 camera control system
- FT-5SR Series CCD sensors deliver high pixel density
- 700+ TV lines resolution
- 62dB+ S/N
- Needs no warm-up, maintenance or technical setup
- For ENG shooting, 4 color balance memories provide instant access to presets for lighting changes and 2 operator-controlled presets
- Camera settings may be performed on the camera or via a remote operational control panel
- Can use either a Betacam SP or MII onboard VTR
- 4-position electric filter wheel
- Letter box 16:9
- Cleanscan

LDK491ASR CCD Camcorder

- Lightweight (15 lbs.) Betacam SP camcorder
- Camera/VTR combination
- FT-5SR Series CCD sensors
- High pixel density
- 700+ TV lines resolution
- 62dB+ S/N
- Greatest sensitivity at full-open iris
- Cleanscan
- Ergonomically designed body and camera controls including a 4-position wheel that adjusts to all lighting conditions and an X-Y adjustable viewfinder with diopter
- Integrated Betacam SP recorder features built-in time code generator, sophisticated diagnostics with LCD warnings and readouts, and mixed or individual channel monitoring
- Uses metal or oxide 30-minute tape cassettes
- Exposure controls provide clear pictures for freeze frame or slow motion play
- Optional remote control panel provides control of iris, master black, color painting, colorbar selector, gain switch and auto white/black balance



Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Diamond-Digital Production Switchers

- Diamond-digital serial component production switchers provide high-quality chromakeying and other high-level switching effects
- The 4 switchers in the Diamond-digital family are designed to provide unprecedented quality for all post-production and production facilities, from single-suite operations to major facilities
- All offer mix/effects (ME) architecture and use the "next-transition" mode
- 2 Diamond-digital switchers, the DD20 and DD30, offer a switchable M/E-architecture-to-layering capability
- Chromakeys are provided by BTS' exclusive "DynaChrome™" keyer, which offers the latest chromakey techniques, allowing keying through smoke, water etc. without chromakey crawl or other image artifacts
- "MultiMix™" permits multiple transition types in a single edit. As a result, high-quality complex transitions are executed simply and quickly (available on the DD10, DD20 and DD30 only)
- "FXLoop™" enables most leading digital effects systems to be operated directly by Diamond-digital, which saves operational time and provides for more efficient production
- Wipe generators provide traditional and leading-edge shapes
- Offers LAN-based control systems
- Switchable between 525/60 and 625/50, and 4:3 and 16:9 image aspect ratios

DD30 Switcher

- 2 M/E plus PGM/PST or up to 11 layers
- PGM/PST stage equivalent to M/E
- 2 keyers in each M/E plus 2 universal DSKs in PGM/PST
- 24 inputs with 2 color background generators including wash and color black
- 10 aux outputs, framestore, 3 key-maskstores and texture/matte store



DD20 Switcher

- 1 M/E plus PGM/PST (option: second M/E) or up to 11 layers
- PGM/PST stage equivalent to M/E
- 2 keyers in each M/E plus 2 universal DSKs in PGM/PST
- 16 inputs with 2 color background generators including wash and color black
- 10 aux outputs, framestore, 2 key-maskstores and texture/matte store

DD10 Switcher

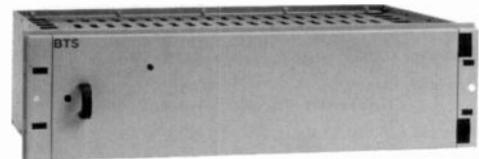
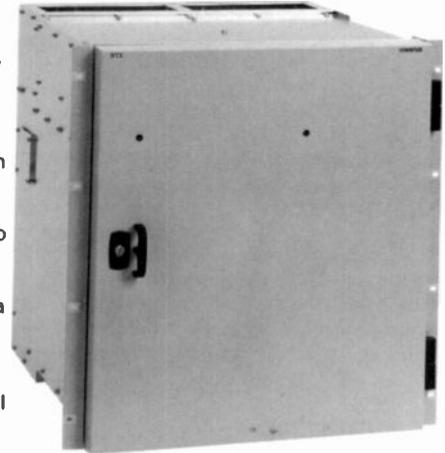
- 16 inputs, 1 mixing level with up to 2 universal keyers and M/E and 1 DSK, color background generator with wash and color black, 5 aux outputs, framestore, key-maskstore and texture/matte store

DDS Switcher

- 12 inputs, 1 mixing level with 1 keyer and 1 DSK, color background generator with wash and color black, 3 aux outputs, framestore, key-maskstore and texture/matte store

Venus Routing Switcher

- Offers high-capacity switching at an unprecedented savings in facility space
- Unique design enables broadcasters, production or post-production facilities to implement extremely dense intelligent switching systems in a minimum number of standard equipment racks
- Available in both analog and serial digital versions
- Comes in both a large matrix size and a compact 3-rack version
- Up to 2,048 crosspoints per rack unit can be made available for audio switching, and 1,024 crosspoints for video operations. Examples: a 64-input x 64-output video switcher and similarly configure stereo audio switcher together will fit in a single 19.25" high chassis. A 160 x 128 video plus stereo audio router can be mounted in 44 rack units (i.e., a standard equipment rack)
- Analog and serial digital audio and video switch cards can be packaged in the same rack frame, eliminating the need for separate, bulky space-consuming housing
- The Venus switcher "family" includes 4 switchers: HDTV-compatible analog video, analog audio specifically designed for stereo applications, 400M bit/sec serial digital video and AES digital audio
- Can be controlled by a BTS Jupiter control system, VM-3000 Control Electronics module or SC-400 panels



Mars 24 x 8 Routing Switcher

- High-performance video and/or audio router combining low cost and input/output expandability in a single rack unit package
- Designed for any broadcast, post-production or corporate facility
- Doubles in size instantly from a standard 24 inputs/8 outputs to 48 inputs/8 outputs by adding a second Mars unit
- Expands similarly to a maximum 48 x 32 configuration
- Conservative on facility space: Video switching, audio switching and control panel pieces each occupy only 1 rack unit
- Handles wide bandwidth signals up to 30MHz and all proposed analog video standards
- Battery backed-up RAM preserves switching instructions and configuration
- Numeric and mnemonic capabilities can be configured and downloaded from a user's PC computer via system editor software furnished with Mars
- AES audio
- Serial digital or analog video

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ENCODERS/DECODERS/ KEYERS



EN-350 Multiformat Encoder— RGB to Betacam, MII, S-VHS YC, NTSC

▪ Versatile and economical encoding system for computer graphics, weather maps and paint boxes ▪ Component, YC and NTSC outputs simultaneously ▪ Genlocks to external video or color black ▪ No separate pulses or subcarrier required ▪ Generates internal subcarrier in the absence of reference ▪ Internal horizontal phasing, advance and delay ▪ Also available in PAL and PAL-M standards
EN-350 \$2900.00



EN-300 NTSC Encoder

▪ Economical, compact, rugged, reliable and accurate ▪ The perfect RGB to NTSC encoder for computers, weather maps and paint boxes ▪ Generates internal subcarrier in non-synchronous applications ▪ Locks to external sync and subcarrier when RGB source can be genlocked ▪ Internal blanking regenerated in both modes ▪ Optional sync-on-green input ▪ Optional TTL inputs
▪ Available in NTSC or PAL standard
EN-300 \$995.00
YC-2 Optional S-VHS Y/C output 250.00
SOG-200 Optional sync-on-green input 250.00
RM-3 Rackmount (holds 2 EN-300) 150.00

VBI-232 Plug-In Encoder/Decoder

▪ Designed to plug directly into a Leitch Video or Grass Valley Group DA frame ▪ 1200 baud using 1 line in VBI utilizing EDC protection
▪ Biphase data ▪ Transparent insertion into loophrough video
▪ Transparent recovery from loophrough video ▪ Data frequency: 1.35-2.7MHz ▪ All connections via existing DA frame BNCs
▪ On-board jumper determines encoder or decoder mode
▪ Optional relay card provides 8 on/off functions
VBI-232 (each board) \$1275.00
RL-1 Optional relay board 550.00
CP-1 Optional control panel 350.00
FR3 Optional frame and power supply (1 board) 395.00
FR710 Optional frame and power supply (up to 4 boards) 525.00

D101 NTSC Decoder

▪ NTSC or PAL inputs, composite or YC ▪ Automatic input signal standard recognition ▪ 2 inputs with front panel selection
▪ Simultaneous outputs of Y/R-Y/B-Y and RGBS ▪ Sync may be added to any of the RGB outputs ▪ Front panel digital control of hue, saturation, equalization and Y delay ▪ On-board store and recall for 3 complete control panel settings ▪ Front panel bar graph gives visual indication of control settings
D101 \$2400.00

D100 NTSC Decoder

▪ 8-bit digital, adaptive comb filter ▪ 3-line vertical integration and 4X subcarrier sampling ensure optimum vertical and horizontal resolution ▪ Minimum cross color, cross luminance ▪ 6MHz luminance bandwidth ▪ 35dB subcarrier rejection ▪ Simultaneous outputs of YC, Y/R-Y/B-Y, RGB and sync ▪ RGB outputs are individually pinnable for comp or non-comp operation
D100 \$4950.00
D100RP Remote control panel 750.00



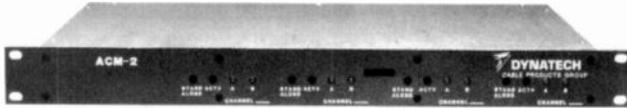
Masterkey Linear Luminance Keyers

▪ Opaque to transparent inserts at your fingertips ▪ May operate as a stand-alone keyer or downstream from any switcher ▪ Full preview output without switching or time sharing ▪ Self key or external key
▪ Clamped inputs ▪ Sync, burst and blanking always derived from program input ▪ Available in NTSC or PAL standards
MK1 Manual mix to key or A/B mix via remote fader. Remote key gain control. Also available as an RGB chroma keyer \$2100.00
MK2 Frame accurate auto mix to key or cut to key via remote pushbutton or GPI. 0-300 frame rate is adjustable from remote panel with digital readout. Remote key gain and slope controls. RS-422 control from remote panel 2650.00
MK3 Same features as MK2 plus frame accurate master fade to black. Separate rate controls, readouts and GPIs for mix to key and fade to black. Color black signal is derived from "A" (program) input . . . 3425.00
MK4 Same features as MK3 plus: invert key, key area masking, 4 input key and fill source switcher. Non-volatile memory stores settings of gain and slope for each key input 4750.00
MKCK Downstream linear RGB chroma keyer C/W key delay line 3400.00
Failsafe relay option, masterkey 1-4 125.00
KP500 RGB key processor, allows any masterkey to do a linear chroma key 1050.00
MK5 Component linear keyer with auto mix. Mix to key via pushbutton or GPI. Input may be Betacam*, MII**, SMPTE or EBU standards 3125.00
*Betacam is a Sony trademark. **MII is a Panasonic trademark.

734 and 735 Component/ RGB Translators

734-RGBS to Y, R-Y, B-Y
▪ Precise transcoding to Betacam, MII, SMPTE or EBU standards
▪ Regenerated sync and blanking ▪ Adjustable setup on Y component ▪ Adjustable horizontal phasing ▪ DC coupled to ensure correct R-Y, B-Y DC offset
735-Y, R-Y, B-Y to RGBS
▪ Precise transcoding from Betacam, MII, SMPTE or EBU standards
▪ DC coupled ▪ Regenerated sync and blanking ▪ Setup may be removed from Y input ▪ Sync may be added to any of the RGB outputs
734 RGBS to Y/R-Y/B-Y translator \$595.00
735 Y/R-Y/B-Y to RGBS translator 595.00
FR730 Mounting frame, comes with power supply, accepts up to 3 734/735 boards 575.00
EXT710 Extender board 50.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ACM-2 All Channel Message System

- ACM can place a static or crawling video message over the normal programming of any or all channels, at any time
- It can interrupt programs with full-page text messages
- Messages can be the same or different
- Includes IBM® AT compatible computer with ACM software that controls 1 or more ACM headend "chassis"
- Each ACM chassis contains 4 channels of switching and messaging in a 1½" standard rackmount configuration
- Each channel contains 2 video inputs and can title over either input or act as a stand-alone character generator
- Switching is stereo audio-follow-video
- Each channel contains contact closure for external device control
- System control is remotable
- Requires either DTU-10M or DTU-10S \$2,750.00

DTU-10M Data Transfer Unit

- Desktop IBM AT compatible chassis, separate keyboard, monochrome monitor, 640K RAM, 1.44M byte floppy 3½" drive, 30M byte hard drive, printer port for ACM control
- Includes ACM-DTU software for switching schedules, text generation video screen modes, event logs and external machine control commands
- Will control up to 31 ACM chassis or 124 channels \$3,750.00



DTU-10S Data Transfer Unit Software

- ACM control with customer provided computer \$2,000.00

DynaGen 400 Text and Graphics Generator

- One 286, 386 or 486 compatible board for each channel, up to 4 channels per AT chassis
- Each channel includes external video input for genlock and titling
- Link computer chassis for unlimited channels in 1 local system, and up to 250 channels through telephone dial-up network, with a maximum of 16 channels per dialed location
- Supports Wordperfect™, RTF and ASCII compatible files
- 33ns resolution
- Integral high quality composite/YC encoder and linear keyer
- Real time time/date display in any font and color
- Multi-region: up to 6 independent display regions per channel
- Automatic scheduling for each channel 31 days in advance, 250 events per channel
- Automatic restart after power failure
- 99 display speeds for rolls, crawls and other page transition types
- Easy to learn, pull across menus
- On-line help; context-sensitive help available at any time
- Logo creation: input PCX files from clip art, PC Paint™ and hand scanners
- 35 fonts from 10 typefaces standard, up to 10 fonts on-line
- Fast, real time operation
- Instant sizing from 16-256 scan lines selectable character by character
- Instant italicizing, 5 steps left and right
- Automatic character kerning
- Instant edges: 6 edge types, may be changed any time on any character
- 124 colors used on characters, edges, backgrounds. All colors selectable row-by-row
- Word wrap \$1,995.00



Steadicam Video SK

- Designed for the professional videographer and television news departments
- Features a universal dovetail camera mount
- Can be used with any camera weighing from 8-17 lbs.
- Design makes balancing fast and easy
- Mount the camera to the dovetail plate, attach to the sled, trim and shoot
- Complete system weighs 21 lbs. and packs into a compact carrying case

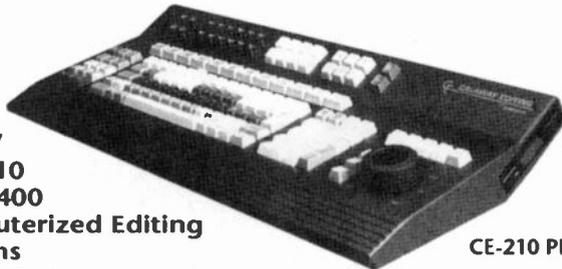
Steadicam Video SK system includes: Operator's vest • Stabilizer arm • Camera mounting chassis (sled) • Green screen monitor • Battery mount (Anton/Bauer or NP-1) • Power cable • 3' lightweight video cable • "T" handle Allen wrench • Owner's manual • 35-minute VHS training tape • Soft carrying case

5C700-1 Blue vest and NP-1 battery mount \$12,500.00
5C701-1 Blue vest and Anton/Bauer battery mount 12,500.00

Accessories

011-0311 Hard case \$ 650.00
078-2300 J-7 focus control for Fujinon lenses 415.00
078-2306 J-7 focus control for Canon lenses 415.00
078-2307 J-7 focus control for Nikon lenses 415.00
078-7376-01 J-7 zoom control for 12-pin Fuji lenses 620.00
078-7376-04 J-7 zoom control for 8-pin Fuji lenses 620.00
078-7376-02 J-7 zoom control for Canon lenses 620.00
078-7376-03 J-7 zoom control for Nikon lenses 620.00
078-7393 Low mode kit 350.00
078-7410-02 Vehicle mount 600.00
078-4122-01 3' lightweight video cable 48.00
078-7351 Power cable 75.00
078-7254 Battery mount (Anton/Bauer) 325.00
078-7256 Battery mount (NP-1) 910.00
FGS-000770 Anton/Bauer compact Magnum 14 battery 285.00
FGS-001722 Anton/Bauer quad charger 1,295.00
FGS-000767 6-pack NP-1 batteries 510.00
FGS-001721 LSNP (NP-1 4-position charger) 675.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CE-210 Plus

**CE-75/
110/210
PLUS/400
Computerized Editing
Systems**

Common Features

- Direct RS-422 Sony-type protocol ▪ NTSC 4-field color framing
- PAL 8-field color framing ▪ Edit video, audio 1 and 2 ▪ Audio/video split edits ▪ Preview: VVV, BVB, VBV plus outpoints ▪ Reassignable record/source VTRs ▪ 6-character alphanumeric reel number with optional external comments keyboard ▪ Trim any or multiple marks
- Auto assemble A mode ▪ Enable/disable any/all events in EDL ▪ 1 constant register ▪ 999-line edit decision list ▪ Calaway, GVG I/II EDL formats ▪ CMX 3600, 340X, OLD EDL formats ▪ Macro delay
- English display of macros ▪ Conversion between EDL formats
- Save EDL to disk ▪ Print EDL ▪ EDL backup to disk/printer ▪ EDL disk directory ▪ Seek through EDL by event number ▪ Scroll through EDL
- Format a disk ▪ EDL display on or off ▪ Recall event from EDL
- Replace events/marks into EDL ▪ Insert or delete event or note in EDL ▪ Single key match cut calculate ▪ Action match ▪ Notes in EDL (with optional external comments keyboard) ▪ Set current event number ▪ Sort EDL ▪ EDL "logging" mode ▪ GPIs saved to EDL

Specifications

- **Type of Processor:** 80286 CPU ▪ **Power Consumption:** 120/220V, 130W ▪ **System Reference:** 1V blackburst or 4V sync
- **Operating System:** DOS ▪ **CPU Rackmount:** Front and adjustable rear rack ears standard ▪ **Disk Media:** 3.5" 720K internal floppy disk drive standard ▪ **Printer Ports:** (2) parallel printer ports; (1) RS-232 serial printer port

CE-75 3-VTR Computerized Editing System

- Includes common features plus: ▪ 3-VTR control ▪ Optional CMX/GVG EDL 3.5" disk RT-11 conversion software ▪ Optional second 3.5" 720K internal floppy disk drive ▪ Optional 40M byte internal hard disk drive ▪ Optional RS-422 serial audio mixer interface ▪ Optional video and 2-channel audio preview switcher
- Optional AT-compatible keyboard for input of notes into the EDL and titles ▪ 4 serial VTR ports ▪ Direct RS-422 video switcher interface
- Video crosspoint selection ▪ Optional direct RS-422 audio mixer interface ▪ Preview of dissolve/wipe transition ▪ Optional 4 programmable GPIs ▪ 4 24-keystroke macros

CE-75..... \$8,160.00

CE-110 4-VTR Computerized Editing System With ASCII Keyboard

- Includes common features plus: ▪ Direct RS-422 Sony-type and Ampex VTR protocol ▪ Direct RS-422 audio mixer interface (ESAM I/II protocol) ▪ Edit video; audio 1, 2, 3 and 4 ▪ Sync roll with EDL listing ▪ Auto assemble A and B mode ▪ 8 constant registers
- Save/recall current marks ▪ 1980-line edit decision list ▪ Turbo Trace + EDL cleaning and tracing ▪ Shift record times in EDL
- Renumber events in EDL ▪ Move events in EDL ▪ Copy events in the EDL ▪ Back time calculator ▪ Time code calculator ▪ 8 programmable GPIs ▪ VTR DT speed triggers ▪ VTR DT speed fit calculator ▪ V-EFX memory triggers ▪ TBC memory triggers ▪ Master/slave control of 3 sets ▪ M/S saved to EDL ▪ Twelve 24-keystroke macros

CE-110..... \$9,985.00

CE-210 PLUS 6-VTR Full Featured On-Line System With Enhanced Keyboard

- Includes common features plus: ▪ 6-VTR control ▪ Optional video and 2-channel audio preview switcher ▪ Optional second 3.5" 720K internal floppy disk drive ▪ 8 serial VTR ports ▪ Multiple record VTRs with assignable track selection ▪ 3000-line edit decision list ▪ 3.5" DOS/RT-11 disk read/write ▪ Restore EDL-OOPS ▪ 24 24-keystroke macros ▪ Macros saved to disk ▪ Macro pause for keyboard entry
- Film time code conversion ▪ Ability to switch between NTSC and PAL ▪ Serial control of video switcher effects, switcher storage registers and timelines ▪ 10 concurrent EDL bins permit instant access to multiple EDLs ▪ EDL bin management utilities ▪ On-line, instant EDL cleaning and tracing ▪ 24 direct-access macro keys
- TurboTrace Plus™ high-end edit list management software ▪ Single keystroke player/recorder exchange feature speeds up multi-layered effects creation

CE-210 PLUS \$15,985.00

CE-400 7-VTR Computerized Editing System

- Includes common features plus: ▪ 7 active VTRs per edit ▪ Look-ahead auto assemble ▪ 9999-line edit decision list ▪ Multiple EDLs on-line (bins) ▪ 24 50-keystroke macros ▪ VTR speed fit calculator plus ▪ VTR speed match frame calculator plus ▪ 16 programmable GPIs ▪ Includes 11 direct control VTR ports, a video switcher and an audio mixer control port

Utilizing an 80486SX processor with 4M bytes of memory, the CE-400 performs with uncompromised power. A virtually unlimited number of EDL bins are accessible on demand. Performing a VTR speed fit edit is now set up automatically with a single keystroke. And the look-ahead search auto assembly feature edits an EDL efficiently.

All Calaway editing systems utilize direct machine control. Simply assign the model number of each VTR used in the edit session from a VTR control table provided in the editing program. Since all machine interfaces are software based, interfacing to new generation VTRs, video switchers and audio mixers means just updating your program disk.

Standard is the most powerful edit decision list cleaning and tracing program available: Turbo Trace+. The system has the ability to handle an EDL in virtually any format with up to 4 channels of audio, a memory of 3000 lines and powerful list management features, all executed at record speed.

CE-400..... \$21,985.00

Note: All systems include: electronic's frame with internal 3.5" disk drive; editing keyboard with control cable (CE-75=15', CE-110, CE-210 PLUS and CE-400=25'); TTL edit status monitor, and 25' RS-422 control cables (CE-75=4 cables, CE-110 and CE-210 PLUS=6 cables, CE-400=9 cables); and rackmount hardware. All systems utilize E-E previewing, and do not include a preview switcher. An external comment's keyboard for the CE-75 and CE-110 (with ASCII) systems not included.

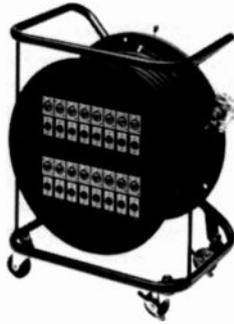
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CABLE STORAGE



Cable Reel Snake

A unique and economical approach to multichannel cable storage and system component integrating. Assembled with a durable R-Series Canare cable reel, built-in flange-mounted junction box, hardwired Star Quad L-4E3-P multichannel audio cable and multipin female Cannon connector. This modular design approach allows simple and secure mating with other Canare snakes, junction boxes, pigtails or with another cable reel snake.



Cable Reels

- Durable, long lasting black finish
- Rugged winding handle
- Roll-around removable casters
- Snake cable hanger tabs
- Exit flange port for snake ends

Canare has developed a dependable and road worthy cable reel in 3 useful sizes that keeps cable stored neatly when not in use, yet allows quick deployment without tangles and twisting. A perfect way to facilitate transporting and laying cable. Protect your valuable cable investment with Canare cable reels.

3-Position Brake Lock System

All R-Series models include a 3-position brake lever: (Position 1) Free Spool: cable will pull from reel with ease—this position is ideal for rewinding; (Position 2) Soft Brake: cable can be pulled from the reel, but friction prevents excess spillage when cable is pulled quickly; (Position 3) Full Lock: the reel will not rotate during transportation, so cable will not spill.

Stackability

All R300 series models have built-in stacking tabs, so cable reels can be securely stacked on top of each other. Excellent for ENG vans, remote location production trucks and cable installation pulls.

Special Connector Mounting Plates

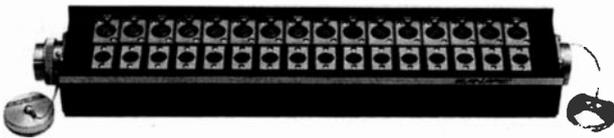
The R300L features a special recessed flange and removable hub plate that allow the user to mount a variety of panel connectors.

Tubular Steel Construction

Canare cable reels are constructed using tubular steel with an E-shaped brace design which makes them all extremely durable. All R-Series reels use heavy-duty permanently lubricated bearings which will perform like new even after years of hard road use. Our stringent stress tests indicate reels will deform only 0.04" with a 440 lb. load on the main shaft and just 0.2" with a maximum 550 lb. load. The tensile strength at the welded points is 5500 lbs. All reels are further tested with sustained vibration to ensure consistent mechanical stability even after prolonged transportation and rough handling.

Junction Box

Typically used at 1 or both ends of an audio snake. A Canare junction box will accept single microphone or line level XLR-3 type cables. The black anodized chassis is constructed from thick gauge aluminum (0.16") which is lightweight but exceptionally strong. All panel mount receptacles are secured to the chassis with screws, not pop rivets, should service ever be necessary. Skid pads and multipin dust caps with chain are included.



Snake Trunk

Assembled with Canare L-4E3-P Star Quad multichannel audio cable terminated at both ends with a Mil Spec JAE Cannon multipin connector. Dust caps with chain are included.



R300L



R300S



R300CN



R380S



R460S

Cable Reel Specifications

Model	Size	Weight (lbs.)	Stackable	Casters	Connector Mounting Flange	Cable Cut-out	Hanger
R300L	Small	9.5	Yes	No	Yes	No	No
R300S	Small	9.5	Yes	No	No	Yes	Yes
R300CN	Small	9.5	Yes	No	Parallel Wired M & F XLR on Hub and Flange	No	No
R380S	Medium	17.5	No	Yes	No	Yes	Yes
R460S	Large	22.0	No	Yes	No	Yes	Yes

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

L-4E6S/4E5C/4E5AT Star Quad Microphone Cable

- Designed for use with microphones, but also excellent for mixers to power amps
- The 4-conductor Star Quad arrangement cancels electromagnetically induced noise from SCR dimmer packs, fluorescent lighting ballasts and AC power transformers
- Cotton filler material
- Reduces handling noise
- Excellent frequency response is maintained due to special irradiated polyethylene insulation which provides a low capacitance dielectric
- Super flexible braided shield
- Large numbers of thin wire strands are used in both the conductors
- Special compound PVC outer jacket is extruded that remains pliant at extremely low temperatures with no wait between cold shipping and installation



L-4E6S ▪ Premier cable for all handheld microphone applications

- Satin smooth
- Extra-strong
- Standard diameter, 21AWG cable fits perfectly in all XLR-type audio connectors
- 40 separate strands in each conductor eliminate breakage due to flexing
- Available in 10 matte finish color jackets

L-4E5C ▪ A thin profile Star Quad that is flexible, yet robust

- Specifically designed to save space and reduce weight during remote field expeditions or confining installations

L-4E5AT ▪ Specifically designed for point-to-point wiring in fixed installations

- Aluminum tape (foil) shielding provides 100% coverage and gives the cable a narrow profile
- Jacket and foil strip simultaneously for quick assembly work (1/2 the assembly time of braided shields)
- Cable filler is Dupont Kevlar 29 which is stronger than steel and can resist stretching or kinking of wires when pulled through conduit

EC Pre-made Mic Cable

- Variety of lengths and colors
- Wired with L-4E6S Star Quad mated with premium Neutrik XLR-3 connectors
- Black shell with gold pins

LV-61S/77S 75-Ohm Coaxial Video Cable

- Designed for all field broadcast operations, video patch cords, easy rack wiring and studio layout cables
- Inner conductors are stranded for extra flexibility and will "stay put" where laid down
- A tough flexible special compound PVC jacket allows cables to be unpacked in extreme cold and used immediately
- A high density, basket weave braided shield blocks stray RF and electrostatic noise
- 100% sweep tested, 75-ohm video cables matched with 75-ohm BNC connectors offer excellent return loss characteristics for cleaner and sharper high definition video resolution

LV-61S ▪ A very flexible RG59B/U equivalent 75-ohm coax cable

- Perfect for all video facility equipment, interfacing and video patch cord assemblies
- The smooth, non-glare finish PVC jackets are available in 10 colors
- Recommended connectors—BNC: BCP-C4B; RCA: RP-C4

LV-77S ▪ An amazingly flexible version of the popular 8281 double shielded, precision video coax

- Typically used for longer cable runs between equipment
- Offers good return loss characteristics and excellent signal isolation
- Variety of colors
- Non-glare PVC jackets
- Recommended connectors—BNC: BCP-C77A

Multichannel 75-Ohm Coaxial Video Cable V-Series

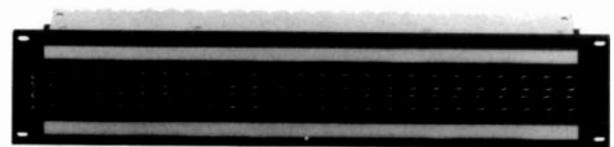
- Your choice of 3, 4 or 5 channel configuration bundled in an overall flexible PVC jacket
- Perfect for all high bandwidth RGB+Sync component analog system wiring
- Easy and reliable setup of high resolution video projectors, computer graphic workstations, broadcast component equipment and teleconferencing boardrooms
- Cables are precisely constructed and will eliminate the problem of channel to channel phase shift associated with individually cut single coax cable lengths
- Cable runs stay neat, safe and uncluttered
- Each video channel jacket is conveniently color-coded for simple component identification
- Cable terminates quickly and easily using Canare BCP-C3B 75-ohm BNC crimp plugs

VIC Pre-Made Video Cords

- Useful for both inter-rack harness wiring and longer video cable runs
- This 75-ohm BNC-BNC assembly is available in a variety of colors
- A low loss cord offers outstanding video bandwidth performance, because all components used are impedance matched for cleaner and sharper video resolution

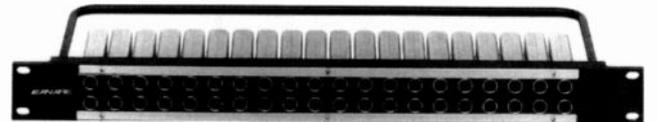
VS Pre-Made Video Fantails

- 75-ohm V-Series component cable is available in a variety of precut lengths terminated with 75-ohm BNC crimp plugs
- All assemblies are precisely timed with less than 2.2ns between adjacent video channels
- Canare VS fantails offer extra-wide video bandwidth performance, because cable and connectors are 75-ohm impedance matched



241U-VJ22W-C Loaded 2 x 24 75-Ohm Video Jack Panel

- 1.72"H x 19"W = 1 RU = 40 patch points
- .250" water-clear plastic label strip for easy channel jack identification



201U-VJ22W-C Loaded 2 x 20 75-Ohm Video Jack Panel

- Same as above plus: A .3125 round aluminum black anodized cable tie bar is attached to the back of the panel allowing your cable harness to be neatly dressed and weight supported

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



BROADCAST LENSES



Canon



PH8X4.4B IRS



YH13X7.5 KRS



J14aX8.5B IRS/IAS



J8X6B IRS

For 1/2" CCD Color TV Cameras (ENG/EFP)

Lens	Zoom Ratio	Range of Focal Length	With Extender	Maximum Relative Aperture	Angular Field of View	Minimum Object Distance (M.O.D.)	Object Dimensions at M.O.D.	Operation System	Built-In Extender
PH18X6.2B IRS ENG/EFP	18X	6.2-112mm	-	1:1.4 at 6.2-93mm 1:1.7 at 112mm	54.6°X42.3° at 6.2mm 3.3°X2.5° at 112mm	0.9m	86X64.5cm at 6.2cm 4.8X3.6cm at 112mm	Semi-Servo	2X
		12.4-224mm	2X	1:2.8 at 12.4-186mm 1:3.4 at 224mm	28.9°X21.9° at 12.4mm 1.6°X1.2° at 224mm		43X32.3cm at 12.4mm 2.4X1.8cm at 224mm		
PH14aX6.6B IRS* ENG/EFP	14X	6.6-92.4m	-	1:1.4 at 6.6-83mm 1:1.55 at 92.4mm	51.7°X40° at 6.6mm 4°X3° at 92.4mm	0.8m	71.2X53.4cm at 6.6mm 51.8X3.87cm at 92.4mm	Semi-Servo	2X
		13.2-184.8mm	2X	1:2.8 at 13.2-166mm 1:3.1 at 184.8mm	27.3°X20.6° at 13.2mm 1.98°X1.49° at 184.8mm		36.4X27.4cm at 13.2mm 2.67X2.0cm at 184.8mm		
PH8X4.4B IRS ENG/EFP	8X	4.4-35mm	-	1:1.4 at 4.4-35mm	72.5°X57.6° at 4.4mm 10.5°X7.9° at 35mm	0.3mm	51.3X38.5cm at 4.4mm 6.4X4.8cm at 35mm	Semi-Servo	2X
		8.8-70mm	2X	1:2.8 at 8.8-70mm	40.3°X30.8° at 8.8mm 3.2°X3.9° at 70mm		25.7X19.2cm at 8.8mm 3.2X2.4cm at 70mm		
YH17X7 KRS Semi-Professional	17X	7-119mm	-	1:1.4 at 7-96mm 1:1.75 at 119mm	49.1°X37.8° at 7mm 3.06°X2.29° at 119mm	0.95m (10mm with Macro)	78.8X59.1cm at 7mm 4.68X3.51cm at 119mm	Semi-Servo	-
PH15X7B IRS Semi-Professional	15X	7-105mm	-	1:1.4 at 7-95mm 1:1.55 at 105mm	49.1°X37.8° at 7mm 3.5°X2.6° at 105mm	0.95m	80.0X60.0cm at 7mm 5.4X4.1cm at 105mm	Semi-Servo	2X
YH13X7.5 KRS Semi-Professional	13X	7.5-97.5mm	-	1:1.4 at 7.5-80mm 1:1.7 at 97.5mm	46.2°X35.5° at 7.5mm 3.8°X2.8° at 97.5mm	1.0m (50mm with Macro)	78.5X58.9cm at 7.5mm 6.2X4.6cm at 97.5mm	Semi-Servo	-

For 2/3" CCD and Tube Color TV Cameras (ENG/EFP)

J18X8.5B IRS ENG/EFP	18X	8.5-153mm	-	1:1.7 at 8.5-113mm 1:2.3 at 153mm	54.7°X42.4° at 8.5mm 3.3°X2.5° at 153mm	0.9m	86.2X64.6cm at 8.5mm 4.9X3.6cm at 153mm	Semi-Servo	2X
		17-306mm	2X	1:3.4 at 17-226mm 1:4.6 at 306mm	29.0°X22.0° at 17mm 1.6°X1.2° at 306mm		43.1X32.3cm at 17mm 2.4X1.8cm at 306mm		
J15aX8B IRS/IAS* ENG/EFP 4:3 Aspect Ratio 8.8X6.6mm (dia. 11mm)	15X	8-120mm	-	1:1.7 at 8-100mm 1:2.2 at 120mm	57.6°X44.8° at 8mm 4.2°X3.15° at 120mm	65cm (2'2") from front lens vertex	62.7X47.0cm at 8mm 4.4X3.3cm at 120mm	Semi-Servo	2X
		16-240mm	2X	1:3.4 at 16-200mm 1:4.2 at 240mm	30.8°X23.3° at 16mm 2.1°X1.6° at 240mm		32.1X24.1cm at 16mm 2.2X1.7cm at 240mm		
	15X	8-120mm	-	1:1.7 at 8-100mm 1:2.2 at 120mm	61.9°X37.2° at 8mm 4.58°X1.29° at 240mm	65cm (2'2") from front lens vertex	68.2X38.4cm at 8mm 4.74X2.67cm at 120mm	Semi-Servo	2X
		16-240mm	2X	1:3.4 at 16-200mm 1:4.2 at 240mm	33.4°X19.1° at 16mm 2.29°X1.29° at 240mm		35.0X19.7cm at 16mm 2.41X1.36cm at 240mm		
J14aX8.5B IRS IAS* ENG/EFP	14X	8.5-119mm	-	1:1.7 at 8.5-103mm 1:2.0 at 119mm	54.7°X42.4° at 8.5mm 4.24°X3.18° at 119mm	0.8m	75.5X56.6cm at 8.5mm 5.5X4.1cm at 119mm	Semi-Servo (Built-in Motor for Focus Servo)	2X
		17-238mm	2X	1:3.4 at 17-206mm 1:4.2 at 238mm	29.02°X21.97° at 17mm 2.12°X1.59° at 238mm		38.6X29.0cm at 17mm 2.8X2.1cm at 238mm		
J14aX7B VAP ENG/EFP Optical Stabilizing Lens	14X	17-238mm	-	1:3.4 at 17-206mm 1:4.0 at 238mm	29.02°X21.97° at 17mm 2.12°X1.59° at 238mm	.8m	38.6X29.0cm at 17mm 2.8X2.1cm at 238mm	Optical Stabilizing	Vari-Angle Prism
J8X6B IRS* ENG/EFP	8X	6-48mm	-	1:1.7 at 6-33mm 1:1.9 at 48mm	72.5°X57.6° at 6mm 10.5°X7.9° at 48mm	0.3mm	51.3X38.5cm at 6mm 6.4X4.8cm at 48mm	Semi-Servo	2X
		12-96mm	2X	1:3.4 at 12-66mm 1:3.8 at 96mm	40.3°X30.8° at 6mm 5.2°X3.9° at 96mm		25.7X19.2cm at 12mm 3.2X2.4cm at 96mm		
J8X6B KRS* ENG/EFP	8X	6-48mm	-	1:1.7 at 6-33mm 1:1.9 at 48mm	72.5°X57.6° at 6mm 10.5°X7.9° at 48mm	0.3m	51.3X38.5cm at 6mm 6.4X4.8cm at 48mm	Semi-Servo	-
YJ17X9.5B KRS Semi-Professional	17X	9.5-162mm	-	1:1.8 at 9.5-121mm 1:2.4 at 162mm	49.7X38.3° at 9.5mm 3.11°X2.33° at 162mm	0.95m (10mm with Macro)	80.3X60.2cm at 9.5mm 4.8X3.6cm at 162mm	Semi-Servo	-
J15X9.5B IRS	15X	9.5-143mm	-	1:1.8 at 9.5-112mm 1:2.3 at 143mm	49.7°X38.3° at 9.5mm 3.5°X2.6° at 143mm	0.95m	86.2X64.7cm at 9.5mm 5.7X4.3cm at 143mm	Semi-Servo	-

*IF - Internal Focusing ** Next Generation

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



C40 Fluid Head

- Designed for 35mm motion picture and studio TV cameras
- Sliding quick-release plate
- 8-step helical spring system for perfect counterbalance with cameras weighing up to 110 lbs.
- 23½ lb. head weight
- + 80°/-60° tilt range
- Operator simply dials in the appropriate setting on the easy-grip selector ring
- 7+7 fluid drags
- 7+0 counterbalance steps
- Includes a telescoping handle and illuminated spirit level

K479 C40 head only with 1 extendable pan bar. \$7450.00

Tripods for C40

- K600 1-stage tripod with ground spreader ball base. \$1795.00
- K601 2-stage tripod with ground spreader ball base. 1995.00
- K602 Baby legs ball base. 1125.00
- K603 1-stage tripod with ground spreader flat base. 1795.00
- K604 2-stage tripod with ground spreader flat base. 1995.00
- K605 Baby legs flat base. 1125.00

C40 Systems for EFP/Studio/35mm

- K478 C40 head, 1-stage aluminum tripod flat base with ground spreader, 1 extendable pan bar. \$8995.00
- K480 C40 head, 2-stage aluminum tripod flat base with ground spreader, 1 extendable pan bar. 9195.00

C40S Dutch Head

- Produces smooth and professional Dutch tilts
- Head interfaces directly with C40 or similar quick-release heads
- Drag can be adjusted to suit any camera up to 110 lbs.
- Includes frictionless sliding base plate, locking quick-release plate and a telescoping handle

K500 \$5150.00

C20S Fluid Head

- Designed for either ENG/EFP or 16mm film production
- 61 lb. load capacity
- 14.3 lb. head weight
- 360° pan range
- ±60° tilt range
- 100mm ball type leveling base
- 7+7 fluid drags
- Includes a frictionless sliding base plate with a locking quick-release plate
- 8-position easy-grip selector ring for counterbalance match
- Includes spirit level and telescoping handle
- Interfaces with standard aluminum and ultra-light carbon fiber legs

S422 Head only with 1 extendable pan bar. \$5090.00

C20S Systems for EFP/Studio/16mm

- S421 C20S head, 1-stage heavy-duty aluminum tripod with ground spreader, 2 extendable pan bars. \$6270.00
- S519 C20S head, 2-stage heavy-duty aluminum tripod with ground spreader, 2 extendable pan bars. 6485.00
- S423 C20S head, 1-stage heavy-duty carbon fiber tripod with ground spreader, 2 extendable pan bars. 6785.00
- S424 C20S head, 2-stage heavy-duty carbon fiber tripod with ground spreader, 2 extendable pan bars. 7085.00

C20S Dutch Head

- Designed to make it simple and straightforward to execute smooth Dutch tilt effects with EFP and 16mm cameras
- Interfaces directly with C20S or similar quick-release heads
- Drag can be adjusted to suit any camera up to 61 lbs.
- Includes frictionless sliding base plate, locking quick-release plate and telescoping handle

S518 Dutch head only with pan bar . . . \$3595.00



Delta Fluid Head

- 100mm bowl diameter
- +80°/-70° = 360° tilt range
- 38 lb. load capacity
- 8.3 lb. head weight
- 50mm range sliding plate
- Camera quick-release and safety lock mechanism
- Infinitely adjustable counterbalance
- Ultra-light magnesium alloy
- Ideal for supporting dockable cameras using large battery packs
- Frictionless drag mechanism allows 10 basic tension settings plus more than 40 intermediate positions in both pan and tilt
- Powered by a standard 9V battery
- 2 digital displays indicate the counterbalance and tilt drag reference
- Illuminated bubble allows easy leveling even in low light conditions

D601 \$4670.00

D600 Delta head only with 1 extendable pan bar. 3895.00

Beta Fluid Head

- Ideal for ENG/EFP cameras
- 7 lb. head weight
- 33 lb. load capacity
- 360° pan range
- ±70° tilt range
- 100mm bowl diameter
- 3+3 fluid drags
- 3+0 counterbalance steps
- Interfaces with standard aluminum and ultra-light carbon fiber tripods

B473 Beta head only with 1 extendable pan bar. \$2695.00

B500 Beta head only flat base, with 1 extendable pan bar 2845.00

Heads Only

A301 Alfa I with pan bar up to 14 lbs. \$1775.00

A402 Alfa II with pan bar up to 24 lbs. 1875.00

Tripods for Alfa, Beta, Delta

A302 Alfa 3-tube aluminum with built-in spreader \$ 430.00

L460 Aluminum with built-in spreader. 950.00

L461 Aluminum 1-stage with ground spreader 1295.00

L452 Aluminum 2-stage with ground spreader 1395.00

L462 Carbon fiber with built-in spreader 1425.00

L463 Carbon fiber 1-stage with ground spreader. 1655.00

L453 Carbon fiber 2-stage with ground spreader. 2155.00

L464 Aluminum baby legs 750.00

Heavy-duty Tripods for Delta, C20S

H517 Aluminum 1-stage with ground spreader \$1300.00

H490 Aluminum 2-stage with ground spreader 1595.00

H515 Carbon fiber 1-stage with ground spreader. 1995.00

H500 Carbon fiber 2-stage with ground spreader. 2395.00

H518 Aluminum baby legs 895.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIDE ANGLE ADAPTORS/ DUPLIKINS/DIOPTERS



Wide Angle Adaptors for 2/3" Video and 16mm Macro Zoom Lenses

- Precision construction
- Aluminum alloy housing
- Glass elements yield high definition low distortion images and resist scratches
- Lightweight
- No light loss to the taking lens
- Easy to use: Mount to the front of the lens, set the lens focus

at infinity, and adjust the macro setting until the picture is sharp

- Lenses without a macro feature require back focus adjustment
- Adaptors available to fit most popular 2/3" video zooms
- Custom accessories available

WA-7X5X	0.5X and 0.7X wide angle adaptor set	\$825.00
WA-7X93	0.7X wide angle adaptor	400.00
WA-5X45	0.5X super wide angle adaptor. Must be used with 0.7X to yield a total of 50% additional coverage to the original zoom lens.	520.00

0.8X Wide Angle Converter

- For industrial and broadcast video camera lenses
- Attaches quickly to the front of a zoom lens and has the effect of shortening its focal length while maintaining full zoom capabilities
- When added to a 14 x 8.5 lens, the converter converts the focal length range from 8.5-119mm to 7-98mm. This is especially useful when shooting in tight quarters
- Not only is the field of view expanded, but minimum focus distance is reduced as well



- The camera can therefore move closer to the subject while maintaining focus
- Because there is no light loss with the 0.8X wide converter, no exposure or lighting change is required
- 4 different step-up rings are available to make the 0.8X wide converter compatible with a variety of zoom lenses

WA-8XCV		\$1295.00
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0.6X Aspheric Wide Angle Adaptor (Preliminary)

- Created for ENG/EFP video zoom lenses
- Single element with 2 aspheric surfaces
- Minimizes distortion, reduces chromatic aberration while increasing edge resolution
- Lightweight
- Comes in sizes to fit 80mm, 85mm and 90mm lens fronts
- Lens shade and filter holder available

Step-Up Rings: Wide Angle Adaptors

FA-7X67	67mm screw-in type (WA-7X5X/7X93)	\$50.00
FA-7X75	75mm slip-on type (WA-7X5X/7X93/8XCV)	60.00
FA-7X80	80mm slip-on type (WA-7X5X/7X93/8XCV)	60.00
FA-7X85	85mm slip-on type (WA-7X5X/7X93/8XCV)	60.00
FA-7X86	86mm screw-in type (WA-7X5X/7X93)	50.00
FA-7X90	90mm slip-on type (WA-7X5X/7X93/8XCV)	60.00

Step-Up Rings: Super Wide Angle Adaptor (WA-5X45)

FA-5X90	90mm slip-on type	\$85.00
FA-5X95	95mm slip-on type	85.00
FA-5X00	100mm slip-on type	85.00

138mm Filter Adaptor Ring (WA-8XCV)

- Allows use of 138mm round filters
- | | | |
|---------|--|----------|
| FA-388X | | \$185.00 |
|---------|--|----------|

Achromatic Diopters 86mm Thread to Fit Most Lenses

- Original lens maintains all zoom capabilities
- Edge-to-edge sharpness
- Lack of chromatic aberration
- Excellent contrast
- No light loss
- Highly corrected 2-element design
- Glass elements fabricated to strict mil spec standards
- Hard

- anti-reflection coated elements
- 86mm thread with adaptors to most lenses
- May be stacked for additional magnification

Achromatic diopters offer more close-up range and magnification from your existing video and film lenses while maintaining zoom capabilities, without sacrificing image quality.

Because there is no loss of off-axis sharpness, achromatic diopters are excellent for shooting flat field subjects such as photos, artwork and maps. Also an ideal partner for video animation stands, achromatic diopters may be effectively used to add photographic dynamism to animation cells.



AD-8616	+1.6 achromatic diopter	\$425.00
AD-8620	+2.0 achromatic diopter	425.00
AD-8626	+2.6 achromatic diopter	425.00

Step-Up Rings for Achromatic Diopters

FA-6786	67mm to 86mm screw-in type	\$50.00
FA-7286	72mm to 86mm screw-in type	50.00
FA-8586	85mm slip-on to 86mm	60.00
FA-7586	75mm slip-on to 86mm	60.00
FA-7786	77mm to 86mm screw-in type	50.00
FA-8086	80mm slip-on to 86mm	60.00

Video Duplikins 35mm Slide-to-Video Transfer

- Superior multi-element lens
- Slide holder stage provides vertical, horizontal and rotational adjustments
- Slide-in holder for 2" x 2" filter track
- Hinged swing-away diffusion plate for even illumination
- Black anodized aluminum housing
- 2 focusing mounts for variable magnification and adjustable back focus

Designed to work with popular 2/3", 3-tube or CCD professional video cameras, the Duplikin is simply installed into the lens port of your camera. Your 35mm slide inserts into a spring-loaded holder. Duplikin's vertical, horizontal and rotational adjustments let you crop to any section of the image you require. The 2 focusing mounts provide variable magnification and adjustable back focus.

CD-323C	Duplikin III in C-mount for 2/3" cameras	\$875.00
CD-323B	Duplikin III in 2/3" bayonet mount for many Sony, Sharp, Panasonic, NEC, JVC, Hitachi cameras (specify model)	875.00
CD-323I	Duplikin III in Ikegami mount for HL-79	875.00
CD-312B	Duplikin III in 1/2" bayonet mount for BTS, Panasonic, JVC	875.00
CD-312S	Duplikin III in Sony 325 mount	875.00

Century Tele-Extenders

XF-20CC	2X extender for C-mount lenses	\$175.00
XF-223B	2X extender for 2/3" bayonet for many Sony, Sharp, Panasonic, NEC, JVC, Hitachi cameras (specify model)	750.00
XF-212B	2X extender for 1/2" bayonet for BTS, Panasonic, JVC cameras	750.00

Extenders for 35mm SLR to Video Cameras

XA-N423	Nikon to 2/3" bayonet 1.4X extender	\$750.00
XA-N223	Nikon to 2/3" bayonet 2.0X extender	750.00
XA-N412	Nikon to 1/2" bayonet 1.4X extender	750.00
XA-N212	Nikon to 1/2" bayonet 2.0X extender	750.00
XA-C223	Canon to 2/3" bayonet 2.0X extender	750.00
XA-C212	Canon to 1/2" bayonet 2.0X extender	750.00

Camcorder Accessories

All accessories are 58mm threaded. Appropriate step-up rings must be ordered at time of order.

AD-5870	+7.0 achromatic diopter	\$225.00
AD-5840	+4.0 achromatic diopter	225.00
AD-5820	+2.0 achromatic diopter	225.00
AD-5810	+1.0 achromatic diopter	225.00
WA-0758	0.7X wide angle converter	275.00
WA-1558	1.5X tele-converter	275.00
WA-2058	2.0X tele-converter	275.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Cyclorama Curtain Track



Track Switch

Cyclorama Curtain Track

- Ease of installation† ▪ Rigid alignment of splices ▪ Effortless, walk-along carriers may be pushed or pulled ▪ Pre-formed corner radii
- All components aluminum or plated or painted steel ▪ One free set custom track layouts (additional sets available for fee)

Cat. No.	Description	Price
70.110	Single track	per ft./\$11.00
70.115	Single track with double track brackets	per ft./14.00
70.120	Double track	per ft./21.00
70.130	Triple track	per ft./33.00
70.140	Quad track	per ft./45.00

70.120 Double Track System

The double track system is recommended for the seamless Linoweave and background curtains. The track, corner track sections, track brackets, splicing clamps and all other necessary accessories required to install the double track system are included.

Track Features

- Extruded aluminum I-beam ▪ Minimum 14 gauge aluminum with interior horizontal web for additional stiffness and to prevent carriers riding up on the track ▪ Bottom flange has 10° topside slope ▪ Inside to outside automatically centering carriers on track

Carrier Features

- 1" wheeled, nylon ball-bearing carrier with bumper, 20° included angle between wheels for self centering on track ▪ One carrier per foot of curtain width, plus one

Splicing Clamp Features

- Extruded aluminum clamp slides over track and may be coincident with hanger bracket to facilitate system layout and installation ▪ Clamp rigidly aligns both spliced track ends resulting in smooth joint ▪ Splicing clamp may also be used as track clamp to minimize components

Track Clamp Features

- Extruded aluminum clamp slides over track firmly attaching track to hanging brackets ▪ Single screw attaches clamp to track—and clamp to bracket providing quick, easy, one-handed, low maintenance installation

Wall Bracket Features

- Brackets made of 1/4" x 2" heavy duty steel slotted 8" apart, center to center in horizontal leg for mounting bracket clamps ▪ Three 3/16" holes on vertical leg for attaching to wall

Important Note

It is recommended that exact inside studio dimensions be sent to Channel One—carefully noting all obstacles. By so doing, we can often eliminate problems—and save money.

†Normal installation: Two inexperienced people can install double track system in a 30' x 40' studio in 2 days.

**Cyclorama and Background Curtains
Linoweave Cyclorama Curtains**

- Seamless—flameproofed, 100% woven cotton ▪ Top—heavy-duty 3 1/2" wide interfacing with 3/8" brass eyelets on 1' centers and 1 1/2" S-hook ▪ Sides—2" interfacing sewn for stiffness and reinforcement with 3/8" brass eyelets on 2' centers for use with tauting poles
- Bottom—4" hem with separate pocket or No. 8 jack chain weight, sewn 1/2" above bottom, preventing chain "wear-through"
- Total curtain fabricated to ±1/2" tolerances

Cat. No.	Description	Price
72.101	CBS Gray	per sq. ft./\$4.15
72.104	Black	per sq. ft./4.95

Polyvue and Velour Background Curtains

- Gives stage effect when purchased in pairs ▪ Pleated effect when hand gathered ▪ Inherently flame resistant ▪ 28 colors ▪ Fabricated to the same standards as Linoweave curtains: Polyvue, 72" vertical panel seams; Velour, 54" vertical panel seams

Polyvue	per sq. ft./\$2.60
Velour	POR*

Tauting Pole

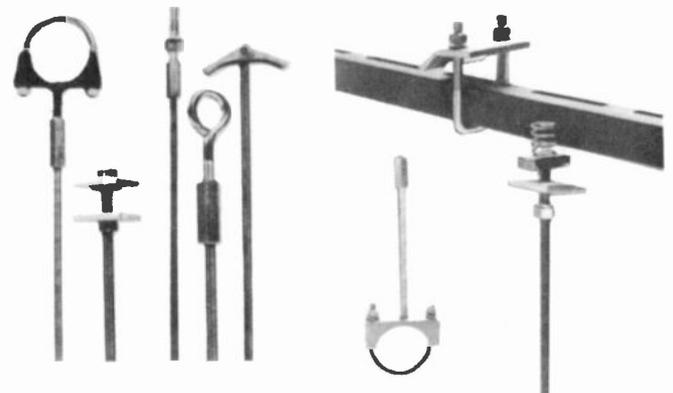
- Keeps cyclorama taut to eliminate texture in background which might result from sagging cloth ▪ Pole made of 2" x 2" x 3/16" aluminum teebar ▪ Base of 1 1/2" square tubing ▪ Guy wire and turn-buckle provide proper tension ▪ Tauting poles are used in pairs and the ability to move them insures proper curtain tension for perfect backgrounds ▪ 8'-21' sets POR*

Tauting Pole Eyelet Claw

- Joins cyclorama curtain to tauting pole ▪ Claw hooks into curtain eyelet and is adjustable to insure proper horizontal curtain tension ▪ 2' spacing required
- | | |
|------------------------------|---------|
| 71.201 Eyelet claw | \$12.00 |
|------------------------------|---------|

Sand Bag

- Designed to hold 50 lbs. of sand and lay across the tauting pole base to hold base and pole in position
- | | |
|---|---------|
| 71.301 Sandbag, 50 lb. saddle | \$55.00 |
|---|---------|



Grid Hardware I

Grid Hardware II

Grid Hardware

- All-thread, nuts, bolts, beam clamps, etc. to complete installation of connector strips or pipe grid to I-beams or truss deck based on no greater than 5' centers ▪ Detailed assembly instructions sent with equipment POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CHARACTER/GRAPHICS GENERATORS



CODI Character Generator

- Compact text and graphics generator designed to be operated remotely via computer
- Fully anti-aliased displays
- Less than 10ns effective pixel resolution
- 2 GPI
- 16.7 million color selections
- Fast real time operations
- 1 typestyle in 7 sizes
- Bitstream™ Typeface Library selection
- Variable edges: border, drop shadow and offset
- Variable flash
- Full position and justify control of character and row
- Character overlap and tuck
- User definable intercharacter spacing (squeeze and expand)
- 5 roll/crawl speeds
- Automatic character kerning
- User definable tab/template fields
- Shaded backgrounds
- User definable read effects playback: wipes, pushes, fades
- Switchable RS-232 or RS-422 serial port
- Remote serial operation from any computer
- High quality composite/S-Video (Y/C) encoder
- Integral composite/S-Video (Y/C) linear keyer
- NTSC, PAL or PAL-M sync generator with genlock
- Software controlled video timing
- System addressability for multi-system control from 1 host computer
- Auto display sequencing
- Local message/page memory
- Controller and power supply included. \$4,000.00

MAX!> Character Generator and Graphics System

- Controller and power supply
- Full color 32-bit system, full bandwidth color and full bandwidth key channel
- Special effects allows full page slides, pushes, wipes, row slides, row pushes and scan line wipes, all done on a single channel
- 4:4:4 internal architecture
- 16.7 million colors are available, any of which may be assigned to characters, logos or graphics. Full color images may be treated as characters
- Backgrounds can be created in single scan line increments. The background may use any of the 16.7 million colors, independent of the character colors. Automatic color ramping
- Edging allows characters and logos to be displayed with border edging, drop shadow or offset in any 8 directions
- 256 levels of anti-aliasing/transparency
- 2-D animation
- 12 master typefaces included
- Unlimited on-line fonts per screen, with 16 available for instant access
- All fonts may be quickly modified on the screen or readily exchanged with others stored on disc
- FlashFont™ process allows for instant sizing of fonts and logos right on the screen. In addition to size, attributes such as edge, type, oblique angle, X-axis scaling, rotation and texture mapping may be changed interactively
- Dual encoders
- Mix and effects allows for soft wipes, fades and soft-edged masking. When the optional second channel is installed, priority mixes, dissolves and effects may be performed between the 2 channels
- 170M byte Winchester
- 1.4M byte 3.5" floppy built-in keyboard provides local storage for individual operators and a convenient means of backup. Up to 255 keyboards may be networked to the mainframe, with the last keyboard in the network up to 1000' away
- 68040 CPU with 12M bytes of memory, Ethernet, SCSI and 4 serial ports
- Icon-oriented prompt screen
- Fonts-By-Wire™
- Graphical user interface
- Sync generator with genlock
- Clock/event timer may be programmed to display as either a real time clock or an event clock
- Remote event triggering (GPI) provides 8 inputs that may be used by an external device to trigger the execution of preprogrammed function keys
- Optionally the system can be configured as a dual-channel, fully anti-aliased system with mix effects between channels, multiple object animation, full color frame store, networking between multiple systems and special effects packages \$29,000.00

MAXINE!™ Character Generator and Graphics System

- Compact state-of-the-art character generator
- Compatible with iNFiNiT! and MAX!>
- 68040 CPU with 12M bytes of memory, Ethernet, SCSI and 4 serial ports
- 32-bit full color system, full bandwidth color and full bandwidth key channel
- Allows full page slides, pushes, wipes, row slides, row pushes and scan line wipes
- Over 1500 Bitstream Master Font typefaces
- Unlimited on-line fonts per screen, with 16 available for instant access
- 16.7 million colors available
- Backgrounds can be created in single scan line increments
- Edging allows characters and logos to be displayed with border edging, drop shadow or offset in any of 8 directions
- 256 levels of anti-aliasing transparency
- 170M byte hard disk
- Roll and crawl may be applied to any combination of text and graphics at variable speed
- FlashFont process allows for instant sizing of fonts and logos
- Clock/event timer
- 10 function keys
- Remote event triggering provides 8 inputs that may be used by an external device
- Adjustable safe title area
- Flexible tab locations. . . . \$16,000.00

iNFiNiT! Character Generator and Graphics System

- 68040 CPU with 16M bytes of memory
- 2 full channels including dual encoders
- Full color 32 bits per channel includes full bandwidth color and full bandwidth key channel (4:4:4:4 processing)
- Special effects allow full page slides, pushes, wipes, row slides and row pushes
- Font library of over 1500 Master Bitstream typefaces, all of which are immediately available through Fonts-By-Wire and Fonts Express
- On-line fonts
- Each channel supports 8 independent type styles
- 16.7 million colors are available, any of which may be assigned to characters, logos or graphics
- Backgrounds can be created in single scan line increments
- Edging allows characters and logos to be displayed with border edging, drop shadow or offset in any of 8 directions
- 256 levels of anti-aliasing/transparency
- 170M byte hard disk
- 2M byte 3.5" floppy in keyboard provides local storage for individual operators and a convenient means of backup
- Total freedom of character placement
- Roll is displayed blanking to blanking at continuously variable speeds, allowing for precisely timed credit rolls
- Crawl may be displayed in multiple rows and can be positioned anywhere on screen
- Slow reveal allows titling and graphics to be displayed character by character at variable speeds
- Mix and effects between channels
- On-line font conversion and attribute manipulation
- Multi-tasking software
- Clock/event timer may be programmed to display as either a real time clock or an event clock
- 10 function keys may be programmed by operator to memorize a series of keystrokes for playback on demand. Each function key can contain up to 500 keystroke steps
- Remote event triggering (GPI) provides 8 inputs that may be used by an external device to trigger the execution of preprogrammed function keys
- Adjustable safe title area can be sized and positioned anywhere on the screen
- Flexible tab locations are provided
- Custom operator environment sets system configurations to suite unique client or application needs. Operators may pre-define all system variables, such as safe title area, palette colors, font loads, tabs, default shift values, function key setups, etc. and save for future use
- Graphical user interface
- Fonts-By-Wire \$62,000.00

Cindy™ Video Adaptor Board for Indy Workstations

- Designed for every Indigo application
- Interfaces with virtually all professional video devices, including digital discs, MII® and Betacam® decks
- Provides a full bandwidth, full color, real time video input
- 24-bit output in real time for paint applications
- Holds 2 complete video frames for reduced preroll times
- Built-in videomedia V-LAN™ transmitter provides a control interface for a host of video devices
- Genlock and sync generation comply with professional standards
- Timing parameters fully adjustable through software
- Base PCB contains frame buffer, machine control and GIO interface
- Daughtercard contains video circuitry and all I/O connectors
- 16.7 million colors, 24 bits per pixel
- 0.2% to 6MHz frequency response \$5,900.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

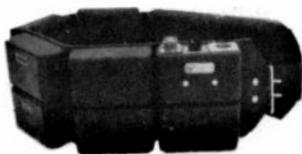
30V Battery Belts/Packs

■ For Cine 60 Sun-Guns, Lowel, LTM, Colortran, Frezzi, Arri, Anton/Bauer, Mole-Richardson, Cinema Products, De Sisti, Kobold, lanero and other battery lights ■ 4AH capacity operates 30V 250W lamp 26 minutes ■ 7AH capacity operates 250W lamp 42 minutes ■ 2-pin Amphenol connector and 5-pin XLR on fast charge models, 2-pin Amphenol on Overnite models

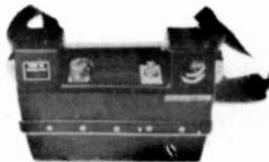
Cat. No.	Volts/Amps	Charge Rate	Fast Charge Rate w/Fast Charger	Weight	Price
6304	30V, 4AH	Overnite		11 lbs.	\$ 765.00
8304FC	30V, 4AH	Fast Charge*	1 hr.	11 lbs.	814.00
7004	30V, 7AH	Overnite		15 lbs.	1224.00
7004FC	30V, 7AH	Fast Charge*	2 hrs.	15 lbs.	1285.00

Same as 30V Battery Belts but in a battery pack style.

9104	30V, 4AH	Overnite		10 lbs.	\$ 804.00
9104FC	30V, 4AH	Fast Charge*	1 hr.	10 lbs.	859.00
9704	30V, 7AH	Overnite		14 lbs.	1265.00
9704FC	30V, 7AH	Fast Charge*	2 hrs.	14 lbs.	1296.00



7004FC
6304



9704FC



3014FC

Switchable 30V Belts/Packs

Cine 60's versatile power for most portable equipment and Sun-Guns.

30V/14.4V Switchable Battery Belts

3014	30V, 4AH/14.4V, 8AH	Overnite		11 lbs.	\$ 861.00
3014FC	30V, 4AH/14.4V, 8AH	Fast Charge*	1 hr.	11 lbs.	919.00
3017	30V, 7AH/14.4V, 14AH	Overnite		15 lbs.	1318.00
3017FC	30V, 7AH/14.4V, 14AH	Fast Charge*	2 hrs.	15 lbs.	1379.00

30V/14.4V Switchable Battery Packs

9014	30V, 4AH/14.4V, 8AH	Overnite		10 lbs.	\$ 861.00
9014FC	30V, 4AH/14.4V, 8AH	Fast Charge*	1 hr.	10 lbs.	919.00
9017	30V, 7AH/14.4V, 14AH	Overnite		14 lbs.	1318.00
9017FC	30V, 7AH/14.4V, 14AH	Fast Charge*	2 hrs.	14 lbs.	1379.00
1430	30V, 10AH/14.4V, 20AH	Overnite		26 lbs.	2195.00

30V/13.2V Switchable Battery Belts

3013	30V, 4AH/13.2V, 8AH	Overnite		11 lbs.	\$ 845.00
3013FC	30V, 4AH/13.2V, 8AH	Fast Charge*	1 hr.	11 lbs.	903.00
30137	30V, 7AH/13.2V, 14AH	Overnite		15 lbs.	1292.00
30137FC	30V, 7AH/13.2V, 14AH	Fast Charge*	2 hrs.	15 lbs.	1353.00

30V/13.2V Switchable Battery Packs

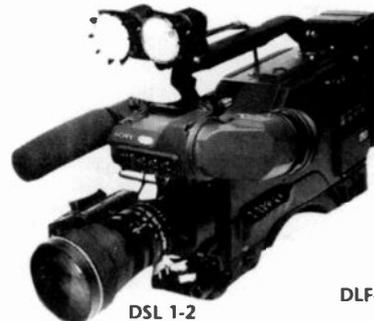
9013	30V, 4AH/13.2V, 8AH	Overnite		11 lbs.	\$ 845.00
9013FC	30V, 4AH/13.2V, 8AH	Fast Charge*	1 hr.	11 lbs.	903.00
90137	30V, 7AH/13.2V, 14AH	Overnite		14 lbs.	1292.00
90137FC	30V, 7AH/13.2V, 14AH	Fast Charge*	2 hrs.	14 lbs.	1353.00
1330	30V, 10AH/13.2V, 20AH	Overnite		26 lbs.	2130.00

*Requires Fast Charger. Overnite charger built-in.

VRX Voltage Converter. Plugs in between battery and video cable. Converts 14.4V to 13.2V. Powers 13.2V cameras, VTRs, Betacam. Maximum 48W. 5-pin male XLR input, 5-pin female XLR output \$54.00



6400-Y Power Adaptor. Allows battery to run a battery light and camera simultaneously. Plugs in between battery, video cable, and light cable. 5-pin male XLR input, two 5-pin female XLR outputs. With the VRX plugged into one output to power a 13.2V Betacam or camera, and the second output providing 14.4V to operate a 14.4V, 70W battery light, excellent battery utilization is assured. \$60.00



DSL 1-2

DLF-55

Spider-Lite Mini Sun-Gun Light

■ May be powered with a 12, 13 or 14V camera battery, any other external battery source, or mini 6 oz. AC power supply, output 12VAC, 75W max. ■ Adaptable to all professional cameras ■ May be handheld or attached to walls, clamps or suction cups, etc.



SL-5-8

■ Since cigar lighter plugs are also available, Spider-Lites are often gaffer-taped inside vehicles ■ Equipped with 7' power cables terminating in 5-pin Cannon connector, or can also be supplied with popular battery connectors of your choice ■ Mounting studs: 1/2", 3/8" or shoe-type ■ Lite posts can be camera-mounted either horizontally (low-profile) or vertically (high-profile) ■ Spider-Lites use German BLV multi-mirror halogen bulbs for the most even light distribution available; these bulbs are black-coated to prevent back and side reflection and are hand changeable in seconds without tools ■ BLV bulbs available with or without clear safety glass or frosted (diffusion) glass; Spider-Lites also available with swing-away daylight dichroic or diffusion glass ■ Each Lite head equipped with a toggle switch for easy and positive on and off; dual heads available, each Lite separately controlled

SL-1-2	Spider-Lite for 1/2" stud	\$148.00
SL-5-8	Spider-Lite for 3/8" stud	148.00
DSL 1-2	Dual Spider Lite for 1/2" stud	285.00
DSL 5-8	Dual Spider Lite for 3/8" stud	285.00
DLF-55	Daylight filter with adaptor	85.00
FRG-55	Diffusion filter with adaptor	75.00
ACP-12	12VAC power supply, 75W max.	75.00
CLC	Cable to cigarette lighter	45.00
DIM-10	DC volt dimmer % efficient	110.00
STU 1-2	Lite stud 1/2" 1/4-20	18.00
STU 5-8	Lite stud 3/8" 1/4-20	18.00
LSS 1-7	Lite stud shoe type 1/2"	28.00
LSS 5-8	Lite stud shoe type 3/8"	28.00

BLV Lamp Guide

Lamp Code	Volts	Watts	Safety Glass	Beam Spread	Price
102 111	12	20	No	Flood	\$25.00
102 151	12	20	Yes	Flood	28.00
102 151F	12	20	Frosted	Flood	30.00
105 111	12	50	No	Flood	25.00
105 151	12	50	Yes	Flood	28.00
105 151F	12	50	Frosted	Flood	30.00
105 113	12	50	No	Spot	25.00
105 153	12	50	Yes	Spot	28.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

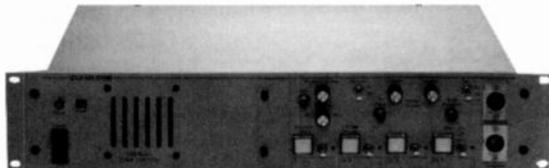
MAIN/REMOTE STATIONS



Main Stations

A Main Station is a combination intercom station and system power supply.

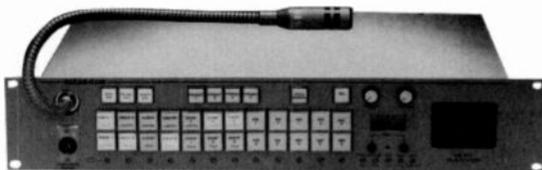
- CS-222 Portable Main Station 2-channel headset station. Remote mic kill. Mic/line program input with IFB/interrupt. Stage announce. A+B "Link" switch. Separate channel listen level controls and call buttons. Power supply features special "auto-restore" overload/short circuit protection. Applications include: theater, concerts, sports (coach-to-spotter), rental firms. Supports up to 30 headset stations or 10 speaker stations \$695.00
- RK-101 Rackmount kit for CS-222 and PS-22. 2 RU (3.5" H) . . . \$55.00
- MS-222 Rackmount Main Station 2-channel speaker and headset station. Remote mic kill. Mic/line program input with IFB/interrupt. Stage announce. A+B "Link" switch. Separate channel listen level controls and call buttons. Applications include: fixed installations, theater directors and stage managers, video trucks and facilities, sports arenas. 2 RU (3.5")H. Supports up to 30 headset stations or 10 speaker stations 820.00
- MS-222-GM Same as above w/gooseneck mic 970.00



- MS-400A Main Station 4-channel rackmount headset/speaker operation, 2A power supply, mic/line program input, SA (stage/studio announce) output, user selectable program interrupt (IFB) and ISO function (3.5" H) \$1228.00
- MS-400A-GM Same as above w/gooseneck mic 1378.00



- SB-412A Main Station 4-channel, same specs as MS-400A but no speaker (has ext. speaker jack). Has switch matrix to assign each of 12 stations (or 12 groups) to any of the 4 channels or a disconnected off line. Applications include: video production/theater with constant repatching needs. \$1891.00
- SB-412A-GM Same as above w/gooseneck mic. 2041.00



MS-812 Master Station Rackmount microprocessor based with menu driven programming. Provides 8 Party-Line Intercom channels expandable to 12. Has a standard gooseneck mic, visual and audible signaling, separate Listen and Talk buttons, individual channel Listen level controls, 4 "preset" buttons, adjustable button brightness, and the ability to program internal and external IFB and ISO, privacy, relays, "walkie talkies" and much more. Up to 4 programmed "setups" can be stored. Individual button assignments can be stored in "presets." Selectable program signal feed to any of the intercom channels.

- MS-812-8 8-channel master station. \$3395.00
- MS-812-12 12-channel master station. 3695.00
- IFB-40 4-channel IFB/ISO option 495.00
- IFB-80 8-channel IFB/ISO option 835.00
- ISO-16 16-channel ISO only option 155.00
- 710229 4-channel expansion card. 495.00
- CP-56 Elco connector option. 155.00
- CP-30 Tuchel connector option. 250.00
- IP-1200 MS-812 interconnect panel 1850.00

Rackmount Remote Stations

A remote station does not contain a power supply. It obtains DC power from a system power supply or main station.

- MR-102A Headset Station 2-channel (A or B selectable) headset station mounts in console or standard 2-gang electrical box (headset operation only) \$198.00
- MR-104A Same as above except 4-channel selectable. 284.00
- PL-PRO™ RM-220 Remote Speaker Station This 2-channel 1 rack space station is ideal for ENG and EFP. Accepts headset or optional plug-in mic. Operator can talk or listen on either or both channels without tying them together. Stage Announce output with relay. Accepts line-level program input for monitoring, with 1 channel programmable for "Program Interrupt." Individual level controls. Dual-action, electronic momentary/latching Talk buttons. Microphone limiting and a speaker "dipping" circuit. Wide frequency response speaker with on/off button. Line-level announce output from rear connector and external line level output. . \$645.00

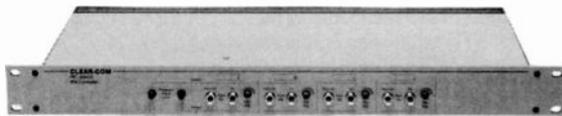


- RM-400A Remote Station 4-channel headset/speaker station, rackmount mic/line level program input, SA (stage/studio announce) output, user selectable program interrupt (IFB) and ISO function (3.5" H) \$ 995.00
- RM-400A-GM Same as above w/gooseneck mic 1145.00
- KB-111A Speaker Station 2-channel select speaker station, uses handset or push-to-talk mic. Mount in 6" x 8" electrical box or portable enclosure. Applications include: theater/security . . . 283.00
- KB-112 Speaker Station with push-to-talk mic; talk/listen can be controlled remotely. All functions selectable. Applications include: dressing rooms/paging/security. 299.00

Enclosures for KB-111A and KB-112 Speaker Stations

- P-Box Portable wedge shaped enclosure, metal and wood construction, for KB-111A (single channel only) and KB-112. . . \$141.00
- M-Box Portable rectangular shaped enclosure, metal construction, for KB-111A (single channel only) and KB-112 117.00
- AMS-1022 Amplified Stereo Monitor Speaker A self-contained, bi-amplified, monitor speaker that occupies only a single rack space. Frequency response of 100-18kHz ±2.5dB with max of 28W power output. Features 5 magnetically shielded speakers. 3-way baffled speaker system will reach output levels of 96dB SPL without audible distortion. Extended bass response. Balanced or unbalanced line-level 3-pin XLR inputs. Stereo/mono switch. Separate volume controls for each channel. 2 adjustable LED bar-type VU meter displays. \$675.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



IFB (Program Interrupt) Systems

▪ Modular system capable of operating as a stand-alone system, or being integrated with MS-808 Master Stations ▪ Transmits an interruptible program signal to individual talent receivers via standard 2-conductor shielded microphone cable ▪ Distributed amplifier system with the earphone amplifier located at the talent's position ▪ Features unlimited expansion capabilities (up to 96 talent channels and 50 control locations)

PIC-4000B IFB Electronics ▪ Contains all of the audio and switching circuitry for selecting 1 of 2 program signals, routing the signals to 4 independent talent channels and interrupting, with variable program attenuation, the signals from 1 or more control points ▪ Requires 24VDC power from a Clear-Com Intercom System or power supply. **\$794.00**

MA-4 Talent Access Master Control Station ▪ Provides individual access to 4 talent channels and All Call access to all of the talent channels in the system ▪ Designed for direct console mounting or rackmounting in an optional rackmount adaptor ▪ Includes a panel mounted gooseneck microphone and all required local electronics. **695.00**

MA-4N ▪ Same as above without mic (for use with external mic or intercom station equipped with (ITM-2)) **595.00**

AX-4 Talent Access Expansion Station ▪ Connects to the MA-4, expanding the talent channel selection capabilities by 4 additional channels per AX-4 ▪ Multiple AX-4 units can be linked together to control a maximum of 96 talent channels **500.00**

IFB-4 Program Interrupt Module ▪ The equivalent of the AX-4 designed for mounting in the MS-808. **455.00**

TR-50 Talent Receiver ▪ This small, portable unit contains the amplifier to power the talent's earphone ▪ It connects to the PIC-4000B via standard 2-conductor shielded microphone cable ▪ A miniature in-the-ear receiver is included with each TR-50 . . . **123.00**

TR-532 Stereo/Split Feed Talent Receiver ▪ Contains 2 discrete amplifiers to feed the "Interrupt" and "Non-interrupt" signals from the PIC-4000B on a standard stereo earphones ▪ Provides a passive loopthrough output of the headset's microphone for on-air applications **295.00**

ITM-2 IFB Transfer Module ▪ Required modification to multi-channel intercom stations ▪ Module transfers station's 2-way intercom audio from "normal" operation to the private IFB channel ▪ Factory installed only ▪ For use with MA-4N. **150.00**

Beltpacks

RS-501 Beltpack ▪ Single-channel, lightweight beltpack ▪ All digital, noiseless, electronic switching ▪ Remote mic kill function ▪ Visual signaling ▪ Carbon type headset jack optional ▪ The RS-501 is the standard beltpack station for use in all applications ▪ Accepts dynamic or electret mics ▪ 4-pin male headset connectors, 3-pin male and female line connectors. **\$208.00**

RS-502 Beltpack ▪ 2-channel beltpack ▪ Allows access to either 1 of 2 separate intercom channels ▪ Includes all features of the RS-501 plus dual channel signaling ▪ Applications include video/theater production, industrial, 4-pin headset connector, 6-pin female line connector (no loopthrough, programmable options) **270.00**

Note: RS-502 requires YC-36 adaptor to connect to a standard Clear-Com system.

RS-502-TW 2-channel, 4-pin headset, 3-pin male and female connectors, channel B call light only, programmable options. . . \$295.00

Note: RS-502-TW requires TWC-10 adaptor to connect to a standard Clear-Com system.

RS-522 Stereo Beltpack ▪ 2-channel, dual listen, binaural beltpack ▪ Allows completely selectable simultaneous listening and talking on

2 separate channels ▪ Binaural split-feed headset output ▪ Includes all features of the RS-501 and RS-502 ▪ Applications include video/theater production, industrial, lighting design **\$298.00**
RS-522-TW Stereo, 2-channel, 3-pin cable **323.00**

Que-Com Intercom Components
Que-Com Headset Intercom System

Intercom

▪ High performance 2-way communications
▪ Wide frequency response and high volume
▪ All-metal beltpack with belt clip ▪ Clear-Com compatible ▪ Noise cancelling mic ▪ Mic switch and volume control ▪ Interconnects with standard mic cable ▪ Permanently attached, lightweight, noise-isolating headset ▪ Soft ear cushions and adjustable headbands



SMQ-1

Power Supply

▪ Supports up to 400 headset stations ▪ UL and SA listed ▪ Line and load regulated ▪ Short circuit protected

SMQ-1 Que-Com single muff headset/beltpack. \$149.00

DMQ-2 Que-Com double muff headset/beltpack \$185.00

PK-5 Power Supply ▪ Portable regulated power supply ▪ Single channel ▪ Operates up to 25 headset stations **164.00**

Dynamic Headsets

CC-85/250 Pro-40 Communications Headsets

▪ Virtually indestructible ▪ Designed for comfort ▪ Broadcast quality
▪ Balanced microphone output ▪ Separate earphone wires for binaural split ear use ▪ Left or right side mic operation ▪ Low profile on-air appearance ▪ Dual chamber ear cushion for maximum acoustical isolation
▪ Mic switch in boom ▪ Noise rejecting mic ▪ Fully field serviceable ▪ Noise attenuating earmuffs ▪ Single or double muff ▪ Replaceable washable ear socks
▪ Dynamic transducer ▪ Excellent mic isolation for minimum crosstalk



CC-85

CC-85 Pro-40 single muff headset \$149.00

CC-250 Pro-40 double muff headset 185.00

CC-250/6 Same as CC-250 with 6-pin female XLR type connector wired for "split-ear" operation. **193.00**

CC-85/RTS Same as CC-85 with 4-pin male XLR connector. **155.00**

CC-250/RTS Same as CC-250 with 4-pin male XLR connector. **191.00**

CC-26 Headset ▪ Single-muff ▪ 6' straight ultra-thin cord ▪ Ultra-lightweight headset (2 1/4 oz.) ▪ Dynamic, noise-cancelling mic element (4-pin XLR) **\$142.00**

PH-7 Headset ▪ Double-muff ▪ High-fidelity ▪ Noise-cancelling ▪ Most sound attenuating model **270.00**

HS-6 Handset ▪ Telephone-style headset with push-to-talk switch **78.00**

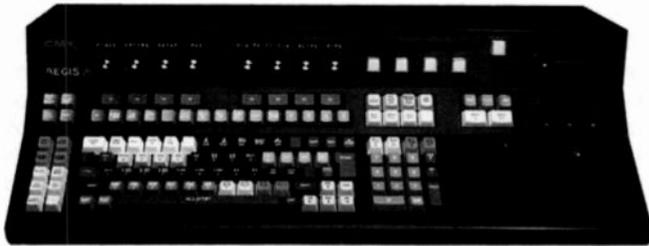
PT-4 Mic ▪ Rugged push-to-talk mic ▪ Mounting clip included, 2' coil cord (4-pin female XLR type connector) **60.00**

ES-1 Ear sock for all headsets (1 pair). 6.25



CC-250

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CMX AEGIS Editing System

The CMX AEGIS is based on the ongoing evolution of the outstanding OMNI features and multiprocessor design to provide enhanced machine control, more devices online, more EDL bins and greater speed.

The AEGIS revolutionary keyboard design includes an onboard jog/search knob with user preference menu settings, integrated trackball for cursor control and a new built-in 3.5" floptical disk. The console's upper panel is designed with dedicated knob controls to adjust parameters of TBCs and other remote devices. These are labeled with LEDs for selected menu items. The graphic X Window displays offer active sliders and buttons for 12 TBC parameter adjustments.

CMX AEGIS \$44,000.00

OMNI 1000E Editing System

The OMNI 1000E controls all the equipment of the editing suite: VTRs, audio and video switchers, ATRs, disc, CGN, DVE, TBC remotes and more. With its 68040 CPU and real time operating system, the OMNI 1000E directly controls all interfaces without an I² and stores CMX, SMPTE, expanded OMNI EDLs and other files on its 200M byte hard disk and 3.5" microfloppy. The OMNI display is designed with high resolution and bit mapped, user configurable X-windows. OMNI features include: sync group for improved multiple machine roll and slaving, learn keys that can be edited, EDL undo, device memory saved with edit or by file and hard disk file management. 8 bins with copy and move, 10 VTRs on-line, lookahead auto assembly/preview and super audio.

System Specifications

▪ Central Controller: MC68040, 25MHz ▪ Interface: VTR, disc, GPI, audio and video switcher standard. DVE, CGN, TBC remote. CMX single and multi I² also supported ▪ Communication Format: Serial RS-422/38.4K baud and RS-232/9600 baud ▪ Communication Protocol: CMX and SMPTE ES-Bus ▪ Active Ports: 12 and GPI ▪ Assignable Ports: 23 ▪ EDL Format: OMNI, SMPTE, all CMX ▪ EDL List I/O Disks: 40M byte hard disk, 1.44M byte 3.5" floppy standard ▪ EDL Printer Option: Serial, 200-column, 80-column compressed

Modem Port

▪ Display Monitor Option: 16" high resolution, super VGA ▪ Edit Accuracy: Frame accurate, auto/manual color frame, PAL-pair self correcting or manual 4 or 8 field correction ▪ Time Code Standards: SMPTE drop/non-drop frame, EBU ▪ Tape Timer: machine dependent ▪ Television Standards: NTSC, PAL, SECAM ▪ Keyboard: expanded 133-key ASCII. Integrated jog/search knob, trackball included ▪ Electronics: 7" rack height. Includes internal hard disk and microfloppy ▪ Preview Switcher: composite or component optional, 4-channel audio

Windows

▪ X-window ▪ Setup, current event and EDL sections are windows ▪ Pop key to cycle windows ▪ Scroll bar for EDL and current event ▪ Time code transfer between windows ▪ User configurable display color choice and position

Dynamic Motion Memory

▪ Frame accurate ▪ Sequences may be learned dynamically (on-the-fly) or programmed speed change triggers may be edited ▪ Fit/fill mode ▪ All information goes into EDL ▪ Match frame possible to any point in motion

sequences ▪ Multiple VTRs, each with unique motion memory speeds, may be involved in edit ▪ Dedicated entry speed key ▪ VTRs, DVE or disk may be used with Dynamic Motion Memory ▪ Mark files ▪ Constantly stores 9 time codes in a "scratch pad" area

Preview Functions

▪ Full edit ▪ Output previews ▪ Lookahead preview option ▪ Composite/component preview switcher options ▪ E-E preview

List Management Functions

▪ Sort modes ▪ Move and copy event(s) in EDL ▪ Re-edit event in EDL ▪ Record start time ▪ Delete events ▪ Record on/off ▪ Text editing ▪ Undo: restore last version of list ▪ Autoclean ▪ Advanced rinse/clean and "lookback" of EDL Listmagic

General Purpose Interface (GPI)

▪ Fast, direct access to GPIs ▪ All information goes to EDL ▪ 1-page trigger screen ▪ 16 outputs standard ▪ Up to 80 GPI with external options ▪ TTL open collector ▪ Up to 16 GPI triggers per event ▪ Triggers can be relative to source, master or absolute

Machine Control Functions

▪ Rewind ▪ Fast forward ▪ Scan/reverse play ▪ Stop (individual devices) ▪ Slow/reverse slow ▪ Cue (individual devices) to head of preroll ▪ Cue- function keys ▪ Go to ▪ Still ▪ Replay any recorded event ▪ Jog forward ▪ Jog reverse ▪ Search up to 27 speeds ▪ Eject ▪ Jog with trackball ▪ Allstop ▪ Record ▪ Ready (time out adjustable)

Edit Mode Selections

▪ Video ▪ Audio 1 to 4 ▪ Audio follow video capabilities ▪ Split edit: delay audio or video ▪ Multiple tracks split in or out with transition ▪ Multiple split lines can be edited with mark, set and trim keys ▪ Video and audio switchers enable/disable ▪ Crosspoints, transition type, transition rate

Edit Decision List Display/Input/Output

▪ Scroll list ▪ Page scroll ▪ Autoscroll: EDL follows master ▪ Display: move EDL highlight by event number, record time code, note, reel name ▪ Saves each edit to hard disk after record ▪ Print disk file directories ▪ Print EDL ▪ Bins (multiple EDLs in memory) ▪ Cut and paste EDL between bins ▪ 5-character machine status in active display menu ▪ Time and date stamp on EDLs ▪ Machine name ▪ Disk save/load ▪ Multiple EDL files on disk ▪ Auto-clean from bin to bin ▪ Sort from bin to bin ▪ Events to 999999Z ▪ Disk file management ▪ Single or multiple files can be selected, deleted, moved or copied; sorted by name, type or date; and locked ▪ Scroll EDL with cursor keys or trackball ▪ Expansion of individual EDL event to include all event information, including triggers, etc. ▪ Notes can be edited

Automatic Edit Assembly Functions

▪ ("A" mode) sequential assembly ▪ ("B" mode) reel-by-reel assembly ▪ Pre-que sequential assembly ▪ Pre-que reel-by-reel assembly ▪ Look-ahead assembly option ▪ Assembly directives can be saved: preset pre-que default, enabling or disabling ▪ Skip, bell and wait flags

OMNI 1000E. \$39,000.00

OMNI 500 Editing System

▪ 6 machine control ports standard, providing control of a video switcher and up to 5 VTRs ▪ Software interface expansion package "Power Pack" provides a seventh machine control port and interfaces for audio switchers, TBC control, DVEs, ATRs and other devices ▪ Available with hi-res monochrome display or color option ▪ Serial VTR and video switcher interfaces

OMNI 500. \$19,500.00

Options OMNI 500/1000E

- 80 column printer \$ 450.00
- 14" color monitor 750.00
- 17" color monitor 1,295.00
- Composite preview switcher 2,500.00
- Component preview switcher 2,750.00
- 8" floppy disk drive 1,500.00
- "Power Pack" (OMNI 500 only). 2,995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



6" and 8" Theater Fresnels

- 1000W lamp (6"), 2000W lamp (8")
- Beam candlepower: Spot - 175,000, Flood - 11,200 (6"); Spot - 358,000, Flood - 37,500 (8")
- Lamp sockets U.L. recognized, medium pre-focus (6"), mogul prefocus (8")
- Easy handling lightweight aluminum
- Combination of diecast and extruded aluminum promotes heat exchange and rapid dissipation
- Improved rack-and-pinion design with Torlin® insulators for smooth focusing
- Lens door is diecast with removable gel clips and a spring loaded safety clip for rugged trouping requirements
- All operating controls are thermally insulated for cool handling
- High intensity spot
- C-clamp included with all hanging models



6" Theater Fresnel

213-515	6", 1000W	\$255.00
118-013	8-leaf barndoor	95.00
120-005	Color frame	5.50
122-147	Set, single, half single scrim	37.00
130-003	Dichroic filter	220.00
138-045	Combo stud for flat yoke	21.00
138-049	6" high hat	27.00
138-059	Safety cable	10.00

8" Theater Fresnel

213-525	8", 2000W	\$410.00
118-032	8-leaf barndoor	125.00
120-015	Color frame	9.00
122-148	Set, single, half single scrim	42.00
138-045	Combo stud for flat yoke	21.00
138-051	8" high hat	37.00
138-059	Safety cable	10.00

Mini-Pro® Portable/Location Lighting

- Utility yoke contains finger operated on/off switch
- Recessed power receptacle permits use of detachable 120V or 30V power cord
- Completely portable
- Designed for stand mounting or handheld operation
- Operates at 30V, 120V or 240V AC/DC
- Safety lock prevents accidental loss of accessories from mounting clips
- Smooth field, no hot spots
- Variable focus produces 3:1 range
- Dichroic filter available for daylight shooting
- "Quartz" lamps for high efficiency
- Applications: key, back, kicker, side lighting
- Maximum wattage: 650W



100-091	Mini-Pro	\$165.00
118-016	4-leaf barndoor	40.00
122-137	Set, single, half single scrim	37.00
130-009	Dichroic filter	160.00
138-001	Beam booster	42.00

138-005	Camera bracket	\$ 16.00
140-003	30V battery cord	42.00
140-021	Battery belt 30V, 250W, with 120/220V charger	1260.00
140-022	Battery belt 30V, 250W, with fast charge ability	1310.00
140-023	Electronic high-speed charger	945.00
142-011	25' extension cord (feeds 3 units)	27.00
142-012	9' cord	11.00
148-030	Carry case for kit (metal)	265.00
152-050	Mini-stand	100.00
156-005	Handle	13.00
156-006	Mitee grip	105.00

ENG/LOCATION LIGHTING KITS

Mini-Pro Kit

Designed for use with 30V battery power.

Kit includes: (3) 100-091 Mini-Pro; (2) 118-016 4-leaf barndoor; (1) 122-137 Scrim set - single, half single; (1) 142-011 25' extension cable; (1) 148-030 Metal case; (3) 152-050 Mini-stand with 1/2" stud; (3) 176-092 600W, 120V lamp (150-050 kit); (3) 176-094 650W, 220V lamp (150-051 kit)

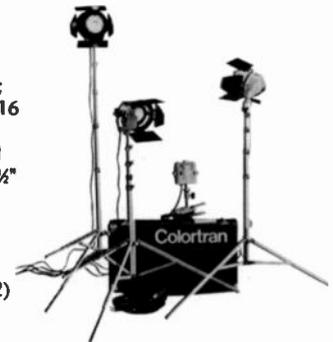
150-050	120V with metal case	\$1260.00
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Pro-Kit IV

Designed for use with 120V.

Kit includes: (2) 100-091 Mini-Pro; (2) 104-341 Mini-Broad; (3) 118-016 4-leaf barndoor; (1) 142-011 25' extension cable; (1) 148-030 Metal case; (3) 152-050 Mini-stand with 1/2" stud; (1) 156-012 Gaffer grip; (2) 176-002 650W, 120V lamp (150-052 kit); (2) 176-092 600W, 120V lamp (150-052 kit); (2) 176-007 800W, 220V lamp (150-053 kit); (2) 176-094 650W, 220V lamp (150-053 kit)

150-052	120V with metal case	\$1470.00
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Mini Soft-Lite Fill/Flood Toning Light

- Ultra lightweight
- High light output with soft shadows
- Combo stud fits 1/2" studs or 1 1/2" females
- Ventilation system increases lamp life
- Ideal for location interiors for soft-fill lighting
- All aluminum construction
- 2 switches for intensity control
- 14 lbs.

104-171	Mini soft-lite	\$575.00
120-021	Diffusion frame	42.00
138-059	Safety cable	10.00
152-053	Compact stand castered	180.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DESKTOP VIDEO PRODUCTION TOOLS



Comprehensive
VIDEO SUPPLY CORPORATION

DTV Means Video Production

Since the debut of the CV Technologies/Comprehensive's Desktop Video Production Tools Catalog in 1993, Comprehensive has taken the lead in DTV by providing an unequalled complement of equipment for the professional and industrial video production markets. We now expand on these offerings with some of this year's newest products for video professionals.

Scene Stealer

Dubner International has just released their Windows front-end software for the Scene Stealer automatic scene detector/ logging system, and it is available from Comprehensive. Some of the highlights of the new Windows software:



- Storyboarder function handles multiple reels simultaneously
- Audio Support using SoundBlaster™ compatible audio boards
- Keyword Search ▪ Cut pictures/text to Clipboard for use in documents and scripts ▪ Unlimited text box for annotations ▪ Relational Database support (tab delimited and comma-separated/quote delimited) ▪ Nonlinear EDL output for Avid, ImMIX and D/Vision

The Scene Stealer comes bundled with the new Windows software, the latest DOS software and the AT (ISA) bus printed circuit board, the heart of the Dubner Scene Stealer technology. Windows and DOS software both support our Comprehensive "422", the bidirectional line level converter which allows you to control any RS-422 protocol videotape machine from your PC's RS-232 COM port.

- Scene Stealer for Windows \$ 960.00
- Comprehensive "422" 149.95
- Both Products as a Bundle: SS/422 1049.95

Scan Converters

HyperConverter-HR

- Ultra-high resolution scan converter ▪ VGA/SVGA converted to video/SVHS/RGB ▪ Resolutions from 640 x 480 through 1280 x 1024 ▪ Genlock with sync/SC timing ▪ No software/ TSR's needed ▪ PC/MAC/SGL-display compatible ▪ Available in PAL

- HyperConHR-I-N (internal PCB-NTSC) \$2995.00
- HyperConHR-E-N (external desktop unit-NTSC) 3295.00

HyperConverter

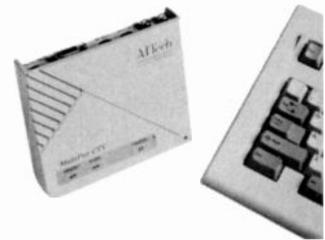
- High resolution scan converter ▪ VGA/SVGA converted to video/SVHS/RGB ▪ Resolutions from 640 x 480 through 1024 x 768 ▪ No software/ TSR's needed ▪ PC/MAC-display compatible ▪ Available in PAL



- HyperCon-I-N (internal PCB-NTSC) \$1395.00
- HyperCon-E-N (external desktop unit-NTSC) 1595.00

MultiPro CTV

- High quality-standard resolution scan converter ▪ Maximum Resolution 640 x 480, 16.7 million colors ▪ PC and MAC display compatible ▪ Comprehensive set of output controls ▪ Video/S-VHS outputs ▪ Built-in RF modulator for Ch3/4 ▪ Available in PAL
- MultiPro CTV \$399.00



ProPC/TV Plus

- Low cost, High quality VGA to NTSC conversion ▪ 640 x 480 resolution ▪ 16.7 million colors ▪ Windows and DOS TSR programs included ▪ S-VHS and composite video output

- ProPC/TV Plus \$250.00

CV Link-MAC

- High quality scan converter for Macintosh computers ▪ Compatible with LC, Performa, Centris, Quadra, Ilvx, Powerbook 160, 165c, 180, 180c and most built-in Mac video displays ▪ Outputs: composite video, S-VHS, and RGB ▪ 640 x 480 resolution

- CV Link-MAC \$599.00

Full Motion Video

VideoSurge

- Displays real time, 24-bit full motion video ▪ Saves images in most popular image file formats ▪ Supports Microsoft Windows MCI and AVI standards ▪ Bundled with image editing and presentation software ▪ Audio inputs (3) ▪ PC/AT 386,486 "ISA" bus PCB

- VideoSurge \$695.00

Time Code Software

PC-TCG

- Generates drop/non-drop frame LTC ▪ Multiple user configurations ▪ Time code adaptor connects to PC's parallel port ▪ NTSC/PAL/SECAM

- PC-TCG \$149.95

VGA Electronics

AMS-1X4

- 1-in, 4-out VGA monitor splitter/amplifier ▪ Amplification out to 500'

- AMS-1X4 \$315.00

AMS-1X2

- 1-in, 2-out VGA monitor splitter/amplifier ▪ Amplification out to 500'

- AMS-1X2 \$215.00

Don't forget...this is just a sampling of some the DTV/Multimedia products available from Comprehensive. If you do not see a particular product or are involved in a project requiring advice in the area of DTV...just give us a call and we can probably help. If not...we'll point you in the right direction.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Video Cables

BNC Plug to Plug	1-4	5-49	50+
BB-C-1.5	1.5 ft. \$ 7.99	\$ 7.19	\$ 6.39
BB-C-3	3 ft. 9.99	8.99	7.99
BB-C-6	6 ft. 11.99	10.79	9.59
BB-C-10	10 ft. 12.89	11.60	10.31
BB-C-25	25 ft. 14.99	13.49	11.99
BB-C-50	50 ft. 21.99	19.79	17.59

BNC Plug to Phono (RCA) Plug

B-PP-C-3	3 ft. \$ 5.99	\$ 5.39	\$ 4.79
B-PP-C-6	6 ft. 7.99	7.19	6.39
B-PP-C-10	10 ft. 9.99	8.99	7.99
B-PP-C-25	25 ft. 12.99	11.69	10.39

"F" Plug to Plug Push-on

FF-C-3	3 ft. \$2.99	\$2.69	\$2.39
FF-C-6	6 ft. 3.99	3.59	3.19
FF-C-10	10 ft. 4.99	4.49	3.99
FF-C-25	25 ft. 7.99	7.59	6.83

Phono (RCA) Plug to Plug - Video

PP-PP-CV-1.5	1.5 ft. \$ 1.99	\$1.79	\$1.59
PP-PP-CV-3	3 ft. 4.59	4.13	3.67
PP-PP-CV-6	6 ft. 6.99	6.29	5.59
PP-PP-CV-10	10 ft. 7.49	6.79	5.99
PP-PP-CV-25	25 ft. 10.49	9.44	8.39

EIAJ Multi-Pin Cable Assemblies

Professional EIAJ 8-Pin VTR & Monitor Cables

E8P-E8P-5	5 ft. \$24.95
E8P-E8P-10*	10 ft. 28.95
E8P-E8P-25	25 ft. 39.95

*Equivalent to SONY cable lengths.

Professional 14-Pin Camera Cables

E14P-E14J-7*	7 ft. \$ 83.99
E14P-E14J-10	10 ft. 89.99
E14P-E14J-17*	17 ft. 103.99
E14P-E14J-25	25 ft. 118.99
E14P-E14J-50	50 ft. 189.99

*Equivalent to SONY cable lengths.

Super VHS Cables

4-Pin Plug to 4-Pin Plug

S4P-S4P-6	6 ft. \$14.50	\$13.78	\$13.05
S4P-S4P-10	10 ft. 18.59	17.58	16.65
S4P-S4P-15	15 ft. 21.50	20.43	19.35
S4P-S4P-25	25 ft. 30.50	28.98	27.35
S4P-S4P-50	50 ft. 40.50	38.48	36.45

4-Pin Plug to 4-Pin Jack

S4P-S4J-6	6 ft. \$10.50
S4P-S4J-10	10 ft. 15.50
S4P-S4J-25	25 ft. 28.95

4-Pin Plug to 7-Pin Jack

S4P-7J-6	6 ft. \$19.95
S4P-7J-10	10 ft. 24.95
S4P-7J-25	25 ft. 39.95

4-Pin Plug to 7-Pin Plug

S4P-7P-6	6 ft. \$19.95
S4P-7P-10	10 ft. 24.95
S4P-7P-25	25 ft. 39.95

Super VHS 7-Pin Dubbing Cables

	1-4
7P-7J-6	6 ft. \$33.99
7P-7J-10	10 ft. 35.99
7P-7J-17	17 ft. 39.99
7P-7J-25	25 ft. 49.00

RGB & SYNC Coaxial Assemblies 4 CH with BNC'S

	1-4
4BP-4BP-6	\$ 39.95
4BP-4BP-10	49.95
4BP-4BP-25	89.95
4BP-4BP-50	129.00

Reference Guide



Audio Cables

Phono (RCA) Cables	1-4	5-49	50+	
PP-PP-6	Phono (RCA) Plug to Plug, 6'	\$1.49	\$1.34	\$1.19
PP-PP-10	Phono (RCA) Plug to Plug, 10'	1.79	1.61	1.43
PP-PP-25	Phono (RCA) Plug to Plug, 25'	2.99	2.69	2.39
SPP-PP-25	Standard Phone (¼") Plug to Phono (RCA) Plug, 25'	3.99	3.59	3.19

Audio Adaptor Cables

SP-4-C	Phono (RCA) Plug to Two Parallel Phono (RCA) Jacks, 6"	\$1.99	\$1.79	\$1.59
SP-5-C	Phono (RCA) Jack to Two Parallel Phono (RCA) Plugs, 6"	1.99	1.79	1.59

XLR Microphone Extension Cables

XLRP-XLRJ-3	3 ft.	\$15.89	\$14.30	\$12.71
XLRP-XLRJ-6	6 ft.	18.79	16.91	15.03
XLRP-XLRJ-10	10 ft.	23.19	20.87	18.55
XLRP-XLRJ-15	15 ft.	25.00	22.50	20.00
XLRP-XLRJ-25	25 ft.	32.00	28.80	25.60
XLRP-XLRJ-50	50 ft.	43.50	39.15	34.80
XLRP-XLRJ-100	100 ft.	69.99	62.99	55.99

XLR to Mini, Phono and Standard Phone Cables (10 ft.)

XLRP-MP-10	XLR Plug to Mini Plug	\$ 7.99		
XLRP-MJ-10	XLR Plug to Mini Jack	9.99		
XLRJ-MP-10	XLR Jack to Mini Plug	10.99	\$ 9.87	\$ 8.79
XLRP-PP-10	XLR Plug to Phono Plug	12.99	11.69	10.39
XLRJ-PP-10	XLR Jack to Phono Plug	12.99	11.69	10.39
XLRP-SPP-10	XLR Plug to Standard Phone Plug	13.99	12.59	11.19
XLRP-SPJ-10	XLR Plug to Standard Phone Jack	11.99		
XLRJ-SPP-10	XLR Jack to Standard Phone Plug	13.99	12.59	11.19
XLRJ-SPJ-10	XLR Jack to Standard Phone Jack	11.99		

Two Phone (RCA) Plugs, Stereo Both Ends

4PP-C-1.5	1.5 ft.	\$1.29	\$1.16	\$1.03
4PP-C-3	3 ft.	1.99	1.79	1.59
4PP-C-6	6 ft.	2.39	2.15	1.91
4PP-C-10	10 ft.	3.39	3.05	2.71

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO/AUDIO ADAPTORS AND CONNECTORS



Comprehensive
VIDEO SUPPLY CORPORATION

Video Adaptors

	1-4	5-49	50+	
BNC				
BT	BNC Jack to Plug to Jack (T)	\$5.19	\$4.67	\$4.15
BT-J	BNC Jack to Jack to Jack (T)	3.99	3.79	3.59
B-BL	BNC Jack to Jack (Barrel Type)	1.99	1.79	1.59
B-BLCM	BNC Jack to Jack Chassis Mount (Barrel)	3.99	3.59	3.19
BP-BL	BNC Plug to Plug (Barrel)	3.29	2.96	2.63
BJ-BP-L	BNC Jack to Plug (Right Angle)	5.99	5.39	4.79
"F"				
F-BL	"F" Jack to Jack (Barrel)	\$.59	\$.53	\$.47
F-BLCM	"F" Jack to Jack Chassis Mount (Barrel)	.69	.62	.55
FJ-FP	"F" Jack to "F" Plug	1.29	1.16	1.03
FJ-FP-L	"F" Jack to "F" Plug Right Angle	.89		
Phono (Video)				
PJ-BL	Phono (RCA) Jack to Jack (Barrel)	\$1.25	\$1.12	\$1.00
P-BLCM	Phono (RCA) Jack to Jack Chassis Mount (Barrel)	2.89	2.60	2.31
Between Series: BNC, UHF, "F", & Phono (Video)				
BP-UJ	BNC Plug to UHF Jack	\$2.89	\$2.60	\$2.31
BJ-UP	BNC Jack to UHF Plug	2.89	2.60	2.31
FJ-BP	"F" Jack to BNC Plug	2.99	2.69	2.39
FJ-MP	"F" Jack to 3.5mm Mini Plug	1.79	1.61	1.43
BP-BJ	Phono (RCA) Plug to BNC Jack	2.59	2.33	2.07
PP-FJ	Phono (RCA) Plug to "F" Jack	1.29	1.16	1.03
PJ-BP	Phono (RCA) Jack to BNC Plug	1.99	1.79	1.59
PJ-UP	Phono (RCA) Jack to UHF Plug	1.29	1.16	1.03
PJ-FP	Phono (RCA) Jack to "F" Plug	1.49	1.34	1.19

Video Connectors

BNC				
BP	BNC Plug for RG-59/U Cable Solder Type	\$1.29	\$1.23	\$1.16
BP-C	BNC Plug for RG-59 (Crimp Type)	1.99	1.89	1.79
BP-CA	BNC Crimp Plug for RG-59/U	2.99	2.84	2.69
BP-CK	BNC Crimp Plug for RG-59/U	2.99		
BP-E	BNC Plug Fast-Fit for RG-59/U	1.99	1.89	1.79
BP-C-8281	BNC Plug for 8281 (Crimp)	2.99	2.84	2.69
BP-E-8281	BNC Plug Fast-Fit for 8281 Cable	3.19		
BJ-CM	BNC Jack Chassis Mount for RG-59U	1.69	1.52	1.35
B-TM	BNC Plug 75 Ohm Terminator	2.99	2.69	2.39
"F"				
FP	"F" Plug Crimp-on	\$.25	\$.22	\$.20
FP-E	"F" Plug Fast-Fit Push-on	.49	.44	.39
FP-ES	"F" Plug Fast-Fit Screw-on	.59	.53	.47
F-TM	"F" Plug 75 Ohm Terminator	.49	.44	.39
FJ-CM	"F" Jack Chassis Mount	.25		
Phono (Video)				
PP-C	Phono Plug with attached Ferrule (Crimp)	\$.49	\$.44	\$.39
PP-V	Phono Plug (Solder)	1.16	1.10	1.04
PJ-CM	Phono Jack Chassis Mount	.49	.44	.39
P-TM	Phono Plug 75 Ohm Terminator	1.65		
Super VHS				
RM-7J	7-pin Female Dub Connector	\$13.99	\$13.29	\$12.59
RM-7JCM	7-pin Female Chassis Mount	6.95	6.25	5.56
RM-7PCM	7-pin Male Chassis Mount	6.95	6.25	5.56
S4P	4-pin Male Connector	1.99	1.79	1.59
S4J	4-pin Female Connector	2.39	2.15	1.91
EIAJ Monitor and VCR Connectors				
EBP	8-pin Plug Cable End	\$6.99		
EBJ	8-pin Jack Cable End	6.99		
EIAJ VCR and Editor Remote Control Connectors				
E20P	20-pin Plug Cable End	\$13.99		
E20J	20-pin Jack Cable End	8.99	\$8.09	\$7.19
E33P	33-pin Plug Cable End	16.75		
Camera Connectors				
E10P	10-pin Plug Cable End	\$9.99		
E10J	10-pin Jack Cable End	9.99		
E12J	12-pin Jack Cable End (JVC)	5.89		

	1-4	5-49	50+	
E14P	14-pin Plug Cable End	\$19.95		
E14J	14-pin Jack Cable End	19.95		

Audio Adaptors

Mini (3.5mm)				
MP-PJ	3.5mm Mini Plug to Phono (RCA) Jack	\$.99	\$.89	\$.79
MP-SPJ	3.5mm Mini Plug to 1/4" Std. Phono Jack	1.39	1.25	1.11
MJ-BL	3.5mm Mini Jack to Jack (Barrel)	1.79	1.61	1.43
Phono (Video)				
PJ-BL	Phono (RCA) Jack to Jack (Barrel)	\$1.25	\$1.12	\$1.00
PP-MJ	Phono (RCA) Plug to 3.5mm Mini Jack	1.09	.98	.87
PP-SPJ	Phono (RCA) Plug to 1/4" Std. Phono Jack	1.59	1.39	1.27
PP-XLRJ	Phono (RCA) Plug to 3-pin XLR Jack	8.99	8.09	7.19
PP-XLRP	Phono (RCA) Plug to 3-pin XLR Plug	8.39	7.55	6.71
XLR Cannon Type				
XLRP-PJ	3-pin XLR Plug to Phono (RCA) Jack	\$ 9.99	\$8.99	\$7.99
XLRP-SPJ	3-pin XLR Plug to 1/4" Std. Phone Jack	8.49	8.09	7.19
XLRP-BL	3-pin XLR Plug to Plug (Barrel)	8.99	8.09	7.19
XLRJ-PJ	3-pin XLR Jack to Phono (RCA) Jack	9.99	8.99	7.99
XLRJ-SPJ	3-pin XLR Jack to 1/4" Std. Phone Jack	9.29	8.36	7.43
XLRJ-BL	3-pin XLR Jack to Jack (Barrel)	10.99	9.89	8.79

Audio Connectors

XLRJ	3-pin XLR Jack Cable End	\$5.39	\$4.85	\$4.31
XLRJ-CM	3-pin XLR Jack Chassis Mount	6.29		
XLRP	3-pin XLR Plug Cable End	4.39	4.17	3.95
XLRP-CM	3-pin XLR Plug Chassis Mount	4.99		

Cable Accessories

Heavy-Duty Velcro Cable Tie Rip-Tie™. The most convenient cable tie available...and made to last for years! Heavy-Duty Rip-Ties install in seconds, prevent cable kinks and pull free with one hand.

Note: Heavy-Duty Rip-Ties are available in black only, except where noted. Packages of 10 also available in color assortment including black, white, brown, gray, purple, green, blue, yellow, orange and red.

Part#	Size	Quantity	Price
RT3-3	1" x 3"	3	\$ 11.59
RT3-10	1" x 3"	10	28.50
RT3-10C	1" x 3"	10 Color	28.50
RT3-100	1" x 3"	100	245.00
RT6-3	1" x 6"	3	12.89
RT6-10	1" x 6"	10	31.95
RT6-10C	1" x 6"	10 Color	31.95
RT6-100	1" x 6"	100	284.00
RT9-3	1" x 9"	3	14.50
RT9-10	1" x 9"	10	34.95
RT9-10C	1" x 9"	10 Color	34.95
RT9-100	1" x 9"	100	318.00
RT14-3	1" x 14"	3	16.95
RT14-10	1" x 14"	10	41.50
RT14-10C	1" x 14"	10 Color	41.50
RT14-100	1" x 14"	100	370.00
RT21-3	1" x 14"	3	23.50
RT21-10	1" x 21"	10	47.95
RT21-10C	1" x 21"	10 Color	47.95
RT21-100	1" x 21"	100	460.00

*1" x 21" available in blue or black.

Cable Hanger

CR-2 Wall Mount Cable Organizer, 15"L CR-2 \$19.95

Releasable Cable Ties

40R-100 8 1/2"L, Black, Pack of 100	\$18.99
50R-100 5 1/2"L, Black, Pack of 100	15.99
50S-100 6 1/2"L, Black, Pack of 100	16.99
50L-100 10"L, Black, Pack of 100	39.00

Non-Releasable Cable Ties

T-30A-100 7 1/2"L, Black, Pack of 100	\$ 8.95
T-50B-100 10 1/2"L, Black, Pack of 100	18.99

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





CVA1B-5 Video/Audio Distribution Amplifier

The CVA1B-5 is a top quality and compact "work-horse" which was designed for applications where a straight-forward 5 output video and audio (mono) distributor is required. The heavy-duty design and excellent reliability of the CVA1B-5 has made it our most popular seller.



CVA1B-5 \$299.00

CVA1B-10S Video/Audio Distribution Amplifier

This top quality video and stereo audio distribution amplifier is an outstanding value for a variety of video applications. The CVA1B-10S acts as an interface allowing a single input source of composite video and stereo audio to be split into 10 identical outputs. Inputs can be looped through for cascading numerous units for any number of outputs without loss of signal quality. Its reliability and cool running power supply makes this unit ideal for unattended remote applications.

CVA1B-10S \$399.00

CVA5-SVHS/CVA10-SVHS S-VHS Distribution Amplifiers

Designed for Super VHS and Hi8 as well as composite video systems, these units accept 1 input of the separate luma and chroma channels (Y/C) and 1 stereo-audio input and distributes them to either 5 or 10 parallel outputs. Inputs can be looped through for cascading numerous units for any number of outputs without loss of signal quality.

CVA5-SVHS \$499.00
CVA10-SVHS 799.00



CVA1B-10RM Rackmountable Distribution Amplifier

An enhanced version of the CVA1B-10S distribution amplifier, this unit comes in a standard 19" rackmount and features fully AC coupled video inputs and outputs plus video bandwidth of up to 12MHz.

CVA1B-10RM \$499.00

CVA3B-15RM Multi-Mode Component/Composite 1x5 to 1x15 A/V Distributor

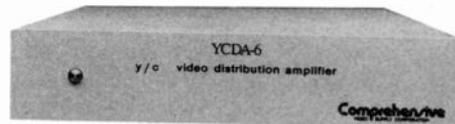
A broadcast quality video and audio distribution amplifier design, the CVA3B-15RM distributes up to 3 video signals to 15 sets of connectors with stereo-audio follow video. It may be configured as a component video 1x5 D/A, an RGB (sync on green) 1x5 D/A, a composite 1x15 D/A, 2 composite video 1x5 and 1x10 D/As; or 3 composite video 1x5 D/As.

CVA3B-15RM \$999.00

AVDA-16 Rackmountable Distribution Amplifier

This unit is an excellent choice for comparison component display and demonstration as well as for multi-tape copying. It feeds composite video and audio (stereo or mono) signals from 1 input up to 16 video and audio outputs without distortion, noise or signal loss. Additional units can be stacked to increase available outputs in multiples of 16. The VPS-1 power supply is required for a single unit or VPS-4 power supply for up to 4 units.

AVDA-16 \$375.00
VPS-1 39.00
VPS-4 45.00
RE-2P Optional Rack Ears pr./31.95



YCDA-6 Y/C Distribution Amplifier

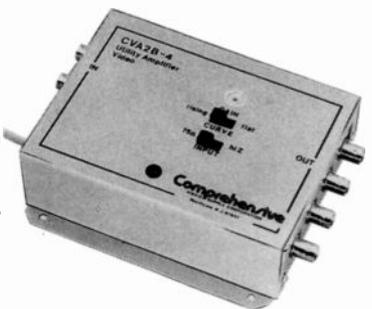
Featuring a 30MHz wide bandwidth for accurate reproduction of Y and C video components, the YCDA-6 provides 6 identical Y/C output signal sets. These outputs are distributed through 6 industry standard 4-pin mini-DIN (S-Video) connectors conveniently mounted on the rear panel. The unit comes in a half-rack but is available with installed rackmount by special order. Either 1 or 2 YCDA-6 units can be installed in a 1 rack unit configuration.

YCDA-6 \$429.00

CVA2B-4 Video Distribution Amplifier

Our most economical video-only DA, the CVA2B-4 provides the budget-conscious user with 2-input 4-output capability. The unit can be looped and cascaded for additional outputs without line loss.

CVA2B-4 \$199.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Black Burst Generators

SG-2

- A compact, single output unit, the SG-2's output, which contains composite sync, color burst and a 7.5 IRE setup, is a standard NTSC RS-170A signal
- Stable genlock source
- Can be battery powered
- Available in composite or S-Video/Hi8 (Y/C) models

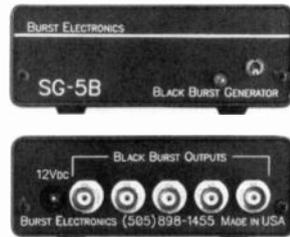
SG-4

- A larger version of the SG-2, this units provides 4 separate isolated buffered outputs and includes a 1kHz tone output at 0dBm, unbalanced

SG-5

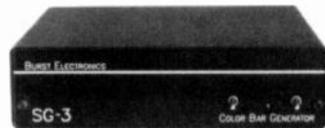
- Same as the SG-4 except that there are 5 separate isolated buffered outputs

SG-2	.....	\$195.00
SG-2/NS	.....	235.00
SG-4	.....	345.00
SG-4/NS	.....	395.00
SG-5B	.....	345.00
SG-5/NS	.....	395.00



SG-3 SMPTE Color Bar Generator

- A single output SMPTE color bar/black burst generator with composite NTSC video output, the SG-3 may be used to lay down bars on tape, or to correctly set the color, hue and brightness of video monitors
- Front panel switch selection between SMPTE color bars or black for the output
- Can be factory programmed with an ID (such as station call letters) to appear on the output



SG-3 \$495.00

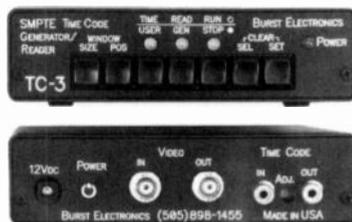
SG-7 SMPTE Color Bar/Black Burst Generator

- Designed to provide genlock signals for a variety of video equipment, such as source VTRs, edit controllers, mixers, SEGs, cameras, etc., the SG-7 may also be used to lay down bars on tape or to correctly set the color and brightness of color monitors
- 1 output of color bars and 6 outputs of black burst
- Multi-buffered outputs makes DAs unnecessary
- Optional ID programming at factory

SG-7 \$695.00

TCG-1000 Series Time Code Generator

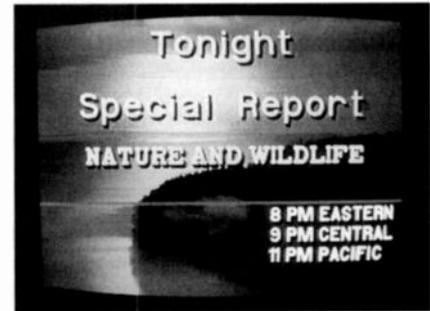
- Allows longitudinal SMPTE time code to be generated on or read from 1", 3/4", 1/2" or 8mm videotape at play speed
- Features include: ability to generate window dubs, drop frame and field 1 indicator, and jam sync mode
- High visibility characters on the video display have user adjustable position and size
- Selectable auto backtime
- Records on audio channel or separate TC channel
- Y/C version available



TCG-1000/A	.....	\$419.00
TCG-1000/AS	.....	519.00

PC-2 PC Character Generator

- Price/performance leader in PC-based character generators
- PC-2 is a menu driven plug-in card for IBM or compatible computers running on 286, 386 or 486 processors at 40ns resolution
- Includes 32 fonts, 64 colors
- Selectable drop shadows and other edge effects
- Programmable rolls and crawls
- Font size from 20 to 50 scan lines
- Genlocks to video with both preview and program output
- Includes internal mixer and also outputs RGBs and key for use with external mixer
- Can store title files on disk as well as import from other files
- Pre-programmable sequencing
- Y/C version available



Production Gear

KR-10 Bidirectional Composite-Y/C Transcoder

- Designed to interface simultaneously in both directions between composite and Y/C (S-VHS or Hi8), the KR-10's compact size makes it very appropriate for field work
- Over 10MHz bandwidth from Y/C to composite
- Fully delay compensated — no chroma/luma delay
- 4 1/2" W x 6 1/2" D x 1 1/2" H



FRONT



BACK

KR-10 \$199.00

F2B Fade to Black Module

- Low cost device which fades a single video input to black (7.5 IRE)
- Wide bandwidth (10MHz) and low errors (0.1 difference in phase and gain) assure clean fades even with consumer level VHS decks
- 12VDC powered
- Smooth action fader bar

F2B \$250.00

VMF-2 2 Channel Mixer/Fader

- DC powered device which fades from A to B, B to A, or A to black via a fader bar or automatically
- Transition occurs upon hitting the TAKE button or an external GPI trigger
- Automatic transitions can be preset from 0.2 second (approximately 6 frames) to 6 seconds
- Fade bar usable as preset speed in GPI mode
- No input required in A to Black mode
- Genlock sources required in A to B mode
- Output de-clamped to zero volts



VMF-2 \$450.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Switchers

Comprehensive offers a broad selection of devices for a wide range of video and audio signal switching. Choose between passive and electronic devices, vertical interval switching for flicker-free transitions with genlock feeds, and matrix switchers for user-directed routing of multiple signals in almost any combination of inputs and outputs.

Vertical Interval Matrix Switchers



VIS-4x4

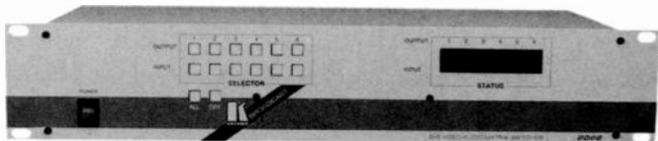
▪ Rackmounted unit for selecting and routing any of 4 video or audio (stereo) inputs to any of 4 outputs ▪ Uses a highly shielded steel cabinet and fully amplified, buffered and isolated inputs for high S/N ratio and elimination of interchannel crosstalk ▪ Can be operated from either AC or DC power sources ▪ Available with RS-232 interface for PC control

- VIS-4x4 \$699.00
- VIS-4x4/232 799.00

CMS-4x2, 6x2, 8x2, 12x2

▪ 4 rackmounted units for switching 4, 6, 8, or 12 inputs to any of 2 outputs ▪ Built-in looping facility for expandability ▪ Optional RS-232 interface available for PC control

- CMS-4X2 4-in, 2-out \$ 599.00
 - CMS-6X2 6-in, 2-out 699.00
 - CMS-8X2 8-in, 2-out 899.00
 - CMS-12X2 12-in, 2-out 1195.00
- Add \$100.00 for optional RS-232 interface (included with CMS-12X2).



BCS-2066 6x6 Broadcast

▪ Pure electronic circuitry (no relays) ▪ Low crosstalk between channels (<40dB for chroma) ▪ Over 30MHz frequency response ▪ Advanced RS-232 interface with software included ▪ Rackmountable (2 RU)

- BCS-2066 \$999.00

VS-1202RS 12x2 Component/S-VHS

▪ For switching 12 inputs to 2 outputs for composite video or S-VHS (YC) with stereo audio-follow-video ▪ Ultra-wide bandwidth and high S/N ratio ▪ RS-232 interface and software included for PC control

- VS-1202RS \$1495.00

Vertical Interval Switchers 4x1, 6x1, 8x1

▪ 3 rackmounted units for switching 4, 6, or 8 inputs to 1 output
 ▪ May be cascaded and integrated in 8x1, 16x1, 24x1, etc. configurations via built-in bus connectors ▪ Optional RS-232 interface cards available for PC control

- VIS-4X1 4-in, 1-out \$449.00
 - VIS-6X1 6-in, 1-out 549.00
 - VIS-8X1 8-in, 1-out 599.00
- Add \$150.00 for optional RS-232 interface.

BCS-2031 3x1 Component Video Switcher

▪ For switching any of 3 component video sources (RGB-S, Betacam, Y/C S-VHS, Hi8, etc.) to 1 component video output ▪ Broadcast bandwidth and S/N ratio ▪ May be used with NTSC/PAL/SECAM BCS-2031

- BCS-2031 \$899.00

**MINI-T-PRO
Event Controller/
Switcher**



▪ Low-cost solution for automated videotape playback, recording and switching
 ▪ Controls up to 16 VCRs or 8 LDPs ▪ 4 function machine control ▪ Frame accurate video disc playback ▪ 8 x 1 internal video and audio switcher ▪ Video detection with automatic fallback ▪ Optional PC Event Manager programming software

- MINI-T-PRO \$995.00
- MT-EM Event Manager software 299.00
- MT-EM Optional rackmount 110.00

4x1, 8x1 Passive Switchers

▪ Desktop units for switching of 4 or 8 video/audio (mono) inputs to a single output ▪ Mechanically interlocked pushbuttons simultaneously select audio and video inputs and automatically terminate other inputs, resulting in constant impedance

- CPS-4A 4-in, 1-out \$199.00
- CPS-8A 8-in, 1-out 219.00

AVS-5 Economy Switching System

▪ For switching up to 5 video/audio (stereo) inputs to 1 output
 ▪ Designed for components with RCA jacks

- AVS-5 \$139.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Hear the Difference

"Sound Value" has a number of different meanings...from a sensible, cost effective purchase decision to the quality of an audio signal itself. We like to think that the small sampling of our many Audio Electronics listed below represents a little of both...Sounds Good at a Good Price.

Field Mixers



MM-4200 Field Mixer

▪ Portable stereo mic/line mixer ▪ Analog meters ▪ 4 switchable mic/line inputs ▪ Selectable 20dB pad per input ▪ Selectable 48V phantom power per input ▪ Pan pot per each input ▪ Built-in stereo limiter ▪ 1kHz tone output ▪ Headphone amp ▪ 12-24VDC external powering ▪ 2, 9V batteries internal powering ▪ XLR connections
MM-4200 \$885.00



MM-3100 Field Mixer

▪ Low cost field production mixer ▪ LED metering display ▪ 3 balanced XLR inputs with individual volume controls ▪ Balanced output switchable +4/-20dB ▪ Switchable low-cut filter per input ▪ 1kHz tone output ▪ Headphone amp ▪ Internal/external DC power
MM-3100 \$345.00
Cordura Carry Case for MM-3100
MM-CASE \$75.00



MX-880E Economy Production Mixer

▪ Low cost, versatile desktop production mixer ▪ 8-input, 2-output
▪ Inputs 1-4 switchable line/mic with/without attenuation ▪ Inputs 4-8 switchable mic/phono/ line ▪ 2 band equalization ▪ Panning ▪ Echo send/ return ▪ PFL monitoring ▪ LED metering ▪ Headphone amp
▪ Dimensions: 13.38"W x 3.15"H x 15.92"D
MX-880E..... \$359.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Commercial Power Amplifiers

PA-1800

▪ Dual monaural power amp, 2x400W @ 8 ohms ▪ Power rating: <0.1% THD, 20Hz-20kHz ▪ Input connections: XLR, 1/4", and barrier strip ▪ 2 RU high ▪ LED status indicators ▪ Mono-bridgeable ▪ Fan cooled ▪ 5 year warranty

PA-1800 \$1699.00

PA-1400

▪ Same as above except 2x300W @ 8 ohms

PA-1400 \$1399.00

PA-1000

▪ Same as above except 2x200W @ 8 ohms

PA-1000 \$1099.00

Professional Power Amplifiers

PA-200

▪ 2x50W @ 8 ohms ▪ 1 RU/half-rack wide ▪ 1/4" input/output connectors ▪ Auto-bridging to 200W mono

PA-200 \$429.00

PA-100B

▪ 2x50W @ 8 ohms

PA-100B \$ 399.00

PA-50B

▪ 2x25W @ 8 ohms

PA-50B \$299.00

Effects Processors

CV-425 Stereo Compressor Limiter

▪ Independent downward expander, compressor, limiter ▪ Individual LED meters for each processing section ▪ Stereo or dual-mono operation ▪ Balanced/unbalanced operation/XLR and 1/4" connectors ▪ Soft-knee compression curve

CV-425 \$579.00

CV-402 Dual Output Delay

▪ Maximum delay of 884ms per output (999 ft/325m) ▪ 19 bit A/D, 18 bit D/A for >100dB dynamic range ▪ 12 segment LED headroom indicator ▪ Delay settings store in non-volatile memory ▪ 1ms minimum delay increments

CV-402 \$695.00

CV-528 Voice Processor

▪ 5 processors in 1 RU: mic preamp, compressor/limiter, downward expander, 3-band parametric EQ/notch filter, and de-esser ▪ Switchable +48V phantom power ▪ Side-chain and stacking access ▪ Line and XLR inputs mix ▪ Accessible individual processor inputs/outputs ▪ Simultaneous master output and gain reduction metering

CV-528 \$679.00

Highband 1500 Wireless Microphone Systems

▪ Operates in VHF range 203-215MHz ▪ Choice of popular lavalier mics (order separately) ▪ Transmitter input level control ▪ Transmitter RF power output 50mW ▪ Receiver audio output 600 ohm unbalanced ▪ Receiver connectors: Audio 3.5mm mini jack, Headset: same ▪ Both units powered by 9V alkaline battery

Highband 1500 (mic not incl.) \$169.00



AN-100 Monitor Speaker

▪ Phono and 1/4" inputs ▪ Bass and treble controls ▪ 4 1/4" woofer/ferrofluid-cooled dome tweeter ▪ Durable, injected-molded case ▪ Power output: 25W

AN-100 \$189.00

CV-A220 Monitor Amplifier

▪ The perfect VTR and QC stereo monitor amp, 1 RU ▪ Low noise/low distortion ▪ 20W per channel @ 8 ohms ▪ XLR or 1/4" inputs ▪ Dual tracking, dual independent or mono-bridged (40W) ▪ Barrier strip outputs ▪ Front panel headphone jack

CV-A220 \$349.00

Comprehensive carries a complete line of Audio Electronic products including, but not limited to: ▪ Professional/Industrial style connectors ▪ Interconnecting Cables ▪ Distribution Amps ▪ Wireless Microphone Systems ▪ Mics ▪ Amplifiers ▪ Headphones ▪ Speakers and many other interesting sound reinforcement, support and problem solving products. We strongly suggest that you contact our customer service department for more complete information and product selection

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

POWER AMPLIFIERS



Com-Tech™ Series Power Amplifiers

The Com-Tech Series is available exclusively for commercial sound contractors, along with an optional Installation Protection Plan. Com-Tech amps drive "constant voltage" lines without expensive, distortion producing "step-up" transformers. That includes not just common 70V lines but also 25, 35, 50, 100 and even 140V "constant voltage" lines. P.I.P. compatibility is standard, making this series very versatile. For example, the P.I.P.-ISO provides full output isolation to ISO-modified amplifiers for the ultimate in ground isolation. Full display of vital functions is provided with front panel mounted ODEP, IOC and SPI (Signal Process Indicator) indicators. A hybrid cooling system takes advantage of heat convection and adds variable-speed forced air assistance only when necessary.



CT-1600

Output Power in Dual Mode With Both Channels Driven FTC Continuous Average Power at 0.1% THD from 20Hz-20kHz:

- CT-1600: 525W – 8 ohms, 810W – 4 ohms, 825W-70V line
- CT-800: 285W – 8 ohms, 440W – 4 ohms, 415W-70V line
- CT-400: 195W – 8 ohms, 175W – 4 ohms, 195W-70V line
- CT-200: 105W – 8 ohms, 125W – 4 ohms, 95W-70V line



CT-200

Maximum Average Power at 0.1% THD With 1kHz:

- CT-1600: 540W – 8 ohms, 875W – 4 ohms, 890W-70V line
- CT-800: 300W – 8 ohms, 480W – 4 ohms, 440W-70V line
- CT-400: 210W – 8 ohms, 230W – 4 ohms, 225W-70V line
- CT-200: 110W – 8 ohms, 150W – 4 ohms, 105W-70V line

Dimensions and Weight

- | | | |
|---------|--|-----------|
| CT-1600 | 19" standard rackmount width, 7" H,
16" D behind mounting surface.
57 lbs., 14 oz. | \$2050.00 |
| CT-800 | 19" standard rackmount width, 5.25" H,
16" D behind mounting surface.
46 lbs., 12 oz. | 1575.00 |
| CT-400 | 19" standard rackmount width, 3.5" H,
16" D behind mounting surface.
31 lbs., 12.5 oz. | 1075.00 |
| CT-200 | 19" standard rackmount width, 3.5" H,
16" D behind mounting surface. 29 lbs.,
6.5 oz. | 825.00 |



D-150A-2 Single or Dual Channel Power Amplifier

The D-150A-2 is a single or dual channel power amplifier designed for precision amplification of frequencies from DC Hz to 20kHz. The design of the D-150A-2 provides extremely low harmonic and inter-modulation distortion with very low noise. A switch on the rear of the unit allows stereo or mono operation with no internal wiring changes. In the mono mode, the D-150A-2 is capable of a 50V balanced line output. The unit operates on AC current from 120V to 240V. 80W continuous average power per channel into 8 ohms at .05% THD.

The D-150A-2 embodies the simplest and yet most accurate distortion display available in any audio product. The IOC (Input-Output Comparator) senses any form of amplifier nonlinear behavior and reports its existence through front panel LEDs. Slow-induced distortion, protection circuit activation and clipping distortion will all be detected by the IOC circuit at levels below the rated distortion of the amplifier. Thus, the amplifier becomes a valuable tool in the hands of the user to facilitate proper amplifier-speaker-environment matching, as well as a continuous monitor of the purity of the signal reproduction through the amplifier under actual operating conditions.

D-150A-2 \$879.00



D-75 Single or Dual Channel Power Amplifier

The D-75 power amplifier, requiring only 1 3/4" (4.45cm) of vertical rack space, was designed to operate safely and continuously into a variance of load requirements. The D-75 provides 35W per channel minimum continuous average power (both channels operating) into an 8 ohm load over a bandwidth of 20Hz-20kHz at a rated sum total harmonic distortion that is 0.05% of the fundamental output voltage. The frequency response of the unit varies no more than +0.1dB from 20Hz-20kHz at 1W into 8 ohms. Features of the D-75 include active balanced inputs, Cannon XLR connectors, an easily accessible mono-stereo switch, and front panel LEDs indicating overloads and signal presence. A special feature of the D-75 is the provision for isolating chassis ground from electrical ground.

D-75 \$549.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SYSTEMS

System 40 Tripod/Head/Spreader With Dual Handles

ENG40 Fluid Head

▪ Load Capacity: (C.G.=5") 45 lbs. ▪ Tilt Angle: +90°/-80° ▪ Pan Rotation: 360° ▪ Height (with ball): 7.50" ▪ Width (less handle): 7.50" ▪ Base (Claw Ball Type): 100mm ▪ Weight: 6.75 lbs. ▪ Drag: Variable viscosity system ▪ Lock Devices: Caliper type ▪ Handle Length (each): 14" to 22"

TD30S Tripod

▪ Load Capacity: 55 lbs. ▪ Minimum Height: 26" ▪ Maximum Height: 68" ▪ Minimum Folded Length: 35" ▪ Minimum Folded Width: 6.50" ▪ Bowl Diameter: 100mm ▪ Weight (with spreader): 7.95 lbs. ▪ Spreader: Pull ring and hook ▪ Leg Lock: Radial compression ▪ Spikes: Rubber cover pads ▪ Finish: Ultra-hard gray textured with special hardening process on sliding and friction wear areas

System 40 \$5250.00



System 30 Tripod/Head/Spreader With Handle

ENG30 Fluid Head

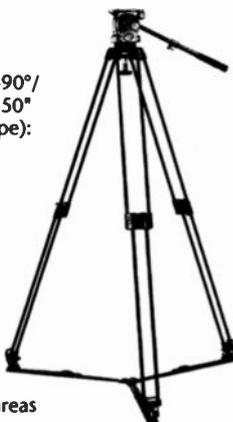
▪ Load Capacity: (C.G.=5") 30 lbs. ▪ Tilt Angle: +90°/-80° ▪ Pan Rotation: 360° ▪ Height (with ball): 7.50" ▪ Width (less handle): 6.25" ▪ Base (Claw Ball Type): 100mm ▪ Weight: 6 lbs. ▪ Drag: Variable viscosity system ▪ Lock Devices: Caliper type ▪ Handle Length (each): 14" to 22"

TD30 Tripod

▪ Load Capacity: 40 lbs. ▪ Minimum Height: 26" ▪ Maximum Height: 68" ▪ Minimum Folded Length: 35" ▪ Minimum Folded Width: 6" ▪ Bowl Diameter: 100mm ▪ Weight: 6.95 lbs. ▪ Spreader: Pull ring and hook ▪ Leg Lock: Radial compression ▪ Spikes: Rubber cover pads ▪ Finish: Ultra-hard gray textured with special hardening process on sliding and friction wear areas

System 30 ENG Tripod/head/spreader, with handle and soft case \$4350.00

System 30 EFP Tripod/head/spreader, with dual telescopic handles 4700.00



System 25 Tripod/Head/Spreader With Dual Handles

ENG20 Fluid Head

▪ Load Capacity: (C.G.=5") 20 lbs. ▪ Tilt Angle: +90°/-70° ▪ Pan Rotation: 360° ▪ Height (with ball): 6.50" ▪ Width (less handle): 5" ▪ Base (Claw Ball Type): 75mm ▪ Weight: 4.05 lbs. ▪ Drag: Variable viscosity system ▪ Lock Devices: Caliper type ▪ Handle Length (each): 14" to 22"

TD25 Tripod

▪ Load Capacity: 30 lbs. ▪ Minimum Height: 17" ▪ Maximum Height: 63" ▪ Minimum Folded Length: 35" ▪ Minimum Folded Width: 5" ▪ Bowl Diameter: 75mm ▪ Weight: 6.90 lbs. ▪ Spreader: Pull ring and hook ▪ Leg Lock: Radial compression ▪ Spikes: Rubber cover pads ▪ Finish: Ultra-hard gray textured with special hardening process on sliding and friction wear areas

System 25 \$2700.00



System 20 Tripod/Head/Spreader With Handle

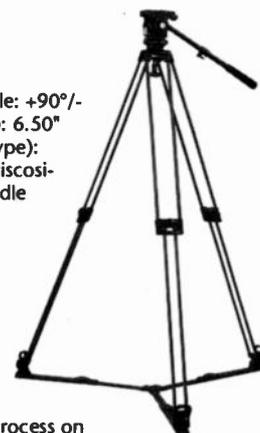
ENG20 Fluid Head

▪ Load Capacity: (C.G.=5") 20 lbs. ▪ Tilt Angle: +90°/-70° ▪ Pan Rotation: 360° ▪ Height (with ball): 6.50" ▪ Width (less handle): 5" ▪ Base (Claw Ball Type): 75mm ▪ Weight: 4.05 lbs. ▪ Drag: Variable viscosity system ▪ Lock Devices: Caliper type ▪ Handle Length: 14" to 22"

TD20 Tripod

▪ Load Capacity: 30 lbs. ▪ Minimum Height: 26" ▪ Maximum Height: 63" ▪ Minimum Folded Length: 35" ▪ Minimum Folded Width: 5" ▪ Bowl Diameter: 75mm ▪ Weight: 5.90 lbs. ▪ Spreader: Pull ring and hook ▪ Leg Lock: Radial compression ▪ Spikes: Rubber cover pads ▪ Finish: Ultra-hard gray textured with special hardening process on sliding and friction wear areas

System 20 \$2500.00



System 15 Tripod/Head With Spider and Handle

ENG15 Fluid Head

▪ Load Capacity: (C.G.=3") 22 lbs. ▪ Tilt Angle: +90°/-80° ▪ Pan Rotation: 360° ▪ Height (with ball): 6.50" ▪ Width (less handle): 4.50" ▪ Base (Claw Ball Type): 75mm ▪ Weight: 4.10 lbs. ▪ Drag: Constant viscosity system ▪ Lock Devices: Pressure type ▪ Handle Length: 14" to 22"

TD15 Tripod

▪ Load Capacity: 30 lbs. ▪ Minimum Height: 29" ▪ Maximum Height: 64" ▪ Minimum Folded Length: 34" ▪ Minimum Folded Width: 5.50" ▪ Bowl Diameter: 75mm ▪ Weight: 5.15 lbs. ▪ Spider: Integral ▪ Leg Lock: Radial compression ▪ Spikes: Dual with rubber cover pads ▪ Finish: Ultra-hard gray textured

System 15 \$1325.00



System 3 Tripod/Head With Spider and Handle

▪ Load Capacity: 10 lbs. ▪ Minimum Height: 22" ▪ Maximum Height: 57" ▪ Folded Length: 32" ▪ Folded Width: 4.50" ▪ Tilt Angle: ±90° ▪ Pan Rotation: 360° ▪ Ball Base: 50mm ▪ Camera Plate: 1/4-20 camera screw with alignment pin ▪ Weight: 5.50 lbs. ▪ Handle: 20" ▪ Finish: Black satin anodized and red lock knobs ▪ Pan/Tilt Action: Preset high viscosity fluid dampening \$475.00

System 2 Tripod/Head With Spider and Handle

▪ Load Capacity: 8 lbs. ▪ Minimum Height: 22.50" ▪ Maximum Height: 53.50" ▪ Folded Length: 24" ▪ Folded Width: 5" ▪ Tilt Angle: +90°/-70° ▪ Pan Rotation: 360° ▪ Ball Base: 50mm ▪ Camera Plate: 1/4-20 camera screw with alignment pin ▪ Weight: 4.30 lbs. ▪ Handle: 14" ▪ Finish: Black satin anodized and textured gray lock knobs ▪ Pan/Tilt Action: Preset high viscosity fluid dampening \$295.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA SUPPORT EQUIPMENT/PAN/TILT HEADS



System 35 Tripod/Head/Spreader With Dual Handles

ENG35 Fluid Head

- Load Capacity: (C.G.=5") 30 lbs. ▪ Tilt Angle: +90°/-80° ▪ Pan Rotation: 360° ▪ Height (with ball): 7.50" ▪ Width (less handle): 6.25" ▪ Base (Claw Ball Type): 100mm ▪ Weight: 6 lbs.
- Drag: Variable viscosity system ▪ Lock Devices: Caliper type ▪ Handle Length (each): 14" to 22"



TD35 Tripod

- Load Capacity: 40 lbs. ▪ Minimum Height: 17" ▪ Maximum Height: 68" ▪ Minimum Folded Length: 35" ▪ Minimum Folded Width: 6" ▪ Bowl Diameter: 100mm
- Weight: 7.55 lbs. ▪ Spreader: Pull ring and hook ▪ Leg Lock: Radial compression
- Spikes: Rubber cover pads ▪ Finish: Ultra-hard gray textured with special hardening process on sliding and friction wear areas

System 35 \$4900.00

DOLLIES

DL40 Dolly for Systems 30, 35 and 40

- Widespread studio type dolly (preliminary) \$850.00

DL30 Dolly for Systems 20, 25, 30, 35 and 40

- Load Capacity: 65 lbs.
- Radius: 23" ▪ Wheel Diameter: 5.50" ▪ Folded Length: 25" ▪ Folded Width: 9" ▪ Height: 8" ▪ Weight: 11.50 lbs. ▪ Wheel Bearing: Needle
- Tire: Poly ▪ Finish: Gray satin \$800.00



DL15 Dolly for System 15

- Load Capacity: 45 lbs. ▪ Radius: 22" ▪ Wheel Diameter: 4.50" ▪ Folded Length: 24" ▪ Folded Width: 7.50" ▪ Height: 6.75" ▪ Weight: 9 lbs.
- Wheel Bearing: Ball ▪ Tire: Poly ▪ Finish: Black satin \$395.00

DL3 Dolly for System 3

- Load Capacity: 25 lbs. ▪ Radius: 19" ▪ Wheel Diameter: 3.50" ▪ Folded Length: 20" ▪ Folded Width: 6" ▪ Height: 5.50" ▪ Weight: 7 lbs.
- Wheel Bearing: Ball ▪ Tire: Rubber ▪ Finish: Black satin \$180.00

Tripods

- TD10 With spider and 50mm bowl \$ 260.00
- TD15 With spider and 75mm bowl 475.00
- TD20 With spreader and 75mm bowl 850.00
- TD25 With spreader, 3-stage leg and 75mm bowl 1000.00
- TD30 With spreader and 100mm bowl 1150.00
- TD35 With spreader, 3-stage leg and 100mm bowl 1300.00
- TD35L With spreader, 3-stage leg and 100mm bowl (82"H) . . . 1550.00

Fluid Heads

- HD10 With handle and 50mm ball level \$ 260.00
- HD15 With handle and 75mm ball level 915.00
- ENG20 With telescopic control handle and 75mm ball 1800.00
- ENG30G With control handle and 100mm ball base 3400.00
- ENG30 With telescopic control handle and 100mm ball 3600.00
- EFP40 With dual handles and 100mm ball 4200.00

Accessories

- R15 Handle for HD-15 head \$ 75.00
- R20 Handle, telescopic (second for ENG-20 head) 150.00
- R30 Handle, telescopic (second for ENG-30 head) 150.00

SC Soft Case

- Constructed of 400D nylon Pac-cloth with 1.50" thick medium density peripheral foam inserts ▪ Tripod/head system held in place with velcro straps and a heavy-duty zipper seals the top flap in position
- Equipped with a double handle strap and adjustable shoulder strap for perfect balance

SC-M 8" x 8" x 40" long. Use for Systems 15, 20, 25 and 35 \$275.00

SC-L 10" x 10" x 48" long. Use for Systems 30 and 40 290.00

HC Hard Case

- Constructed of heavy-weight Polyplex in a round configuration with a flat side to eliminate rolling ▪ Basic design utilizes a telescoping top cap with a 3" thick high density foam pad insert and webbed belt/quick release latch to compress the tripod/head system and hold it in place
- Base of tube also fitted with a heavy-duty pad to eliminate penetration
- Carrying handle positioned for proper balance of CSI systems

HC-M 8.50" diameter x 30" to 40" long \$260.00

HC-L 10" diameter x 40" to 50" long 275.00

APT-3DCP2/MVH-2D Remote Control Pan/Tilt Heads

Daiwa motorized pan/tilt systems have been developed for remote control of television cameras when used in security, teleconferencing and tracking applications. These systems can be controlled at great distances by manual joystick, preset shotbox or a combination of both.

Both APT remote control pan/tilt heads are constructed of cast aluminum with coreless drive motors and bronze/steel/polyacatar drives for smooth, quiet camera positioning. Load capacity of both units is 8 lbs.



APT-3DCP2

The MVH-2D is a very compact unit which can be operated by battery or AC power and a manually controlled joystick. This unit can be operated from distances of up to 3000'. Load capacity is 5.50 lbs. at 2 C.G. Constructed of lightweight alloy, the MVH is ideal for low cost security applications.

APT-3DCP2 Pan/Tilt Head

- For both manual joystick and preset control ▪ 3 different pan speeds (tilt is same as 3DCII) can be selected (1° to 15°/sec., 2° to 30°/sec. and 4° to 60°/sec.)

MVH-2D Pan/Tilt Head

- For manual joystick remote control (controller and 22' power cable included) of small camera systems ▪ Both pan and tilt speed adjustable at the joystick controller ▪ Can be mounted on a tripod if desired

APT Specifications

- Installation: Indoor use only (wall or ceiling mount) ▪ Temperature: -5°C to +50°C ▪ Pan Rotation: 260° ▪ Tilt Angle: ±45° ▪ Torque: Tilt: 8.66 lbs./inch (10kg/cm) ▪ Capacity: 8 lbs. (3.64kg) ▪ Voltage: 12VDC
- Amperes: Pan/tilt=max. 270mA ▪ Potentiometer: Pan/tilt =10kQ
- Pan Speed: Voltage adjust (see unit spec) ▪ Tilt Speed: Voltage adjust (see unit spec) ▪ Weight: 3.10 lbs. ▪ Motor: DC coreless

MVH Specifications

- Installation: Indoor use only (tripod or wall mount) ▪ Temperature: 5°C to +50°C ▪ Pan Rotation: 300° ▪ Tilt Angle: ±30° ▪ Capacity: 5.50 lbs. (2.50kg)
- Voltage: Battery 8 x AA or 12VDC 300mA AC adaptor ▪ Pan Speed: 2.0-6.60° sec. ▪ Tilt Speed: 0.70-2.20°/sec. ▪ Weight: Head, 1470 grams (without battery); controller, 450 grams ▪ Power Cable: 22'

APT-3DCP2 Remote pan/tilt head \$1400.00

MVH-2D Remote pan/tilt head with joystick controller 750.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





AUDIO PROCESSING EQUIPMENT

PRODUCTION SERIES

140X Type-II Noise Reduction, 2-Channel

▪ Provides more than 40dB of extra dynamic range with typical limited-bandwidth systems ▪ Ideal for cart machines, telco lines, videotape audio tracks, STLs, etc. ▪ 1 U, 1/2 rack design . . . \$319.00



150X Type-I Noise Reduction, 2-Channel

▪ Provides more than 40dB of extra dynamic range for full bandwidth systems such as studio quality open-reel tape machines, full bandwidth digital recorders, etc. ▪ 1 U, 1/2 rack design . . \$319.00

160XT Compressor/Limiter

▪ Latest generation of the legendary 160X series ▪ Deci-linear dbx VCA ▪ True RMS detection ▪ OverEasy® compression curve ▪ Precision full range input/output and gain reduction metering ▪ Stereo strappable ▪ 1 U, 19" rack space \$459.00



165A Compressor/Limiter With PeakStop™

▪ The original OverEasy limiter with both automatic and user selectable attack and release ▪ Precision expanded scale analog RMS metering ▪ Deci-linear dbx VCA ▪ True RMS detection ▪ PeakStop peak blocking ▪ Stereo strapable ▪ Standard 2 U, 19" rack space \$1299.00

166 Dual Compressor/Limiter With Dual Gate

▪ Compact ▪ High performance dual compressor system provides 2 independent channels, each combining dbx OverEasy compression ▪ PeakStop peak blocking and a soft knee expander gate ▪ Front panel selection of stereo or dual-mono operation ▪ Standard 1 U, 19" rack space \$499.00



172 SuperGate™

▪ Uses 24dB/octave voltage controlled filters (VCFs) to allow selective isolation of signal requiring gating ▪ Filter controls are parametric and control range optimized to speed setup ▪ Transient Capture Mode™ (TCM) uses a precision linear-phase all-pass filter to insert 0.3ms of delay in main signal path, allowing the 172 to capture the leading edge of complex transient wave-forms ▪ Features a dedicated Expander Ratio control which has been scaled to contain only useful values for faster, repeatable setup ▪ OneShot™ mode enables the 172 to create consistent note length from irregular drum hits ▪ High resolution, easy-to-read LED display adds to ease of operation \$869.00

760X Dual Microphone Preamplifier

▪ Provides 2 channels of high performance microphone preamplification ▪ Typical applications include direct-to-DAT or sampler recording, field recording ▪ Performance upgrade for existing microphone preamplifier stages in a mixer ▪ Transparent circuitry is flat +0, -0.15dB from 20Hz to 20kHz ▪ Bandwidth of 2Hz-200kHz ▪ Each channel provides standard professional mic preamp features including gain trim, polarity reverse, 48V phantom power and overload indication ▪ 1 rack high, 1/2" rack wide ▪ Includes hardware necessary for mounting in standard EIA 19" rack . . \$319.00



1024 Dual Buffer Amplifier

▪ For properly interconnecting pieces of audio equipment that use different operating levels (-10dBV, +4dBu, +8dBu, etc.) ▪ Typical applications include connecting studio level effects processors to -10 consoles and connecting consumer tape or CD players to professional consoles ▪ Features direct-coupled, servo-stabilized gain stages with a distortion specification of 0.005% and an effective bandwidth of 0.15Hz to 200kHz, flat ±0.25dB from 20Hz to 20kHz ▪ Cross-coupled transformerless XLR output stages will drive +25dBu signals into 600W and will drive any load, including a short circuit, indefinitely with maximum input signal applied ▪ All outputs are individually adjustable via brass shafted front panel trimmers and monitored for clipping by a front panel clip indicator ▪ Includes a switch selectable by buffer mode in which XLR inputs are routed to XLR outputs as well as the IHF outputs \$239.00



163X Compressor/Limiter

▪ Single-channel compressor/limiter with 1 slider for control of all key parameters ▪ High gain input on front panel with level trim ▪ Expanded LED display for monitoring compression ▪ Strapable with another 163X for stereo compression for stereo gating or stereo compression ▪ 1 U, 1/2 rack design ▪ Rackmounting hardware included \$169.00

263X De-esser

▪ De-esser with switchable high frequency or broadband filters ▪ 1 knob adjustment for rapid setup ▪ 12-segment display indicating sibilance reduction ▪ Front panel high-Z mic input with gain trim ▪ 1 U, 1/2 rack design ▪ Rackmounting hardware included . . \$169.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO PRODUCTION EQUIPMENT



DIGITAL
PROCESSING SYSTEMS INC.



DPS-295 TBC/Transcoder

- Chroma noise reduction ▪ Edge enhancement ▪ Adaptive comb filter
- AutoDOC-3D dropout compensation ▪ Digital effects ▪ Digital proc amp controls ▪ Remote control ▪ 6MHz frequency response in all modes including HET ▪ 3 selectable inputs: NTSC, S-Video and U-Matic dub ▪ 48 component/composite test patterns from built-in test signal generator
- 4 simultaneous output formats: composite video, S-Video, U-Matic dub and CAV (Betacam or MII) ▪ Optional waveform/vectorscope display with line select ▪ Digital effects include strobe, sepia, solarization, black stretch and posterization ▪ Exclusive AutoDOC-3D dropout compensation circuit ▪ Corrects multi-generation dropouts ▪ Freeze frame and freeze field with GPI control \$5495.00

DPS-290 Component Transcoding TBC/Synchronizer

- Betacam/MII CAV inputs/outputs ▪ S-Video inputs/outputs ▪ Single and dual channel configurations ▪ 3-line adaptive comb filter ▪ Component 4:2:2 processing ▪ Compatible with RC-2000/2001 remote ▪ Film mode strobe effect ▪ Ideal for inter-format editing and duplication ▪ True luminance bandwidth greater than 5MHz ▪ Can be used as a frame synchronizer ▪ Synchronizes camera and satellite feeds ▪ Special effects include freeze frame, freeze field, variable strobe and color balance ▪ 10-event scene memory ▪ Composite, Y/C and component analog video inputs/outputs ▪ Optional digital recursive noise reduction and 3-D drop out compensation available

DPS-290 Single channel version \$2995.00

DPS-290D Dual channel version 4995.00

DPS-285 Sync and Test/Signal Generator

- 10-bit master sync/test signal generator with 32 digital test patterns, full-time SMPTE color bars, audio tone and 24-character source ID ▪ Sync pulses generated: blackburst, composite blanking, 4 outputs, subcarrier selectable color/super black ▪ Composite sync audio signals generated: 50Hz, 400Hz, 1kHz, manual or auto increment ▪ 5kHz, 9kHz, 15kHz 0dBm or +4dBm ▪ 600 ohms balanced out ▪ 24-character I.D. ▪ Keyable over any test pattern ▪ Test signals and color bars can be timed independent of sync drives \$2995.00

DPS-265 Universal Synchronizer

- 4-field synchronizer ▪ Built-in TBC ▪ Automatic mode switching ▪ Direct tape playback from color under VTRs ▪ 6MHz bandwidth ▪ Digital adaptive comb filter ▪ Digital test signal generator and VITS inserter ▪ Composite signal processing ▪ Infinite synchronizing range \$5495.00

DPS-245 Framestore/Synchronizer

- Capability of 4 framestores ▪ Single loophrough video input ▪ Separate preview output channel ▪ Ideal graphics store ▪ 4 RS-170A video output channels ▪ View any of 4 main channels ▪ Digital proc amp controls with 10 presettable memories ▪ 6MHz bandwidth ▪ RS-232 and RS-422 remote control capability ▪ Signal processing composite 8-bit at 4 x fsc ▪ Infinite synchronizing range \$6495.00

DPS-235 Component TBC/Synchronizer

- S-Video inputs and outputs ▪ Single and dual channel configurations ▪ 3-line adaptive comb filter ▪ Component 4:2:2 processing ▪ Compatible with RC-2000/2001 remote ▪ Film mode strobe effect ▪ IBM PC and Amiga control software ▪ GPI freeze trigger ▪ Advanced sync output ▪ Ideal for all tape formats ▪ True luminance bandwidth greater than 5MHz ▪ Can be used as a general purpose video synchronizer ▪ Special effects include freeze frame and freeze field ▪ 3-event scene memory

DPS-235 Single channel version \$1995.00

DPS-235D Dual channel version 3495.00

DPS-220 TBC/Synchronizer

- Frame synchronization in all modes ▪ 6MHz frequency in all modes ▪ Component processing with advanced digital comb filter ▪ Single function front panel proc amp controls ▪ Optional AutoDOC-3D DOC corrects multi-generation dropouts ▪ Freeze frame and freeze field with GPI control ▪ Compatible with all VCRs ▪ Advanced sync and subcarrier supports U-Matic direct mode ▪ Synchronizer mode locks to incoming burst \$2995.00

DPS-210 Universal Transcoder

- Transcodes virtually any video signal into any other video signal ▪ Can handle S-VHS, U-Matic, RGB and RGB with separate sync, as well as MII

and Betacam ▪ Input signals: Y/C 3.58MHz; Y/688kHz; Y, R-Y, B-Y; analog RGB sync ▪ Output signals: Y/C 3.58MHz; Y/688kHz; Y, R-Y, B-Y; analog RGB sync ▪ NTSC composite output ▪ 5.5MHz (-1dB) bandwidth; 60dB S/N ▪ Front panel level controls with preset switch and NTSC monitoring point ▪ 19" rackmountable \$1495.00

DPS AES-2400 Stereo Audio Delay/Synchronizer System

- Compact rackmount frame provides power and independent control for 1 or 2 DPS AS-2400 Audio Synchronizer cards ▪ AS-2400 offers up to 334ms (20 NTSC fields) of audio delay and can easily compensate for errors caused when a video signal passes through multiple frame synchronizers or other digital processors ▪ Transparent operation provided by 16-bit, 44.1kHz audio processing ▪ Accommodates balanced and unbalanced signals ▪ Built-in tone oscillator ▪ Variable noise gate ▪ Compressor/limiter ▪ 2 low pass filters, 1 high pass filter ▪ In auto track mode, AS-2400 can provide 1-16 fields of additional fixed audio delay to compensate for lip sync errors upstream of your facility ▪ Single and dual channel configurations

DPS AES-2400 \$2090.00

DPS AES-2400D Dual channel version 3495.00

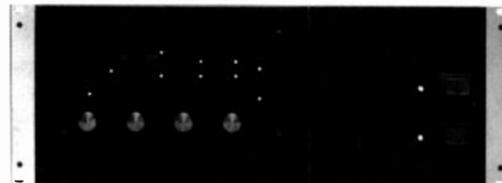


AVS-2400 MicroSYNC AV Audio/Video Synchronizer

- Combines in 1 compact chassis the VS-2400 4-field video synchronizer and the AS-2400 stereo digital audio synchronizer ▪ Freeze frame ▪ Freeze field ▪ Variable strobe ▪ Compatible with direct color and monochrome sources ▪ Full video bandwidth ▪ Transparent signal quality ▪ Selectable black clip ▪ Choice of clamping speeds ▪ Full proc amp controls ▪ Nonvolatile setup memory \$3495.00

RC-2001 Master Control

- Programmable multi-channel, multi-location controller ▪ Provides RS-232 and RS-422 inputs/outputs ▪ Oversized backlit alphanumeric LCD labels functions of the 4 precision rotary shaft encoders ▪ Flash ROM technology \$850.00



ES-2000C 12-Channel Expansion System

- 4U rack chassis ▪ Includes power supply and RC-2000 front panel controller ▪ Will accept any combination of up to 12 Personal Series cards, or up to 9 Personal Series cards and 3 ISA bus computer cards ▪ Optional redundant power supply \$1495.00

ES-2200 Dual-Channel Expansion System

- 1U rackmount chassis for single or dual TBC or MicroSYNC cards ▪ Includes power supply, front panel controls and serial port . . . \$595.00

DPS-750 Color Corrector

- 99-event memory stores all front panels ▪ Remote control panel communicates with electronics unit via RS-422 link ▪ Available in NTSC and PAL formats ▪ Clear mode resets all values to zero to return unit to factory default state ▪ Up to 7 levels of luminance can be controlled ▪ Bypass mode maintains panel settings ▪ GPI trigger input ▪ Numeric LED displays show: saturation level, black stretch/crush levels, luminance level, chrominance level ▪ Individually graduated hue controls permit clear visual monitoring ▪ Component and composite versions available ▪ 5.5MHz frequency response \$8995.00

DPS-710 Color Corrector

- Composite, component, Y/C video I/O ▪ RGB color correction of white, black and gamma ▪ Setup, black stretch, luminance and chrominance controls ▪ On/off split screen correction display ▪ External key input ▪ RS-422 serial control \$5495.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VT-2600 Personal TBC IV TBC Card

- True 4:2:2 component processing
- S-Video input/output
- CVE™ (Component Video Exchange) port
- By connecting the CVE port to a DPS Personal Animation Recorder card, you can capture and record real time video on the dedicated hard drive
- 2-card combination is ideal for performing roto-scoping and other video capture processes
- Software controlled color balance
- Freeze field/frame
- Film effect strobe mode
- Forced mono
- Chrominance comb filter
- Color black generation mode
- Video monitor output for RS-2800
- Optional Betacam/MII output
- Optional comb filter input decoder
- Software genlock termination
- Plugs into any IBM PC compatible or Amiga 2000/3000/4000 series computer

\$999.00

VT-2500 Personal TBC III® TBC Plug-in Card

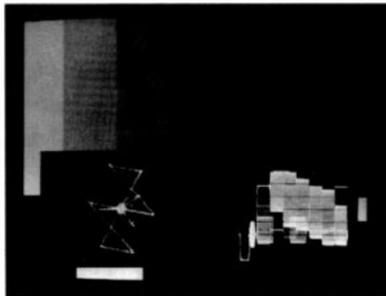
- Both composite and S-Video (S-VHS or Hi8®)
- Interfaces virtually any VCR, laserdisc player or camcorder to production switchers or computer video systems
- Rock solid freeze field and freeze frame
- Variable strobe
- Forced monochrome
- Plugs into any IBM PC® compatible or Amiga® 2000/3000/4000 series computer or in a DPS expansion system
- All video proc amp functions, system timing, scene memories and even color balance can be adjusted with DPS Personal Series software
- Optional hardware control

\$850.00

VM-2000 Personal V-SCOPE Plug-in Card Waveform/ Vectorscope

- Produces a digitally synthesized waveform monitor and vectorscope display which can be superimposed onto any video signal
- Includes control software
- Any NTSC video signal may be input
- Provides a buffered video output
- Superimposed (software controlled) video output
- Full-time waveform/vector video output
- Waveform, vector or dual display modes
- 6MHz bandwidth
- Accuracy >1%
- Hardware rasterizer for real time display update
- Dedicated full-time output
- Superimpose display over live video
- Displays video signal level
- Graticule calibrated in IRE/mV scales
- 2H and 1H display modes
- Switchable low pass filter
- Displays color component signals
- Graticule targets for color
- Bar test signal
- Linear quadrature decoder
- Amiga/IBM PC compatible RS-232 control

\$995.00



VDA-1000/1050 Personal VDA Plug-in Video Distribution Amp

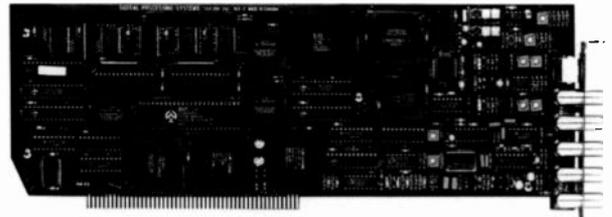
- PC-based video distribution amplifier capable of driving four 75 ohm terminated loads from 1 video input
- Plugs into Amiga 2000/3000 series computer, NewTek Video Toaster Workstation or IBM compatible (ISA bus) computer
- Video input is AC coupled and features a switchable 75 ohm internal termination
- Tape duplication—increases picture detail and lower video noise by eliminating the effects of cascaded VCR amplifiers
- Distribute genlock reference signal to multiple devices
- Expand the number of program outputs
- Increase isolation between devices by eliminating loopthroughs
- IBM and Amiga bus versions available

VDA-1000 IBM bus **\$150.00**
VDA-1050 Amiga (Zorro bus) **150.00**

DR-2100 Personal Animation Recorder

- Permits recording and real time playback of full color computer animation sequences from a hard drive
- S-Video, NTSC and CAV (Betacam®/MII®) video outputs
- >5.5MHz video bandwidth
- >60dB S/N
- Variable speed playback
- Genlock loopthrough input
- Random access still frame retrieval
- Archive using standard tape backup software
- Produce unlimited first generation tape dubs
- Eliminates bad edits, missed frames, dropouts and other mechanical glitches
- Plugs into a 16-bit ISA expansion slot in any IBM compatible PC

..... **\$1995.00**
2205A 542M byte hard drive **1200.00**
2210A 976M byte hard drive **1380.00**
2217A 1.626G byte hard drive **1865.00**



DR-2150 Personal Animation Recorder

- Records computer animation sequences directly to a hard drive and then plays them back in real time
- Variable speed 24-bit animation playback
- Genlock input
- MHz video bandwidth
- 60dB S/N
- Random access still frame retrieval
- Archive with standard tape backup software
- Betacam/MII component analog video output
- Record unlimited first generation tape dubs
- For Amiga computers
- Replaces both the animation record VCR and the single frame controller

..... **\$1995.00**
2205A 542M byte hard drive **1200.00**
2210A 976M byte hard drive **1380.00**
2217A 1.626G byte hard drive **1865.00**

DC-2350 Personal Component Adaptor

- Adds S-Video (Y/C) input/output to the NewTek Video Toaster
- 2 S-Video outputs
- Switchable Betacam/MII component option
- 3 S-Video inputs
- Requires no software
- Luminance bandwidth -3dB at 5.5MHz
- 3-line adaptive comb filter Y/C separator
- All inputs can also be configured for composite

..... **\$499.00**

RC-2000 Personal Series Remote Control

- For DPS-230/235, Personal TBC (II, III, IV), V-Scope and MicroSYNC cards and DPS expansion systems
- Convenient desktop package
- Controls up to 8 TBCs or cards
- Nonvolatile setup memory
- 1-cable serial connection

..... **\$299.00**

PPC-2000 Personal Protocol Converter

- Parallel to serial converter which enables the internal TBCs in Sony VCRs to be controlled with DPS software or remote control units
- Connects up to 8 TBCs to a single RC-2000
- Ideal for use with Sony UVW Series of Betacam VCRs

..... **\$300.00**

RS-2800 Video Routing Switcher

- 4 x 1 + 8 x 1 composite routing switcher
- Vertical interval switching
- Addressable RS-232 control
- 9600 and 31,250 baud data rates
- 8 x 1 operable with ES-2000 expansion system only
- Plugs into IBM compatible and Amiga computers
- BNC connectors for 4 x 1 video switching

..... **\$295.00**

VS-2400 MicroSYNC™ Video Synchronizer Card

- 4-field composite processing for truly transparent performance
- Clean, stable, wideband NTSC video
- Selectable frame and field freeze
- Variable strobe
- Digitally controlled proc amp with nonvolatile memories
- Hot-switching capability
- Color and monochrome modes
- RS-232 serial interface
- Ideal for synchronizing satellite, ENG and remote camera feeds
- Fits any IBM compatible PC

..... **\$1495.00**

AS-2400 Stereo Digital Audio Synchronizer Card

- 16-bit, 44.1kHz digital audio processing
- Compensates for up to 20 fields of video delay
- Can provide a fixed audio delay, auto track the delay through the companion VS-2400 video synchronizer or perform a combination of both
- Built-in audio oscillator
- Noise gate
- Stereo and mono modes
- Transparent quality
- High pass filter
- Built-in compressor

..... **\$1495.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



12VM1051 12" Black and White Monitor

▪ 20MHz bandwidth ▪ 1000 lines horizontal resolution ▪ Carrying handles ▪ Switchable underscan standard ▪ Time-lapse VTR capability ▪ Rugged, heavy-duty single chassis construction ▪ 100% solid-state circuitry ▪ Regulated power supply ▪ Fast AFC circuit ▪ Metal cabinet ▪ 10.47" x 11.57" x 12.01" = 18 lbs.



12VM1051 \$365.00
 12VM1051 Green 05/Amber 06 365.00

9VM1031 9" Black and White Monitor

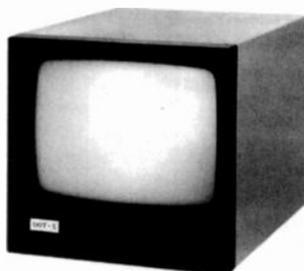
▪ General purpose 9" monitor ▪ 1000 lines horizontal resolution ▪ Convenient up-front operating controls ▪ Simplified service adjustments ▪ Time-lapse VTR capability ▪ Heavy-duty single chassis construction ▪ 100% solid-state circuitry ▪ Fast AFC circuit ▪ Regulated power supply for stable operation ▪ Switchable underscan standard ▪ 7.95" x 8.82" x 11.02" = 13.5 lbs.



9VM1031 \$355.00
 9VM1031 Green 03/Amber 04 355.00

DXM1211B/911B Black and White Monitors

▪ Automatic Horizontal Scan Rate: 15.75kHz to 36kHz with automatic size control through entire range ▪ Automatic Vertical Sweep Rate: 47Hz to 90Hz ▪ CRT Maximum Displayed Resolution: 850 x 700 ▪ Video Bandwidth: 30MHz (±6dB) ▪ Geometric Distortion: H and V ±7% (5% typical) ▪ Linearity: <2% mid range ▪ Composite Differential Video: 0.5 to 2.0V p-p ▪ BNC: Looping input with switchable 75-ohm or Hi-Z ▪ Cabinet: Antimagnetic shielding, rugged steel case (beige standard/black optional) ▪ Power: 120VAC ±10%, 50/60Hz ▪ Agency Approvals: UL 478



CRT Characteristics

▪ Phosphors: White, green and amber are standard (others optional)

DXM1211B (12")

▪ Resolution: 850 lines ▪ Deflection Angle: 90° ▪ Viewable Area: 6.25" x 8.75" ▪ Antiglare: Direct-etched ▪ 21 lbs. \$650.00

DXM 911B (9")

▪ Resolution: 800 lines ▪ Deflection Angle: 90° ▪ Viewable Area: 4.75" x 6.75" ▪ Antiglare: Direct-etched ▪ 14 lbs. \$636.00

Note: Monitors are designed to accept composite video inputs simulating signals described in EIA standards RS-170, RS-343 and RS-375.

DVG27 27" Color Monitor

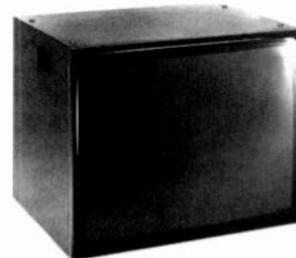
▪ High resolution 27" monitor ▪ Specifically for continuous duty applications ▪ 650+ lines resolution ▪ 26.0~S-Video period ▪ 100°, 76mm dot pitch center screen ▪ 30MHz bandwidth ▪ RGB analog

with separate TTL syncs ▪ HD DB-15 receptacle ▪ 31.50kHz ±1.0kHz ▪ 19.12"H x 24.12"W x 18.4"D ▪ 105 lbs. ▪ Steel cabinet ▪ Optional HARC (Handheld Addressable Remote Control) allows the operator to remotely align individual monitor independent of others within a group of monitors

DVG27 \$1750.00
 DVG27 With HARC 1900.00
 HARC 125.00

DSV Series Stackable Color Videowall Monitors

▪ Horizontal Scan Rate: 15.75kHz ±500Hz ▪ Vertical Sweep Rate: 60Hz ±5% ▪ Video Bandwidth: 10MHz (-3dB) ▪ Video Input: color NTSC (525 lines) Resolution: over 500 lines ▪ RGB Input: analog with separate sync (standard); analog with sync on green (optional); digital TTL (optional) ▪ External Controls: brightness, contrast, saturation, hue (NTSC), vertical hold, sharpness ▪ Input Connectors: subminiature DB 9-pin for RGB analog input (standard) ▪ BNC-NTSC video input loopthrough 75-ohm or Hi-Z switchable ▪ 25-pin D connector for analog video, RGB video, H and V sync (optional) ▪ BNC video input RGB analog (optional) ▪ Video input switch RGB or NTSC (standard) ▪ CRT Sizes: 1) 20", 90° 0.68mm dot pitch, 2) 25", 100° 0.84mm dot pitch, 3) 27", 100° 0.76mm dot pitch



DSV20 15.0"H x 18.31"W x 17.125"D (steel) \$ 995.00
 DSV25C 17.69"H x 23"W x 17.86"D (steel) 1100.00
 DSV27 19.12"H x 24.12"W x 18.4"D (steel) 1300.00
 DSV27 With optional HARC infrared remote 1450.00

DSV20 20" Super VHS High Resolution Color Video Monitor (Tabletop)

▪ More than 550 lines resolution ▪ RGB analog 1.0V p-p nominal; 0.5 to 1.5V p-p acceptable, negative going black (each of 3 inputs) sync on green, self-terminating ▪ S-Video: Y signal; 1V p-p C signal; 0.285V p-p, 75-ohm or high impedance (manual) mini-DIN 4-pin type connector ▪ Looping S-VHS ▪ Composite NTSC 1.0V p-p, 75-ohm or high impedance (manual) looping BNC connectors 47 lbs. ▪ 19 1/2"H x 19 1/8"W x 19 1/8"D = 47 lbs. ▪ Audio: Unbalanced 3W ▪ Power Source: 120VAC, 60Hz



DSV20 Plastic cabinet \$689.00

DTC Series Color Monitors

▪ Designed specifically for continuous duty applications ▪ Available in 3 versions: CGA, EGA and VGA ▪ Dependable, solid-state circuitry ▪ Antimagnetic shielding ▪ Steel cabinet ▪ 10" CRTs, 90° .28mm dot pitch ▪ 34" square viewing area ▪ CRT maximum displayed resolution: 560 x 430 ▪ Resolution: 640 x 200 (CGA); 350 x 350 (EGA); 640 x 480 (VGA) ▪ 30MHz video bandwidth ▪ 60Hz vertical sweep rate ▪ Horizontal scan rate: 15.75kHz (CGA); 21.85kHz (EGA); 31.5kHz (VGA) ▪ 8.8"H x 10.31"W x 11.82"D = 21 lbs.

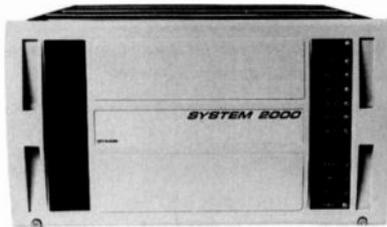
DTC1011 CGA, EGA or VGA monitor \$965.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**System
2000/Series 36
Routing Switchers**

- Common Features**
- Composite broadcast quality or HDTV and 120MHz bandwidth
 - Positive crosspoint actuated switch closure and status verification
 - Optional redundant system controllers with auto-changeover
 - Critical-function alarm system
 - Large salvo storage in internal non-volatile memory
 - 8 levels of independent control
 - Permanent power failure memory protection—instant recovery
 - "Hot-change" modules
 - Destination locking/source restriction capabilities
 - Self-test and diagnostics for controller, power supplies, cooling, switch and output modules
 - Positive cooling with plug-in temperature-controlled cooling module
 - Supports up to 198 remote control panels directly
 - Up to 560 control panels with comm-line expanders
 - Switchable reference for system master clock



- Additional features with control console or external control computer and software:**
- Remote control via external serial or Ethernet port
 - Source preview-before-take
 - MS DOS® based console program with pop-up windows, pull-down menus and full status screens
 - Store, recall and execute salvos
 - Unlimited salvo storage
 - Pre-program salvo configurations and execute at predetermined time
 - Dynamically mapped virtual matrix configuration
 - Logging of system activity
 - Password protection
 - Text message ability to control panels and other remotes

System 2000 Routing Switcher System

- Includes common features plus:
- High crosspoint density
 - Easily configured or partitioned to various component video systems
 - Compatible with existing DYNASTY installations
 - Optional 2 or 4 channel output monitor switcher
 - Numeric or alphanumeric controls
 - Precision vertical internal switching on synchronous signals
 - Configures to more than 1000 x 1000

Series 36 Video/Audio Routing Switcher System

- Includes common features plus:
- Ultra compact—complete 36 x 36 video switcher with controller in 3 RUs (stereo audio in 6 RUs—864 crosspoints per RU)
 - Easily configurable to various component video systems within 1 frame: 2—Level 18 x 18 matrix for Y/C; 3—Level 12 x 12 matrix switcher for RGB, GBR, or Y(R-Y) (B-Y) or YUV; 4—Level 9 x 9 matrix for RGB + S
 - Front mounted master control panel available
 - True salvo capability—all channels switch simultaneously
 - Stereo or monaural audio and time code signals
 - Stereo audio matrix has dual channels
 - Single or redundant power supplies available
 - Switch module provides 2 independent signal paths, requiring only a single audio switch module to route both L and R or 2 audio channels
 - Input amplifiers provide high impedance bridging of the input signal and are balanced to provide high common-mode rejection over the full bandwidth of the system
 - Output module provides 36 pairs of 600 ohms balanced destination buses
 - Amplifier will withstand an indefinite short in the output circuit at maximum output signal level
 - Inputs and outputs connected to the switcher through compression terminal connectors and consists of a balanced audio pair and signal ground
 - Normal speed and high speed shuttle time code can be switched using standard audio switch output modules

DYNA MITE Routing Switchers

- 10, 20 or 30 inputs and 10 outputs (20 x 20 available also)
- Video, audio or video/audio configurations
- Expands to the DYNASTY
- 40MHz bandwidth video (Hi-res 70MHz available)
- Local, remote or computer controlled
- Maintains DC output level for composite, non-composite or scrambled video
- Vertical interval switching
- No active components mounted on frame
- Alphanumeric or numeric control

Digital X Serial Digital Routing Switcher

- Switches up to 400M bytes serial digital signals
- Handles all types of digital TV signals
- Video inputs automatically equalized to 300 meters of coaxial cable
- Vertical interval switching
- Compact 2 RU frame
- Optional AES/EBU audio channels with breakaway
- Optional fiber optic inputs/outputs
- Dual fan positive cooling
- Control via front panel or external computer serial port

Genesis Digital Interface/Conversion Equipment

- Modular line of digital interfacing and conversion equipment (6000 Series)
- Stand-alone version also available (8000 Series)
- Includes 8- and 10-bit analog to digital and digital to analog converters
- Engineered for broadcasters and video facility operators
- Converts the full range of component and encoded analog signals to and from the several digital formats in current use
- Features a full line of audio conversion equipment, including a serial digital audio multiplexer which combines asynchronous AES/EBU digital audio with serial digital video signals
- Fiber optic transmitters and receivers allow full bandwidth signals to be transmitted distances of over 31 miles
- Housed in a space-saving 1, 3 or 4 rack unit frame
- 6 compact modules can be housed in a single rack unit frame
- Upgradable as new interfacing and conversion requirements emerge
- Optional backup power supplies and visual warning displays

DYNOPTICS Fiber Optic Video Systems

- Video
- Audio
- Data
- Multi-mode
- Wideband RGB
- Teleconferencing
- Studio to transmitter links
- Video education systems
- Studio video distribution
- Closed circuit television

DYNA-Mux Audio/Video Multiplexer

- Truly high performance specifications for top broadcast quality audio and video
- Available in both coax and fiber interfaces for a choice of transmission paths
- Audio channels mute at loss of signal to prevent unwanted noise blasts
- LED indicators
- FM carriers are phased locked to the video sync for assurance that any FM modulator will talk to any FM demodulator
- Up to 10 sending and receiving ends housed and powered in 2 RU
- Compact design places all active elements of either a sending or receiving end on 1 PC card which can be housed in either a rackmounting or desktop configuration for system flexibility

DYNA-View Fiber Optic Video Links

- Provides extremely high quality performance
- Use of proprietary circuit design, in conjunction with LEDs and PIN detectors
- Provides superior linearity and frequency response without sacrificing MTBF or system cost
- Designed for easy, rapid installation and system reconfiguration
- Upgrades are simple and low cost
- Standard availability of test and calibration parts enables full system test and performance verification without the need for expensive optical test equipment
- Single mode or multi-mode

HYPER-Link Wideband Video Links

- Highest S/N = 800nm and 1300nm version for maximum bandwidth and distance
- Transparent to any workstation, including SUN, SGI, DEC and HP
- Use same link for baseband, HDTV, wideband and serial digital D1/D2/D3/DS3
- Series 1200 rackframe for 12 channels in 1 RU can also be used as fiber/coax DA
- Series 450 desktop enclosure includes full duplex data for keyboard and mouse

DATA-Link Fiber Optic RS-232/422 Mux-Transceivers

- Up to 4 channels of RS-232 or 2 channels of RS-422 muxed onto 1 fiber, user selectable
- Data rate of up to 19.2Kbps, per channel
- Full duplex/bi-directional transmission of all channels over 1 fiber
- Available in Series 1200 1 RU, FR-450 desktop and stand-alone enclosures
- Full communications for camera control
- DC power available for remote powering of keyboard and other devices

**Distribution Amplifiers Series
5300/3100/1500/1200**

- Available for all applications
- 30-150MHz
- Modular
- Fiber and coax mix and match

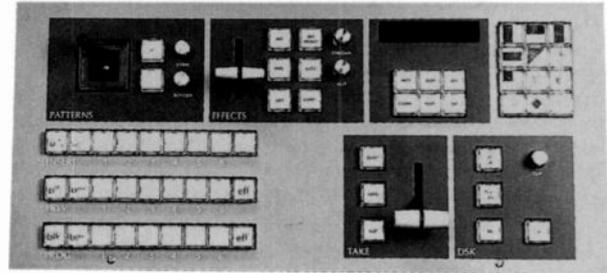
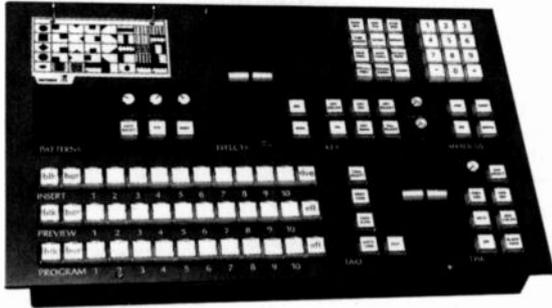
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PRODUCTION SWITCHERS



ECHOLab, Inc.



MVS Series Video Switchers

- Flexible key bus routing with up to 5 layers
- Mix and match modules to make 6 different switchers
- 13 video inputs, including black, background and disk fill
- Optional RGB transcoding on inputs 9 and 10
- 6 linear key inputs plus optional chromakey
- Non-volatile event memories and optional full edit control
- Optional rotary and clock wipes
- Available in composite, Y/C and component analog formats
- NTSC and PAL versions, full broadcast specifications

Common Specifications

- **Video Inputs:** 13 video inputs, including black and color background, 1 DSK fill input
- **Key Inputs:** 6 key inputs, KEY 1-5 and CGEN, 1 RGB chromakey input (optional)
- **Colorizers:** 3 independent, digitally programmable colorizers, (1) background, (2) border and (3) DSK
- **Genlock Input:** Genlock video source, looping impedance, blackburst or composite video, 1V p-p
- **Video Outputs:** 1 preview (matching the input format), 2 program (matching the input format), 1 dedicated composite preview, 1 dedicated composite program, 3 composite blackburst
- **Tally Connections:** 10 short-to-ground transistor outputs
- **Data:** One 9-pin D connector for RS-422 link to edit controller, one 9-pin D connector for tally connections, one 9-pin D connector for 4 GPI inputs and 2 GP outputs

The Modular Video Switcher series builds on the DV-5 and SE-6 video switchers. Start with the MV55 and 1 video board for a powerful composite switcher. Add another video board at any time and upgrade to Y/C. Add a third video board for component analog. Upgrade from the MV55 to the MVS6 simply by replacing control panels.

MV55-1W	MVS series production switcher, composite, 1½ M/E	\$ 9,995.00
MV55-2W	MVS series production switcher, Y/C, 1½ M/E	11,900.00
MV55-3W	MVS series production switcher, component, 1½ M/E	13,900.00
MV56-1W	MVS series production switcher, composite, 2½ M/E	15,900.00
MV56-2W	MVS series production switcher, Y/C, 2½ M/E	17,900.00
MV56-3W	MVS series production switcher, component, 2½ M/E	19,900.00

Options

RGB-5	RGB chromakey generator	\$1,650.00
SMPTE-5	SMPTE serial interface to editors	1,500.00
EXT-5	Extender card	300.00
MEX-51	Memory expansion	500.00
RWP-51	Rotary wipes	900.00
INS-51	RGB inputs on 9 or 10 (each)	500.00
POP-6	Programmable output program	1,000.00

DV-7 Production Switcher

- 8-input, 1 mix-effects
 - Built on single PC card
 - Packaged in 2 RU chassis, with separate 5 RU control panel
 - Control panel remoteable up to 1000' on single coax cable
 - Chassis features automatic computer calibration, which obsoletes your resident technician
 - 16-character alphanumeric display guides user through operations such as digital color entry and use of commands which allow seldom-used functions such as key reverse or key softness to be performed
 - Internal background and black as well as 3 color generators
 - 3 video buses
 - 24 wipe patterns including circle
 - SMPTE link editing facility
 - 2 linear keyers
 - Wipe patterns have soft and bordered edges, and pattern travel compensated by computer for low (<5%) deadband for frame-accurate edits
 - Take section allows mix or pattern take-to-preview
 - Downstream key generator provides filled or colorized keys with 2 external key selections as well as fade-to-black function
 - RGB chromakey card is optional
 - NTSC or PAL versions are available
 - Panel lights tally on-air source with high brightness, and you can write your own source name for bus switches. These names are displayed when the corresponding bus switch is pushed
 - Edit control interface optional
- | | | |
|---------|----------------------------------|------------|
| RGB-7 | Chromakey | \$5,995.00 |
| SMPTE-7 | Serial interface to most editors | 995.00 |

DV-7C Y/C Production Switcher

Same as DV-7 plus:

- Inputs are normally Y/C, but Y/C and composite sources may be intermixed if the composite output only is used
- The Y/C output will have no C component when composite inputs are selected
- 26 wipe patterns

 \$8,500.00

PC-3 Broadcast Quality Video Switcher on an IBM Card

- Can combine 3 composite video sources, internal black and 2 keys using 4 linear multipliers
 - Windows® based switcher
 - On-board computer
 - Mix/wipe/key effects
 - Downstream keyer
 - NTSC/PAL
 - 24 wipe patterns
 - Optional RS-422 serial interface handles SMPTE-standard edit control functions
 - Optional interface emulates most functions of the GVG-100 protocol, which is available with most serial interface edit controllers
 - Interface is via a standard 9-pin D type female connector at 38,400 bps
 - Requires synchronous, time base corrected inputs
 - For A/B roll editing applications, 2 VTRs with built-in or external time base correction are normally used and the DSK may be used for adding titles from a character generator or adding digital video effects
 - RS-422 serial interface
- \$1,500.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Electro-Voice®
a MARK IV company



MICROPHONES

RE55 Dynamic Omnidirectional Microphone

The RE55 is a dynamic omnidirectional microphone designed for the most demanding professional applications. Ideal for boom or stand mounting in recording and broadcast use, it is excellent also for close-up handheld use in stage and interview situations.

Specifications

- Frequency Response: 40-20,000Hz
- Impedance: Lo-Z (150 ohms)
- Output: -57 (0dB=1mW/10 dynes/cm²)
- Diaphragm: Acoustalloy®
- Case: Steel
- Finish: Fawn beige micomatte
- Size 10.5" L x 1.22" major dia. x 0.75" shank dia.
- Weight: 8.5 oz. without cable
- Cable: 15', 2-conductor, shielded, rubber jacketed, broadcast type with Switchcraft A3F connector
- Included: 310A clamp and vinyl pouch

RE55 \$359.00



RE50 and RE50/B Shockproof Dynamic Omnidirectional Microphones

The RE50 was designed expressly for handheld news gathering work. It has the same tailored frequency response and high output level as the 635A.

Specifications

- Frequency Response: 80-13,000Hz
- Impedance: 150 ohms
- Output: -55dB
- Diaphragm: Acoustalloy
- Case: Aluminum
- Finish: Fawn beige micomatte or black
- Size 7 3/4" long; 1 1/8" max. dia.; 1" shank dia.
- Weight: 9 1/2 oz.
- Cable: 15', Switchcraft A3F conn.
- Included: 301A clamp, metal carrying case

RE50 Fawn beige finish \$230.00

RE50/B Black finish 230.00



RE27N/D Variable-D N/DYM® Dynamic Cardioid Microphone

- Frequency Response: 45-20,000Hz
- Impedance: 150 ohms balanced
- Sensitivity, Open Circuit Voltage: 3.1mV/Pascal at 1000Hz
- Power Level: -51dB at 1000Hz (0dB = 1mW/Pascal)
- Hum Pickup Level: -130dBm typical at 60Hz in a 1m OE field
- Magnetic Circuit: N/DYM magnet in a non-welded circuit
- Phasing: Pin 2 is positively referenced to Pin 3 with positive pressure on diaphragm
- Case: Steel
- Length: 8.53"
- Widest Diameter: 2.14"
- Body Diameter: 1.94"
- Finish: Satin nickel
- Weight: 1 lb., 9 oz. without cable
- Cable: 15' 2-conductor, shielded, rubber jacketed, brown broadcast type cable, supplied with a Switchcraft A3T type connector on the microphone end
- 81715 stand clamp included

RE27N/D \$679.00



RE-20 Variable-D Dynamic Cardioid Microphone

The RE20 was created especially for critical recording, broadcast and sound reinforcement applications which require response that extends to the frequency extremes. Combined with a subtle elevation of response in the 5000 to 15,000Hz range, the RE20 provides performance previously available only from the most expensive condenser microphones.

Specifications

- Frequency Response: 45-18,000Hz
- Impedance: 150 ohms (changeable to 50 or 250 ohms)
- Output: -57dB
- Diaphragm: Acoustalloy
- Case: Steel
- Finish: Fawn beige micomatte
- Size: 8 1/2" long; 2 1/4" max. diameter; 1 1/8" body diameter
- Weight: 1 lb., 10 oz.
- Cable: 15' Switchcraft A3F conn.
- Included: Stand adaptor, metal carrying case

RE20 \$597.00

RE15 Variable-D Dynamic Super-Cardioid Microphone

The performance and reliability of the RE15 have made it the workhorse directional microphone for broadcast and high quality sound reinforcement.

Specifications

- Frequency Response: 80-15,000Hz
- Impedance: 150 ohms
- Output: -56dB
- Diaphragm: Acoustalloy
- Case: Steel
- Finish: Fawn beige micomatte
- Size: 6 3/8" long; 1 3/8" max. diameter, 3/8" shank diameter
- Weight: 6 oz.
- Cable: 15' Switchcraft A3F connector
- Included: 310A clamp, metal carrying case

RE15 \$400.00



RE11 Variable-D Dynamic Super-Cardioid Microphone

An excellent microphone for broadcast and quality sound reinforcement, the RE11 is a modestly priced unit with many of the features of the RE16 but where the most precise unit-to-unit matching is not necessary.

Specifications

- Frequency Response: 90-13,000Hz
- Impedance: 150 ohms
- Output: -56dB
- Diaphragm: Acoustalloy
- Case: Steel
- Finish: Fawn beige micomatte
- Size: 7 3/8" long; 1 3/8" max. diameter, 3/8" shank diameter
- Weight: 8 oz.
- Cable: 15' Switchcraft A3F connector
- Included: 310A clamp, metal carrying case

RE11 \$284.00

RE10 Variable-D Dynamic Super-Cardioid Microphone

A moderate cost microphone for sound reinforcement, broadcasting, choir pickup and stage work. The RE10 is similar in design to the RE15 but meets requirements where somewhat more unit-to-unit variability is acceptable.

Specifications

- Frequency Response: 90-13,000Hz
- Impedance: 150 ohms
- Output: -56dB
- Diaphragm: Acoustalloy
- Case: Steel
- Finish: Fawn beige micomatte
- Size: 6 3/8" long; 1 3/8" max. diameter, 3/8" shank diameter
- Weight: 6 oz.
- Cable: 15' Switchcraft A3F connector
- Included: 310A clamp, metal carrying case

RE10 \$267.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MICROPHONES



N/D Series III Vocal and Instrument Microphones

The N/D Series III microphones' revolutionary active vibration-cancelling system called AcoustiDYM™ reduces handling noise to previously unattainable levels; electronic equalization provides better control of the pickup pattern to insure feedback-free performances; and an improved pop filtering system reduces the pop sensitivity by 5dB and eliminates annoying P-popping.

- N/D257B Cardioid dynamic vocal microphone \$150.00
- N/D308B Cardioid dynamic instrument microphone 220.00
- N/D357B Supercardioid dynamic vocal microphone 204.00
- N/D408B Supercardioid dynamic instrument microphone 257.00
- N/D457B Hypercardioid dynamic vocal microphone 255.00
- N/D757B Supercardioid dynamic vocal microphone 325.00
- N/D857B Supercardioid dynamic vocal microphone 442.00

CO90 Miniature Condenser (Electret) Omnidirectional Microphone

Perfect for today's broadcasting and wide range sound reinforcement systems. More reliable and more versatile than many condenser lavaliers. The 2-conductor cable incorporates 2 nylon stay cords for high breaking strength. The cable-to-case interface is built to last. The cable assembly is field replaceable.

- Specifications**
- Frequency Response: 40-15,000Hz
 - Impedance: 150 ohms
 - Output: -57dB
 - Operating Voltage: 1.1-1.8V battery
 - Battery Life: Over 1000 hours
 - Case: Mic, brass; electronics, aluminum; battery/transformer housing, steel
 - Finish: Fawn beige micomatte
 - Mic size: .851" L (21.6mm) x .415" max. dia. (10.5mm)
 - Cable: Mic to battery housing, 6' (1.83m)
 - Weight: 8 oz. (227g) complete; 4 oz. (114g) less battery/transformer housing and belt clip
 - Included: tie clasp, 385 windscreens, protective pouch, belt clip
- CO90 \$235.00

Omnidirectional Microphone Capsules

The CO90E eliminates the battery/transformer housing for direct interface with wireless transmitter, miniature recorder, etc.

CO90E \$139.00



649B Miniature Dynamic Omnidirectional Lavalier Microphone

Created especially for TV, the 649B is our most popular dynamic lavalier. Frequency response is tailored for balanced performance in the lavalier chest position.

- Specifications**
- Frequency Response: 80-10,000Hz
 - Impedance: Lo-Z (150 ohms)
 - Output Level: -61dB (0dB = 1mW/10 dynes/cm²)
 - Case: High-tensile, lathe-turned aluminum
 - Finish: Non-reflecting gray
 - Cable: 30', 2-conductor, shielded, brown synthetic rubber-jacketed cable
 - Size: 0.75" diameter; 2.25" long
 - Net Weight: 1.1 oz., less cable and neck cord assembly
- 649B \$199.00



Professional Microphones 635A and 635A/B Dynamic Omnidirectional Microphones

The 635A and 635A/B are rugged, durable microphones. The moderately high output level (-55dB) is appropriate for a broad range of studio and field applications. Their response has been specially shaped for up-close vocals.

- Specifications**
- Frequency Response: 80-13,000Hz
 - Impedance: 150 ohms
 - Output: -55dB
 - Diaphragm: Acoustalloy®
 - Case: Steel
 - Finish: Fawn beige micomatte or black
 - Size: 5 1/4" long; 1 1/2" dia.
 - Weight: 6 oz.
 - Cable: 15' Switchcraft A3F connector
 - Included: 312A clamp
- 635A (fawn beige) \$142.00
- 635A/B (semi-gloss black) 142.00
- 635A and 635A/B Six Pack Package of 6 mics less cables and stand clamps 760.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Electro-Voice®
a MARK IV company



MIXERS/SPEAKER SYSTEMS



8108 Rackmount Mixer

- Equal headroom in all stages for optimum noise performance
- Gain-calibrated level controls for visual check of mixer stage gain
- Optimum circuit design to reduce harmonic and intermodulation distortion to inaudible levels
- Transient performance not slew-rate or power-bandwidth limited under any conditions, 30-20,000Hz
- Four 10-segment, LED bargraph Peak Program Meters (PPMs) are factory calibrated for 0 = +0dBu at transformer isolated outputs meter sensitivity user-adjustable over a 20dB range for other calibrations

8108 8-input, 4-output \$1717.00



ELX-1A™ Audio Mixer • Rackmount version \$639.00

Entertainer 100M Powered Mixing Console

Specifications

- Power Output Per Channel: 8 ohms, 100W, 1kHz

Entertainer 100M \$1665.00

100S Constant Directivity Speaker System

Specifications

- Frequency Response: 80-18,000Hz, +3dB
- Long-Term Power Handling Capacity: 100W

100S \$542.00



Entertainer 100M
Mixing Console/
100S Speaker System

Sentry® 505

The Sentry 505 must be used in quarter-space to achieve specified low frequency performance. Installation of the system on a wall can be accomplished with the included mounting brackets. It is possible to mount the Sentry 505 so that the drivers are angled at 60° or 30° from vertical.

Specifications

- Dimensions: 30° from Vertical: 19.50"H x 25.63"W • Top: 18.75"D
- Bottom: 7.50"D • 60° from Vertical: 18.75"H x 25.63"W • Top: 19.50"D • Net Weight: 60 lbs.

Sentry 505 \$757.00



Sentry 500

The Sentry 500 was designed for ¼- to ½-space use. The speaker system should be mounted as close as possible to floor/ceiling and/or wall surfaces. When coupled with the WB23 wall mount kit, the Sentry 500 can be integrated into virtually any environment.

Specifications

- Dimensions: 23¾"H x 27"W x 13"D • Weight: 70 lbs.

Sentry 500 \$734.00
WB23 Wall mount kit 46.50



Sentry 100EL Professional Powered Monitor System

The Sentry 100EL powered monitor speaker system combines the advantages of the Sentry 100A monitor with a self-contained, high performance power amplifier. It is designed with the broadcast/recording studio engineer in mind, although it is well suited for a wide variety of professional applications. It offers uniform frequency response and dispersion across a wide range, extended low frequency response.

Specification

- Frequency Response: 40-20,000Hz

Sentry 100EL \$780.00

Sentry 100A Monitor Speaker System

The Sentry 100A monitor speaker system meets the needs of professionals with high efficiency and extended low frequency response, high power capacity across the entire frequency range, uniform frequency response and dispersion, all in a compact package. The Sentry 100A is housed in a utility cabinet wrapped in a scratch-resistant, matte black vinyl. The cabinet size is intentionally designed for rackmounting. With the SRB-7 rackmount/wall mount kit, the Sentry 100A can be integrated into virtually any environment that demands conservation of space such as mobile recording studio facilities. The steel reinforced grille is covered with a custom gray cloth.

Specifications

- Frequency Response: 45-18,000Hz • Impedance: 6 ohms
- Long-Term Average Power-Handling Capacity (above 40Hz): 30W
- Dimensions: 17.25"H x 12.00"W x 11.125"D • Net Weight: 28 lbs.

Sentry 100A \$367.00
SRB-7 Rackmount/wall mount brackets for 100A 40.50

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ONLINE EDITOR AND BOARDSET



EMC Primetime OnLine Editor

▪ Nonlinear editing ▪ User interface ▪ Various storage options ▪ Video compression and effects ▪ Audio capabilities ▪ Advanced editing features ▪ Auto digitizing ▪ Multi-camera editing features ▪ EDL and Edgecode keycode support ▪ Compositing and video effects ▪ Auto-assembly and VTR control ▪ EMCLOG offline logging

The EMC Primetime OnLine Editor offers full 60 field/second full bandwidth video for use online. Compression is done with an advanced LSI Logic based motion JPEG compression card from Truevision.

The OnLine Editor offers advanced editing features with very high quality Betacam level video. Dissolves and a wide range of 2-D and 3-D digital video effects are done in real time, eliminating the time consuming rendering of other systems.

EMC editors are known for their power and speed of editing. The Editor's Timeline style editing is a fast, easy and intuitive way to mold a show from rough to fine cut. Extensive cut and paste features and storyboard editing make it easy to rearrange scenes at will.

4 channels of CD-quality 44.1K audio is fully editable with slider control of levels. An audio waveform display makes fine cutting very visual. An unlimited number of audio tracks can be created with 4 tracks active and heard at any given time.

The EMC Editor supports all major EDL list formats, such as CMX, Grass Valley, Sony and others for frame accurate online. It is also possible to create Edgecode/KeyCode lists for conforming edit back to 16mm, 35mm and 70mm film.

The EMC Primetime OnLine Editor can be purchased as a software and board set, as well as a complete turnkey system. This allows users to assemble a system at a low cost, utilizing local resources and existing equipment.

EMC OnLine Editor Available as a complete unit with 5G byte storage..... \$31,950.00

EMC Primetime OnLine BoardSet

BoardSet Components

- EMC Primetime Editor software ▪ JPEG compression card
- CD-quality audio card ▪ SMPTE-EBU timecode reader/generator
- Training videotape and manual

Hardware

- Computer Base: 486 33MHz CPU or better ▪ Memory needed: 4-8M byte ▪ Internal hard disk: 40M byte IDE drive (min.) ▪ Floppy disk: 1.44M byte 3.5" drive ▪ Image compression: JPEG ▪ Frame rate: 24, 25 and 30 fps ▪ Video input: Composite video NTSC/PAL ▪ Video output: Super-VGA 31.5kHz RGB ▪ Audio sample size: 8 or 16 bits/sample ▪ Audio sample rate: 11, 22 and 44.1K/second ▪ Audio inputs: Stereo high impedance ▪ Audio outputs: Stereo high impedance ▪ Timecode input: SMPTE/EBU ▪ Timecode output: SMPTE/EBU ▪ Storage media format: SCSI-1 and SCSI-2 ▪ Opticals supported: Sony, Tahiti and HP ▪ Machine control support: V-LAN, Image Logic, AEC and TelCom

Effects

- ADO-style DVE moves ▪ Dissolves and fades ▪ Slow, fast and reverse motion ▪ Color and luminance keying ▪ Transparency ▪ Freeze frames ▪ Image flops ▪ Import standard graphics images

Miscellaneous

- Languages: English, French, Spanish, German and Italian ▪ SAVE, UNDO and REDO actions (32 levels) ▪ Timed autosaving of EDLs to disk ▪ 10 user-definable keyboard macros ▪ Detailed user's manual ▪ Videotape tutorial ▪ Manual available online

Online Support

- CMX, Grass Valley, Sony, SMPTE, PALTEX and other formats
- Support for RT-11/GVG disk formats ▪ Imports CMX EDLs for reediting and transfer ▪ 16mm, 35mm and 70mm edgelists
- Imports AATON, FLEX and EVERTZ

The OnLine BoardSet consists of the EMC Primetime Editor software and a number of specialized cards that plug into a standard 486/EISA computer system. To complete the system, the parts provided by the BoardSet are added to a number of standard PC components. These components include:

Any EISA-bus 486 computer containing 16M bytes of RAM, an 80M byte or larger hard drive, a 3.5" floppy drive, 2 serial ports, Microsoft compatible mouse, MS DOS 5.0 or higher, VGA card and color VGA monitor.

An SCSI controller card which provides private bus management for the audio and video. Use either the Adaptec 1742 or the BusLogic BT5455 SCSI adaptor card (if motherboard has LocalBus slots).

The Primetime Editor can use any type of SCSI drive, optical or magnetic, on which to store the source material. Opticals are only available on lower resolutions because of their slower speeds.

EMC Primetime OnLine BoardSet \$14,950.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Catalyst™ Digital Composite Keyer

- Seamless integration of analog and digital switchers with digital composite VTRs
- 1 RU frame electronics
- Brings digital layering to your analog suite
- Digital masking and color matte generation
- Variable digital filtering of key signals
- Precise adjustments for alignment of key and fill
- Full 10 bits of input and output resolution
- 100 memory registers for effects setups

CAT-1 Serial I/O Serial digital composite video I/O option \$16,000.00
CAT-1 Serial I/O Serial digital composite video I/O option 1,500.00

TC400D 4-Channel TBC Controller With Memory

- Provides full, independent control of the proc amp functions of up to 4 VTR time base correctors or D2 VTRs
- GPI and Editor interface provide frame-accurate access to transitions between registers
- Dedicated controls for video and chroma level, setup and hue
- Auto delegation follows switcher crosspoints
- Expand to multiple units with simple twisted-pair LAN
- Scene-by-scene storage with 100 memory registers for each TBC
- Serial interface for memory operations and register storage in EDL
- Direct replacement for most manual remote panels; no new cables to install
- Complete timing adjustments
- Programmable transitions between TBC setups
- AppleTalk® compatible LAN port for graphic interface and off-line storage on Apple Macintosh® computers

TC400D 4-Channel TBC Controller With Memory \$3,000.00

CP10 Network Control Panel for TC400D

- Designed to be used in edit suites and tape QC positions. Each of the 10 control positions on the CP10 can be assigned to any TBC, D2 VTR or proc amp under control by a TC400D
- Access any 10 machines in the system at 1 time
- Same easy user interface of the TC400D
- Front panel controls provide direct access to the proc amp functions of video and chroma levels, setup and hue of the selected TBC
- Continuous rotation type controls make it easy to precisely adjust parameters
- Any of the 100 memory registers in each machine can be used to save and restore settings
- Adjustment of timing and control of special functions is performed through a menu-driven display
- Compact size
- Half-rack width for mounting with waveform and vectorscope
- Twisted pair interconnect to TC400Ds
- Serial interface to edit controllers

MEM-OPT1 Battery backup option for TC400D to provide retention of memory registers when power is lost. 100.00
ADPT-1 Interface adaptor for Ampex TBC-6 and TBC-7 125.00
Studio Controller Application software for the Apple Macintosh 125.00

DP-2 Digital Composite Video Processing Amplifier

- Full featured digital processing amplifier compatible with both D2 and D3 formats for use in a variety of digital composite applications
- Adjust video, chroma and setup levels
- Full 360° hue rotation
- B/W clips with variable softness
- Memory registers with programmable transitions
- Parallel and serial inputs and outputs available
- Bypass and split-screen modes
- Variable gamma and detail controls
- 2 processors in 1 RU
- Variable vertical blanking
- D2 and D3 compatible
- Serial interface for control from other devices and register storage in EDL
- Full 10-bit processing
- Comes with application software for Apple Macintosh for NTSC encoding and decoding

DP-2, IPP Chassis with 1 processor, parallel I/O \$4,500.00
DP-2, 2PP Chassis with 2 processors, parallel I/O 6,800.00
DP-2 Upgrade Field upgrade to add second processor 3,000.00
DP-2 Serial I/O Serial I/O option (1 required per processor) 1,500.00

MultiBuffer DS-2 Digital Image Store

- Dual buffer composite digital/NTSC frame buffer
- Effects layering with analog or digital switchers
- Analog and digital composite inputs and outputs
- Remote controllable
- NTSC to digital composite conversion
- Upload and download Macintosh graphics
- Dual buffers store video and key signals
- Frame synchronization of input signals
- Digitally generates standard TV test patterns
- Mac-based still store
- Genlock with adjustable timing
- Ethernet and AppleTalk™ interfaces for networking with multiple Macs
- Digitally transfer Mac animations to tape
- 1 RU, 16" deep
- RS-422/232 serial ports
- Includes Envoy™ software for Macintosh for NTSC digital encoding and decoding

DS-2 and Envoy \$5,200.00
DS-2 Ethernet I/O Ethernet Communications Option 1,000.00
DS-2 Serial I/O Serial digital composite video I/O option 1,800.00
DS-2 Remote Panel For MultiBuffer DS-2. Includes 30' interface cable 450.00

Serial Digital Component Converters Serial Box™ I

- Integrates serial digital component signals into practical systems
- ½ RU space
- Maintains serial digital routing and signal distribution with analog conversion at the destination and feeding the inputs of analog VTRs
- Supports the complete range of analog component formats, including RGB, Y/R-Y/B-Y, SMPTE and BetaCam standards in both 525 and 625 line systems
- 10-bit resolution

Serial Box I \$1,200.00

Serial Box II

- Includes analog composite and Y/C (S-Video) outputs in addition to component outputs of Serial Box I
- Composite output digitally encoded from original digital component signals resulting in accurate colorimetry and signal levels
- All 3 signal formats: analog component, composite and S-Video are output simultaneously
- 10-bit resolution

Serial Box II \$1,600.00

In Motion Machine Control Software

- Fully digital, transparent path
- Field or frame rate for extra smooth animations
- Supports PICT, PICS and QuickTime Movies
- Animates both the video and associated alpha channel
- Lossless data compression for fast, accurate transfers
- Compatible with popular paint and animation software for the Mac
- Images are digitally filtered

In Motion Machine Control Software \$1,000.00

Digital Composite Closed Caption Inserter

- Digitally inserts closed captions in D2 and D3
- Adjustable foreground timing and background delay
- Interfaces with existing analog captioning equipment
- Optional serial I/O
- Maintains digital image quality
- 8- or 10-bit selectable

CCI Serial I/O Option serial digital video input and output \$7,500.00
CCI Serial I/O Option serial digital video input and output 1,500.00

Interface Cables

Ensemble Designs can provide interface cable to a wide variety of analog and digital VTRs and TBCs. The TC400D can also be used to control frame synchronizers and proc amps. Among the manufacturers currently supported are: ADDA, Ampex, FOR-A, Fortel, Grass Valley Group, Harris, Hotronic, IKON, Microtime, Panasonic, Sony, Tektronix and others. New interfaces are being added on a regular basis.

TBC/D2/D3 Interface Cables

When ordering cables please specify the desired length, manufacturer and model number of the unit you wish to control. Custom lengths also available.

Order Example: 1 15' cable for Sony DVR-20
TBC/D2/D3-15 15' \$ 60.00
TBC/D2/D3-30 30' 80.00
TBC/D2/D3-75 75' 100.00

GPI Cables

To facilitate GPI interfaces, a cable with bare leads at 1 end, the other end connects to the GPI port of the TC400D or CP10. Specify TC400D or CP10 when ordering GPI cables.

CAB-GPI-15 15' \$40.00
CAB-GPI-30 30' 60.00
CAB-GPI-75 75' 80.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CLOCKS/TIMERS/ MASTER CLOCKS



Timer Systems

90 Series 2" Displays Viewable at 60'

ES 391A Presetable Up/Down Timer 100-minute range, displays minutes and seconds, uses leverwheel preset. Controls are count up, count down, stop, reset and preset. Dimensions: 4.45" H x 10.38" W x 6.58" D. \$592.00

ES 590A 60-Minute Timer Displays minutes and seconds. Rear-mounted connector provides for wiring to user's single pole, momentary, pushbutton controls—start, stop and reset. Reset returns all displays to zero, and timer will continue to run from zero if reset while counting. Dimensions: 4.45" H x 10.38" W x 6.58" D. \$415.00



ES 992A/994A 6-Digit Clocks ES 992A (12-hour) and ES 994A (24-hour). Hours and minutes on 2" gas discharge displays, seconds on 1" gas discharge displays. 3 top-mounted setting controls—fast advance, slow advance and hold. Dimensions: 5"H x 12"W x 3½"D \$520.00

Master Clocks

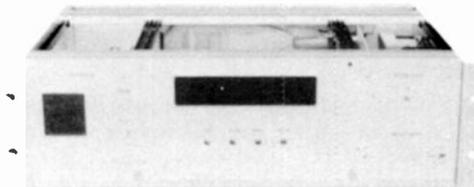
ESE Masters provide a means of keeping all time displays in the system in agreement through the use of a serial time code. Only 1 pair of wires is needed to distribute the time code to all remote serial input displays. An ESE Master Clock System can operate digital displays, clocks with sweep second hands, printers and, in addition, tell your computer what time it is. 12 hours of standby battery operation is standard in the ES 160 and 160/1.

ES 160 Mounted in a 5¼" relay rack panel and chassis, displays 6 digits of time information on .4" LED displays in 12-hour format. Its standard output is serial BCD, CMOS compatible and drives ES 161E, 166E, 171, 991 or 993 remote displays without buffering. All inputs and outputs are through rearmounted connectors \$1315.00*
ES 160/1 1 second per month version of ES 160. 1525.00*

ES 180A Receives and decodes the radio time broadcasts transmitted by the U.S. National Bureau of Standards (NBS). Provides an extremely accurate time reference available in several forms: 1½" front panel with LED display of hours, minutes and seconds; serial

time code output of the displayed time data; 1PPS output (1 Pulse Per Second); RS-232C output (1200 baud, switchable to other rates); audio output (speaker); parallel BCD output and relay contact closure on the hour and ½ hour are available. The unit is supplied with a built-in battery backup supply to maintain clock timekeeping for up to 10 hours in the event of a power outage. Time accuracy ±10ms of UTC \$2100.00
ES 180STS Software for RS-232C interface with ES 180A 100.00
ES AA1 Active antenna for ES 180A 175.00
ES 2590 Impulse driver is an ES 162 mounted in its own chassis. 350.00

ES 185 Receives accurate time-of-day and date information from the Global Positioning Satellite System. 6-channel receiver capable of tracking up to 6 satellites simultaneously. Includes ESE, SMPTE, IRIG-B and RS-232C, ASCII time code outputs, 1 PPS TTL output and a front panel GPS locked indicator \$2495.00



ES 199 Provides better than .5 seconds per month and contains a 10MHz receiver with audio output to synchronize with WWV at the push of a button. WWV transmits a 1000Hz tone at the start of each minute, except for the first minute of each hour, when a 1500Hz tone occurs. If the button is pushed and held during this time, the seconds' counters of the clock will be reset to zero. Supplied with an antenna, battery and charger. An external sync input connector is provided to allow introduction of a periodic logic "O" or contact closure at a once per second or slower rate. In order to simplify maintenance, test points are provided on the 1000Hz decoder board to allow recalibration of the oscillator using only an oscilloscope. The serial output will drive 100 ES 161A, 166F, 171, 991A or ES 993A remote displays. Options: B (CMOS, 5V), 1 PPS output, relay closure on hour and ½ hour, impulse driver (ES 162). \$1775.00*

ES 195 6-digit Master Calendar Display designed to interface directly with the GVG Master 21 Switcher. Accepts ESE serial time code and translates it into the vortex ASCII format as specified by GVG. Displays 6 digits of date and time. \$700.00

ES 192A/ES 194A The most economical Masters, ES 192A (12-hour) and ES 194A (24-hour), are constructed using ES 112E or ES 124E digital clocks and adding the ES 167C serial time code generator to provide the output needed for driving remote serial displays ES 161A, 166F, 171, 991A and 993A. Displays are 6" incandescent type \$260.00
ES 2590 Impulse driver is an ES 162 mounted in its own chassis. 350.00

ES 362A 4-digit, 100-minute up/down timer with serial output, controlled by 5 frontmounted momentary pushbuttons (up, down, stop, reset and preset) and a 4-digit leverwheel switch assembly. The timer will run continuously unless stopped. The preset control is used to "preset" the minutes and seconds to a desired time (set on the leverwheel switch) for subsequent countdown. If preset while counting, the unit will count from the preset value in the direction it was counting. When the timer reaches zero, it will underflow to 99:59 and continue counting unless the stop at zero option or the reverse count at zero option have been included. \$420.00

*Battery and charger included in the ES 160, ES 160/1 and ES 199.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MASTER CLOCKS/TIMER SYSTEMS/DAs/BLACKBURST GENERATORS

Master Clocks

ES 361A Designed to operate from the ES 362A Master Up/Down Timer. It decodes the serial time code data received and displays 4 digits of timer information. The displays are .56" high, LED type. 100 ESE slave displays can be operated from the master unit. \$200.00
ES 366F Same as ES 361A except displays are 1" high. 305.00
ES 369A Same as ES 361A except displays are 2" high. 395.00



Accessories

ES 161A Remote Digital Display Decodes serial time data and displays 6 digits of time on .55" gas discharge displays, in either 12- or 24-hour format. \$201.00

ES 162 Impulse Driver Plugs into the ES 160 chassis and can drive 20 impulse clocks. Designed so that if power fails, impulse always comes on with the same polarity when power is restored. . . \$245.00
ES 162S Has stepping second hand. 190.00

ES 165 Impulse Driver Provides synchronized power to the ES 168 impulse clock. Capable of driving 50 ES 168 clocks and will keep them running accurately through 12 hours of power failure. Derives its synchronizing pulse from any 1 pulse per second source, and can accept the once per second, alternating 12 or 24V impulses from an existing impulse clock system. \$231.00

ES 166F Jumbo Clock Display Receives serial time code input from any ESE Master Clock or ES 167C. Features 6-digit clock (12/24 hour format) on .55" LED display. \$310.00

ES 167C Serial Time Code Generator An integral part of ES 160, 190, 192A/194A and 196 Master Clocks. This unit can be added to many other ESE products, including ES 112E, 124E, 182F, 184F, 992A, 994A, 750, 751, 753, 754 and all 780 series time programmers. Drives ES 161E, 166A, 171, 991 or 993 remote displays. \$180.00

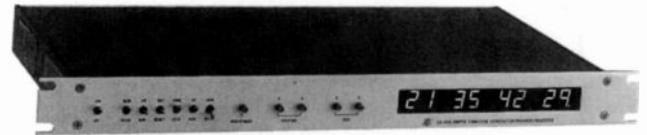
ES 168 Impulse Clock Operates from the 8 PPS output of the ES 165 impulse driver. As many as 50 ES 168s can be connected to a single driver, and they will continue to run during a power outage of at least 12 hours. Has a sweeping second hand. \$160.00

ES 171 Console Mount Remote Display Receives the serial time code generated by any ESE Master Clock, or any ESE product containing the ES 167B serial time code generator, and displays it on bright red .3" LEDs. \$192.00

ES 991A 4-Digit Serial Input Slave Decodes serial time data and displays 4 digits on 2" gas discharge displays. Desktop case. . \$395.00

ES 993A 6-Digit Serial Input Slave Features 4 digits of 2" high gas discharge displays and 2 digits (seconds) of 1" gas discharge displays. Receives serial time code input from any ESE Master Clock or ES 167C. Wall mount. \$546.00

ES 2897 Automatic Master Clock Switcher Allows switching between a primary master clock and a backup master clock. \$400.00



ES 488 SMPTE Time Code Generator/Reader/Insertor A microprocessor-based SMPTE time code generator/reader/insertor which includes the following features: video character insert; jam sync capability; "on time" reader display; color frame sync input; generates and reads both time and user bits; reconstituted time code output in reader mode; hold function for generator clock and reader display; drop frame and non-drop frame modes. . . \$1195.00

ES 209 Video/Stereo Distribution Amplifier A 1 x 12 video distribution amplifier combined with a dual audio distribution amplifier. Designed primarily to meet the needs of tape duplicating systems, especially the VHS and Beta Hi-Fi formats. It is housed in a rackmounted cabinet 1 3/4" H. 2 BNC input connectors, RCA jacks and 12 outputs are provided per channel. All 12 outputs will deliver identical signals, and unused outputs need not be terminated. It will equalize and compensate gain for up to 1000' of RG-59 cable (and up to 3000' of higher grade video cables). \$495.00



ES 2940 Dual 1 x 4 Audio/Video Distribution Amplifier Single rackmounted unit containing 2 audio/2 video DAs and 5-output RS-170A blackburst sync generator. Meets the requirements of systems which must interface with, distribute and synchronize video and audio signals. \$900.00

ES 206E Video Time and Date Generator Designed to allow the addition of time and date information to a video signal. 2 rear-mounted video jacks permit "looping" the video information through the 206A to add the data. \$580.00



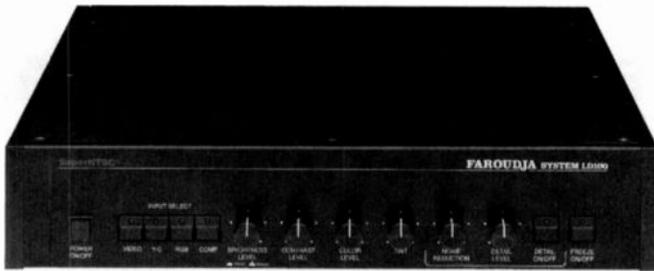
ES 219 Blackburst Generator Provides a convenient source of composite blackburst for pre-blackening tapes or for general synchronization purposes. The unit is housed in a small, rugged black anodized aluminum enclosure (rackmount option available). 4 isolated BNC outputs are located on the rear of the enclosure. The output signal of the ES 219 consists of sync, blanking, reference black setup level and color burst which is SCH phased. The sub-carrier frequency and SCH phase may be adjusted internally if desired. \$195.00
 Rackmount panel option. 45.00
 PC 219 Computer card. PC and Amiga compatible version of ES 219. 175.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SIGNAL PROCESSING EQUIPMENT



FAROUDJALaboratories



LD100 Line Doubler

- Combines the quality of patented, proven Faroudja technology in the field of decoding, scan conversion and bandwidth expansion
- Accepts inputs from all conventional 525-line format sources: NTSC, S-VHS, Hi8, component or RGB, and converts them into line-doubled, artifact-free, high resolution signals to be connected to a large screen direct-view TV display or projector
- Ideal companion for high quality video displays, and produces a "cinema-like" feeling out of standard 525-line video sources
- Delivers an image whose appearance is closer to film and HDTV than conventional television
- Faroudja technology is used under license by manufacturers of S-VHS and 8mm VCRs

LD100 \$14,950.00

LD100-U Multi-Standard PAL/NTSC Line Doubler

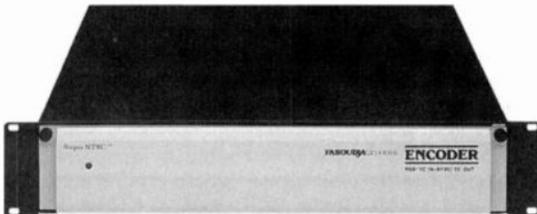
- Same performance as LD100
- Unit switches automatically from PAL to NTSC and vice versa
- Accepts inputs from 525 lines/60Hz to 625 lines/50Hz sources: PAL, NTSC, component and RGB

LD100-U \$18,500.00

CFD-SN NTSC Precision Decoder

- High quality NTSC to RGB comb filter decoder for use in critical applications where high resolution and absence of artifacts are required
- Active comb filtering method leads to a much more effective suppression of color subcarrier dot crawl present with standard comb filter designs with no visible loss of resolution
- Luminance bandwidth extends to 6MHz
- Chroma enhancement circuitry eliminates ringing and apparent loss of chroma bandwidth often associated with NTSC signals
- 4-pin multi-DIN Y/C 3.58 input and output connectors provide NTSC to Y/C 3.58 translation and Y/C 3.58 decoding to component and RGB. The decoding, in that case, does not mix Y and C and is free of crosscolor; chroma enhancement suitable for Y/C 3.58 or Hi8 applications is provided

CFD-SN \$6,550.00



CTE-SN NTSC Encoder

- Makes use of the process which pre-filters luminance and chrominance information prior to mixing, in order to avoid spectral overlay and artifacts
- Generates an NTSC signal, free of cross-color and cross-luminance components
- If the signal generated by the

CTE-SN is decoded through the CFD-N/CFD-SN, the result is virtually indistinguishable from RGB

- Computer graphics can be recorded, manipulated or displayed under NTSC form without artifacts
- Will accept separate Y and C signal inputs
- Ensures the generation of superior S-VHS masters without any evidence of degradation
- Provides an advanced blackburst output for timing the RGB/component signal input device

CTE-SN \$9,900.00

VHP Vertical and Horizontal Detail Processor

- Improves the visibility of small details whether they are present in the horizontal or vertical direction, without enhancing large outlines
- Picture is more natural and acquires a certain film look
- Available in PAL/SECAM or NTSC
- Detail and video level threshold controls make it virtually noise-free in noisy and dark picture areas
- Horizontal and vertical boost levels separately controllable

The main applications for use of the VHP include:

Cameras. Camera enhancers are often not effective for small details. VHP gives an extra "handle" to modify a camera look in a different way.

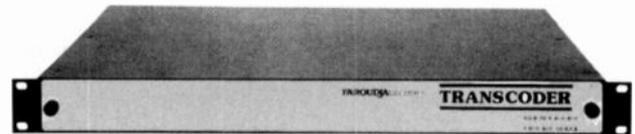
Videotape Recorders. Cassette recorders often show a poor picture appearance (cartoon look) after 2 or 3 generations. VHP prevents the occurrence of this problem if used in the record mode, or corrects it if used in playback.

1" Videotape Recorders, in Stop and Slow Motion. 1" videotape recorders in stop or slow motion modes suffer from a lack of resolution in both the horizontal and vertical directions. VHP corrects both defects without introducing artifacts and makes a still frame virtually indistinguishable from a normal speed playback picture.

Video Projectors. Television projectors are quite different from TV sets in their usage, as the viewer often has little choice in selecting distance from the screen. VHP makes picture quality acceptable for all viewers; because it does not enhance edges, front row viewers will be satisfied with picture quality, while the H and V boosts will give last row customers an apparently sharp picture. In fact, VHP corrects, to a certain extent, the human eye loss of detail visibility, and an unconscious feeling of better picture quality will result from its use.

VHP-N NTSC standard \$2,400.00

VHP-P PAL/SECAM standard 3,000.00



CTC-2 Transcoder

- High quality bidirectional, multi-standard, component transcoding processor with unique features, such as unequalled precision and stability with a matrix accuracy of $\pm 0.1\%$, which are not present in any other transcoder
- Capable of bidirectional transcoding and processing of component signals from either RGB to MII or Betacam, or from Betacam or MII to RGB

CTC-2 \$2,950.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



fast forward video



DIGITAL VIDEO/TIME CODE EQUIPMENT



Bandit™ Digital Animation and Video Recorder

▪ First product in the Outlaw™ family ▪ Peripheral device, compatible with many computer platforms including PC, Mac, Amiga and SGI ▪ Digital images and animation files are transferred directly from the host computer to Bandit's SCSI hard disk ▪ Sequences can be recorded directly to videotape or played on a standard monitor in real time, eliminating the need for single frame video recording equipment ▪ Records full bandwidth video from an analog source ▪ Acts as a capture device; transfers recorded video into computer for image processing and rotoscoping using off-the-shelf software ▪ Processed files can be output back to Bandit for full resolution playback or transfer to video tape ▪ Directly compatible with Autodesk 3D Studio, ASDG's Art Department Professional and other popular software ▪ Video is compressed, loaded into Bandit's mass storage and output as professional quality video at full resolution, 60 fields per second ▪ Mass storage options include a variety of hard disks, yielding 10 minutes to 2 hours of high resolution, random access video ▪ Works in a variety of computer environments by connecting to a SCSI port ▪ Software for Apple Macintosh® or IBM PC compatible computers is available ▪ Supports virtually all digital image formats including .TGA, PICS, .JPG, Quicktime™, .TIF and others ▪ NTSC or PAL ▪ Has many other capabilities including still store, slow motion and network via LAN/Ethernet (call for current information)

Specifications

▪ **Video:** 525/60 NTSC or 625/50 PAL; Composite input/output, standard component (Y/R-Y/B-Y) and Y/C (S-Video) options available; Ref Input: 1V p-p, 75 ohms (video/black), 0.4V p-p to 5V p-p (sync only) ▪ **Input Decoder:** Format: CCIR-601, digital 4:2:2 YUV, 50/60 fields/second; Sampling: 13.5MHz, 16 bits per pixel; Resolution: 525/60: 720 x 480 pixels, 625/50: 720 x 576 pixels; Bandwidth: 12MHz (-3dB); 2% diff gain; 2° diff phase; ADC Diff: linearity ±0.5 LSB; ADC Int: linearity ±1 LSB ▪ **Output Decoder:** Bandwidth: Y: 6.75MHz, C: 1.3MHz, Composite: 4.5MHz; S/N Ratio: 60dB ▪ **Video Compression:** JPEG baseline specification; Compression ratio variable down to 4:1; 550 TV lines resolution approximately 10 minutes per G byte at 10:1 compression ▪ **Record Capacity:** More than 2 hours with a series of hard drives ▪ **Remote Control:** 2 ports; Protocols: RS-422 (Sony BVU/SMPTE), Control-L, LANC, Panasonic AG-1960 ▪ **Time Code:** SMPTE time code generator/readers included ▪ **SCSI Interface** ▪ **File Formats:** TGA, PICS, Quicktime, Lightwave, IFF, etc. ▪ **Transfer Time:** <1 second per frame ▪ **Physical:** 4 rack units ▪ **Weight:** 24 lbs.

Bandit. \$5995.00

Note: Call for price on mass storage option.

Plus Storage



F30 Time Code Generator/Reader/Character Inserter

▪ SMPTE Longitudinal Time Code ▪ Read: forward and reverse, 1/30 to over 20 times play speed ▪ Generate with pause ▪ Jam sync ▪ Regenerate ▪ Preset hours, minutes, seconds ▪ Drop frame and non-drop frame ▪ Encodes color frame sequence ▪ Balanced XLR and unbalanced RCA connectors ▪ **Window Dub:** Display on/off, background on/off; 15 sizes; window dub user bits; combined display: user bits and time code simultaneously ▪ **MIDI Time Code:** Converts SMPTE time code to MIDI; generates MIDI time code in free run ▪ **User Bits:** Preset from front panel; 8-digit or ISO 4-character ▪ **RS-422 Serial Control:** Control F30 from computer or edit controller ▪ **GPI (General Purpose Interface) Output:** F30 can issue a GPI "command" at a specified address ▪ **EBU (European Broadcast Union) 25-Frame Time Code:** Can translate between SMPTE/EBU; color frames to PAL 8-field sequence ▪ **24-Frame Rate:** Time code for film work; synced to line

Specifications

▪ **Video Input:** 1V p-p, 75 ohm or high impedance. BNC ▪ **Time Code Out:** Adjustable from 0V to 4V p-p into high impedance. When the F30's power switch is off, the input signal loops through either input to the unbalanced output. Unbalanced, RCA. Balanced, XLR ▪ **Time Code In:** High impedance. Signal range from 500mV to 8V p-p. Unbalanced, RCA. Balanced, XLR ▪ **GPI Out:** Open collector active low output ▪ **RS-422:** Industry standard communications protocol, D-subminiature 9-pin connector. All time code functions of the F30 can be controlled ▪ **Field Reference Input:** 5V p-p. BNC ▪ **MIDI Time Code Out:** Industry standard, 5-pin, 180°, circular DIN
F30 \$1595.00

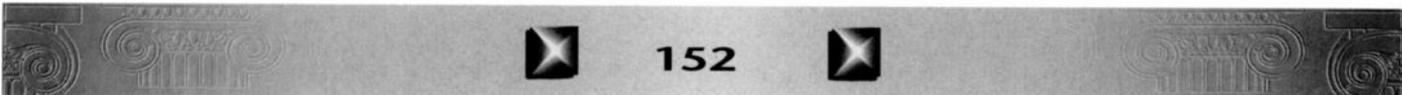
F22 Time Code Generator/Reader/Character Inserter

▪ **Generator:** Drop or non-drop frame longitudinal time code; locks to video or syncs to internal crystal; preset hours, minutes, seconds; front panel pause button; continuous jam sync function matches incoming code ▪ **Character Inserter:** 15 sizes; time code is superimposed on video signal for "window dubs" or "burned in" copies; display on/off, outline on/off, background on/off; variable sizes; window dub user bits; combined display: user bits and time code simultaneously; contrast adjusts from black on white to white on black, or outline ▪ **Reader:** Forward and reverse, 1/30 to over 20 times play speed; automatic error bypass; regenerate function corrects waveform and phase errors; generator with pause ▪ **MIDI Time Code:** Converts SMPTE time code to MIDI (Musical Instrument Digital Interface); generates MIDI time code in free run ▪ **User Bits:** Preset from front panel

Specifications

▪ **Video Input:** 1V p-p, 75 ohm or high impedance. BNC ▪ **Video Output:** Characters are keyed onto the input signal. Unity gain amplification. When the F22's power switch is off, the input signal loops through and bypasses termination. BNC ▪ **Time Code Out:** Adjustable from 0V to 4V p-p into high impedance. When the F22's power switch is off, the input signal loops through to the output. Unbalanced, RCA ▪ **Time Code In:** Unbalanced, high impedance. Signal range from 500mV to 8V p-p. RCA ▪ **MIDI Time Code Out:** Industry standard, 5-pin, 180°, circular DIN ▪ **Character inserter**
F22 \$1095.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



RACK KITS



FEC

Division of DOUG FISCHER INC.

VCR Rackmount Kits for Panasonic VCRs

For	Choose FEC Accessory	Description	#Rack Units Required (1RU=1.75")	Rail Depth Required Between Front & Rear Cabinet Rails	Mounts on (F)ront Rail or (R)ear	Price
AGW1	RKSPAGW1	Rackslide kit	3	18"-30"	F & R	\$225.00
AG1970	RKS-P1970	Rackslide kit with custom ears/handles	3	20"-30"	F & R	190.00
AG6500 AG7500A AG7510	RKS-P6575 (for any VTR to the left)	Rackslide kit (use with Panasonic ears, which come with VTR)	4	18"-30"	F & R	115.00
AG7150 AG7350 AG7355	RKS-P7350 (for any VTR to the left)	Complete custom rackslide kit - includes rack ears (Panasonic AGM730E ears not needed)	3	18"-30"	F & R	190.00
AG7650 AG7750	RKS-P7750 (for any VTR to the left)	Complete rackslide kit - includes rack ears (Panasonic AGM750 ears not needed)	4	18"-30"	F & R	190.00
AJD350	RKSPA3	Custom rackslide kit	6	24 1/2"-30"	F & R	285.00
AU62/63 AU65/650 AU660/665	RKS-PAU6 (for any VTR to the left)	Complete rackslide kit - includes rack ears (Panasonic AUM60 ears not needed)	6	21 1/2"-30"	F & R	285.00

Monitor Rackmount Kits for JVC Monitors

TM9U	RK9UM9	Dual rackmount for 2 TM9U/TM915U	6	15"	F	\$125.00
TM915U	BP9UM9	Blank panel for RK9UM9	6	-	-	40.00
	WF1730M9	Waveform adaptor for Tektronix 1700 Series Use with RK9UM9	6	18"	-	110.00
TMR9U	RK9U(A)	Dual rackmount for 2 TMR9U	6	14 1/2"	F	130.00
TMR9U	BP9U(A)	Blank panel for RK9U(A)	6	-	-	40.00
TMR9U	WF1730	Waveform adaptor for Tektronix 1700 Series Use with RK9U(A)	6	17 1/2"	-	120.00
TM1305U	RK1305U	Rackmount with custom faceplate	8	10 1/2"	F	110.00
TMR14U VMR140U	RK14U (for any monitor to the left)	Custom rackmount kit	7	15 1/2"	F	125.00
TM122U	RK122U	Custom rackmount with faceplate	8	13"	F	95.00
TM550U	RK550U	Dual rackmount kit	3	12 1/2"	F	130.00
TM9005U	RK9005U	Dual rackmount for 2 TM9005U	6	15"	F	125.00
TM9005U	BP9005U	Blank panel for RK9005U	6	-	-	40.00
TM9005U	WF9005U	Waveform adaptor for Tektronix 1700 Series and similar. Use with RK9005U	6	18"	-	110.00
TM920U	RK920U	Dual rackmount for 2 TM920U	6	11 1/2"	F	110.00
TM14005U	RK1505EU	Rackmount with custom faceplate	8	16"	F	125.00
VMR190U	RK190U	Rackmount with custom faceplate	11	19 1/2"-30"	F & R	150.00

Monitor Rackmount Kits for Sony Monitors

PVM122	RKPVM12	Custom rackmount kit	8	11 1/2"	F	\$110.00
PVM1340 PVM1341 PVM1342 PVM1344	RK-PM1341 (for any monitor to the left)	Custom rackmount kit	8	11 1/2"	F	120.00
PVM8040 PVM8041 PVM8044	RK-PM8044 (for any monitor to the left)	Dual rackmount for 2 monitors	5	13"	F	120.00
	BP8044	Blank panel for RK-PM8044	5	-	-	40.00
	WF8044	Waveform adaptor for Tektronix 1700 Series Videotek and similar	5	17 1/2"	-	110.00

Monitor Rackmount Kits for Panasonic Monitors

BTS900Y BTS901Y BTS901Y BTS901Y BTS901Y	RBT901 (for any monitor to the left)	Dual rackmount for 2 monitors	6	13"	F	\$105.00
	BPT901	Blank panel for RBT901	6	-	-	35.00
	WFB901	Waveform adaptor for Tektronix, Videotek and similar	6	17 1/2"	-	105.00
BTH1350Y BTS1350Y BTS1360Y BTS1370Y	RBT1370 (for any monitor to the left)	Custom rackmount FEC equivalent to Panasonic BA131	8	15"	F	105.00
BTS1900N BTD1920Y	FEC3005	Rackslides only	-	20"-30"	F & R	105.00
CT1331Y	RCT1331	Custom rackmount kit	9	14 1/2"	F	100.00
CT1381 CT1382 CT1383	RCT1383 (for any monitor to the left)	Custom rack kit	3	18"-30"	F & R	100.00

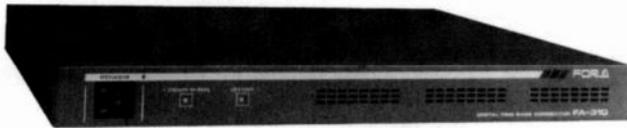
Laser Disc Rackmounts for Sony Laser Discs

LDP1500 LDP1550	RSDP-1520 (for any unit to the left)	Complete custom rackslide kit	3	18"-30"	F & R	\$205.00
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Laser Disc Rackmounts for Pioneer Laser Discs

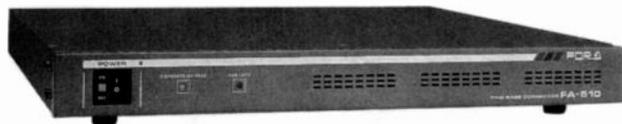
LDV4400 LDV8000	RS10-4480 (for either unit to the left)	Complete custom rackslide kit	3	18"-30"	F & R	\$205.00
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



FA-310 Digital TBC With 3-D Noise Reduction

- 3-step motion-compensated noise reduction for luminance and chrominance
 - Recursive-filter noise reduction increases output S/N ratio as much as 9dB with none of the resolution loss typically encountered with H and V dimension noise reduction
 - Motion-compensated circuits automatically eliminate motion defects in the picture
 - Adaptive comb filtering ensures 5.0MHz bandwidth for composite VCR sources; for Y/C inputs, full-band channel and Rec. 601 4:2:2 processing for the highest possible resolution
 - 1H Y delay circuit to correct vertical Y/C delay errors in the built-in dropout compensator, eliminating annoying tape dropouts
 - Automatic chroma level control
 - DT option allows FA-310 to process dynamic tracking VTRs without a glitch
 - Composite video, Y/C 358, the input transcoder option and YP_BP_R and Y/C dub sources make the FA-310 a functional decoder, encoder and transcoder
 - Composite video, Y/C 358 and YP_BP_R formats simultaneously available at the output
 - Full frame memory for infinite window correction, frame or field picture freeze and variable time interval strobe-freeze function
 - Provides operation from shuttle lock to 40X play speed. . . \$3950.00
- | | | |
|-----------|---|---------|
| FA-310T | FA-310 with Y/C dub and YP _B P _R inputs | 4400.00 |
| FA-310D | DT™ option for FA-310 (Sony Corp.) | 300.00 |
| FA-310RGB | FA-310 with RGB outputs | 4400.00 |
| PCU-2 | Remote control. | 800.00 |



FA-510 Digital Time Base Corrector

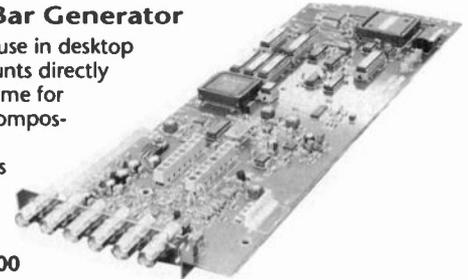
- Unique color correction controls red, blue, white and black balance as well as the Y gamma characteristics
 - Noise reduction = 9dB S/N
 - Adaptive comb filtering = 5.0MHz bandwidth
 - Automatic chroma level control to compensate for varying or reduced chroma levels due to frequency response variations occurring during record or playback in composite, component and Y/C 358 formats
 - 1H Y delay circuit to correct vertical Y/C delay errors in the built-in dropout compensator, eliminating annoying tape dropouts
 - Full-frame memory for infinite window correction
 - Frame or field picture and variable time interval strobe freeze function
 - Provides inputs and outputs in 4 formats, allowing the FA-510 to function as a decoder, encoder and transcoder
 - Permits operation from shuttle lock to 40X play speed \$4700.00
- | | | |
|-----------|--|---------|
| FA-510T | Same as the FA-510 with Y/C dub and YP _B P _R input | 5200.00 |
| FA-510RGB | Same as the FA-510 with RGB output | 5200.00 |
| PCU-5 | Remote control. | 1300.00 |

MP-100 Monochrome Processor

- Frame synchronizer and TBC with extended memory and image enhancement filters for analysis of B/W video images
- Off and 5-step recursive noise reduction filter
- Black stretch filter for enhanced brightness and contrast control
- Extended memory to prevent field inversion
- Frame/field freeze control
- Negative and positive display
- Corrects VTR time base errors
- Internal sync generator plus optional external sync connection \$3900.00

TSG-AT Color Bar Generator

- Fits into PC slot for use in desktop video systems or mounts directly onto an ATF series frame for stand-alone use
- 2 composite color bar outputs
- 2 blackburst outputs
- Genlock capability
- RS-22C control capability. . . . \$940.00



ADC-AT Analog to Digital Converter

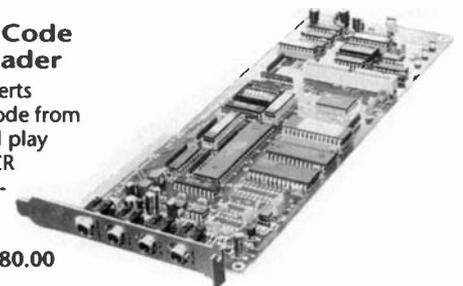
- 10-bit broadcast quality
- Mountable to a single PC slot or ATF bus frame
- 525- or 625-line selection
- YP_BP_R or RGB input . . . \$3520.00

DAC-AT Digital to Analog Converter

- Toggle switch on card output adds sync
- 10-bit broadcast quality
- 525- or 625-line operation
- Mounts in ATF bus frames. . . \$3250.00

TGR-AT Time Code Generator/Reader

- Generates and inserts longitudinal time code from 1/80 to ± 80X normal play speeds
- Detects TCR read error and reference dropout
- Slave lock capability \$980.00



Note: All For-A products are available in PAL standard. Call for pricing.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TIME CODE RECORDERS



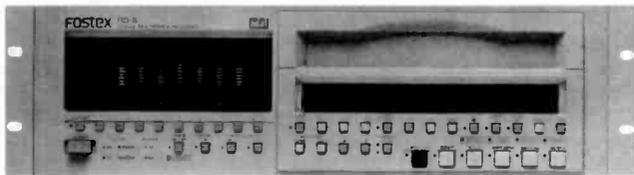
Fostex®

8330 Plug-in Card

- SMPTE time code generator/reader with a full chase synchronizer
- MIDI interface with MTC-1 functions
- EPROM option for Sony VTR emulation via RS-422 serial port
- For use with G-24S. . . . \$1,150.00

R8 Multi-Track Recorder

- 8-track with Dolby C
- Built-in remote
- MIDI control with MTC-1, optional
- Computer ready to interface with MIDI or SMPTE automation
- Entire front panel is removable for control of all functions
- Time and memory display on remote panel
- Meters are programmable 3 ways: permanent peak hold, peak reading and temporary peak hold
- Fine mode reads 1dB increments
- Programs up to 10 memory points
- Preroll auto locate, play and return
- Zone limiting
- Tape reel zone limits
- Memory access. \$2,795.00
- MTC-1 MIDI to serial adaptor 399.00



RD-8 Linear Digital Multitrack Recorder

- Interchangeable tape format with the Alesis ADAT™
- Same interface as an analog multitrack recorder
- Modular design and internal synchronization enables user to build sample-accurate 16-track, 24-track and larger recorders with just a 9-pin cable
- Balanced and unbalanced audio inputs and outputs connect to any audio production system
- Third party support available
- Built-in SMPTE time code reader and generator
- Capable of precise cueing and editing requirements of audio post production
- Sampling rates provided are 44.1 and 48kHz for CD recordings and high quality
- Pullup and pulldown for film to video transfer
- RS-422 serial port
- MIDI machine control
- Ideal for library storage and retrieval, synchronized playback and production and multitrack recording
- Plug-in and play replacement for analog and digital 24- and 48-track recorders \$4,995.00



D-10 Digital Master Recorder

- Auto cue and instant start make the D-10 ideal for dropping in effects and on-air play because no preroll or synchronization is required
- Cues to and starts right at the beginning of audio modulation, so say goodbye to missed cues, loose edits and dead air
- Extremely uncomplicated for high-tech machinery
- SMPTE compatible—reads and displays SMPTE time code (Pro-R time)—for auto locating and fast, precise editing
- RAM Scrub gives you analog

style reel rocking with automatic RAM loading

- Locate to below frame resolution with a truly transparent feel
- Jog/shuttle gives you video style manual search control of tape speed in either direction— $\frac{1}{2}$ –16X play speed; audio output $\frac{1}{2}$ –5X play speed
- Auto Rehearse offers a preview function to help eliminate mistakes
- Edits can be previewed before recording until they are right
- Auto Record means hands-free editing is under microprocessor control, ensuring Punch-in/Out recordings can be repeated accurately
- No copy guard protection enables program material to be recorded from any digital source and allows digital recording at 44.1 or 48kHz \$3,295.00



G-24S 1" 24-Track Recorder With Integrated Synchronizer, Sony VTR Emulation and Dolby S Noise Reduction

- Built-in SMPTE controllable
 - MIDI controllable, transport functions can be controlled via MIDI—all MTC-1 functions
 - Sony VTR emulation: BVU-950 and BVH-2000/3000 via the RS-422 serial port
 - Includes 8310 system expansion board which supports not only different emulation modes, but also multiple editor specific modes
 - Supports editors such as: GVG 141/151, CMX300, Ampex ACE 25/200, etc.
 - Built-in remote control
 - The entire front panel is removable, so you can control all functions
 - Jog shuttle and spot erase
 - Programmable meters, permanent peak hold, peak reading, and temporary peak hold—user adjustable
 - Pitch control $\pm 12\%$ —in both record and play modes—with a separate on/off switch
 - Front panel angle, position at a 30° or a 45° angle for operating ease, and for alignment at 90°
 - Second page mode, multi-function operation of individual command keys
 - Remote control foot switches available as options for punching in/out and for automatic locating
 - Automation features: up to 10-point memory, preroll, auto locate, auto play, auto return, zone limiting, total memory access—verify or change
- G-24S Includes 8330 \$17,995.00
 G-24S Without 8330 16,995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Mini-Fill Lights

- Operates from any 12-14.4 or 30V battery
- Utilizes multi-mirror lamps (20-100W)
- Mounts on camera, pistol grip or lightstand
- Dual-lighthouse configuration from 1 power source

Single Light Configuration

(Includes Your Choice of Bulb)

- MF-12P** Mini-Fill with cigarette lighter plug \$185.00
- MF-12C** Mini-Fill with BP-90 type coax plug. 185.00
- MF-4X** Mini-Fill with XLR-4 connector 185.00
- MF-5X** Mini-Fill with XLR-5 connector 185.00
- MF-12PT** Mini-Fill with power tap connector 195.00
- MF-30** Mini-Fill with 2-pin amphenol connector for 30V operation (includes 80W bulb) .. 185.00



Dual Light Configuration

- DMF-12** Twin Mini-Fill interconnected for power from 1 source. Choice of power connectors: Sony BP-90 In-Line, Frezzi Amp, XLR-4/5 or cigarette lighter type \$335.00
- DMF-30** Same as DMF-12 except wired for 30V operation. Includes 2-pin amphenol connector. 345.00

Mini-Fill MFIC Intensity Control Light

- Built-in dimmer control
- Uses pulse width modulation for adjusting light output from full-on to full-off
- MFIC** \$285.00



Mini-Fill MF-NP1 Powered Light

- Self-contained
- Portable
- Up to 1 hour of operation with single NP-1 type battery
- Lamp type: 20W
- MF-NP1** \$195.00
- NP-1** Camera bracket (piggybacks on your NP1 bracket) ... 105.00
- MF-NP1 Pouch** (for carrying battery on your belt) 38.00
- FNP-1S** Battery 105.00

MFK-90 Professional Mini-Fill Kit

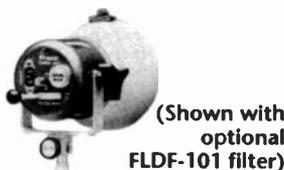
- MF12C Mini-Fill lighthouse with in-line BP-90 connector
- (2) EXV (100W) or EYC (75W) lamps
- Frezziolini FBP-90 5AH battery pack
- BC-124S overnight charger
- MDFD dichroic filter
- MFCC custom fitted case
- ML bracket mounts light to any camera
- MFK-90 Kit** \$795.00
- Other Custom Designed Kits Available Per Your Specific Requirements.*

Mini-Fill Accessories and Replacement Lamps

- FLH-101** Hand grip \$ 28.00
- LP-90** Leather pouch with belt loops for BP-90 48.00
- MFCC** Custom carrying/shipping case 185.00
- MDFD** Mini-Fill flip-up dichroic filter 95.00
- BAB** 20 watt lamp 25.00
- EXN** 50 watt lamp 25.00
- EYC** 75 watt lamp 25.00
- EXV** 100 watt lamp 25.00

FL-650 The Professional High Output Lighthouse

- Built-in spare lamp holder
- AC/DC operation from 12-30-115-220-240V
- 650W capability
- FL-650** Lighthouse only ... \$215.00



Accessories

- FLAH-101** Accessory holder for FL-100/250/650 \$ 38.00
- FLBD-102** Barndoors – rotate 360° 48.00
- FLCC-101** AC kit carrying case 220.00
- FLCC-103** DC kit carrying case 210.00
- FLDF-101** Swing-away dichroic filter for FL-250/600 ... 125.00
- FLH-101** Hand grip 28.00
- FLLS-101** 8' light stand 98.00
- FLS-101** Swing-away scrim 48.00
- FLS-102** Scrim 30.00

Cables

- C-12** FL-650 power cable for 12VDC operation \$38.00
- C-30** FL-650 power cable for 30VDC operation 38.00
- C-120** FL-650 power cable for 120VAC operation..... 28.00
- C-120EX** 25' 3-way extension cable 28.00

AR Microcomputer Controlled Fast Charger Series

- Most advanced chargers available
- For 12-30V NiCads
- Optional single or multiple 4-channel capability
- Incorporates high frequency switch-mode power supply design, operating under the control of PAG ACS
- For use with battery adaptors via XLR 4-pin connectors
- 9765 AR304** 12-30V, (1-10AH) multiple 4-channel \$1295.00
- 9763 AR301** 12-30V, (1-10AH) single channel 930.00



AR124NP Charger

- Frezzi's newest autoranging fast charger
- 4 channels and 8 outputs to connect directly to 4 NP type batteries or 4 BP90 type batteries
- Designed to operate with the optional D124 discharger
- Combination of charger and discharger units will maximize battery cell life
- 9769 AR124NP** \$995.00
- 9771 D124NP** Discharger 495.00
- 9693** Adaptor cable (4 units required to combine units above) .. 38.00

Micromaster Microcomputer-Controlled Fast Charger

- Automatically selects AC line inputs from 90-280V
- Fast charges and balances any make of 6-15V NiCad battery pack with 1.5-12AH output capacities
- LED indicators display status
- In-car model 9529 plugs into auto cigarette lighter for 12VDC input
- 9526** Micromaster \$ 850.00
- 9529** In-car model for 12VDC operation 850.00
- 9730** Dual Micromaster 2-channel version 2 1/2"H x 8 1/2"W x 8"D 1400.00



SC2 Microcomputer-Controlled Battery Management System

- Fast charges 8 batteries 2 at a time
- True 2-wire system, no sensors of any kind needed in battery 6-15V (1-12A)
- Slow charges 8 batteries simultaneously
- Revitalize programs
- Auto line power selection
- Auto cell balancing
- Auto maintenance charge
- Self-test program
- Detects severe battery faults
- 9704 SC2** \$2200.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CCD LENSES



A8.5x5.5EVM/ERD



A15x8EVM/ERD



A16x9RM



FUJINON

2/3" ENG/EFP CCD Lenses

Model No.	Focal Length	Zoom Ratio	Extender	Maximum Aperture Ratio	M.O.D.	Object Dimensions At M.O.D.	Angular Field Of View	Macro	Size	Weight (w/o Lens Hood)
A8.5x5.5VM/RD	5.5 ~47mm	8.5x	—	f/1.7	0.3m	5.5mm 492 x 369mm 47mm 57.9 x 43.4mm	5.5mm 77°19' x 61°55' 47mm 10°41' x 8°02'	—	216.5mm	1.72kg
A8.5x5.5EVM/ERD†	(1x) 5.5 ~47mm (1.7x) 9.4 ~80mm	8.5x	1.7x	f/1.7	0.3m	5.5mm 492 x 369mm 47mm 57.9 x 43.4mm	5.5mm 77°19' x 61°55' 47mm 10°41' x 8°02'	with Macro	235mm	1.82kg
A15x8EVM/ERD†	(1x) 8 ~120mm (2x) 16 ~240mm	15x	2x	f/1.7	0.75m	8mm 771 x 578mm 120mm 51 x 38mm	8mm 57°37' x 44°50' 120mm 4°12' x 3°09'	with Macro	202mm	1.38kg
A16x9RM†	9mm ~144mm	16x	—	f/2.3	0.9m	9mm 815 x 611mm 144mm 51 x 38mm	9mm 52°07' x 40°17' 144mm 3°30' x 2°38'	with Macro	165mm	1.2kg
A16x9ERM†	9mm ~144mm	16x	2x	f/2.3	0.9m	9mm 815 x 611mm 144mm 51 x 38mm	9mm 52°07' x 40°17' 144mm 3°30' x 2°38'	with Macro	183.8mm	1.35kg
A18x8.5EVM/ERD	(1x) 8.5 ~153mm (2x) 17 ~306mm	18x	2x	f/1.7 f/2.3	0.75m 0.75m	8.5mm 721 x 541mm 153mm 40 x 30mm	8.5mm 54°44' x 42°26' 153mm 3°17' x 2°28'	with Macro	201.5mm	1.49kg
A20x8EVM/ERD†	(1x) 8 ~160mm (2x) 16 ~320mm	20x	2x	f/1.7	0.85m	8mm 882 x 662mm 160mm 44 x 33mm	8mm 57°37' x 44°50' 160mm 3°09' x 2°22'	Yes	219.5mm	1.75kg
A24x11.5ERD	(1x) 11.5 ~276mm (2x) 23 ~552mm	24x	2x	f/2.0 f/2.7	1.8m	11.5mm 1296 x 972mm 276mm 54 x 40.5mm	11.5mm 41°52' x 32°01' 276mm 1°49' x 1°22'	with Macro	261mm	2.9kg
A24x16.5ERD	(1x) 16.5 ~400mm (2x) 33 ~800mm	24x	2x	f/2.8 f/3.9	1.8m	16.5mm 903.3 x 677.5mm 400mm 37.3 x 27.9mm	16.5mm 29°51' x 22°37' 400mm 1°15' x 0°56'	with Macro	270mm	2.9kg
A36x10.5ERD†	10.5 ~378mm	36x	2x	f/2.0	2.2m	10.5mm 1726 x 1295mm 378mm 48 x 36mm	10.5mm 45°28' x 34°54' 378mm 1°20' x 0°00'	with Macro	390mm	4.5kg
A36x14.5ERD†	(1x) 14.5 ~520mm (2x) 29 ~1040mm	36x	2x	f/2.7	2.2m	14.5mm 1250 x 938mm 520mm 35 x 26mm	14.5mm 33°46' x 25°39' 520mm 0°58' x 0°44'	Yes	363.3mm	4.58kg

1/2" ENG/EFP CCD Lenses

S8.5x4.2EVM/ERD†	(1x) 4.2 ~36mm (1.7x) 7.1 ~61mm	8.5x	1.7x	f/1.4 f/1.5	0.3m	4.2mm 469 x 351mm 36mm 55.1 x 41.3mm	4.2mm 74°36' x 59°29' 36mm 10°09' x 7°37'	with Macro	239.5mm	1.89kg
S16x6.7RM†	6.7mm ~107mm	16x	—	f/1.7	0.9m	6.7mm 796 x 597mm 107mm 50 x 37mm	6.7mm 51°25' x 39°25' 107mm 3°25' x 2°34'	with Macro	165mm	1.35kg
S16x6.7ERM†	6.7mm ~107mm	16x	2x	f/1.7	0.9m	6.7mm 796 x 597mm 107mm 50 x 37mm	6.7mm 51°25' x 39°25' 107mm 3°25' x 2°34'	with Macro	188.5	1.2kg
S14x6.6EVM/ERD	(1x) 6.6 ~92mm (2x) 13.2 ~184mm	14x	2x	f/1.4 f/1.5	0.65m	6.6mm 586 x 439mm 92mm 42 x 31mm	6.6mm 51°44' x 39°58' 92mm 3°59' x 2°59'	with Macro	193.5mm	1.35kg
S18x6.6EVM/ERD	(1x) 6.6 ~119mm (2x) 13.2 ~238mm	18x	2x	f/1.4 f/1.8	0.75m	6.6mm 676 x 507mm 119mm 37 x 28mm	6.6mm 51°44' x 39°58' 119mm 3°05' x 2°19'	with Macro	206mm	1.56kg
S24x8.8ERD	(1x) 8.8 ~211mm (2x) 17.6 ~422mm	24x	2x	f/1.5 f/2.1	1.8m	8.8mm 1231.8 x 923.9mm 211mm 51.4 x 38.5mm	8.8mm 39°58' x 30°30' 211mm 10°44' x 1°18'	with Macro	263mm	2.9kg

2/3" Format Teleconferencing Lenses

Model No.	Focal Length	Zoom Ratio	Maximum Aperture	M.O.D.*	Iris Range**	Iris Control	Field Angle -Wide Angle -Telephoto	Front Thread	Weight (w/o Lens Hood)
A4x7.5RH/MD	7.5 ~30mm	4x	f/2.8	0.45m	f/2.8 ~16	Auto, Remote/Manual	60°48' x 47°30' 16°41' x 12°33'	52mm/P=0.75	0.75kg
A8x12RH/MD	12 ~96mm	8x	f/2.8	1m	f/2.8 ~16		40°16' x 30°45' 5°15' x 3°56'	52mm/P=0.75	0.7kg
A16x9MD†	9mm ~144mm	16x	f/2.3	0.9m	f/1.8-16		52°07' x 40°17' 3°30' x 2°38'	77mm/P=0.75	1.2kg

1/2" Format Teleconferencing Lenses

S4x5.5RH/MD	5.5 ~22mm	4x	f/2.0	0.45m	f/2.0 ~16	Auto, Remote/Manual	61°37' x 48°11' 16°57' x 12°45'	52mm/P=0.75	0.75kg
S8x8.8RH/MD	8.8 ~70mm	8x	f/2.0	1m	f/2.0 ~16		39°58' x 30°30' 5°14' x 3°56'	52mm/P=0.75	0.7kg
S12x7.5MD	7.5mm ~90mm	12x	f/1.4	1.1m	f/1.4-16		46°12' x 35°29' 4°04' x 3°03'	72mm/P=0.75	1.25kg
S16x6.7MD†	6.7mm ~107mm	16x	f/1.7	0.9m	f/1.4-16		51°25' x 39°25' 3°25' x 2°34'	77mm/P=0.75	1.2kg

†Aspheric Technology * 0.07m or less with macro operations. **Plus fully closed.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





TELECONFERENCING EQUIPMENT

TI7200 Teleconferencing Interface

- 2-wire/telephone or 4-wire/video operation
- 192ms echo cancellation span
- 7kHz frequency response
- Bridge connection for multiple location conferencing
- RS-232 port for custom remote control system
- 100% digital audio processing
- Completely full duplex operation
- Digital gain processing
- Auto answer/auto disconnect
- Privacy button for private conversations
- Integrates with most video conferencing systems for superior audio quality
- Optimum sound quality for audio teleconferencing
- Digitally eliminates acoustic echo for increased intelligibility
- Multiple location conference calling
- People at all locations can speak simultaneously without interruption
- Maintains consistent audio levels within the room, even with changing telephone line conditions
- Highly reliable operation and setup \$4995.00

GT700 Group Teleconferencer

- 7kHz frequency response
- 2-wire/telephone or 4-wire/video operation
- Built-in power amplifier
- Built-in 3-channel mic mixer
- 112ms echo cancellation span
- 100% digital audio processing
- Completely full duplex operation
- Digital gain processing
- Auto answer/auto disconnect
- Privacy button for private conversations
- Integrates with most video teleconferencing systems for exceptional audio quality
- Expandable for additional speaker and microphone coverage
- Digitally eliminates acoustic echo for high intelligibility
- Maintains consistent audio levels within the room, even with changing telephone line conditions
- Highly reliable operation and setup
- 1-box solution, no mixer or amplifier needed
- Reduces space requirements usually needed for mixer and amplifier \$2995.00

GTS700 Group Teleconferencing System

- Includes GT700 group teleconferencer
- 2 omnidirectional tabletop boundary mics
- 1 wall mount professional loudspeaker
- Handheld remote control \$3495.00

GT300 Group Teleconferencer

- 3.3kHz frequency response
- 2-wire/telephone or 4-wire/video operation
- Built-in power amplifier
- Built-in 3-channel microphone mixer
- 112ms echo cancellation span
- 100% digital audio processing
- Completely full duplex operation
- Digital gain processing
- Auto answer/auto disconnect
- Privacy button for private conversations
- Sleek design for "in the room" or "rack" installation
- Designed specifically for audio teleconferencing applications
- Expandable for additional speaker and microphone coverage
- Digitally eliminates acoustic echo for high intelligibility
- People at all locations can speak simultaneously without interruption
- Maintains consistent audio levels within the room, even with changing telephone line conditions
- Highly reliable operation and setup
- 1-box solution, no mixer or amplifier needed
- Reduces space requirements usually needed for mixer and amplifier \$1995.00

GTS300 Group Teleconferencing System

- Includes GT300 group teleconferencer
- 2 omnidirectional tabletop boundary mics
- 1 wall mount professional loudspeaker
- Handheld remote control \$2495.00



ET100 Portable Teleconferencer

- Works with virtually any phone line or phone system
- Base module provides universal handset interface to any telephone system and contains acoustic and telephone echo cancellation, digital audio processing for full duplex audio teleconferencing
- Provides interface to power supply, telephone, recorder and audio module
- Audio module contains speaker and microphone elements with 25' fixed cable for base module interface
- Inline power module with 6' fixed cable
- 18" handset cable
- Requires 120VAC, 60Hz, 23W (220VAC also available)
- 300Hz-3400Hz, ±1dB frequency response
- 50dB S/N ratio
- 3% total harmonic distortion
- 10dBu, 1K ohm, unbalanced record output
- Volume up/down, microphone mute controls \$1390.00

Assistive Listening System

TX-37/RX-1 Assistive Listening System

TX-37 Transmitter

- Universal input stage provides input for mix, line or speaker level, balanced or unbalanced
- Multi-proc adaptive audio processing
- Field selectable channel selection with digital tuning
- Built-in test tone to aid receiver tuning
- Flex antenna mount and cable
- Audio input level meter
- Adjustable RF level
- External power supply
- Rugged steel chassis
- Audio monitor jack with volume control
- Increased intelligibility for both hearing impaired and non-impaired listeners
- Improved signal to noise ratio
- No clipping or over-modulation
- Superior overall soundquality
- Easy receiver tuning
- Easy to use \$599.95



RX-1 Receiver

- Simple design
- Large on/off/volume control
- High power output stage (140mW)
- Built-in belt/pocket clip
- Inset earphone plug included \$70.00

RX-6 Receiver

- 6 user-selectable channels
- Recharger contacts for use with drop-in recharger (when using NiCad rechargeable batteries)
- Large on/off/volume control
- Built-in belt/pocket clip
- Power LED, indicating power is on and batteries are charged
- High power output stage (140mW)
- Inset earphone plug included
- Field tunable to all FCC approved assistive listening channels . . . \$125.00

Accessories

Earspeaker	\$ 15.00
Single earbud	2.50
Dual earbud	7.50
Mono headset	12.00
Rackmount kit	45.00
BC-10 Battery charger (charges 10 RX-1 receivers)	525.00

Packages

Package A Includes 1 TX-37 and 3 RX-1s	\$ 809.95
Package B Includes 1 TX-37 and 10 RX-1s	1299.95

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TELEPHONE INTERFACE EQUIPMENT



Gentner



Microtel Portable Telephone Interface

- Replaces the handset on standard telephones ▪ Sends and receives audio over the telephone ▪ Battery operated (uses 9V battery)
- External power not required ▪ Takes mic and line levels . . . \$259.00
- AC wall transformer 29.00

Hybrid Coupler

- 2-way telephone coupler ▪ Passive (uses no power) ▪ Adjustable mix of send and receive audio ▪ Selectable seize and tap positions
- Standard connections for telephone line and set \$179.00

Auto Coupler/Auto Coupler CP

- 2-way telephone coupler ▪ Automatic answer and disconnect
- Adjustable mix of send and receive audio ▪ Selectable operation from automatic to manual coupling ▪ Included wall adaptor
- Standard modular connections for telephone line and set
- Auto Coupler \$319.00
- Auto Coupler CP Disconnects where loop drop is not provided 319.00

Accessories for Hybrid/Auto Coupler

- Rackmount holds 4 units \$49.00
- Blank panels for rackmount 3.59

TC100R/100RTT Telephone Hybrids

- Answers incoming calls after 1-7 rings and automatically disconnects when the caller hangs up ▪ Upon answering the call, an internal relay can start your tape equipment for recording or playing a message ▪ Converts 2-wire phone circuits to 4-wire systems for placing calls on-air, sending IFB or recording interviews ▪ Simulates telephone battery for private intercom systems or powering computer modems
- TC-100R \$479.00
- TC-100RTT Also comes equipped with a DTMF decoder which provides remote control for up to 16 sources, such as audio feeds 569.00

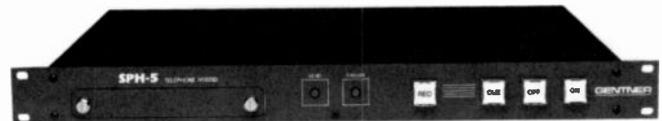


SPH-3A Telephone Hybrid

- Provides an interface between a telephone line and your equipment ▪ Used for on-air interviews and talk shows, recording telephone calls in the production studio or newsroom, or for

teleconferencing applications ▪ Built-in monitor amplifier eliminates the need for headphones ▪ Balanced and unbalanced mix outputs allow you to record conversations on any type of tape recorder

- Connects directly to the telephone line, either by plugging in a single line cord or through the common tip and ring of a multi-line key set ▪ Attendant telephone set connects to the rear panel
- Hybrid null set manually during installation ▪ Relatively insensitive to line changes ▪ Caller audio appears at the caller out XLR ▪ Audio to be sent to the caller is applied at the send XLR ▪ Mixture of the send and caller sources appears at the mix jacks ▪ Speaker or headset may be connected to the monitor jack ▪ Level is controlled from the front panel \$579.00



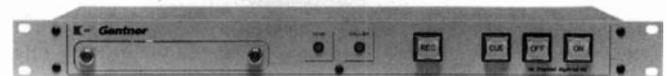
SPH-5 Telephone Hybrid

- An analog hybrid which incorporates almost all of the same features as the Digital Hybrid II ▪ Low distortion, low noise specs and maximum telephone frequency response ensures the best possible caller audio quality ▪ Uses "dual transformer" hybrid system to achieve consistent, wide spectrum and send audio to caller audio rejection \$889.00



Digital Hybrid Ia

- Auto-nulling telephone hybrid ▪ 100% digital hybrid ▪ 16-bit processing with 2X oversampling ▪ 10kHz sampling rate ▪ Automatic and continuous nulling to the telephone line ▪ Sturdy rackmount design ▪ Adjustable caller control ▪ Built-in power supply ▪ Meets international power requirements ▪ Internal test tone generator
- Remote capable \$1049.00



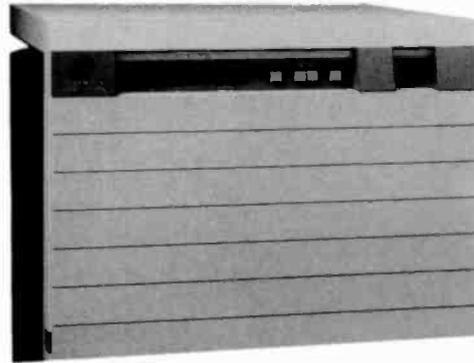
Digital Hybrid III

- Auto-nulling telephone hybrid ▪ Designed specifically for fast-paced studio settings ▪ May be used in virtually any application requiring connection of a telephone line to professional audio equipment ▪ Provides 2 unique controls (CUE and REC): CUE is used to talk with callers off-air. When pressed, it automatically switches its send audio from the console's mix-minus output to an auxiliary source such as a mic preamp. REC makes it easy to record both sides of a telephone conversation for later use; when this button is pressed, your tape recorder is activated and audio is sent to the tape
- Can also be tied to your console logic to automatically perform these functions when activated \$1795.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEOCONFERENCING EQUIPMENT



System 261A Video Codec

- CCITT H.320 standard codec
- Data rates from 56-2.048K byte/second
- Picture-in-picture
- 2 inputs, 2 outputs
- Live and still graphics video support
- Multipoint capable
- Choice of network interface: dual V.35 or T-1/RS-449 interface assembly

System 261A \$32,000.00

iLINK

- CCITT H.320 standard codec (FCIF)
- Data rates from 56-2.048K byte/second
- One 35" color TV monitor integrated within oak wooden cabinet
- Color camera system with lens
- Power pan/tilt/zoom/focus
- Enhanced desktop controller with desktop dialing
- Full duplex audio with echo cancellation
- 4 microphones
- Picture-in-picture
- 4 inputs, 2 outputs
- Live and still graphics video support
- Multipoint capable
- Far end camera control
- Camera presets
- Choice of network interface: dual V.35 or T-1/RS-449 interface assembly
- Modem for remote diagnostics

iLINK \$58,000.00

Dual iLINK includes iLINK features plus: ▪ Two 35" color TV monitors
▪ 2 cameras ▪ 2 cabinets

Dual iLINK \$68,000.00



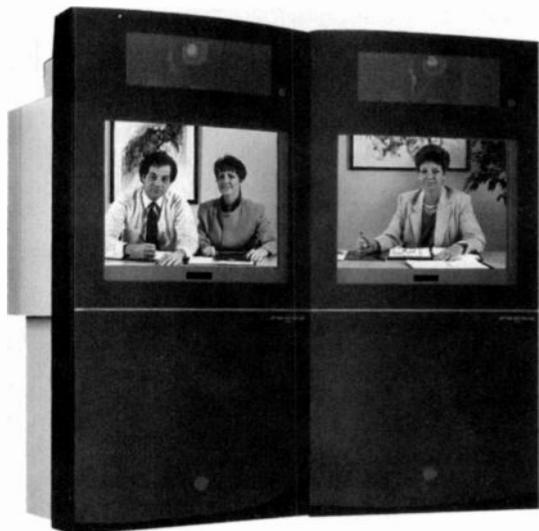
Focus PC

- CCITT H.320 Codec (FCIF)
- 30 FPS
- Interactive whiteboard, ISDN BRI network interface for video/voice/data calls

Focus PC Call for Price

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEOCONFERENCING EQUIPMENT



FOCUS 500 Series

▪ CCITT H.320 standard codec (FCIF) ▪ Data rates from 56 to 2048Kbps ▪ One 27" color TV, integrated within the cabinet ▪ Color camera system with lens ▪ Power pan/tilt/zoom/focus ▪ Enhanced desktop controller with desktop dialing ▪ Full duplex audio with echo cancellation ▪ 2 microphones ▪ Picture in picture ▪ 5 inputs, 2 outputs ▪ Live and still video graphics support ▪ Multipoint capable ▪ Far end camera control ▪ Camera presets ▪ Split screen capable ▪ Choice of network interface: dual V.35 interface assembly to 56 to 128Kbps switched access or E-1, T-1, RS-449 interface assembly ▪ Modem for remote diagnostics (2400 bps) ▪ 500 series cabinet

- FOCUS 511 System \$46,900.00
- FOCUS 512 System Same as FOCUS 511 except with: ▪ Two 27" color TVs ▪ Two 500 series cabinets 55,200.00
- FOCUS 522 System Same as Focus 511 except with: ▪ Two 27" color TVs ▪ Two cameras ▪ Two 500 series cabinets. 59,900.00
- FOCUS 511 Companion Unit ▪ One 27" color monitor, integrated within the cabinet ▪ One 500 series cabinet 12,000.00

FOCUS 311 System

▪ CCITT H.320 standard codec (FCIF) ▪ Data rates from 56 to 384Kbps ▪ One 25" color TV, external to the cabinet ▪ Color camera system with lens ▪ Power pan/tilt/zoom/focus ▪ Enhanced desktop controller with desktop dialing ▪ Full duplex audio with echo cancellation ▪ 1 microphone ▪ Picture in picture ▪ 5 inputs, 2 outputs ▪ Live and still video graphics support ▪ Multipoint capable ▪ Far end camera control ▪ Camera presets ▪ Choice of network interface: Dual V.35 interface assembly for 56 to 128Kbps switched access or E-1, T-1, RS-449 interface assembly for 56 to 384 Kbps ▪ Modem for remote diagnostics for 56 to 384Kbps ▪ Modem for remote diagnostics (2400 bps) ▪ 300 series cabinet

- FOCUS 311 System \$40,900.00
- FOCUS 312 System Includes 311 features except with: ▪ Two 25" color TVs ▪ Two 300 series cabinets 47,500.00
- FOCUS 322 System Includes 312 features except with: ▪ Two 25" color TVs ▪ Two cameras ▪ Two 300 series cabinets. 53,000.00
- FOCUS 311 Companion Unit ▪ One 25" color TV, external to the cabinet ▪ One 300 series cabinet. 8,000.00

FOCUS 305 Series

▪ Comes complete with all the capabilities and features necessary to make video conferencing a truly productive communications tool ▪ CCITT H.320 standard codec (FCIF) ▪ Data rates from 56 to 384Kbps ▪ One 20" color TV, external to the cabinet ▪ Color camera system with lens ▪ Power pan/tilt/zoom/focus ▪ Standard desktop controller with desktop dialing ▪ Full duplex audio with echo cancellation ▪ 1 microphone ▪ Picture in picture ▪ 2 inputs, 1 output ▪ Live and still video graphics support ▪ Choice of network interface: dual V.35 interface assembly for 56 to 128Kbps switched access or E-1, T-1, RS-499 interface assembly for 56 to 384Kbps ▪ Modem for remote diagnostics (2400 bps) ▪ 300 series cabinet

- FOCUS 305 System \$26,000.00
- FOCUS 306 System Includes 305 features except: ▪ Two 20" color TVs ▪ Two 300 series cabinets . . . 32,600.00
- FOCUS 307 System Includes 305 features except: ▪ Two 20" color TVs ▪ Two cameras ▪ Two 300 series cabinets \$ 35,500.00
- FOCUS 305 Companion Unit ▪ One 20" color TV, external to cabinet ▪ One 300 series cabinet 8,000.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DPM-700 Digital Picture Manipulator

■ 3-D rotation effects, variable perspective, spin, skew, size and many other transform effects with source, target or global space to provide multiple motion paths ■ Non-transform effects include solarization, posterization, mosaic, defocus, freeze frame, forced monochrome, false coloring and more ■ A and B inputs on each channel ■ Easy Cube for quick effects setup ■ Global channel provides a spatial frame of reference for the other 2 channels defining the location and shape of the 3-D space where the other channels operate ■ KeyLayer™ mode lets your video key appear either upstream or downstream of the production switcher ■ Multi-layer keying effects include key dissolve, fade-to-black, matte or external background, using either shaped or unshaped video for linear or luminance keying; key inputs can be inverted or matte filled ■ 5 matte generators: luminance and hue can be selected and key-framed for each matte generator ■ E-MEM® effects memory system will store 100 effects ■ Standard interfaces for Editor Peripheral, slave devices (such as Model 110); GPI integration and terminal interface provide a flexible system ■ Store effects and system setup with the standard floppy disk drive ■ Small rack unit frame saves space and simplifies installation

Options

Second Channel

Add a second channel to fly a second full bandwidth video, or fly a key signal with the video fill from the first channel. The second channel combiner lets you set channel priorities, dissolve between channels and manipulate shadow density. The combiner auto depth mode automatically sets combiner priority depending on the channel's location in space.

TrailBlazer Enhanced Recursive Memory

Special effects include star trails, decay, full-frame 3-D montage, drop shadows, motion blur and more. TrailBlazer acts like a built-in still store by adding a full frame of memory to the system.

Page Turn

Installs easily to provide page turn effects. User interface makes feature easy to use.

Source Selectors

The DPM-700 may be configured with input source selectors providing 10 inputs per channel. As an alternative, the DPM-700 can directly control Model 200 aux buses for up to 26 inputs per channel. Any input is programmable to the front or back of the channel.

Specifications

Inputs

Video Inputs: 2 (switched A/B inputs) each channel; 1 background (analog only); 1 reference (genlock, analog only)

Formats

NTSC composite, analog or digital (D2) inputs; 525-line component, analog or digital (D1) inputs. All systems provide both analog and digital outputs. Component systems accept both GBR and color difference (Y, R-Y, B-Y)

Outputs

Video Outputs: 2 program (analog composite only), 1 program (analog component only), 2 clean feed, 1 key

Composite Systems

DPM-700NA*	Composite analog NTSC system, single channel	\$26,895.00
DPM-700ND*	Composite digital (D2) NTSC system, single channel	26,895.00
DPM-702NA*	Second channel composite analog NTSC	15,895.00
DPM-702ND*	Second channel composite digital (D2) NTSC	15,895.00
DPM-704N	Linear effects generator for DPM-700, NTSC (ordered with system)	NC
DPM-705N	Page turn effects generator for DPM-700, NTSC (ordered with system)	3,000.00
DPM-720-10	10m control panel cable	120.00
DPM-720-30	30m control panel cable	260.00
DPM-720-100	100m control panel cable	900.00
DPM-720-100K	Control cable fab kit	750.00
DPM-730	TrailBlazer enhanced recursive memory	7,895.00
DPM-733**	Composite input selector for a DPM-700 channel, 120V	1,395.00
DPM-735**	Interconnect cable for DPM-733	225.00
DPM-755	Cable, Model 100/110/200 to DPM-700	100.00
DPM-752	Disk remote kit	200.00
DPM-753	Control panel rackmount adaptor	300.00
DPM-758	Data terminal with cable	725.00

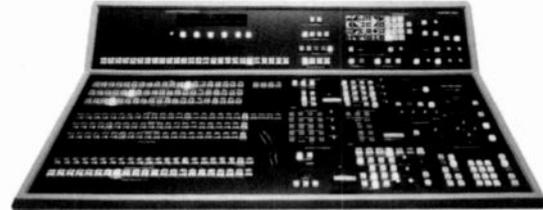
Component Systems

DPM-700CV525A*	Component analog 525 system, single channel	\$28,895.00
DPM-700CV525D*	Component digital (D1) 525 system, single channel	28,895.00
DPM-702CV525A*	Second channel component analog 525	16,895.00
DPM-702CV525D*	Second channel component digital (D1) 525	16,895.00
DPM-704CV525	Linear effects generator for DPM-700, 525-line (ordered with system)	NC
DPM-705CV525	Page turn effects generator for DPM-700, NTSC (ordered with system)	3,000.00
DPM-720CV-10	10m control panel cable	120.00
DPM-720CV-30	30m control panel cable	260.00
DPM-720CV-100	100m control panel cable	900.00
DPM-720CV-100K	Control cable fab kit	750.00
DPM-730CV	TrailBlazer enhanced recursive memory	7,895.00
DPM-733CV	Component input selector for a DPM-700 channel, 120V	3,095.00
DPM-735CV	Interconnect cable for DPM-733CV	225.00
DPM-725CV	Disk remote kit	200.00
DPM-753CV	Control panel rackmount adaptor	300.00
DPM-758CV	Data terminal with cable	725.00

*Order must include either a DPM-704 or DPM-705 for each system and each second channel. The correct format must be specified.

**1 DPM-735, and only 1, is needed for either 1 or 2 DPM-733s. For additional specifications and ordering information please inquire.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



110 Analog Production Switcher

▪ 3-bus multi-level M/E system ▪ 8 video inputs, plus black and color background ▪ Program and preset buses ▪ Linear and luminance keying ▪ Look-ahead preview system that always shows the next effect ▪ 3 independently programmable GPI auto transition systems ▪ 10 wipe patterns with modifiers ▪ 3 independent matte generators for key fill, background and pattern borders ▪ 10 E-MEM® effects memory system registers available from the control panel ▪ Clean feed video output ▪ Independent frame rate fade-to-black ▪ Pulse processor re-inserts blanking from blackburst on program output ▪ Integrates seamlessly with GVG DPM-700 digital effects system
110-N Model 110 system, NTSC \$10,995.00

110 Options

110-33 RGB/Component Chroma Keyer Provides capability to key from either RGB or Y, R-Y, B-Y inputs \$ 850.00
110-34 Chroma Key Bypass Converts the chroma key video signal path into a second external key video signal path \$4.00
110-40 Linear Borderline® Key Edge Generator for the DSK Allows all keyers to be enhanced with edging effects. Includes border, drop shadow and outline. 1,500.00
110-41 Pulse Regenerator Derives drive pulses for the switcher from a composite video source such as blackburst 1,000.00
110-50 RSS-232/422 Serial Interface For flexible control from an editor or external computer 1,500.00

110CV Component Video Switcher

The Model 110CV has all the features of the Model 110 (composite) and uses the same control panel, plus it adds that extra quality component video is known for:
 ▪ Standard input and output transcoders can be user-set to allow operation with the following video formats: Beta/Beta SP, SMPTE/EBU, MII or RGB ▪ Standard pulse regenerator ▪ Standard chroma keyer can key from any of the 8 primary inputs via the key bus ▪ Standard RS-232/422 serial interface for control by an editor or external computer ▪ Terminating primary video inputs ▪ Standard extender module simplifies adjustments and troubleshooting

The switcher is fully compatible with Betacam or MII series machines. Each input is jumper-selectable between component color difference and RGB inputs. Outputs are provided in both RGB and component formats, as well as luminance (Y) channel monitoring for all buses.

110CV-525C 110CV basic system 525/60 line system
 (for all formats except M1) **\$18,950.00**

110CV Option
110CV-40 Model 110CV-525/60 linear borderline. . . \$1,500.00

200 Series Production Switchers

▪ Mix or wipe to a preset position and size using a single keyer
 ▪ "Over" function; switch keyer priority in each M/E ▪ Automatically selects pre-assigned key when fill source is selected ▪ Accumulative latch for key signals extends the capability of each keyer by combining 5 key sources in a single keyer ▪ 6 assignable external key source inputs ▪ 4 external key fills ▪ Standard key masking with the dedicated shutter (box) mask for each keyer, external key mask or either M/E wipe pattern in any keyer ▪ Mask invert and forced foreground ▪ Key memory recalls preset clip and gain for each key fill and each key mode, allowing you to cut between key sources
 ▪ Create hundreds of wipe patterns with these standard modifiers: horizontal and vertical multipliers; border, soft and symmetry (halo) controls; rate controlled positioner; normal, reverse and flip-flop wipe direction modes and 4 learn user wipe registers ▪ E-MEM provides storage and recall of 30 complete switcher setups ▪ All M/E keyers are full-function and capable of linear, luminance, preset pattern and chroma keys (with chroma key option) ▪ Background wash between background generator or to black ▪ Complete transition preview in the M/E

200-1 ▪ Single M/E version is 3 keyers—2 in the M/E and 1 downstream ▪ Program/Preset mixer for live production ▪ M/E wipe system offers border width and edge softness, edge softness symmetry, aspect, rate-controlled positioning, and vertical and horizontal multipliers **\$29,000.00**

200-2 ▪ 20 primary inputs and 2 M/E with 5 full function keyers. There are 2 keyers in each M/E and 1 downstream ▪ You can use either M/E as a background for the downstream keyer, which also comes with fade-to-black and an output blanking processor **\$49,500.00**

200-2CV ▪ Includes all features of Model 200-2 in a component version including the ability to chroma key from any fill source
 ▪ Complete with background color suppression that dramatically improves the quality of your chroma keys. **\$79,995.00**

250 ▪ For live applications ▪ Power of a Model 200-2 switcher with the additional flexibility of a program/preset mixer that lets you keep up with fast-paced news and sports action ▪ Integrates seamlessly with the DPM-700 Digital Picture Manipulator for automatic auxiliary bus control ▪ Expands to 6 auxiliary buses for multiple feeds ▪ Instant control of external devices via the Peripheral Interface II Bus **\$56,000.00**

The Streamline Effects Controller

Includes: ▪ Key frames ▪ Register attributes ▪ Timeline ▪ Personality programming M/E copy ▪ Lock protection **\$6,000.00**

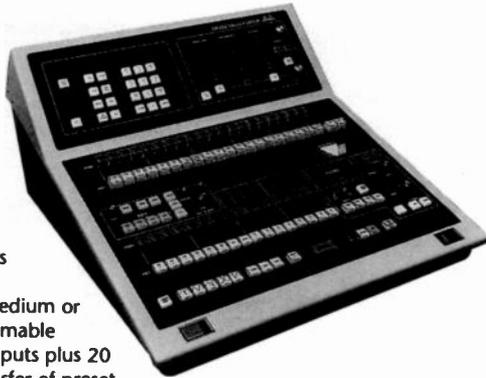
Please call for complete list of options.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Master 21™ Master Control Switcher

- Transition status display indicates time of day, transition time, elapsed time and preroll time
- 5 transition modes
- Programmable transitions: slow, medium or fast
- User programmable preroll
- 16 video inputs plus 20 stereo audios
- Transfer of preset audio levels to program bus
- Audio and/or video breakaway
- 4 audio-over/breakaway inputs for dedicated sources
- 4-input accumulative linear keyer and matte generator
- Built-in RS-232/422 control ports, clock, log printer port, terminal configuration port and input expansion capability
- 6 RU frame
- Put affordable master control and production power right in your hands
- The only master control switcher that lets you key transition status data into a television monitor
- Add more inputs for greater control
- Power to eliminate downtime and make your station's off-hours productive and profitable
- Consistent on-air look
- On-air graphic confirmation



It's a video mixer, an audio mixer, an effects generator and the most affordable system you can own.

With extensive control over video and audio sources, the Master 21 offers flexibility to build your switcher to manage a wide variety of broadcast situations. Thanks to the exclusive transition interrupt feature, your operator can even make changes during the transition, and the system will make a clean switch to preserve on-air quality.

The Master 21 system comes complete with video processor, stereo audio modules, control and tally modules and power supply in a 6 RU frame.

A fully optioned Master 21 gives you the ability to create video effects, control external routing systems, expand audio channels and enhance video keys with linear digital Borderline®.

Master 21 CV Component Master Control Switcher

Offers many of the same feature as Master 21 (composite) master control switcher, allowing you complete control of component analog video (CAV) and stereo audio sources. Includes 16 CAV inputs with companion dual channel audio inputs and 625-line or 525-line CAV processing.

Options

Video Effects Package

10 wipe patterns, 5-input linear keyer, component chroma keyer, 2 matte generators, manual/auto transition control.

Linear Borderline Key Edge Generator

Allows all keyers to be enhanced with edging effects. Includes border, shadow, extrude and outline.

Emergency 10 x 1 Bypass Switcher

Provides 9 other sources to go to air for maintenance or emergency situations.

Routing Switcher Expansion

Lets you select sources from GVG 20-TEN, Series 7000 signal management system or Horizon™ routing switchers to keep operation simple.

EVS Event Stacker

Allows the Master 21 to perform complex break sequences without operator intervention to help insure a consistent on-air look.

Sidecar and Tub

Half the size of the Master 21 panel, the sidecar houses optional panels like second audio program option, emergency bypass switcher, video effects or your own control panels.

Second Audio Program

The perfect solution for second language program transmissions. International transmissions of up to 4 languages.

Specifications

Inputs

▪ Video: Program/preset, key/fill, chroma key (optional) ▪ Audio: 16 plus 4 audio overs

Outputs

▪ Video: Program, preset, clean feed ▪ Audio: Program, 2 audio monitor outputs

Dimensions

▪ Frame (Master 21): 4 RU, 7"H x 19"W x 19"D ▪ Frame (Master 21 CV): 13 RU, 22.75"H x 19"W x 19"D ▪ Control Panel: 24.7"H x 22.5"W x 8.0"D

Power Requirements

▪ Frame: Master 21-100W, max.; Master 21 CV-500W, max. ▪ Control Panel: 100W, max. ▪ Voltage: 90-130VAC, 47-63HZ

M-21N	Master control switcher, NTSC with 15m cables.	\$23,950.00
M-RSM	Redundant power supply, matrix	1,550.00
M-RSP	Redundant power supply, panel	950.00
M-BPS	10XL VAA bypass switcher includes M-SMP, 15m cable	2,215.00
M-RCC	Additional cable for M-BPS (per meter charge)	3.00
M-SAP ¹	Second audio program with 15m cable for systems shipped after 7/91	6,900.00
M-AXP	Audio crosspoint module	1,025.00
M-SPS	Redundant power supply for SAP systems	495.00
M-DBL-N	NTSC borderline option for systems shipped after 7/91	1,500.00
M-DBL-EF	Linear digital borderline for VEP (not for M-21 internal keyer)	3,125.00
M-OST	Sidecar mounting tub.	1,500.00
M-RSE	Router expansion control panel and readouts.	2,905.00
M-SMP	M-BPS control panel for 10XL switcher	550.00
M-EXP	20-TEN expansion M-RSE, 20-TEN-V, 20-TEN-SA, 20-TEN-R, SERIM	17,425.00
M-VEP ²	Video effects package (includes control panel and 4 RU frame)	11,500.00
M-CAB	Additional length cables for M-21 control panel (15m standard)	15.00
S-CAB	Additional length cables for the SAP system (15m standard)	20.00
IMC-21	IMC to Master-21 interface.	3,500.00
IMC-MCIA	IMC-MC IA module	1,850.00
HXM-MB8	8-bus multibus C/P, for use in Master-21, broadcast nameset 117/230V.	2,800.00
IMM-MBT	Multibus tape C/P, M-21 mount, up to 8 HX dest/8 VTRs, broadcast	3,500.00
IMM-MBF	Multibus film C/P, M-21 mount, up to 5 HX dest/5 VTRs, broadcast	3,500.00
Component Video Systems and Options		
M-21CV-625	M-21 625-line component analog system	\$58,000.00
M-BPS-CV	10XL CVAA bypass switcher includes M-SMP, 15m cable.	4,310.00
M-DBL-CV	Linear borderline for internal DSK keyer	3,125.00
M-EXP-CV	20-TEN CV input expansion system	25,560.00
M-RSM-CV	Redundant power supply, matrix (M-21 CV)	2,100.00
M-RSP	Redundant power supply, panel	950.00

¹ Add M-AXP for second audio channel

² Requires options side car, M-OST

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PRODUCTION SWITCHER



Grass Valley Group®

1000 Component Digital Production Switcher

■ CCIR 601 4:2:2 technology for dramatic improvement in video picture quality ■ Inputs mapped to any crosspoint ■ 10-bit processing with complete video transparency ■ Auto-timing serial and parallel inputs ■ 525/625 formats, auto-selection ■ 16 inputs programmable as either video or key ■ 20 wipe patterns with modifiers ■ Compatible with 16 x 9 picture formats ■ All keyers capable of luminance, linear and chroma key ■ 1 effects keyer and single DSK with fade-to-black ■ Variable priority control between the 2 effects keyers ■ Independent proc amp control of each input ■ Ultimate combination of performance and price ■ Component digital key processing gives you clean and noise-free keys without noise or distortion ■ Huge increase in keying control and flexibility ■ Eliminates routine maintenance due to digital technology, therefore you'll see a better long-term return on your investment ■ You can create a limitless number of record generations when you use a component digital switcher with component digital recording ■ Designed to fit in the multiformat world of the future ■ You can configure the system to meet your exact requirements

You've never seen performance this big from a component digital production switcher priced so low. Combining component 4:2:2 digital video signal processing and our extensive use of ASICs, the 1000 gives you clean and noise-free keys over and over with no accumulation of noise or distortion. Because the switcher is serial component digital technology, installation is simplified and your investment is protected for years to come.

Options

Linear Borderline® Key Edge Generator

Allows all keyers to be enhanced with edging effects. Includes border, shadow, extrude and outline.

Second Keyer in the Mix Effects

Z-Key Depth Processor

Allows the M/E keyers to key in the third dimension along the Z-axis. Creates depth plus it utilizes depth information from devices such as Graphics Factory® or Kaleidoscope™.

Chromatte™ Chroma Keyer

Provides quality and flexibility previously unheard of in production switchers. Provides 4:2:2 chroma keying on any of the keyers where it is assigned. Every video input can be a chroma key source.

Effects Send/Dual Auxiliary Buses

Provides integration with digital effects devices for image and key manipulation.

Look-Ahead Preview Mixer

Allows the next event for both the M/E and DSK to be previewed.

Component Serial Digital Input Module

2 inputs per module.

Component Parallel Digital Input Module

2 inputs per module.

Component Serial Digital Output Module

2 outputs per module.



Component Parallel Digital Output Module

2 outputs per module.

Analog Output

Selectable as either RGB or color difference.

Setup and Status Terminal

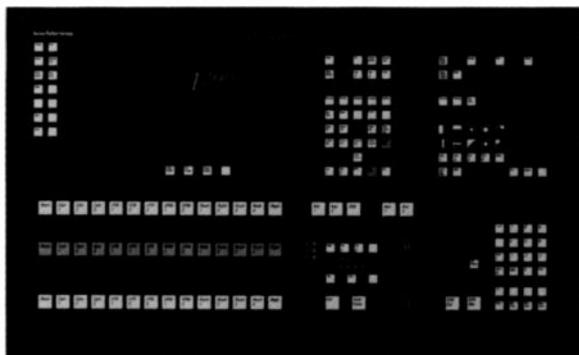
Specifications

■ Number of Primary Video Inputs: 16 ■ Number of External Key Inputs: 16 Video or Key ■ Outputs: Program, preview, clean feed, aux buses, key ■ Control Panel Dimensions: 5.2"H x 17.0"W x 13.75"D ■ Electronics Frame Dimensions: 10.25"H x 19.0"W x 24.8"D ■ Power Requirements: Power: 400W, maximum; Voltage: 90-240VAC, auto-ranging; 50/60Hz

1000	.....	\$16,000.00
1000-101	10m control cable	200.00
1000-102	30m control cable	300.00
1000-103	100m control cable	700.00
1000-201	Dual parallel digital input module	1,000.00
1000-202	Dual serial digital input module	2,000.00
1000-301	Parallel digital output: program video, program key	1,000.00
1000-302	Serial digital output: program video, program key	2,000.00
1000-303	Parallel digital output: preview video, clean feed video	1,000.00
1000-304	Serial digital output: preview video, clean feed video	2,000.00
1000-305	Parallel digital output: AUX/EFX send bus 1, AUX/EFX send bus 2	1,000.00
1000-306	Serial digital output: AUX/EFX send bus 1, AUX/EFX send bus 2	2,000.00
1000-310	Analog YUV output: program video	2,500.00
1000-311	Analog YUV output: preview video	2,500.00
1000-500	Z-key depth key processor for program video	4,000.00
1000-501	Z-key depth key processor for preview video	4,000.00
1000-510	Second mix/effects keyer	2,500.00
1000-521	Borderline key edge generator for keyer 1	2,500.00
1000-522	Borderline key edge generator for keyer 2	2,500.00
1000-523	Borderline key edge generator for DSK	2,500.00
1000-524	Borderline key edge generator, package of 3	6,000.00
1000-530	Chromatte 4:2:2 component chroma keyer	4,000.00
1000-601	Look-ahead preview mixer with parallel output	7,000.00
1000-602	Look-ahead preview mixer with serial output	8,000.00
1000-720	Setup and status terminal	725.00
1000-730	Satellite auxiliary bus control panel	1,500.00
1000-731	Satellite auxiliary bus control cable, 10m	200.00
1000-732	Satellite auxiliary bus control cable, 25m	300.00
1000-733	Satellite auxiliary bus control cable, 50m	400.00
1000-734	Satellite auxiliary bus control cable, 100m	600.00
1000-1020	Digital video cable, 65m screw lock	175.00
1000-1021	Digital video cable, 1m screw lock	175.00
1000-1022	Digital video cable, 2m screw lock	200.00
1000-1023	Digital video cable, 5m screw lock	250.00
1000-1024	Digital video cable, 10m screw lock	275.00
1000-1025	Digital video cable, 15m screw lock	300.00

For additional specifications and ordering information please inquire.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



1200 Component Digital Production Switcher

- CCIR 601 4:2:2:4 technology for unmatched video picture quality
- Quick, auto chroma key setup and greater control over all key parameters
- Auto-timing serial or parallel input/output with key input for every video input
- Patented Z-Key depth and 10-bit processor for outstanding video fidelity and transparency
- Total keying flexibility with three full-function keyers, including chroma key in the DSK
- Proc amp controls on every input will correct any input source errors in the switcher
- Effects send capability lets you splice an effects device into the path of any keyer
- Auto-select 526/625 formats
- 16 inputs you can assign as either video or key
- Fully compatible with the 16 x 9 picture format of the future
- New control panel design, extremely easy to use
- Superb keying control and flexibility
- Big performance in a compact design

The 1200 serial component digital production switcher delivers large switcher performance in a unique compact design. We've incorporated years of customer feedback into the 1200 control system. With keying power unmatched by any competitive system in its class, plus a control panel that gives you a whole new level of ease of use and integrated control, the 1200 is a very smart buy.

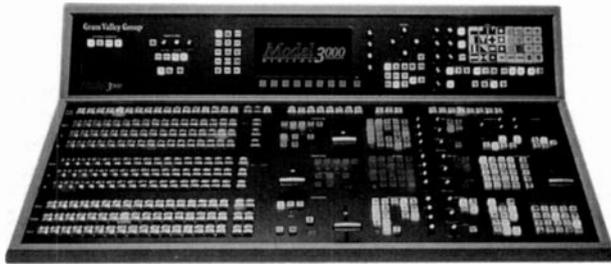
1200 \$20,000.00

Options

- 1200-101** 10m control cable \$ 200.00
- 1200-102** 30m control cable 300.00
- 1200-103** 100m control cable 700.00
- 1200-201** Dual parallel digital input module 1,000.00
- 1200-202** Dual serial digital input module 2,000.00
- 1200-301** Parallel digital output: program video, program key 1,000.00
- 1200-302** Serial digital output: program video, program key 2,000.00
- 1200-303** Parallel digital output: preview video, clean feed video 1,000.00
- 1200-304** Serial digital output: preview video, clean feed video 2,000.00
- 1200-305** Parallel digital output: aux/EFX send bus 1, aux/EFX send bus 2 1,000.00
- 1200-306** Serial digital output: aux/EFX send bus 1, aux/EFX send bus 2 2,000.00
- 1200-310** Analog YUV/RGB output: program video ... 2,500.00
- 1200-311** Analog YUV/RGB output: preview video ... 2,500.00

- 1200-500** Z-key depth key processor for program video \$4,000.00
- 1200-501** Z-key depth key processor for preview video 4,000.00
- 1200-510** Second mix/effects keyer 2,500.00
- 1200-521** Borderline key edge generator for Keyer 1 2,500.00
- 1200-522** Borderline key edge generator for Keyer 2 2,500.00
- 1200-523** Borderline key edge generator for DSK ... 2,500.00
- 1200-524** Borderline key edge generator, package of 3 6,000.00
- 1200-530** Chromatte 4:2:2 component chroma keyer 4,500.00
- 1200-600** Look-ahead preview mixer 6,000.00
- 1200-601** Look-ahead preview mixer with parallel output 7,000.00
- 1200-602** Look-ahead preview mixer with serial output 8,000.00
- 1200-700** Spare system power supply 3,000.00
- 1200-710** Board level service kit 500.00
- 1200-730** Satellite auxiliary bus control panel 1,500.00
- 1200-731** Satellite auxiliary bus control cable, 10m ... 200.00
- 1200-732** Satellite auxiliary bus control cable, 25m ... 300.00
- 1200-733** Satellite auxiliary bus control cable, 50m ... 400.00
- 1200-734** Satellite auxiliary bus control cable, 100m ... 600.00
- 1200-1020** Digital video cable, .65m screw lock 175.00
- 1200-1021** Digital video cable, 1m screw lock 175.00
- 1200-1022** Digital video cable, 2m screw lock 200.00
- 1200-1023** Digital video cable, 5m screw lock 250.00
- 1200-1024** Digital video cable, 10m screw lock 275.00
- 1200-1025** Digital video cable, 15m screw lock 300.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



3000 Series Composite Digital Production Switchers

- 2 full function keyers in each M/E
- Dual DSKs
- Up to 64 inputs for use as video and/or key
- Automatic input timing
- Extensive key masking with each keyer
- 6 dual matte generators in each M/E
- 2 dual background generators with independent wash
- 2 dual matte generators for each DSK
- Wash capability included with each matte generator
- Non-Additive Mix (NAM) and Full Additive Mix (FAM) modes
- Wipe pattern mix and NAM
- Key priority transition mode
- E-MEM® effects memory system with effects dissolve and sequencer
- 100 E-MEM registers
- Key frame based effects within each E-MEM register
- 3.5" micro-floppy disk for E-MEM data storage
- Video processing in each M/E
- Lamina™ image layering allows 4-layer compositing within each M/E
- Serial ports, GPI and status port built in
- Smooth transition to digital
- More inputs
- Fineline™ processing gives you composite keying with near component quality
- Minimal installation expense
- Unlimited effects re-entry

The 3000 offers a smooth transition to digital video with GVG's 10-bit composite digital input and output capability. ASIC technology is used throughout the switcher, providing unequalled stability, reliability and picture quality.

A true multiformat compatible switcher, capable of handling a mix of analog, parallel digital and serial digital inputs and outputs. All without external conversion boxes.

The 3000 can be ordered in a 2 M/E plus program/preset configuration or as a 3 M/E plus program/preset with a full function control panel to meet the most demanding needs of the broadcaster.

Not only is this switcher one of our most cost-effective units, it is essentially maintenance-free.

Options

Second Wipe Pattern Generator

Provides a second wipe pattern for both M/E systems. Allows 2 independent wipe patterns within each M/E and can be mixed with the primary generator's pattern to create many new, unique and exciting patterns. It can also be used as an additional mask source and a matte generator within each M/E.

Analog Component Chroma Keyer Inputs

Chromatte Advanced Chroma Keyer Per M/E

Advanced chroma capabilities include background and foreground suppression plus GVG's secondary hue suppression to eliminate color fringing.

Linear Borderline Key Edge Generator

Allows all keyers to be enhanced with edging effects. Includes border, shadow, extrude and outline.

Safe Title and Action Generator

Provides a safe title area, safe action area, crosshatch or combination of the 3 over the switcher's preview output.

M/E Look-Ahead Preview

Provides look-ahead preview processing for the M/E systems in the 3000. The option allows you to preview the next event on the preview bus output.

Video, Key and Mask Framestore

Layering of stills can be fast and easy with this option. You can flawlessly grab a 4-field video signal and its key signal. A positional dropshadow is also possible.

4 Effects Send/Auxiliary Switching Buses

Now you can insert a digital effects system in the middle of an M/E. This allows transformations of the image prior to layering. Flying, positioning and sizing of a luminance/linear/chroma/borderline edged key or preset pattern can be accomplished using just 1 keyer.

6 Utility Auxiliary Switching Buses for Video

Additional Communication Expansion Ports

Redundant Power Supplies

Provide back-up power to the signal system and control panel. They are designed to protect against a line failure or power supply failure.

Specifications

Video Inputs

64; Any of the inputs can be configured as either video or key. Switcher will accept any combination of input types in groups of 4 (analog, parallel digital or serial digital)

Outputs:

Program video, program key, mask bus video, switched preview video, M/E program video, M/E program key, M/E or DSK preview video, PGM/PST mixer preview video, F-F mix clean feed video. (Any of the above outputs available in groups of 4 as analog, parallel digital or serial digital.)

Dimensions

- 3000-2 Control Panel: 24.5" H x 42.5" W x 80"D
- 3000-3 Control Panel: 21.7"H x 54.1"W x 8.7"D
- 3000-3 Accessory Panel: 10.3"H x 54.1"W x 6.5"D
- Electronics Frame (3000-2 and 3000-3): 42.0"H x 19.0"W x 22.5"D
- Power Supply (3000-2 and 3000-3): 12.25"H x 19.0"W x 22.5"D

Power Requirements

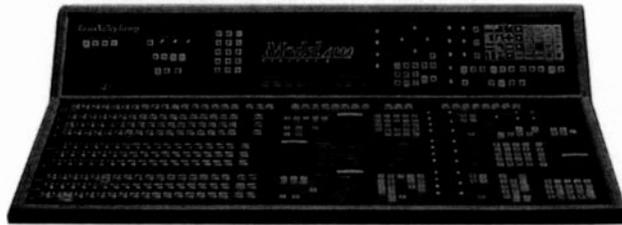
Control Panel Power: 300W
Voltage: 115VAC/230VAC, 47-63Hz

Electronics

Power: 2900W, maximum
Voltage: 220VAC nominal, 47-63Hz

- 3000-2 Compact control panel with 2 M/E systems; direct access to up to 16 video inputs plus another 16 shifted inputs; ideal for post-production applications; no inputs \$ 74,000.00
 - 3000-3 Full function control panel with 3 M/E systems; direct access up to 24 video inputs plus another 24 shifted inputs; ideal for live broadcast applications; no inputs 125,000.00
 - 3000-3-2 M3000-2 to M3000-3 upgrade kit 55,000.00
- For additional specifications and ordering information please inquire.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



4000 Series Component Digital Production Switchers

- Individual matte generators ▪ Lamina™ image layering allows 4-layer compositing within each M/E ▪ E-MEM® effects memory system with effects dissolve and sequencer ▪ 100 E-MEM registers
- Improved key masking ▪ Component 4:2:2 digital video signal processing ▪ ASICs provide ultimate picture quality and integrity
- DPM interface for control of digital effects systems ▪ Serial component digital technology simplifies installation and protects investment for years ▪ Component digital key processing gives you clean and noise-free keys with no noise or distortion

You can precisely grab a video with its key signal to make layering of stills quick and easy. You also get a positionable drop shadow plus the capability to create complex masks.

4000-2A

- Full function control panel with 2 M/E systems ▪ Full length program/preset mixer with mix and wipes and dual DSKs ▪ Up to 24 video inputs can be controlled directly from the control panel, plus another 24 shifted inputs ▪ Unlimited effects re-entry with Kaleidoscope™ digital effects system

4000-2B

- Compact control panel with 2 M/E systems ▪ Full length program/preset mixer with DSKs ▪ Up to 16 video inputs can be controlled directly from the control panel, plus another 16 shifted inputs ▪ Unlimited effects re-entry with Kaleidoscope digital effects system

Options

Linear Borderline® Key Edge Generator

Allows all keyers to be enhanced with edging effects. Includes border, shadow, extrude and outline.

Effects Send

Allows effects send capability in each M/E. This gives you the capability to send video and key directly to digital effects devices such as the Kaleidoscope DPM 1 or splice the Kaleidoscope system in any of the M/E keyers.

Add a Key Input for Every Input

You can configure your switcher with an external key input for every video input, up to 64 inputs for video and/or keying.

Chromatte™ Advanced Chroma Keyer

Includes background and foreground suppression as well as GVG's patented secondary hue suppression which eliminates color fringing.

More Inputs for Production Applications

By specifying a special extended control panel you get 24 inputs, allowing access to more sources for live applications.

Specifications

Number of Video Inputs: 64

Switcher accepts serial digital inputs in groups of 8 which can be video or key; or up to 16 component analog video and 16 analog keys.

Outputs

Analog: DSK program video and switched preview video.

Serial Digital: Program video, or preview video, PGM/PST preview video, aux buses, clean feed video, mask, DSK program video or key, program key/clean feed (switchable), switched preview.

4000-2A	2-M/E base, 24-button control panel . .	\$100,000.00
4000-2B	2-M/E base, 16-button control panel	90,000.00
4000-102S	50m control cable	700.00
4000-103S	100m control cable	950.00
4000-104S	300m control cable	1,950.00
4000-121	50m remote aux bus cable	140.00
4000-122	100m remote aux bus cable	230.00
4000-123	300m remote aux bus cable	600.00
4000-201	Serial digital input module, looping	10,000.00
4000-202	2 component analog video and 2 analog key input module	10,000.00
4000-203	2 component analog video and 2 analog key input module expansion	8,000.00
4000-204	8-input serial digital input module non-looping	9,000.00
4000-301	Serial digital output module: preview, clean feed and aux 9	4,000.00
4000-302	Serial digital output module: aux 5 A/B, aux 8 A/B untimed	4,000.00
4000-303	Serial digital output module: M/E 1, 2, and DSK video and key, preview and mask	4,000.00
4000-304	Serial digital output module: aux 5A/B-8A/B	8,000.00
4000-400	Effects send system—includes: matrix and aux 1-4 serial out	15,000.00
4000-420	Single aux bus, remote C/P 1 RU	1,500.00
4000-425	Single aux bus, remote C/P 2RU	2,000.00
4000-430	Delegated aux bus, remote C/P	3,000.00
4000-510	Secondary wipe generator for both mix/effects	10,000.00
4000-515	Secondary wipe generator for program/preset mixer (-2A only)	5,000.00
4000-521	Borderline key edge generator for M/E 1, keyer 1	2,500.00
4000-522	Borderline key edge generator for M/E 1, keyer 2	2,500.00
4000-523	Borderline key edge generator for M/E 2, keyer 1	2,500.00
4000-524	Borderline key edge generator for M/E 2, keyer 2	2,500.00
4000-525	Borderline key edge generator for DSK 1	2,500.00
4000-526	Borderline key edge generator for DSK 2	2,500.00
4000-530	Dual component chroma key input	5,500.00
4000-531	Dual component chroma keyer for M/E 1	12,000.00
4000-532	Dual component chroma keyer for M/E2	12,000.00
4000-550	Ahead preview for both M/Es, PGM/PST and DSKs	6,500.00
4000-560	Communications expansion option	5,000.00
4000-570	Tally output	1,500.00
4000-575	External tally expansion frame	3,500.00
4000-576	External tally expansion module	1,500.00
4000-580	Control panel redundant power supply	2,000.00
4000-581	Signal systems redundant power supply	10,000.00

Full line of accessories available. Please call for pricing.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VPE Series Video Production Editing Systems

The VPE Series video production editors are high performance videotape editing systems. They control VTRs and ATRs from various manufacturers and can also control several types of video switchers, audio mixers and a variety of other peripheral equipment. GVG's powerful SuperEdit™ software provides the feature-rich operating environment.

VPE series editors offer you a seamless upgrade path to the VPE-251. Start with any of the series and upgrade whenever you are ready for top-of-the line editor capability.

VPE-131 Video Production Editor

▪ Battery backed-up RAM allows 999 data lines in EDL = 3.5" floppy disk drive; disks can be interchanged with MS DOS compatible systems = 4 VTR ports active during each edit, 7 VTR ports total = Dedicated ports: peripheral port for TBC remote controllers; printer for optional printer; switcher for Model 100/110/200/300, Ten-XL or Ampex Vista; mixer for AMX-170/100, ESAM-I/II; CG/Graphics port for GVG and Aston-4 device control = E-E previewing or optional preview switcher = 8 GPI relays = Store 72 keystrokes in each of 5 macros = TTL/analog color data display = Choice of 2 keyboard styles (K2 or K3) = Upgradable to the VPE-141L/241L/251 = Hot key edit mode = XEDL™ utility converts several EDL formats = XFR serial port and model EDL transfer program = Edit information storage in EDL = PAL or NTSC operation = Video switcher and audio mixer control = Choice of RS-422 VTR protocols = Mixed time code format operation = Multiple auto assembly modes = PEGS multi-event registers: (P): Programmed motion control of VTRs; (E): E-MEM® Effects Memory System and auto-transition control of GVG switchers and audio mixers; (G): GPI triggers (S): Serial control of Kaleidoscope, DPM-700/GVG Graphics devices and TBC data storage = Preview preselector software (TEN-XL or Performer routing switcher required) which allows different VTRs to be monitored in previews as recorders after swap

Base Models

131-01	NTSC system with K2 keyboard	\$13,500.00
131-02	NTSC system with K2 keyboard and training	15,300.00
131-03	NTSC system with K3 keyboard	13,500.00
131-04	NTSC system with K3 keyboard and training	15,300.00

VPE-141L Video Production Editor

Includes all the VPE-131 features plus: = 1M byte of battery backed-up RAM allows 2,001 data lines in EDL = Total of 7 VTR ports = Upgradable to the VPE-241L/251

Base Models

141-01	NTSC system with K2 keyboard	\$16,000.00
141-02	NTSC system with K2 keyboard and training	17,800.00
141-03	NTSC system with K3 keyboard	16,000.00
141-04	NTSC system with K3 keyboard and training	17,800.00

VPE-241L Video Production Editor

Includes all the VPE-141L features plus: = Total of 2M bytes of battery backed-up RAM = 4 EDL bins, each with 2,001 data lines for a total of 8,004 lines = Swap function, allows changing R-VTR assignment = Second 3.5" floppy disk drive = Swap function for instant swapping of current record device (useful in layering and multi-generation effects) = 409/Trace™ combination software known as the industry standard list cleaning and multiple generation tracing utilities = Source color framing = Multiple SuperEdit programs and utilities in RAM disk for instant access = Edit reel ID allows for changing reel IDs after insertion to the EDL = Film mode enters feet and frames, slate offset for each VTR, 35mm or 16mm numbers, also center dissolves = Upgradable to VPE-251

Base Models

241-01	NTSC system with K2 keyboard	\$20,000.00
241-02	NTSC system with K2 keyboard and training	21,800.00
241-03	NTSC system with K3 keyboard	20,000.00
241-04	NTSC system with K3 keyboard and training	21,800.00

VPE-251 Video Production Editor

Includes all of the VPE-241L features plus: = Total of 4M bytes of battery backed-up RAM = 8 EDL bins each with 2,001 data lines for a total of 16,008 lines = Hard disk drive for EDL and program storage = Expansion chassis provides 7 additional VTR ports, for a total of 14 = Optional K5 style keyboard and jogger also available

VPE-251	VPE-251 edit system, NTSC less keyboard, including 1-day training at customer site	\$25,000.00
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Note: The basic VPE-251 system utilizes E-E previewing and does not include a preview switcher.

VPE-251 Keyboard Selections

Note: System orders should include 1 of the following keyboard selections.

VPE-K2	Jog knob keyboard QWERTY-style (knob on right for motion control)	\$1,500.00
VPE-K3	Dedicated keyboard (no text entry, center knob for motion control)	1,500.00
VPE-K5	VPE-151 keyboard for VPE-251 editor with cable and manuals	2,500.00
VPE-K5JOG	VPE-151 jogger control panel for VPE-251 editor	1,500.00
K3-TXT	Text entry keyboard for use with VPE-K3 keyboard	300.00

Note 1: The K2 keyboard is standard "QWERTY"-style with colored function keycaps and jogger knob located on the right-hand side. The K3 keyboard is a "dedicated"-style with keycaps arranged in functional groups and jogger knob located in the center. The K3 keyboard has a connector for an additional (PC-style) keyboard to enter text, such as EDI notes, if needed.

Note 2: When ordering the VPE-151 keyboard for the VPE-251 editor, the VPE-151 jogger must be ordered as well.

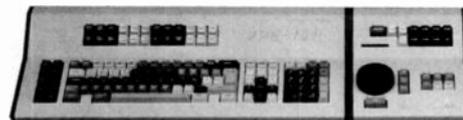
Machine control protocols (order 5 with system purchase).

Options

K2 Keyboard—Industry standard "QWERTY" style, with color coded keycaps and touch-sensitive jog knob on right side (no charge).



K3 Keyboard—Dedicated keyboard style, with functional key groupings and center jog knob. All alphabetical characters are available on this keyboard; though for touch typing, an auxiliary PC-style text keyboard may be connected to the K3 (no charge).



K5 Style Keyboard and Jogger for VPE-251—The same keyboard and functionality that once was available only with the higher-priced VPE-151. Order both keyboard and jogger.

409 Software—Provides EDL cleaning. Eliminates recording overlaps, reordering events in record time sequence and joining segments into a single event where possible. The 409-cleaned EDL is optimized for auto-assembly operations.

Trace Software—Editing tool designed to let you make several generations of changes to a show by using the record master as a source in creating a new version of the show (without having to rebuild the list or record tape each time).

Preview Switcher—Performs previews when a R-VTR has no E-E capability or whenever preview switching is needed. The switcher also handles either composite or component video and 4 channels of audio.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Presto Series Character Generators

- Bezier master fonts with font sizing from 8-400 scan lines, font scaling for Z axis rotation
- 24 international character sets
- 90M byte internal hard drive
- 1.44M byte 3.5" floppy drive
- SCSI port and GPI port
- Real time effects including roll, crawl, wipe, 4-directional push, slow reveal, fade in/out, tumble and more
- Animation includes mosaic, magmove (magnify and move) and combine commands which string together a series of images for text and background animations with a choice of 9 user-selectable speeds
- PC Translate software provides a series of Windows compatible production software tools to help you work more efficiently. Gives you the ability to use your IBM PC compatible to compose and edit text for GVG® K-Series, Presto and Graphics Factory® systems
- All fully integrated with GVG production systems
- On-line help for user-friendly operation
- Choose from 4 systems for the perfect combination
- Optional upgrade kits

Presto Series character generators offer you faster graphics processing and more creativity than others costing thousands more, with real time display effects, broadcast quality anti-aliased graphics and pixel-popping speed.

K Scripting language lets you customize graphics and automate production chores, making it ideal for live sports coverage, data updates or repetitive functions. User-definable macros let you write, store and edit an unlimited number of specialized commands recalled by name or alternate keystroke.

Options

Additional foreign languages, International keyboards, Bezier master font library

Presto 100 Plus

Includes all standard features plus 68030 CPU, 8M byte display memory, 2 RS-232 ports and 2 RS-422 ports, 32 Bezier master fonts, terminal software, keyboard paint. \$12,000.00



Presto 200

Includes all standard features plus 68040 CPU, 16M byte display memory, 90M byte removable drive in addition to 1.44M byte floppy drive, 4 RS-232 ports and 4 RS-422 ports, 32 Bezier master fonts, 1024 colors, black and white preview, keyboard paint \$16,000.00

Presto 200 Plus

Includes all Presto 200 features plus KolorGrab, a single RU hardware module with software for RGB capture and font composition \$19,950.00

KolorGrab RGB Image Capture for Presto Series

- Captures any color still or RGB video signal
- Color images can be used for corporate logos, broadcast IDs, custom fonts, individual character sets or full-screen images and backgrounds
- You can scale, edge or show captured images and then assign them to an individual key for instant recall
- KolorGrab is standard with the Presto 200 Plus and available as an option on other Presto models
- Terminal software required. \$6,000.00



Pronto Affiliate ID System

- 68030 CPU running at 25MHz with 256-color display
- System is compatible with AFRTS and AFNE requirements
- Time and temperature software
- Display and maintain current local time and temperature during ID segments
- Full screen backgrounds
- 15X faster than its replacement
- 8M bytes of display memory
- 2 RS-422 ports and 2 RS-232 ports
- 90M byte internal hard drive
- 1.44M byte 3.5" floppy drive
- SCSI port
- GPI input
- Standard keyboard
- By adding an optional software upgrade to the Pronto system, it becomes a Presto character generator
- Pronto gives networks the flexibility of sending messages to selected affiliates and alerting them of upcoming inserts
- Easy to install, operate and maintain
- Improved features make the system graphically better

Pronto plays network promos while keying effects, animations and affiliate ID logos into the network signal, under the control of either network or affiliate commands.

Since the same software control now used by more than 400 affiliates is standard with Pronto, operators can start using the speed and display features without retraining.

Pronto features machine control through GPIs and is capable of controlling selected VTRs, GVG® TEN-XL routing systems and audio cart machines. Specify affiliation. \$12,000.00

Pronto-CGS Character Generator Software

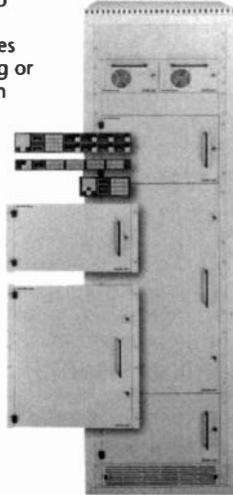
- Includes 32 Bezier master fonts
- 8 font, color, edge, drop shadow configurations
- 24 Latin language keyboard layouts, accents and character sets
- 2 Swiss layouts
- 1 Polish layout
- 1 Turkish layout
- Displayable colors—256 for backgrounds and fonts selectable from 16 million
- 16 levels of anti-aliasing, user selectable for 4 or 8 levels
- 100 levels of opacity control for backgrounds and font foregrounds and shadows \$ 2,000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Series 7000 Signal Management System

- Offers a variety of frame sizes from 16 x 16 to 128 x 128 with expansion up to 1024 x 1024
- AES/EBU digital audio matrices ▪ Data matrices
- Video and audio frames support either analog or digital modules in the same frame ▪ Full system integration with GVG® production switchers, video effects devices, master control equipment and editors ▪ Control panels feature: programmable 8-character names; relegendable buttons; chop and protect functions; simple coaxial connection to the panel bus ▪ A pull-down menu, graphical user interface enhances system configuration
- Multiformat system accommodates all formats, including the future 16 x 9 standards ▪ Tie-line management reduces overall routing system size and cost



Series 7000 Video Matrices

These compact video frames are ideal for remote vehicles, facilities changing over from patch panels, CAV applications and entry into serial digital. They may be used separately or as part of larger systems. Start with as few as 16 inputs x 16 outputs and build to frame capacity in 16 x 16 steps. A standard rack will house a full 128 x 128 matrix, with no requirement for external DAs or secondary switching, with simple expansion to 1024 x 1024. Equal signal path lengths guarantee uniform timing when any input is switched to any output. Analog and digital modules can be mixed in the same frame. Process all 4 serial digital rates simultaneously (143, 177, 270 and 360 Mb/s).

SMS-32 x 32V Video Matrix

- Matrix sized from 16 x 16 to 32 x 32 ▪ Compact 6 RU (10.5") frame
- Optional video output monitor module ▪ Requires 6 RU control frame (for video-only system)

SMS-64 x 64V Video Matrix

- Matrix sized from 16 x 16 to 64 x 64 ▪ 12 RU (21") frame
- Controller module can be placed in this frame to control this and other frames of same or smaller size ▪ Separate 6 RU control frame can be used in lieu of placing controller module in video frame ▪ Core component of the 128 frame is a 128 x 64 matrix, expandable in 32-output increments to 128 x 128 ▪ Matrix size can be expanded in the field ▪ As with compact video frames, the SMS-128 frame family supports either wideband analog or serial digital video modules ▪ The 128 frame has a separate power supply and utilizes the separate control frame

SMS-128 x 64V Video Matrix

- Matrix sized from 16 x 16 to 128 x 64 ▪ 21 RU (36.75") frame (includes 3 RU power supply frame) ▪ Power supply frame can be mounted in adjacent rack ▪ Optional video output monitor module
- Used in systems with the 6 RU control frame

SMS-128 x 96V Video Matrix

- Matrix sized from 16 x 16 to 128 x 96 ▪ 27 RU (47.25") frame (includes 3 RU power supply frame) ▪ Optional video output monitor module
- Used in systems with the 6 RU control frame

SMS-128 x 128V Video Matrix

- Frame expansion beyond 128 x 128 is accomplished by using multiple 128 x 128 frames with input DAs and secondary switches
- Matrix sized from 16 x 16 to 128 x 128 ▪ 33 RU (57.75") frame (includes 3 RU power supply frame) ▪ Power supply frame can be mounted in adjacent rack ▪ Optional video output monitor module
- Used in systems with the 6 RU control frame

Series 7000 Video Matrix Expansion

Video systems larger than 128 x 128 are constructed using input DAs and output secondary switches to interconnect multiple SMS-128 video frames. This ensures that a path for every input to every output is always provided without fear of blocking. Using this architecture, systems up to 1024 x 1024 maintain full, consistent video performance across all inputs and outputs.

Video Distribution Amplifiers

- Used with video matrices requiring more than 128 outputs ▪ Distribute input signals to multiple SMS-128 video frames ▪ DA frame holds up to 8 DA modules of the same type ▪ 3 types of DA modules are available depending upon the number of video outputs required in the system: (1) 1 x 2 (8 DAs per module) for systems up to 256 video outputs; (2) 1 x 4 (4 DAs per module) for systems up to 512 video outputs; (3) 1 x 8 (2 DAs per module) for systems up to 1024 video outputs

Video Secondary Switches

- Used with video matrices requiring more than 128 inputs
- Combines the outputs from multiple SMS-128 video frames, which provide the additional inputs ▪ Secondary switch frame holds up to 8 secondary switch modules, all of the same type ▪ 3 types of secondary switch modules are available: (1) 2 x 1 (8 per module) for systems up to 256 video inputs; (2) 4 x 1 (4 per module) for systems up to 512 video inputs; (3) 8 x 1 (2 per module) for systems up to 1024 video inputs

DA/Secondary Power Supply Frame

- Powers any combination of up to 6 DAs and/or secondary switch frames for analog video ▪ Powers any combination of up to 4 DAs and/or secondary switch frames for digital video ▪ 6 RU (10.5") frame ▪ Six 2-meter power supply cables supplied

Series 7000 Audio Matrices

The Series 7000 audio frames are ideal where space is a concern. 6 RU analog and digital audio frames house quad 32 x 32, dual 64 x 64, and single 128 x 64 matrices. 128 x 128 audio is housed in 12 RU. Both analog and digital audio use a 32 x 32 crosspoint board and are configurable from 32 x 32 to 1024 x 1024. The digital audio crosspoint board supports AES3-1992. The digital audio frames can be equipped with analog audio modules, making the analog to digital transition simple.

Audio output monitoring is provided standard on the audio matrix module. Analog audio I/O connections are made via removable screw terminal barrier strips. Digital audio frames are selectable with either 50-pin "D" connectors or BNC Interconnect/Break Out Panels (IBOPs). Frames using IBOPs include the cables connecting from the frame to the IBOPs. Audio-only systems require 6 RU control frame.

Series 7000 Audio Matrix Expansion

Audio expansion beyond 128 x 128 can be done by bridging input signals and output signals between multiple SMS-128 audio frames.

SMS-32 x 32AAA 4 Channel 32 x 32 Audio Matrix

- Up to four 32 x 32 matrices in a single frame

SMS-64 x 64AA 2 Channel 64 x 64 Audio Matrix

- Each matrix/channel sized 32 x 32 to 64 x 64

SMS-128 x 64A 1 Channel 128 x 64 Audio Matrix

- Matrix/channel sized 32 x 32 to 128 x 64

SMS-128 x 128A 1 Channel 128 x 128 Audio Matrix

- Matrix/channel sized 32 x 32 to 128 x 128

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Series 7000 (cont'd)

Series 7000 Data Matrices

- Uses a 6 RU frame building block and IBOPs to construct systems from 32 x 32 to 256 x 256
- IBOPs provide 9-pin "D" connectors for standard RS-485 and RS-422 connections
- 50-conductor cables are used to connect the data router matrix to the IBOP panels
- Supports EIA standard RS-485 revised April 1983; RS-422A revised December 1978

Series 7000 Control System

- 1 controller module required as a minimum to control a Series 7000 signal management system
- Depending upon the configuration, the controller module can be located in various frames

Controller Module Placed in Series 7000 Control Frame

- Separate 6 RU frame
- 12 module slots: main controller module; redundant controller module (optional); main power supply module; redundant power supply module (optional); 8 slots used for various control expansion modules (optional)

Controller Module Placed in 64 x 64 Video Frame

- Controller resides in the 64 x 64 video frame (along with the redundant controller, if desired)
- Controller module can control any combination of compact audio and/or video matrices

Node Control Expansion

- Systems larger than 128 x 128
- Consolidates the node control module requirements and can reduce the number of modules when redundancy is desired

Tie Line Management

- Tie line management allows sources appearing on an upstream matrix to be available as sources at a downstream matrix

Series 7000 Control Panels

- Programmable 8-character names for sources, destinations, levels and panel name
- Relegendable buttons
- Chop function which allows operators to automatically cut back and forth between sources for quality comparison
- Protect, which allows destinations to be protected from outside intervention
- Simple coaxial connection to the panel bus

Programmable Button-Per-Source Control Panel

- Selects 1 of 32 sources to a single destination
- User-programmed pushbuttons so any button can select any source in the system
- Buttons can be programmed to select levels for use in video and audio breakaway operations
- 1 RU x 19"

Programmable Universal Control Panel

- Can be programmed to control a single destination or all destinations
- User-programmable keypad allows you to preset sources for subsequent takes
- Separate displays for preset, status and level
- 1 RU x 8"

Programmable Multibus Control Panel

- 8 separate destinations can be controlled and displayed; each with independent take and protect buttons and dedicated status windows

Series 7000 Options

Under Monitor Display (UMD)

- A status device attached to the control panel bus that displays the name of the source connected to a destination on a specific level
- Normally installed under a video monitor and used to indicate the name of the input connected to that monitor
- Tally indicators indicate on-air status

UMD-1

- Display with eight 1" tall characters
- 2 LED tally indicators which can be independently user configured to indicate status such as "Preset," "Program" or "On-Air"
- Various combinations of Display and Tally 1/Tally 2 colors: green and red/green; green and red/red; red and red/green; red and red/red

UMD-2

- 2 displays, each with eight 0.68" tall characters
- 2 LED tally indicators for each display
- Same color combinations as UMD-1

UMD-3

- 3 green displays, each with eight 0.45" tall characters
- 2 red LED tally indicators for each display

Source Tally Modules

- Accepts 16 optoisolated inputs and provides 16 dry contact relay closure outputs
- Ideal for use with the under monitor displays

SMS-VOM Video Monitor Output Monitor

- By adding a single VOM module, any of the video outputs from a Series 7000 video frame up to 128 x 128 can be quickly and easily monitored
- A dedicated monitor output (dual BNCs) on the rear of each Series 7000 frame enables the source signal on the desired video output (as selected by the controlling panel) to be available for quality control or maintenance purposes

SMS-MCPU Redundant Controller

- Each Series 7000 system requires 1 SMS-MCPU controller module
- 1 module is included in the control frame (SMS-CTL-FRM) or, in smaller systems, can reside in the 64 x 64 video frame

SMS-NC Redundant Node Controller

- Resides in each video and audio matrix frame
- Decodes commands from the MCPU and switches the appropriate crosspoints

Master 21/Series 7000 Master Control Interface

- Series 7000 can provide source expansion for the Master 21 master control switcher
- Both digital and analog video and audio sources can be linked to Master 21

Redundant Power Supplies

- Each Series 7000 frame that contains a power supply has the capability of supporting a redundant power supply

Communications Interface Mezzanine Modules (CIF)

- Carrier module capable of supporting 4 mezzanine modules
- Various mezzanine modules provide different types of interfaces between external devices and the Series 7000 controller

SMS-SER-MZ Serial I/F

- This board supports the Series 7000 serial interface protocol and allows external computers/devices to communicate with the system

SMS-COAX-MZ Coaxial I/F

- This board provides additional BNC coaxial ports to allow more control panel buses, matrix control buses (node buses), or source tally bus in a system

SMS-KSIF Kaleidoscope Interface

- Provides source selection for a Kaleidoscope™ digital effects system

Convection Sets

- Series 7000 frames are designed to create a "chimney effect" when mounted together in an equipment rack
- Air flows up through the equipment rack, removing heat as it reaches the top of the rack

SMS-HX-NC Horizon Node Controller

- Used to upgrade Horizon matrices to operate under Series 7000 control

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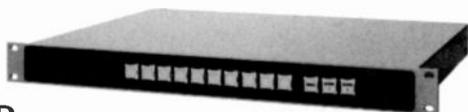
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Performer Compact Routing System

- 10 x 1 video/dual audio switcher with full breakaway operation
- Standard RS-232/RS-422/RS-485 serial interface
- 30MHz bandwidth for graphics and future technology
- 3-level switching with LED display indicating current status of switcher
- "Protect" feature locks out the input selection switches
- For ease of installation audio connectors are removable screw type terminal blocks
- Built-in local control panel
- For remote control, a version is available with a blank panel
- Control compatible with TEN-XL and 20-TEN Series

PFR \$1,285.00
 PFR-RC 10 x 1 video for remote use 1,175.00



Performer-SD Compact Routing System

- Offers the same features as the analog Performer except:
- Accepts serial component or composite digital video and 2 AES/EBU digital audio stereo pairs
- It will switch audio and video together or break the audio stereo pairs away from the video
- Audio I/Os can be 75 ohm BNCs or 37-pin D connectors
- Both serial and parallel control interfaces are provided
- Uses same options as analog Performer

PFR-SD \$3,595.00
 PFR-SDB BNC audio I/Os 3,595.00
 PFR-SDRC For remote use 3,485.00
 PFR-SDRCB For remote use with BNC audio I/Os 3,485.00



TEN-XL Compact Routing System

- 10 x 1 video/stereo audio switcher with local or remote control panel
- Optional RS-422/232 serial interface, relay module and backup power supply
- Options can be added quickly and economically
- Switcher can be combined with a waveform/vector monitor by using the TEN-XTM and you have an ideal input selector to VTR and video monitors

TEN-XL 10 x 1 video/stereo audio switcher with local control panel \$1,595.00

TEN-XLCV Compact Routing System

- 10 x 1 component video/stereo audio switcher with local or remote control panel
- Provides 3 channels of video and stereo audio
- 3 RU package
- Differential inputs for both video and audio virtually eliminate input source problems
- Switching is done in the vertical interval
- Includes a 12-hour crosspoint memory
- Optional RS-422/232 serial interface module and relay module
- Baud rates are selectable from 45.5 baud to 38.4 kilobaud

TEN-XLCV 10 x 1 component video/stereo audio switcher with local control panel, 120V \$3,375.00
 TEN-XLRC 10 x 1 video/stereo audio switcher for remote control use (remote control panel optional) 1,560.00
 TEN-XTM 10 x 1 video/stereo audio switcher with local control panel, packaged to be housed in Tektronix rack adaptor 1700 F05 (not supplied), with VU-peak meters and audio monitor 2,250.00



20-TEN™ Compact Routing Switcher System

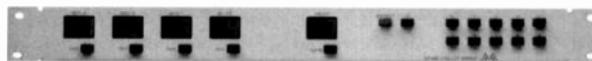
- Full function, affordably priced 20 x 10 video switcher
- Because each matrix occupies its own 1 RU frame, systems can be configured as video only, audio only, relay only or as a combination of the 3
- Special 2/3/4 RU frames available for stereo audio, component video
- Controller circuitry features battery protected RAM which will retain matrix status for 30 days
- Options include XYCP 4-level X-Y control panel, 20 button-per-source control panels, joystick override control logic, serial interface, redundant power supplies, MBCP multibus control panel and an output expansion kit which expands the 20-TEN to a 20 x 20 output system

20-TEN-V 20 x 10 video switching system \$4,125.00
 20-TEN-A 20 x 10 audio switching system 3,225.00
 20-TEN-SA 20 x 10 stereo audio switching system 6,375.00
 20-TEN-R 20 x 10 relay matrix switcher 3,225.00
 20x20-V Two 20 x 10 video switching systems with output expansion kit 8,890.00

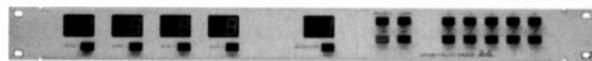
20-TEN-CV Component Video Systems

- 20 x 10 component video switching system
- Video and audio router featuring high density modules
- Excellent bandwidth and S/N ratio
- Reliable and low cost full function system requires only 3 RUs
- 4-level control with numerous matrices per level and control through twisted shielded pair cables
- "Protect" feature guards against unauthorized input charges
- Battery protected RAM saves data for 30 days
- Options include XYCP 4-level X-Y control panel, 20-button-per-source control panels, FLSD 4-level status display, RS-232/RS-422 serial interface and backup power supplies
- Same specifications as 20-TEN except: Video Crosspoint Delay Scatter: Selected input to single output: +/- 0.6° at 4.43MHz max.

20-TEN-CV 20 x 10 component video switching system \$12,265.00



MBCP



XYCP



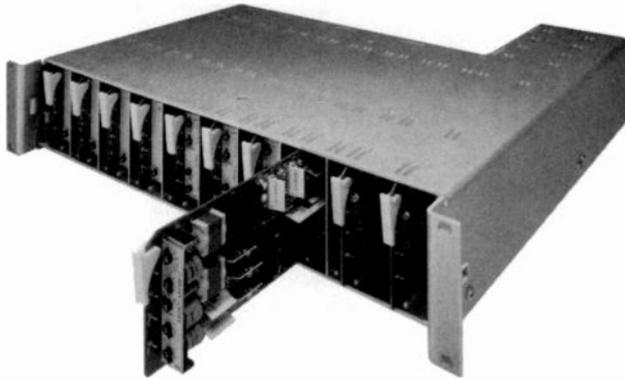
10BPS

Control Panels and Options

JSL Joystick override control logic, 120V \$ 600.00
 MBCP Multibus control panel, 120V 700.00
 XYCP X-Y control panel, 120V 700.00
 10BPS 10 button-per-source control panel 675.00
 20BPS 20 button-per-source control panel, 120V 700.00
 SERIM Serial interface module and frame, 120V 795.00
 FLSD Four level status display, 120V 850.00
 RPSF Redundant power supply frame 595.00
 OPEXP Video output expansion kit 1,000.00

There are many optional configurations available.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



8500 Series Video and Pulse Distribution Amplifiers

▪ State-of-the-art performance at competitive prices ▪ Differential looping input ▪ 6 outputs ▪ Low distortion ▪ Hybrid integrated circuits used throughout the line ▪ Input amplifiers, equalization stages, output amplifiers and voltage regulators have been hybridized to enhance product performance ▪ Troubleshooting done at the functional block rather than the component level, reducing service time dramatically ▪ All standard equalizing modules also employ precision hybridized networks for exceptional equalization curve accuracy ▪ Multi-stage circuitry ensures precise EQ tracking across the entire range of adjustment

8500	Utility Video DA	\$120.00
8501	Video DA	175.00
8502	Equalizing DA	295.00
8503	Precision DA	425.00
8504	Delay DA	495.00
8504-D300*	Optional video delay DA 300ns delay submodule increases max. delay of 8504 to 670ns)	200.00
8504-D500*	Optional video delay DA 500ns delay submodule increases max. delay for 8504 to 870ns)	250.00
8504-D800*	Optional video delay DA 800ns delay submodule increases max. delay to 1.1µs)	275.00
8505	Field video DA	565.00
8506	Video equalizing DA with clamp	435.00
8510R	Remote gain video DA	595.00
8511	Wideband video DA	465.00
8520	Pulse DA, no equalization, no delay	295.00
8520-8281	Pulse DA with equalizer for 0-500' Belden 8281 cable	375.00
8520R	Pulse DA with pulse regenerator module installed	365.00

*Only 1 optional delay submodule may be added; delay submodules cannot be cascaded.

8800 Series 8 Output Video Distribution Amplifiers

▪ Offers the same performance as 8500 series with an additional 2 outputs per DA at no additional cost ▪ Compatible with 8500 series ▪ 8500 and 8800 series amplifiers may be mixed in any 8500T1/8500T2/8500T20 or 8800T20 mounting tray ▪ Equalizing modules employ GVG's unique precision hybrid networks for exceptional curve accuracy ▪ Differential looping input ▪ 8 outputs

8800	8 output utility video DA	\$120.00
8801	8 output video DA	175.00
8802	8 output equalizing DA	295.00

Note: Specifications apply when used in 8500T20 and 8800T20 series trays. In 8500T1 or 8500T2 trays, full specifications apply when 8800 or 8801 are switched to 6 output mode.

8500/8800 Series Trays, Power Supplies and Extenders

8500T1-120	1 RU tray accommodates a single 120V power supply and 4 modules with 6 outputs each	\$695.00
8500T20-120	2 RU trays. Accepts 10 modules with 6 outputs per module	845.00
8500T20R-120	Remote control video tray	895.00
8800T20-120	2 RU trays. Accepts 10 modules with 8 outputs per module	895.00
85/8800PSV-120	Backup power supply for 8500T20/8800 Series tray, with U.S. line cord (90-250V)	325.00

8550 Series Audio Distribution Amplifiers

▪ Quality and reliability ▪ Complements the 8500 Series video and pulse distribution equipment ▪ Both lines designed to provide the same high performance to price ratio ▪ Premium low-noise components are used throughout

8551	Monaural audio DA	\$265.00
8552R	Remote gain monaural audio DA	395.00
8553	Monaural audio tone generator	295.00

8550 Series Trays, Power Supplies and Extenders

▪ 1 RU trays accommodate a single power supply and 4 modules		
▪ 2 RU trays accommodate 2 power supplies and 8 modules		
8550T1-120	1 RU audio tray with 120V power supply	\$725.00
8550T2-120	2 RU audio tray with 120V power supply	895.00
8550PS-120	Redundant 120V power supply for 8550T2	385.00
8500EX	Module extenders for all 8500/8550 series modules	95.00

8560 Series Stereo Audio Distribution Amplifiers

▪ Designed to facilitate the distribution of stereo audio signals ▪ Includes a stereo DA, submodules which plug into the stereo DA to improve certain applications and a metering module to simplify system setup and maintenance

8561	Stereo DA	\$495.00
8561-PCS	Stereo audio DA with channel switching and phase adjust submodule installed	695.00
8561-MFS	Stereo audio DA with multi-function submodule installed	845.00
8562	Metering module	785.00
8561SM-MFS	Multi-function submodule	350.00
8561SM-PCS	Channel switching/phase adjust submodule	200.00

8560T2 Tray and Power Supply

▪ Room for four 8560 series modules ▪ Comes with 1 power supply		
8560T2-120	2 RU mounting tray with 120V power supply	\$995.00
8550PS-120	Redundant power supply for 8560T2-120	385.00

Note: All AC power supplies are suitable for 50/60Hz operation.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





**9505A Color Black Locking
Source Sync Generator**

▪ Provides sync, blanking, subcarrier and an additional output which may be user-selected as H-drive, V-drive, V1 (color frame ID) or burst flag ▪ In addition, there are 2 outputs of color black with 7.5 IRE setup ▪ Simplifies system design, 1 RU frame ▪ Economical solution for source equipment that requires external timing ▪ Single-module system locks to color black reference from the system master synchronizing generator ▪ Acquires the stability of the locking source ▪ SC/H phase is always correct, no adjustment is necessary. \$2295.00
 9500-EXT 9500 Series module extender 125.00
 9500A-PSM Redundant power supply, 105-125 or 210-250 VAC, 50/60Hz 335.00
 9505-TSG Test signal generator module, NTSC test signals, with setup. 895.00
 9505-SID Source identification submodule (requires 9505-TSG or 9505J-TSG). 295.00



**9500 Series NTSC Reference
Synchronizing Generators**

▪ Represents the highest level of performance in moderately priced sync generator systems ▪ SPG Gate Array IC, designed exclusively for the 9500 Series, has secured accuracy, stability and reliability in an affordable system ▪ With over 2100 logic gates in a 44-pin package, the SPG Gate Array contains all critical circuitry for exact SC/H phase, regardless of external conditions ▪ Hybrid integrated circuits allow improved performance and reliability ▪ Troubleshooting is done at the functional block level, keeping servicing to a minimum ▪ Full range of options designed to fulfill most any requirement, including a test signal generator with optional source identification

All 9510/9520 sync generators use the same system level modules. The master video genlock module genlocks to video or encoded subcarrier. Protected video genlock allows a smooth transition back

to free-run should the genlock video source fail. It drives the master sync pulse generator module which generates pulses, subcarrier, encoded subcarrier, color black and includes all line drivers. A TCXO (temperature compensated crystal oscillator) is standard. 9520-HS includes an ovenized crystal oscillator for enhanced frequency accuracy.

9510A Reference Synchronizing Generator

▪ Designed for use when space requirements allow only a single rack unit, or where both horizontal and vertical drive outputs are required from a source sync generator ▪ 2 color black outputs are provided with 2 encoded subcarrier reference outputs ▪ Genlocks to video or encoded subcarrier ▪ Includes 7.5 IRE setup

**9520A Master Reference
Synchronizing Generator**

▪ 2 RU master, provides 2 outputs each of pulse and subcarrier ▪ Genlocks to video or encoded subcarrier signals ▪ 2 color black outputs are provided with 2 encoded subcarrier reference outputs ▪ Includes 7.5 IRE setup

9510A	Reference synchronizing generator with 1 RU frame	\$2695.00
9520A	Master reference synchronizing generator with 2 RU frame	3295.00
9520A-HS	Master reference synchronizing generator, 2 RU frame and ovenized crystal oscillator . . .	3795.00
Dual 9510	2 each 9510A systems and 9550A changeover switch	7295.00
Dual 9520A	2 each 9520A systems and 9550A changeover switch	8495.00
Dual 9520A-HS	2 each 9520A-HS systems and 9550A changeover switch	9495.00
9510-TSG	Test signal generator module. NTSC Test signals, with setup	895.00
9510-SID	Source identification submodule. 9510-TSG required	295.00
9510-PPC	Phase preset control module for 9510A	395.00
9520-OCO	Ovenized crystal oscillator for 9520A	550.00
9500A-PSM	Redundant power supply. 105-125 or 210-250VAC, 50/60Hz	335.00

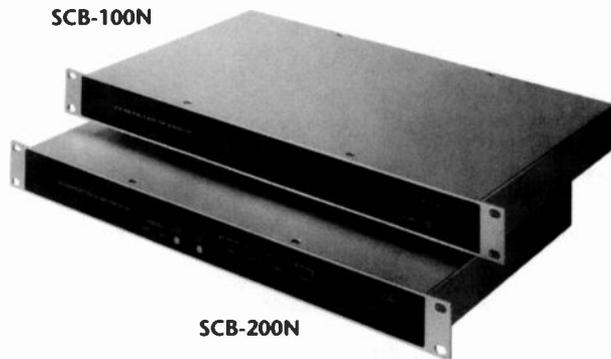
9550A Automatic Changeover Switch

▪ Provides total signal transfer between 2 television synchronizing generators ▪ Switch mechanism composed of pulsed magnetic latching relays which have an expected life in excess of 100,000 operations and 65dB isolation at 900MHz \$1995.00

STM-85N/STM-85J Source Timing Modules

▪ Powerful tools for NTSC television system timing ▪ Modules plug into any 8500 Series Video DA Tray ▪ Decodes the encoded subcarrier signal output of GVG 9500 Series or SC3 Series of sync pulse generators and produces: discrete sync; blanking; subcarrier; V1 (color frame ID); Color black ▪ Output phase is adjustable using frontmounted controls ▪ SC/H phase is always correct \$850.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SCB-200N

SCB-100N/SCB-200N Sync Color Bar Generators

- Quality and reliability are built in to each self-contained 1 RU frame
- Designed for professional and off-line broadcast applications
- Frequency stability and SC/H phase accuracy ▪ Includes setup

SCB-100N Stand-Alone Master Sync/Color Bar Generator

- Stand-alone NTSC master timing generator ▪ 4 outputs of color black, 2 each of sync, blanking and subcarrier ▪ V1 (Color Frame ID) pulse ▪ Monaural audio tone output ▪ GVG's exclusive encoded subcarrier output allows use of STM-85N source timing modules to simplify system design. \$1295.00

SCB-200N Genlockable Master/Source Sync/Color Bar Generator

- Accepts color black or video as a reference ▪ 1 output each is provided of sync, blanking and subcarrier, plus 4 outputs of color black, 1 of which may be user-defined as superblack and 2 of color bars ▪ 1kHz, low impedance balanced output stereo tone generator, locked to vertical timing ▪ Left channel identification is provided with 33ms bursts of increased amplitude ▪ V1 and encoded subcarrier outputs provide simple system integration \$1995.00

3240 NTSC PAL Video Processing Amplifier

- High performance units designed for signal processing in studio, master control, remote, satellite downlink and transmitter locations
- Full regeneration of sync and burst ▪ Adjustable blanking widths
- Soft and hard clippers ▪ Selectable line deletions ▪ Occupies 2 RU, including space for plug-in options ▪ Single power supply supplied, optional backup power supply and optional cable equalization
- Each system includes 5 basic modules: ▪ Input module provides clamping, video gain control and separation of luminance, chrominance and sync information ▪ The sync generator and color lock modules regenerate sync and subcarrier from the input video
- Output module provides soft and hard clipping, luminance and chrominance recombination, insertion of new sync, color burst and output fanout ▪ External reference module eliminates horizontal picture shifts caused by timing errors at the system input
- 3240-25 NTSC 2 RU tray, including single power supply, external reference module, module extender and instruction manual. . . \$5990.00
- 3240-20 Less external reference module. 4995.00

External Reference Module

- Eliminates horizontal picture movement caused by timing errors at the switcher input by providing a constant source of sync and burst at the switcher output ▪ Automatically switches between external and internal depending on input video timing and external sync showing within a prescribed window ▪ User-programmable window \$995.00

Rackmount Remote Control

- Provides control of all processor functions ▪ Includes 26' of connecting cable. \$525.00

Delegate Remote Control

- Panel may be used as a master panel, selectively delegating control functions to a slave panel ▪ Includes 3.3' (10m) cable, additional cable available as an option ▪ 1.75" H x 19" W x 3.6" D. . . . \$695.00

SYSTEM OPTIONS

Video Automatic Gain Control

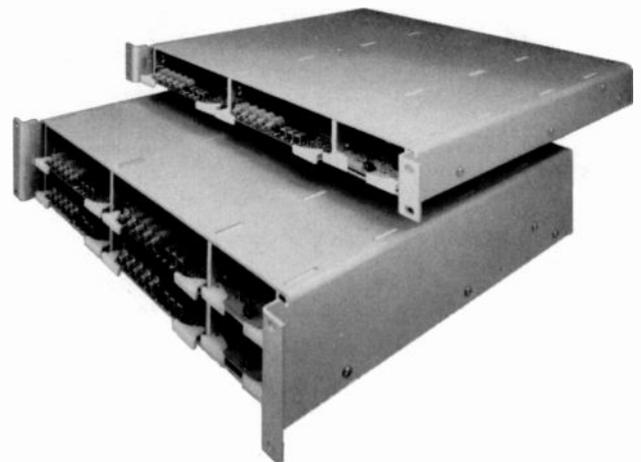
- User-programmable to sample single or in any combination, peak video, peak luminance and/or peak sync ▪ Sampling may be examined during: picture and vertical interval times; picture time only; picture and vertical interval lines which are passed; only vertical interval lines which are passed. \$995.00

NTSC Vertical Interval Reference Automatic Gain Control

- Automatically corrects video gain, chroma gain, burst phase and setup based on input signal ▪ Front panel reference levels determine the AGC loop setting and are compared to sample signals of chroma level, burst phase, luminance level and setup level during NTSC line 19 VIR \$995.00

Relay Bypass Module

- Provides passive signal path to a prime video output in the event of power failure \$295.00



7510 Series Received-Signal Video Processing Amplifiers

- Automatically switches to internally generated mono-black upon loss of incoming video ▪ Designed for stabilization of signals received from distant locations, whether by satellite, microwave or landline transmission ▪ Full regeneration of sync and burst; hard and soft clips; Video AGC; selectable vertical blanking widths; cable equalization

7510N	NTSC Video Processor Module with EQ for Belden 8281 cable	\$1975.00
7510T1-115	1 RU Tray with 115V Power Supply.	895.00
7510T2-115	2 RU Tray with 115V Power Supply.	1095.00
7500-PSM	Redundant 750 Power Supply Module (115/230V)	335.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

ANALOG SYSTEMIZATION PRODUCTS



Grass Valley Group®

MAX 900 Series Analog Systemization Products

- 3 RU modular system ▪ Supports an impressive array of component analog video equipment ▪ Compact to save rack space ▪ Easily configured for specific user needs ▪ Modular frame accommodates 12 single or 6 double width modules and a standard power supply
- Frame accommodates optional backup power supply which can be installed without sacrificing 1 of the 12 cell locations. \$845.00



M930 Series CAV DAs

- 3 channels, each 1 x 6 ▪ Looping differential inputs ▪ Full 30MHz bandwidth ▪ DC coupled amplifier stages ▪ Multiple format capability (GBR/Y, B-Y/R-Y) ▪ Single tracking master gain adjustment ▪ Selectable 6dB gain boost (for external delay) ▪ Internal individual channel trims for gain and DC ▪ HDTV compatibility

M931 CAV DA ▪ General purpose ▪ Front panel master gain control ▪ Easy control of gain demanded in CAV applications \$595.00

M932 CAV DA ▪ Clamping DA ▪ Provides 3V p-p non-common-mode hum rejection ▪ Clamp reference is taken from the Y/G video input \$745.00

M933 CAV DA ▪ Clamping DA with variable cable equalization ▪ Clamp reference is taken from the Y/G video input ▪ Plug-in hybrid cable equalization available for many popular cable types \$795.00

M934 CAV DA ▪ Full-featured clamping, sync-add, cable-equalizing DA ▪ Clamp reference can be taken from either external looping sync input or Y/G video channel ▪ External sync input accepts any level between 2V p-p and 4V p-p advanced mixed sync. \$875.00

M930SM-DL1/DL2 Submodules

- Plug-in, delay submodules for use with M930 CAV DAs (except M931) ▪ Each is configured with 3 separate channels of delay ▪ Each channel has a fixed delay stage and variable delay stage ▪ Fixed delay stage can either be 50ns or 100ns as determined by delay lines installed ▪ Variable delay stage is programmable from 0ns to 50ns in 1ns steps

M930SM-DL1 Shipped from the factory with delay lines installed. \$625.00

M930SM-DL2 Without delay lines. Allows customers to install their own. 85.00

M904 Analog Video Line Delay

- Perfect solution to conventional delay methods ▪ Each M904 equal to 70 miles (113km) of coaxial delay and occupies 2 cells of a MAX 900 3 RU frame ▪ Accepts 525- or 625-line video which is clamped, then digitized and delayed to the degree selected by convenient front panel controls ▪ Each module may be configured for line rate and dynamic range in order for composite signals to meet D2/D3 VTR picture quality expectations ▪ Individual component signals far exceed VTR standards ▪ Delayed signal returned to the analog environment through a pair of 75 ohm outputs \$2995.00

M910 5 x 1 CAV Source Selector

- 5 terminating inputs, each having 3 channels with 2 sets of outputs each ▪ Designed for Y, B-Y, R-Y and GBR operation ▪ Simple button per source control on front of module ▪ Standard 9-pin, D-type rear connector provides remote control capability \$745.00

M911 CAV Format Translator

- Converts Y, B-Y, R-Y (N10 levels) to GBR ▪ 1 set of looping inputs and 2 sets of GBR outputs available on rear connector \$595.00

M912 CAV Format Translator

- Converts GBR plus sync to Y, B-Y, R-Y (N10 levels) ▪ Simplified sync processing included for use when the GBR signals do not contain sync ▪ 1 set of looping inputs and 2 sets of Y, B-Y, R-Y outputs available on rear connector \$595.00



M960 PAL Source Timing Module

- Exceptionally wide timing range makes M960 perfect for integration of digital equipment into previously all-analog facilities
- Loophrough input accepts color black or any stable video source as a reference ▪ Fits in any timing system ▪ Outputs are color black and mixed syncs, 2 each ▪ White pulse provided at color field 1, line 7 of the color black outputs (easily disabled) ▪ Adjustment ranges from 8 lines advanced to 6 lines delay ▪ Front panel timing adjustments ▪ Since M960 shares a MAX 900 frame with any mixture of M900 or M9000 modules, it saves rack space and avoids the cost of a dedicated frame and power supply ▪ Maintains correct SC/H phase \$1500.00

M990/M995 Test Signal Generators

- Double-wide MAX module allows selection of 1 of 10 internally generated test signals in either GBR or Beta color difference format
- Adjustable timing ▪ Remote pattern select ▪ Force black ▪ Front panel controls/indicators ▪ Panel select switch to test signal ▪ Vernier pot and 3 rotary selectors adjust the position of the test signal
- Remote LED indicates when pattern select is being controlled remotely ▪ LED indicates when the module is locked to reference input

Test Signal Patterns

- 100% full field color bars ▪ 100% split field SMPTE color bars
- 75% full field color bars ▪ 75% split field color bars ▪ Component black ▪ Bowtie ▪ Multipulse ▪ Convergence ▪ 1-line sweep ▪ Pulse and bar

M990 Operates with 525-line component signals \$1875.00

M995 Operates with 625-line component signals 1875.00

MAX-EXT Module Extender

- For maintenance and internal adjustments for all MAX 900 modules ▪ Not for use with power supply module \$125.00

MAX-SWB and MAX-DWB Blank Covers

- Single and double width removable blank covers available for cells which do not contain active modules ▪ Covers for cosmetic purposes and are not necessary for operation
- MAX-SWB** Single-width blank cover \$13.50
- MAX-DWB** Double-width blank cover. 16.50

M900PS Power Supply

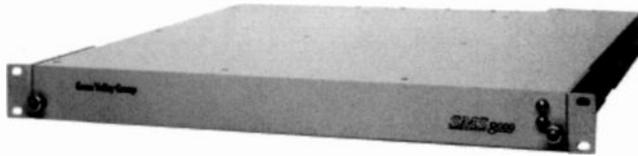
- Auto ranging power supply ▪ Operates between 90-264 VAC at 50/60Hz ▪ Front panel LEDs and rear alarm connectors show operation status. \$345.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SYSTEMIZATION PRODUCTS/TERMINAL EQUIPMENT



Grass Valley Group®



SMS 8000 Serial Digital Systemization Products

- Ultra compact solution to format conversion and frame delay modules
- 1 RU frame can house 4 SMS 8000 modules
- Frame is 1.75" tall x 19"W x 20.75"D
- Includes single power supply
- Optional redundant power supply
- Frame will operate from 90 to 260VAC and is auto ranging
- 2 front panel LEDs
- Over-temp conditions can be monitored externally with the polarized 5-pin connector
- Removable front cover
- Each module cell provides 6 BNCs inputs or outputs
- An overlay is provided with each module which can be positioned over each cell's BNC connectors for identification
- Modules can be inserted or removed from the front

SMS 8103 Component Digital to CAV Converter

- Converts serial component digital video signals to component analog
- Component analog outputs are selectable between RGB, EBU, N10, MII and Beta. \$3000.00

SMS 8301 CAV to Component Digital Converter

- Converts component analog to serial component digital video signals
- Component analog input signals are selectable between RGB, EBU, N10, MII and Beta \$3750.00

SMS 8301-K Analog Key to Component Digital Converter

- Converts an analog key signal to a serial component digital video signal
- Front panel selector supports nominal video input levels not including sync of 700mV p-p with no setup or 714mV p-p with setup
- Inputs without sync are supported by a jumper to select an external timing reference \$2500.00

SMS 8104/SMS 8204-N Frame Delays

- 4 digital video outputs are provided for each module
- Delay is a minimum of less than 1 microsecond
- Delay is variable using front card edge switches

SMS 8104 Serial Component Digital Frame Delay

- Maximum delay of greater than 2 fields \$3400.00

SMS 8204-N Serial Composite Digital Frame Delays

- Maximum delay of greater than 4 fields \$3400.00

SMS-8122-N Component Digital to Composite Digital Converter

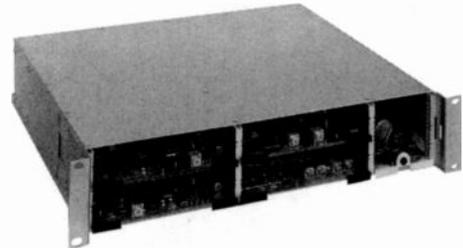
- Converts serial component digital video to serial composite digital video
- Component digital video is first rate converted and then encoded into composite digital video
- Emphasys type digital processing for maximum digital video quality \$4000.00

SMS-8221-N Composite Digital to Component Digital Converter

- Converts serial composite NTSC digital video to serial component digital video
- Composite NTSC digital video is first encoded and then rate converted to component digital video
- Emphasys digital processing \$4500.00

SMS 8000 Series Options

- SMS 8000T1S 1 RU Frame with single power supply \$1200.00
- SMS 8000T1D 1 RU Frame with dual power supplies 1490.00
- SMS 800 PS Redundant power supply option 295.00
- SMS 8000 EXT Module Extender 250.00



CV Series Component Video Terminal Equipment

The CV Series is a family of products providing component video system designers with signal generation and format conversion capability.

CV-21 Translator

- Converts Betacam* MII, SMPTE or EBU-N10 standard Y, R-Y, B-Y signals to RGB
- Full blanking processing and sync add/delete capability
- Mounts in CV-20T tray. \$995.00

CV-22 Translator

- Same as above except: ▪ Converts RGB signals to Betacam MII, SMPTE or EBU-N10 standard Y, R-Y, B-Y \$995.00

CV-11/85 Translator

- Simplified version of CV-21
- May be used in any application where "straight through" conversion from Y, R-Y, B-Y to RGB is required
- Designed to mount in a standard 8500 Series video DA tray, and may be used in conjunction with 8500 Series amplifiers to provide multiple RGB feeds
- Mounts in 8500 Series DA tray \$395.00

CV-23 Component Color Bar Generator

- Generates full-field color bars in both RGB and Y, R-Y, B-Y formats
- Requires comp sync or color black as a timing reference
- Mounts in CV-20T tray \$1295.00

CV-24N NTSC Decoder

- A variable-Q notch filter design
- Front panel controls are provided for input level, setup adjust, chroma phase and chroma gain
- The output matrix may be strapped to provide RGB, Betacam MII, SMPTE or YIQ outputs
- Mounts in CV-20T tray \$1695.00

CV-25N NTSC Encoder

- High quality NTSC video (2 outputs) from composite or non-composite RGB
- Onboard pulse regenerator which derives blanking from input sync, sync timing on the output may also be adjusted
- An alignment test generator is included
- Mounts in CV-20T tray. \$1495.00

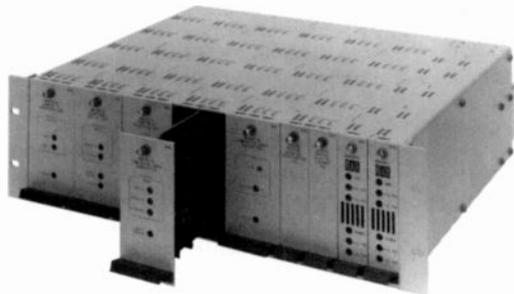
CV-95N Sync Pulse Generator

- Designed to provide a source of reference timing pulses for analog component islands
- Module fits into the CV-20T tray
- Genlocks to color black \$1395.00

CV-20T Tray

- A 2 RU tray which will accept up to 4 CV-20 Series modules in any mix
- Includes 1 power supply
- A second (backup) supply and module extender are available as options
- CV-20T. \$895.00
- CV-20PS Backup power supply for CV-20T tray 265.00
- *Betacam is a trademark of Sony Corporation.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MAX 9000 Series Digital Systemization Products

▪ Family of modular systemization products ▪ Designed for digital video, AES/EBU audio and hybrid environments ▪ Series uses the same 3 RU frame and power supply as MAX 900 Series analog equipment ▪ Frame accepts 12 single-width or 6 double-width modules ▪ MAX 9000 series supports both component and composite digital standards

MAX-900-120

▪ 3 RU modular frame with 90-264VAC power supply \$845.00

M9102/M9202-N Serializers

▪ 10-bit parallel input ▪ 25-pin D connector ▪ Outputs serial digital on 4 BNCs

M9102 Serializer ▪ Converts parallel component digital video to serial component digital video. \$800.00

M9202-N Serializer ▪ Converts composite NTSC digital video to serial composite digital video 950.00

M9103/M9203-N Deserializers

▪ Automatic cable equalization up to 1000' of 8281-type video cable

M9103 Deserializer ▪ Converts serial component digital video to parallel component digital video. \$1050.00

M9203-N Deserializer ▪ Converts serial composite digital NTSC video to parallel composite digital NTSC video. 1050.00

M9104 Component Serial Digital Line Delay/ M9204-N Composite Serial Digital Line Delay

▪ Automatic cable equalization up to 1000' of Belden 8281-type cable ▪ Provides delays from less than 1 microsecond to 9 TV lines . . \$2000.00

M9105 Serial Component Digital Multiplexer

▪ Combines a serial component 270M byte digital video signal with 2 AES/EBU digital audio signals ▪ Resulting serial digital data stream is output on a single coaxial cable and can be distributed and switched with other serial component digital video signals \$2000.00

M9106 Serial Component Digital Demultiplexer

▪ Capable of receiving a serial component digital video signal with embedded AES/EBU digital audio and separating the audio from the video ▪ Allows digital video and audio signals to be distributed and switched separately \$2000.00

M9131 Fanout Distribution Amplifier

▪ Serial video ▪ 1-in and 8-out or 2-in and 4-out ▪ May be used where the input signal is clean, jitter-free and utilizes short cable runs ▪ Suitable for both component and composite serial digital signals ▪ Single width modules \$350.00

M9132 Reclocking Distribution Amplifier

▪ Serial video ▪ 1-in and 6-out ▪ May be used for longer cable runs to 1000' ▪ Can be set via internal jumpers for either serial component or serial composite digital signals ▪ Single width modules \$695.00

M9201-N Digital to Analog (D to A) Conversion Module

▪ Accepts a parallel or serial composite video signal and provides 4 NTSC analog outputs \$1700.00

M9205-N Serial Composite Digital Multiplexer

▪ Combines a serial composite digital video signal with 2 AES/EBU digital audio signals ▪ Digital data is output on a single coaxial cable and can be distributed and switched with other serial digital video signals \$2000.00

M9206-N Serial Composite Digital Demultiplexer

▪ Unit can receive a serial digital video signal with embedded AES/EBU digital audio and separate the audio from the video ▪ Digital video and audio signals then can be distributed and switched separately \$2000.00

M9211-N Serial Composite Auto-Timing (D to A) Converter

▪ 10-bit resolution ▪ Automatic timing compensation circuitry for simplified timing ▪ Equalization to (1000') using provided Belden 8281-type cable or equivalent ▪ Delay through the module is automatically adjusted over a range of 3 to 33µs ▪ Eliminates frequent readjustments ▪ A color black input is the reference for the output signal ▪ Front panel bar graph display for centering timing range ▪ 4 video outputs are continuously adjustable from 35µs advanced to 27µs retard with respect to the external reference ▪ Output timing adjustments include coarse H phase, fine H phase, coarse subcarrier phase and vernier subcarrier phase with a 30° range ▪ Vernier phase adjustment has a resolution of 0.2° \$2500.00

M9221-N Analog to Serial Digital Video Converter (A to D)

▪ Accepts an NTSC analog input signal and provides 4 serial composite digital video outputs and 1 parallel composite digital video output \$2000.00

M9401/M9401B Analog Audio to AES/EBU Digital Audio Converters (A to D)

▪ Accepts 4 balanced analog audio inputs and outputs 2 AES/EBU digital audio stereo pairs ▪ Sampling area is 48kHz \$1295.00
M9401B Same as M9401 except 75 ohm BNC I/Os 1295.00

M9402/M9402B AES/EBU Digital Audio to Analog Audio Converters (D to A)

▪ Accepts 2 AES/EBU digital audio stereo pairs and outputs 4 balanced analog audio signals ▪ Supports 32kHz, 44.056kHz, 44.1kHz and 48kHz sampling rates \$995.00
M9402B Same as M9402 except 75 ohm BNC I/Os 995.00
MAX-EXT Module Extender 125.00
MAX-SWB Single-Width Blank Cover 13.50
MAX-DWB Double-Width Blank Cover 16.50

M900PS Power Supply

▪ Auto ranging power supply ▪ Operates between 90-264VAC at 50/60Hz ▪ Front panel LEDs and rear alarm connectors indicate operational status of the power supply ▪ Fully shielded for safety ▪ Forced air cooling for reliability \$345.00

M9900 Serial Component Digital Video and Audio Test Signal Generator

▪ Front panel select 10 test signals ▪ Add 1kHz or 0Hz audio tones to test signals ▪ Locks to either 525 or 625 formats ▪ Generates EDH signal to detect bit errors ▪ Greater than 1 full field of timing adjustment range ▪ Remote control ready ▪ Compact and modular, fits in all MAX frames ▪ Color black reference POR*
*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

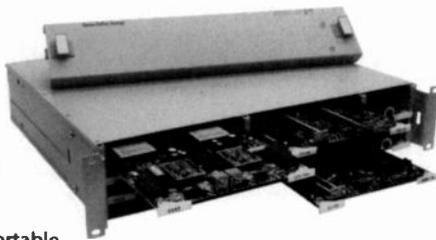


Wavelink Analog Fiber Optic Systems

▪ Ideal solution for short-haul transmission to local broadcast studios

▪ Available as rackmountable or portable

▪ Wavelink is recognized by television professionals around the world as the quality standard for video and audio fiber optic transmission ▪ Modular design ▪ Choice of 2- or 4-channel audio operations accompanying the video link ▪ Choice of wideband fiber optic links specifically designed for high resolution video applications such as D-BRITE and HDTV ▪ Variety of operating wavelengths ▪ LED or high/low power laser optical sources ▪ Audio modules ▪ Data modules ▪ Alarm modules ▪ B-MAC compatibility ▪ Optical connectors ▪ Cable equalizers ▪ AC and DC power sources



Options

20MHz Wideband Transmission

A video-only configuration designed for high resolution applications such as: D-BRITE radar transmission, HDTV, computer graphics, high-resolution component video, wideband RGB and multiplexed analog video transmission.

WDM Wavelength Division Multiplexer

A compact system that lets multiple optical sources share a single fiber, doubling the capacity of fiber optic cables. The WDM can be used for bidirectional or unidirectional multiplexing.

CS-43 Carrier Selectable Audio Multiplexer

Supports 2 or 4 channels of high quality audio transmission. Audio subcarriers are user programmable between 5.8MHz and 9.7MHz, with 70dB S/N at less than 0.25% THD.

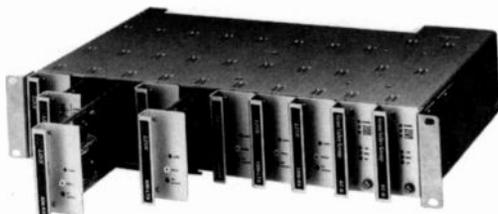
SA-43 Baseband Diplexer Audio Subcarrier System

The SA-43 is a stand-alone baseband diplexer providing up to 4 channels of high quality audio transmission to accompany a video link. SA-43 transmission equipment is compatible with Harris Farinon FV-43, Grass Valley Group CS-43 and Grass Valley Group standard audio diplexed circuits.

Auto Changeover System

Protects program channel from being interrupted by failure of the optical path or the video transmission equipment.

For additional specifications and ordering information please inquire.



EZ-Link Series 87 FM Fiber Optic Systems

▪ Modular design permits several video applications in 1 EZ-Link tray assembly ▪ EZ-Link offers both LED and laser transmitters for video

and audio distribution over distances up to 30km ▪ An FM square wave carrier eliminates video distortion due to optical system nonlinearities with S/N greater than 60dB ▪ 10MHz frequency response for compatibility with standard NTSC or PAL baseband (5.5MHz with audio option, NTSC only) ▪ Modules work with multimode fibers in common sizes of 50/125 and 62.5/125 as well as single mode fiber in 8.7/125 ▪ 8-module rackmount tray is standard ▪ Loud and clear transmissions ▪ Cost effective solution to your professional video/audio distribution needs ▪ As your needs change, modules can be rearranged to support different requirements ▪ Freedom from ground noise ▪ Capable of sending signals over long distances with minimal degradation of transmitted signal ▪ Minimum duct space requirements ▪ EZ-Link with optional audio is ideal for video conferencing on university and corporate campuses

EZ-Link Video, Audio, Transmitters and Receivers

87V-830-TX-ST	Video 830nm LED transmitter, ST	\$ 580.00
87V-830-TX-S	Video 830nm LED transmitter, SMA	580.00
87V-830-RX-ST	Video 830nm receiver, ST	580.00
87V-830-RX-S	Video 830nm receiver, SMA	580.00
87V-830-LTX-ST	Video 830nm multimode laser transmitter, ST	1550.00
C87V-1300-LTX--ST	Video 1300nm single-mode laser transmitter, ST	2590.00
C87V-13HP-LTX-ST	Video 1300nm high power single-mode laser transmitter, ST	3750.00
C87V-1300-RX-ST	Video 1300nm receiver, ST	1050.00
C87A1-MV	Single channel audio modulator	395.00
C87A1-DV	Single channel audio demodulator	395.00

EZ-Link 90W Wideband Transmitters/Receivers

90W-830-TX-ST	Wideband 830nm LED transmitter, ST	\$595.00
90W-830-RX-ST	Wideband 830nm receiver, ST	595.00

EZ-Link Trays

C87TR8-AC-B	Tray, 2 RU, 8 module with AC-B power supply	\$890.00
C87TR2-WAC	Tray, wall mount, 2 module with 87AC-W power supply	450.00
87TR3-WAC-B	Tray, wall mount, 3 module with AC-B power supply	750.00
C87TR8-DC	Tray, 2 RU, 8 module with 48V DCPS	890.00

EZ-Link Options

87EXT	Extender, EZ-Link	\$105.00
87BP	Blank front/rear module panel for module slots	35.00
87BP-PS-B	Blank panel for 87AC-B power supply slot	35.00
C87AC-B	AC power supply	365.00
87AC-W	Wall mount AC power supply	235.00
C87DC-48	48VDC power supply	365.00
87TR-23	23" mounting brackets for 2 RU tray	45.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SMPTE EDIT CODE PRODUCTS



Code Readers and Video Character Generators

DR-107B Data Receiver and Character Generator. Reads and displays SMPTE, EBU or 24-frame time code or user bits on video monitors. Has restored output for dubbing. \$2795.00
DR-115 Data Receiver and 4-Channel Character Generator. Provides 4 separate video character displays from 1 edit code input for Iso-Camera productions 4250.00

Code Readers and Local Displays

DR-109C SMPTE/EBU Data Receiver, Display and Demultiplexer. Reads and displays time code or multiplexed user bits on an 8-digit hex readout. Has dub output \$2795.00

Special Equipment

FC-142 Film Counter and Character Generator. Counts film feet and frames from a film projector or Telecine to precisely identify all film frames in a 3/2 scan transfer by inserting information in a window dub for viewing with complete video field accuracy. The information displayed can be feet and frames or edge numbers and frames for 16mm or 35mm. \$2995.00
FDG-345 Film Data Generator. Designed to interface to a telecine and provide SMPTE, EBU or 24-frame time code information in Video Assisted Film Editing applications. Receives either quadrature phase or clock/direction signals from the telecine's film path tachometer and tracks film position, generating a corresponding film frame number and time code.
FDG-345A Film data generator, LTC and character generator 6995.00
FDG-345B Film data generator, LTC, VITC and character generator 7845.00
ACO-238 Automatic Change-Over. With inputs from 2 independent SMPTE time code generators, this unit will automatically sense failure of 1 generator unit and switch to the other to allow resumption of code output 5750.00

Code Comparator

CC-114 Code Comparator. Compares a preset time with an incoming time code to produce a coinciding editing signal. Must be used with a Gray time code reader \$2330.00
CC-114A Reader Code Comparator. Same as CC-114 except incorporates a wideband reader 2750.00

Reader Code Comparator/GPI

CC-244 Designed to provide 16 discreet relay contacts which are user programmable to open or close based on input time code. An RS-232 serial interface is also provided \$3150.00

Code Generators

DT-104F Data Transmitter. Transmits code at 30, 25 or 24 frames/sec., has advanced slave decoding, color frame sync, a variable code simulator/generator, NTSC/PAL compatibility, field or frame rate time code selection plus many more functions \$5950.00
DT-104FC Data Transmitter. Same as DT-104F except can be locked to a telecine film transport to generate time code based on film frame movement. This requires interfacing the unit to the transport direction and speed tachometer 5950.00
DT-113 Data Transmitter. Transmits code at 30, 25 or 24 frame counts, color frame sync mode, local Hex display, user bit input and code start accuracy to "ANSI" spec ± 1 H-line. 2995.00

Data Transmitter/Receiver

The DTR-313 family of time code reader/generators provides many features in several different configurations. All transmitters are Longitudinal Time Code generation and wideband Longitudinal Time Code reading. Character inserter, Vertical Interval Time Code read and generate features are available in different combinations.



DTR-313A SMPTE/EBU Longitudinal Time Code Generator with LTC Slave, full featured, multi-standard longitudinal time code reader/generator, 2 isolated outputs individually adjustable to + 8dB, LTC input is wideband, local display \$2805.00
DTR-313A With character inserter 3655.00
DTR-313B SMPTE/EBU Longitudinal Time Code Generator with Dual Slave, adds VITC slave capability to the DTR-313A, both inputs are available for display on the optional character inserter. 3255.00
DTR-313B With character inserter 4105.00
DTR-313C SMPTE/EBU Longitudinal/Vertical Interval Time Code Generator with LTC Slave, adds a single channel of vertical interval time code generation to the DTR-313A. Vertical interval time code may be placed on any of 11 lines in the vertical interval of input video signal . . . 3649.00
DTR-313C With character inserter. 4499.00
DTR-313D SMPTE/EBU Longitudinal/Vertical Interval Time Code Generator with Dual Slave, provides both longitudinal and vertical interval time code reading and generating 4099.00
DTR-313D With character inserter. 4949.00

User Bit Equipment

MC-110 User Bit Modifier and Combiner. Combines time codes serially from 2 independent sources using user bits for the second time code. \$2595.00
MD-111 User Bit Modifier, Display and Demultiplexer. Modifies multiplexed user bits on incoming edit code from a 32-line parallel input 3295.00
UBE-118A User Bit Encoder. A 10-channel multiplexer that encodes user bits from parallel inputs. Encoder for VID-225, DT-104F, DT-113, DT-113P or MD-111. A real time clock is provided for insertion into 1 channel of user bits 2550.00

CPC-700 Series Code Phase Corrector

The CPC-700 Series equipment measures the difference between the actual SMPTE code start and the ANSI specification, displays this difference, re-phases and re-transmits the corrected code to specification and computer acceptance. This equipment will also correct drifting or unlocked time code caused when the video is recorded to a different sync source than the longitudinal code.

The basic 700 Series rack comes equipped with the power supply module pair 701-1/701-2 and the frame pulse generator module pair 702-1/702-2. Space in the rack is provided for one or more code phase corrector module pairs 703-1/703-2. One of these pairs is required for each playback VTR machine in the edit bay.

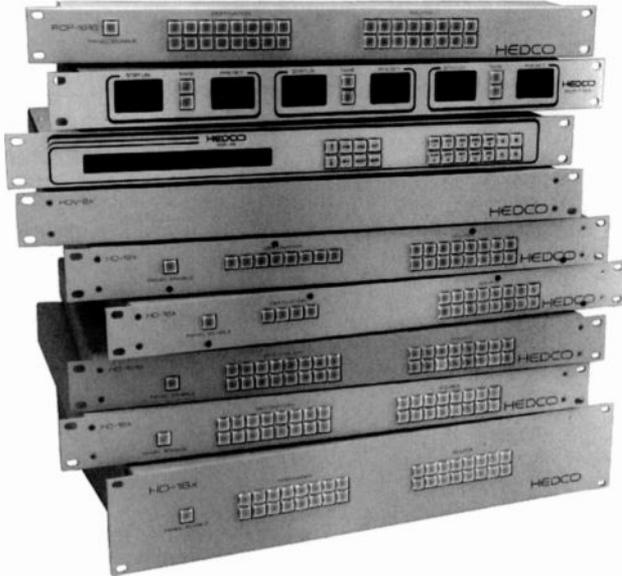
CPC-700. \$1395.00
703-1 Code phase corrector module pair/995.00
703-2 Code input-output rear module pair/995.00



Code Phase Measurement Equipment

TCA-143 Time Code Analyzer. Measures, displays and corrects the phase difference between the cue-track frame code and the video to allow computer acceptance. Also displays the code level and indicates phase error, bit count, sync word and count error faults with memory \$2595.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



16X Series Expandable Routing Systems

Control of the 16X system is achieved by means of a high speed serial link implemented with twisted pair cable. This allows frame-to-frame intercommunication and remote panel control for audio, video, data or HEDCO's CCIR 601 and D2 digital routing systems.

All switchers in this series are designed to work as stand-alone or in combination with any of the 16X panels. The variety of panels allows you to tailor the 16X system to your specific installation—no compromise. Pushbutton, alphanumeric, thumbwheel and status panels are available. Attributes include salvo operations, breakaway, user programmable labels, 8 level breakaway switching, single level switching, programmable input and output restrictions and simple operation.

The optional SCE-101 interface board provides RS-232 serial control. Remote control by modem and telephone line or microwave subcarrier, breakaway functions, status viewing, real time switching and up to 38 separate salvo operations are possible uses. This board can be installed in any unit, allowing you computer control for the entire system.

The various 16X control panels, in any combination, can be integrated into your system. Multiple panel choices offer flexibility and potential for expansion making existing equipment obsolete.

Video Routing

The HD-16X16V router operates as a stand-alone or companion frame in a multi-level system. For larger system requirements, additional units provide expansion up to 8 breakaway levels of 32 x 32. For systems requiring less than 16 x 16 routing, units are available in 16 x 8, 16 x 4 and 8 x 8 configurations.

In order to maintain compatibility and uniformity in this series, the basic circuitry in the various video models is identical. This design allows extreme flexibility in your applications.

Audio Routing

The HD-16X16 audio router was designed with the user in mind. Stereo, dual or mono configurations are available.

Each frame can be installed as a stand-alone unit by adding only a

local control panel. Should expansion be required in the future, simply add expansion modules and additional routers.

From these configuration choices, stereo 8 x 8 is available in a 1 RU frame or 4 levels of 8 x 8 audio in 2 rack units. Up to 8 breakaway levels are possible. A variety of configurations can be assembled using HEDCO's 16X routers and control options.

The 16 x 16 audio frame can be used in systems of 32 x 32 or larger in any combination with 16X video, data and digital routers.

The high impedance, balanced input circuits reduce loading effects and noise on the incoming signals. Quiet 16 x 1 crosspoint circuits result in high quality switching. Low impedance drivers provide +27dBu signal outputs. 25-pin subminiature "D" connectors are used for input and output connections. A 25-pin "D" plug-in adaptor to barrier strip connector is optional.

Data Routing

Reconfigure your studio at the touch of a button. The HD-16X16D data router simplifies the installation of any system which requires machine control.

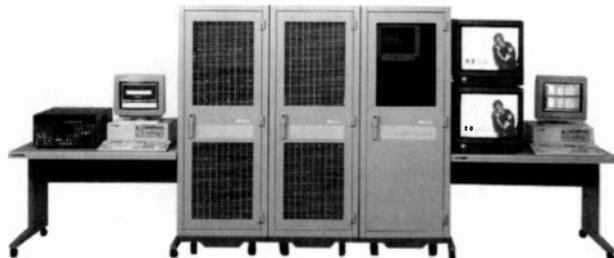
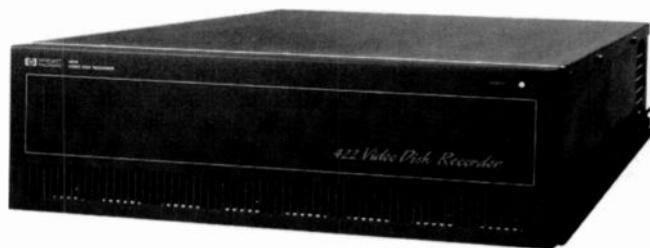
The 16X data router provides for 16 x 16 RS-422 signals. Single or multiple units in combination with 16X series video, audio and digital video routers can be used to build a complete system up through 8 levels.

The control standard is RS-485 compatible, common to all 16X series routers. RS-232 serial control is optional.

HD-16X16V	16x16 video router	\$4700.00
HD-16X16AM	16x16 monaural audio router	2600.00
HD-16X16AS	16x16 stereo audio router	4500.00
HD-16X16D	16x16 data router	3995.00
HD-16X4V	16x4 video router	2300.00
HD-16X4AM	16x4 monaural audio router	1800.00
HD-16X4AS	16x4 stereo audio router	2500.00
HD-16X8V	16x8 video router	3000.00
HD-16X8AM	16x8 monaural audio router	1995.00
HD-16X8AS	16x8 stereo audio router	2800.00
HD-16 2x1V	16 video 2x1 expansion frame, combines outputs, frame is used to expand inputs, i.e., 32x16 (need 2 for 32x32).	1500.00
HD-16 2x1AM	16 monaural audio 2x1 expansion frame, input expansion frame.	1500.00
DTB-25	Audio barrier strip-to-25-pin "D" adaptor . . .	35.00
HDV-4X	4x1 D1/D2 10-bit digital video router	1245.00
HDV-8X	8x1 D1/D2 10-bit digital video router	1665.00
HDV-4XD	Dual 4x1 D1/D2 parallel 10-bit digital video routers, 1RU.	1725.00
RCP-16X16	16x16 remote control panel	700.00
LCP-16X16	16x16 local control panel	450.00
LCP-16X16D	16x16 local control panel for HD16X16D . .	450.00
RCP-16X8	16x8 remote control panel	680.00
LCP-16X8	16x8 local control panel	370.00
RCP-16X4	16x4 remote control panel	640.00
LCP-16X4	16x4 local control panel	340.00
RCP-16X1	16x1 single bus remote panel	500.00
RCP-16X2	Button per crosspoint control panel, dual bus	700.00
RCP-16X1BA	Single bus breakaway remote panel.	700.00
RCP-AN	Alphanumeric control panel (4-level remote).	1100.00
RCP-TW1	Thumbwheel control panel (single bus). . . .	495.00
RCP-TW2	Thumbwheel control panel (dual bus). . . .	745.00
RCP-TW3	Thumbwheel control panel (triple bus). . . .	995.00
SCE-101	RS-232 control option	395.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO DISK RECORDER/ DIGITAL VIDEO



HP 4:2:2 Video Disk Recorder

- True random-access of highest quality 4:2:2 video
- Seamless playback with no roll, jump or anomalies
- Robust design stores 3, 6 or 12 minutes

The HP 4:2:2 Video Disk Recorder (VDR) gives you affordable, high-capacity disk storage for your edit suite. It stores minutes, not seconds, of high-quality serial digital video for instant, random access to any frame. With 3, 6 or 12 minutes of storage, you choose the capacity that's right for your application. If the 12-minute option is not enough, you can link up to 7 units together for more than 80 minutes of storage.

When you cue up the HP 4:2:2 VDR, it's there, right now. No waiting as with a VTR. Yet, when you need to browse, you can shuttle at up to 30X speed, forward or reverse, without video break-up. You'll love the smooth slow motion as you shuttle or jog to a particular frame. Even with multiple units, the seamless playback applies to the entire system.

In your telecine suite, a VDR is a must for pin registration. But it has always been time consuming to transfer only 25 seconds or 1 minute at a time. Now with the 12-minute HP 4:2:2 VDR, telecine is much more efficient. Convenient too, in that a standard 1000' roll of 35mm film, is about 11 minutes long and can be transferred at one time. The HP VDR has full telecine GPI frame capture and 3:2 pulldown support.

Greatly reducing edit time, the HP 4:2:2 VDR incorporates nonlinear segment list playback. Create up to 255 segments of any length, with any in and out point. Now, it's possible to create your entire edit list on the HP 4:2:2 VDR, saving time when changes need to be made.

Configure the HP 4:2:2 VDR quickly for your application. Choice of 8-bit or 10-bit, and a 525- or 625-line operation can be simply selected with the on-screen menu, without having to power-down. To prevent accidental changes, you can lock out these choices.

Ease of use is a key consideration. The HP 4:2:2 VDR emulates the Sony BVW-75 protocol. Just a simple RS-422 connection and you're ready to go. For stand-alone operation, the HP VDR comes equipped with a trackball for control through an on-screen menu, displayed via the rear-panel RS-170 monochrome output.

The HP 4:2:2 VDR incorporates a breakthrough architecture which uses unmodified, industry-standard disk drives. These HP-qualified drives feature typical MTBF (mean-time-between-failure) of 250,000 hours, preventing lost revenue from downtime.

HP Broadcast Video Server

- Broadcast quality storage and playback
- Expandable capacity to 51 hours
- Optional 6-hour server buffer for redundancy
- 3 independent video streams

With the new HP Broadcast Video Server (BVS), you can virtually eliminate lost revenue due to jammed robotics, clogged VTR heads or broken tapes. No more "make-goods" due to equipment failures. The HP BVS delivers "bulletproof storage" and automated playback in 3 simultaneous video streams, 1 record and 2 independent playback. Storage capacity is expandable, from 6 hours to 51 hours, allowing you to configure the HP BVS for your specific needs. Access is instantaneous, making last minute changes to the playlist easy and efficient.

HP designed this system from the ground up, with the critical uptime needs of the station in mind. Not only does the HP BVS include hot-standby power supplies, but also hot-switchable power and disks. For the utmost redundancy, it can be configured with a completely independent control and playback system, allowing the station to operate without any lost airtime. Routine maintenance costs are dramatically reduced over tape-based systems. Industry standard disk drives are now exhibiting >500,000 hours MTBF. Video quality has not been sacrificed. HP designed the MPEG2 encoder and decoder boards from scratch, and the system operates with a video data rate up to 15M bits per second. Tests with video professionals have shown that video quality is similar to Beta SP. In blind tests, most viewers can't tell the difference between original Beta SP and material which has been compressed and then decoded from playback. And because it's digital, material looks as good on the 1000th play, as it did on the first play. MPEG makes this technology competitive, while maintaining broadcast quality. Yet, for other less-critical applications, lower data rates down to 1.5M bits can be selected to increase storage time and reduce costs.

HP Broadcast Video Server Specifications

Video

- Video Inputs: NTSC, SMPTE 170M, Y/C (S-Video), Serial 4:2:2 component, SMPTE 259M (YUV available upon request)
- Video Outputs: NTSC, SMPTE 170M, Y/C (S-Video), (Serial 4:2:2 available upon request)
- Composite Video Bandwidth: -0.3dB at 5MHz, -3.0dB at 6MHz

Audio

- Frequency Response: 20
- Dynamic Range: > 90dB

Rear Panel Connections

- Serial 4:2:2 Input: 75-ohm BNC
- NTSC Input: 75-ohm BNC
- Y/C Input: S-Video connector
- NTSC Output: 75-ohm BNC
- Y/C Output: S-Video connector

General Power Requirements: 90-264VAC, 50/60Hz

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





HP VidJet Video Print Manager

- Plain paper video printing on most HP printers ▪ 525/625 autosensing, supports all major video formats ▪ 1 RU form factor fits in tight spots, edit consoles ▪ Crisp, fluorescent, easy-to-read display
- Recal setups in a flash with factory presets such as Auto Log
- Menu keys give quick access to all setup parameters ▪ Page layout options control image size, position and format ▪ Predefined page formats let you print video images in story-board, log sheet, tile, single or multi-image formats, even customized text can be printed on the page along with a time code below each image ▪ Grab in high, medium or low resolution ▪ Grab and print in color or monochrome
- Expandable VRAM simms for convenient additional frame memory in 2M byte increments ▪ Recommended LTC time code option ▪ Modular video cards for obsolescence protection ▪ Loophrough inputs, composite monitor output ▪ Print from live video or from frame memory
- Wide range of flexible triggering modes from a simple GPI trigger to auto scene detect to time triggering ▪ Powerful GPI trigger offers hassle-free remote triggering from edit controllers, contract closures, sensors or TTL line drivers ▪ Autosensing universal power supply ▪ Centronics parallel output connects to wide range of HP desktop and large format printers and plotters ▪ Applications include: Video and film production/post-production, broadcasting, videoconferencing, real estate, videography, engineering, security and many others

The HP VidJet Pro turns video into paper. With plain paper video hard copy, print images in almost any size — from mini thumbnails to video posters that bring video stills to life. Write on it, copy it, edit it, archive it, or even FAX it for immediate client review.

The plain paper advantage drops the cost of monochrome laser prints to less than a few cents apiece, or vibrant color for slightly more. Choice of video formats and standards, remote control, media, image size, text clarity and flexible page formatting set the industry standard.

From real time auto-logging to video images with time code, the HP VidJet Pro is an indispensable graphics and editing tool which quickly pays back in higher editing and productivity and better client communication. The VidJet Pro even lets you add new services to your rate card for an added source of revenue.

Flexible and expandable frame memory lets you store images while printing. Scroll through images frame by frame to analyze critical events, expressions, artifacts or subtle details, then print just the frame or sequence of frames you want. Full RS-232/422 control simplifies integration with optional third party systems and computers.

- HP E2531S VidJet Pro With 5M byte VRAM, composite/YC input card, LTC time code \$4575.00
- HP E2533S VidJet Pro With 5M byte VRAM, component/RGB/composite inputs, LTC time code. 4880.00
- HP E2534S VidJet Pro With 5M byte VRAM, 4:2:2 serial digital inputs, composite monitor output, LTC time code . . 5180.00

Note: VidJet components may also be ordered separately. Call for ordering information and other configuration options.



Quality Advisor QA100/EDH10 Inserter

- Use "Show Illegal" to spot illegal colors at the source ▪ Eliminate rework by choosing "Make Legal" for automatic adjustment of illegal levels and colors ▪ Retain contrast in your video by using soft and hard color limits with an adjustable gain slope ▪ Customize settings for projects by recalling previous conditions with a push of a button
- Visual and audio alarms provide easy recognition of illegal levels, colors or EDH errors ▪ See 4:2:2 digital video in 10-bit or 8-bit YCrCb format ▪ Identify specific pixel values for troubleshooting or color matching using a cursor-driven mouse ▪ Assure proper text and action placement with built-in safe action/safe title generator ▪ Error detection and handling catch sparkles and greenies ▪ EDH errors automatically logged with DVITC time-code

Eliminate Clipping Problems With Real Time Color Calculation
Graphics and paint programs can create colors in RGB that are not broadcastable in NTSC colorspace. The HP Quality Advisor prevents this from happening in 2 ways: highlighting the illegal areas on a monitor output for correction by the artist, or automatically adjusting illegal colors without clipping.

Correction at the source by the artist ensures that high quality video remains unchanged. 4 different highlighting styles show the artist or editor exactly where the problem lies. When time is running short, the HP Quality Advisor can automatically adjust illegal colors and levels.

The EDH10 EDH Inserter provides error detection and handling by monitoring 4:2:2 digital video systems for transmission errors in the data streams. A checkword is computed for full field, active field and ancillary fields. Downstream, the data is monitored and compared to the check sums, for detection of transmission error per SMPTE 259M.

- HP E2550A QA100 Quality Advisor \$8000.00
- HP E2553A EDH10 EDH Inserter 4000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CCD CAMERAS



HITACHI

Hitachi Denshi America, Ltd.



HV-C10A Multi-Purpose 3-CCD Color Camera

■ 1/2" f/1.4 prism ■ 360,000 pixels ■ 680 lines horizontal resolution
 ■ 58dB S/N ■ Real time auto white balance ■ Auto gain ■ 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec. electronic shutter ■ Min. sensitivity: 15 lux
 ■ Bayonet lens mount ■ 3-memory auto white balance corresponds to optical filter ■ Field storage/frame storage selectable ■ Auto knee function improves white compression at highlights ■ Flare correction circuit provides even, pure picture ■ Masking circuit ■ Self-diagnostic display function for various functions ■ Memory backup by using EPROM (battery unnecessary) \$5,650.00



FP-C10AUF 3-CCD Portable Color Camera

■ 1/2" IT, f/1.4 prism ■ 360,000 pixels ■ 680 lines horizontal resolution
 ■ 60dB S/N ■ Min. sensitivity: 16 lux ■ 1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec. electronic shutter ■ SMPTE color bars ■ Real time auto white balance ■ Auto knee allows a natural picture without white compression at highlights ■ Iris control useful for shooting a scene against light ■ Auto iris ■ 3-memory auto white balance corresponds to optical filter ■ Self-diagnostic display function and status display function for various auto functions ■ SMPTE (EBU for PAL) color bars enable high accuracy adjustment and ID display function in color bar mode ■ Memory backup by using EPROM (battery unnecessary) ■ Masking circuit ■ Flare correction circuit produces an even, pure picture ■ Camera system directly dockable to HR-C10 Hi8 VTR, allowing dockable system operation with excellent mobility ■ Bayonet lens mount ■ Optional RC-C10 remote control box ■ Optional RU-C1 remote operation unit. \$7,310.00

Z-OneC 3-CCD Portable Color Camera

■ Improved vertical smear
 ■ Docks directly to Betacam
 ■ 400,000 pixels ■ 750 lines resolution ■ Real time auto white balance function ■ 6-speed, variable electronic function
 ■ 600-line 1.5" viewfinder
 ■ Contrast function for improving black suppression in shooting a scene against light ■ Auto knee ■ Auto iris ■ 6-memory auto white balance corresponds to the optical filters ■ ID display function in the



color bar mode ■ Memory backup by EPROM (battery unnecessary)
 ■ Masking circuit ■ Clear pictures even in high light ■ Used in ENG and dockable 1/2" broadcast VTR applications and in EFP/studio applications ■ 62dB S/N ■ Adjustable shoulder mount maintains a comfortable balance with large lenses and dockable recorder
 ■ Viewfinder displays the camera's operating status and diagnostics on the screen ■ Flip-up eyepiece for easy viewing at any angle
 ■ Ultra-sensitivity: 1.5 lux, f/1.7 lens ■ CCD iris maintains video level (4 f-stops) without iris or filter change ■ 4 scene files provided
 ■ Front panel detail selection: low, mid, high ■ User choice of master gain: low 0dB, mid +6/+9/+12dB, high +12/+18/+24dB ■ Professional RU-Z1 remote operation panel with full feature studio control

- Z-OneCUF** Three 2/3" CCD dockable color camera (less lens and A/C adaptor); package includes camera head, camera adaptor, 1.5" viewfinder, tripod, adaptor, carrying case, operation manual. \$11,790.00
- Z-OneCUR** Same as Z-OneCUF except with Fujinon A16x9BRM-17 zoom lens. 13,520.00
- Z-OneCUM** Same as Z-OneCUF except with Canon YJ17x9.5BKRS zoom lens. 13,400.00
- Z-OneCU** Camera head only; includes tripod adaptor, operation manual. 9,850.00



Z-2000 Digital Portable Camera

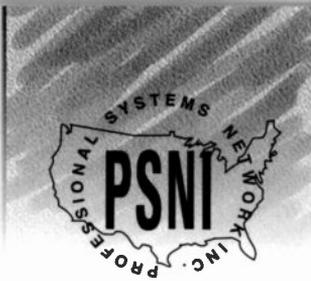
■ 2/3" 400,000 pixel IT CCDs ■ 750 TV line resolution ■ 62dB S/N
 ■ 13-bit digital RGB processing in single LSI device ■ Min. sensitivity 1.5 lux (ultra-gain) ■ Docks directly to Betacam ■ Flesh tone detail
 ■ Chroma detail ■ Selectable detail center frequency ■ 600 line 1.5" viewfinder ■ Includes both a linear matrix and 6-vector color corrector ■ Real time automatic white balance ■ 6-speed/variable electronic shutter ■ Contrast control ■ 6-memory auto white ■ EPROM memory backup ■ Plug-in filter assembly ■ Adjustable shoulder mount ■ Viewfinder rotates 90° for easy carrying ■ Flip-up viewfinder eyepiece for easy viewing at any angle ■ 4 scene files provided ■ Front panel detail selection low/mid/high ■ User choice of master gain: low 0dB; mid +6/+9/+12; high +12/+18/+24 ■ Remote control for full featured studio operation ■ Remote control provides gain selection 0-24dB in 3dB steps ■ Applications ENG/EFP/studio TBA*

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HOTRONIC, INC.



TBCs/FRAME SYNCHRONIZERS/ SWITCHERS



AP41 TBC/Frame Synchronizer

- Y/C or composite input ▪ Easy pushbutton video input selector
- Stable, as good as freeze picture when VTR in pause mode ▪ Time base correction for heterodyne VTRs ▪ Frame synchronization with full frame memory ▪ 4X subcarrier sampling, 8-bit resolution ▪ Constant H phase for matched frame edit ▪ Constant SC/H phase ▪ Genlock capability ▪ Full proc-amp control with no interruption presets
- Adjustable horizontal and vertical blanking ▪ Handle high speed search ▪ Pixel by pixel dropout compensator (optional) ▪ Updatable for more features \$ 950.00

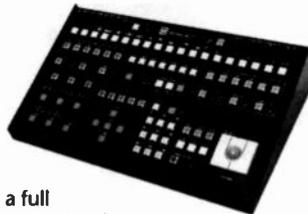
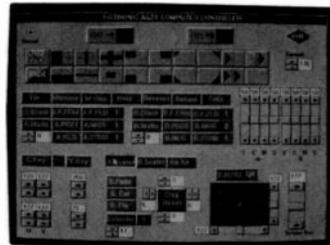
AP41-SF TBC/frame synchronizer with S-VHS output, freeze frame/field, Y/C adjustment and strobe. . . 1500.00

AP41-SP TBC/frame synchronizer with wideband comb filter (full bandwidth in all modes), S-VHS output, freeze frame/field and strobe. 2200.00

DOC Optional digital pixel by pixel dropout compensator (R.F. input or TTL input). 200.00

AQ21/21-SF/21-SP Stand-Alone Broadcast Switcher

Compatible with S-VHS, U-Matic, U-Matic SP, Hi8, Betacam and satellite feed. The AQ21 is a high performance video system used in A/B roll editing, mixing non-synchronized sources either in NTSC format (composite) or Y/C format. It transcodes from composite to Y/C or vice versa. The AQ21 performs digital effects, scaling, keying and mixing computer graphic/character with video signals from a VCR. The unit can be controlled by a personal computer or by a stand-alone user-friendly remote control panel. Each unit contains a full TBC/frame sync to deal with noise, marginal tapes.



Major Features

- Digital effects ▪ Downstream keyers ▪ Full dual channel TBC/frame sync functions ▪ Computer graphic/character mixing ▪ Audio follower switcher ▪ PC control ▪ Remote panel control ▪ GPI control ▪ 8 input (Y/C or composite) ▪ 2-D picture compression

Switcher Features

- Transition speed from 1 frame to 999 frames ▪ RS-422 interface ▪ GPI interface ▪ Optional preview output ▪ 4 composite or Y/C input ▪ Memory for switching events ▪ Optional stereo audio switcher

Digital Effects

- Cut, fade/dissolve, horizontal/vertical/corner/diagonal wipe, reveal, conceal, shutter, push-on/off, mosaic, negative, posterization, strobe, freeze frame or field selectable

Scaler (Picture Compression)

- Image can be scaled to any size in any position ▪ Digital trail, fly-in, fly-out and more ▪ Downstream keyer: computer generated graphic/characters can be mixed with tape source

Modifiers

- Fade/wipe to black or 8 different colors ▪ Tile effect on horizontal and vertical wipes ▪ Corner and diagonal wipe from any of 4 corners
- Programmable memory for any of the transitions ▪ 4-speed selection of all transitions ▪ Mid-stop, return and reverse ▪ Matte, black and border line

TBC/Frame Sync

- Full proc amp control ▪ Dual channel TBC/frame sync ▪ White clipper and black clipper ▪ Genlock capability ▪ Advanced sync ▪ Optional digital DOC ▪ Y/C delay adjustment ▪ Optional digital comb filter
- Composite, Y/C input selectable

AQ21

Includes digital effects, PC control software (RS-232), digital modifier effects, dual channel TBC frame sync, Y/C composite input and output, GPI interface, updatable to AQ21-SF or AQ21-SP \$3000.00

AQ21-SF

Includes all AQ21 features plus scaler, downstream keyer, previews output and is updatable to AQ21-SP \$3500.00

AQ21-SP

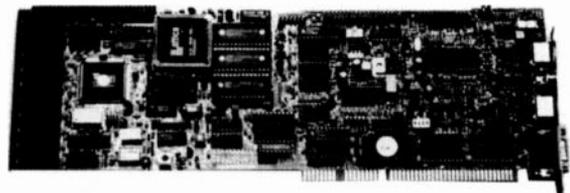
Includes all AQ21-SF features plus full bandwidth, digital comb filter and 3dB noise reducer. \$4000.00

Options

Digital pixel by pixel dropout compensator \$400.00

Remote control panel 950.00

Stereo audio switcher 400.00



AS-11 Broadcast Switcher

- Digital effects ▪ Full bandwidth ▪ PC control (RS-232) ▪ Memory for switching events ▪ Transition speed from 1 frame to 999 frames
- GPI interface ▪ 4X subcarrier sampling ▪ 8-bit resolution ▪ Optional remote panel control ▪ Digital effects include: cut, fade/dissolve, horizontal wipe, vertical wipe, corner wipe, diagonal wipe, shutter, mosaic, negative, posterization and tile ▪ Software upgradeable for more features \$695.00

PC-TBC/PC-TBC-Y/C TBC/Frame Synchronizer

- Y/C or composite input/output ▪ Compatible with IBM PC® or Amiga® ▪ Time base correction for Heterodyne VTRs ▪ Frame synchronization with full frame memory ▪ 4X subcarrier sampling, 8-bit resolution ▪ Adaptive digital comb filter ▪ Freeze frame or field
- Genlock capability ▪ Optional remote control including full proc-amp control with no interruption presets ▪ Transcode between composite or Y/C ▪ Handle high-speed search ▪ 5.5MHz bandwidth

PC-TBC \$665.00

PC-TBC-Y/C With Y/C input/output 735.00

Optional remote control 100.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HK-377BT/377P Ultra-Wideband CCD Camera System

Common Features

- 3/8" FIT CCD image sensor with 600,000 pixels ▪ 999 lines horizontal resolution (Y-ch) ▪ S/N ratio 62dB ▪ 2000 lux low light sensitivity ▪ Ultra-wideband triax system ▪ Optional long-range triax system ▪ Optional digital interface ▪ Switching the Super V mode in 3 steps (low, high, super) permits vertical resolution of 400-480 TV lines while minimizing degradation of sensitivity ▪ Employs 3-channel vertical DTL circuit (HK-377 only) for separate R, G and B, and horizontal MIX DTL circuitry for R, G and B ▪ MCP/CCP permits DTL center frequency to be varied over a range from 3-6MHz ▪ Skin DTL controls the DTL level only in the human skin tone ▪ Black stretch ▪ Memory card interface ▪ CVSS (Continuous Variable Shutter Speed) function ▪ Quick auto setup function ▪ Highlight compression ▪ Linear matrix circuit for accurate colorimetry ▪ 6-vector color corrector circuit for special applications ▪ Auto color process ▪ 16:9 wide screen support

HK-377BT Ultra-Wideband Studio/Field CCD Camera System

Includes common features plus: ▪ VF DTL function ▪ 7" color VF delivers 450 lines resolution while correcting pincushion distortion caused by changes in contrast and brightness ▪ PIP (Picture-in-Picture) function permits simultaneous monitoring of RET image on smaller screen window ▪ Removable cassette with dual filter wheels ▪ Reversible Q-TV ▪ Comb filter encoder

HK-377BT/UWB RGB ultra-wideband triax. \$127,000.00
 HK-377BT/LR RGB long-range triax transmission system 127,000.00

HK-377P Ultra-Wideband Lightweight Portable CCD Camera System

Includes common features plus: ▪ Safety marker ▪ Can be docked with various broadcast 1/2" VCRs ▪ Digital remote connector provided ▪ MIC (VTR) switch acts as intercom On/Off switch during system operation and a VTR Start/Stop switch during VCR-docked operation

HK-377PBT/UWB RGB ultra-wideband triax. \$105,700.00
 HK-377PBT/LR RGB long-range triax transmission system 105,700.00
 MCP-377 Maintenance control panel. 6,210.00
 OCP-377 Operation control panel 5,110.00

HK-366BT/366P Full Facility Studio/Field CCD Camera System

Common Features

- 3/8" FIT CCDs with 450,000 pixels ▪ 800 lines horizontal resolution (Y-ch) ▪ S/N ratio of 62dB ▪ Long-range triax transmission reaches distances of 2400m over 14.5mm of cable ▪ Optical axis adjustment mechanism ▪ Optional digital interface ▪ Memory card interface ▪ MCP/CCP permits DTL center frequency to be varied over a range from 3-6MHz ▪ Equipped with an AHD (Auto Hue Detect) function to facilitate Skin DTL adjustment ▪ 3-channel vertical DTL circuit for separate R, G and B and horizontal MIX DTL circuitry for R, G and B ▪ Snapshot filing function ▪ 480 TV lines vertical resolution with Super V function ▪ Black stretch switchable in 5 steps ▪ 5 types of preset shutters plus CVSS (Continuous Variable Shutter Speed)

- Removable cassette with dual filter wheels ▪ Optional 7" color VF delivers approximately 450 lines ▪ Optional PIP ▪ Built-in 1H comb filter in base station ENC to reduce cross-color ▪ Bidirectional communication over a Q-TV (trunk) line ▪ Audio trunk line from BS to camera head provided in addition to PGM line ▪ Linear matrix circuit for accurate colorimetry ▪ 6-vector color corrector circuit for special applications ▪ Auto color process facilitates alignment of color corrector to user's reference file

HK-366BT Wideband studio/field system \$103,000.00
 HK-366P Wideband lightweight portable system 88,200.00
 MCP-377 Maintenance control panel. 6,210.00
 OCP-377 Operation control panel 5,110.00



HK-355BT/355PA Full Facility Studio/Field CCD Camera System

Common Features

- Uses 3/8" FIT CCD with 450,000 pixels; has a horizontal resolution of 800 TV lines (Y-ch), a vertical resolution of 400 TV lines and a high S/N ratio of -62dB ▪ High-sensitivity prism employed ▪ 6-direction optical LPF incorporated to suppress false signals inherent in the CCD, with resolution that rivals 30mm tube cameras ▪ 3-channel detail correction incorporated and made for color objects lacking the green component ▪ Complete MIX DTL also provided to suppress the DTL-induced moire ▪ Optical axis adjustment gives full correction of optical axis, especially when a lens with high magnification is used ▪ Full auto setup ▪ Electronic shutter with fixed and continuously variable speed gives freedom to optimize dynamic resolution ▪ Highlight compression ensures a wide contrast range in image reproduction ▪ 6-vector color correction ▪ Linear matrix circuit ▪ 7" viewfinder ▪ Camera head can be used alone as a self-contained unit ▪ Camera cables - triax, multicore and fiber optic - can be changed simply by plug-in module ▪ Various control panels, such as OCP, CCP and MCP, can be connected to the base station ▪ 2 levels of self diagnostics ▪ Skin DTL system permits the amount of detail in skin color to be controlled independent of other scene content

HK-355BT Studio/Field System. \$103,000.00
 HK-355PA Lightweight portable system 43,680.00
 HK-355BM Multicore version with head multicore adaptor, includes camera head and head test extender 103,000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HL-57 10-Bit Digital Processing Camera Stable Video Signal

Since signal levels are processed in discrete form, they do not suffer degradation and retain high image quality.

Flexibility of Video Effects

Additional functions such as DTL and matrix required for camera image creativity are processed digitally, so that simple and accurate adjustment can be achieved via the digital control system.

Substantially Reduced Adjustments

Since signal processing circuits are digital, items needing adjustment by potentiometer are substantially reduced.

10-bit Quantization

The quantization is set to 10 bits to minimize S/N degradation both in the video black and white levels. As a result, a high S/N ratio of 62dB is realized for the black and white levels.

High-Performance CCD

The HL-57 is equipped with high-performance $\frac{2}{3}$ " FIT CCDs with approximately 400,000 pixels each. This achieves more than 750 lines of horizontal resolution for exceptional image quality. The smear level is substantially reduced as well. The CCD's employ microlens technology to achieve a high sensitivity of F8 at 2,000 lux.

New Super V

The HL-57 comes with Super V function. Switching in 4 steps (low, mid, high, super) allows vertical resolution from 400 to 480 TV lines to be obtained, while minimizing loss of sensitivity.

Matrix Correction

The HL-57 is equipped with 2 different matrix correction functions to accurately correct spectral characteristics of the optical system.

Linear Matrix

Basic spectral characteristics are corrected with 6 parameters to permit faithful color reproduction.

Digital Video Matrix/Color Saturation Control

Remote control can be done with 6 parameters for colorimetry correction under special lighting conditions and to match a specific type of camera tone.

Optical System

An optical system with a high-sensitivity prism is employed. The HL-57 inherits the spectral characteristics of the HL-55A.

Diagonal DTL

Diagonal DTL derives an edge signal from a diagonal component of the video signal. Images with enhanced subjective resolution are obtained. This key function enables the HL-57 to provide a very natural image impression which cannot be obtained with conventional broadcast cameras. With the diagonal DTL function, cross-color artifacts are reduced.

Soft DTL

Soft DTL reduces harsh edges of a subject and provides for smooth and natural edge compensation.

DTL Boost Frequency

The boost frequency on the horizontal edge signal can be shifted within a range (9 steps from 2.8 to 7.0 MHz).

Slim DTL

Slim DTL reduces edge thickness by half without changing the center frequency of the edge signal.

Skin DTL

Skin DTL minimizes the level of DTL for human skin-tone alone.

Electronic Color Temperature

The HL-57 comes equipped with an electronic color temperature circuit to provide color temperature conversion without the loss of sensitivity associated with the standard 5,600K optical filter.

Gain Selection/Hyper Gain

The master gain control can be preselected within a wide range: -3/0/+6/+12/+18/+30dB. With the +30dB Hyper-Gain setting, a minimum illumination of 2 lux can be achieved to suit conditions with insufficient lighting.

Shutter

In addition to 7 preset shutter modes, CVSS (continuous variable shutter speed) is available. The shutter speed can be continuously varied from $\frac{1}{60}$ to $\frac{1}{330}$ seconds.

Black Stretch

The black stretch function enhances the video level of only low-luminance areas to improve black detail of the subject shadow areas. It is switchable in 3 steps.

Electronic Horizontal Level Indicator (EHL)

Any horizontal tilt is sensed and indicated by characters within the viewfinder, so that horizontal leveling of the camera can be easily maintained.

Personal Function Switch

A front of camera switch is provided for the operator. The choice of any one of the following functions is available: Auto-Knee, Skin DTL, Soft DTL, Blk-Stretch ABC, Scene-File No. 1 to No. 8.

System Configuration

Not only can the HL-57 be integrated with various types of broadcast $\frac{1}{2}$ " VCRs, but also can be used with a host of accessories of the HL-55A without modification.

Digital Encoder Output

The HL-57 is equipped with a 31-pin D-Sub connector for digital encoder output on the rear panel of the camera head. It is also compatible with D2 and D3 format digital VTRs.

Triax/Multi Extension System

Triax/multi operation can be achieved in a similar manner with the conventional UNICAM® family to permit EFP operation.

HL-57 \$42,140.00
HL-57/CA With CA-95C camera adaptor 44,680.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CCD CAMERA/ CAMCORDER



Ikegami®



HL-V55 1-Piece Betacam SP® Camera/Recorder

- FIT (Frame Interline Transfer) CCD with 420,000 pixels ▪ 700 TVL
- 62dB S/N ▪ High sensitivity of f/8.0 (at 2000 lux) ▪ Super high sensitivity comparable to that of a low light camera with image intensifier can be achieved with the Hyper Gain switch (+30dB gain) ▪ Low-pass filter dramatically reduces moire noise patterns ▪ 15.2 lbs. or less including lens, viewfinder and battery ▪ Built-in Betacam SP VCR ▪ Registration ±0.03% ▪ Highlight compression ▪ 8-step electronic shutter, including continuously variable speed from 1/60-1/1350 sec. ▪ White shading correction ▪ Dynamic DTL (compensates for loss in lens peripheral resolution) ▪ Auto black balance (including BLK Set) ▪ SMPTE color bar generator ▪ Genlock function (full color-lock) ▪ Audio monitor speaker ▪ Audio level controller (can adjust the level of camera microphone) ▪ Movable shoulder pad ▪ Playback signal can be provided by using a playback adaptor ▪ System connector provides component video output via a 26-pin VCR connector (26-pin VCR connector is an option) ▪ Recording review function ▪ Backspace edit function ▪ Built-in time code generator/reader ▪ Diagnostic system ▪ 48V phantom power provided for microphone ▪ 12V AB power also possible (back connectors: 48V phantom power only) ▪ Built-in time code generator/reader ▪ Audio signal recording of FM and longitudinal tracks can be recorded simultaneously (when metal tape is used) ▪ CTDM (Compressed Time Division Multiplex) signals can be monitored so that chroma signal can be checked ▪ LCD multiple display (VCR status can be clearly displayed)

Specifications

Mechanical

Dimensions: 8.2"H x 4.7"W x 12.5"D
 Weight: 10.6 lbs. (including 1.5" viewfinder)
 Lens Mount: Bayonet

Electrical

DC Input Power: 12V (11, 16V)
 Power Consumption: Approx. 23W (12V)
 Genlock: VBS (BBS), 1V p-p ±6dB (0.45V p-p ±6dB), 75 ohm
 600 ohm balanced, -60dB/-20dB, 12V, AB power, 48V phantom power
 Mic: 600 ohm balanced, -60dB/-20dB, 12V, AB power, 48V phantom power
 Video Output: Composite, 2 channels

Camera Portion

Pickup Device: 3-chip 2/3" FIT-CCD with 420,000 pixels (total)
 Sensitivity: 2000 lux (3000K) f/8.0, 0dB video gain, 89.9% reflectance, Knee off
 S/N: 62dB typical (camera output) with Gamma, DTL, Chroma, Matrix, Knee Aperture all off, PED 5%, bandwidth 4.5MHz
 Resolution: Horizontal: 700 TVL, Vertical: 400 TVL (2000 lux, Retma standard resolution chart, Gamma off)
 Optical Filter: (1) 3000K, (2) 5600K, (3) 5600K + 1/4 ND, (4) 5600K + 1/8 ND
 DTL Correction: Horizontal: RGB mix, Vertical: 2H system (with comb filtering)

Shutter Speeds: 1/60 (off), 1/100, 1/250, 1/500, 1/1000, 1/2000 second
 Gain Up: 9/18dB and Hyper mode
 Viewfinder: 1.5" fast start type; 550 TVL of resolution at center
 HL-V55 \$54,000.00
 TA-V55 Triax system for HL-V55 24,920.00
 TA-V55C Triax camera head adaptor only 12,340.00



HL-55A FIT ENG/EFP CCD Camera

- High performance camera designed for ENG/EFP use ▪ Can be configured with on-board 1/2" broadcast VCRs but also with Betacam and MII types ▪ Increased video gain of +24dB ▪ Minimum illumination of 10 lux. Gain can be selected between 0 and +24dB in 6dB steps ▪ White shading correction controls for red, green and blue ▪ Horizontal DTL ▪ Auto highlight compression/knee aperture correction ▪ Optical system with high sensitivity prism ▪ Low pass filter ▪ Auto black balance ▪ Audio level controller ▪ VF indicators ▪ VF markers ▪ Remote control ▪ VCR interface ▪ Beta type optional ▪ Color bars ▪ Genlock circuit ▪ Audio monitor speaker ▪ Auto iris switch

Specifications

Lens Mount:	Bayonet (compatible with HL-95/79E)			
Optical Filter:	1	2	3	4
	3000K	5600K	5600K	5600K
			+1/4ND	+1/8 ND

Sensitivity: 2000 lux at f/8.0
 Gain Switchable: 0, +9, +18dB (STD); 0, +12, +24dB; 0, +6, +12dB; 0, +6, +18dB (selectable by internal links)

S/N Ratio: 62dB
 Resolution: H: 700TVL; V: 400TVL

Video Output
 Signal: VBS 1V p-p, 75 ohm, 1 output; component output 1 channel; RGB output 1 channel
 VF Video: R+G+B (normal) or monitor output signal selected by the monitor switch

Monitor Output
 Signal: R, G, B, R-G, B-G, R+G+B, ENC

Shutter Speeds: 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 seconds
 Dimensions: 9"H x 3.7"W x 6.1"D
 Weight: 6.8 lbs. with 1.5" viewfinder

HL-55A Basic Camera \$37,890.00
 HL-55A ENG configuration, includes: basic HL-55A camera configuration, CA-95C camera adaptor with battery and module extender card for CA-95C 41,110.00

Accessories

TA-55A Triax cable adaptor system for HL-55 and HL-55A \$19,610.00
 TA-553 RGB triax system 26,580.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HK-343 Studio/Field CCD Camera System

- 400,000-pixel IT CCDs with substantially reduced FPN and smear
- A precision pixel offset and processing technology, SHBA (Super High Band Aperture), achieves a horizontal resolution of 850 TVL
- Incorporates horizontal mix DTL and chroma aperture circuitry to retain a high level of resolution even when shooting a subject containing red, blue or magenta components, which could not be compensated for by conventional edge compensation schemes
- Improved auto knee and flare correction circuits and Super Color circuitry reduce the "washed-out" appearance that may occur when shooting a colorful subject with very high brightness
- VF DTL, an "edge compensation circuit" dedicated for viewfinder signal, provides superior edge compensation unattainable with conventional peaking schemes
- Equipped with Super V capability to improve vertical resolution
- Black Stretch/Press function brings shadow areas to vivid detail in high contrast scenes. It also makes shadow areas darker in hazy, low contrast scenes
- Soft DTL reduces harsh edges of a subject and provides for smooth and natural edge compensation
- High resolution 7" viewfinder incorporates PIP capability so RET video can be monitored at all times
- Viewfinder produces an image with 200% wide dynamic range, so it greatly improves the viewability for a camera operator during highlight shots
- Can be entirely controlled from the OCP, as well as operated from an external computer via an RS-232C interface
- The distance between the base station and the camera can be extended to 1000m with 14.5mm diameter triax cable
- Since more than 8MHz of video transmission bandwidth is provided between the camera and the base station, a resolution of 750 TVL is achieved for video output signal from the base station

HK-343 \$52,160.00



HL-43 Lightweight Portable CCD Camera System

- 400,000-pixel IT CCDs with substantially reduced FPN and smear
- SHBA achieves a horizontal resolution of 850 TVL
- Incorporates horizontal mix DTL and chroma aperture circuitry to retain a high level of resolution even when shooting a subject containing red, blue or magenta components, which could not be compensated for by conventional edge compensation schemes
- Improved auto knee and flare correction circuits and Super Color circuitry reduce the "washed-out" appearance that may occur when shooting a colorful subject with very high brightness
- Viewfinder DTL, an "edge compensation circuit" dedicated for viewfinder signal, provides superior edge compensation unattainable with conventional peaking schemes. This results in improved resolution for the viewfinder
- Equipped with Super V capability to improve vertical resolution
- Black Stretch/Press function brings shadow areas to vivid detail in high contrast scenes. It also makes shadow areas darker in hazy, low contrast scenes
- Soft DTL reduces harsh edges of a subject and provides for smooth and natural edge compensation
- Continuously variable speed electronic shutter, with fixed speeds of 1/100, 1/200, 1/500, 1/1000, 1/2000 sec.
- Dockable with a Betacam SP VCR without any adaptor; can be also docked with MII, S-VHS, Hi8 and Pro Betacam formats with the aid of simple adaptors
- Equipped with a sliding shoulder pad, the HL-43 achieves an optimum weight balance on the shoulder of the cameraman, even when docked with a variety of VCRs and adaptors with different weights
- 1.5" viewfinder provides a horizontal resolution of 500 TVL
- Convenient lamp provided just below the mounting base, so the lens condition can be checked when shooting in darkness
- Quick-start tube for instant operation without preheating
- Microphone receptacle with both +48V phantom power and +12V AB power capabilities permits various types of microphones to be connected to the camera
- Can be entirely controlled from the OCP, as well as operated from an external computer via an RS-232C interface
- When connected to the base station, the 1.5" or optional 6" viewfinder can be used
- Distance between the base station and the camera can be extended up to 1000m with 14.5mm diameter triax cable
- Since more than 8MHz of video transmission bandwidth is provided between the camera and the base station, a resolution of 750 TVL is achieved for video output signal from the base station

HL-43 \$17,130.00

HL-43CA With CA-40 camera head adaptor 19,050.00

BS-40 Triax base station 10,590.00

TA-40 Triax head adaptor 7,030.00

OCP-40 Operation control panel with joystick 3,320.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HC-340A 3-CCD Portable Color Camera

Employing 400,000 pixel, high-sensitivity microlens CCDs and high quality image processing circuits, the HC-340A has a sensitivity of f/8 at 2000 lux and delivers 750 lines of horizontal resolution. A high-order optical low-pass filter is used to provide an increased degree of modulation without sacrificing aliasing suppression.

3 Auto Iris Modes

3 different auto iris modes are provided. In addition to the normal auto iris control mode, the shadow emphasis mode and highlight emphasis mode are selectable. These auto iris modes provide ideal, highly intelligent control for a full range of lighting conditions.

Only 3.2 Lux Minimum Illumination Required

The use of the high-sensitivity CCD and a maximum circuit gain of +30dB provides 4X improvement in sensitivity and achieves a minimum specification of 3.2 lux illumination. This feature is quite instrumental in urgent news gathering or other situations where the lighting conditions are not controlled.

Flexible Gainsetting

Any 2 modes can be opted for from gains of ± 3dB, 6dB, 9dB 12dB, 15dB and 18dB as well as 0dB. This permits an appropriate gain setting for a particular application.

Allowance for Various VCRs

The HC-340A can be directly docked to an S-VHS-C or S-VHS VCR to establish an all-in-1 video camera and recorder system. With appropriate adaptors, the HC-340A can also be docked to MII (AU-410/45H), Betacam SP, Hi8, Pro Betacam and S-VHS (AG-7450) VCRs to establish a 1-piece recording system.

A Variety of Video Outputs

As the HC-340A is capable of generating Y/C, RGB and component signal outputs, it can be connected not only to a U-Matic VCR but also to S-VHS, Hi8, Betacam SP and MII VCRs.

8-Speed Electronic Shutter

8 different shutter speeds (up to 1/4000 of a second) are selectable. Therefore, fast action can be captured without sacrificing resolution.

CVSS

Continuously variable speed shutter.

Auto Knee

Optimum dynamic range is always maintained relative to the incident light intensity with consideration of proper color reproduction.

Multi-Function 1.5" Viewfinder

A high resolution 1.5" viewfinder is standard on the HC-340A. Also, diopter and position adjustment mechanisms are incorporated. The enhanced character display function allows you to monitor the camera status on the viewfinder screen. Includes lamp for checking lens setting or script in darkness. Further, an audio level control function is provided for control during videotaping while observing viewfinder on screen indications.

Auto Control

2-channel auto white memory, auto black balance and level provided.

Filter

A dustproof CC filter disc is employed. A color temperature conversion filter, as well as a cross/soft effects filter, can be chosen. Filter position is indicated by character display on the viewfinder screen.

Video Matrix

A video matrix circuit adapts optical system color reproductions to keep vivid, beautiful colors.

Compact and Lightweight Design

Weights 11 lbs. when fully equipped with accessories such as a camera adaptor, a 1.5" viewfinder, a 15X lens and a microphone.

- HC-340A CA/WL Camera head, 1.5" viewfinder, Canon 15X zoom lens, MC-230 mic, mic holder, carrying case, test extender and operation manual \$13,640.00
- HC-340A CA Less lens 11,040.00
- HC-340A TC Teleconferencing camera head only 13,640.00

Specifications

Optical System:	f/1.4, RGB prism system
Effective Number of Pixels:	Approx. 380,000 pixels (H768 x V493)
Illumination:	Minimum: 3.2 lux, f/1.8/3000°K (reflectance: 89.9% + 24dB gain) Standard: 2000 lux, f/8.0/3000°K (reflectance: 89.9%)
Horizontal Resolution:	750 lines (center)
S/N Ratio:	62dB p-p/RMS
Shutter Speeds:	1/60 (off), 1/100, 1/200, 1/250, 1/500, 1/1000, 1/2000, and 1/4000th of a second
Scanning System:	2:1 interlaced, 525 lines, 60 fields, 30 frames
Shading Correction:	Built-in shading correction circuit (black shading and white shading)
Automatic Functions:	Auto white balance (with 2Ch memory), auto black balance and level, auto iris (shadow emphasis/highlight emphasis mode switch provided), auto knee highlight compression
Input Voltage:	+11 ~ +16VDC
Power Consumption:	Approx. 12.5W (without the viewfinder) Approx. 15W (with the viewfinder)

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



HC-210 3-CCD Portable Camera

High-Performance CCDs

High-performance $\frac{1}{2}$ " IT CCDs featuring about 380,000 pixels and a low-noise preamp delivering a horizontal resolution of 700 lines, S/N ratio of 62dB and a minimum subject illumination of 8 lux.

Reduced Smear

CCD-induced artifacts such as smear, moire, ringing and fixed pattern noise are substantially reduced to achieve gripping picture quality.

Auto Knee

Auto Knee always preserves optimum dynamic range against incoming light, ensuring consistent video reproduction without washed-out appearance for subjects against strong backlight.

Video Matrix

A video matrix circuit adapts optical system color reproductions to keep vivid colors.

Detail Corrector

The HC-210 incorporates edge compensation circuitry (horizontal: both rise and fall with a comb filter, vertical: 2H).

Variable-Speed Electric Shutter

8 different speeds (up to 1/4000th of a second) are selectable. It also comes with a variable shutter function that can be set anywhere between 1/60 and 1/150.7.

Filter

The HC-210 has a built-in CC filter disk to permit selection of a color temperature translation filter best suited to the surrounding light condition.

Phantom Power Microphone

The HC-210 supports a microphone that requires a phantom power supply (+12V).

Titling

Title and date can be recorded at the start of VCR recording.

Microcomputer Control

Microcomputer-based control functions eliminate time-consuming setup tasks.

Auto White Balance Control

2 memories, A and B, are available in addition to 3000° K preset.

Allowance for Various VCRs

The HC-210 can be directly docked with the BR-S422, S-VHS or IR-S420C or S-VHS-C portable VCR.

HC-210 CA/WL With lens and camera adaptor \$12,220.00

HC-210 CA Less lens 9,220.00

HC-210 TC Teleconferencing camera head only 7,860.00

HC-240A 3-CCD Portable Color Camera

The HC-240A has an increased sensitivity change from f/5.0 to f/5.6, less vertical smear and less FPN (Fixed Pattern Noise) than the previous HC-240 camera (equivalent to f/8.0 in $\frac{1}{3}$ ").

The high performance $\frac{1}{3}$ " 3-FIT CCD pickup device and advanced circuit technology yield and improvement in resolution and S/N ratio. The HC-240A has a resolution of 750 TVL horizontal and S/N ratio of 60dB.

Multi-Speed Electronic Shutter

The electronic shutter operates at speeds of $\frac{1}{100}$, $\frac{1}{120}$, $\frac{1}{250}$, $\frac{1}{500}$, $\frac{1}{1000}$ and $\frac{1}{2000}$ sec.

Auto Knee

Increased contrast can always be maintained against any amount of incident light; images can be reproduced without color distortion.

Auto Setup

Both white and black balance can be automatically adjusted for electronic shutter and gain up.

Microphone

A directional electret condenser microphone is standard.

Compatible With Computer Graphics Systems (RS-232C)

Digital remote control box permits R.B gain, R.B.M-PED, iris, DTL level, total gain, bars on/off, shutter, etc., to be controlled from an external computer. RGB video signals can be connected to an image processing system.

Remote Control

All of the control items of the HC-240A can be remotely controlled by an RCU-240 remote control unit or up to 400m distance by an MA-230 camera control unit. By means of the character processing functions, it is possible to enter the titles, characters and other information such as the clock time into the picture. It is also possible to display a message in the viewfinder.

Compact and Lightweight Design

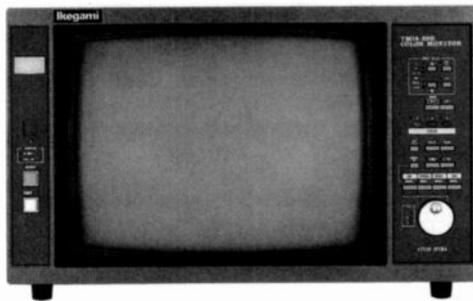
Weights 10.1 lbs. when fully equipped with accessories such as a camera adaptor, a 1.5" viewfinder, a 15X lens and a microphone.

HC-240A Camera head, 1.5" viewfinder, Canon 15X zoom lens, MC-230 mic, mic holder, carrying case, test extender and operation manual \$10,540.00

HC-240ANL Standard configuration without lens 8,700.00

HC-240ATC Teleconferencing. Head only 7,420.00

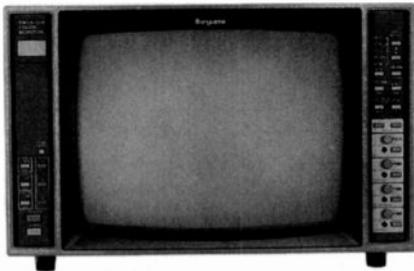
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TM14-20RH 14"/TM20-20RH 20" Color Monitors
 ■ Fine dot pitch shadow mask ■ Dot trio pitch 0.31mm for TM14-20RH and 0.43mm for TM20-20RH ■ In-line self-converging electron gun ■ Black matrix surrounding phosphor dots ■ Digital control system ■ Auto setup system with probe ■ Remote control operation ■ Infrared serial interface ■ Beam feedback system ■ 3 composite video inputs and an RGB or a component (Y,R-Y, B-Y) input as standard ■ Plug-in boards – many can be removed while monitor is mounted in rack
 TM14-20RH 14" \$5870.00
 TM20-20RH 20" 6180.00

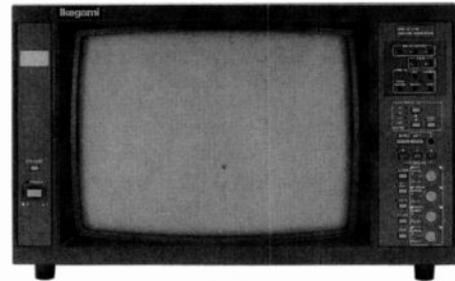
TM20-30RH 20" Color Monitor
 ■ 900 TVL with super-fine dot pitch shadow mask ■ Accepts different TV standards (NTSC, PAL-B, SECAM, PAL-M, D1, D2) with optional plug-in boards ■ Safe title generator (100, 95, 90, 85, 75%, 100 +90+80% selectable) reference and variable horizontal position ■ Test signal ■ Video A/B split (reference and variable vertical position) ■ Color/mono split (reference and variable vertical position) ■ Beam feedback system ■ Menu assist
 TM20-30RH \$8950.00

TM14-18R 14"/TM20-18R 20" Color Monitors
 ■ 600 TVL or more ■ All switching operations digitally controlled ■ 2 composite video inputs, 1 RGB/component input, 1 Y/C input and 1 external sync input provided ■ Construction allows circuit adjustment and module removal ■ Feedback clamp system ■ Automatic degaussing circuit ■ In-line gun, dot shadow mask CRT ■ CRT protection circuit ■ H defeat/H.V. circuits permit stable raster size at all times against rapid APL change or high brightness signal input
 TM14-18R 14" \$4190.00
 TM20-18R 20" 4500.00



TM20-19RH 20"/TM14-19RH 14" Color Monitors
 ■ Beam feedback system ■ Wideband R-Y, B-Y precision demodulation ■ Color filter preserves input signal resolution, switchable to notch filter ■ Keyed back porch clamp prevents black level fluctuation over 0-100% APL range ■ Automatic frequency phase control ■ Variable aperture correction increases displayed picture sharpness ■ Regulated high voltage holds raster size constant

within 0.5% over 0-100% APL range ■ R-Y/B-Y outputs available for use of X-Y display as vectorscope ■ Pulse delay ■ Residual subcarrier test circuit ■ Underscan switch ■ Setup switch to disable vertical deflection for adjustment of lowlight white balance ■ Individual switches to disable RGB beams ■ On-demand degauss circuit
 TM20-19RH 20" with case \$5000.00
 TM14-19RH 14" with case 4690.00
 TM10-29RH 10" with case 2660.00



TM20-17R/TM14-17R Color Monitors
 ■ In-line, self-converging electron gun ■ Black matrix surrounding CRT face ■ NTSC/PAL mode selection ■ Screen aspect ratio of 4:3 or 16:9 ■ Beam Feedback System (BFS) ■ Comb filter selectable to notch filter ■ Sweep failure protection circuit ■ 4 video inputs (A/B/YC/RGB or Y, Pb, Pr) ■ Horizontal time constant can be selected in either 0.5ms or 2ms ■ Underscan switch ■ Pulse-cross switch for sync signal verification ■ Digital inputs (D1, D2, D3 formats) available with optional modules ■ 500 lines resolution
 TM20-17R 15.7"H x 15.4"W \$2100.00
 TM14-17R 10.4"H x 17.7"W 2460.00



PM9-5A 9" Broadcast Monochrome Monitor
 ■ Keyed back porch clamp, switchable to DC restore ■ Dual (A/B) inputs, internal/external sync, normal/wide scan ■ 800 lines resolution ■ D6500K phosphor ■ Scan delay/normal ■ Tally light ■ Remote control ■ 9" configurations available as cabinet and 19" rackmounting in an 8 3/4"H, single with WFM space, single with vectorscope space and dual units
 PM9-5A \$ 510.00
 RM9-5ARM2 Dual rackmounts 1130.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

IKON VIDEO



SCAN/STANDARDS CONVERTERS/VIDEOWALL

IKON SC-7 Computer-to-Video Scan Converters

- Provides high quality, flicker-free scan conversion from VGA or Mac II based systems to video, while remaining transparent to the computer system
- No special drivers, boards or software to install
- Provides a buffered computer loopthrough to your computer monitor
- NTSC and PAL outputs
- Universal power supply
- Includes composite, S-Video and RGB/sync for a variety of applications

SC-7/VGA	VGA scan converter.	\$1595.00
SC-7/MAC	Mac scan converter.	1595.00
SC-7/Combo	VGA/Mac scan converter.	1895.00
SC-7/GNLCK	Genlock adaptor/RGB/sync breakout.	525.00
CA-4B/26P-6	RGB/sync BNC breakout cable	80.00

IKON SC-5/SC-6 VGA Card/Scan Converters

- Available in NTSC and PAL
- Tseng Labs ET4000 VGA chip
- Standard VGA regular level compatible
- 1M byte on-board DRAM
- Composite, Y/C and RGB/sync outputs
- Flicker reduction
- Overscan/underscan modes
- Easy to install and use

SC-5	Maximum VGA resolution of 1280 x 1024 x 16 colors.	\$699.00
SC-6	Offers 1280 x 1024 x 16 colors and 800 x 600 x 32K colors.	799.00

IKON SC-4 Computer-to-Video Scan Converter

- Available in NTSC and PAL
- VGA loopthrough
- Composite, Y/C and RGB/sync outputs
- 2 levels of flicker reduction
- Overscan/underscan modes
- Horizontal and vertical positioning
- Easy to install and use

SC-4	Plug-in scan converter up to 640 x 480	\$599.00
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IDEN IP-450 Standards Converter

- 2-field conversion
- Full multi-format capability
- Composite, Y/C, Y-R/Y-B/Y and RGB/sync inputs and outputs
- Full time base correction
- Full proc amp

IP-450	Multi-standard converter.	\$4500.00
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IDEN IVW-400 Videowall

- 4-output control using monitors or projection cubes
- Can be utilized as a 2 x 2, 1 x 4, 4 x 1 or can grow into a 4 x 4 by daisy-chaining units together
- Changing the aspect ratio of the videowall for specialty applications is easily done and cost effective
- Optional RS-232 control port enables the IVW-400 to run 1 of 5 factory programmed sequences or run custom sequences from any DOS-based computer to add additional eye-catching effects
- 4 modes of operation to provide maximum display and programming versatility
- 4 modes give the ability to change the display aspect ratio of the output signal, 2 x 4, 4 x 2, 3 x 4, etc.
- Available effects include expanded image, normal image per monitor, freeze individual monitors (in expansion only), scroll

- up/down/left/right (16X expansion only)
- When a video image is expanded by 4 or 16, it can be distorted and have jagged edges and a mosaic look on diagonal and curved lines
- IVW-400 eliminates this distortion with linear interpolation, which averages adjacent video lines using proprietary anti-aliasing algorithms
- Multiple format input capability of composite, Y/C, component and RGB/S with composite, Y/C and RGB/S outputs

IVW-400S	Multi-standard converter.	\$5000.00
CP-400	Control package with RS-232 port and control software	1200.00



1 x 4—The IVW-400 expands the image to 16X actual size. This mode is designed for use with horizontally oriented video. A horizontal key window of 1 quarter the expanded image is displayed by each processor, while scroll capability allows for alignment.



4 x 1—The IVW-400 expands the image to 16X actual size. This mode is designed for use with vertically oriented video. A vertical key window of 1 quarter the expanded image is displayed by each processor, while scroll capability allows for alignment.



2 x 2—The IVW-400 expands the image 4X actual size and displays the image over 4 monitors or cubes. The pre-programmed sequences installed in the RS-232 option are designed to run in the mode.



2 x 2 of 4 x 4 image—The IVW-400 expands the image to 16X actual size. This mode is used when daisy-chaining 4 units into a 4 x 4 wall. A key window of 1 quarter the expanded image is displayed by each processor, while scroll capability allows for alignment.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MAINFRAMES



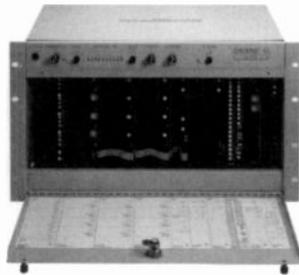
IRP
professional sound products l.p.

DJ-4101 Mainframe

- UL listed
- EMI-RFI line filter
- Low-field toroidal transformer
- Lockable security cover
- Wiring saddles
- Headphone output
- 2 balanced attenuators
- LED peak level display
- 3W 8/4 ohm amplifier
- Rugged 18-gauge steel construction
- Any module in any space



The DJ-4101 mainframe provides 14 module mounting spaces, DC power and a lockable security cover for the System 41° signal processing modules. The system operator control panel includes a power on/off switch and LED indicator for DC bus power. A monitor provides an input selection switch, a 10-segment LED peak level display and a 3W amplifier. 2 balanced attenuators, useful for system level control, are also supplied.



Specifications

AC Mains Power

Connection: Standard IEC
Voltage: 117V/234V \pm 10% 50/60Hz
Power: 120W maximum
Fuse: 1.25A slo-blo

Output Power

DC, rectified and filtered
Voltage: \pm 24V split supply (nominal)
Current: 1000mA
Fuses: 1.6A, rear panel (requires two)

Card Capacity

14 single space modules

Rackmounting: Standard 19" equipment rack (6 rack units)

Size: 10.5"H x 19"W x 11"D

Weight: 20 lbs

Finish: Epoxy powder coat, shadow white

Door Lock: National Cabinet Lock B399A

Balanced Attenuators: Dual 5-kilohm potentiometers

Monitor Specifications

Line Input: Standard System 41 active balanced
Impedance: 82 kilohms balanced, 41 kilohms unbalanced

Maximum Input: \pm 19dBV

Speaker Output:

Transformer isolated
Impedance: Taps for 4 ohm or 8 ohm
Maximum Output: 3W continuous
Frequency Response: +0dB, -0.5dB, 20Hz-20kHz
THD: Less than 0.3% 40Hz-20kHz @ 1.0W

Headphone Output: Stereo or mono headphones may be used
Impedance: 150 ohms for high or low impedance headphones

Display:

10-segment peak reading LED
Scale: -25 dBV to +20dBV, 5dB/segment

DJ-4100 Mainframe

- UL listed
- EMI-RFI line filter
- Low-field toroidal transformer
- Rugged 18-gauge steel construction
- Lockable security cover
- Wiring saddles
- Any module in any space



The DJ-4100 mainframe provides 14 module mounting spaces, DC power and a lockable security cover for the System 41° signal processing modules. The system operator is furnished with a power on/off switch and a power/on LED which monitors both the positive and negative DC output power to the mainframe modules.



Specifications

AC Mains Power

Connection: Standard IEC
Voltage: 117V/234V \pm 10% 50/60Hz
Power: 120W maximum
Fuse: 1.25A slo-blo, rear panel

Output Power

DC, rectified and filtered
Voltage: \pm 24V split supply (nominal)
Current: 1200mA
Ripple: 1V peak to peak maximum
Fuses: 1.6A, rear panel (requires two)

Card Capacity

14 single space modules

Rackmounting: Standard 19" equipment rack (6 rack units)

Size: 10.5"H x 19"W x 11"D

Weight: 20 lbs

Finish: Epoxy powder coat, shadow white

Door Lock: National Cabinet Lock B399A

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



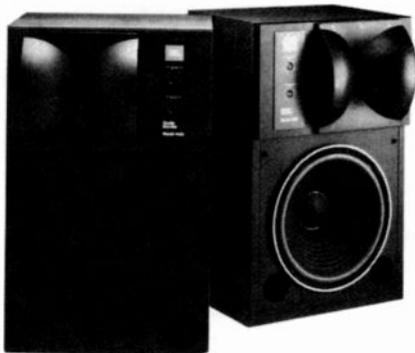


4430 Bi-Radial® Studio Monitor

- Response: (±3dB) 35Hz-16kHz
- Power Capacity: 300W
- Sensitivity: 93dB SPL

Developed to meet the challenge of digital and advanced analog recording technology, the 4430 represents a significant approach to 2-way studio monitor design. The incorporation of the Bi-Radial horn in a monitor loudspeaker provides constant vertical and horizontal polar coverage, control of the reverberant field, flat power response, image stability and coherent sound. The 4430 also features improvements in compression driver, low frequency transducer and dividing network technology. The system exhibits wide bandwidth, smooth frequency response, high efficiency, wide dynamic range and exceptional reliability. The 4430 has a single 15" bass driver.

4430 L,R \$1995.00



4425 Bi-Radial Studio Monitor

- Smooth, accurate response from 40Hz-16kHz
- Sensitivity: 91dB-SPL, 1W/1m
- Flat power response Bi-Radial horn
- 200W continuous program power capacity
- High-frequency transducer: a pure titanium diaphragm compression driver with edge-wound aluminum ribbon voice coil, copper-plated pole piece, and diamond pattern diaphragm suspension
- Low-frequency transducer: 12" driver with 3" edge-wound copper ribbon voice coil

The 4425 maintains a 100°x100° coverage pattern from its crossover frequency (1200Hz) up to 16kHz. Smooth power response is ensured from the lowest frequencies up to 1200Hz, and flat power response is maintained above that frequency. At the same time, axial response is remarkably smooth, and the combination of controlled power and axial response ensures the reflected sound field in the control room will be free of coloration.

4425 L,R \$1150.00



4412A 12" 3-Way Studio Monitor

- 3-way monitor system
- For applications requiring maximum low frequency output from a bookshelf-sized monitor
- System tightly clusters its transducer complement for accurate close proximity listening
- All-purpose monitor for any application
- Range (-10dB): 30Hz-30kHz
- Response: 45Hz-20kHz
- Power Rating: 150W, pink noise

4412A L,R ea./\$675.00

4410A 10" 3-Way Studio Monitor

- Designed as a vertical line array
- Delivers incredibly fine transient response characteristics and spatial detail
- Range (-10dB): 33Hz-30kHz
- Response: (±2dB): 45Hz - 20kHz
- Power Rating: 125W, pink noise

4410A L,R . . . ea./\$450.00



4408A 8" 2-Way Studio Monitor

- Ideal for smaller recording studios or broadcast control rooms
- Range (-10dB): 35Hz-30kHz
- Response: (±2dB): 50Hz-20kHz
- Power Rating: 100W, pink noise

4408A L,R . . . ea./\$325.00



4200 Series Studio Console Top Monitors

The 4200 Series, 2 console top monitor models, were designed specifically for use in the near field.

4208 Studio Monitor

- Response (±2dB): 60Hz-20kHz
- Range (-10dB): 38Hz-21kHz
- Power Capacity (Continuous Pink Noise): 75W; (Peak Pink Noise): 300W
- Sensitivity: 89dB SPL, 1W (2.83V) at 1m
- Nominal Impedance: 8 ohms
- Crossover Frequency: 2.6kHz
- Transducer Complement: 8" LF cone, 1" pure titanium dome
- Finish: flat gray vinyl enclosure
- Grille Color: gray thermoformed polypropylene

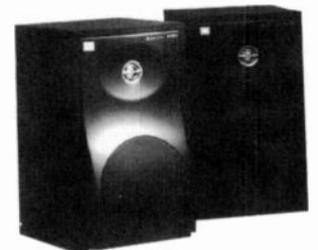
4208 L,R \$275.00



4206 Studio Monitor

- Response (±2dB): 65Hz-20kHz
- Range (-10dB): 42Hz-21kHz
- Power Capacity (Continuous Pink Noise): 75W; (Peak Pink Noise): 300W
- Sensitivity: 87dB SPL, 1W (2.83V) at 1m
- Nominal Impedance: 8 ohms
- Crossover Frequency: 2.8kHz
- Transducer Complement: 6" LF cone, 1" pure titanium dome
- Finish: flat gray vinyl enclosure
- Grille Color: gray thermoformed polypropylene

4206 L,R \$210.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SPEAKERS



Control® Series Monitors

Control 12SR™ 200W 2-Way Monitor

- Frequency Range (-10dB): 45Hz to 17kHz
- Power Capacity¹: 200W
- Sensitivity (1W, 1m)²: 97dB
- Nominal Impedance: 8 ohms
- Crossover Frequency: 2kHz
- Enclosure Material: Polystyrene
- Terminations: Spring terminal (adapted to accept dual banana jacks), XLR plus 1/4" phone jack
- Dimensions: 24"H x 17"W x 12"D
- Net Weight (Each): 44 lbs.

All the advantages of the Control Series are exemplified in the Control 12SR. A specially designed second-order crossover network, with a transition frequency of 2kHz, is responsible for blending the low and high frequency components each/\$885.00



Control 10™ 150W 3-Way Monitor

- Frequency Range (-10dB): 35Hz to 27kHz
- Power Capacity¹: 150W
- Sensitivity (1W, 1m)²: 94dB
- Nominal Impedance: 8 ohms
- Crossover Frequency: 1.1kHz, 4.6kHz
- Enclosure Material: Polystyrene
- Terminations: Spring terminal (adapted to accept dual banana jacks)
- Dimensions: 24"H x 17"W x 12"D
- Net Weight (Each): 32 lbs.

The Control 10 is the ultimate in a versatile, go-anywhere control monitor. It offers increased range and greater sensitivity. Its 3-way design delivers full sound with exceptionally wide dynamics each/\$635.00



Control 8SR™/70 175W Loudspeaker

- Frequency Range (-10dB): 70Hz to 16kHz
- Power Capacity¹: 175W
- Sensitivity² (1W, 1m)²: 92dB SPL
- Nominal Impedance: 4 ohms
- Crossover Frequency: 3kHz
- Enclosure Material: Polypropylene structural foam
- Dimensions: 15 1/4"H x 9 7/8"W x 9"D

The Control 8SR is a high performance, compact and versatile sound loudspeaker designed for a wide variety of applications. The UV stable polypropylene enclosure and weatherized transducers make it possible for both outdoor and indoor use. Its cosmetic shape and design make it easy to fit the Control 8SR into virtually any environment. The control 8SR is available with optional Multi-tap 70.7V line distribution auto-transformer for internal mounting each/\$295.00
Control 8SR/70 Multi-tap 70.7 line distribution auto-transformer 360.00

Control 5™ 175W 2-Way Monitor

- Frequency Range (-10dB): 50Hz to 20kHz
- Power Capacity¹: 175W
- Sensitivity (1W, 1m)²: 92dB
- Nominal Impedance: 4 ohms
- Crossover Frequency: 3kHz
- Enclosure Material: Structural foam
- Terminations: Spring terminal (adapted to accept dual banana jacks)
- Dimensions: 15.25"H x 9.875"W x 9"D
- Net Weight (Each): 10 lbs.

The Control 5 is a step up from the Control 1 Plus. It provides sound reproduction in fixed installations such as restaurants, AV presentation rooms, boardrooms and other locations that require inconspicuous systems. Its range and power handling also make it suitable for use as a surround system in theaters. each/\$225.00

Control 1AW/70 All-Weather Loudspeaker

- Frequency Range (±3dB): 120Hz to 20kHz
- Power Capacity¹: 150W
- Sensitivity (1W, 1m)²: 87dB SPL
- Nominal Impedance: 4 ohms
- Crossover Frequency: 6kHz
- Enclosure Material: UL®94 V-O flame class

rated

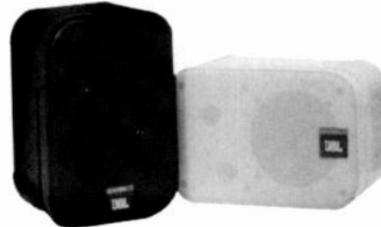
- Dimensions: 9 1/4"H x 6 1/4"W x 5 1/4"D
- Net Weight (Each): 5 lbs.

The Control 1AW/70 solves the problem of bringing monitor sound quality outdoors. Features the acclaimed acoustical performance of the Control 1 and the high-quality internal autotransformer simplifies the sound system installer's task of running multiple loudspeakers from a common power amplifier each/\$210.00

Control 1 Plus™ 160W 2-Way Monitor

- Frequency Range (-10dB): 60Hz to 20kHz
- Power Capacity¹: 160W
- Sensitivity (1W, 1m)²: 91dB
- Nominal Impedance: 4 ohms
- Crossover Frequency: 6kHz
- Enclosure Material: Structural foam
- Terminations: Spring terminal (adapted to accept dual banana jacks)
- Dimensions: 9.25"H x 6.25"W x 5.625"D
- Net Weight (Each): 5.5 lbs.

The Control 1 Plus uses the same enclosure as the Control 1, but provides a step upward in performance, offering greater bandwidth, higher power handling and better sensitivity each/\$165.00



Control 1™ 150W 2-Way Monitor

- Frequency Range (-10dB): 70Hz to 20kHz
- Power Capacity¹: 150W
- Sensitivity (1W, 1m)²: 90dB
- Nominal Impedance: 4 ohms
- Crossover Frequency: 6kHz
- Enclosure Material: Structural foam
- Terminations: Spring terminal (adapted to accept dual banana jacks)
- Dimensions: 9.25"H x 6.25"W x 5.625"D
- Net Weight (Each): 4 lbs.

The Control 1, an ideal reference monitor for checking radio sound suitability, is also at home in restaurants, AV presentation rooms and other locations where the speakers should be visually unobtrusive. each/\$130.00

Control SB-Micro™ 100W Sub-Bass System

- Frequency Range (-10dB): 38Hz to 260Hz
- Power Capacity¹: 100W
- Sensitivity (1W, 1m)²: 88dB
- Nominal Impedance: 4 ohms
- Crossover Frequency: 225Hz
- Enclosure Material: Wood composite
- Terminations: Spring terminal (adapted to accept dual banana jacks)
- Dimensions: 7.5"H x 20"W x 11.5"D
- Net Weight (Each): 13 lbs.

The perfect partner to the Control Micro, the Control SB-Micro relies on a double chamber bypass design to smoothly extend bass response to below 40Hz while acoustically filtering information above the 225Hz crossover point each/\$210.00

Control Micro™ 40W Single Point Source Monitor

- Frequency Range (-10dB): 100Hz to 20kHz
- Power Capacity¹: 40W
- Sensitivity (1W, 1m)²: 88dB
- Nominal Impedance: 4 ohms
- Crossover Frequency: n/a
- Enclosure Material: ABS
- Terminations: Spring terminal (adapted to accept dual banana jacks)
- Dimensions: 6.25"H x 6"W x 5.5"D
- Net Weight (Each): 3.5 lbs.

The Control Micro is ideal for limited space applications and fits nicely over the mixing console meter bridge. Comes standard with a wall mount bracket—no additional hardware or accessories are needed each/\$90.00

¹ Rating based on test signal of IEC filtered random noise with a peak-to-average ratio of 6dB, 2 hours duration

² Sensitivity is based on an input of 2.83V at 8 ohms or 2.0V at 4 ohms

³ Averaged from 500Hz to 2.5kHz

⁴ Averaged from 50Hz to 150Hz

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



KY-27BUCH 3-CCD Color Video Camera

▪ 360,000 pixel broadcast 2/3" CCDs deliver 750 lines of horizontal resolution for natural, sharp pictures ▪ 1.5 lux required in LoLux mode ▪ f/9 at 2000 lux ▪ Color matrix circuit assures accurate color reproduction ▪ Remote control of black paint ▪ Advanced triaxial control system allows operation up to 5000' from base station ▪ Negligible vertical smear when shooting highlights ▪ High S/N ratio of 62dB for quiet pictures ▪ Full auto shooting with manual override provides auto iris with multizone iris weighting, enhanced variable gain (ALC: Automatic Level Control), variable shutter (EEL: Extended Electronic Iris) and full time auto white ▪ Universal dockability ▪ Variable scan for shooting flicker-free computer displays ▪ Professional vertical plug-in PC boards with all potentiometers on the edge for easy serviceability ▪ 12 VDC power requirement ▪ NTSC encoder (wide band R-Y/B-Y system) \$7,550.00

KY-27UPCHB Direct Docking 3-CCD Camera Head

▪ Same performance as the KY-27BUCH ▪ Direct docking with PVV-1 and EVV-9000 ▪ Very compact ▪ Genlock is possible when docked to the EVV-9000 or PVV-1 (with the DXC-537A, genlock is possible when docked with the PVV-1, but not the EVV-9000) ▪ Docks to PVV-Series Betacam and Hi8 without an adaptor ▪ Designed exclusively for docking use in an ENG application (neither the KA-27U or Sony's camera adaptor can be used with this camera) \$8,224.00

KY-27BU ENG Package Less Lens

▪ KY-27BUCH camera head ▪ KA-27U camera adaptor ▪ VF-P115U 1 1/2" viewfinder ▪ CB-27U carrying case \$9,706.00

KY-27BST Studio Package Less Lens

▪ KY-27BUCH camera head ▪ KA-27U camera adaptor ▪ VF-P400U 4" studio viewfinder ▪ RM-P200U remote control unit \$10,764.00

ENG-2722B Docking Camcorder Package Less Lens

▪ KY-27BUCH camera head ▪ VF-P115U 1 1/2" viewfinder ▪ BR-S422U S-VHS docking VTR ▪ AA-G10U AC adaptor/charger ▪ CB-27U carrying case \$12,516.00

KY-19UCH 3-CCD Color Video Camera

▪ In LoLux mode, 2 lux minimum illumination ▪ LoLux combines electrical gain with a unique pixel readout method resulting in an effective gain of 30dB without the noise usually associated with that much amplification ▪ 750 lines of horizontal resolution ▪ 62dB S/N ratio ▪ 1/2" CCDs ▪ Full auto shooting with manual override ▪ Advanced memory system ▪ Multizone iris weighting ▪ Color matrix circuit ▪ Black paint control ▪ 1.5" viewfinder with 600 lines of resolution ▪ Viewfinder status overlay ▪ Tripod base ▪ Enhanced variable gain (ALC) ▪ Extended electric iris ▪ Full time auto white ▪ Variable scan for shooting computer screens ▪ Docks with S-VHS, MII, Hi8 and Betacam SP ▪ 380,000 pixels ▪ f/8, 2000 lux sensitivity \$5,260.00

KY-19U ENG Package Less Lens

▪ KY-19UCH camera head ▪ KA-27U camera adaptor ▪ VF-P115U 1 1/2" viewfinder ▪ CB-27U carrying case \$7,416.00

KY-19ST Studio Package Less Lens

▪ KY-19UCH camera head ▪ KA-27U camera adaptor ▪ VF-P400U 4" studio viewfinder ▪ RM-P200U remote control unit \$8,474.00

ENG-1922 Docking Camcorder Package Less Lens

▪ KY-19UCH camera head BR-S422U S-VHS portable VTR ▪ VF-P115U 1 1/2" viewfinder ▪ CB-27U carrying case \$10,226.00

KY-27BU/KY-19U Accessories

A14X10BRM12U Fujinon 14:1 servo zoom lens with macro (for KY-27BU) \$1,905.00

A15X8BEVM12	Fujinon 15:1 servo zoom lens with 2X extender and macro (for KY-27BU)	\$9,900.00
A16X9B12U	Fujinon 16:1 servo zoom lens with macro (for KY-27BU)	2,610.00
A16X9BE12U	Fujinon 16:1 servo zoom lens with 2X extender and macro (for KY-27BU)	5,550.00
A16X9BMDD24	16:1 Fujinon teleconferencing lens (for KY-27BU)	3,550.00
AA-G10U	AC adaptor/charger for NB-G1U	473.00
AA-P250U	AC adaptor/charger	384.00
BH-P27U	Battery holder	159.00
CB-27U	Carrying case	427.00
HZ-FM13U	Manual focus control	577.00
HZ-FM15U	Manual focus control	577.00
HZ-MC73U	Mounting adaptor to use 2/3" lenses on 1/2" CCD cameras (for KY-19U)	398.00
HZ-ZS13U	Servo zoom control	638.00
J15X9.5BIRS12	Canon 15:1 servo zoom lens with 2X extender and macro (for KY-27BU)	5,790.00
J14AX8.5BIRS12	Canon 14:1 servo zoom lens with 2X extender and macro (for KY-27BU)	9,400.00
KA-A27U	Microphone holder for KY-19U/27BU	142.00
KA-27U	Camera adaptor	1,086.00
KA-111U	Adjustable chest rest (for KY-19U/27BU)	107.00
KA-280U	Cable extender for VC-P110 series cables	242.00
KA-300U	Intercom headset for RM-P200U	335.00
KA-320U	Intercom headset	335.00
KA-510U	Tripod mounting plate	257.00
KA-B20U	Betacam adaptor	1,113.00
KA-M20U	MII VTR adaptor	1,113.00
KA-P20U	Betacam and Hi8 adaptor	1,189.00
KA-M50	Pistol handgrip for M-K50U	414.00
M-K50U	Shotgun microphone	446.00
MV-P612U	Stereo microphone for JVC cameras	707.00
NB-G1U	Rechargeable battery (2.2AH)	184.00
Q-R27	Anton/Bauer battery bracket	180.00
RM-LP35U	Joystick remote control (RM-P270U/300U)	2,530.00
RM-LP80U	Small remote control unit	961.00
RM-P200U	Multicore remote control unit	1,408.00
RM-P270U	Triaxial control system, includes base station and adaptor, composite and Y/C outputs, full remote functions, RTS and 4-wire intercom interface, operates up to 5000' from 19' base station	9,750.00
RM-P300U	Deluxe long distance multicore remote control unit	4,397.00
S14X7.5B12U	Fujinon 14:1 servo zoom lens with macro (for KY-19U)	1,850.00
S16X6.7B12U	Fujinon 16:1 servo zoom lens with macro (for KY-19U)	2,695.00
S15X8.5B1EMS20	Nikon 15:1 servo zoom lens with 2X extender and macro (for KY-27BU)	7,995.00
S16X6.7BMDD24	16:1 teleconferencing lens (for KY-19U)	3,550.00
VC-P110U	Camera/remote cable (5m) (RM-P200/300U)	379.00
VC-P112U	Camera/remote cable (20m) (RM-P200/300U)	770.00
VC-P113U	Camera/remote cable (50m) (RM-P200/300U)	1,390.00
VC-P114U	Camera/remote cable (100m) (RM-P200/300U)	2,607.00
VC-P474U	VTR cable for composite VTR (26p-14p, 2m)	239.00
VC-P482U	VTR cable for Y/C VCR (26p-14p, 2m)	207.00
VC-P740U	Microphone cable	114.00
VC-P891U	RS-232 cable	395.00
VC-P892U	Macintosh cable	395.00
VF-P115U	1 1/2" viewfinder	643.00
VF-P400U	4" studio viewfinder	720.00
VF-P550BU	5" studio viewfinder	1,230.00
YH13X7.5K12	Canon 13:1 servo zoom lens with macro (for KY-19U)	1,676.00
YH17X7KRS12U	Canon 17:1 servo zoom lens with macro (for KY-19U)	2,700.00
YJ17X9.5BK12	Canon 17:1 servo zoom lens with macro (for KY-27BU)	2,700.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CCD CAMERAS



GY-X2U 1/2" IT 3-CCD S-VHS Camcorder

- Low light capability (3 lux minimum) ▪ 650 TV lines horizontal resolution ▪ Lightweight ergonomic design (less than 15.5 lbs.)
- 2-hour recording time ▪ Low power consumption (less than 22W)
- Plug-in VITC/LTC time code generator (optional) ▪ Quick-start recording ▪ f/7.0 at 2000 lux ▪ 330,000 pixels ▪ 4 audio channels with 2 Hi-Fi channels and 2 linear channels ▪ Automatic white balance has 2 digital memories ▪ Employs three 1/2" micro-lenses
- Multi-zone iris weighting ▪ Variable scan view ▪ Electronic shutter
- Viewfinder status overlay ▪ 2 external microphones can be connected via the 2 XLR connectors or 1 stereo mic via a 6-pin connector ▪ Tripod base provides quick, secure attachment ▪ Rotary erase heads and advanced editing function ▪ Backlit LCD panel ▪ Auto review function ▪ Built-in speaker ▪ Insert edit function ▪ Retake function by edit search ▪ Auto EQ ▪ Automatic level up improved multi-generation chroma S/N ▪ Built-in genlock circuit ▪ Accepts JVC (NB-G1U) or Sony (NP-1A) battery (not included)

The GY-X2U is the first S-VHS 3-chip full size integrated camcorder. By combining a low light professional camera with a tiny 2-hour S-VHS recorder, the GY-X2U achieves lightweight maneuverability while retaining the quality and convenience of S-VHS. Unlike other systems which dock separate camera and VCR components, the X2 is designed as a single unit, thus providing the benefits of S-VHS recording and 3-chip camera technology in a single package. \$7999.00

GY-X2UL13 Camcorder package with 13:1 lens 8999.00

CB-27U Carrying case 427.00

S14X7.5B12U 14:1 Fujinon servo zoom lens 1850.00

S16X6.7B12U 16:1 Fujinon servo zoom lens 2695.00

YH13X7.5K12 13:1 Canon servo zoom lens 1676.00

YH17X7KRS12U 17:1 Canon servo zoom lens 2700.00



GY-X1TCUL14 3-CCD S-VHS-C Camcorder

- 11 lbs. ▪ 330,000 pixels ▪ 58dB S/N ratio ▪ Over 600 lines resolution
- 4 memories for storage of gamma levels, master black control, contour level, flare level, iris setting, gain selection and other parameters ▪ Values in 3 of the memories are preset for studio, outdoor and indoor shooting, including 1 that is user-adjustable ▪ Optional circuit board makes each of the 4 memories user-adjustable ▪ Micro-processor-controlled iris system ▪ Full head drum ▪ Internal VITC

time code ▪ Instant record button ▪ Hi-Fi audio recorded through unit's balanced XLR connectors ▪ With adaptor, C-cassettes can be edited and played on any full size S-VHS system ▪ Voice warning system ▪ 14X zoom lens with rectangular hood and mechanical inner focus system ▪ 2 auto-white memories with filter positions indicated in viewfinder ▪ ALC with manual override ▪ Audio level indicator in finder ▪ Genlock ▪ Optional remote control ▪ Integrated compact S-VHS (20 min.) videocassette recorder

The GY-X1 is the first integrated camera with built-in S-VHS-C VTR. It comes fully equipped with lens, viewfinder and battery holder. Weighing just 11 lbs., and only 20 1/2" long, it is compact, lightweight and has a low profile. The 14X zoom lens, 1/2" 360,000 pixel CCDs with micro-lens technology and advanced prism design provide superb picture quality. With its power, precision and advanced function, the GY-X1 gives the professional the high performance needed to cope with any assignment under all shooting conditions.

Standard accessories: HZ-714U 14:1 mechanical inner-focus lens, VF-P115U 1 1/2" viewfinder, BH-P10U battery holder for NB-G1U and NP-1; KA-500XU tripod base, SA-CP11U cassette adaptor, KA-A10U microphone holder

GY-X1TCUL14 \$4495.00

Accessories

- AA-G10U AC adaptor/charger for NB-G1U. Charges up to 4 NB-G1U batteries. Can also be used to power GY-X1TCU and portable VCR \$473.00
- AA-P250U AC adaptor/charger 384.00



AA-P250U

- BH-P10U Battery holder for NB-G1U \$155.00
- CB-X1U Molded shipping case 427.00
- HZ-MC73U Lens adaptor for 2/3" bayonet lenses 398.00



HZ-MC73U

- KA-A10U Microphone holder for GY-X1TCU \$106.00
- KA-A30U Microphone holder for GY-X2U 181.00
- KA-1000U IC card for GY-X1TCU AMS system, allows user to store 4 AMS settings for camera setup. 80.00
- MV-P612U Stereo microphone 707.00



MV-P612U

- NB-G1U Rechargeable battery (2.2AH) . . . \$184.00
- Q-1 Anton/Bauer battery bracket 180.00
- RM-LP80U Small remote control unit, max. distance 328' from camera. Includes 16' cable 961.00
- VC-P740U Microphone cable 114.00



RM-LP80U

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

JVC[®]
PROFESSIONAL



**S-VHS RECORDER/
PLAYERS/EDIT
CONTROLLERS**



22 SERIES

BR-S822U Full-Featured Editing Recorder/Player

▪ Full size/compact-compatible cassette loading mechanism ▪ Built-in RS-422 interface ▪ RS-232C serial remote control board ▪ Snap-in slot-based system expansion ▪ Plug-in time code reader/generator (optional) ▪ Plug-in full field TBC (optional) ▪ Component out (with TBC) ▪ Y-688 dub out for 3/4" (optional) ▪ Digital processing circuits for broadcast-level picture quality in multi-generational dubbing ▪ Built-in editing control ▪ Accurate audio insert editing ▪ Editing functions include precision search/jog dials, high-speed search at up to 32X, preview, review and edit point entry ▪ 47dB S/N ▪ 8-digit counter display ▪ EE monitor ▪ Digital noise reduction available
BR-S822U \$6405.00

BR-S622U S-VHS Recorder/Player

▪ For use as editing source ▪ Audio dubbing ▪ Same basic features as BR-S822U without insert editing and built-in editing controller
BR-S622U \$4725.00



BR-S522U S-VHS Feeder/Player

▪ Plug-in TBC and TC generator/reader capability ▪ Designed for use with the BR-S822U ▪ High-quality pictures with advanced circuitry ▪ Digital Y/C separator, luminance comb filter and luminance noise reducer ▪ Hi-Fi sound ▪ Comprehensive set of studio level feeder functions ▪ Full-size/compact compatible cassette loading mechanism ▪ Independent audio output level controls ▪ On-screen menu system for easy setup and trouble-free operation ▪ Preroll ▪ XLR balanced audio connectors ▪ 2 level meters switchable between Hi-Fi and normal audio ▪ 8-digit time counter for indication of editing data in either TC or CTL mode ▪ External sync input for reference video
BR-S522U \$4245.00

BR-S422U S-VHS Dockable Recorder/Player

▪ Compact, lightweight design ▪ Reduced power consumption (13W) ▪ Quick response recording start ▪ Plug-in time code generator (optional) ▪ Built-in AEQ ▪ 4-channel audio with 2 linear channels and 2 Hi-Fi channels ▪ More than 400 lines resolution
BR-S422U \$3896.00



BR-S405U S-VHS Portable Recorder/Player

▪ High quality S-VHS pictures with built-in chroma noise reduction ▪ 14-pin camera connector ▪ Y/C input and output ▪ Twin impedance rollers in the tape path greatly reduce jitter ▪ Hi-Fi stereo sound and normal 2-track audio ▪ Balanced XLR audio input connectors ▪ High speed shuttle search ▪ Rotary erase heads and AEF function ▪ Large record indicator ▪ Comprehensive warning system ▪ Video S/N ratio 46dB S-VHS, 45dB VHS ▪ Horizontal resolution 240 lines VHS color, 400 lines S-VHS color ▪ 4 audio channels (2 Hi-Fi and 2 linear)
BR-S405U \$2651.00

Accessories

AA-G10U AC adaptor/charger. Charges up to 4 NB-G1U batteries. Also provides power for recorder. \$473.00
NB-G1U Rechargeable 2.2AH snap-on battery. 184.00

BR-S525UDNR S-VHS Feeder/Player

▪ Automatic variable speed tracking heads ▪ Brings broadcast-standard post-production features to S-VHS editing ▪ Programmable playback time compression/expansion ▪ Field-by-field playback ▪ Built-in full field TBC with component output ▪ RS-422 serial control compatible with DMC controllers ▪ Independent audio output level controls ▪ Clear, noiseless variable-speed playback at speeds -2X to 3X normal ▪ Full size/compact-compatible cassette loading mechanism ▪ Menu display and on-screen mode check ▪ Slow-motion or reverse edits with instant, jitter-free starts from still frames ▪ High-speed visual search at up to 32X ▪ Optional plug-in time code reader available ▪ Digital noise reduction
BR-S525UDNR \$9439.00

RM-G870U A/B Roll Editing Controller

▪ Flexible 9-pin A/B roll editing controller ▪ Built-in edit memory which can sort edit data for up to 128 events ▪ Comprehensive on-screen EDL display ▪ Control panel/multi-function 10-key pad with cursor keys ▪ Independent search/jog dials ▪ VITC/LTC time code editing ▪ Dynamic motion control capabilities ▪ Audio monitor level control ▪ Audio split editing ▪ Variable preroll time ▪ RS-232C printer port ▪ RS-422 switcher control
RM-G870U \$5243.00

RM-G860U A/B Roll Editing Controller

▪ Dual source editing ▪ Accepts both 9-pin (serial) and 45-pin (parallel) VTRs ▪ Time code referenced editing (with serial VTRs) ▪ Audio split editing ▪ Dual search/jog dials ▪ 3 LED counters ▪ 2 GPI ports ▪ VTR cables (VC-G7050U 45-pin or serial) not included ▪ Selectable preroll ▪ Fully synchronized editing with capstan override
RM-G860U \$3904.00
VC-G7050U 45p-45p VTR control cable 241.00
VC-G9050U 9p-9p serial control cable for RM-G860U 157.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

S-VHS RECORDER/ PLAYERS/EDIT CONTROLLER



BR-S800U S-VHS Editing Recorder/Player

- Comprehensive insert and assemble editing
- 4 audio tracks (2 Hi-Fi, 2 linear)
- Independent dubbing of CH1 and CH2 linear audio
- Fast tape handling (32X search speed)
- Built-in CTL time code generator/reader
- Heavy-duty transport, motherboard construction
- Open architecture with 2 plug-in card slots
- Over 400 lines of resolution
- Manual audio level controls and meters
- Menu display and on-screen mode check
- 6-digit time counter for CTL and time code data
- External timer playback/recording capability
- Automatic repeat playback and counter search. \$3760.00

BR-S500U S-VHS Player/Edit Feeder

- Companion player to BR-S800U editing recorder
- 4 audio tracks (2 Hi-Fi, 2 linear)
- Fast tape handling (32X search speed)
- Built-in CTL time code reader
- Heavy-duty transport, motherboard construction
- Open architecture with 2 plug-in card slots
- Menu display and on-screen mode check
- 6-digit time counter for CTL and time code data
- Audio monitor output
- Automatic repeat playback and counter search
- Over 400 lines resolution . . . \$3240.00

Edit-Desk System

- Professional-level video editing for videographers
- Comprehensive insert and assemble editing
- 4 audio tracks (2 Hi-Fi, 2 linear)
- Separate dubbing of CH1 and CH2 linear audio
- Fast tape handling (32X speed search)
- Built-in CTL time code generator/readers
- Heavy-duty motherboard construction
- Open architecture using plug-in option cards
- Professional jog/shuttle dial
- Consists of BR-S800U editing recorder, BR-S500U player and RM-G800U editing controller. \$7450.00



BR-S378U S-VHS Recorder/ Player/Simple Editor

- Hadamard noise reduction
- Chroma enhancer, digital comb filter
- Search/jog dial, clear slow-motion and still
- Rotary erase head
- BNC connectors
- 14-day/4-event timer
- Optional remote control unit (RM-G61U)
- Special effects (B/W, sepia, color adjust)
- White fader
- Remote pause connectors to source VTR
- Automatic repeat playback
- Microphone input connector
- Switchable AC outlet \$1285.00

BR-S605UB S-VHS Recorder/Player With Built-in PWB Slots

- Upgraded model with video insert capability
- 2 external PWBs (Printed Wing Boards) for system customization
- RS-232C serial remote controllability with optional 9-pin RS-232C board (SA-K27U)
- PWBs optionally available for added flexibility
- Separate Y/C input and output
- S-VHS picture quality with built-in chroma enhancer
- 4-channel audio or 2-channel Hi-Fi audio and 2-channel linear audio with Dolby B NR
- Manual audio level controls and meters
- Automatic digital tracking
- Frame servo
- EDP Function Select System for easy setup and trouble-free operation
- Mode lock
- Variable-speed dial search
- External sync input and RF output for DOC
- Automatic repeat playback and counter memory
- Hour meter on EDP display
- 19" EIA rackmountable
- Video S/N ratio 45dB (SP)
- Horizontal resolution 400 lines S-VHS, 240 lines VHS
- Optional accessories: SA-K27U (RS-232C with CTL TC), SA-K28U (45-pin), SA-K33U (33-pin), RM-G61U (remote) \$2650.00

Accessories for Edit-Desk/ BR-S378U/S601MU/S605UB

- RM-G61U Wired serial remote control, large shuttle control dial (BR-S601MU/S605UB/S378U) \$134.00
- SA-F15U Parallel interface unit (15-pin to 45-pin) for BR-S601MU) 150.00
- SA-K26U RS-422 interface board 685.00
- SA-K27U RS-232C interface board for BR-S605UB and Edit Desk 376.00
- SA-K28U 45-pin interface board for BR-S605UB and Edit Desk 376.00
- SA-K33U 33-pin interface board for BR-S605UB 500.00
- SA-N50U Digital noise reduction/time base stabilizer 760.00
- SA-R50UK VITC/LTC time code reader/generator. 532.00

SR-S360U S-VHS Recorder/Player

- Small, feature-packed recorder suitable for a wide range of budget-oriented customers
- Random assemble editing allows you to set up to 8 edit in/out points for automatic editing
- Rotary erase head, insert editing
- 181-channel tuner/timer
- Jog/shuttle control on front panel
- 2 Hi-Fi audio tracks, 1 linear track
- Picture improvement technology
- Video noise reduction
- Twin path detail enhancer
- Wireless remote with jog/shuttle included
- Optional wired remote control
- SR-S360U \$1130.00
- RM-G30U Wired remote control 50.00

RM-G800U Editing Controller

- An alternative to videographers who do not require a full-featured A/B-roll editing system but need more sophisticated capabilities than consumer-type systems can provide
- Easy-to-operate jog dial
- 8-digit LED counter indicates all edit data in either TC or CTL
- Time code referenced editing
- Comprehensive professional editing functions including preview, review and go to
- 2 GPI ports for control of external equipment \$750.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

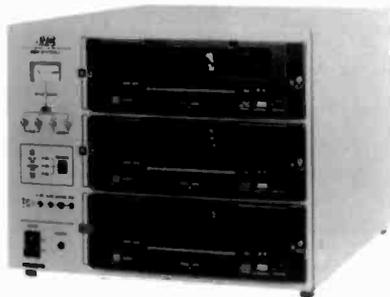


BR-7020UP VHS Hi-Fi Duplicator

- 2-in-1 duplicator ▪ Professional Hi-Fi dubbing system ▪ Single cabinet contains 2 removable record/play units ▪ Reduced power consumption ▪ Lower cabling costs ▪ Autoloader (optional) ▪ Improved reliability and durability ▪ Multi-display unit (optional) ▪ Easy serviceability ▪ 8-digit ID recording system ▪ Serial loopthrough control
- 34-pin parallel control connectors ▪ Playback capability for simple QC
- Includes the RM-G30U simple remote control unit \$3570.00
- SA-L50U Auto loader. 571.00
- SA-LH50U Extra cassette adaptor for auto loader. 43.00
- SA-K20U Playback unit 784.00
- SA-K7020UP Replacement tape transport. 993.00
- SA-K721U QC out unit. 74.00
- SA-K722U Test point unit. 74.00
- SA-K723U Multi-display unit 994.00

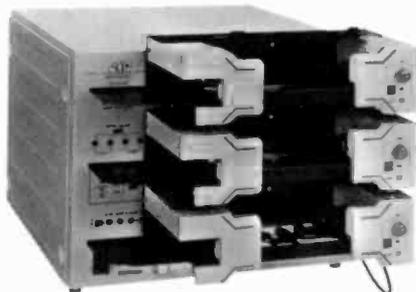
BR-7030UB VHS Hi-Fi Duplicator

- 3-in-1 cost saving duplicator ▪ Reduced power consumption
- Record-only chassis
- Single input for 3 recording units ▪ Self-diagnostic warning system ▪ 1 parallel and 2 serial remote control connectors ▪ 3 5000-hour meters ▪ ID address code input connector ▪ Front panel test points ▪ Warning output connector ▪ Independently replaceable recording units ▪ Automatic head cleaning mechanism ▪ Video S/N ratio: 45dB (color) ▪ Horizontal resolution 240 lines ▪ Dolby NR ▪ Serial control \$4440.00



BR-7040UBAL VHS Hi-Fi Autoloading Tri-Duplicator

- 3-in-1 design for 3-way savings (in space, energy and peripheral equipment costs)
- Automatic cassette loading system ▪ Hi-Fi sound with dynamic range of more than 90dB ▪ 8-digit ID code recording capability ▪ Self-diagnostic warning system ▪ 1 34-pin parallel and 2 serial remote control connectors ▪ 3 large record



- indicators light during recording, blink for warning ▪ 3 tape run indicators ▪ 3 2000-hour meters ▪ Dolby B noise reduction for normal audio ▪ Audio input level meter with 4-position switch (Hi-Fi L, Hi-Fi R, Normal L, Normal R) and independent level control knobs for 4 channels ▪ Front-panel test points with recorder unit can be independently removed and replaced with a new unit (replacement units optionally available) ▪ Automatic head cleaning mechanism
- Video S/N ratio 45dB ▪ Horizontal resolution 240 lines . . . \$5714.00

BR-S777U S-VHS Duplicator

- 3-in-1 design ▪ S-VHS picture quality: carrier frequency up to 7MHz
- Hi-Fi video sound with dynamic range of more than 90dB ▪ 8-digit ID code recording capability and external ID code inputs ▪ Serial remote control capabilities ▪ Self-diagnostic warning system ▪ Rear panel Check Out connector ▪ 3 tape run indicators
- 3 2000-hour meters ▪ Dolby B noise reduction for normal audio
- Audio level meter with 4-position switch (Hi-Fi L, Hi-Fi R, Normal L, Normal R) and independent level control knobs for 4 channels
- 3 large record indicators light during recording, blink for warning
- Front panel test points with recorder unit selectors ▪ Warning output connector for external concentrated control of entire duplicating system ▪ Each recorder unit can be independently removed and replaced with a new unit ▪ Replacement units optionally available
- Automatic head cleaning mechanism ▪ Video S/N ratio 45dB (VHS)
- Horizontal resolution 240 lines VHS, 400 lines S-VHS \$5540.00



Duplicator Accessories

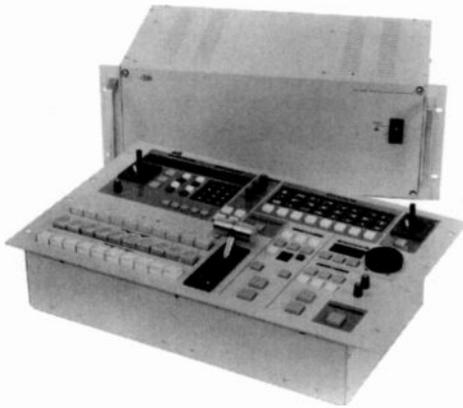
- RM-G77U Serial Remote Control Unit for Duplicator**
- Controls 4 banks of 50 VCRs for total of 200 units (600 for BR-7030UB) ▪ Full transport control ▪ Hi-Fi on/off switch ▪ Serial loopthrough connection to VCR (RCA connectors) ▪ Rackmountable (1 space) ▪ Use with BR-7030UB/7040UBAL, BR-S777U . . . \$1524.00
- SA-K14U ID Code Generator Board for BR-7030UB, BR-7040UBAL**
- Records an 8-digit code onto the control track ▪ Use 1 for each of the 3 recording units in the BR-7030UB ▪ Installation by qualified technician only 63.00
- SA-K15U ID Code Reader Board for BR-7030UB, BR-7040UBAL**
- Connects to the SA-K14U (required) ▪ LED readout displays 8-digit code recorded on tape ▪ May be used with BR-7700U, BR-7030UB, etc.
- Installation by qualified technician only 175.00
- SA-K7030UB Replacement Tape Transport Tray for BR-7030UB**
- Self-contained recording deck designed to completely replace 1 of the recording units in the BR-7030UB 1067.00
- SA-K7040UB Replacement Tape Transport Tray for BR-7040UBAL**
- Self-contained recording deck designed to completely replace 1 of the recording units in the BR-7040UBAL 1067.00
- SA-K777U Replacement tape transport tray for BR-S777U 1227.00**
- RM-G30U Simple remote control unit for BR-7030UB 50.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SPECIAL EFFECTS GENERATORS

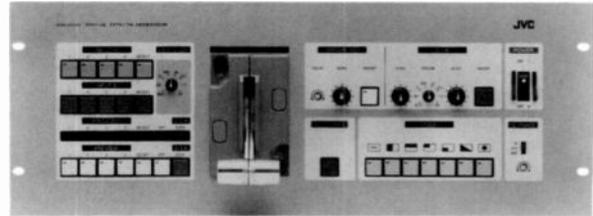


JVC®
PROFESSIONAL



- Flip-flop mix circuit ▪ GPI input terminal ▪ RGB chroma key circuit
- SSG conforming to RS-170A ▪ Built-in DSK ▪ Multiple input connectors ▪ Superimpose ▪ 3-button program selector ▪ DSK and superimpose signals can be previewed ▪ 13 wipe patterns available
- 3-way switching of wipe direction: normal, reverse and normal/reverse ▪ Tally circuit ▪ Dimensions and weight: main unit standard EIA rack size (4 unit size) (27.6 lbs.); control unit standard EIA rack size (6 unit size) (11.1 lbs.) (The 2 units are connected with 10m cables with 37-pin connector)

KM-2500U \$6,604.00



KM-1200U Color Special Effects Generator

- 4 composite video input connectors ▪ Genlock input is usable as the 5th video input instead of having background color ▪ Auto-take
- Color background generator ▪ DSK (downstream keyer) ▪ Chroma keyer ▪ Mix ▪ Wipe ▪ External keying ▪ 2 PGM outputs, 1 PVW output and 1 DSK PVW output ▪ Sync pulse output connectors ▪ AC/DC operation ▪ Power requirement: 120VAC, 60Hz or 12VDC ▪ Dimensions: 7"H x 19"W x 4"D ▪ Weight: 9.3 lbs.

KM-1200U \$2,417.00

KM-3000U Component Special Effects Generator

- Component processing ▪ 8-input component mixer, inputs 6, 7 and 8 also accept RGB signals ▪ Outputs in 3 different signal formats (component, composite and Y/C) ▪ Soft chroma, external and luminance keys also possible ▪ Auto and manual transition: special effects, downstream keys and fades can be operated either automatically or manually ▪ Transition time in auto mode can be set 0 to 999 frames with rotary dial or 10-digit keypad ▪ Color matte generation for border, background color and downstream key ▪ Built-in data memory (up to 16 events and 24 colors) ▪ 3-mode composite effects can be mixed by leaving both the background and key switches on and actuating 1 extra effect ▪ RS-422 or GPI (General Purpose Interface) with editing controllers ▪ 23 different wipe patterns ▪ Power requirement: 120VAC, 60Hz ▪ Dimensions: control unit 5¹⁵/₁₆"H x 19"W x 12¹/₄"D; main unit 7¹/₈"H x 19"W x 16³/₁₆"D ▪ Weight: control unit 14.4 lbs.; main unit 32 lbs.

KM-3000U \$15,592.00

KM-3000UB Betacam version. 15,592.00



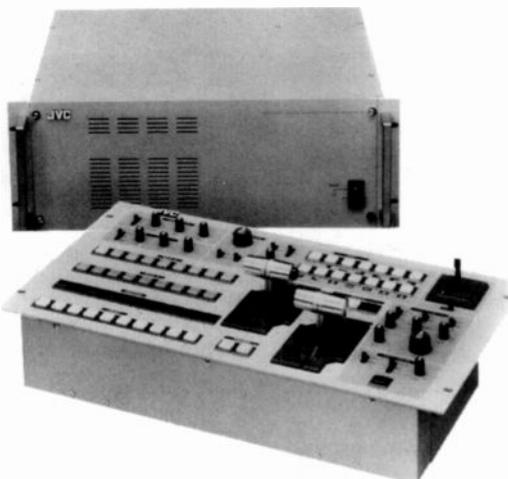
KM-D600U Y/C Digital Effects Generator

- Built-in dual channel TBC ▪ Digital effects (freeze, strobe, mosaic, slide, paint, negative and compression) ▪ Y/C 358 and composite signals can be input ▪ Y=8 bits, C=8 bits 4:1:1 component process
- DOC and Advanced Sync for VTR ▪ Built-in full field color bar generator ▪ Auto and manual transition ▪ 9 wipe patterns (variable softness) ▪ Positioner wipe ▪ GPI control for connection with VTR controller ▪ Built-in RGB chroma key ▪ Built-in color matte generator
- Fill video input terminal for DSK ▪ DSK masking function
- Y, C and black levels and hue can be preset ▪ Dimensions: main unit 7¹/₈" H x 19" W x 13¹³/₁₆" D; control unit 3¹/₂"H x 16¹⁵/₁₆"W x 12¹/₄"D

KM-D600U \$6,185.00

KM-2500U Color Special Effects Generator

- Specially designed for a wide range of wipes, transitions and special effects ▪ Color border wipe ▪ Color bar generator and background generator ▪ Auto transition ▪ DSK fill video input terminal

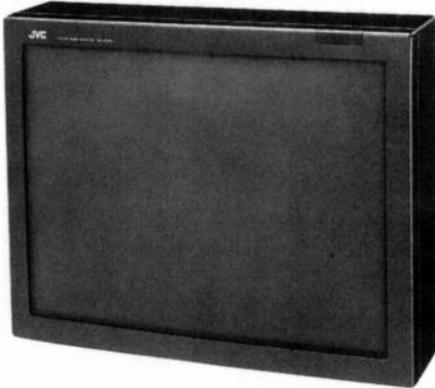


ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TM-270SU 27" Color Video Monitor

▪ Super flat CRT ▪ 700 lines horizontal resolution ▪ Use as part of a monitor wall or as a presentation monitor ▪ Composite video, Y/C separate video and RGB analog signal ▪ In a multi-monitor video wall application, a remote controller can be attached to produce uniform pictures ▪ Built-in color graphic generator with 21 selectable 8-color patterns ▪ Optional stacking frame available for use in a video monitor wall ▪ Built-in audio amplifier ▪ Space-saving design \$1814.00



VM-R190SU 19" Color Video Monitor

▪ Over 600 lines horizontal resolution ▪ Multi-format compatibility: component video (MII/Betacam); Y/C separate video (S-VHS); RGB analog/TTL (IBM CGA); composite video ▪ Pulse-cross circuit ▪ Underscan switch ▪ Horizontal AFC select switch ▪ Rackmountable ▪ Tally lamp ▪ Remote control \$2099.00

VM-R140SU 14" Color Video Monitor

▪ Over 500 lines horizontal resolution ▪ Multi-format compatibility: component video (MII/Betacam); Y/C separate video (S-VHS); RGB analog; composite video ▪ Pulse-cross circuit ▪ Underscan switch ▪ Horizontal AFC select switch ▪ Rackmountable ▪ Tally lamp ▪ Remote control \$1434.00

TM-1400SU 14" S-VHS Color Video Monitor

▪ Multiple input terminals include: 1) 7-pin Y/C 358 terminal, for S-VHS, bridged output possible; 2) composite video signal, bridged output possible; 3) 8-pin VTR terminal; 4) RCA terminal for audio signal (mono), bridged output possible ▪ More than 400 lines of horizontal resolution ▪ Pulse-cross circuit allows sync signal to be viewed ▪ Notch filter reduces horizontal noise and dot interface ▪ Horizontal AFC select switch (fast/normal) ▪ Underscan switch: wide scan/narrow scan \$821.00



TM-130SU 13" Color Video Monitor

▪ Resolution > 330 lines NTSC/400 lines Y/C ▪ Y/C connector (4-pin) for S-Video signals ▪ Dual composite inputs (BNC loopthrough) ▪ Audio with 3 1/2" speaker \$334.00

TM-91SU 9" S-VHS Color Video Monitor

▪ 9" medium-high-resolution CRT with a dot pitch of 0.47mm ▪ High performance comb filter that processes image signals by separating Y and C signals, reducing cross-color distortion ▪ 300 TV lines horizontal resolution ▪ Input terminal array: 1) Y/C 358 7-pin separate video input connector; 2) 8-pin VTR connector (EIA standard); 3) composite video input connector (BNC/bridged connection possible); 4) audio input connector (RCA/bridged connection possible) ▪ 2 TM-91SU units can be mounted in a standard 19" EIA rack ▪ Metal cabinet minimizes interference ▪ 3 1/2" round speaker with 1W output ▪ Power requirement: 120VAC, 60Hz \$621.00



TM-9U 9" Color Video Monitor

▪ 76° deflection angle ▪ Rackmountable ▪ "Utility Usage" in small editing systems and to monitor multi-camera shoots ▪ Front panel controls ▪ Pushbutton on/off switch with LED indicator ▪ Durable black metal casing \$450.00

TM-900SU 9" Color Video Monitor

▪ Horizontal resolution of more than 310 lines ▪ 9" V CRT with vertical stripe phosphor of 0.47mm ▪ Y/C-358 video signals: bridged out, 7-pin ▪ Various functions for professional use: 1) underscan; 2) pulse-cross; 3) color on/off; 4) blue check; 5) int/ext sync ▪ AC/DC selectable (12VDC, XLR 4-pin) ▪ 2 video inputs (A/B) ▪ 2 units can be mounted side-by-side in an EIA rack with use of the optional RK-9UM9 rackmount adaptor ▪ Audio capability with built-in speaker ▪ Power requirement: 120VAC, 60Hz; 12VDC \$671.00

TM-550U 5.5" Color Video Monitor

▪ Accepts both NTSC and PAL signals ▪ External power from either an automatic universal power source or 12VDC ▪ 100-240VAC, 50/60Hz ▪ Integrated battery pack accepts NB-G1U and NP-1B type batteries ▪ Built-in battery recharge capability ▪ Battery save mode ▪ 3-H rackmountable ▪ Underscan ▪ Color off switches ▪ Headphone jack ▪ Built-in tilt-up stand \$815.00



TM-3151SU 31" Stereo Color Monitor/Receiver

▪ Full square picture tube ▪ Over 700 lines horizontal resolution ▪ Wide-band comb filter ▪ Variable noise reduction ▪ Notch filter ▪ Built-in MTS/SAP decoder for stereophonic sound ▪ Matrix surround capability ▪ Spatial enhancement circuit for monophonic programs ▪ 3W per channel stereo amplifier and output terminals for external main and surround speakers ▪ Input terminal for S-VHS video ▪ AV input ▪ Line output ▪ Audio output terminals ▪ 180-channel cable ready tuner accepts 75 ohm and 300 ohm inputs ▪ Wireless remote control with on-screen programming \$1429.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CARRYING CASES



Kangaroo Raincover

Protection for expensive portable television cameras and camcorder combinations which are sensitive to virtually any environmental hazard
 Rain, sleet, snow, wind and dust are sealed out while the user has freedom of access to all equipment controls
 Also available is a special design to block RF interference in congested urban areas or near radar and transmitter sites

KRC-B300	Sony BVW-300	\$124.00
KRC-B505	Sony BVW-505 Betacam	124.00
KRC-M7	Sony DXC-M7	114.00
KRC-R325	Sony DXC-325 with EVV 9000 recorder	124.00
KRC-3	Sony BVP-3, BVP-30	114.00
KRC-3BVF	Sony BVP-3 with BVF-50 viewfinder	149.00
KRC-5	Sony BVP-5	114.00
KRC-9100	Sony EVO-9100	124.00
KRC-3000	Sony DXC-3000	114.00
KRC-79D	Ikegami HL-79A, HL-79D	114.00
KRC-83	Ikegami HL-83	114.00
KRC-95	Ikegami HL-95	114.00
KRC-B95	Ikegami HL-95 with Beta recorder	124.00
KRC-HK357	Ikegami 357	195.00
KRC-RAK400	Panasonic AK-400 camcorder	124.00
KRC-450	Panasonic AG-450	124.00

Kangaroo Gripper™ Strap

Heavy-duty shoulder strap that won't slide off nylon parkas, ski jackets or other slippery material
 Padded with durable Evazote closed-cell foam
 3-way action gives you important shock-absorbing capability to carry even the heaviest equipment more safely and comfortably than ordinary shoulder straps
 Comes with 2 sliders for easy attachment and adjustable length
 Available in brown, blue, green, rust and gray

KAC-500	Panasonic AG-500 monitor	\$115.00
KAC-560	Panasonic AG-560 monitor	120.00
KAC-VA500	Sony VA-500 replay adaptor	75.00
KAC-8020	Sony PVM-8020, BVM-8021 monitors	125.00
KAC-BVG	Sony BGV-100 time code pocket (specify pack)	36.00

Kangaroo Nagra Pack

Designed for Nagra recorders with 5" or 7" tops
 Provides the same basic convenience and protection that has gone into all of our video packs
 Detachable pockets to hold tapes, batteries, wireless microphones and cables
 Front pocket holds four 7" tapes or eight 5" tapes
 Back flap provides quick access to batteries
 Clear rain flap allows use of controls while still providing protection from inclement weather
 Front sleeve will hold a clapboard
 Gives Nagra users the secure, lightweight convenience needed for field recording

Audio Packs

KAP-AT4462	Audio Tech 4462, SAM 4562	\$ 79.00
KAP-Nagra	Nagra IV-S (Time Code), IV-SJ, 4.2, E	225.00
KAP-FP31	Shure FP-31	63.00
KAP-FP32	Shure FP-32	64.00
KAP-FP42	Shure FP-42	60.00
KAP-TCDS	Sony TCD5M	89.00
KAP-TCD10	Sony TCD10	94.00

Chip-Tote PCD-1

Slim design, ideal for traveling
 Shell constructed of abrasion-resistant Cordura® nylon fabric, found waterproof in laboratory testing
 Fully padded with Evazote foam, a high density, close-cell ethylene offering protection against concussion
 Inner lining of poly-cotton fabric won't

scratch computer display screen
 Detachable zippered pouch holds acoustic couplers, modem cord, AC adaptor, extra batteries
 All hardware is nickel-plated steel
 2-way zipper system for easy access
 Case top is outfitted with pockets for notebooks, papers, writing instruments as well as a zippered pocket for letter or legal size bond
 Convenient hand strap; comfortable, adjustable shoulder strap
 Business card holder for personalized identification
 Available in black or smoke gray
 Integrate with the TRS-80 Model 100 or Model 200. The Chip-Tote PCD-1 also accommodates the NEC PC-8201, PC-8401, Epson HX-20 (with or without expansion unit), PX-8 Geneva and TI-700

Chip-Tote PCD-1 \$64.95

Kangaroo Video Pack™ Recorder Packs

Provide efficient organization and convenient access for all the gear you need to carry
 Designed by a news photographer to meet the rugged demands of ENG field use
 Even white-balancing is easy with built-in white balance panels
 Compact enough for 1-man operation, versatile enough for 2-man crews
 All packs come complete with pockets, hand and standard shoulder strap

KVP-5	Sony BVV-5 or Ampex CVR-5 (with VA-1 or VA-5 adaptor). Specify battery carried at time of order	\$220.00
KVP-50	Sony BVW-50	210.00
KVP-150	Sony BVU-150	220.00
KVP-400	Panasonic AU-400	220.00
KVP-500	Panasonic AU-500	220.00
KVP-6800	Sony VO-6800	179.00
KVP-7400	Panasonic AG-7400	165.00
KVP-8800	Sony VO-8800	187.00

Emikote™ Products

An advanced line of products and custom design services
 Protection of sensitive electronic equipment and recording media from the effects of electromagnetic radiation

KEP-CC	Emikote camera cover (specify camera)	\$750.00
KEP-RC	Emikote recorder cover, accommodates most broadcast and industrial portable recorders (specify recorder)	650.00

Kangaroo Tripod Case

Hand straps remain upright or fold out of the way
 Heavy-duty padded shoulder strap and quick-release buckles allow carrying comfort, versatility and security
 Nylon webbing secures tripod in case
 2-way zipper system for ease of access and loading
 3 large interior pockets with zipper closures accommodate camera/tripod plate, cables, tapes, headphones, batteries
 Nylon tab loops at either end assist in zipping
 3 standard sizes and custom version (when ordering specify tripod folded length and diameter of fluid head)

KAC-Tripod	Specify tripod model and dimensions	\$175.00
KAC-Light Kit	Light kit case	260.00

Kangaroo Super-Tough™ Camcorder Cases

Meet a variety of carrying needs for users of the following camcorder combinations: Sony BVP-3, BVP-30, BVW-3, BVW-30 and the BVW-3 and BVW-30 with DC-100 battery
 Top loading case
 Triple-hemmed
 U-shaped aluminum frame to maximize equipment protection while dense Evazote foam helps insulate the camera's most sensitive components
 Inner pockets on both sides hold extra batteries, tapes, headset and tripod plate
 3-way zipper system
 Ideal for access from the back of car or remote van

KCC-STGH3	Sony BVP-3 or BVP-30	\$280.00
KCC-STGHB3	Sony BVW-3 or BVW-30	280.00
KCC-STGHLTD	Sony BVW-3 or BVW-30 with DC-100 battery	280.00
KCC-SUPTGH	Custom designed to fit any camera height, length, width	280.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



5870 Combination Waveform Monitor, Vectorscope and SCH Display

- SCH, line number, field and all display
- Up to 9 points of fields and line numbers can be preset in memory for recall
- All front-panel switches can be remotely controlled
- Dual-channel display function
- DP and DG can be easily measured through 1-touch operation
- An RGB and YRGB parade display function is provided
- Can use a supply voltage of 85-264VAC and 48-440Hz or 11-20VDC without switching
- Integrates waveform monitor with vectorscope in 1 body
- Built-in SCH phase measurement circuit
- Waveforms and vectors can be independently or simultaneously displayed on a single CRT by operating the provided electronic switches (only available for horizontal time limit display)
- Built-in SCH phase numerical measuring function for video editing
- Full-line selector function is installed for reading the field and line number on the CRT
- Useful not only in observing the blanking time intervals for VITS, VIR, character broadcasting and ITS, but also in checking the various characteristics of video camera resolution

- 5870 NTSC \$5295.00
- 5871 PAL 7995.00
- 5872 NTSC without SCH and full line select 3795.00
- 5872A NTSC without SCH 4250.00

5864A Dual Input EFP/ENG Waveform Monitor

- Battery powered
- 2H, 2V, 2H Mag and 2V Mag time bases
- Accelerating potential 1.5kV
- 2 loophrough input terminals (A or B switchable) on rear panel
- Switchable IRE filter facilitates lens opening checks
- 1V/0.25V selector acts as a 4X magnifier to simplify setup level and black balance checks



\$1485.00

5860C Series Waveform Monitors

- Economical half-rack waveform monitor
- Internal graticule and a 7kV (16kV "H" model) accelerating potential for bright, easy-to-read displays
- Total RGB and YRGB (optional) capability is available and horizontal sweep speeds of 2H (2 lines), 1µs/div (expanded 2 lines), 2V (2 fields) and 2V Mag (expanded 2 fields) are standard
- Offers all these features in addition to allowing the vertical interval test and reference signals to be displayed by a front panel line selector
- Lines 7 through 21 can be selected from field 1 or 2 without interference from the active portion of the video signal
- Blanking output to blank the companion vectorscope during the active portion of the video signal
- Half-rackmountable and can be mounted side by side with the 5850B Vectorscope
- Available in a PAL/SECAM version as the 5861V



- 5860C NTSC \$1850.00
- LBO-5860H NTSC (lines 7-21 line select) 1995.00
- 5861V PAL 2675.00

5860D Waveform Monitor

- Designed to operate in digital D2/D3 facilities
- Accepts both parallel and serial inputs and a precision serial/parallel decoder, and a D/A drives the familiar analog display
- Active loophrough is provided for the parallel input and D/A and picture monitor outputs are provided from decoded digital
- Standard waveform monitor operations are provided, but time base selections have been expanded to 1H, 2H, 1V, 2V, 1 ns/div and 2V mag
- Response selections for the vertical amplifier include flat, LUM and chroma filters, as well as a special differentiator (DIF STEP) filter to allow luminance linearity

measurements using the staircase signal

- Line-select operations cover lines 14 to 21 of both fields
- Supplied with a metal cabinet with carrying handle, which is removed for installation in a standard half-rack adaptor \$2950.00

5836A Surround-Sound Monitor

- Surround-sound imaging Lissajous phase/amplitude
- Digital inputs for AES/EBU formats
- Left, center, right surround or left, center, right, left-surround, right-surround
- Level readouts in Lissajous mode
- Balanced and unbalanced analog inputs
- 5 channels
- Automatic spot killer
- Remote control
- Fits standard half-rack adaptor \$6995.00

5130 NTSC Color Monitor

- Half-rack color picture monitor
- Designed to make more efficient use of rack space
- Fits into space made vacant by the use of combination waveform monitor/vectorscopes such as the 5870 or 5872
- Underscanned operation is standard and remote control of selected functions is available
- Dual video inputs and external sync drive and operates from both AC power mains or 12VDC (battery or vehicle) power \$1995.00

5854 EFP/ENG Vectorscope

- Same size as the 5864A Waveform Monitor and the LCG-413 Pattern Generator, so it can share various attachments
- Displays the chrominance component (amplitude and phase) on the CRT
- Demodulates the chrominance component and then displays the chrominance in vector field for measuring the phase and amplitude to the burst signals in each chrominance component
- NP-1 or BP-90 battery is used
- Built-in battery check function to blink the pilot lamp when power voltage drops (+10.5V or less)
- A and B input connectors
- Input sensitivity is selectable from either CAL or variable
- Horizontal synchronization is selectable from either A or B on the front panel
- Phase control on the front panel
- 75mm rectangular internal graticule CRT
- Loophrough type BNC input connectors \$1545.00



5850C/5851V Vectorscopes

- Provides a convenient method for observing and measuring the relative phase and amplitude of chrominance signal components
- Utilizes a unique technique which electronically displays the "inner boxes" which represent error limits of ±2.5° and ±2.5 IRE unit
- Includes 3 loophrough inputs, including a dedicated external subcarrier reference input which is front panel selectable
- Either of the 2 composite video loophrough inputs can also be selected as the reference signal and all 3 inputs can be displayed individually
- Equipped with a Z-axis blanking input to provide blanking during the active portion of the video signal and unblanking during the VITS signal for a stable, jitter-free display
- Test circle pattern selectable for a quick calibration check of the instrument
- Gain control, with a detented calibrated position, provides for continuous amplitude adjustment
- Phase control permits rotating the display through 360°
- Supplied in a protective carrying case or in a half-rack width configuration



- 5850C NTSC \$2095.00
- 5851V PAL 2750.00

5212 NTSC/PAL Vectorscope

- 3-channel operation plus external reference
- X-Y display for stereo monitoring
- Auto burst zeroing for selected reference
- CRT readout of DG and DP measurements
- Panel setting memory, recall and remote control
- Menu selections for less frequent operations
- Phase accuracy within 1°
- DC power operation \$3665.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VHF TRANSMITTERS/ RECEIVERS



VHF TRANSMITTERS

M170 Freedomike Lavalier

- Uses microphone cord as antenna, eliminating "dangling wire"
- "Compressor" noise reduction circuit compatible with Lectrosonics VHF receivers
- Input compressor circuit absorbs 12dB overload without distortion
- Wide input adjustment range

M170	\$260.00
M170XLR	320.00
M170LS	275.00
M170BGO	360.00

M175 VHF Lavalier

- Each external part on transmitter is machined aluminum, including battery door and belt clip
- Easy handling and operation

M175	\$305.00
M175LS	320.00

M185 VHF Lavalier

- Premium electronic components
- Innovative circuit design
- Machined aluminum mechanical parts

M185	\$550.00
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T187 Handheld Microphone

- Mechanical assembly composed of precision machined high-impact PVC and aluminum
- Excellent shock absorbing characteristics
- Lightweight design

T187	\$1295.00
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H185 Plug-On Transmitter

- Converts any handheld or shotgun microphone to wireless operation
- Rugged, machined aluminum assembly and high performance circuitry
- Flat frequency response and wide dynamic range
- Audio level indicated by 2 LEDs on top of transmitter

H185	\$575.00
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AS100 Powered Automatic Mixer

- Includes mixer, equalizer and 100W power amplifier
- Performance equals that of systems comprised of separate components

AS100	\$2150.00
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AM6 Automatic Mixer

- 6 channels of automatic microphone mixing and basic signal processing
- Mixer algorithm is an advanced system that eliminates the hard-switching gating and "pumping and breathing" problems

AM6	\$1645.00
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DC1 Automatic Pre-Processor

- Microprocessor-controlled 4-in/4-out device inserted between system microphones and mixer
- Adds functions of automatic mixer to standard mixers or mixing consoles
- Adaptive Gain Proportional Algorithm allocates more gain to the louder microphones



DC1	\$2100.00
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VS1 Video Switcher Interface

- Provides automatic control of external video switching using logic outputs of an automatic audio mixer such as the DC1
- Installed between the audio mixer and video switcher to provide programmable delay and hold timing
- Uses a Motorola micro controller to keep parts count down

VS1	\$1675.00
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VHF RECEIVERS

CR175 Miniature

- Designed for use with video recording equipment or as an "add-on" wireless receiver for almost any type of sound equipment
- May be powered from an internal 9V battery, external 12VDC or 110VAC using supplied AC adaptor
- Well-suited to portable or fixed applications
- Crystal-controlled, fixed frequency design for reliable performance and minimal setup time

CR175	TBA*
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R170 Freedomike

- Crystal-controlled receiver
- High Q toroidal filters in RF and IF stages reject interfering adjacent signals and provide over 100dB image rejection
- Dual gate MOSFET semi-conductors in RF amplifier and mixer for excellent sensitivity and resistance to RF overload
- 2-stage crystal-controlled oscillator individually trimmed to exact operating frequency to eliminate drift

R170	\$600.00
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R185 VHF

- Fixed frequency design produces selectivity and resistance to overload
- Excellent sensitivity and resistance to interference results in "hostile environments" performance

R185	\$1040.00
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DR185 Ratio Diversity Receiver

- Outputs of 2 separate receivers are mixed via a non-switching circuit that blends the signals in an optimum ratio depending upon the comparative S/N ratios in the receivers
- Combines outputs of 2 separate RF sections without hard-switching
- Seamless audio reproduction without dropouts and noise-free operation even in weak-signal conditions



DR185	\$1720.00
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PRO 4-Channel Multi-Channel Wireless System

- Solution to problems with multi-channel wireless system installations
- Problems such as interaction of receivers, inter-modulation and desensitization have been eliminated
- Price reflects non-diversity version and does not include transmitters or receivers

PRO 4-Channel	\$1420.00
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RMP-3 Rackmount System

- Convenient means of installing a 3-channel system in a 19" rack
- Each receiver continues to operate from a separate CH-12 power supply and antenna
- Maintains inherent isolation from ground loops when receiver outputs are connected to a remote mixer

RMP-3	\$180.00
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*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PRO-16 Event Controller/Switcher

- 1000 events ▪ Control for 16 VCRs ▪ Internal 16 x 4 video and stereo audio router ▪ Loss of video detection with selectable fallback
- Vertical interval video switching ▪ Printer output for event listing and logging ▪ Powerful PC Event Manager software ▪ Remote programming and control via modem ▪ Comprehensive automatic diagnostics ▪ Optional PRO-BUS VCR interfaces available for most industrial and broadcast VCRs \$4995.00

PRO-8 Event Controller/Switcher

- 1000 events ▪ Control for 16 VCRs ▪ Internal 8 x 3 video and stereo audio router ▪ Loss of video detection with selectable fallback
- Vertical interval video switching ▪ Printer output for event listing and logging ▪ Powerful PC Event Manager software included
- Remote programming and control via modem ▪ Comprehensive automatic diagnostics ▪ Optional PRO-BUS VCR interfaces available for most industrial and broadcast VCRs \$2295.00

MINI-T-PRO Event Controller/Switcher

- 500 events ▪ Control for 8 VCRs ▪ Internal 8 x 1 video and audio router ▪ Loss of video detection with fallback ▪ Compatible with MINI-T and MINI-T-IR VCR control cables ▪ Optional PRO-BUS VCR interfaces available for most industrial and broadcast VCRs . . \$995.00

TCD-1000 Event Controller

- 1000 events ▪ Control for 64 VCRs, 99 x 64 matrix control for external routing switchers ▪ Printer output for event listing and logging ▪ Powerful PC Event Manager software ▪ Remote programming and control via modem ▪ Comprehensive automatic diagnostics ▪ Optional LGX-BUS VCR and routing switcher interfaces available \$3495.00



C-VOICE Telephone Remote Control

- Telephone remote control option for TCD-1000 event controllers
- Provides remote telephone control for VCR and switching functions \$1195.00

PRO-VOICE Telephone Remote Control

- Telephone remote control option for PRO-16 and PRO-8 event controllers ▪ Provides remote telephone control for VCR and switching functions \$1195.00

VVD-1 Valid Video Detector/Switcher

- 2 x 1 video and audio switcher ▪ Automatic fallback to input 2 at loss of video on input 1 ▪ BNC video input/output connectors ▪ RCA monaural audio input/output connectors ▪ Automatic video termination \$395.00



REQUEST-XC Remote Videotape Playback Controller

- On-demand classroom videotape playback and switching
- Request any of 15 videotape programs via telephone ▪ Automatic channel selection ▪ Automatic character generator fallback from videotape ▪ Optional PRO-BUS VCR interfaces available for most industrial and broadcast VCRs \$6495.00



LGX-DUB Duplication Control Software

- PC-based videotape duplication control ▪ Control for up to 10 source VCRs ▪ Control for up to 64 record banks ▪ Automatic control of video and audio routing ▪ On-screen system setup and configuration \$2995.00

LGX-DUBLT Duplication Control Software

- PC-based videotape duplication control ▪ 5 source VCRs ▪ 24 record banks \$995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CLOCK SYSTEMS/ SYNC GENERATORS/ TEST EQUIPMENT



LEITCH®

DTD-5200 Series Digital Time/Date Displays

Microprocessor controlled Accept standard serial time code in SMPTE or EBU format No input selection or switching needed for either type of code Decoded signal drives a 6-digit, 7-segment real time (time of day) display in hours, minutes and seconds (HH:MM:SS) 24-hour format or 12-hour format with AM/PM indication can be selected Time displays available in rackmount, console mount or desktop versions Readout digits 0.8"H Time display units compatible with user-defined time offset when driven from CSD-5300N Clock System Driver



DTD-5200	Time/date display	\$ 920.00
DTD-5201	Time/date display with parallel BCD output	995.00
DTD-5202	Time/date display with DQC output	1300.00
DTD-5203	Dual time/date display	1840.00
DTD-5210	Desktop version of the DTD-5200	920.00
DTD-5220	2.25" LED readout display	1300.00
DTD-5225	Time code reader/generator with 2.25" adjustable LED display	POR*
UDC-5212	Universal digital clock with 0.8" readout/stepping LEDs	895.00

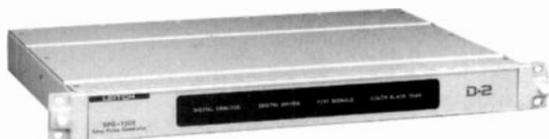
SPG-1312N/SPG-1313N Master Sync Pulse Generators

1 RU design with phasable outputs of any optional modules including color black Phasable outputs of RS-170A zero SCH color black Outputs of sync, blanking, H and V drive, burst flag, color frame ident and subcarrier Instant on crystal oscillator

SPG-1312N	\$3595.00
SPG-1313N	4495.00

Options

2602TG	NTSC test generator module	\$ 950.00
2602DG-P	D2 test generator module, parallel output	995.00
2602ES	NTSC Prom-Slide™	995.00
2602FR	Mounting frame (2 RU, c/w 1300PS/1300GL)	1995.00
2602DG-S	D2 test generator module, serial output	1395.00
1302SI	NTSC source ident module, includes programming software	745.00
1302PG	Pulse generator	650.00
1302BB	Black + ID, bars + ID, tone generator/countdown	995.00
1302BT	Color black output and tone generator	520.00
1302CC	Timecode converter	795.00
1302ME	Module extender	165.00
1302FR	Mounting frame (1 RU, c/w 1300PS/1300GL)	1670.00



SPG-1302 NTSC/D2 Sync Pulse Generators

1 RU and 2 RU frames provide phasable outputs of any optional modules, including color black Outputs of RS-170A zero SCH color black with phasing independent of genlock phasing Standard balanced

stereo tone output Outputs of sync, blanking, H & V drive, burst flag, color frame ident and subcarrier Super black available on request No warm-up TCXO

SPG-1302N	NTSC/D2 sync generator. Includes 1302PG pulse generator and 1302BT black and tone, power cord and instruction manual	\$2595.00
SPG-1302N-BT	NTSC/D2 sync generator. Includes 1302BT black and tone generator, power cord and instruction manual	2075.00
SPG-1302N-BB	NTSC/D2 sync generator. Includes 1302BB color black + ID, color bars + ID, tone generator/countdown, power cord and instruction manual	2665.00
SPG-2602N	NTSC/D2 sync generator. Includes 1302PG pulse generator, 1302BT black and tone, power cord and instruction manual	2895.00

TSG-1510P PAL Test Signal Generator

Fully modular design Digitally generated test signals Front panel pushbuttons, 1 per signal High/low APL and bounce SPG drives with independent color black timing Genlock with 8 timing presets Remote control and computer interface Includes 1510TG PAL test signal package, power cord and instruction manual

Option

1510OP	Pulse outlet module, provides color black, subcarrier and all pulse outputs	\$695.00
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CTG-1510P Component Test Generator

Fully modular design Digitally generated test signals Front panel pushbuttons, 1 per signal High/low APL and bounce SPG drives with independent color black timing Genlock with 8 timing presets Remote control and computer interface Includes 1510CG component test signal package, power cord and instruction manual

Option

1510OP	Pulse outlet module, provides color black, subcarrier and all pulse outputs	\$695.00
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TSG-1302N NTSC/D2 Test Signal Generator

Parallel (D2), serial digital composite or analog outputs (12-bit) Outputs of analog and digital test signals may be independent or slaved together 1 RU frame that provides phasable outputs of test signals and any optional modules, including color black No warm-up TCXO Super black available on request

TSG-1302N-A	NTSC/D2 test signal generator (Includes one 2602TG test generator module, power cord and instruction manual)	\$3995.00
TSG-1302N-S	Serial 143 Mbs test signal generator (Includes one 2602DG-S, power cord and instruction manual)	3995.00
TSG-1302N-P	Parallel D2 test signal generator (Includes one 2602DG-P, power cord and instruction manual)	3995.00
2602DG-S	D2 test generator module, serial output	1395.00
2602DG-P	D2 test generator module, parallel output	995.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIP-1101N NTSC Vertical Interval Processor

- Digitally generated sync, burst and black ▪ RS-170A SC/H always maintained ▪ RS-170A or narrow H blanking selectable
- Microprocessor control ▪ Comprehensive self-diagnostics, including setup and timing modes ▪ Digital front panel status display
- Automatic failure bypass ▪ Transient-free switching ▪ RS-232C remote control interface ▪ Digital power-down memory ▪ Digitally temperature compensated, high stability crystal oscillator
- Programmable signal loss handling ▪ Differential video inputs
- High efficiency switching power supply ▪ 2 VI source inputs
- Detachable power cord and instruction manual \$3495.00



DFS-3002N NTSC/D2 Frame Synchronizer

- 10-bit processing (1024 levels) ▪ Gateway between NTSC composite analog and D2 digital formats ▪ D2 and analog outputs
- Selectable D2 or analog input ▪ VIR automatic gain control
- Output phase presets ▪ Adaptive noise handling ▪ Set unity switch
- RS-232 audio delay synchronizer interface ▪ Adaptive hot switch circuitry ▪ Remote control panel (optional) ▪ Digital comb filter standard ▪ Standard 4-field memory for highest picture quality
- DFS-3002N-10 10-bit NTSC/D2 frame synchronizer. Includes color frame memory (4 fields), comb filter, power cord and instruction manual \$8995.00
- DFS-3002N-8 8-bit NTSC/D2 digital frame synchronizer. Includes color frame memory (4 fields), comb filter, power cord and instruction manual. 7495.00

ITG-3400N NTSC Insertion Test Generator

- Includes power cord and instruction manual \$4495.00

SCH-731N NTSC Sync/Subcarrier Phase Monitor

- This stand-alone instrument performs a direct, accurate measurement of the sync/subcarrier phase relationship (SCH per RS-170A) in a composite video signal ▪ Includes H timing comparator to show color framing between 2 signals. \$1675.00

FR-880 Series Audio DA Mounting Frames

- 4 modules in 1RU frame ▪ 12 modules in 2RU frames ▪ Screw-clamp terminals ▪ Cast or flat front panel ▪ Accept any type of the 880 Series audio distribution amplifiers in any slot ▪ Modular concept facilitates system design ▪ Isolation between modules in the mounting frame is better than 100dB over the entire audio frequency spectrum
- FR-881 Audio DA mounting frame. 1 RU, flat front panel, screw terminal back \$595.00
- FR-881-C Audio DA mounting frame. Same as FR-881 but with fold-down, casting front panel in place of flat front panel. 645.00
- FR-882 Audio DA mounting frame. 2 RU, flat front panel, screw terminal back 750.00
- FR-882-C Audio DA mounting frame. Same as FR-882 but with fold-down, casting front panel in place of flat front panel. 810.00
- ADA-880 Audio distribution amplifier 200.00
- ADA-881 Audio distribution amplifier. 8 low impedance outputs. Very low noise (100dB S/N), +30dB maximum output level, gain range -6 + 33dB, input over-voltage protected and excellent output isolation. 190.00

- ATG-880 Audio tone generator. Switch selectable 400 and 1000Hz audio tones. \$235.00
- ADA-882 High/Low-Z audio distribution amplifier. 250.00
- ADA-883 Low-Z/stereo audio distribution amplifier. 230.00
- ADA-885 Mono/stereo audio distribution amplifier 250.00
- ADA-816 Low-Z unbalanced audio distribution amplifier. 190.00

FR-680 Series Video DA Mounting Frames

- Four 8-out video DAs in 1RU ▪ Ten 8-out video DAs in 2RU
- Sixteen 4-out video DAs in 2RU ▪ Casting or flat front panel
- Accept any type of 680 Series video distribution amplifiers in any slot ▪ Outputs provided with 8NC connectors simplifying solutions to signal distribution and processing such as clamping and equalization, clipping and delay
- FR-681 Video DA mounting frame. 1 RU, flat front panel. Accepts any mix of up to four 680 Series modules. Includes one 664PS and power cord \$520.00
- FR-681-C Video DA mounting frame. Same as FR-681 but with fold-down, casting front panel in place of flat front panel. 570.00
- FR-682 Video DA mounting frame. 2 RU, flat front panel. Accepts any mix of up to ten 680 Series modules. Includes one 664PS and power cord 785.00
- FR-682-C Video DA mounting frame. Same as FR-682 but with fold-down, casting front panel in place of flat front panel. 830.00
- FR-640 Video DA mounting frame (2 RU, flat front panel, terminating inputs). Accepts any mix of up to sixteen 680 Series modules (4 outputs only). Includes one 664PS or 681PS power supply and power cord. Any DA other than the UDA-680 and VDA-681 requires 2 power supplies. 795.00

VPA-310P PAL Video Processing Amplifier

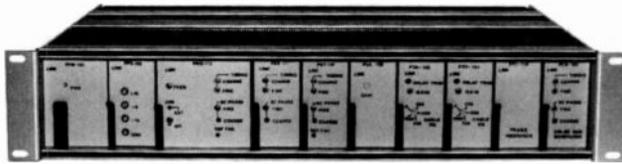
- 75-ohm terminating input accepts PAL color or 625/50 monochrome, composite or non-composite signals ▪ Self-contained SPG ▪ Manual lock selection to input video or external reference video ▪ Automatic lock mode for synchronous/non-synchronous switching
- Output sync and burst can be fixed level or track input burst amplitude ▪ VITS can be detected or retained on selected lines of selected fields ▪ Picture fade control circuit ▪ Two 75-ohm video outputs ▪ Power failure total bypass relay, connecting input to program output ▪ Blackburst output maintained under all normal operating conditions ▪ Input clamp reduces LF disturbances \$5150.00



VPA-330N/VPA-331N NTSC Video Processing Amplifiers

- RS-170A front panel SC/H indication ▪ H and V blanking width adjustable ▪ Selectable VIT retention ▪ Video gain control ▪ Fade to black ▪ Soft white clip ▪ Hard white clip ▪ Soft black clip ▪ Hard or soft clamping ▪ Input video lock ▪ External reference lock ▪ Video and/or chroma AGC ▪ Total bypass ▪ Differential input (optional) ▪ Equalizing (optional) ▪ Cue dot (optional)
- VPA-330N \$5100.00
- VPA-331N Same as VPA-330N except has chroma gain control and auxiliary video input 5245.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



100 Series System

PFM-100 Frame and Power Supply

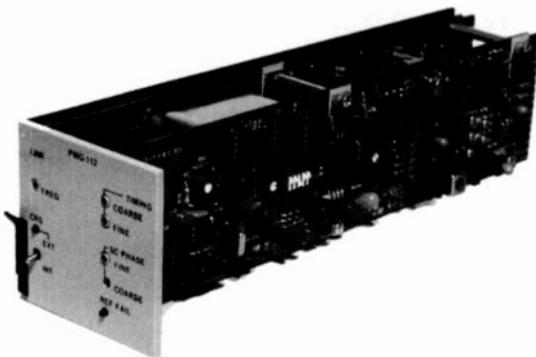
- Holds 9 modules ▪ Automatic interconnect ▪ Better than 60dB crosstalk ▪ Any of the 100 Series system modules can be mounted in almost any frame position to meet customer configurations
- Switchable tap power transformer ▪ PPS-102 power supply ▪ Operates on 115 or 230VAC ▪ Dual power supply option \$885.00
- PFM-100/1 100 system frame with 2 power supplies \$95.00

PSG-110 Digital Color Sync Generator

- Subcarrier to horizontal sync phase maintained to meet the RS-170A specifications ▪ Less than 9µs timing range ▪ Stable sub-carrier ▪ Vertical timing +2 to -1 lines ▪ Vertical and horizontal blanking adjustments ▪ 2 timing controls on front panels for coarse and fine adjustment. \$995.00

PBC-111 Blackburst to CRS Translator

- Designed to translate an RS-170A blackburst signal to CRS ▪ SC/H indication ▪ Blackburst to CRS ▪ Precision sync strip ▪ System timing interface ▪ CRS is color field referenced ▪ Front panel video presence LED \$450.00



PMG-112 Master Sync Generator

- Small and compact ▪ SC/H phase lock ▪ Meets RS-170A standards ▪ Vertical timing +2, to -1 ▪ Ovenized crystal oscillator ▪ Vertical blanking line select ▪ Less than 12µs horizontal timing range ▪ LED indicator on front panel indicates presence of CRS signal. . \$1350.00

PFT-114 Frame Timing Module

- SC/H phase lock ▪ 12µs timing range ▪ Ease of system timing ▪ Lock to master generator ▪ Vertical timing adjustment ▪ Selection of vertical blanking width from 17 through 20 ▪ Vertical phase adjustment range of +2 to -1 lines ▪ Provides looping inputs for the CRS that allows many frames to be driven from the same master sync generator. \$550.00

PCT-115 Blackburst Timing Module

- SC/H phase lock ▪ 12µs timing range ▪ Ease of system timing ▪ Lock to master generator ▪ Vertical blanking adjusts from 17 to 20 lines ▪ Vertical phase has an adjustment range of +2 to -1 lines \$550.00

PFI-116 Frame Interface Module

- Allows external sync generator to feed the PFM-100 ▪ Impedance match ▪ Easy integration ▪ jitter-free distribution
- PFI-116/2 Frame Interface for 2 pulses \$197.00
- PFI-116/5 Frame Interface for 5 pulses \$230.00

PCB-120 Color Bar Generator

- Precision SMPTE color bar generator ▪ Maximum flexibility and compatibility with almost any system ▪ MII, Y/C, RGB, Beta and composite outputs
- PCB-120N Color bar generator with NTSC and Y/C bars \$985.00
- PCB-120C Color bar generator with RGB, MII and Beta bars . . . \$950.00

PBB-121 Blackburst Timing Module

- Provides a "color black" signal comprising composite sync, setup and burst ▪ S/N ratio 72dB ▪ Precision quality ▪ Timing range of plus or minus 4.5µs ▪ Blackburst timing device ▪ 360° burst phase adjustment \$375.00

PST-141 System Timing Module

- Accepts CRS from frame motherboard and distributes all drive pulses to rear panel ▪ SC/H phase lock ▪ 12µs timing range ▪ Ease of system timing ▪ Lock to master generator ▪ Selection of vertical blanking width from 17 to 20 ▪ Vertical phase has adjustment range of +2 to -1 lines \$550.00

PBT-142 Blackburst Timing Module

- Accepts CRS from frame motherboard and distributes 2 blackburst timing signals to rear panel ▪ SC/H phase lock ▪ 12µs timing range ▪ Ease of system timing ▪ Lock to master generator ▪ Selection of vertical blanking width from 17 to 20 lines ▪ Vertical phase has adjustment range of +2 to -1 lines \$550.00

PVA-150 Video, Pulse and Subcarrier Distribution Amplifier

- 6 outputs ▪ Flat to 25MHz ▪ Plug-in options ▪ Differential input ▪ Automatic DC offset ▪ Use for video, pulse or SC \$175.00
- Option 1 Feedback clamp assembly \$5.00
- Option 2 Cable equalizer \$45.00

PVA-152 Video Distribution Amplifier

- 6 outputs ▪ Flat to 40MHz ▪ Differential input ▪ Automatic DC offset ▪ Operates in PFM-100 ▪ More than 70dB of common mode rejection ▪ Video level adjusts from -2dB to +6dB. \$110.00

PVD-154 Variable Delay Video Amplifier

- 6 outputs ▪ Delay trim adjustment ▪ 47ns delay, standard ▪ Video bandwidth 32MHz ▪ Optional delay up to 500ns ▪ Cable equalization, 1000' ▪ Input, differential loopthrough ▪ More than 80dB common mode rejection \$625.00
- PVD-OP-200 Optional 200ns delay \$125.00
- PVD-OP-300 Optional 300ns delay \$175.00
- PVD-OP-400 Optional 400ns delay \$225.00
- PVD-OP-500 Optional 500ns delay \$275.00

PVA-155 Video Distribution Amplifier

- 6 outputs ▪ Feedback clamp ▪ Delay trim adjustment ▪ Video bandwidth 30MHz ▪ Use for video, pulse or SC ▪ Cable equalization, 1000' ▪ Input differential loopthrough ▪ More than 80dB of common mode rejection \$197.00

IEC-785 Closed Caption Decoder

- Capable of processing and displaying all standard line 21 closed caption format transmissions ▪ 2 languages ▪ Reads text ▪ 2 text sets
- Hi-impedance baseband input
- Differential input amplifier ▪ 2 composite video outputs
- RGB outputs
- Sync output
- 3V p-p key output signal \$575.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

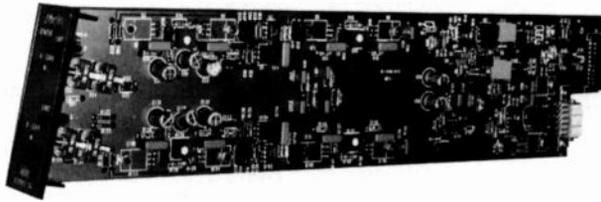


Starflex Professional Series

The Starflex modular frame system provides the flexibility which permits you to select the electronic functions you need and arrange them in the frame in any manner you desire. Starflex modules are available for most of your needs and operate in the frame simultaneously.

Starflex 6550/0 Stereo Audio DA

- 0 ohm impedance ■ Same specifications as 6550 ■ Used with PBO-609 to drive up to 800 high impedance sources
- 6550/0 \$325.00



Starflex 6550 Stereo Audio DA

- 1 x 8 mono or 1 x 4 stereo DA with 9 modules to a frame
- 6550 \$325.00

Starflex 6500 Audio DA

- 1 x 6 mono DA with balanced and differential input and output
- 6500 \$275.00

Starflex 6100 Power Supply Share Module

- Shares PS between frames
- 6100 \$150.00

Starflex 3690 Transcoder

- Transcodes RGB to Beta or MII with internal mode selection
- 3690 \$795.00

Starflex 3680 Transcoder

- Transcodes Beta to RGB
- 3680 \$675.00

Starflex 3520 Video DA

- Video DA is a 1 x 6 with no options
- 3520 \$225.00

Starflex 3500 Precision Video DA

- 1 input and 6 outputs with 2 options: equalization and clamp
- 3500 \$197.00

Starflex 3420 Internal CRS to Blackburst Generator

- Accepts CRS internally and outputs blackburst for timing
- 3420 \$845.00

Starflex 3410 Internal CRS to Pulse Timing Generator

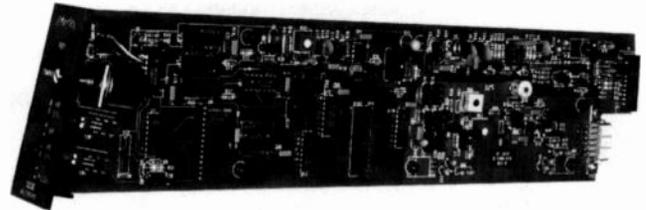
- Accepts CRS internally and outputs all drive pulses
- 3410 \$875.00

Starflex 3260 NTC-7, Multi-Burst and Sweep

- Outputs NTC-7 Comp-1, NTC-7 Comp-2, multi-burst and sweep
- 3260 \$675.00

Starflex 3240 Stairstep and Ramp Generator

- Outputs 5 and 10 step stairstep and ramp modulated and non-modulated
- 3240 \$675.00



Starflex 3230 Multi-Burst Generator

- Outputs multi-burst 50%, multi-burst 100%, multi-pulse and T-pulse
- 3230 \$675.00

Starflex 3220 Safe Title and Bar/Dot

- Outputs safe title, cross-hatch, dots and horizontal bar
- 3220 \$675.00

Starflex 3210 Color Bar Generator

- Provides 3 color bar signals plus blackburst, SMPTE, EIA and full field bars
- 3210 \$675.00

Starflex 3150 External CRS to Blackburst Generator

- Accepts external CRS and locks blackburst generator to system for system timing
- 3150 \$845.00

Starflex 3140 External CRS to Pulse Generator

- Accepts external CRS and locks pulse generator to system
- 3140 \$875.00

Starflex 3120 Master CRS Timebase Generator

- Outputs 3 color bar signals: Full field, EIA and SMPTE bars
- 3120 \$675.00



Starflex Mounting Frame and Power Supply

- 3000 Includes 3020 PS \$755.00
- 3050 Single blank panel 20.00
- 3060 Double blank panel 25.00
- 3080 Extender card 125.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Prompter Displays

AS-4175 9" Displaybox EL Flat Screen Ultra-Lightweight Studio/Field Display—110VAC/12VDC operation. For mounting above or below the lens. Weighs 9 lbs. **\$4375.00**

AS-4250 Shoebox Prompter for Field Use—110VAC/12VDC operation. Features bright 4" monitor for palm-of-the-hand prompting or with mirror/hood assembly for tripod mounting. Complete with scan reversal switch. Weighs 1 lb. (4 lbs. with hood assembly) **\$1975.00**

A-2009 9" Portable/Studio Prompter— With fold-up mirror and hood assembly and easy-mount hardware. Weighs 17 lbs. **\$2195.00**

A-2012P 12" Portable/Studio Prompter— With fold-up mirror and hood assembly and easy-mount hardware. Weighs 37 lbs. **\$2425.00**

A-2012CCD 12" Lightweight Studio Prompter for CCD/ENG Cameras—With easy-mount hardware including (1) 10 lb. counterbalance weight and 3" riser block. Weighs 42 lbs. **\$2525.00**

A-2012 12" Lightweight Studio Prompter for Full-Size Cameras— With easy-mount hardware to suit any camera complement. For mounting monitor above the lens, specify A-2012EFP. Weighs 32 lbs. **\$2425.00**

A-2015CCD 15" Studio Prompter for CCD/ENG Cameras— With easy-mount hardware including one 10 lb. counterbalance weight and 3" riser block. Weighs 47 lbs. **\$2625.00**
Note: 20 lb. counterbalance may be substituted if required.

A-2015 15" Studio Prompter for Full-Size Cameras— Lightweight with easy-mount hardware to suit any camera complement. Cutaway design allows maximum tilt. For mounting monitor above the lens, specify A-2015EFP. Weighs 38 lbs. **\$2525.00**
Note: Please use suffix "W" following part number to indicate wide-angle mirror/hood assembly to accommodate extra wide-angle studio lenses.

AS-4015 Autoscript Lightweight 15" Studio/Portable Prompter— For mid-size and full-size cameras. Featuring specially designed lightweight chassis packaged in highly resilient ABS vacuum formed case with rear cut-away design allowing maximum tilt. Complete with sliding cradle mount, hinged mirror assembly and outboard 24V AC/DC power supply. Weighs 28 lbs. **\$3425.00**

AS-4015 CCD Autoscript Lightweight 15" Studio Portable Prompter— For CCD/ENG cameras. Includes 3" riser. Weighs 40 lbs. **\$3525.00**

A-2012SA 12" Stand-Alone Prompter— With monitor, mirror and hood assembly mounted on roll-around dolly. Recommended for use with lightweight cameras and pan and tilt heads. Weighs 49 lbs. **\$2925.00**

A-2015SA 15" Stand-Alone Prompter— With monitor, mirror and hood assembly mounted on roll-around dolly. Recommended for use with lightweight cameras and pan and tilt heads. Weighs 55 lbs. **\$3025.00**

A-2015CS 15" Executive Presidential Prompter— With floor mounted mirror in wood veneer case, mirror and microphone-type stand. Weighs 33 lbs. **\$1875.00**

Script Table

A-2210 CCD Short Drive Table—For continuous roll scripts. Complete with CCD camera/lens, adjustable lighting and plug-in remote speed control. 110VAC. Weighs 20 lbs. **\$4675.00**

Electronic Prompting

A-5500 Scrollbox Electronic Prompter—With 32K memory standard.* Accepts ASCII text files from serial or parallel port on host computer. Apple and PC compatible. Complete with hand control for smooth scroll, page forward/reverse. Includes 12VDC power supply. Weighs 8 lbs. **\$4500.00**
*Scrollbox memory is upgradable to 128K. Please specify at time of order.

A-5501 Scrollbox Plus Electronic Prompter— All features as above, but with the addition of the StudioPlus Prompter Program. Provides simultaneous on-air edit and prompt functions from PC compatible computers through serial connection. Weighs 8 lbs. **\$5225.00**



A-6000 PC Prompter Software Systems for IBM Compatibles

A-6000/8 VGA Desktop Software System— For simultaneous edit and prompt. Includes external composite video converter with loophrough for full-size VGA computer monitor, and separate MDA computer card. In addition to installed VGA card, requires TTL monochrome computer monitor **\$2600.00**

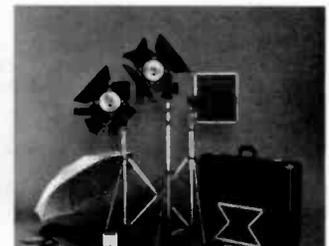
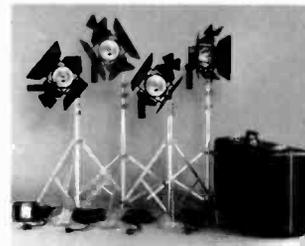
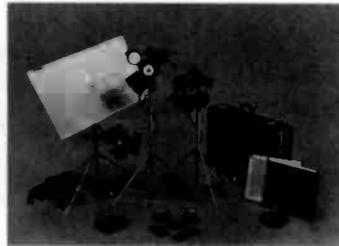
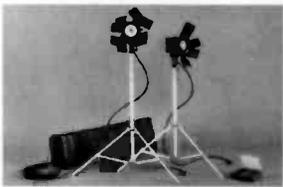
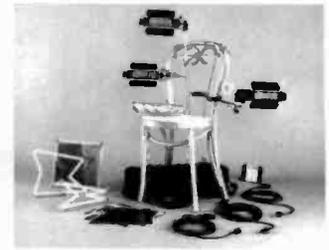
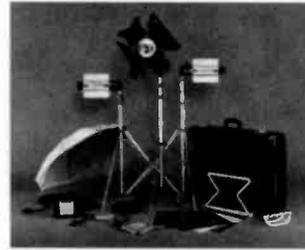
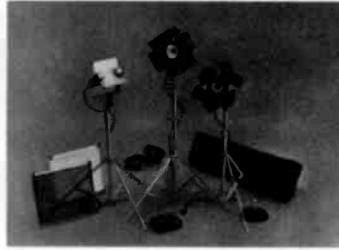
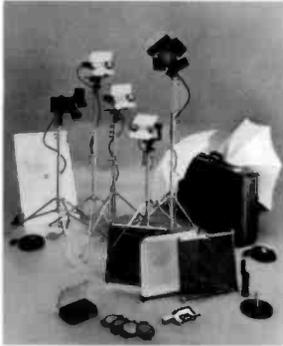
A-6000/6 VGA Laptop/Desktop Software System— Provides separate edit and prompt functions. Includes external composite video converter with loophrough for full-size VGA computer monitor **\$2500.00**

A-6000/5 VGA Desktop Software System— For simultaneous editing in color and prompting. Includes external composite video converter (or internal VGA-NTSC card) and compatible color editing card. In addition to a standard VGA computer monitor, requires an EGA or VGA TTL multisync (9-pin) monitor for editing in color **\$3300.00**

A-6000/3 TTL Mono Desktop Computer Software System— Provides simultaneous edit and prompt for desktop computers having an MDA card and TTL monochrome monitor **\$2325.00**

A-6000/1 Software Only— For customer supplied hardware configuration **\$1995.00**
Note: Order complete system packages and save from 3% to 7% off published prices.
Note: Call for information on A-6000 configurations specific to IBM PS/2 series computer.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ViP Kits

Tota/Omni Kits

Name ⊛ All Lights & Kits (except for i-light) are sold without lamps	ViP Kits							Tota/Omni Kits				
	Easy V	Pro-visions	All Pro	Jet Set	Intro-Kit	Far & Wide	Sophisti-Kit	Tube Kit	Little-1-Kit	Trans-Kit	T4	Action
Kit Code	V1-90	P1-92	P1-93	VP-97	VP-98	VP-95	VP-96	T1-90	T1-91	T1-92	T1-94	01-92
Lights In Kits												
Pro (focusing)		2	3	1	2	2	2					
V (broad)	2			2	1	2	3					
Tota (broad)								2	3	3	4	
Omni (focusing)												3
DP (focusing)												
Lowel-light (broad or spot)												
Softlight 2 (super-soft)												
Light-Array (super-soft)												
Option												
Super spot ⊙												
Soft	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Reflector												
Vari-flector												
Number of Accessories in Kits •												
VIP Stand	2	2	3	3	3	4	5					
Omni Stand								2		3	4	3
KS Stand												
Grand Stand												
Light control	4	3	12	5	6	20	16	4	5	4	20	4
Mounting			2	2	1	4	4		4		4	
Weight												
Pounds	13	15	28	17	17	34	37	18	15	28	36.5	31
Kilos	5.9	6.8	12.7	7.7	7.7	15.4	16.8	8.2	6.8	12.7	16.6	14.1
Price												
US\$	\$575	\$605	\$1225	\$865	\$885	\$1495	\$1895	\$645	\$675	\$995	\$1895	\$1225

⊙ Kit has super-spot reflector to convert light to high intensity unit.

✓ Kit has 1 or more umbrellas and/or gel frames with diffusion which lock into lights and produce soft-light quality.

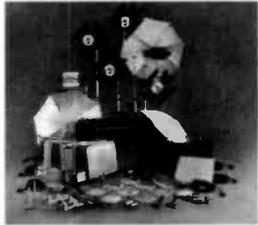
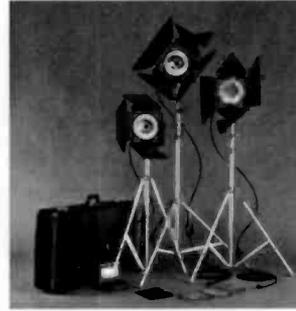
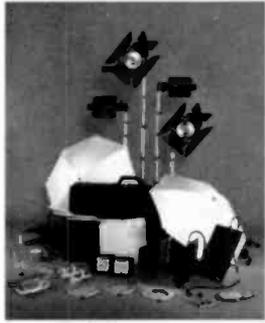
* Plus protective screens and stands.

** KSA stand.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



KIT COMPARISON CHART



Tota/Omni Kits *continued*

DP Kits

Softlight 2 Kits

Special Kits

Tota/Omni Kits <i>continued</i>						DP Kits					Softlight 2 Kits			Special Kits		
Dmnl 3	Dmnl 4	Basiclly 3	Elemental	Ambi	Solo	DP & T	DP 3	DP Remote	DP 4	Close Quarters	Light Soft	Standard Soft	Triple Soft	Full Array	Variflector	Surmountable
01-93	01-95	T0-97	T0-98	T0-95	T0-96	DT-98	D2-93	D2-96	D2-94	D2-97	S2-91	S2-92	S2-93	A1-90	V44SC	CM-90
		2	1	2	2	1										
3	4	1	2	2	4											
						2	3	3	4	4						
											1	1	3			
														1		
✓		✓	✓	✓	✓	⊙		⊙		⊙						
															1	
3	4	3	3	4	5	1										
						2	3	3	4	4		1		1••		
															1	
13	5	6	8	23	39	7	4	19	5	14	2	2	4			17
3				4	9	4		1		1				3	4	21
35	42	28	29	42	63	45	45	53	54	57	24	29	43	38	25	27
15.9	19.1	12.7	13.2	19.1	28.6	20.4	20.4	24	24.5	25.9	10.9	13.2	19.5	17.2	11.3	12.2
\$1425	\$1575	\$1035	\$1135	\$1775	\$2750	\$2750	\$1495	\$1925	\$1875	\$2075	\$725	\$845	\$1575	\$1375	\$625	\$925

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

**Pepper Series—
Miniature Quartz
Lighting**

▪ Compact, lightweight design location lighting ▪ Sturdy cast-aluminum construction ▪ Full range of accessories, designed for fast and easy attachment and adjustment



Pepper 100	
PA-A225	4-leaf barndoor \$ 69.00
PA-A237	Hinged gel frame 21.00
PA-900825	Filter pak 3.50
PA-A240	4-piece snoot set 86.00
PA-9005	Focal spot 171.00
PA-9120	Focal spot retainer ring, 100 20.00
PA-A245	Full single scrim 12.00
PA-A244	Full double scrim 12.00
PA-A270	Half single scrim 12.00
PA-A269	Half double scrim 12.00
Pepper 200, Pepper 300, Pepper 420	
PA-A395	4-leaf barndoor \$ 79.00
PA-A238	Hinged gel frame 25.00
PA-900835	Filter pak 4.50
PA-A232	4-piece snoot set 89.00
PA-9005	Focal spot 171.00
PA-9125	Focal spot retainer ring, 300/420 20.00
PA-A247	Full single scrim 12.00
PA-A246	Full double scrim 12.00
PA-A249	Half single scrim 12.00
PA-A248	Half double scrim 12.00
Pepper Soft 400	
PA-50412	Egg crate \$63.00
PA-30412	Gel frame 19.00
Pepper 650	
PA-A227	4-leaf barndoor \$ 84.00
PA-A239	Hinged gel frame 34.00
PA-900845	Filter pak 5.50
PA-A231	4-piece snoot set 113.00
PA-A251	Full single scrim 12.00
PA-A250	Full double scrim 12.00
PA-A253	Half single scrim 12.00
PA-A252	Half double scrim 12.00
Pepper 500/1K	
HA-A80	4-leaf barndoor \$ 91.00
HA-A563	Gel frame 57.00
	3-piece snoot set 176.00
PA-A346	Small snoot #2 41.00
PA-A347	Medium snoot #3 67.00
PA-A348	Large snoot #4 68.00
HA-445310	Full single scrim 9.50
HA-445311	Half single scrim 9.50
HA-445312	Full double scrim 10.50
HA-445313	Half double scrim 10.50

Pepper Pak Cases

PA-900897	Soft canvas case	\$347.00
PA-900898	Back pak canvas case	340.00
PA-900890	Hard case, red	409.00
PA-900880	Hard case, cyan/green	485.00
PA-900895	Hard case, full spectrum	578.00
PA-900885	Hard case, gold	435.00

Pepper Pak Location Lighting Kits

Full Spectrum Pepper Pak Includes: 1 each Pepper 100W, 300W, 420W, 400W and 650W lights with assorted accessories, lamps, grip equipment, stands, case and more

PK-Full	\$3526.00
PK-Gold Includes: 3 Pepper 500/1kW fresnel lights with assorted accessories, lamps, stands, and more	
PK-Gold Gold Pepper Pak	2575.00
PK-Green Includes: 4 each Pepper 420W lights with assorted accessories, lamps, stands, case and more	
PK-Green Green Pepper Pak	2302.00
PK-Red Includes: 3 each Pepper 650W lights with assorted accessories, lamps, stands, case and more	
PK-Red Red Pepper Pak	2220.00
PK-Cyan Includes: 2 each Pepper 100W and 420W lights with assorted accessories, lamps, stands, case and more	
PK-Cyan Cyan Pepper Pak	2208.00
PK-Silver Includes: 3 Pepper 650W flood lights with assorted accessories, lamps, stands, case and more	
PK-Silver Silver Pepper Pak	1770.00
PK-Bronze Includes: 1 each Pepper 100W and Pepper 300W fresnel light and 1 Pepper 650W flood light with assorted accessories, stands, case and more	
PK-Bronze Bronze Pepper Pak	1742.00
PK-Yellow Includes: 2 each Pepper 300W lights, Pepper 400W light with assorted accessories, lamps, stands, case and more	
PK-Yellow Yellow Pepper Pak	1723.00
PK-Platinum Includes: 1 each Pepper 100W, 300W, and 420W fresnel light, and 1 Pepper 400W soft light with assorted accessories, lamps, stands, case and more	
PK-Platinum Platinum Pepper Pak	1699.00
PK-Blue Includes: 2 Pepper 100W lights, Pepper 300W light with assorted accessories, lamps, stand, case and more	
PK-Blue Blue Pepper Pak	1674.00

Pepper Heads

PH-154B	Pepper 100W fresnel light with 1 ¹ / ₄ " lens . . .	\$223.00
PH-154C	Pepper 200W fresnel light with 3 ¹ / ₈ " lens . . .	275.00
PH-165F	Pepper 300W fresnel light with 3 ¹ / ₈ " lens . . .	285.00
PH-412	Pepper 400W soft light	281.00
PH-154K	Pepper 420W fresnel light with 3 ¹ / ₈ " lens . . .	294.00
PH-154H	Pepper 650W fresnel light with 4 ³ / ₈ " lens . . .	385.00
PH5/1K-151H	Pepper 500/1000W fresnel light with 5" lens . .	504.00

Universal Pepper Accessories

PA-901170	Pepper Pot: 1-channel dimmer	\$ 252.00
PA-901175	Pepper Pot: 3-channel dimmer	572.00
PA-901180	Pepper Pot: 6-channel dimmer	1840.00
PA-B389787	Light/medium Pepper stand	74.00
PA-B389788	Medium Pepper stand	69.00
PA-B387490	Light/heavy Pepper stand	139.00
PA-901030	Pepper scrim bag	14.00
PA-A254	3" baby plate	48.00
PA-429678	Scissor clamp	9.00
PA-A67	3" C-Clamp	37.00
PA-A68	6" C-Clamp with two 3/8" pins	61.00
PA-B429587	Gaffer grip with 1/8" pin	30.00
PA-901040	Gold/silver reflector pak	19.00
PA-901045	Velcro cable tie	3.20
PA-901050	Leather gloves	10.00
PA-901060	Globe table	5.35
PA-901055	3-prong plug adaptor	1.25

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TV CEILING/TV WALL MOUNTS



DSWP Series



SSWP Series



DSCM Series



ACM Series



CTL Series



SSCM Series



1721S/1721N Series

TV Wall Mounts

Model	Tilt	Weight Load (lbs.)	Platform Width x Depth	Price
Adjustable Non-Locking Platforms				
DSCM2030**	0-25°	120	20-30" x 13"	\$239.25
DSCM233L**†	0-25°	120	23-33" x 13"	259.16
DSCM203L**†	0-25°	120	20-30" x 13"	248.64
DSCM2333**	0-25°	120	23-33" x 13"	250.57
DSWP6101	7°	120	15" x 12"	178.40
DSWP6107	7°	120	17" x 12"	178.40
DSWP6108	7°	120	14" x 11"	178.40
DSWP6109	7°	120	20" x 18½"	184.61
DSWP6110	7°	120	10" x 12"	178.40
DSWP6112	7°	120	12" x 11"	178.40
DSWP6120	7°	120	20" x 9"	178.40
DSWP2333	7°	120	23-33" x 13"	196.52
DSWP2030	7°	120	20-30" x 13"	189.56
DSWP1420	7°	120	14-20" x 13"	177.17
SSCM1420**	0-25°	75	14-20" x 11"	180.74
SSCM2030**	0-25°	75	20-30" x 13"	208.90
SSWP2030*	12½°	75	20-30" x 13"	114.08
SSWP1420	12½°	75	14-20" x 11"	107.81
SSWP1014	12½°	75	10-14" x 11"	107.81

Fixed Non-Locking

1721N	12½°	75	22" x 12"	\$69.46
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* Swivel becomes limited by depth of TV and widths over 26"

** Yoke type mounts

† 21½" side arms allow more clearance for taller sets

TV Ceiling Mounts

Model	Tilt	Weight Load (lbs.)	Platform Width x Depth	Price
Adjustable Tilt Non-Locking Platforms				
ACM203L	0-20°	120	20-30" x 13"	\$193.92
ACM233L	0-20°	120	23-33" x 13"	205.88
ACM1420	0-25°	120	14-20" x 11"	173.49
ACM2030	0-25°	120	20-30" x 13"	184.56
ACM2333	0-25°	120	23-33" x 13"	196.52
ACM3045	0-20°	120	30-45" x 15½"	227.14
ACM3045L	0-20°	120	30-45" x 15½"	227.14
Non-Locking Platforms				
CTL1014	12½°	100	10-14" x 11"	\$116.13
CTL1420	12½°	100	14-20" x 11"	116.13
CTL1721N	12½°	100	21" x 12"	98.14
CTL2030	12½°	100	20-30" x 13"	122.83
Locking Platforms				
CTL6100	12½°	100	19" x 12"	\$114.99
CTL6101	12½°	100	15" x 12"	114.99
CTL6102	12½°	100	23" x 11"	114.99
CTL6103	12½°	100	22" x 14"	126.99
CTL6104	12½°	100	25" x 14"	128.94
CTL6105	12½°	100	18" x 18½"	126.15
CTL6107	12½°	100	17" x 12"	114.99
CTL6108	12½°	100	14" x 11"	114.99
CTL6109	12½°	100	20" x 18½"	128.94
CTL6110	12½°	100	10" x 12"	114.99
CTL6111	12½°	100	25" x 18½"	143.66
CTL6112	12½°	100	12" x 11"	114.99
CTL6115	12½°	100	15" x 15"	114.99
CTL6120	12½°	100	20" x 9"	114.99
Semi-Locking Platforms				
CTL1721S	12½°	100	21" x 12"	\$106.16

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Authorized 3M Distributor



VIDEOCASSETTES



3/4" Broadcast

Videocassette Tapes Master Broadcast U-Matic (MBR™)

The Master Broadcast videotape is designed to meet your most exacting needs. The Anti-Stat System of treated component parts and shell and Anti-Stat leader dissipates static charge for lower dropout activity and better performance under adverse environmental conditions. 10 units per carton.



		Playing Time (min.)	Price
MBR-10	Hanger or album	10	\$23.68
MBR-20	Hanger or album	20	24.35
MBR-30	Hanger or album	30	31.51
MBR-50	Hanger or album	50	38.36
MBR-60	Hanger or album	60	40.96
MBR-5s	Mini hanger or album	5	22.72
MBR-20s	Mini hanger or album	20	25.59

Broadcast SP U-Matics – Designed

for 3/4" U-Matic SP VCRs

SP-10	Hanger or album	10	\$20.46
SP-20s	Mini hanger or album	20	25.59
SP-20	Hanger or album	20	23.50
SP-30	Hanger or album	30	31.49
SP-60	Hanger or album	60	40.79

Broadcast U-Matics (UCA Color Plus)

Broadcast UCA Videocassettes use a special Color Plus oxide video tape which provides a superior signal-to-noise ratio, color-noise ratio and lower dropouts. 10 units per carton.

UCA-5	Hanger or album	5	\$20.11
UCA-10	Hanger or album	10	20.47
UCA-20	Hanger or album	20	23.32
UCA-30	Hanger or album	30	25.71
UCA-60	Hanger or album	60	34.60

Broadcast Mini-U-Matics (UCA Color Plus)

Mini U-Matic videocassettes are designed for use with mini U-Matic portable recorders. Features Color Plus oxide. 10 units per carton.

UCA-10s	Hanger or album	10	\$19.41
UCA-20s	Hanger or album	20	21.94

Extended Play U-Matics –

Not Recommended for Editing

UCA-30s	Mini hanger shipper or album	30	\$39.84
UCA-75	Album	75	59.62

VHS Broadcast Videocassettes

High grade quality product with superior electromagnetic and dropout characteristics designed for critical applications. 20 units per carton.

T-30	Sleeve	\$ 9.76	T-120	Album box	\$15.04
T-60	Sleeve	11.27	T-30	Hanger case	12.07
T-120	Sleeve	13.42	T-60	Hanger case	13.72
T-30	Album box	11.67	T-90	Hanger case	14.95
T-60	Album box	13.32	T-120	Hanger case	15.44
T-90	Album box	14.55			

S-VHS Master Broadcast Videocassettes

S-VHS tape is designed for peak performance with Super-VHS systems. 20 units per carton.

ST-30	Sleeve	\$19.24	ST-120	Hanger shipper	\$24.98
ST-60	Sleeve	21.67	ST-30	Album	20.81
ST-120	Sleeve	23.11	ST-60	Album	23.42
ST-30	Hanger shipper	20.81	ST-120	Album	24.98
ST-60	Hanger shipper	23.42			

VHS Professional Videocassettes

Standard Grade VHS Videocassettes designed for general purpose applications. 40 units per carton.

T-30	Sleeve	\$ 8.06	T-30A	Album	\$ 9.54
T-60	Sleeve	9.04	T-60A	Album	10.55
T-120	Sleeve	9.40	T-120A	Album	11.19
T-160	Sleeve	14.19	T-160A	Album	17.11

DubPak VHS Videocassettes (Bulk VHS, 50/Cartron)

DP-10	Tabs in/out	\$3.82	DP-90	Tabs in/out	\$ 6.10
DP-15	Tabs in/out	3.82	DP-105	Tabs in/out	6.52
DP-20	Tabs in/out	4.05	DP-120	Tabs in/out	6.78
DP-30	Tabs in/out	4.20	DP-127	Tabs out	7.45
DP-45	Tabs in/out	4.83	DP-150	Tabs in/out	11.17
DP-60	Tabs in/out	5.27	DP-160	Tabs in/out	11.70

D-1/D2 Digital Videocassettes

		Playing Time (min.)	Shell Size	Price
D-1/4:2:2 Digital Component Videocassettes				
DCN-5s	Album	7	Small	\$ 65.18
DCN-10	Album	12	Medium	109.89
DCN-20	Album	22	Medium	151.84
DCN-30	Album	34	Medium	192.99
DCN-75L	Case	76	Large	332.39
DCN-90L	Case	94	Large	419.29

D-2 Digital Composite Videocassette (Metal)

DCS-5s	Mini album	6	Small	\$ 54.97
DCS-10s	Mini album	12	Small	98.84
DCS-20s	Mini album	22	Small	138.02
DCS-30s	Mini album	32	Small	175.67
DCS-5	Album	6	Medium	54.97
DCS-10	Album	12	Medium	98.84
DCS-20	Album	22	Medium	138.02
DCS-30	Album	34	Medium	175.67
DCS-60	Album	64	Medium	258.53
DCS-90	Album	94	Medium	391.53
DCS-120L	Case	125	Large	519.74
DCS-150L	Case	155	Large	632.28
DCS-180L	Case	188	Large	727.71
DCS-200L	Case	208	Large	746.99

BC Oxide/BC Metal SP Videocassettes

Broadcast quality products designed specifically for use on Betacam and Betacam SP equipment. Has 3M's exclusive Anti-Stat system of protection. 20 units per carton in hanger and 10 units per carton in album.

Betacam Format				
BC-Oxide 5	Hanger or album	6	Standard	\$12.17
BC-Oxide 10	Album	12	Standard	14.39
BC-Oxide 20	Hanger or album	22	Standard	19.50
BC-Oxide 30	Hanger or album	32	Standard	24.40
BC-Oxide 30L	Album	34	Large	33.53
BC-Oxide 60L	Hanger or album	64	Large	63.38
BC-Oxide 90L	Hanger or album	94	Large	83.81

Betacam SP Format

BC-Metal 5M	Hanger or album	6	Standard	\$ 42.64
BC-Metal 10M	Album	12	Standard	46.54
BC-Metal 20M	Hanger or album	22	Standard	51.18
BC-Metal 30M	Hanger or album	32	Standard	56.20
BC-Metal 30ML	Album	34	Large	56.85
BC-Metal 60ML	Hanger or album	64	Large	79.79
BC-Metal 90ML	Hanger or album	94	Large	125.73

Hi8 MP Videocassettes

P6-30	HPX album	30	Standard	\$14.63
P6-60	HPX album	60	Standard	20.98
P6-120	HPX album	120	Standard	28.29

Boxed 8mm Videocassettes SP/LP

P6-120	MP carded	120-240	Standard	\$23.13
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

AUDIO TAPE/CASSETTES/ DATA MEDIA PRODUCTS



Authorized 3M Distributor

OPEN REEL AUDIO TAPE/CASSETTES

Open Reel Audio Tape

996 and 966 are premium quality tapes for critical music mastering. 996 allows recording at +9.

996-	
¼-1200-PR7**	\$ 14.00
2500-HPB†	20.30
2500-RD-10½**	37.10
½-2500-H-10½**	52.80
2500-RPg-10½**	67.70
3750-RD-12½**	96.58
5000-RD-14**	153.42
1-2500-H-10½†	\$103.46
2500-RPg-10½**	115.62
5000-RD-14**	264.30
2-2500-RPg-10½**	245.70
2500-RPg-SH-10½**	262.60
5000-RPg-14**	574.88
5000-RPg-SH-14*	615.12

966-	
¼-600-PR5†	\$ 7.60
1200PR7**	13.10
2500HPB†	18.86
2500RN*	34.70
½-2500RPs*	61.30
2500H†	49.40
5000RD*	141.74
1-2500RPs*	\$106.28
2500H†	96.75
5000RD*	245.84
2-2500RPs*	232.36
5000RPg*	539.00
5000SH	552.30

967-	
¼-900PR5†	\$ 9.45
1800PR7**	17.50
3600HPB†	34.11
3600RN*	38.62
½-3600H†	\$ 57.36
3600RPs*	63.44
1-3600RPs*	119.18

† Paper primary packaging

* Plastic TapeCare™ library box primary packaging

PRO DAT

15 minutes	\$ 8.10	60 minutes	\$12.75
30 minutes	9.75	90 minutes	15.50
46 minutes	11.20	120 minutes	18.25

AVX Professional Cassettes – Boxed

AVX cassettes are professional quality high output, low noise cassettes. 20 cassettes per master carton. Tensitized polyester.

AVX-20 20 minutes	\$1.06	AVX-60 60 minutes	\$1.30
AVX-30 30 minutes	1.15	AVX-90 90 minutes	1.90
AVX-46 46 minutes	1.21	AVX-120 120 minutes	2.40



DATA MEDIA PRODUCTS

3.5" and 5.25" Diskettes

These diskettes are available with unformatted storage capacities ranging from 400K bytes to 4M bytes. Preformatted diskettes also available.

3.5" Diskettes	10 Packs Per Ctn	Price Per 10 Pack
3.5" DS-DD	10	\$11.11
3.5" DS-DD IBM PC formatted	10	11.78
3.5" DS-DD MAC formatted	10	11.78
3.5" DS-HD (2.0M byte)	10	15.89
3.5" DS-HD (2.0M byte) IBM PC formatted	10	16.56
3.5" DS-HD (2.0M byte) MAC formatted	10	16.56
3.5" DS-ED (4.0M byte)	10	64.22

5.25" Diskettes	10 Packs Per Ctn	Price Per 10 Pack
5.25" DS-DD-RH	10	\$ 7.78
5.25" DS-DD-RH IBM PC formatted	10	8.22
5.25" DS-HD	10	11.33
5.25" DS-HD IBM PC formatted	10	11.78

Note: 8" Diskettes also available. Call for pricing.

3.5" Floptical™ Diskettes

Contain 21M byte of nominal formatted capacity with extremely high reliability using precise optical tracking and error detection and correction. Barrium ferrite coating helps prevent degradation of the media from heat and humidity.

3.5" 21 MB Floptical Diskettes	5 Packs Per Ctn	Price Per 5 Pack
	2	\$138.89

Quarter-Inch Cartridges

Available in minicartridge and large data cartridge form factors with capacities ranging from under 1M byte to 5G bytes. Preformatted cartridges are also available.

Quarter-Inch Minicartridges	Qty/Ctn	Price Each
DC 2000	10	\$17.80
DC 2080 XIMAT™	10	27.55
DC 2120	10	24.50
DC 2120 RHOMAT™	10	34.45
DC 2120 XIMAT	10	31.60
Quarter-Inch Data Cartridges		
DC 300 XL/P	10	\$23.40
DC 600 A	10	25.90
DC 6150	10	27.25
DC 6250	10	35.30
DC 6525	10	42.75
MAGNUS™ 1.2	10	61.85
MAGNUS 5.0	10	97.65

4mm Data Certified Tape

Data certified for maximum data protection, 3M's 4mm Data Tapes feature high reliability with low error rates. 3M's 4mm Data Tapes are compatible with DDS and Data/DAT formats and employ the Digital Data Storage (DDS) Media Recognition System.

DDS-90	10	\$21.40
DDS-60	10	17.05

8mm Data Certified Tape

3M's 8mm Data Tapes are data certified for maximum data protection and feature high reliability with low error rates at high storage capacities. These tapes are compatible with all current drive systems and are commonly used in a wide variety of backup and archiving applications.

D8-112	10	\$15.50
D8-54	10	15.10
DD8-15	10	12.40

Rewritable Optical Disk (M-O) Cartridges

M-O cartridges feature innovative magneto-optic technology and adherence to strict quality control procedures. The 3.5" cartridges offer 128M bytes of storage capacity while the 5.25" cartridges offer up to 1.3G bytes. Low-level factory formatted cartridges are available. 5.25" cartridges are available in an interlocking library case for easy storage.

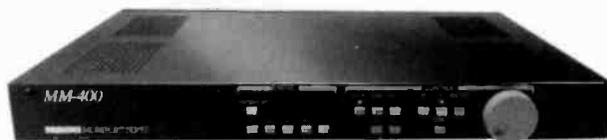
3.5" 128M byte 512 bytes/sector	5	\$ 73.33
5.25" 600M byte 512 bytes/sector	5	164.45
5.25" 650M byte 1024 bytes/sector	5	164.45
5.25" 1.2G byte 512 bytes/sector	5	213.33
5.25" 1.3G byte 1024 bytes/sector	5	213.33

CD Recordable Discs

CD-R discs offer high reliability, low error rates, random access to data, and the ability to store many different forms of data, such as audio, video, graphics and text. Available in 550M byte (63 minutes) and 650M byte (74 minutes) and support both standard and double speed drives.

CDR 650/74	10	\$26.00
CDR 550/63	10	24.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Magni Monitor—Compact Monitoring System

- Base unit: 3 monitoring inputs
- Remote unit: menus and straightforward controls for streamlined operation
- Waveform monitor and vectorscope
- NTSC, PAL, component
- Automatic standard detection feature
- View waveforms on standard picture monitors, eliminates specialized CRTs
- Adjustable waveform/graticule colors
- Adjustable intensity
- SC/H phase and color frame limit warnings (vectorscope mode)
- Component amplitude/timing warnings (waveform monitor mode)
- Remote unit is only 2" deep fits in production panels, vans, front panels
- MM-W/V base unit includes the power supply and remote unit; MM-400 has front panel control.

MM-W/V	Basic waveform/vector version (NTSC/PAL/CAV)	\$1795.00
MM-400	Combination waveform/vector with built-in S-Video, front panel controls and 2 S-Video loopthrough inputs	1795.00
MM-Halfrack	Halfrack adaptor for remote unit	70.00
MM-Rack	Full width rackmount (< 2" depth) for remote unit	120.00
MM-R	Extra remote unit	250.00
MM-400-R	Remote unit for MM-400	250.00
MM-Cables	Cable kit for Magni monitor	90.00

WFM560 Component/Composite Waveform Monitor

- 6 inputs for: 2 complete component signal sets, 6 composite signals, a combination of component and composite
- Multi-standard capability for NTSC, PAL, SECAM, 525-line and 625-line component
- Component vectorscope function
- Component format switching for SMPTE/EBU, Betacam, Mill, GBR
- Extensive memory settings for front panel setups
- Time, voltage and risetime cursors with readouts
- Invalid signal and Video Overdrive™ indicators
- Overlay modes for signal comparison

WFM560	6-channel NTSC/PAL/SECAM/CAV waveform monitor, CAV vectorscope	\$4950.00
WFM560S	6-channel NTSC/PAL/SECAM/CAV waveform monitor with staircase	4950.00
RM500	Remote panel	550.00



WV560/WV561 Combination Waveform Monitor/Vectorscope for Component/Composite Use

- 6 inputs for: 2 complete component signal sets, 6 composite signals, a combination of component and composite
- WV560: NTSC and 525-line component standards, including Y/C; WV561: NTSC, PAL, 525-line and 625-line component standards, including Y/C
- SC/H phase measurement and color frame indicator
- Built-in differential phase and gain measurements
- Simultaneous waveform/vector display mode
- Time and voltage cursors with on-screen readouts

WV560	6-channel NTSC/CAV waveform monitor/vectorscope with SC/H and color framing ..	\$6250.00
WV561	6-channel NTSC/PAL/CAV waveform monitor/vectorscope with SC/H and color framing ..	6550.00
RM500	Remote panel	550.00



WVM-710 Waveform Monitor/Vectorscope

- Full function, rasterizing waveform monitor and vectorscope for display on picture monitor screens
- Real time auto-measurement screen shows video signal parameters graphically and numerically
- View waveform/vector full screen, or 1/4-size keyed over or mixed into picture
- Video signal parameter status can be keyed over bottom of picture display—perfect for monitoring in production, editing and graphics
- Safe title area can be mixed into picture
- Adjustable color and intensity for waveform, vector and graticules
- Internal processing and 10-bit resolution maintain accuracy of conventional "CRT" based monitors
- Multi-standard (NTSC, PAL), multi-format (composite, S-Video, component) capable

WVM-710	\$3995.00
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VS561 Component/Composite Vectorscope

- 6 inputs for: 2 complete component signal sets, 6 composite signals, a combination of component and composite
- NTSC, PAL, 525-line and 625-line component standards
- Simultaneous component and composite vector displays
- Amplitude/phase measurement cursors
- Graticule and mode readouts
- VITS display and R-Y output for differential phase and gain measurements (with WFM560)
- Calibrated stereo audio display
- SC/H phase measurement and color frame indicator

VS561	6-channel PAL/NTSC/CAV vectorscope with SC/H and color framing	\$4950.00
RM500	Remote panel	550.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TEST EQUIPMENT/ VIDEO GRAPHICS ENCODING



MAGNI®



Signal Creator™

▪ Compact multiple-format generator ▪ Memory card storage allows user-specific setups plus application-specific signal sets ▪ Configurable for any combination of NTSC, PAL, 525-line and 625-line component analog, 525-line and 625-line D1, and 525-line and 625-line D2, including multiple digital outputs ▪ Extensive signal sets for all formats ▪ Creator software offers user-designed custom signals and transfer of signals to a memory card through a user-friendly program ▪ Straightforward LCD menu screens for easy visibility of chosen formats and signals ▪ Timing/frequency/ID adjustable from front panel ▪ Options including analog and digital stereo audio tones, sweep and zone patterns, blackburst and pulse outputs

SC	Basic NTSC version	\$4,900.00
SC-C	Basic NTSC/525 CAV version	6,400.00
SC-P	Basic PAL/NTSC, 625/525 CAV version	6,950.00

Options

Opt A	Digital and analog audio with voice capture . . .	\$1,650.00
Opt BB	Blackburst and SMPTE color bars (525 only), pulse.	1,575.00
Opt D2	Parallel PAL/NTSC D2, 525/625 D1 output.	2,000.00
Opt SD	Serial/parallel NTSC D2, 525/625 D1	1,895.00
Opt IO	Parallel D2 input to analog output.	495.00
Opt Z	Sweep and zone pattern to 12MHz.	2,050.00

SC Option Field Kits add 150.00

Signal Creator Accessories

Blank RAM card (512K memory)	\$125.00
Composite signal set (NTSC)	200.00
Composite NTSC, Betacam, MII, SMPTE and GBR set	200.00
525 signal set for first digital board	200.00
525 signal set for second digital board	200.00
525 signal set for third digital board	200.00
525 signal set for fourth digital board	200.00
NTSC, PAL and 525/625 component signal set	200.00
PAL composite and 625 component signal set.	200.00

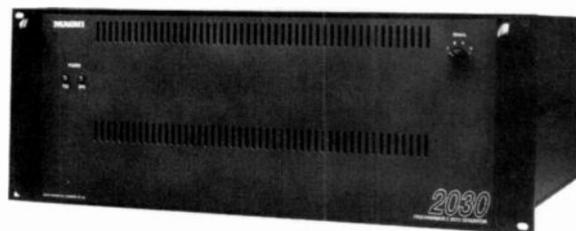
Note: Creator software is supplied with all Signal Creator units at no charge.



2021 Programmable Test Signal Generator

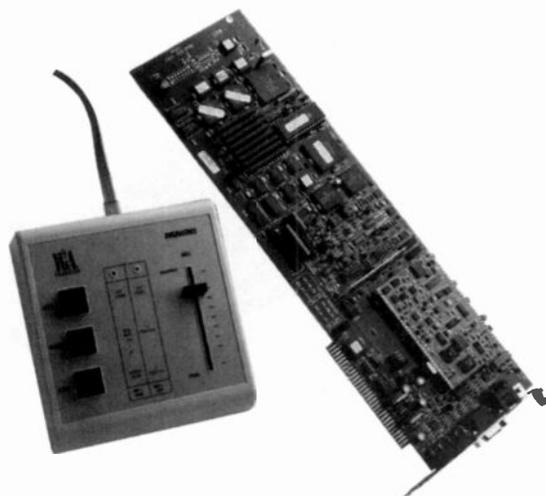
▪ Interconnection with an IBM or compatible PC allows signal generation for virtually any existing or developing television system

▪ Supports signal standards from 525/60 NTSC to 1125/60 HDTV and beyond, in both analog and digital formats ▪ Extensive libraries of commonly used signals for NTSC, PAL, SECAM, CAV, GBR, 4:2:2, D2, HDTV, RS-343 and other formats ▪ Signal Master™ software for user-friendly custom signal development ▪ 3 analog outputs flat to more than 30MHz ▪ Digital outputs with clock frequency selectable from 13.5MHz to 32X subcarrier ▪ Non-volatile memory and front panel switch selection between 4 different signals (of the same or different video standards). \$13,900.00



2030 Programmable HDTV Generator

▪ PC interconnection for HDTV signal generation in a wide range of proposed formats: 525/29.97, 525/59.94, 787.5/59.94, 900/29.97, 1050/59.94, 1125/59.94, 1125/60.0, 1250/50.0, others ▪ Full test signal library available for current HDTV standards, including tri-level and bi-level sync signals ▪ 3 channels of video for GBR or Y/B-Y/R-Y test signals ▪ 3 additional channels for sync or drive signals ▪ 2 outputs from each channel (1V and 2V) ▪ Sync generator can be gen-locked to external sync reference or used as studio reference source ▪ Test signal generator usually locked to sync generator; can be locked to external reference for re-timing \$22,500.00



VGA Producer™ PRO NTSC/S-VHS Graphics Encoder

▪ Video graphics encoding for IBM® PC ATs and compatibles ▪ Provides NTSC and S-VHS inputs and outputs, fading and keying features with included remote control ▪ Includes flicker stabilizer, software control, titling and animation software and Director™ software, pan and zoom ▪ Connector of virtually any VGA board ▪ Supports resolutions up to 640 x 480 at 256 colors
VGA-PRO PRO NTSC version with character generator S/W \$1,995.00
VGA-PRO-RGB Same as above with RGB output 2,195.00
VGA-PAL-PRO PAL version of above. 2,275.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**PMD 430 Portable
Stereo Cassette
Recorder/ Player**

- Dolby B noise reduction ▪ dbx noise reduction ▪ 3-head design ▪ Bias fine adjustment
- Memory rewind ▪ 3-position tape selector (metal, CRO₂, normal) ▪ Limiter ▪ 3-digit tape counter ▪ 4-way power supply: 120VAC, 4.5VDC, 3 D cells, optional rechargeable RB430 battery pack ▪ Built-in speaker ▪ Headphone output jack ▪ Pitch control ▪ Auto shutoff ▪ Auto replay ▪ 3-position microphone attenuator (0dB, -15dB, -30dB)
- Illuminated VU meters ▪ Impact resistant case ▪ Dimensions: 2"H x 8 3/4"W x 6 1/2"D ▪ 2.9 lbs.

PMD 430 \$599.00



**PMD 222 Portable
Cassette
Recorder/Player**

- 3-head design ▪ 2-speed (1 1/2 and 1 3/4 ips)
- Balanced input and XLR connector ▪ Telephone line input ▪ 1/2 speed recording and playback ▪ Line input and output ▪ 3-position microphone attenuator (0dB, -10dB, -20dB) ▪ Selectable high-pass and band-pass filters ▪ LED peak level and low battery indicators ▪ Built-in limiter ▪ Automatic or manual record level control ▪ Separate input and output level controls
- Analog VU meter ▪ Tone control ▪ Playback pitch/speed control ▪ Headphone jack ▪ Replay memory ▪ Auto replay ▪ Audible cue and review ▪ External speaker connection ▪ Built-in condenser microphone
- Input and off-tape monitoring ▪ AC adaptor/battery charger ▪ 117VAC ▪ 3 D cells ▪ RB430 optional rechargeable NiCad battery pack ▪ Dimensions: 2"H x 8 3/4"W x 6 1/2"D ▪ 2.9 lbs.

PMD 222 \$429.00



**PMD 221 Portable
Cassette
Recorder/Player**

- 3-head design ▪ 2-speed (1 1/2 and 1 3/4 ips)
- Full auto shutoff ▪ 3-way power with low battery indication
- VU level indication ▪ Switchable limiter
- 3-position microphone attenuation (0dB, -10dB, -20dB) ▪ Built-in monitor speaker ▪ 3-digit tape counter ▪ Direct telephone connective jack ▪ Telephone pickup jack ▪ Line input and output jacks ▪ External speaker jack ▪ Anti-roll transport ▪ Playback pitch/speed control ▪ 3-position tape selector (normal, CRO₂, metal) ▪ Automatic or manual record level ▪ Built-in electret condenser microphone ▪ Audible cue and review ▪ Volume and tone control ▪ 3-position automatic noise cancel switch ▪ External microphone jack ▪ Headphone jack ▪ Memory rewind and replay
- Dimensions: 2"H x 8 3/4"W x 6 1/2"D ▪ 2.9 lbs.

PMD 221 \$399.00



PMD 201 Portable Cassette Recorder/Player

- 2-head design ▪ 2-speed (1 1/2 and 1 3/4 ips) ▪ Full auto shutoff
- 3-way power with low battery indication ▪ VU level indication
- Switchable limiter ▪ 3-position microphone attenuation (0dB, -10dB,

- 20dB) ▪ Built-in monitor speaker ▪ 3-digit tape counter ▪ Direct telephone connective jack ▪ Telephone pickup jack ▪ Line input and output jacks ▪ External speaker jack ▪ Anti-roll transport ▪ Playback pitch/speed control ▪ 3-position tape selector (normal, CRO₂, metal)
- Automatic or manual record level ▪ Built-in electret condenser microphone ▪ Audible cue and review ▪ Volume and tone control
- 3-position automatic noise cancel switch ▪ External microphone jack ▪ Headphone jack ▪ Dimensions: 2"H x 8 3/4"W x 6 1/2"D ▪ 2.9 lbs.

PMD 201 \$329.00

**PMD 510
Independent
Dual Well
Cassette Deck**

- Separate inputs and outputs for each well ▪ Pitch control on both wells ▪ A + B or serial recording ▪ Continuous and relay play capability ▪ Optically sensing auto-reverse between sides of each well and between wells
- Cascade circuitry for serial recording with multiple units ▪ Dolby B, C and HX-Pro ▪ Digital real time counters with memory rewind ▪ Dual peak holding meters ▪ Quick music search ▪ Standard and high speed dubbing ▪ Headphone jack with switchable source ▪ Automatic tape bias selection

PMD 510 \$799.00



**PMD 500
Rackmountable
Dual Well
Cassette Deck**

- Both wells record serially or simultaneously
- Continuous and relay play ▪ Optically sensing quick auto-reverse
- Automatic tape bias selection ▪ Dolby B, C, HX Pro ▪ Standard and high-speed dubbing ▪ Digital tape counters ▪ Peak holding LED VU meters ▪ 3 automatic search modes ▪ 2-head design ▪ Independent 2-motor full logic transports ▪ RC-5 port for remote control

PMD 500 \$599.00



PMD 101 Portable Cassette Deck

- Built-in speaker ▪ Electret condenser microphone ▪ Normal (1 1/2 ips) or half (1 3/4 ips) speed operation with +20% pitch control on playback
- External mic input ▪ Line I/O ▪ Housed in sturdy metal chassis
- Automatic level control (ALC) for recording ▪ Low battery indicator
- 3-digit tape counter ▪ Tone control ▪ Headphone output and level control ▪ Cue and review ▪ AC or battery operation ▪ AC adaptor optional

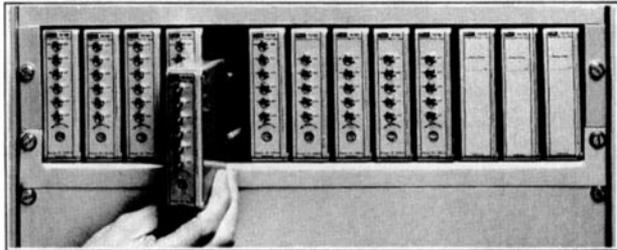
PMD 101 \$259.00

Accessories

- CLC-221 Cassette recorder carrying case (fits PMD 101, PMD 201, PMD 221, PMD 222). \$40.00
- RB-430 NiCad battery pack 75.00
- CA-221 Car adaptor for 12VDC operation. 40.00
- FSK-221 Field support kit (field parts kit for models PMD 430, PMD 420, PMD 222, PMD 221, PMD 101 and PMD 201). 60.00
- DA36 117VAC to 4.5 VAC AC adaptor (fits models 101, 201, 221, 222 and 430). 13.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO DELAY SYSTEMS



Video Delay Boxes (Variable), NV Series

▪ Impedance: 75 ohms ▪ Frequency Response: ± 0.05 dB ripple up to 5.5MHz (0.1dB p-p) ▪ Return Loss: 27dB ▪ Temperature Range: 0-70°C ▪ Max. Input Voltage: 2VDC ▪ Performance of box and 19" rack units is a function of the delay line combinations used

Small metal boxes with BNC connectors provide infinitely variable video delay either with switches (type 180 or 360) or taps (type 097) over a range of 10-665ns. A ± 1 ns trim achieves precise timing at installation and will compensate for temperature and aging variations during subsequent maintenance. For longer delay requirements, these variable boxes may be cascaded with lump delay boxes (type NV 0100-1000) for a maximum delay of 2500ns. The prefix NV identifies boxes which can be used as stand-alone units or can be mounted on a 19" rack panel (Type 5) which accommodates 15 separate boxes.

Adjustment of time delay in TV signal routes is important in all countries of the world. 75 ohm delay units are suitable for use in all TV systems including NTSC, PAL, SECAM and all variations.

The Smaller Video Delay Units are designed to make the fullest use of the miniature DIP video delay line modules and to retain features important to TV engineers.

Passive Delay Boxes
Rackmounted—V Series or Stand-Alone N Series
Boxes with Switches and \pm Vernier

Part Number	Delay Range (ns)	Price
NV180	10-170	\$328.00
NV360	10-330	399.00

NV455 Boxed Video Delay Unit

▪ Designed for the Video Toaster® ▪ 310-470ns ▪ Switchable to within 2ns ▪ Vernier on delay adjusts to plus/minus zero ▪ 75 ohm ▪ Less than 2.0dB insertion loss ▪ Mountable in Type 5 rack frame
NV455 \$399.00

DDAB280 Boxed Delay

▪ Distribution amplifier ▪ 1 input, 2 outputs ▪ Optimized for NTSC with 360° of NTSC subcarrier ▪ Flat loss of ≤ 1 dB ▪ 20ns variable trim ▪ Internal "set and forget" 12VDC power supply ▪ 36-280ns ▪ Mountable in Type 5 rack frame
DDAB280 \$399.00

MDDA Delay Distribution Amplifier System

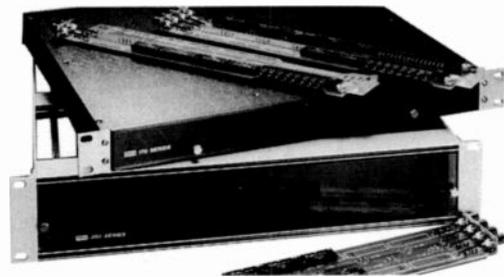
▪ Delays up to 6.38 μ s ▪ High performance ▪ Loophrough input or 75 ohm ▪ 4 outputs ▪ Housed in 1RU frame ▪ Continuously variable delay through entire range ▪ 5.5MHz bandwidth POR*

Part Number	Total Delay (ns)	Group Delay Ripple (ns)	Amplitude Ripple (dB)	Number of Cards
MDDA 0155	155	≤ 10	≤ 0.2	1
MDDA 0300	300	≤ 10	≤ 0.2	1
MDDA 0500	500	≤ 10	≤ 0.2	1
MDDA 1000	1000	≤ 20	≤ 0.2	1
MDDA 1500	1500	≤ 20	≤ 0.2	1
MDDA 2000	2000	≤ 20	≤ 0.2	1
MDDA 3380	3380	≤ 30	≤ 0.3	2
MDDA 4380	4380	≤ 30	≤ 0.3	2
MDDA 5380	5380	≤ 40	≤ 0.35	2
MDDA 6380	6380	≤ 40	≤ 0.4	2

MRF Series Rack Frames for MDDA Cards

▪ Provides a compact, economical connection system for the MDDA range ▪ All MRF series rack frames are 1U high, 19" wide ▪ Provide a number of options, based on the availability of BNC connectors ▪ Configuration required determines the number of cards per rack ▪ Power supply requirements: 110-240VAC, 50-60Hz. POR*

Rack Frame Part Number	Max. Number of Cards	BNCs Per Card	Configuration Options	
			Inputs	Outputs
MRF4A	4	6	1 Loophrough 1 (75 ohm)	4 4
MRF6A	6	4	1 Loophrough 1 (75 ohm)	2 3
MRF8A	8	4 Cards 4 BNCs 4 Cards 2 BNCs	1 Loophrough 1 (75 ohm)	2 3 1



176/350 Series Rackmounted PC Card Delay (Infinitely Variable)

Video delay range 10-1830ns.

Type 176 Rack Frame: Height 1 $\frac{1}{2}$ "; accommodates 10 PC cards (2 delay lines on each card); total 20 delays; BNCs on back of PC card; Lucite front cover; cards mount horizontally POR*

Type 350 Rack Frame: Height 3 $\frac{1}{2}$ "; accommodates 16 PC cards (2 delay lines on each card); total 32 delays; BNCs on back of PC card; lucite front cover; cards mount vertically POR*
PC card delay lines for 176 and 350 Series (not interchangeable).

Video delay channels available.

Available with switches (suffix "S") or taps (suffix "N").

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



D-2 Composite Digital Videocassettes

Product	Length	Quantity	Price
DS-3CN	3 min.	40	\$ 19.20
DS-6CN	6 min.	40	27.58
DS-6M	6 min.	10	28.08
DS-12M	12 min.	10	47.54
DS-22M	22 min.	10	65.94
DS-32M	32 min.	10	85.64
DM-6M	6 min.	10	28.08
DM-12M	12 min.	10	47.54
DM-22M	22 min.	10	65.94
DM-34M	34 min.	10	85.40
DM-64M	64 min.	10	125.48
DM-94M	94 min.	10	190.26
DL-126M	126 min.	5	255.28
DL-156M	156 min.	5	323.24
DL-188M	188 min.	5	381.22
DL-208M	208 min.	5	412.74

D-3 1/2" Digital Videocassette

Product	Length	Quantity	Price
TD-30S	30 min.	10	\$ 96.22
TD-30M	30 min.	10	96.22
TD-60M	60 min.	10	142.30
TD-90M	90 min.	10	201.94
TD-120L	120 min.	10	282.30
TD-150L	150 min.	10	326.00
TD-180L	180 min.	10	446.00

**CV 1" Videotape
Cardboard Box**

Product	Length	Quantity	Price
CV-30 BQ Box	30 min.	5	\$ 68.78
CV-60 BQ Box	60 min.	5	87.46
CV-90 BQ Box	90 min.	5	121.96
CV-120 BQ Case	120 min.	5	178.50
CV-180 BQ Vinyl	180 min.	5	246.50

Shipper Box

Product	Length	Quantity	Price
CV-30-BQ	30 min.	5	\$ 70.78
CV-60-BQ	60 min.	5	89.46
CV-90-BQ	90 min.	5	125.00

KCA 3/4" Videocassettes

• Fully packaged with album and sleeve
High Grade

Product	Length	Quantity	Price
KCA-5HG	5 min.	10	\$13.14
KCA-10HG	10 min.	10	13.62
KCA-20HG	20 min.	10	15.30
KCA-30HG	30 min.	10	16.40
KCA-30HG Shipper	30 min.	10	17.80
KCA-60HG	60 min.	10	21.82
KCA-60HG Shipper	60 min.	10	22.82

Broadcast Quality

Product	Length	Quantity	Price
KCA-5BQ	5 min.	10	\$14.42
KCA-10BQ	10 min.	10	14.98
KCA-20BQ	20 min.	10	16.82
KCA-30BQ	30 min.	10	18.50
KCA-30BQ Shipper	30 min.	10	19.50
KCA-60BQ	60 min.	10	24.62
KCA-60BQ Shipper	60 min.	10	25.60

KCS 3/4" Videocassettes

• Fully packaged with album and label
High Grade

Product	Length	Quantity	Price
KCS-10HG	10 min.	10	\$12.58
KCS-20HG	20 min.	10	14.22
KCS-20HG Shipper	20 min.	10	15.28

Broadcast Quality

Product	Length	Quantity	Price
KCS-10BQ	10 min.	10	\$13.84
KCS-20BQ	20 min.	10	15.62
KCS-20BQ Shipper	20 min.	10	16.28

KCA/KCS 3/4" SP Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
KCA-30MSP	30 min.	10	\$23.50
KCA-60MSP	60 min.	10	30.76
KCS-20MSP	20 min.	10	20.10

S-VHS Certified Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
ST-31	31 min.	10/30	\$11.56
ST-62	62 min.	10/30	12.78
ST-126	126 min.	10/30	13.72
ST-182	182 min.	10/30	25.00

S-VHS C Certified Videocassettes

Product	Length	Quantity	Price
ST-20C	20 min.	10/100	\$12.50
ST-30C	30 min.	10/100	16.60

VHS 1/2" Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
T-30PLUS	30 min.	10/50	\$3.06
T-60PLUS	60 min.	10/50	3.68
T-90PLUS	90 min.	10/50	3.84
T120PLUS	120 min.	10/50	3.98
T-160(GX)	160 min.	10/50	5.70

HGX Plus Videocassettes

Product	Length	Quantity	Price
HGX Plus T-60	60 min.	10/50	\$5.46
HGX Plus T-120	120 min.	10/50	5.90
HGX Plus T-160	160 min.	10/50	6.90

Broadcast Quality

Product	Length	Quantity	Price
T30BQ	30 min.	20	\$ 9.40
T60BQ	60 min.	20	9.80
T120BQ	120 min.	20	10.90

Compact Videocassettes

Product	Length	Quantity	Price
EX TC-20	20 min.	10/100	\$ 5.20
HGX Gold TC-20	20 min.	10/100	5.86
HGX Gold TC-30	30 min.	10/100	6.50
XRS STC-20	20 min.	10/100	9.74
XRS STC-30	30 min.	10/100	13.52



Betacam—BQ

Product	Length	Quantity	Price
B-5BQ	5 min.	10	\$ 9.36
B-10BQ	10 min.	10	9.70
B-20BQ	20 min.	10	11.32
B-30BQ	30 min.	10	14.32
B-60LBQ	60 min.	10	42.34
B-90LBQ	90 min.	10	60.56

Betacam—SP

Product	Length	Quantity	Price
B-5M SP	5 min.	10	\$28.30
B-10M SP	10 min.	10	29.26
B-20M SP	20 min.	10	31.16
B-30M SP	30 min.	10	33.04
B-60M LSP	60 min.	10	57.44
B-90M LSP	90 min.	10	85.64

8mm Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
EX-MP 6-30	30 min.	10/200	\$4.38
EX-MP 6-60	60 min.	10/200	5.30
EX-MP 6-90	90 min.	10/200	5.94
EX-MP 6-120	120 min.	10/200	6.50

HGX 8mm Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
HGX-M P6-30	30 min.	10/200	\$5.16
HGX-M P6-60	60 min.	10/200	6.26
HGX-M P6-90	90 min.	10/200	7.36
HGX-M P6-120	120 min.	10/200	8.18

8mm Hi8 Videocassettes

Product	Length	Quantity	Price
XR-MP6-30	30 min.	10/200	\$ 6.56
XR-MP6-60	60 min.	10/200	7.94
XR-MP6-90	90 min.	10/200	8.84
XR-MP6-120	120 min.	10/200	11.10

8mm Hi8 Certified Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
P6-30HM BQ	30 min.	10/200	\$ 8.90
P6-60HM BQ	60 min.	10/200	10.98
P6-120HM BQ	120 min.	10/200	14.64

8mm HGX Certified Videocassettes

• Fully packaged with album and label

Product	Length	Quantity	Price
P6-60HG BQ	60 min.	10/200	\$ 9.50
P6-120HG BQ	120 min.	10/200	12.50

Video Floppy Disk

Product	Length	Quantity	Price
VF1-M	50 frames	10/100	\$11.26

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Impact™ Series True 3-D Digital Video Effects

- Real time manipulation of True 3-D objects, including Fly-Through
- Real time mapping of 3 video sources onto 3-D objects ▪ Broadcast quality 4:2:2 signal sampling with 32 level intelligent interpolation
- 3-source cube in a single pass ▪ True 3-D page turns ▪ Expandable object library ▪ Programmable shadow and light source ▪ Continuously variable control of position ▪ Rotation and object transformation ▪ VTR emulation ▪ GPI interface ▪ Sequence storage on built-in 3.5" microfloppy ▪ Basic system includes mainframe, switch array control panel, menu monitor, operational documentation and 1 year hardware and software warranty

Series 5XP

- 64 real time, render-free polygons ▪ Capable of generating more complex objects of up to 512 polygons, typically in less than 2 minutes, for real time playback with live video ▪ 3 live, simultaneous video inputs ▪ CCIR-601 inputs/outputs standard
- Digital component (D1) systems \$65,000.00

Series 5

- 64 real time, render-free polygons ▪ 3 live, simultaneous video inputs for cubes and intersecting planes ▪ CCIR-601 inputs/outputs standard
- Digital component (D1) systems \$55,000.00

Series 5SC

- 64 real time, render-free polygons ▪ Single (A/B switchable) video input ▪ CCIR-601 inputs/outputs standard
- Digital component (D1) systems \$35,000.00

Series 4

- 32 real time, render-free polygons ▪ 3 live, simultaneous video inputs for cubes and intersecting planes in a single pass ▪ Includes trails, sparkles, multilayer and motion blur and key channel options
- NTSC and 525 analog component systems \$59,000.00
 Digital component (D1) systems 64,000.00
 Digital composite (D2) systems 69,000.00

Series 3XP

- 20 polygon system
- NTSC or 525 analog component systems \$48,000.00
 Digital component systems 53,000.00
 Digital composite systems 58,000.00

Series 2XP

- 12 Polygon system; (all dual video source capable)
- NTSC or 525 analog component systems \$38,000.00
 Digital component systems 43,000.00
 Digital composite systems 48,000.00

Series 1XP

- 8 Polygon system ▪ Standard root object library includes 10 shapes consisting of page turn, cylinder, spiral, wave, and Venetian's, (all single video source only capable) plus shards, tiles, bevel, cube and planes
- NTSC Systems \$28,000.00
 525 analog or digital component systems 33,000.00
 Digital composite systems 38,000.00

Options

- Trails, sparkles, multilayer and motion blur \$ 4,000.00
- Key channel 7,500.00
- Defocus 7,000.00
- Control panel—switch array 3,500.00
- Control panel—joystick controlled 3,500.00
- Shape club selection 2,000.00
- Motion blur 1,950.00
- Gouraud shading 5,000.00
- On-site training and checkout (2 days)* 2,000.00
- Upgrade from Series 1XP to Series 2XP 12,000.00
- Upgrade from Series 1XP to Series 3XP 22,000.00
- Upgrade from Series 1XP to Series 4 32,000.00
- Upgrade from Series 2XP to Series 3XP 12,000.00
- Upgrade from Series 2XP to Series 4 22,000.00
- Upgrade from Series 3XP to Series 4 12,000.00
- Upgrade from Series 1XP to Series 5XP 40,000.00
- Upgrade from Series 2 to Series 5XP 40,000.00
- Upgrade from Series 2XP to Series 5XP 37,000.00
- Upgrade from Series 3 to Series 5XP 34,000.00
- Upgrade from Series 3XP to Series 5XP 31,000.00
- Upgrade from Series 4 to Series 5XP 22,000.00

*Travel and living expenses billed separately.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MILLER



FLUID HEADS/ CAMERA SUPPORT EQUIPMENT

Pan and Tilt Fluid Heads With Counterbalancing

The following heads feature ball leveling as standard. Use Miller Cat. 360 (100mm) or Cat. 361 (75mm) flat base adaptor for mounting on column lift elevator or flat base tripods. Use Cat. 362 (150mm) to adapt Miller 80 (Cat. 150) to Mitchell flat base.

Cat. No	Name	Tripod Bowl Size	Weight (lbs.)	Capacity (lbs.)	Price
105	Miller 20 II	75mm	4 1/4	22	\$1195.00
145	Miller 25	100mm	7 1/2	25	2095.00
155	Miller 30 II	100mm	8	30	2785.00
160	Miller 50 II	100mm	8	50	3020.00
150	Miller 80	150mm	12	80	5770.00
358	Eye piece leveler mount for Miller 80 (for motion picture applications)				220.00

Sliding, quick-release platform standard on Miller 20 II, 25, 30 II, 50 II and 80.

Pan and Tilt Fluid Heads Without Counterbalancing

The following heads are all flat base and bolt directly to column lift elevators or flat base tripods equipped with 3/8-16 tie down bolts (or 1/2-20 with available step-down bushing). The indicated adaptor is required to mount head on ball leveling tripod.

Cat. No.	Name	Weight (lbs.)	Capacity (lbs.)	Price
101	Junior	2 1/2	10	\$ 415.00
102	Senior 'F'	5 1/2	20	945.00
106	Light Professional	6	30	1445.00
112	V.G. 50	7 1/4	50	1590.00
118	With 30mm sliding quick-release plate			
				2095.00

Complete Camera Support Systems

Camera Support System components have been selected and matched to provide maximum strength, rigidity and support in combinations that are appropriate, in terms of size and weight, to the weight of the camera each system is designed to support.

Unless otherwise noted, all systems are claw ball leveling and include 1 pan handle, spreader, built-in spike feet and foot pads. (Systems 35, 40 and 80 feature 2 telescopic pan handles.)

Cat. No.	System Name	Fluid Head	Tripod	Weight (lbs.)	Capacity (lbs.)	Spreader	Price
Systems with Standard Tripods feature tripods with single extension sections on each leg.							
335	System Senior F	Senior F Cat. 102	Lightweight 601	11 1/2	20	Cat. 410 or 510 included	\$1875.00
520	System 20	Miller 20 II Cat. 105	Lightweight 601	10 1/4	22	Cat. 410 or 510 included	1970.00
521	System 20-CF	Miller 20 II Cat. 105	Lightweight 606	9 1/2	22	Cat. 410 or 510 included	2570.00
526	System 25	Miller 25 Cat. 145	Lightweight 611	13	25	Cat. 410 or 510 included	2870.00
527	System 25-CF	Miller 25 Cat. 145	Lightweight 616	12 1/4	25	Cat. 410 or 510 included	3470.00
341	System LP	Light Pro Cat. 106	Lightweight 611	12	30	Cat. 410 or 510 included	2375.00
343	System 30-CF	Miller 30 II Cat. 155	Single Stage 626	14 1/4	30	Cat. 410 or 511 included	4350.00
344	System 30	Miller 30 II Cat. 155	Single Stage 621	15 1/2	30	Cat. 410 or 511 included	3825.00
347	System V.G. 50	V.G. 50 Cat. 118	Single Stage 621	16 1/2	50	Cat. 410 or 511 included	3465.00
349	System 40-CF	Miller 50 II Cat. 160	Single Stage 626	14 1/4	50	Cat. 410 or 511 included	4760.00
350	System 40	Miller 50 II Cat. 160	Single Stage 621	15 1/2	50	Cat. 410 or 511 included	4235.00
355	System 80	Miller 80 Cat. 150	Maxi Cat. 290	27 1/2	80	Cat. 410 or 511 included	7360.00
Systems with Column Lift Elevation feature tripods with single extensions on each leg and a central, manual lift rising column.							
332	System Junior	Junior Cat. 101	Junior A Cat. 331	9 1/2	10	Included	\$ 655.00
509	System 15	Miller 15	System 15	9 1/4	15	Included	1050.00
Column lift elevator can be added to all other support systems except System 80 and systems with 2-stage tripods. Maximum column capacity is 30 lbs.							
Systems with 2-Stage Tripods are identified by an "ENG" suffix and feature a tripod with 2 extension sections on each leg. These systems have the advantage of being able to operate at very low levels as well as at normal heights without the use of Mini legs.							
339	System 20 ENG	Miller 20 II Cat. 105	2-Stage Cat. 649	12 1/4	20	Cat. 410 or 512 included	\$2445.00
337	System 20 ENG-CF	Miller 20 II Cat. 105	2-Stage Cat. 653	11 1/4	20	Cat. 410 or 512 included	2990.00
502	System 25 ENG	Miller 25 Cat. 145	2-Stage Cat. 641	15 1/2	25	Cat. 410 or 512 included	3345.00
503	System 25 ENG-CF	Miller 25 Cat. 145	2-Stage Cat. 645	14	25	Cat. 410 or 512 included	3890.00
342	System LP ENG	Light Pro Cat. 106	2-Stage Cat. 641	14	30	Cat. 410 or 512 included	2850.00
345	System 30 ENG	Miller 30 II Cat. 155	2-Stage Cat. 641	16	30	Cat. 410 or 512 included	3995.00
346	System 30 ENG-CF	Miller 30 II Cat. 155	2-Stage Cat. 645	14 1/2	30	Cat. 410 or 512 included	4580.00
353	System 40 ENG	Miller 50 II Cat. 160	2-Stage Cat. 641	16	50	Cat. 410 or 512 included	4270.00
354	System 40 ENG-CF	Miller 50 II Cat. 160	2-Stage Cat. 645	14 1/2	50	Cat. 410 or 512 included	4815.00

*System Junior and 15 do not ball level.

Note: All complete Miller support systems featuring either lightweight or single stage aluminum or carbon fiber tripods are available with choice of on-ground or above-ground spreader at no additional cost. Please specify your choice at time of order. All Miller 2-stage systems are equipped with lightweight ground spreader.



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA SUPPORT EQUIPMENT



MILLER



Pro-Jib

The Pro-Jib is a versatile camera mount, designed to add the dimensions of tracking and elevation control to the normal range of movements afforded by your fluid head. It is, without a doubt, one of the most creative tools you can add to your shooting arsenal.

Weighing 25 lbs. and folding to fit an available soft, reinforced shoulder bag, the Pro-Jib is equally at home traveling to a location shoot as it is in the studio. Pro-Jib uses standard barbell weights (not included) plus a unique sliding tailshaft for precise camera counterbalance.

Specifications

Length of Arm to Fulcrum Point: 51"
 Vertical Travel Range: 65"
 Load Capacity (including fluid head): 50 lbs.
 Weight: 25 lbs.
 Fluid Head Mount Surface: 100mm ball base
 Friction type positive pan and tilt jib locks.
 High grade alloy and stainless steel components.

Pro-Jib and Accessories

711	Pro-Jib	\$2795.00
712	Padded, reinforced carry bag	295.00
289	100mm maxi tripod (100 lbs. capacity) includes spreader	1235.00
375	Rubber feet (set of 3) for tripod	140.00

Lightweight Pedestal Support Systems

Lightweight, economical, studio support systems for corporate, industrial and educational applications. Geared, spring counterbalanced column provides nearly effortless lifting of camera systems up to 100 lbs. Individually locking wheels roll smoothly, lock securely. Flat top plate adapts pedestal to most pan/tilt fluid and non-fluid heads. Its 45 lb. weight makes this pedestal one of the most portable available.

Specifications

Load Capacity:	100 lbs.
Minimum Height:	39"
Maximum Height:	52"
Weight:	45 lbs.
Center Post Diameter:	1 1/8"
Column Diameter:	4"
Base Spread:	40"
Wheel Diameter:	4"
Finish:	Baked black enamel

Pedestal Systems and Accessories

Each system includes dual telescopic handles and flat base adaptor if required.

700	Pedestal only with flat top plate	\$1095.00
701	With 106 light professional fluid head, 30 lbs.	2715.00
702	With 118 VG-50, 50 lbs.	3365.00
703	With 155 Miller 30 Series II, 30 lbs.	4185.00
704	With 160 Miller 50 Series II, 50 lbs.	4420.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**Diamond Video Series 9000
Videoconferencing System**

▪ SYS9000 Group Conferencing System ▪ Fully interoperable with all H.320 compliant videoconferencing systems ▪ Delivers many exceptional enhancements ▪ Exclusive IBM standard 486DX2/50 media processor with integrated codec (based on the AT&T AVP4000 chipset) ▪ Integral VGA to NTSC scan conversion with flicker reduction ▪ Simultaneous VGA and NTSC output ▪ 56-384Kbps operation ▪ FCIF (15fps), QCIF (30fps) ▪ G.711, G.722, G.728 audio ▪ Annex-D still image graphics (704 x 576) ▪ Choice of dual V.35, RS-449 or ISDN BRI interface ▪ Mitsubishi CCD300 color camera with 8X zoom lens ▪ PT-9000 pan-and-tilt mechanism ▪ Location selectable picture-in-picture ▪ 4 camera presets ▪ Multipoint-ready software ▪ 27" digital stereo receiver/monitor ▪ 6 video input and output ports ▪ 6 audio input and 4 audio output ports ▪ Housed in a compact, sleek roll-about cabinet ▪ Video control center includes: camera control; source selection and dialing keypad; on-screen menu and diagnostic functions; speed dial memory of 100 numbers; video, source and volume control; and 1 Shure microphone

The Diamond Video Series 9000 family of videoconferencing products provides a cost-effective means for face-to-face meetings with customers, prospects and colleagues, whether separated by a few miles or half the globe. The Series 9000 family allows the user to simultaneously choose and transmit motion pictures, graphic still images, voice and in-band digital computer data for maximum presentation impact.

Specifications

Media Processor: Video Inputs/Outputs: 7(1Vp-p) BNC; Audio Inputs: 6 XLR; Mic Inputs: 3 line level Audio Outputs: 4 XLR; Platform: IBM PC/AT ISA Bus; Processor: Intel 50MHz, 486 DX2; Memory: 170M byte HD, 8M byte RAM; Floppy: 3.5" 1.44M byte; Environment: DOS 6.2, Windows 3.1
Integrated Codec: Operating Bandwidth: 56-384Kbps; Coding Algorithm: CCITT/ITU H261; Video Resolution: QCIF—176x144, FCIF—352x288; Video Frame Rate: QCIF—30fps max, FCIF—15fps max.; Still Image Graphics: Annex-D (704x576); Audio Algorithms: G.711, G.722, G.728; Format: Full duplex; Echo Cancellation: -60db; Bandwidth: 50Hz-70kHz

Camera Sensor: 1/2" IT CCD; Horizontal Resolution: 450 TV lines; S/N: 50dB; Sensitivity: 5 lux; White Balance: Auto or manual; Iris: Electric/auto; Pan/tilt: Multi-speed ±60° pan, ±10° tilt; Focus: Manual; Zoom range: 8X; Presets: 4
Monitor: Standard Model: 27"; Options: 20", 27", 31", 35", 40", 50", 70"; Resolution: 450-700 TV lines (depending on model)
Series 9000 Group Conference System \$24,950.00

Option Packages

Feature Package

▪ Key programming ▪ Far end camera control ▪ Integrated 14.4K baud internal modem ▪ Remote diagnostics and programming. \$1,500.00

Graphics Package

▪ Diamond Pro 14" VGA monitor ▪ PC keyboard with trackball ▪ 8M byte RAM upgrade \$1,500.00

Additional Console

▪ Equipment console with casters \$895.00

Video Monitor Upgrade

▪ 27" stereo monitor/receiver, \$725 credit with upgrade, black matrix CRT/comb filter, 450Hz lines Standard
▪ 31" stereo monitor/receiver, black matrix CRT/comb filter, 700Hz lines \$1,595.00
▪ 35" stereo monitor/receiver, black matrix fine pitch CRT .089mm, comb filter, 700Hz lines \$1,995.00

Series 9000 Workstation

Built on the media processor with integrated Codec and includes:
▪ Keyboard with trackball ▪ Audio/Video Integration Assembly (AVI) with 1/2" CCD, microphone and PCS-V2 speaker ▪ 14" VGA monitor
▪ Choice of communications interface \$19,950.00

Workstation Advanced Feature Option

▪ Far end camera control ▪ Integrated 14.4K baud internal modem
▪ Remote diagnostics and programming ▪ 8M byte RAM. . . \$1,500.00

Workstation Monitor Upgrade

▪ Diamond Pro 14" VGA monitor: \$375.00 credit with upgrade, high-contrast/anti-glare CRT, 640 x 480 non-interlaced maximum resolution, ultra-fine 0.28mm dot pitch, integrated tilt/swivel base. Standard
▪ Diamond Scan 15" VGA monitor: high-contrast/anti-glare/anti-static CRT, 31.5-62kHz horizontal, 50-90Hz vertical, 1024 x 768 NI pixels, 0.28mm dot invar mask, integrated tilt/swivel base \$ 645.00
▪ Diamond Pro 17" VGA monitor: high-contrast/anti-glare/anti-static CRT, 30-64kHz horizontal, 50-130Hz vertical, 1080 x 1024 NI pixels, 0.25mm aperture grille, integrated tilt/swivel base \$1,495.00
▪ Diamond Pro 26M VGA monitor: 5-38kHz horizontal, 45-90Hz vertical, 0.31mm dot pitch, microprocessor based autoscanning, dynamic beam forming \$9,999.00

MPC-9000C Media Processor

▪ AT&T AVP 400 board Codec ▪ Video control center . . . \$15,795.00

MPC-9000 Media Processor

▪ Video control center. \$6,995.00

Series 9000 Accessories

PT-9000 Pan/tilt mechanism \$ 695.00
CCD-300 Camera 8X zoom, RS-232 interface 1,095.00
PTS-9000 Pan/tilt mechanism, serial interface module. 895.00
CAB-9000 Console Equipment control, AC power distribution, casters 895.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

COLOR TELEVISIONS/ MONITOR/RECEIVERS



COLOR TELEVISIONS—MONITOR/RECEIVERS

Common Features

▪ Closed-captioning ▪ TV data services (auto clock set, program name, station call letters) ▪ Off timer ▪ 181-channel cable-compatible, auto-programmable FS tuning ▪ Quick view ▪ Black diamond gray finish except where noted ▪ On-screen menu system

CS-35201 35" Stereo Monitor/Receiver

Includes common features plus: ▪ Closed-captioning when muting ▪ Lock the TV ▪ Super quick view ▪ Mitsubishi VCR control . . . \$1799.00

CS-35301 35" Stereo Digital Monitor/Receiver

Same as CS-35201 plus: ▪ PIP with freeze ▪ Multi-brand VCR/cable box control \$1999.00

CS-35401 35" Stereo Digital Monitor/Receiver

Same as CS-35301 with slightly larger dimensions. \$2099.00

CK-35402 35" Stereo Console Digital Monitor/Receiver

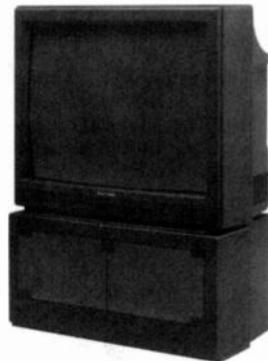
Same as CS-35201 with oak veneer console with VCR storage \$2499.00

CS-35601 35" Stereo Digital Monitor/Receiver

Includes common features plus: ▪ Active AV Network ▪ Advanced-captioning when muting ▪ Name the channel ▪ ViewPoint II™ ▪ PIP with freeze ▪ Program timer ▪ Rename the input ▪ Lock the TV/channel ▪ Super quick view ▪ Multi-brand VCR/cable box control ▪ Multi-brand remote with learning \$2599.00
CS-40601 Same as CS-35601 except 40" 4999.00

CS-31301 31" Stereo Digital Monitor/Receiver

Includes common features plus: ▪ Closed-captioning when muting ▪ PIP with freeze ▪ Lock the TV ▪ Super quick view ▪ Multi-brand VCR/cable box control. \$1599.00



CK-31302 31" Stereo Console Digital Monitor/Receiver

Includes common features plus: ▪ Oak veneer console with VCR storage ▪ Closed-captioning when muting ▪ PIP with freeze ▪ Lock the TV ▪ Multi-brand VCR/cable box control. \$1799.00



CS-27201 27" Stereo Digital Monitor/Receiver

Includes common features plus: ▪ Rename the input ▪ Lock the TV ▪ Super quick view ▪ Mitsubishi VCR control. \$729.00

CS-27301 27" Stereo Digital Monitor/Receiver

Same as CS-27201 plus: ▪ PIP with freeze ▪ Power restore ▪ Multi-brand VCR/cable box control. \$849.00

CS-27401 27" Stereo Digital Monitor/Receiver

Includes common features plus: ▪ Closed-captioning when muting ▪ PIP with freeze ▪ Lock the TV ▪ Super quick view ▪ Multi-brand VCR/cable box control. \$949.00



CS-27403 27" Stereo Digital Monitor/Receiver

Same as CS-27401 plus electronic swivel. \$1029.00

CS-26201 26" Stereo Monitor/Receiver

Includes common features plus: ▪ Black finish ▪ Rename the input ▪ Lock the TV ▪ Super quick view ▪ Mitsubishi VCR control . . \$629.00

CS-26301 26" Stereo Digital Monitor/Receiver

Same features as CS-26201 plus: ▪ PIP with freeze ▪ Digital . . \$729.00

CS-20101 20" Color Television

Includes common features plus: ▪ Black finish ▪ 3-language on-screen operating system \$429.00
CS-20102 Same as CS-20101 except white finish 429.00



CS-20201 20" Stereo Monitor/Receiver

Includes common features plus: ▪ 3-language on-screen operating system ▪ Mitsubishi VCR control \$499.00

CS-20301 20" Color Monitor/Receiver

Includes common features plus: ▪ Closed-captioning when muting ▪ Lock the TV ▪ Super quick view ▪ Multi-brand VCR/cable box control \$599.00

CS-13101 13" Color Television

Includes common features plus: ▪ Black finish ▪ 3-language on-screen operating system \$349.00
CS-13102 Same as CS-13101 except white finish 349.00



CS-13201 13" Stereo Monitor/Receiver

Includes common features plus: ▪ 3-language on-screen operating system ▪ Mitsubishi VCR control \$399.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



For AVID, EMC²
ImMIX Video Cube, Lightworks
Sony Destiny System
D Vision, Data Translations
or any Computer-based System
Computer Graphics
There are also many options
for Audio Applications

**SPACE SAVING FURNITURE
THAT'S ALSO COST EFFECTIVE**

Consists of a number of differently configured editing consoles, strongly constructed in steel with rolled edge laminated tops for extreme durability. Each unit is designed as part of a modular system enabling it to easily fit specific needs and facility requirements. In addition to the differently shaped consoles, matching sections allow the user to configure their layout in many different ways. These different pieces even allow the furniture to go around corners or join different workstations together, extending not only the work tops, but also the rack and user space available. Reasonably priced and easy to install, with it's greater flexibility, your needs will be perfectly met, regardless whether you are involved in traditional editing, non-linear editing, multimedia, computer or audio applications.



DAT Drawer



Mobile Monitor Platform



CD Drawer



Floppy Disk Drawer



Catalog

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

EQUIPMENT FURNITURE



Nigel B.
FURNITURE



Monitor Carts

There is a complete range of carts, even for the newer and heavier 42" monitors.



Super Single Desk

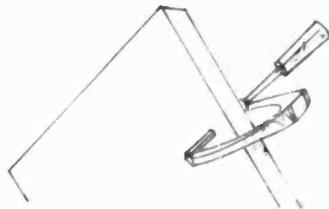
Can be fitted either left- or right-handed.

Tough Professional Quality

Slim elegant lines conceal its built-in strength ensuring lifetime use. We guarantee Nigel B. Furniture will last for many years of professional use.

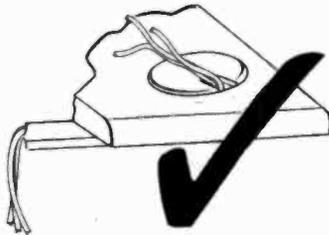
Rugged Steel Construction

We only use high grade steel, not cheap particle board. Steel with a thickness at least double that found in office or furniture and often thicker than that used in automobiles.



Cable Management

All cables to and from the equipment remain hidden through the extensive use of desktop grommets which carry control cables directly into the built-in cable raceways. Each lower unit also has built-in cable entry ports — no cables ever go outside the cabinets.



Power Strips

There is a complete range of surge protected power outlet strips, specifically made for the professional.



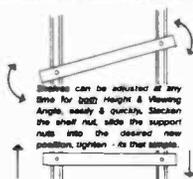
8 outlet power/light unit with telephone/modem and 12v socket with optional extra gooseneck lamp

Rear view of 8 outlet rackmount power strip

8 outlet rackmount power strip shows how proper spacing for transformers eliminates transformer cram so that all 8 outlets can be used

Monitor Shelves

Adjust for both height and angle — saves craning your neck.



Multimedia Workstation

The Multimedia Station is fitted with the adjustable monitor platform, personal speaker stands and center section bridge.

Tape Carts

Tape carts can hold hundreds of tapes, with standard size shelves and smaller shelves for the newer Hi8 tapes.



Space Efficient Designs

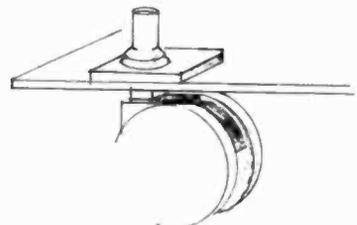
Ensures better use of your facility. Modular pieces allow you to design many different custom configurations to fit any studio — large or small.

Easier to Assemble

The latest computer technology in our manufacturing facility means tighter tolerances ensuring easier assembly through our "perfect fit every time" designs.

Casters For Mobility

Each unit comes standard with metal bodied casters. The user can also specify different casters that may suit special applications better.



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ENG/EFP Lenses for 2/3" TV Cameras



S19x8
 • High zoom ratio of 19X at 8mm focal length
 • Multipurpose lens meets all the demands of ENG, relay broadcasting and production \$13,576.00



S15x8.511
 • 15X zoom ratio – highest among standard ENG/EFP lenses • Minimum focal length of 8.5mm – widest angle among standard ENG/EFP lenses \$7,995.00

S9x5.5
 • Wide angle of 90° (diagonal) with high 9X magnification • Internal focusing system • Optimum for use in confined spaces • Minimal registration error ensures crisp, clear images – even at the periphery of the monitor screen \$4,727.00

Specifications	S19x8	S15x8.511	S9x5.5
Zoom Ratio:	19X	15X	9X
Built-in Extender:	2X	2X	1.7X
Focal Length (w/extender):	8-152mm (16-304mm)	8.5-127.5mm (17-255mm)	5.5-49.5mm (9.4-84.2mm)
Effective Picture Size:	8.8mmx6.6mm	8.8mmx6.6mm	8.8mmx6.6mm
Max. Relative Aperture:	1:1.7 (f=8-117mm), 1:2.2 (f=304mm)	1:1.7 (f=8.5-87mm), 1:2.2 (f=127.5mm)	1:1.7 (f=5.5-38mm), 1:1.9 (f=49.5mm)
Min. Object Distance (MOD):	0.9m	0.8m	0.3m
Angular Field of View:	57.6°x44.8° (f=8mm), 3.3°x2.5° (f=152mm)	54.7°x42.4° (f=8.5mm), 4.0°x3.0° (f=127.5mm)	77.3°x61.9° (f=5.5mm), 10.2°x7.6° (f=49.5mm)
Object Dimensions at MOD:	89.3x67.4cm (f=8mm), 4.9x3.7cm (f=152mm)	76.4x57.5cm (f=8.5mm), 5.3x4.0cm (f=127.5mm)	52.2x39.2cm (f=5.5mm), 6.0x4.5cm (f=49.5mm)
Macro:	Provided	Provided	Provided
Attachment Size:	ø94mm (slip-on)	ø85mm (slip-on)	ø85mm (slip-on)
Dimensions: (B1-E)	106mmHx134mmWx211mmL	100.2mmHx128.5mmWx177.5mmL	102.7mmHx130.5mmWx252mmL
Dimensions: (B2-E)	106mmHx134mmWx212.5mmL	100.2mmHx128.5mmWx178mmL	102.7mmHx130.5mmWx253mmL
Weight: (B1-E)	Approx. 1.65kg	Approx. 1.25kg	Approx. 1.9kg
Weight: (B2-E)	Approx. 1.7kg	Approx. 1.3kg	Approx. 1.95kg
Operation:	Zoom: servo/manual Iris: auto/manual/push-auto Focus: manual		

Applicable Cameras

B1-EMS-20: (AM) CVC-7/70/5/50, CVR-200/300 (BT) LDK391/614/54A/12, KCA 110, KCM318 (HI) SK-F1/F2/F3/97/97D, FP-Z31/Z31A, Z-one (NE) SP-30, EP-3, NC-120 (PA) AK-30D/400/450, WV-F50A/F200A/F300, AQ-20 (SH) XC-AI/B10/20P (SO) BVP-7/70/5/50/350/700HS/T7, BVW-200/300/400, DXC-M7/M3A/3000A (TH) TTV1647/1640 (TO) PK-70B, SC-821/811 B1-EAS-80: (JV) KY-950B/320B/210B/20/25/75/80 B2-EAS-20: (IK) HL-V55/55/53/95/79/791, ITC-730/735/870

With Optional Iris Servo

	TMW-B1 w/TPS-R1m	TMW-B2 w/TPS-R1a
Signal:	Momentary	Alternate
Dimensions:	83mmHx122mmWx180mmL	83mmHx122mmWx173mmL
Weight:	Approx. 1,050g	Approx. 1,090g

TMW-B1/TMW-B2 FW-ENG/EFP Converters

FW-ENG/EFP converters are for use with Nikkor fisheye, ultra-wide angle, wide angle and some other 35mm SLR camera lenses. This converter offers ultra-wide angle, a feature not available with conventional videos, but essential for making commercials and films requiring special effects. The TMW-B1/TMW-B2 employ 1/3.98 magnification relay lenses, so the angular field of view does not change. Maximum aperture is f/2.8, regardless of lens used. TMW-B1 NHK mount; Ampex, Sony, Panasonic, JVC, Hitachi . . . \$4,496.00 TMW-B2 Ikegami mount 4,496.00



TM-B1/TM-B2 F-ENG/EFP Converters

F-ENG/EFP converters are for use with most telephoto and micro (over f/105mm) Nikon 35mm SLR camera lenses. They provide an easy means to obtain ultra-telephoto or micro images with a variety of F-mount Nikkor lenses. What's more, these converters employ the center of the image circle of the lens to ensure high-resolution images with little distortion. (To adjust aperture, turn the lens aperture ring manually.) Because they employ relay lenses of 1X magnification, lens effective focal length and aperture do not change. TM-B1 NHK mount; Ampex, Sony, Panasonic, JVC, Hitachi. . . . \$2,089.00 TM-B2 Ikegami mount 2,089.00



Specifications	TMW-B1	TMW-B2
Nikkor Lens Mount:	Nikon F bayonet mount	
Camera Mount:	Bayonet mount (M8f, 48mm)	Bayonet mount (M8f, 58mm)
Effective Aperture:	2.8 (if lens is f/11 or brighter)	
Tracking Adjustment:	±0.5mm by turning the tracking knob	
Back Focus:	53.042 (in air)	
Focus/Iris Adjustment:	Manual, using focus and exposure rings (Optional iris servo is available)	
Exit Pupil Position:	-197mm	
Dimensions:	ø69mmx180mm	ø73mmx173mm
Weight:	Approx. 580g	Approx. 620g

Specifications	TM-B1	TM-B2
Nikkor Lens Mount:	Nikon F bayonet mount	
Camera Mount:	Bayonet mount (M8f, 48mm)	Bayonet mount (M8f, 58mm)
Effective Aperture:	Same as that of the lens in use	
Tracking Adjustment:	±0.5mm by turning the tracking knob	
Focus/Exposure Adjustment:	Manual, using focus and exposure rings	
Dimensions:	ø65.2mmx42mm	ø72mmx52.4mm
Weight:	Approx. 180g	Approx. 200g

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TIME BASE CORRECTORS/ VIDEO SIGNAL PROCESSING



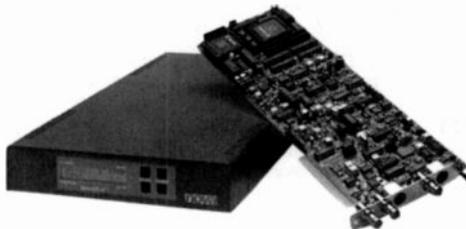
NovaBlox™ Modular Video Signal Processing System

The NovaBlox Video Processing System is comprised of individual function modules called NovaCards™ which are designed on PC™ compatible circuit boards. These modular cards act as bridges between the various components of a video and audio system. Many of the NovaCards feature serial data interfaces for remote control capability. NovaBlox applications include production, post production, EFP, satellite, microwave, desktop video, computer graphics, computer frame grabber, video still store, duplication, video presentation, imaging and CCTV systems.

The NovaBlox concept allows maximum flexibility when configuring the various NovaCard modules required for an integrated video system. Alterations to the system are accommodated by changing the mix of NovaCard modules.

NovaMate™ Y/C TBC/Frame Sync

- Full bandwidth TBC, up to 6MHz, utilizing adaptive digital comb filter
- Composite and Y/C (S-VHS, Hi8) inputs and outputs
- Frame synchronization of all VCRs and remote sources
- Genlock with system phasing or stand-alone operation
- 4xsc component sampling, 8-bit Y/C encoding
- Freeze frame, field 1 and 2
- Serial control of all operating parameters
- DOS, Windows and Amiga software included



Plug-in Card Versions for Computer (ISA bus™) or NovaChassis™

Mate	TBC card plus genlock card (1st channel)	\$1400.00
Mate/A	TBC card (for additional channels only)	1200.00

Single Channel Stand-Alone Versions (tabletop or rackmount)

M1	Mate in C-2B tabletop chassis	\$1670.00
M1T	M1 with T-P control unit	1920.00
M1R	Mate in C-4 rackmount chassis	1800.00
M1RT	M1R with T-P control unit	2050.00
M1RT2	M1R with T2-P control unit	2200.00

Dual Channel Stand-Alone Versions in C-4 Rackmount Chassis

M2	2-channel TBC (Mate, Mate/A, C-4)	\$3000.00
M2T	M2 with T-P control unit	3250.00
M2T2	M2 with T2-P control unit	3400.00

Three Channel Stand-Alone Versions in C-4 Rackmount Chassis

M3	3-channel TBC (Mate, Mate/A, C-4)	\$4200.00
M3T	M3 with T-P control unit	4450.00
M3T2	M3 with T2-P control unit	4600.00

NovaMate™ XT Component Transcoding TBC/Frame Synchronizer

- Y/R-Y/B-Y, Y/C and composite inputs and outputs
- RGB and



- U-Dub in and out options
- 6MHz bandwidth
- 3-line adaptive digital comb filter
- Full frame 4:2:2 component synchronizer with freeze and strobe
- Up to 14 channels in 1 chassis
- Computer plug-in compatibility
- RS-232 serial interface, 10 sets of memories
- NTSC, PAL and PAL-M versions

Plug-in Card Versions for Computer (ISA bus) or NovaChassis

MXT	TBC card plus Genlock card (1st channel)	\$1650.00
MXT/A	TBC card (for additional channels only)	1450.00

Single Channel Stand-Alone Versions (tabletop or rackmount)

MXT1	MXT in C-2B tabletop chassis	\$1920.00
MXT1T	MXT1 with T-P control unit	2170.00
MXT1R	MXT in C-4 rackmount chassis	2050.00
MXT1RT	MXT1R with T-P control unit	2300.00
MXT1RT2	MXT1R with T2-P control unit	2450.00

Dual Channel Stand-Alone Versions in C-4 Rackmount Chassis

MXT2	2-channel TBC (MXT, 2 MXT/A, C-4)	\$3500.00
MXT2T	MXT2 with T-P control unit	3750.00
MXT2T2	MXT2 with T2-P control unit	3900.00

Three Channel Stand-Alone Versions in C-4 Rackmount Chassis

MXT3	3-channel TBC (MXT, 2 MXT/A, C-4)	\$4950.00
MXT3T	MXT3 with T-P control unit	5200.00
MXT3T2	MXT3 with T2-P control unit	5350.00

MateXT Options

6P-3P	Component input or output adaptor cable, 6-pin to 3 BNC, 10'	\$ 50.00
MNR/XT	Median Filter Noise Reducer/DOC (requires one card slot)	800.00

NovaSync™3 Broadcast Frame Synchronizer

- Modular frame sync, 8-bit, 4xsc
- Video AGC with full proc amp
- 4-field option for accurate picture position
- Freeze option for still picture and "hot switch"
- Up to 15 channels in 1 chassis
- Computer plug-in compatibility
- RS-232 serial interface, 10 sets of memories

Plug-in Card Version for Computer (ISA bus) or NovaChassis

Sync3	Frame sync card	\$1200.00
FS-4	4-field memory option	150.00
FS-F	Freeze/hot switch option	150.00
MNR	Median Filter Noise Reducer	800.00

Single Channel Sync3 Versions

S1T	Sync3 in C-2B tabletop chassis and T-P Trol	\$1720.00
S1T/M	S1T with MNR	2520.00
S1RT2	Sync3 in C-4 rackmount chassis and T2-P Trol/2	2000.00
S1RT2/M	S1RT2 with MNR	2800.00

Two, Three and Four Channel Sync3 Versions

S2T2	2-channel Sync3 in C-4 and T2-P	\$3200.00
S2T2/M	S2T2 with MNR for each channel	4800.00
S3T2	3-channel Sync3 in C-4 and T2-P	4400.00
S4T2	4-channel Sync3 in C-4 and T2-P	\$600.00

Note: All Mate, MateXT and Sync3 models may be mixed for quantity discount.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



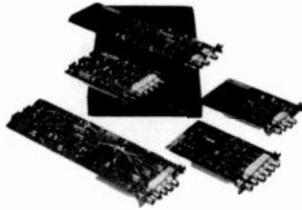
NovaCard™ Function Modules

The following NovaCards do not include chassis or power supply. They are circuit cards that plug into a computer (ISA bus) or NovaChassis.

NovaLox™ Sync and Blackburst Generator with Genlock (Card only)
Lox Genlock for NC-1, V-SW, S-SW and Mate/A. \$600.00

NovaCoder™ Series Encoders, Decoders and Transcoders (Cards only)

NC-1 Ncoder-1: RGB and Y/R-Y/B-Y to Y/C and composite. \$1000.00
NC-2* Ncoder-2: Y/C to composite (4 outputs). 300.00
DC-1 Dcoder-1: Composite and Y/C to Y/C, Y/R-Y/B-Y and RGB 1000.00



DC-2 Dcoder-2: Composite and Y/C to Y/C and Y/R-Y/B-Y. . . \$ 800.00
YC* Nova Y/C: Composite to Y/C decoder (2 outputs) 600.00
YC-MAX Nova Y/C: Image Enhancer and Y/C decoder. 1000.00
XC-1* Xcoder-1: Y/R-Y/B-Y to RGB transcoder 600.00
XC-2* Xcoder-2: RGB to Y/R-Y/B-Y transcoder 600.00
XC-3* Xcoder-3: Y/C and dub bidirectional transcoder 600.00

Dub and Y/C Adaptor Cables (For NC-1, DC-1, DC-2 and XC-3)
4M-7M 4-pin to 7-pin male, 10' \$40.00
4M-7F 4-pin to 7-pin female, 10' 40.00

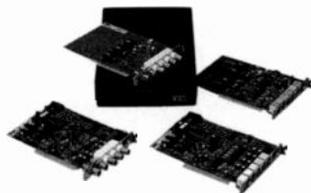
NovaDA™ Series Distribution Amplifiers (Cards only)
V-DA* 1x5 composite video distribution amplifier \$175.00
S-DA* 1x5 Y/C distribution amplifier 225.00
A-DA* 1x5 stereo audio distribution amplifier. 300.00

A-DA Breakout Cables (required)
DB25-12P Phono jack connectors, unbalanced \$ 80.00
DB25-12X XLR connectors, balanced. 150.00

RGB or YUV Distribution Amplifier Versions
3-DA 1x5 RGB/YUV DA in C-6 rackmount chassis \$ 875.00
4-DA 1x5 RGB/S DA in C-6 rackmount chassis 1050.00

NovaSwitch™ Series Routing Switchers

(Cards only, switch assembly required)
Binary coded interface included. Serial interface for Trol or computer is optional.



V-SW* 4x1 composite video switcher \$250.00
S-SW* 4x1 Y/C switcher 300.00
A-SW* 4x1 stereo audio follow/breakaway 300.00

A-SW Breakout Cables (required)
DB25-10P Phono jack connectors, unbalanced \$ 75.00
DB25-10X XLR connectors, balanced. 140.00

Switch Series Options
SI-1 Serial interface with software. \$100.00
SW4-P Panelmounted switch assembly 50.00
SW4-R Remote switch unit with 25' cable 200.00

RGB or YUV Routing Switcher Versions

3-SW 4x1 RGB/YUV switcher in C-6 chassis with SW4-P . . . \$1150.00
4-SW 4x1 RGB/S switcher in C-6 chassis with SW4-P. 1400.00

NovaChassis Chassis With Power Supply

C-2A 2-slot tabletop, short cards only. . . . \$150.00
C-2B 2-slot tabletop, all cards 270.00
C-4 4-slot, 1 1/2"H rackmount. 400.00
C-6 6-slot, 1 1/2"H rackmount, short cards only \$ 350.00
RBC-6 Rear bracket for C-6 rackmount 25.00
C-15A 15-slot, 5 1/2"H rackmount, 115W 1000.00
C-15B 15-slot, 5 1/2"H rackmount, 200W 1300.00
NFRS Rack slides for C-4 and C-15 chassis. 75.00



NovaTrol™ Serial Control Units for NovaCards With Serial Interface

T-P Trol LCD control unit, panel mount \$250.00
T-R Trol remote control unit with 25' cable 400.00
T-RM Trol rackmount remote control with 25' cable 400.00
T2-P Trol/2 enhanced control unit, panel mount (C-4 or C-15 chassis only) 400.00
T2-R Trol/2 remote control unit with 25' cable 550.00
T2-RM Trol/2 rackmount remote control with 25' cable 550.00

NOVA 7 and 8 Series Time Base Correctors

■ Stand-alone 1 rack unit TBCs featuring full proc amp controls with presets
NOVA 700 Heterodyne TBC, infinite window correction . . . \$2290.00
NOVA 710S Wideband TBC, same as 700 plus: VTR-SC, Y/C input, DOC 2790.00
NOVA 800 Full frame heterodyne TBC, frame and field freeze 2790.00
NOVA B10 Full frame wideband TBC, same as 800 plus: VTR-SC, Y/C input, DOC 3490.00

NOVA 9 Series Super Time Base Correctors

■ 2 S-VHS dub input component inputs ■ 2 composite inputs ■ S-VHS (Y/C), component (Y/R-Y/B-Y) and composite outputs ■ 4 x 1 input switcher
■ Freeze mode (remote controllable) ■ Variable rate strobe ■ Mosaic
■ Posterize ■ Fade-to-black ■ Infinite window time base correction ■ All inputs synchronized for use with non-capstan servo VTRs ■ 4- and 7-pin S-VHS input and output connections ■ 8-bit component encoding, 4:2:2 sampling at 13.5MHz ■ Y/C timing adjustment ■ Color bar test mode
NOVA 900S/920SP \$4250.00
NOVA 900S-PAL PAL version 4750.00

NOVA 950 Multi-Format Transcoding TBC

■ Multi-format transcoding with component, Y/C and composite inputs and outputs ■ Comb filter ■ Digital image enhancement (DIE) ■ Digital chroma noise reduction (DCNR) with up to 12dB improvement ■ Digital black stretch (DBS) ■ 4 x 1 input select for "hot" switching between asynchronous sources ■ Freeze and fade-to-black effects ■ Synchronize all inputs including non-capstan servo VCRs ■ 8-bit component encoding with 4:2:2 sampling at 13.5MHz ■ Color bars, Y/C timing adjustments (H + V)
NOVA 950 \$5750.00
NOVA 950-PAL PAL version 6250.00

*Indicates a short card for all NovaChassis including C-2A. All NovaCards may be mixed for quantity discount. Options not included.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA SUPPORT SYSTEMS



O'Connor
PROFESSIONAL CAMERA SUPPORT SYSTEMS

HEADS

Ultimate Model 515

Head with O'Connor adjustable quick-release platform. The load capacity is 30 lbs. maximum and it weighs 7.75 lbs. The maximum recommended camera weight at 5" above the platform is 20 lbs. Other features include a Mini European quick-release and various handles and accessories.

515-003 \$1175.00



Ultimate Model 1030B

This upgraded model offers 70% more fluid drag than the older version and is more streamlined and lighter. The load capacity is 45 lbs. and it weighs 7.75 lbs. The maximum recommended camera weight at 6" above the platform is 30 lbs. Other features include a mini European quick-release platform, European handle system and the 1030B will accept the Assistant Front Box Mount and eyepiece leveler.

1030-203 \$2920.00



Ultimate Model 2575

Head with side mount quick-release camera platform, 150mm ball or Mitchell base with tie-down and 2 handles (O'Connor, European or a mix).

2575-003 \$6245.00

Note: Each of the above heads requires at least 1 platform, 1 base and 1 or more handles listed below to operate properly.



PLATFORMS

- 515-058 O'Connor quick-release with camera mounting plate and screws (for 515) \$295.00
- 1030-158 O'Connor quick-release with camera mounting plate and screws (for 1030) 295.00
- 08345 Mini European quick-release with camera mounting plate and screws (for 515) 445.00
- 08346 Mini European quick-release with camera mounting plate and screws (for 1030) 445.00
- 08283 O'Connor style camera mounting plate (for 2575) 325.00
- 2575-120 European style 120mm camera mounting plate (for 2575) 925.00
- 2575-110 Panavision dovetail style mounting plate (for 2575) 450.00

BASES

- 1030-132 100mm ball base (for 515/1030) \$120.00
- 08218 100mm tie-down only (for 515/1030) 70.00
- 1030-133 Claw ball base (for 515/1030) 150.00
- 08070 Claw ball base tie-down only (for 515/1030) ... 75.00
- 1030-135 Flat base (no tie-down required) (for 515/1030) 100.00
- 08281 Mitchell base (for 515/1030/2575) 250.00
- 08110 Mitchell tie-down only (for 515/1030/2575) ... 65.00
- 08278 150mm ball base (for 515/1030/2575) 250.00
- 08279 150mm tie-down only (for 515/1030/2575) ... 85.00
- 08349 Sachtler/Vinten (no tie-down required) (for 515/1030/2575) 650.00



CASES

Molded Systems/Tripod and Other Cases

Case Designed to Fit:

- 08143 Molded case for system 515/1030 \$315.00
 - 08144 Molded case for models of 55 baby tripods ... 285.00
 - 08170 Molded case for model 155B regular tripod ... 365.00
 - 08169 Molded case for model 155B baby tripod ... 325.00
 - 08230 Soft carrying case for system 515/1030 155.00
- Made of 1000 denier Cordura with foam padding, inside pockets, 1½" handles and shoulder strap (46½" x 9½" x 9½"). This case will fit into the molded case 08143.
- 08297 ATA type, foam fitted for 2575 head and accessories \$525.00

HANDLES

Model 515/1030

- 1030-145 Standard handle (14½" x ¾" dia.), 35° bend \$ 90.00
- 1030-088 Long handle (19" x ¾" dia.), 35° bend 110.00
- 1030-152 Standard and long handle extension section. . . 150.00
- 1030-246 European type handle (30cm x 18mm dia.), 30° bend 160.00
- 2575-135 European handle extension section. 150.00

Model 2575

- 2575-107 Standard handle (30"-16¾" x 1" dia.) \$150.00
- 2575-035 Standard handle (45"-16¾" x 1" dia.) 150.00
- 2575-105 Standard handle extension section 185.00
- 2575-137 European type handle (30cm x 18mm dia.) ... 160.00
- 2575-135 European handle extension section. 150.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TRIPODS

Model 155B

Aluminum regular tripod with lever lock legs, 150mm ball or Mitchell top casting, off-ground spreader and rubber feet, weight 22 lbs., load capacity 200 lbs. For 515/1030/2575 heads.

- 155B-067 With Mitchell top casting \$1645.00
- 155B-064 With 150mm top casting 1645.00
- 155B-069 Baby (20"-36") w/o spreader w/Mitchell top casting 1395.00
- 155B-066 Baby (20"-36") w/o spreader w/150mm top casting 1395.00



2575 Fluid Head on a 155B Tripod

515 Fluid Head on a 55D Tripod

Model 55D

Aluminum regular tripod with lever lock legs, 100mm ball top casting, off-ground spreader and spike guards, weight 13 lbs., load capacity 100 lbs. For 515/1030 heads.

- 55D-055 \$1045.00
- 55D-057 Baby (16"-24") w/o spreader 935.00



Model 35L

Quick-release tripod with 100mm ball top casting, built-in cable spreader, load capacity 60 lbs. and weight 7.5 lbs. (est.). The tripod is made of carbon fiber and lightweight aluminum and adjusts to a maximum of 60"H and a minimum of 32"H. For 515/1030 heads.

- 35L-003 \$1295.00



35L

Model 35C

Quick-release tripod with 100mm ball top casting, air assist column, mid-leg rigid spreader and spike guards, weight 11 lbs., load capacity 60 lbs. For 515/1030 heads.

- 35C-076 \$1395.00

Model 35B

Quick-release tripod with 100mm ball top casting, mid-leg rigid spreader and spike guards, weight 8.5 lbs., load capacity 60 lbs. For 515/1030 heads.

- 35B-075 \$995.00

Model 35A

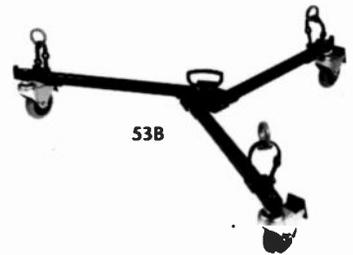
Quick-release tripod with 100mm ball top casting, built-in cable spreader and spike guards, weight 8 lbs., load capacity 60 lbs. For 515/1030 heads.

- 35A-070 \$995.00

Note: Specify Mitchell or 150mm ball top casting when ordering.

TRIPOD DOLLIES 53A/53B

- 53A-004-A Studio tripod dolly with 43" dia. spread and 6" wheels . . . \$1395.00
- 53B-042 Transport tripod dolly with 43" dia. spread and 4" wheels 795.00



53B

HI-HATS

- 45A-002 100mm ball hi-hat (5 1/2"H) \$165.00
- 145A-002 150mm ball hi-hat (6"H) 225.00

TRIPOD PARTS

- 08119 Spare stainless steel spike and nut, for 35A/55 series \$ 5.50
- 08237 Retractable spike guards for 35A/55 series (set of 3) 36.50
- 08236 Retractable spike guards for 35A/55 series (each) 12.50
- 00880 Spare stainless steel spike and nut, for 155 series 5.50
- 00992 Rubber feet for 155 series (set of 3) 39.00
- 00992A Rubber feet for 155 series (each) 13.50
- 33A-003 Rigid spreader, internal adjustable with locking pins for 35 series. 185.00
- 54A-003 Spreader, internal adjustable with locking pins for 55 series. 225.00
- 08120 Spreader lock pins (each) 7.00

Lever Leg Lock Upgrade Kit (Set of 3)

- 55-KIT For model 55 tripods \$255.00
- 155-KIT For model 155 tripods 285.00

ADAPTOR

- 08317 Mitchell to 150mm ball with tie-down \$295.00

ACCESSORIES

- 08219 Combination plate for models 515/1030 (5 1/8" x 2 3/8") \$ 80.00
- 08285 120mm European replacement plate (two 3/8" x 16 screws) for 2575 140.00
- 08323 O'Connor eyepiece leveler 275.00
- 08308 O'Connor front box mount 225.00
- 08321 Adaptor (to use O'Connor front box mount on Sachtler head) 110.00
- 08351 Mini European camera mounting plate for 515/1030 90.00

SYSTEM PRICING

Combine a head, tripod and accessories and receive an additional 4% system discount.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

NEW FROM PANASONIC



Panasonic
Broadcast & Television Systems Company

UPERCAM



AG-DP800 1/2" FIT 3CCD S-VHS DSP One-Piece Camera/Recorder

- Advanced digital signal processing ▪ 380,000 pixels ▪ f/1.4 prism system ▪ 700 lines horizontal resolution ▪ Exceeds 60dB video S/N
- Minimum illumination: 2 lux at f/1.4 with super high gain (+30dB)
- 6 scene files with 2 user modes for your custom digital parameter settings ▪ Built-in speaker ▪ Built-in time code generator (VITC/LTC)
- Time/date generator (includes seconds)

AG-DP800 \$7000.00
See page 244



AG-DS840 Player version which includes the above common features plus: ▪ When combined with the AG-DS850, permits accurate editing with VITC ▪ 2 linear audio channels also can be used

AG-DS840 TBA*
See page 253



AG-A350 Editing Controller

- 9-pin RS-422A serial remote control ▪ Compact design (9 1/4" x 5 1/4")
- Jog/shuttle dial ▪ Insert/assemble editing ▪ CTL/TC switchable counter display ▪ Noiseless slow motion editing with AT/slow motion VCRs ▪ Selectable preroll time ▪ Audible and visual error display ▪ ±0 frame accuracy (with a reference input)

AG-A350 \$1000.00
See page 258

AG-DS850 S-VHS Hi-Fi Editing Recorder/Player With Digital Slow

AG-DS840 S-VHS Hi-Fi Player With Digital Slow Common Features

- Designed for professional video production and broadcast systems
- Color blurring is eliminated by the Chroma Aperture Compensation circuit and expanded ▪ High quality slow playback ▪ Playback speed, including digital still is selectable in 10 steps ▪ 16:9 compatibility ▪ Y/R-Y/B-Y component video output for connection



AG-DS850 Includes common features plus: ▪ Built-in time code generator/reader which allows LTC/VITC recording for precision time code editing ▪ Each audio channel has its own input and output with individual channel-level setting capacity

AG-DS850 \$7000.00
See page 253



AG-A300 Slow Motion Controller

- Jog/shuttle lever ideal for slow motion control ▪ 9-pin RS-422A serial remote control for S-VHS or MII with AT/slow motion function
- 5-cue point entry for easier editing ▪ Compact design (9 1/4" x 5 1/4")
- CTL/TC switchable counter display ▪ Error display (LED/audible)

AG-A300 \$1500.00

See page 258

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Video Conferencing System Vision Series 200

- More than seeing who you are talking to—a concept of active business discussions, using supporting materials aimed at developing a consensus and solving problems
 - Tie in several locations at the same time using optional MCU
 - Training/demonstrations
 - Cuts costs and improves business results
- Vision Series 200 \$49,950.00

WG-V510 Audio/Video CODEC

- Full ISDN compatibility
 - Conforms to CCITT Standard and H.261 compression
 - Connects 3 BRI lines directly with speeds from 64-384kbps; terminal adaptor not required
 - Can be connected with T1/PRI Network (external equipment required)
 - 30-page speed dial feature, 7kHz audio frequency
 - 15 frames of video per second in 384kbps mode
 - Rack-mountable
- WG-V510 \$31,720.00

WG-Z362 Memory Board

- Stores up to 20 pages of still images
- WG-Z362 \$1,750.00

WG-P103 Power Control Unit

- Distributes power to all components for simple connection
 - DC camera power outputs
 - Dual 120-VAC unswitched outputs
 - 6 120VAC switched outputs
 - Rack-mountable
- WG-P103 \$1,380.00

WG-M400 Unidirectional Microphone

- Phantom power (+15V) from AEC unit
 - 100Hz-10kHz frequency response
 - Narrow angle directivity
 - Desktop type
- WG-M400 \$250.00

WG-A410 Acoustic Echo Canceller

- Automatically adjusts to room acoustics
 - Adjusts audio quality, reducing audio feedback between video conference sources
 - Echo cancellation more than 30dB
 - 250msec delay cancellation
 - Allows connection of external audio source, which is available for playback to all sources simultaneously
 - Features privacy mic switch (mute)
 - Rack-mountable
- WG-A410 \$8,650.00

WG-V400 2-CCD Color Camera

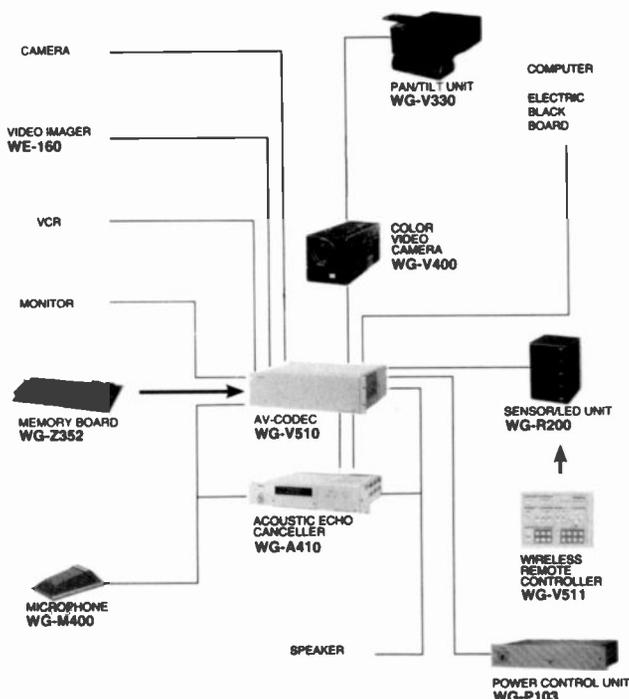
- Two 1/2" CCDs
 - 492V x 682H pixels
 - 450 lines horizontal resolution
 - 45dB S/N
 - 80 lux minimum illumination
 - 10:1 integrated power zoom lens
 - Auto focus
 - Auto-tracing white balance/auto white balance
 - Auto/manual iris
 - 5W power consumption
 - Gain select: 0dB/+6dB/+9dB
 - Internal/external sync
 - 3.08 lbs.
- WG-V400 \$5,800.00

WG-V330 Pan/Tilt Unit

- Controlled by WG-V511 wireless remote control
 - 12VDC
 - Turning speed: 7.5°/sec. horizontal and vertical
 - Maximum angles: 75° horizontal and vertical, left/right and up, 15° down
 - 9 1/2 lbs. maximum load
- WG-V330 \$3,600.00

VIDEO CONFERENCING SYSTEMS DIAGRAM

- Panasonic Video Conferencing is total system support
- Components can be arranged to meet virtually any needs
- The diagram below shows components and extra video sources
- Your Panasonic authorized Systems Integrator can tell you all about setting up your system



WG-V511 Wireless Remote Control

- Use with WG-V510 AV CODEC
 - Control of camera: Picture select, pan/tilt, preset data for camera
 - Control of audio: mute, volume
 - Hard wired remote capability
 - Destination control of all functions
- WG-V511 \$1,400.00

WG-R200 Infrared Receiver

- Signal sent to AV-CODEC. Use with WG-V511 wireless remote control
- WG-R200 \$450.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AJ-D310 D-3 1/2" Digital 1-Piece Camera/Recorder

Integrated digital camera and digital VTR permits 1-person operation

Camera Features

- Three 1/2" frame interline transfer CCD image sensors for minimal vertical smear
- 400,000 pixels, resolution of 750 TV lines, f/5.6 at 2000 lux, 62dB S/N ratio
- Registration within 0.05% in all zones
- Stable, reliable picture quality through digital processing
- Fast and easy digital setup of operating parameters
- Variable speed electronic shutter (1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec.)

VTR Features

- High picture quality, 52dB video S/N ratio, 5.5MHz (±0.5dB) video bandwidth
- 4 PCM audio channels, with a frequency response of 20Hz to 20kHz (±0.5dB) and dynamic range of more than 90dB
- Maximum 64 minutes of recording on 1 compact 1/2" cassette (AJ-TD60S)
- 3 selectable mic/line inputs (front/rear 1/rear 2) for 4 channels of PCM audio
- Color framing and auto backspace editing for high picture quality at successive recording transition points
- Phantom power supply to mic/line connector
- Built-in SMPTE time code generator (VITC/LTC) with addressable user bits
- Record start/stop, fast forward, rewind, search and eject
- Viewfinder playback adaptor (optional, AJ-PB30) allows B/W playback through viewfinder, or color playback on an external monitor
- Return button enables quick review of recorded results
- Self-diagnostic function prevents errors prior to recording
- Accepts AU-BP402 or Anton/Bauer battery pack

Standard Accessories

- AQ-VF1—1.5" viewfinder
- Tripod adaptor
- Carrying strap
- Rain cover
- Module extenders
- Operation/service manual

Specifications

General

Power Requirement: 12VDC (11 to 17V)
Power Consumption: Maximum 40W

Operating

Temperature: 32°F to 104°F (0°C to 40°C)
Operating Humidity: Less than 85%
Weight: Approx. 14.3 lbs.
With viewfinder approx. 18.7 lbs.
Dimensions: 10"H X 5 3/8"W X 14 3/4"D

VTR Section

Longitudinal Tracks: Time code 1; CTL 1
Recording Time: Maximum 64 minutes with AJ-TD60S
Cassette Type: D-3 cassette (S size)
FF/Rew Time: Within 5 minutes (using AJ-TD46S cassette)

Camera Section

Pickup Device: Frame interline transfer 1/2" CCD image sensor (3X)
Pickup element: 754(H) x 487(V)
f/1.4 prism with quartz filter

Optical System: Sensitivity (89.9% reflection): Standard: 2000 lux (at f/5.6, electronic shutter off); minimum illumination: 15 lux (at f/1.4, +18dB)

Shutter Speeds: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec.

Optical Filter: A: 3200K; B: 5600K; C: 5600K + 1/4 ND; D: 5600K + 1/8 ND
Special bayonet type 62dB (typical)

Lens Mount: Horizontal
S/N Ratio: > 750 TV lines
Resolution: 0.05% over entire screen (excluding lens)

Registration: Highlight
Compression: Approx. 600%
Gain: 0, +9, +18dB

Digital Processing

Sampling Frequency: 14.3MHz/28.6MHz
User Setting (Digital): Detail: H, detail, V, detail, coring, level dependent, peak frequency, line mix, chroma detail, dark detail; Level: gamma, setup, knee point, white clip, iris level, peak ratio; EVF display: EVF mark, Zebra-1, Zebra-2; Masking: R-B, R-G, G-R, G-B, B-R, B-G; Flare: R, G, B; Shading: black, white

Input/Output Signal

Genlock Video Input: 1.0V p-p, 75 ohm, BNC
Time Code Input: 1.0V to 4.0V p-p, high impedance, BNC
Audio Mic/Line Input: -60dBm/0dBm selectable, high impedance balanced, XLR 3-pin x2
Front Mic Input: -60dBm 3K ohm balanced, XLR 3-pin
Video Output: 1.0V p-p, 75 ohm, BNC x2
Monitor Output: 1.0V p-p, 75 ohm, BNC
Time Code Output: 2.5V p-p, low impedance, BNC
Earphone Output: -20dB, 8 ohm, mini jack
Ext DC Input: XLR 4-pin
Playback Adaptor: 37-pin multi-connector
Lens: 12-pin multi-connector
Extension Control Unit: 6-pin multi-connector
Viewfinder: 12-pin multi-connector

AJ-D310 \$62,000.00

Accessories

AJ-PB30 Playback adaptor \$16,500.00
AU-B110 AC adaptor 825.00
AQ-EC1 Extension control unit (ECU) 1,400.00
AU-B420 Battery charger for AU-BP402 850.00
AU-BP402 Battery pack 325.00
AU-M402 Battery case 475.00
CC-D310 Carrying case 650.00
MAG-14 Magnum 14V battery 555.00
MAG-QUAD Anton/Bauer 4-position, 1-hour fast charger 1,295.00
MC-480 Microphone 395.00
QR-D310 Gold mount adaptor 195.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AQ-20D



AQ-11D

AQ-20D/11D 3CCD Portable Digital Processing Cameras

- Digital processing section provides 2-D cross-color filter; variable enhancement frequency, 3.6-7.2MHz (2-H enhancer) ▪ High-chroma aperture correction (chroma DTL) ▪ Accurate 1-touch digital gamma adjustment (0.35-0.55) ▪ Auto-knee circuit ▪ Optical fiber digital transmission system consisting of AQ-20D camera head, base station and control panels ▪ 400,000-pixel CCD ▪ 750 lines horizontal resolution ▪ 62dB S/N ▪ Cable can be extended up to 12.4 miles when local power is supplied to the camera, or 1.5 miles with power supplied through the cable ▪ Can be connected to a VCR for ENG use, to a multi-core system or docked with an MII VCR ▪ Central picture control: Digital setup allows control parameters to be set numerically; control is provided through both the remote control operation panel and the master control unit connected to the base station ▪ Master control unit can control up to 40 cameras (additional CSUs are needed) ▪ Scene files can be stored in IC card memory ▪ Sensitivity: f/8 at 2000 lux ▪ Min. required illumination: 7.5 lux ▪ 6-speed variable electronic shutter ▪ Auto white/black balance (A/B/preset) ▪ SMPTE color bar output ▪ 0, +9, +18dB gain ▪ Genlockable ▪ 4-step color temp filter and neutral density filter ▪ Flare correction circuit ▪ Black stretch switch ▪ Circuit breaker for overload ▪ Bayonet lens mount

Standard Configuration

- Camera head ▪ Tripod attachment ▪ Shoulder strap for MII VCR combination ▪ Rain cover for MII VCR combination ▪ Extension circuit board
- AQ-20D Frame interline transfer 2/3" CCD \$33,000.00
- AQ-11D Interline transfer 2/3" CCD with 4-position filter wheel. 18,000.00

System Control for AQ-20D/11D (Partial Listing)

AQ-BS200 Optical Fiber Base Station Unit
Connects with AQ-20D (with the AQ-CA55) via optical fiber cable for digital signal transmission, and is equipped for analog composite and analog component video output \$21,750.00

AQ-RC200 Remote Control Operation Panel (RCOP)
Provides remote control over virtually all camera functions, including digital setup, and can be used to load and save up to 4 complete setup variations on an IC memory card. The joystick provides easy control over iris setting \$4,600.00

AQ-MC200 Master Control Unit (MCU)
Includes the camera select unit (CSU) and master control panel. 1 CSU can be linked with 8 cameras; with additional CSUs, a single master control panel can remotely control up to 40 cameras. The large electro-luminescent display shows all settings for easy confirmation. \$19,000.00

AQ-CA1 ENG Camera Adaptor
Equipped with a 26-pin camera terminal for connection to a variety of other systems such as D-3 and MII \$2,000.00

AQ-CA3 Stand-alone adaptor (AQ-20D/11D) \$5,500.00
AQ-VF1 1.5" viewfinder (AQ-20D/11D) 1,300.00
AQ-VF50 5" viewfinder (AQ-20D) 3,250.00

AQ-CA55 Optical Fiber Camera Adaptor
Allows connection with the AQ-BS200 \$15,000.00

AQ-CA50 Multi-Core Camera Adaptor
Can be connected to the AQ-RC50 remote control unit via a 41-pin multi-core cable \$4,000.00

AQ-RC50 Remote Control Unit (RCU)
The AQ-RC50 is a multi-core (41-pin) system remote control unit and base station with a removable front panel \$7,600.00

AQ-EC1 Extension Control Unit (ECU)
Compact control unit that connects easily with the camera to allow remote control operation \$1,400.00

Optical Fiber Cable
Can be extended to 12.4 miles when local camera power is supplied and to 1.5 miles with power supplied through the cable POR*

AQ-235W Digital Signal Processing Studio Camera System

- 16:9/4:3 switchable aspect ratios ▪ 520,000 pixel M-FIT CCDs
- 10-bit analog/digital conversion ▪ Full 12-bit advanced digital signal processing: extraordinary operational stability, precise signal processing, programmable performance, immediate setup, superb video performance ▪ Versatile scene file and lens file memory structure ▪ Composite and component serial digital interface
- Syncro-scan (variable shutter control) ▪ 7" viewfinder with enhanced features ▪ Variable skin detail circuit ▪ Stand-alone or remote control operation ▪ Available with Triax or fiber optic cable link. POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

3CCD CAMERA



Panasonic

Broadcast & Television Systems Company



WV-F700 Series 2/3" 3CCD Digital Signal Processing Color Video Camera

■ Three 2/3" IT super high sensitivity 380,000-pixel CCDs with on-chip optics ■ 62dB S/N ratio (typical) ■ Digital Signal Processing for stable and consistent image quality ■ Digital setup circuits have replaced over 66% of the manual controls, creating excellent reliability over time ■ Illumination required: f/8 at 2000 lux, 3200K ■ Minimum illumination: 7 lux at f/1.8 +24dB gain ■ Automatic white balance with 2 memories plus manual ■ Automatic black balance with pulse canceller ■ 1.5" electronic viewfinder with display ■ 1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec. electronic shutter ■ Crosscolor suppression, black/white shading, chroma detail, dark detail, 20 digital adjustments, genlockable when docked ■ Directly dockable to MII, S-VHS and Betacam without any adaptors ■ Built-in SMPTE color bar generator with time, date and camera ID ■ Remote control unit with serial control system ■ Remote control box for digital adjustments

Standard Configuration

■ Camera head ■ Shoulder pad

WV-F700ASH Digital processing video camera head with 750 lines horizontal resolution (directly dockable to S-VHS and MII) .. \$12,400.00

System Accessory Kit

WV-S750A ENG/EFM Kit

■ WV-VF42 1.5" EVF ■ WV-QT700 Tripod adaptor ■ WM-L30 Mic ■ WV-CC700A Carry case .. \$2,035.00

For Dockable Packages, see page 247

Lenses

A16X9BRM	f/1.8 Fujinon servo lens with extender, 16:1, 9-144mm	\$ 5,990.00
A16X9BRM	f/1.8 Fujinon zoom lens, 16:1, 9-144mm	2,800.00
FC-S10A	Lens rear control kit (use with A16X9BRM)	1,465.00
J12X10BKRS	f/1.7 Canon zoom lens, 12:1, 10-120mm	1,570.00
J15X9.5BIRS	f/1.8 Canon zoom lens with 2X extender, 15:1, 9.5-121mm	5,790.00
J18X8.5BIRS	f/1.7 Canon zoom lens, 18:1, 8.5-153mm with 2X extender	15,000.00

NS15X8.5B1 EMS20	f/1.7 Nikon zoom lens, 15:1, 8.5-127.5mm with 2X extender	\$7,995.00
NRLCKIT3F	Lens rear control kit (use with above lens)	2,265.00
SPB-2076V	Lens control kit (use with above J Series camera lenses)	2,030.00
WV-LC10	Lens conversion cable from 8-pin to 12-pin	120.00
WV-LK35	Lens rear control kit (use with J12x10BKRS)	1,210.00
YJ17X9.5BKRS	f/1.8 Canon zoom lens, 17:1, 9.5-162mm	2,800.00

Accessories

AG-BP212	12V, 2.3AH battery	\$ 70.00
DE-1232	Battery charger for WV-PS605	80.00
WM-L30	RAMSA phantom power microphone	530.00
WV-AD19	Battery case for AG-BP212	480.00
WV-AD700AS	Camera adaptor for use with multiplex coaxial control system (WV-F700ASH)	3,535.00
WV-BA71	Battery case for AU-BP402	430.00
WV-BA72	Battery case for AU-BP220	430.00
WV-BC30	Battery charger for WV-PS33	130.00
WV-CA10B25	RCB cable (25m)	150.00
WV-CA10B50	RCB cable (50m)	210.00
WV-CA10T14	10-pin to 14-pin conversion adaptor	100.00
WV-CA26A10	26-pin to 10-pin VCR cable	180.00
WV-CA26A14	26-pin to 14-pin VCR cable	230.00
WV-CA26A26	26-pin VCR cable	430.00
WV-CA26T26	26-pin cable joint adaptor	130.00
WV-CA26T32	26-pin to 32-pin conversion cable	180.00
WV-CA26U15	Studio cable (15m)	710.00
WV-CA32T26	32-pin to 26-pin conversion cable	180.00
WV-CC700	Remote control box	1,370.00
WV-CC700A	Carry case	800.00
WV-DKT700M	MII docking accessory kit	470.00
WV-DKT700S	S-VHS docking accessory kit	490.00
WV-PS31	Clip-on type. AC adaptor/quick battery charger (use with WV-PS33/PS34)	490.00
WV-PS33	3.5AH battery (use with WV-PS34, WV-BC30, WV-PS31)	560.00
WV-PS34	AC adaptor/battery charger	600.00
WV-PS60	1.65AH battery (use with WV-BC30, WV-PS34/PS31)	250.00
WV-PS700	Power separator	1,225.00
WV-Q70	RCU bracket	380.00
WV-Q71	5" EVF bracket	130.00
WV-QT700	Tripod adaptor	220.00
WV-RC550	Remote control unit with full function operation, including all DSP capabilities, up to 300' cable length with 26-pin multicore cable, composite or S-Video output	1,785.00
WV-RC700A	Remote control unit with multiplex coaxial control system	5,970.00
WV-VF40	1.5" electronic viewfinder	870.00
WV-VF65B	5" studio viewfinder	920.00
WV-VT15A	MII docking adaptor (use with WV-DKT700M and AU-410)	1,670.00
WV-VT16A	Betacam docking adaptor (WV-F700BH) ..	1,670.00

See page 242 for additional batteries and chargers.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WV-F500
With AU-45H

WV-F500 1/2" 3CCD Digital Signal Processing Color Video Camera

■ Three 1/2" IT transfer CCD image sensors (380,000 pixels) with on-chip micro lens optics system ■ Digital signal processing system for high quality images ■ Docks directly to MII, S-VHS and Betacam dockable VCRs ■ 5-scene file mode responds to a variety of shooting conditions ■ 700 lines horizontal resolution and 62dB (typical) S/N ratio ■ High sensitivity, 4 lux at f/1.4 (+24dB gain on) ■ 2000 lux (at f/8 at 3200K) standard illumination ■ Internal or external (BBS or VBS genlock) synchronization ■ AWC-A or B and manual white balance ■ 1/2" bayonet lens mount ■ Direct docking with AU-45H MII VTR and AG-7450A S-VHS VTR ■ Gain settings of 0/+6/+9/+15/+18/+24dB with +6dB switch ■ Variable-speed electronic shutter (1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec.) ■ Optional remote control unit and remote control box are available for digital control system flexibility ■ 12VDC, 5 sources (RCU/VTR/EXT DC/battery/AC adaptor)

Standard Configuration

■ Camera head ■ Shoulder pad

WV-F500H \$7370.00

System Accessory Kit

WV-S550NL ENG Kit

■ WV-VF40 1.5" electronic viewfinder ■ WV-CC500 Carry case
■ WV-QT700 Tripod adaptor ■ WV-MH500 Microphone holder
WV-S550NL \$1200.00

For Dockable Packages, see page 247

Lenses

FC-S10A	Lens rear control kit (use with S16X6.7BERM/SPB-2076V/S16X6.7BRM/S12X7.5BRM).....	\$1465.00
PH15X7BIRS	f/1.4 Canon servo zoom lens 15:1, 7-105mm with 2X extender.....	\$790.00
S12X7.5BRM	f/1.4 Fujinon 12:1 servo zoom lens, 7.5-90mm	1460.00
S16X6.7BERM	f/1.4 Fujinon servo zoom lens 15:1, 6.7-107.2mm with extender	\$990.00
S16X6.7BRM	f/1.4 Fujinon servo zoom lens 16:1, 6.7-107.2mm.	2800.00
SPB-2076V	Lens rear control kit (use with PH15X7BIRS/FC-S10A).....	2030.00
WV-LC10	Lens conversion cable from 8-pin to 12-pin	120.00
WV-LC25	2/3" bayonet lens adaptor	560.00
WV-LK36	Lens remote control	1270.00

YH13X7.5BKRS	f/1.4 Canon servo zoom lens 13:1, 7.5-97mm	\$1810.00
YH17X7BKRS	f/1.4 Canon servo zoom lens, 17:1, 7-119mm	2800.00

Accessories

AU-M402	Battery adaptor. Must be used in order to use the AU-BP402 battery pack with the WV-F500 and AU-45H	\$ 475.00
WV-AD500	Camera adaptor	1150.00
WV-AD700AS	Camera adaptor for use with multiplex coaxial control system	3535.00
WV-BA71	Battery case for AU-BP402	430.00
WV-BA72	Battery case for AU-BP220V	430.00
WV-CA10B25	RGB cable (25m)	150.00
WV-CA10B50	RGB cable (50m).....	210.00
WV-CA10T14	10-pin to 14-pin conversion adaptor	100.00
WV-CA26A10	26-pin to 10-pin VCR cable	180.00
WV-CA26A14	26-pin to 14-pin VCR cable	230.00
WV-CA26A26	26-pin VCR cable	430.00
WV-CA26T26	26-pin cable joint adaptor	130.00
WV-CA26T32	26-pin to 32-pin conversion cable	180.00
WV-CA26U15	Studio cable (15m)	710.00
WV-CA32T26	32-pin to 26-pin conversion cable	180.00
WV-CB700	Remote control box	1370.00
WV-CC500	Carry case	800.00
WV-DKT700S	S-VHS docking accessory kit	490.00
WV-MH500	Mic holder	160.00
WV-PS700	Power separator	1225.00
WV-QT700	Tripod adaptor	220.00
WV-Q70	RCU bracket	380.00
WV-Q71	5" EVF bracket	130.00
WV-RC550	Remote control unit with full function operation, including all DSP capabilities, up to 300' cable length with 26-pin multicore cable, composite or S-Video output	1785.00
WV-RC700A	Remote control unit with multiplex coaxial control system	5970.00
WV-VF40	1.5" electronic viewfinder	870.00
WV-VT15A	MII docking adaptor and accessory kit. . .	1670.00

Anton/Bauer Batteries

DM-13 Digital Mag 13	13.2V, 66Wh digital battery for 2.25 hours of operation . . .	\$605.00
DPP-13 Digital ProPak 13	13.2V, 55Wh digital battery for 2 hours of operation	575.00
Com-13 Compac 13	13.2V, 40Wh NiCad battery for 1.5 hours of operation.....	275.00
QR-AU45H	Gold mount battery bracket	195.00

Anton/Bauer Chargers

Mag-Quad Magnum Quad	4-position, 1 hour sequential fast charger	\$1295.00
MP-4D	Same as Magnum Quad with LCD display	2370.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

3CCD CAMERA



Panasonic
Broadcast & Television Systems Company



WV-F250BH
With **S-VHS**
Dockable
AG-7450A
VCR

WV-F250BH 1/2" 3CCD Color Video Camera

■ Three 1/2" FIT CCDs with 380,000 pixels each ■ 750 lines horizontal resolution ■ 2000 lux, f/5 at 3200K sensitivity ■ -6dB switch for settings of 0dB, +9dB and +18dB, plus combinations for -6dB, +3dB and +12dB gain control ■ 60dB S/N ratio ■ Compatible with VHS, S-VHS, MII, Betacam and most VCRs ■ Variable speed electronic shutter 1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec. ■ Y/C separation output circuit ■ SMPTE color bar generator with time/date display and camera identification display (provides ID for up to 4 separate cameras) ■ VCR start switches ■ Top, front and back tally lamps, bright light compression circuit ■ High efficiency peltier element ■ 2-setting white balance memory ■ Adjustable shoulder pad position ■ Auto black balance with auto pulse cancel ■ Color matrix masking circuit ■ Flare correction circuit ■ Iris 1/2 open/close switch ■ High band detail (high/low) ■ Detail select (high/low/off) ■ Bayonet mount for 1/2" pickup (optional 3/8" bayonet mount available) ■ High-resolution (450 lines) 1.5" electronic viewfinder with character display and zebra level ■ Audio input: -70dBm mic, 9-pin connector ■ Audio output: -20dBm or -60dBm/unbalanced, switchable (32-pin VCR/RU connector) ■ Readily becomes an exceptional studio camera, or remotely controlled stationary camera, via connection with the optional WV-RC36 or WV-RC37 camera control units

Standard Configuration

■ Camera head
WV-F250BH \$4400.00

System Accessory Kits

WV-S250 ENG/EFP Kit

■ WV-AD250 Camera adaptor ■ S12x7.5BRM 12X zoom lens ■ WV-VF39 1.5" high-resolution electronic viewfinder ■ WV-MC35 Condenser microphone ■ WV-PS31 AC adaptor/quick charger ■ WV-PS60 Battery pack ■ WV-QT70 Tripod mounting adaptor ■ WV-CC71A Carry case \$4230.00

WV-S270 Studio Kit

■ WV-AD250 Camera adaptor ■ S12x7.5BRM 12X zoom lens ■ WV-LK36 Lens control kit ■ WV-VF65B 5" electronic viewfinder ■ WV-RC36 Remote control unit ■ WV-QT70 Tripod mounting adaptor ■ 32A-25 Studio cable ■ Extender board. \$6920.00

WV-S290 S-VHS Dockable Kit (for WV-F250BH/AG-7450A)

■ WV-VF39 1.5" high-resolution electronic viewfinder ■ S12x7.5BRM 12X zoom lens ■ WV-MC35 Condenser microphone ■ WV-QT70 Tripod mounting adaptor ■ WV-CC71A Carry case ■ WV-DKT70M Docking accessory kit \$2970.00

For Dockable Packages, see page 247

Lenses

FC-S10A Lens rear control kit (use with S16X6.7BERM/SPB-2076V/S16X6.7BRM/S12X7.5BRM)... \$1465.00
PH15X7BIRS f/1.4 Canon servo zoom lens 15:1, 7-105mm with 2X extender. 5790.00
S12X7.5BRM f/1.4 Fujinon 12:1 servo zoom lens, 7.5-90mm 1460.00
S16X6.7BERM f/1.4 Fujinon servo zoom lens 16:1, 6.7-107.2mm with extender 5990.00

S16X6.7BRM f/1.4 Fujinon servo zoom lens 16:1, 6.7-107.2mm \$2800.00
SPB-2076V Lens rear control kit (use with PH15X7BIRS/FC-S10A)... 2030.00
WV-LC10 Lens conversion cable from 8-pin to 12-pin 120.00
WV-LC25 3/8" bayonet lens adaptor 560.00
WV-LK36 Lens remote control 1270.00
YH13X7.5BKRSP f/1.4 Canon servo zoom lens, 13:1, 7.5-97mm 1810.00
YH17X7BKRS Canon f/1.4 zoom lens, 17:1, 7-119mm 2800.00

Accessories

10H-30AS 10-pin extension cable (30')
Use with WV-CA32/10 \$ 110.00
10H-50AS 10-pin extension cable (50')
Use with WV-CA32/10 180.00
32A-25 25' remote control unit cable 490.00
32A-50 50' remote control unit cable 660.00
32A-100 100' remote control unit cable 950.00
AG-B640 AC adaptor with battery charger 515.00
AG-BP212 2.3AH battery (use with AG-B640) 70.00
AG-B745 Battery charger for AU-BP220V 660.00
AU-BP220V 2.2AH battery (use with WV-DKT70M) 185.00
DE-1232 Battery charger (use with WV-PS33) 80.00
WV-AD19 Battery case for AG-BP212 or Sony NP-1 480.00
WV-AD250 Camera adaptor 820.00
WV-BA71 Battery case for AU-BP402 430.00
WV-BA72 Battery case for AU-BP220V 430.00
WV-BC30 Battery charger (use with WV-PS31) 130.00
WV-CA14x30 14-pin extension cable (30'). Must use with WV-CA32A/14 330.00
WV-CA32/10 32-pin camera to 10-pin VCR cable (10') 100.00
WV-CA32A/14 32-pin camera to 14-pin VCR cable (10') (for AG-7450A/S745, 3/8" VCR) 180.00
WV-CA38 Conversion cable for S-VHS VCR, S-VHS monitor, S-VHS projector (use with WV-CA32A/14) 200.00
WV-CC71A Carry case 640.00
WV-DKT70M Dockable kit for AG-7450A 410.00
WV-MC35 Microphone 110.00
WV-PS31 Clip-on type. AC adaptor/quick battery charger (use with WV-PS33, WV-PS60) 490.00
WV-PS33 3.5AH battery (use with WV-BC30, WV-PS31) 560.00
WV-PS34 AC adaptor/battery charger (use with WV-PS33, WV-PS60) 600.00
WV-PS60 1.65AH battery (use with DE-1232, WV-PS31) 250.00
WV-QT70 Tripod mount adaptor 200.00
WV-Q71 5" EVF bracket 130.00
WV-RC36 Camera remote control unit. RGB sync output, maximum distance from RCU to camera is 300 meters. 2180.00
WV-RC37 Camera remote control unit. Does not offer RGB sync output, maximum distance from RCU to camera is 100 meters 1060.00
WV-VF39 1.5" viewfinder, high-resolution 820.00
WV-VF65B 5" studio viewfinder 920.00
WV-VT15A MII docking adaptor and accessory kit. 1670.00
WV-VT16A Betacam docking adaptor 1670.00
See page 242 for additional batteries and chargers.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CCD CAMCORDERS



Panasonic
Broadcast & Television Systems Company

AG-3 1/2" 3CCD S-VHS Hi-Fi Camcorder

Three 1/2" CCDs • 530 lines horizontal resolution • 4 rotary heads • 1 lux low light sensitivity • 10:1 2-speed power zoom lens with digital auto focus • f/1.6 (wide)-2.7 (tele) • 20X digital zoom • Focal length: 6-60mm • 1400 lux standard illumination • Digital TBC • Video S/N: more than 45dB • Audio S/N: more than 41dB • Stereo zoom mic/Hi-Fi recording • Digital effects: snapshot, strobe, picture memory, wipe, mix • Electronic image stabilization • 0.7" color LCD viewfinder • Widescreen 16'x9" recording capability \$3500.00



iris/white balance • 5-pin edit terminal • Digital auto focus • f/1.4 • Focal length 5-40mm • Auto iris • Filter diameter 49mm • Mic in • Audio/video outputs • Approximately 5.7 lbs.

Standard Accessories

• Detachable 10W auto-light • AC adaptor • Battery pack with charging connector • System carry case • Shoulder strap . . \$1500.00



AG-455MU 1/2" CCD S-VHS Hi-Fi Camcorder

2-hour • Hi-Fi audio with stereo zoom mic • Built-in monitor speaker • 12VDC • Low light shooting • Minimum illumination: 1 lux with digital gain on • Audio/video fade • Built-in VITC generator for high precision edit control when editing on AG-7750 editing system • 5-pin edit terminal • Built-in digital effects: mix, wipe, after-image tracer, strobe and still store while recording audio • 4 rotary heads • 1 track (normal) audio and 2-channel Hi-Fi audio • 50-20,000Hz frequency response • 12:1 2-speed power zoom lens with digital zoom (up to 100X) • Digital auto focus • f/1.6 • Focal length 5.5-67mm • Auto-manual iris • Filter diameter 49mm • Mic in • Audio/video/S-VHS outputs • Approximately 5.9 lbs.

Standard Accessories

• AC adaptor • Battery pack with charging connector • DC cable • Shoulder strap • System carry case \$2450.00



AG-195MU 1/2" CCD VHS Camcorder

2-hour • 12VDC • Low light shooting • Minimum illumination: 1 lux with digital gain on; 3 lux with digital gain off • 1/100-1/6000 shutter • Audio/video fade • Built-in digital effects: mix, wipe, after-image trace, strobe and still store while recording audio • 4 rotary heads • 1 track (normal) audio • 80-8,000Hz frequency response • 8:1 2-speed zoom lens with digital zoom (up to 100X) • Manual



AG-187U 1/2" CCD VHS Camcorder

12:1 2-speed power zoom • 10W color enhancement light • Attache style carrying case • 1 lux low light sensitivity • High speed shutter (1/60 sec.-1/10,000 sec.) • Flying erase head • Auto/manual/macro focus • External mic jack • Backlight feature button • Auto date/time • Adjustable viewfinder for right/left hand use • Ergonomic comfort grip/professional design • Audio/video fade in/out • Tape/battery remaining indicators • Record END search • Easy edit feature • Mic with wind buffer switch

Standard Accessories

• AG-B21 AC adaptor • AG-BP20 Battery pack • AG-HT8 System carrying case • Color enhancement light \$965.00

Accessories

AG-B6	AC adaptor/battery charger (AG-195MU, AG-455MU)	\$ 165.00
AG-B7	AC adaptor/battery charger (AG-3)	105.00
AG-B12	Plug-in AC adaptor/battery charger 12VDC, 1.5AH (AG-195MU/455MU)	210.00
AG-BP20	Battery pack (AG-187U, AG-195MU, AG-455MU)	60.00
AG-BP30	Battery pack (AG-3)	70.00
AG-C70AE	S-Video (Y/C) cable (10') (AG-455MU)	20.00
AG-C71AE	S-Video (Y/C) cable (16.6') (AG-455MU)	25.00
AG-CR20	Car battery cord (AG-187U)	40.00
AG-RF20	RF adaptor (AG-187U)	60.00
NV-STC30ZXT	30 min. S-VHS-C tape (AG-3)	8.99
STDY-JR	Steadicam Jr. (AG-3)	499.00
UW-MC1	Marine case (AG-3)	1299.00
VW-ACM10P	Car battery cord (AG-195MU, AG-455MU)	35.00
VW-CG5P	Character generator (all models except AG-187U)	330.00
VW-RF7	RF adaptor (AG-455MU, AG-195MU)	60.00
VW-RM1E	Pause remote controller (all models except AG-187U)	12.00
VW-TCA7E	Cassette adaptor (AG-3)	40.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WV-D5100HS 3/8" High Sensitivity CCD Color Video Camera

Component video camera system ■ Compatible with S-VHS VCRs
 ■ 380,000 pixels ■ 460 lines horizontal resolution ■ Illumination required: 1400 lux at f/5.6 ■ Minimum illumination: 0.35 fc (3.5 lux)
 ■ S/N 46dB ■ Auto tracing white balance system ■ 2H enhancer with horizontal/vertical movement ■ Up to 1/1000 sec. electronic shutter speed ■ Auto preset function ■ Interchangeable 35mm SLR and C-mount lenses with optional adaptor. \$1790.00

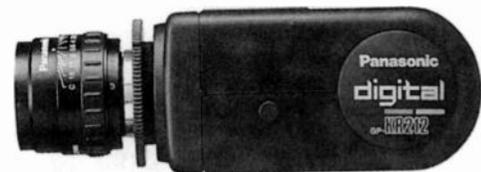
WV-D5100HS-	RGB	With RGB sync output	2090.00
WV-S051	ENG kit		490.00
WV-S061	EFP kit		820.00
WV-S071	Studio kit		3660.00
WV-CL19	1.5X tele-conversion lens		180.00
WV-LK10A	Lens filter kit (use with WV-LZ14/8AF)		180.00
WV-LK11	Lens control kit (use with WV-LZ15/12)		1070.00
WV-LZ14/8AF	8X auto focus zoom lens		670.00
WV-LZ14/12A	12X power zoom lens		700.00
WV-LZ15/12	12X studio lens		930.00
WV-LZ14/15	15X power zoom lens		1190.00



WV-E550 1/2" 3CCD Multipurpose Digital Signal Processing Camera

■ 380,000 pixels ■ 800 lines horizontal resolution ■ 62dB S/N
 ■ 2000 lux sensitivity at f/8 ■ Optional RS-232C control ■ RGB, Y/C, component and composite outputs ■ AGC or 0, 9, 18dB gain settings ■ Auto tracing white balance and electronic light control
 ■ Scene illumination is 0.7fc (7 lux) ■ Chroma/dark detail ■ 2-D low pass filter reduces cross-color ■ Highlight compression circuit for wide dynamic range: adjustable knee point allows fine step response
 ■ Area selection is to designate which portions of the input image are to be detected for AGC/ELC/ALC ■ Multiple external synchronization: VBS/blackburst/HD/VD ■ Variable speed electronic shutter: 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10,000 sec. ■ Synchro scan allows synchronization with computer CRT display ■ Built-in time/date/camera ID generator and SMPTE color bar ■ 4 modes for easy and

quick setup ■ 20 scene file modes are available ■ 5 scene file modes are available per mode, 2 user modes (A/B) and scene 1/2/3 files
 ■ Less lens ■ Lens mount: standard 1/2" bayonet mount \$5500.00
 WV-CA12T12 Lens extension cable 80.00
 WV-CA20T10 RGB adaptor cable 255.00
 WV-CA26T20 26-pin to 20-pin adaptor cable 435.00
 WV-CA9T5 9-pin to 5 BNC RGB cable 95.00
 WV-CA9T9 9-pin to 9-pin RGB cable 95.00
 WV-PS550 Multiplex adaptor 2530.00
 WV-RC550 Remote control unit, full function operation, including all DSP capabilities, up to 300' cable with 26-pin multicore cable, composite/S-Video output. 1785.00



GP-KR212 1/2" Digital Industrial CCD Color Camera

■ 682H x 492V pixels ■ 430 lines horizontal resolution ■ Microlens on each pixel triples the intensity of incoming light ■ 46dB S/N
 ■ Minimum scene illumination 3 lux, f/1.4, 0.09 fc available using Panasonic aspherical high speed lens ■ Color can now be used in many dark areas that once required black and white cameras
 ■ Auto tracing white balance control on/off ■ Electronic light control function regulates the amount of incoming light without the use of an ALC ■ Permits use of an inexpensive fixed iris or manual iris lens for indoor surveillance ■ Auto backlight compensation function adjusts ALC/ELC light control with center-weighted detecting balance ■ C-lens mount ■ Horizontal aperture correction and vertical 2H enhancer for sharp edge lines of an object ■ Knee circuitry and aperture highlight correction to precisely reproduce grayscale renditions when viewing brightly illuminated objects ■ Minimum artificial camera noise ■ 12VDC operation ■ 12-pin camera cable connector ■ Less lens \$1200.00



GP-KR412 1/2" Digital Industrial CCD Color Camera

Same as GP-KR212 with: ■ 48dB S/N ■ Cursor control (up, down, right, left, set); switches for on-screen menu setup, genlock 75-ohm on/off, auto iris DC/video ■ Character generator (up to 16 characters) ■ AWC/ATW/manual selectable ■ 8-speed electronic shutter from 1/60 sec. (off) to 1/10,000 sec. ■ Genlock capability for multi-camera systems: color composite video signal (VBS), B/W composite video sync signal (VS), internal sync (INT) ■ AGC control: low/mid/hi selectable ■ Gain control: low/mid/hi selectable ■ C- or CS-mount lens ■ Less lens \$1400.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DOCKABLE CAMERA/ BATTERY PACKAGES



Panasonic
Broadcast & Television Systems Company

DS-2550B Dockable Package

Camera Head
WV-F250BH

S-VHS
Dockable VCR
AG-7450A

WV-S290 Docking Kit
WV-VF39: 1.5" Electronic Viewfinder
S12x7.5BRM: 12X Zoom Lens
WV-MC35: Condenser Microphone
WV-QT70: Tripod Mounting Adaptor
WV-CC71A: Carrying Case
WV-DKT70M: S-VHS Docking Kit

DOCKABLE CAMERA PACKAGES
**DS-2550B S-VHS Dockable Package for the
 WV-F250BH 1/2" 3CCD Color Video Camera**
 • WV-F250BH 3CCD camera head • WV-S290 Docking kit • AG-7450A S-VHS Hi-Fi portable VCR
 DS-2550B \$9,450.00

DS-5050 Dockable Package

Camera Head
WV-F500H

WV-DKT700S
(for WV-F500H/
AG-7450A)

S-VHS
Dockable VCR
AG-7450A

WV-S550NL ENG/EFP Kit
WV-VF40: 1.5" Electronic Viewfinder
WV-QT700: Tripod Mounting Adaptor
WV-CC500: Carrying Case
WV-MH500: Microphone Holder

**DS-5050 S-VHS Dockable Package for the
 WV-F500 1/2" 3CCD DSP Color Video Camera**
 • WV-F500H 3CCD camera head • WV-S550NL ENG/EFP kit • WV-DKT700S Docking kit • AG-7450A S-VHS Hi-Fi portable VCR
 DS-5050 \$11,810.00

**DS-7050B S-VHS Dockable Package for the
 WV-F700 3/8" 3CCD DSP Color Video Camera**
 • WV-F700ASH 3CCD camera head • WV-S750A ENG/EFP kit • WV-DKT700S Docking kit • AG-7450A S-VHS Hi-Fi portable VCR
 DS-7050B \$16,350.00

**DM-2545 MII Dockable Package for the
 WV-F250 1/2" 3CCD Color Video Camera**
 • WV-F250BH 3CCD camera head • WV-MC35 Microphone • WV-QT70 Tripod adaptor • WV-VF39 Electronic viewfinder • AU-45H MII dockable recorder
 DM-2545 \$12,880.00

**DM-5045 MII Dockable Package for the
 WV-F500 1/2" 3CCD DSP Color Video Camera**
 • WV-F500H 3CCD camera head • WV-S550NL ENG/EFP kit • AU-45H MII dockable recorder
 DM-5045 \$14,670.00

**DM-7045 MII Dockable Package for the
 WV-F700 3/8" 3CCD DSP Color Video Camera**
 • WV-F700ASH 3CCD camera head • WV-S750A ENG/EFP kit • AU-45H MII dockable recorder
 DM-7045 \$20,890.00

**Anton/Bauer
 Battery Package for DS-2550B Dockable Package**

3 Pro Pac 13 Batteries

Magnum Quad Charger
(PAN-7450 Adaptor Included)

Ultralight 2

ANTON/BAUER BATTERY PACKAGES
**Battery Package for DS-2550B
 Dockable Package**
 Consists of: • 3 Pro Pac 13 batteries • 1 Magnum Quad charger
 • 1 Ultralight 2 long • 1 PAN-7450 adaptor
 ABPKG1 \$3,240.00

**Battery Package for DS-5050 and
 DS-7050B Dockable Packages**
 Consists of: • 3 Digital Pro Pac batteries • 1 Magnum Quad charger
 • 1 Ultralight 2 long • 1 AB-13Q adaptor
 ABPKG2 \$3,450.00

**Battery Package for DS-5045 and
 DS-7045 Dockable Packages**
 Consists of: • 3 Digital Pro Pac batteries • 1 MP-4D charger
 • 1 Ultralight 2 short • 1 QR-AU45H adaptor
 ABPKG3 \$4,525.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



GP-KS102 1/2" CCD Color Microcamera

- 1/2" integrated color filter interline transfer for CCD
- 682(H) x 485(V) pixels
- 430 lines horizontal resolution
- S-VHS (Y/C connector) compatible
- 46dB S/N
- Minimum illumination of 10 lux at f/1.4 AGC on, +6dB manual gain, >30 IRE of Y-signal with setup
- Genlock capability for multi-camera systems
- 3/8" diameter x 1 1/4" L
- Weighs just over half an ounce



Standard Accessories

- Camera head/holder
 - Camera control unit
- GP-KS102 \$2300.00

GP-KS152 1/2" CCD Color Digital Microcamera

- Digital signal processing
- 430 lines horizontal resolution
- Genlockable
- S-Video output
- 46dB S/N = 5 lux (0.5fc) minimum illumination
- Camera head measures 0.66" in diameter, 1.5" L = 0.04 lbs. = 336,000 pixels
- 8-stage variable electronic shutter, 1/60-1/10000 sec.
- 2H enhancer, aperture correction, knee circuitry
- Selectable TTL auto tracing, ATW, AWC or manual white balance control
- AGC control: off/low/mid/hi selectable
- Gain control: low/mid/hi selectable
- Automatic backlight compensation
- Electronic light Vcontrol
- 12VDC
- Selectable function from direct mode and setup mode
- 2 optional keyboard type character generators



Standard Accessories

- Tripod attachment
 - Lens cleaning paper
- GP-KS152 \$2800.00



WV-CD1BW 1/2" CCD B&W Microcamera System

- Camera head measures 3/8"D x 1 1/2"L (without lens)
- Camera head can be extended up to 30' from CCU using optional 24' extension cable
- Operates off any 12VDC power source such as an automobile or VCR battery
- Wide angle, super wide angle and pinhole lenses available
- Optional C-mount lens adaptor available

- Designed for covert security installations where size, sensitivity and picture quality are essential
- Other applications include automatic teller machines, robotics machine vision, inspection, quality control and hazardous waste monitoring
- 510(H) x 492(V) pixel array
- 0.07 lux low light sensitivity at f/1.4 minimum illumination (with optional GP-AD22 lens)
- 380 lines horizontal resolution
- 46dB S/N
- Genlock feature eliminates roll in multi-camera systems that use sequential switching

Standard Accessories

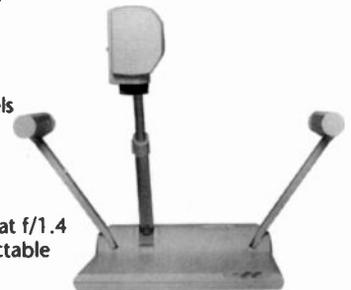
- Camera head with cable (2m)
 - Camera holder
 - Camera control unit
- WV-CD1BW \$2500.00

Accessories

- | | | |
|------------|---|----------|
| GP-AD22 | C-mount lens adaptor (GP-KS102, WV-CD1BW) | \$ 40.00 |
| WV-LM7.5T | Wide angle manual lens f/7.5mm (WV-CD1BW) | 240.00 |
| WV-PS12 | AC adaptor 120VAC/12VDC (GP-KS102/WV-CD1BW) | 65.00 |
| GP-LM7R5TB | 7.5mm lens (all models) | 240.00 |
| GP-CA44 | 2m cable (GP-KS102) | 285.00 |
| GP-CA45 | 5m cable (GP-KS102) | 320.00 |
| GP-CA46 | 10m cable (GP-KS102) | 485.00 |
| GP-CA49 | 30m cable (GP-KS102) | 870.00 |
| GP-CA56 | 2m cable (GP-KS152) | 300.00 |
| GP-CA57 | 10m cable (GP-KS152) | 450.00 |
| GP-LP12T | Pinhole lens (GP-KS102, WV-CD1BW) | 585.00 |
| GP-LM15T | 15mm telephoto lens (GP-KS102, WV-CD1BW) | 285.00 |
| GP-LM3T | 3mm wide angle lens (GP-KS102, WV-CD1BW) | 430.00 |
| WV-KB12A | Full keyboard titler with scroll (GP-KS152) .. | 230.00 |
| WJ-KB15 | Full keyboard titler with scroll (GP-KS152) .. | 360.00 |

WE-160 Video Imager Copy-Stand Display System

- Digital signal processing
 - 1/2" IT CCD = 682H x 492V pixels
 - 430 lines horizontal resolution
 - Rotatable camera head
 - Internal genlock switchable automatically
 - 46dB S/N
 - Minimum illumination: 3 lux at f/1.4 (AGC on)
 - White balance selectable
 - AWC/ATW/manual
 - Up to 16-character display = 8mm-80mm
 - f/1.4 (wide), f/1.7 (tele)
 - Integrated 10X power zoom lens
 - Built-in light kit
 - Built-in A/V switcher
 - Video inputs: 2 video/2 S-Video Y/C
 - Video outputs: 1 video/1 S-Video Y/C
 - Audio inputs: 2 switchable
 - Audio output: 1 switchable
- WE-160 \$3500.00
WE-163 Backlight unit 510.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



BROADCAST DIGITAL VTRs/PLAYERS



Panasonic
Broadcast & Television Systems Company

AJ-D580 D3 Component Digital Studio VTR

- Full transparent CCIR-601 4:2:2 10-bit (13.5MHz) component recordings without compression
 - Full 2 hour Rec/Play time on 1/2" MP cassette
 - Selectable 13.5 or 18MHz video sampling rates
 - 4 channels of 20-bit, 48kHz PCM audio
 - Analog cue track
 - Full LTC/VITC
 - Full editing capabilities, insert, assemble and pre-read
 - High speed search X 50 play speed
 - Auto tracking range -1 to 2X
 - Program play mode, 85-115% play speed in 0.1% increments
 - 9-pin serial RS-422A control
 - 25-pin RS-232C control
 - 50-pin parallel control
 - Remote video/audio level control
 - 6 RU in height
- Options**
- AJ-MK10 analog component video interface (input and output)
 - AJ-MK20 composite digital I/F; Serial/parallel SMPTE 259/244 (output only)
 - AJ-MK30 analog audio interface (input and output)
 - AJ-PB35 D3 playback option
- AJ-D580.....POR*



AJ-D350 D3 1/2" Composite Digital Studio VTR

- High picture quality, 54dB video S/N ratio and 6MHz video bandwidth
 - 4 PCM audio channels, with a frequency response of 20Hz-20kHz (± 0.5dB) and wide dynamic range (20 bits)
 - Maximum 245 minutes of recording on 1 compact 1/2" cassette (AJ-TD240L)
 - Single-format system expandability with 3 cassette sizes
 - PCM 4-channel audio allows independent editing and advanced technology suppresses editing degradation
 - Rotary erase heads enhance sound quality by achieving complete erasure
 - Multi-generation dubbing capability (up to 20 generations)
 - High-speed 100X normal speed search with color playback
 - Auto-tracking allows noiseless still/slow playback (1X to 3X normal speed)
 - Program play permits playback speed adjustment
 - Advanced low-tape-tension mechanism minimizes tape-to-head abrasion and enhances durability
 - Both read-before-write and read-after-write possible
 - Complete editing functions include assemble, insert, audio split editing, spot erase and variable memory editing (VME)
 - Optional monitoring software AJ-SF30 computerizes management
 - RS-422 9-pin serial, 50-pin parallel and RS-232C interfaces
 - Digital I/O capability for other digital equipment (video: RP-125X; audio: AES/EBU standards)
- AJ-D350 NTSC version.....\$57,000.00
AJ-D350E PAL version.....75,000.00

AJ-D340 D3 1/2" Composite Digital Studio VTR

- 4 rack unit size
- Industry's smallest digital VTR yet delivers 4 hours recording and playback
- 8"H x 17 1/2"W x 21 1/4"D
- Ideal for OB vans and applications requiring multiple VTRs, or as source players for transmission/dubbing
- Accepts all 3 cassette sizes (L/M/S) without an adaptor
- Equipped with a continuous signal level display and

- direct-access control panel
 - Control panel allows direct storing of 8 cues, index search and WFM signal output selection
 - 8-14 coding
 - 6.2MHz video bandwidth
 - 54dB S/N ratio
 - 8 fsc oversampling
 - 4 PCM audio channels with frequency response from 20Hz-20kHz
 - Single longitudinal audio channel is also provided
 - Multi-generation recording
 - 100X normal speed shuttle search forward/reverse
 - Advances to the next or previous 30-second tape spot in 5 seconds
 - On-screen setup display with settings easily changed
 - Full confidence playback allows real time monitoring of pictures while recording
 - Tilttable operation panel
 - SMPTE time code generator/reader REC inhibit switch
 - Error indicator
 - Serial digital in/out with AES/EBU digital audio in/out
 - Analog in/out
 - 9-pin serial RS-422A
 - RS-232C terminal
 - Small and large extender boards
 - Optional video encoder remote controller, AJ-ER30
- AJ-D340.....\$44,000.00

AJ-D320 D3 1/2" Composite Digital Portable VTR

- High picture quality, 52dB video S/N ratio and 5.5MHz (±0.5dB) video bandwidth
 - 4 PCM audio channels, with a frequency response of 20Hz-20kHz (+0.5/-1dB) and dynamic range of more than 90dB
 - Maximum 64 minutes of recording on 1 compact 1/2" cassette (AJ-TD60S)
 - Compact and lightweight: 5 3/4" x 11 1/4"W x 14 3/8"D main unit 15.4 lbs.
 - Digital video signal input terminal
 - Built-in A/D converter allows video signal input from an analog camera
 - SMPTE-standard 26-pin camera terminal
 - Built-in playback circuit allows audio/video playback without additional equipment
 - Time code window in playback picture
 - Selectable audio in level: -60/-20/+4dB
 - Phantom power supply (48VDC/12VDC) to mic/line connector
 - Built-in SMPTE time code generator (VITC/LTC) with addressable user bits
 - 5X normal speed search and 16X normal FF/rewind with color picture
 - Record review and key inhibit functions
 - Battery pack holds 2 AU-BP402 or 2 Anton/Bauer Compac Magnums
- AJ-D320.....\$42,000.00

Accessories

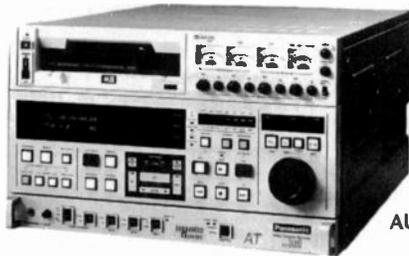
- AJ-CC1515 Remote control cable (15m) (AJ-D350/D350E).....\$ 325.00
- AJ-CP30 Control panel (AJ-D350/D350E).....7,500.00
- AJ-ER30 Digital video remote controller (AJ-D340/D350/D350E).....3,800.00
- AJ-MA30E Blank panel (AJ-D350/D350E).....775.00
- AJ-MA34P Rack-mount adaptor (AG-D340).....110.00
- AJ-MA35 Rack-mount adaptor (AJ-D350/D350E).....110.00
- AJ-SF30 Monitoring software (AJ-D340/D350/D350E).....2,150.00
- AU-BP402 Battery pack (AJ-D320).....325.00
- RSK-L Rack slides (long) (AJ-D340/D350/D350E).....205.00

D3 1/2" Digital Blank Tape

- AJ-TD30S 34 minute.....\$100.00
- AJ-TD46S 50 minute.....120.00
- AJ-TD60S 64 minute.....POR*
- AJ-TD10M 10 minute.....75.00
- AJ-TD30M 34 minute.....100.00
- AJ-TD60M 64 minute.....150.00
- AJ-TD90M 94 minute.....225.00
- AJ-TD120M 125 minute.....POR*
- AI-TD120L 125 minute.....300.00
- AJ-TD180L 185 minute.....460.00
- AJ-TD240L 245 minute.....POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AU-66H

AU-66H/65H MII Component Analog Studio Recorders

Common Features

- High-quality 90-minute recording and playback
- Picture-in-picture
- 1-event assemble editing and a full range of insert editing operations for video, audio (CH1/CH2) and time code
- Offers preview, review, go to, trim and auto tag
- Audio split editing
- Variable memory editing: when used with AU-63H Player, playback contents of the player's A/T mode within the range extending from normal speed in reverse to twice normal speed forward can be memorized by the recorder for playback and editing
- >49dB S/N video (component Y); > 56dB S/N audio
- Built-in digital 3-D type field 8-bit TBC featuring correction range of 1 field, 262.5H
- Digital freeze still
- Noiseless still
- 4-field sequence color framing
- 4-channel audio with independent level adjustment
- 4 VU meters
- Dolby C Noise reduction
- Internal time code reader (VITC/LTC/UB)
- User bits can be retrieved independently from either VITC or LTC
- NTSC 16:9 wide aspect compatibility
- Y/C in/out connector
- RS-422A serial interface
- High-speed search/jog
- Provides up to 32X normal speed in forward and reverse
- On-screen setup menu with search dial for settings
- Built-in digital hour meter
- Improved superimpose capability
- Optional CCIR601 output (digital component video) capability, AU-MK26
- Tape speed override allows manual 15% playback speed adjustment in 1% steps
- Optional encoder remote control, AU-ER65B
- 8-digit FL display
- 19" rack-mount capability using AU-M60 adaptor (requires only 6 vertical rack units)

AU-66H MII Component Analog Studio Recorder With Auto Tracking (AT)

Includes common features plus: Auto tracking

Confidence playback (audio and video) \$20,000.00

AU-65H MII Component Analog Studio Recorder

Includes common features \$15,750.00



AU-63H

AU-63H/62H MII Component Analog Studio Players

Common Features

- High-quality 90-minute playback
- Built-in digital 3-D type field TBC featuring correction range of 1 field, 262.5H
- Digital freeze still

- Noiseless still
- 4-field sequence color framing
- 4-channel audio with independent level adjustment
- 4 VU meters
- Dolby C noise reduction
- Internal time code reader (VITC/LTC/UB)
- User bits can be retrieved independently from either VITC or LTC
- NTSC 16:9 wide aspect compatibility
- Y/C output
- RS-422A serial interface
- High-speed search/jog
- Provides up to 32X normal speed in forward and reverse
- On-screen setup menu with search dial for settings
- Built-in digital hour meter
- Improved superimpose capability
- Optional CCIR601 output (digital component video) capability, AU-MK26
- Tape speed override allows manual 15% playback speed adjustment in 1% steps
- Optional encoder remote control, AU-ER65B
- 8-digit FL display
- 19" rack-mount capability using AU-M60 adaptor (requires only 6 vertical rack units)

AU-63H MII Component Analog Studio Player With Auto Tracking (AT)

Includes common features plus: Auto tracking function allows noiseless playback from -1X to +2X normal speed, plus instant starts from still frames in variable mode

Variable memory playback: changes in tape speed and direction can be memorized on models incorporating variable memory control functions (AU-65H/A950HD)

Program play: using the variable (A/T) mode, playback speed can be adjusted from 80%-120% in 0.1% steps to allow easier time compression or expansion for on-air production. \$15,300.00



AU-62H MII Component Analog Studio Player

Includes common features \$10,500.00

Accessories for AU-66H/65H/63H/62H

AU-ER65B	Encoder remote control unit	\$ 825.00
AU-IA35	Transcoder (Y, I/Q to Y, R-Y, B-Y)	1,000.00
AU-MK25	Parallel remote kit	340.00
AU-A15	Dual parallel remote control for MII or other VTRs (cable not included)	650.00
AU-M60	Rack-mount adaptor (ears)	95.00
AU-C5	9-pin serial cable, 16'	105.00
AU-C10	9-pin serial cable, 32'	145.00
AU-C30	9-pin serial cable, 96'	265.00
AU-MK26	4:2:2 component digital output installed	5,500.00
RSK-L	Rackslide for studio VTRs (long)	205.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AU-W35H/W33H/W32H POWER W Series MII Component Analog Studio Recorder/Players

The "Power" Series MII products are designed for specific application where RS-422 control will be used to drive these machines. Machine to machine editing can be accomplished by using either the AU-66H or AU-65H "EnHanced" Series MII decks as the recorder and any "Power" Series MII products as the source machine. The "Power" Series MII Recorder (AU-W35H) front panel does not have any edit control capability. Both the "Power" Series and "EnHanced" Series MII products can be controlled by the AG-A300 slow-motion controller and the AG-A350 single-event RS-422 edit controller products.

Common Features

- Full component bandwidth recording/playback system for superb picture quality
- Full 90-minute record/playback with AU-M90L tape
- Built-in 3-D type digital TBC with full 1 field correction capability
- 4 audio channels: FM (CH3/CH4) and linear audio (CH1/CH2); with 4 input and 4 output jacks
- 2-bar graph type audio level meters
- Built-in Dolby C^o noise reduction circuitry for linear audio tracks
- Full 4 field color framing control
- Built-in SMPTE time code generator/reader (VTC/LTC/User Bits)
- Adjustment knobs for all TBC setups (also remoteable)
- Y/C (S1-Video) input/output connectors for S-VHS editing and dubbing
- On-screen menu setup for simplified parameter settings
- NTSC 16:9 wide aspect ratio compatibility
- Maximum search speed 32X, jog/shuttle capable when using an edit controller
- RS-422A 9-pin serial interface
- Digital field freeze picture output during Stop mode produces noiseless stills
- Optional 4:2:2 output (digital component video) capability (with AU-MK26)
- Tape speed override (TSO); +5% playback speed adjustment, 1% steps
- Standard 19" rack-mount
- 6 RU with tiltable operation panel in addition for the AU-W33H only
- Noiseless pictures in still and slow motion with AT (auto tracking) (-1X to +2X normal speed, in 56 steps)
- Program play: noiseless playback speed adjustment (80%-120%), 0.1 % steps

AU-W35H	MII "Power" Series recorder	\$10,400.00
AU-W33H	MII "Power" Series player with auto tracking	10,400.00
AU-W32H	MII "Power" Series player	8,800.00
AU-MK26	Component digital (4:2:2) output	5,500.00

MII Metal Particle Tape

AU-M90L	90-minute video cassette tape	\$90.00
AU-M60L	60-minute video cassette tape	60.00
AU-M30L	30-minute video cassette tape	40.00
AU-M20L	20-minute video cassette tape	35.00
AU-M10L	10-minute video cassette tape	30.00
AU-M20S	20-minute video cassette tape (small)	35.00
AU-M10S	10-minute video cassette tape (small)	30.00
AU-MPSC	Metal particle cleaning cassette tape (small)	65.00



AU-W35H



AU-W33H



AU-W32H

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AU-55H MII ^{HD} Portable Component Analog Recorder/Player

- Component signal (Y/PB/PR) level-check function
- BNC component signal output (Y/PB/PR)
- Color-framing compatibility (recording/playback)
- Sony* BVR-3 remote controller can also be used
- 4 audio channels: FM audio (CH3/CH4) and linear audio (CH 1/CH2) with Dolby C noise reduction circuitry
- Phantom power supply (48VDC) to mic/line connector
- Convenient record/review functions
- Built-in SMPTE time code generator (VITC/LTC) and reader (LTC) with superimpose capability on the video output
- 5X normal speed search with color picture and time code
- RS-422A 9-pin serial interface
- Audio AGC (CH1/CH2)
- Video output level adjustment (Video Level, Sync Phase, SC Phase)
- External genlock

AU-55H \$13,000.00

*The name and mark Sony is the property of the Sony Corporation.



AU-410 MII Dockable Component Analog Recorder/Player

- Delivers high-quality pictures on par with 1" VTRs
- Records using component signals to deliver high-quality pictures from NTSC type video cameras
- Employs compact, lightweight cassettes with 20-minute recording time, usable in MII editing without an adaptor
- Playback heads for both audio and video, in addition to the recording head, to enable on-the-spot review of recording quality
- Automatic backspacing of 20 frames (approx. 0.7 sec.); successive pictures are recorded by means of "assemble" type recording for a smooth, glitch-free bridge
- Built-in time code generator: VITC/LTC
- Jamsync: time code can be recorded continuously at the edit points when performing backspace editing
- Ext. time code input
- 4-channel audio recording: 2 linear with Dolby C noise reduction, 2 FM multiplexed with the color signal
- Warning indicator lamp for: head drum or capstan servo trouble, head clogging, tape slacking or jam, excess humidity
- LED indicators
- Soft-touch buttons
- Phantom power (+48V) can be supplied to the audio input connectors for CH 1/CH 2

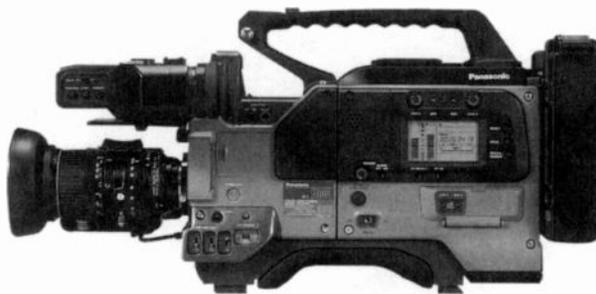
AU-410 \$9,850.00

AU-BP220V Battery pack (2.2 AH) 185.00

AU-B420 Battery charger used with AU-BP220V 850.00

AU-B110 AC adaptor 825.00

AU-M400 Battery holder 220.00



(shown with WV-F500)

AU-45H MII ^{HD} Dockable Component Analog Recorder/Player

- 68-pin connector allows direct docking with a variety of cameras (WV-F700ASH, F500/F250B, etc.)
- 4 audio channels: FM audio (CH3/CH4) and linear audio (CH1/CH2) with Dolby C noise reduction circuitry
- Built-in SMPTE time code generator (VITC/LTC/UB) with independent TC in/out terminals
- 2-year backup battery for TC/CTL
- Record/review function for 1-touch recording check
- VTR operation buttons (FF/Rew/Play/Stop) located on the top panel
- On-screen setup menu with digital time meter
- Self-diagnosis function prevents errors prior to recording
- Tape and battery meter
- Accepts AU-BP402 or Anton/Bauer battery pack

AU-45H \$7,000.00

Accessories for AU-55H/45H

AU-M402 Battery holder (AU-45H) \$475.00

AU-BP402 Battery pack for AU-45H/55H 325.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SVHS EDITING RECORDER/ PLAYER



Panasonic
Broadcast & Television Systems Company

AG-DS850 SVHS Hi-Fi Editing Recorder/Player With Digital Slow

AG-DS840 SVHS Hi-Fi Player With Digital Slow Common Features

- Designed for professional video production and broadcast systems
- Color blurring is eliminated by the Chroma Aperture Compensation circuit and expanded bandwidth
- Color uniformity is assured with Digital Field Forward APC circuit which raises chroma S/N
- Digital noise reduction
- Digital logical comb filter uses a 3-D system for complete Y/C separation
- Switching noise masking eliminates noise caused by head switching
- High quality slow playback
- Playback speed, including digital still is selectable in 10 steps (-1/4, -1/6, -1/8, -1/25, 0, +1/25, +1/8, +1/6, +1/4, +1/2)
- Optional AG-A300 Slow Motion Controller allows variable speed control
- 3-D digital time base corrector
- S-VHS and amorphous video heads
- 32X high speed search
- Jog/shuttle dial
- Audio split editing
- Insert editing and assemble editing
- 16:9 compatibility
- Automatic head cleaning
- Component video output for connection to other component video equipment
- RS-422A 9-pin interface
- 4-channel audio; 2 Hi-Fi stereo channels with 90dB dynamic range and 2 linear audio channels with Dolby® NR
- OSD menu setup
- TBC remote
- 19" rack-mountable with optional adaptor AG-M730E
- 3 RU



AG-DS850 Includes common features plus: ▪ Built-in time code generator/reader which allows LTC/VITC recording for precision time code editing ▪ Each audio channel has its own input and output with individual channel-level setting capacity. . . . \$7000.00

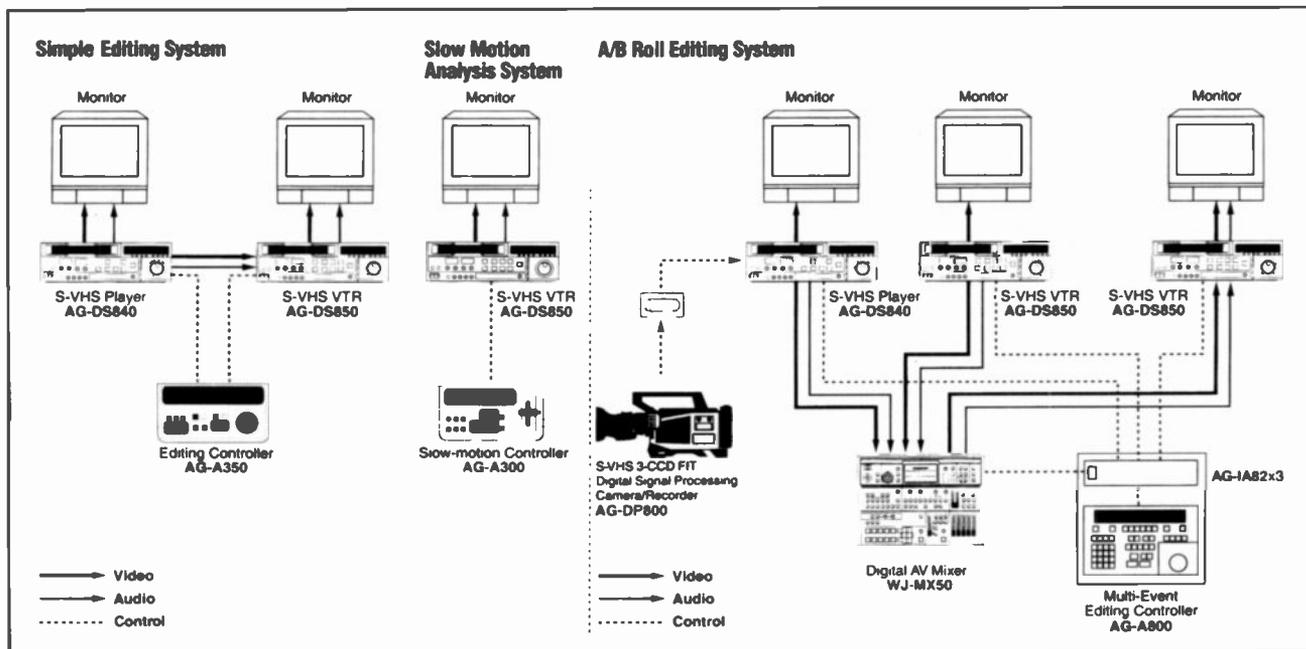


AG-DS840 Player version which includes the above common features plus: ▪ When combined with the AG-DS850, permits accurate editing with VITC ▪ 2 linear audio channels also can be used. TBA*

Accessories

AG-A300	Slow-motion controller	\$1500.00
AG-A350	Single-event controller	1000.00
AG-A600E	Remote control unit with search dial (10')	260.00
AG-A750	Full function editing controller, single event (16.4')	2350.00
AG-A770	Multi-event, serial editing controller	3150.00
AG-A800	A/B roll, multi-event editing controller	5000.00
AG-C70AE	S-Video (Y/C) cable (10')	20.00
AG-C71AE	S-Video (Y/C) cable (16.6')	25.00
AG-ER65B	Encoder remote control unit	825.00
AG-IA834	34-pin interface	500.00
AG-M730E	19" rack-mount bracket	105.00
NV-A505	Full function remote search controller with LED readout and dial (16.4')	1200.00
NV-C80	Remote control extension cable (16.4')	165.00

*To Be Announced



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AG-7350 2-Hour SVHS Hi-Fi Recorder/Player

- High performance digital servo circuitry
- Random auto repeat (zero stop/set rewind/repeat)
- 4-channel audio (2 Hi-Fi/2 linear channels) with Dolby NR
- Sub-loading system
- 5-digit real time counter with remaining-time indication
- Edit switch
- Virtually noiseless forward slow/reverse slow and frame shift
- 34-pin remote control connector
- Switchable audio monitoring: CH1/CH2/Mix
- Headphone level control
- 3 video modes: Color/Auto/B-W
- 19" rack-mountable (with optional adaptor)
- 58µm wide laminated amorphous video heads
- 90dB dynamic range
- Jog/shuttle
- 17-step shuttle dial with variable speeds from 1/2 to 11X
- Full loading tape mechanism offers stop to play mode with picture on screen in less than 2 seconds
- Soft pause
- Auto repeat play/counter memory functions
- Advanced chroma aperture circuit (CAC) and comb filter for outstanding color reproduction
- Digital circuitry for Y/C separation
- 6-hour playback capability (normal audio only)
- Wide 42µm heads for Hi-Fi audio (SP/2-hour mode)
- Optional LTC time code recording/playback using linear CH2 (with optional RS-232C serial interface board)
- Sensor recording
- On-screen menu display
- 48-hour memory backup for counter
- Mode lock for front panel controls
- Self-illuminated switches
- 11-bit digital servo
- Motherboard construction **\$3150.00**



AG-5700 SVHS / VHS Hi-Fi RS-232C Controlled Editing System

- Laminated amorphous video heads
- Digital tracking
- Cuts only insert/assemble editing with optional AG-A570 Edit Controller
- Built-in RS-232C interface for record, playback and editing control
- Separate Hi-Fi (CH1/CH2) audio recording level controls
- Sensor record keyed by presence of video input
- Quick play mechanism (1 second stop to play)
- Auto repeat
- Mono linear audio
- Y/C in/out, 4-pin
- Video in/out, BNC
- Compact, lightweight and professional design
- High-speed VISS (VHS Index Search System)
- Mode lock
- 2/6-hour record and playback **\$1900.00**
- AG-A11 Wired remote controller (16.7") **25.00**



AG-6850H VHS Hi-Fi Stereo Recording/Playback Duplicator

- 2-hour only
- IQ tape transport mechanism, including 5 direct-drive motors and separates SS brushless motors for both the supply reel and takeup reel
- Lower cylinder designed for durability
- Low power consumption, 25W in record mode
- Loophrough remote control
- Auto changer connectable
- Serial remote recording for up to 500 units
- Optional AG-IA12 serial remote transmitter
- 34-pin remote control terminal can be used to connect the optional AG-A600E Remote Control Unit
- Video and audio through-out terminal
- Auto off/eject status and warning indicator
- Large recording indicator
- Tape running indicator
- VCR mode indicator
- Simple internal select system
- Test terminals and hour meter
- Optional audio level meter available
- Hi-Fi channels (CH1/CH2) deliver 90dB dynamic range, while the linear channels feature Dolby NR. Input level controls are separate for Hi-Fi and normal channels (2 each), as are the rear panel audio input connectors **\$1850.00**



AG-7450A Dockable SVHS Hi-Fi Recorder/Player

- Improved preroll time (1.5 seconds)
- Directly dockable to the WV-F250BH/500H/700ASH cameras
- Laminated amorphous video heads
- Hi-Fi audio with 80dB dynamic range
- Anti-rolling system
- Rotary erase heads
- XLR audio input connectors
- Optional time code reader/generator
- Optional VCR adaptor **\$3350.00**

For Dockable Packages see page 247

AG-5210 Multi-Purpose VHS Recorder/Player

- 2/4/6 (SP/LP/EP) recording/playback
- Hi-Fi recording (SP/EP)
- Durable lower cylinder
- Durable capstan shaft
- AGC on/off switch
- AG-IA12 serial remote control (optional)
- Auto head cleaning
- 4 heads
- Mode lock switch
- K series chassis
- Manual eject operation in serial mode
- Hour meter
- Tab out record capability **\$950.00**
- AG-IA12 Serial remote control **175.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VHS RECORDER/PLAYER/ LASERDISC PLAYERS



Panasonic
Broadcast & Television Systems Company



AG-W1 VHS Universal Recorder/Player

- Record and playback in any TV broadcast system—NTSC, PAL or SE-CAM
- Advanced digital technology, including a field memory chip, specially developed LSIs for control and VTR sections
- Playback to any monitor
- Fully amorphous, laminated video heads
- Multi-voltage selection capability 100-127/220-240VAC (50/60Hz)
- Hi-Fi stereo audio system with 90dB dynamic range and 20Hz-20kHz frequency response
- Convenient front panel geographical (standards) display
- Functions as a stand-alone converter
- SQPB for VHS playback of S-VHS tapes

Standard Accessories

- Infrared remote control (includes 2 "AA" batteries)
- AC power cable
- Video cable
- Audio cable

AG-W1 \$2790.00



AG-LD30 Multi-Laserdisc Player

- RS-232C computer port for connection to a PC
- Supplied with software drivers, making it compatible with majority of applications operating on Apple Macintosh and IBM/IBM-compatible platforms
- Digital TBC and digital Y/C comb filter
- Headphone output jack
- MASH digital audio system
- Spin-up time of only 12 sec.
- Laserdisc barcode capability
- S-Video (4-pin Y/C) output for improved picture quality
- RF modulator (CH 3/4) output for connection to a TV
- Multi-laserdisc capability (3" and 5" audio capability and CD video capability)

AG-LD30 \$935.00
 LY-B155T Barcode remote controller 190.00
 IFC-LMAC RS-232C interface cable (for Apple Macintosh computer) 25.00
 IFC-LPS2 RS-232C interface cable (for IBM Model PS2 personal computer) 25.00
 IFC-LAT RS-232C interface cable (for IBM/IBM-compatible personal computer) 25.00



LX-121 Multi-Laserdisc Player

- Level 1 interactive capability
- Digital time base corrector
- Digital Y/C separation circuit
- Laserdisc barcode capability
- S-Video (4-pin Y/C) output
- RF modulator (CH 3/4) output for connection to a TV
- Multi-laserdisc capability (3" and 5" audio capability and CD video capability)

LX-121 \$710.00
 LY-B155T Barcode remote controller 190.00



NV Series SP Professional Blank Videotape*

NV-ST120M Professional 120-minute \$18.00
 NV-ST60M Professional 60-minute 16.00
 NV-ST20M Professional 20-minute 13.00

NV Series SP Blank Videotape

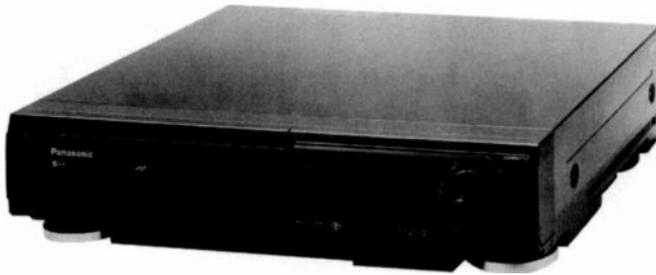
NV-ST120ZX 120-minute \$10.99
 NV-ST60ZX 60-minute 9.99
 NV-ST30ZX 30-minute 11.00

NV Series VHS Blank Videotape*

NV-T120ZHT 20-minute high grade \$4.99
 NV-T120ZST 120-minute standard 3.99
 NV-T60ZS 60-minute standard 3.95
 NV-T30ZS 30-minute standard 3.89

*Shipped in standard packing quantities 10 to a carton.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AG-1970 Basic S-VHS /VHS Hi-Fi Editing System

- Digital TBC ▪ S-VHS with amorphous video heads ▪ Built-in TBC
- 5P edit terminal for AG-A96 multi-event editing controller and other manufacturers' controllers ▪ Jog/shuttle ▪ Insert/assemble editing with rotary erase head ▪ Hi-Fi stereo sound with level control level meter ▪ Picture search with sound ▪ Hi-Fi/normal audio mix
- S-Video/BNC/phono, video in ▪ Quick response mechanism ▪ Auto head cleaning ▪ Digital tracking ▪ Built-in MTS and SAP compatible
- 155-channel TV-tuner ▪ Tape index/sound search system ▪ Wireless remote

AG-1970	\$1850.00
AG-C70AE S-Video cable (10')	20.00
AG-C71AE S-Video cable (16.6')	25.00

AG-1290 VHS Recorder/Player

- S-VHS quasi playback ▪ Super 4-head HQ system ▪ Auto head cleaner ▪ Digital auto tracking ▪ Digital auto picture ▪ 9X (SP) 27X (SLP) search speeds ▪ Slow motion playback—still frame picture, frame advance ▪ English/Spanish OSD for function/instruction display ▪ Playback auto eject (tape ejects after rewind) ▪ 1-minute skip (skipover commercials recorded on a tape) ▪ Zero search (use counter reset to mark video) ▪ Ideal for the education and the industrial market

AG-1290	\$365.00
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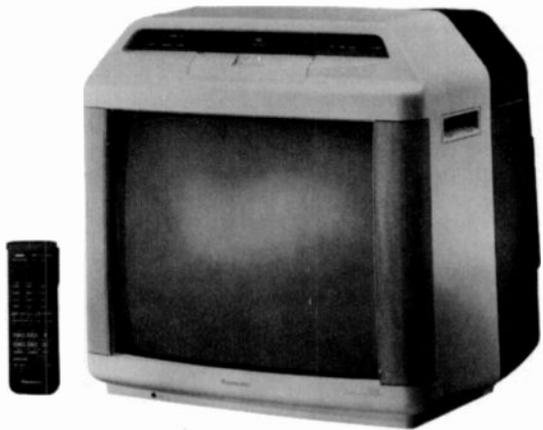
AG-2530 VHS Recorder/Player

- Super drive system ▪ Full time full loading system ▪ Quiet switching
- More than 230 lines horizontal resolution ▪ Twin tension regulators
- Servo microprocessor ▪ 4 heads ▪ Picture clear circuit ▪ Auto head cleaning ▪ 1-piece aluminum diecast chassis ▪ Direct drive cylinder motor ▪ Super jog and shuttle puts 19-step control over playback speed ▪ Quick view ▪ LCD bar code remote control ▪ 181 channels
- 1-touch index system ▪ Digital auto tracking ▪ Manual tracking control ▪ Picture sharpness control ▪ Variable super fine slow ▪ 2-way cue and review ▪ Repeat playback ▪ SQPB (VHS level playback of S-VHS tapes) ▪ Skip search ▪ 1-month, 8-program, 100-year calendar timer ▪ Tape remaining indicator ▪ V-lock adjustment ▪ Antenna input/output UHF/VHF: 75-ohm unified coaxial antenna terminal

Standard Accessories

- Wireless remote controller ▪ Coaxial cable ▪ AC power cord
- | | |
|---------------|-----------------|
| AG-2530 | \$650.00 |
|---------------|-----------------|

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**AG-520AH 20" Diagonal Color Monitor/
VHS Hi-Fi Recorder/Player**

- 4-head system for fine slow/still picture ▪ Hi-Fi stereo sound ▪ Dual high-quality dome speakers ▪ Bass/treble/balance control ▪ Stereo headphone jack ▪ SQPB for VHS playback of S-VHS tapes
- Programmable 4-memory (weekly/daily) playback timer with auto repeat ▪ Play lock on playback ▪ Mode lock switch ▪ Auto head cleaning ▪ Quick start mechanism ▪ On-screen real time counter
- On-screen menus for programmable playback timer ▪ Book mark search and time search ▪ BNC video in/out terminal ▪ 3-prong power cord

Standard Accessories

- Wireless remote control ▪ 2 AA batteries

AG-520AH \$895.00



**AG-513A 13" Diagonal Color Monitor/
VHS Recorder/Player**

- Super 4-head system for clear still/slow double-fine playback
- 2/4/6-hour recording and playback ▪ SQPB for VHS playback of S-VHS tapes ▪ Play lock on playback ▪ Special effects on playback
- Auto head cleaning ▪ On-screen menus for programmable playback timer ▪ Time search ▪ Book mark search ▪ Auto tracking
- Quick playback ▪ Rapid search ▪ Field still advance

Standard Accessories

- 27-function wireless remote control ▪ 2 AA batteries

AG-513A \$640.00
PC-513A Soft carrying case 100.00



**AG-520A 20" Diagonal Color Monitor/
VHS Recorder/Player**

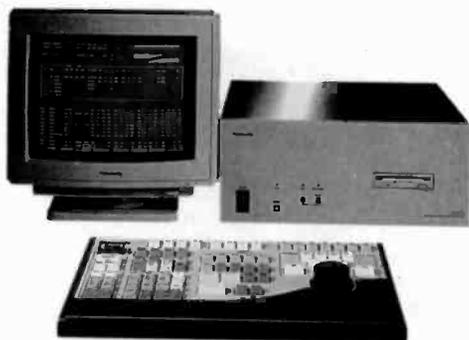
- Super 4-head system for clear still/slow double-fine playback
- 2/4/6-hour recording and playback ▪ SQPB for VHS playback of S-VHS tapes ▪ Play lock on playback ▪ Special effects on playback
- Auto head cleaning ▪ On-screen menus for programmable playback timer ▪ Time search ▪ Book mark search ▪ Auto tracking
- Quick playback

Standard Accessories

- 27-function wireless remote control ▪ 2 AA batteries

AG-520A \$695.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AU-A950HD Production Editing Controller

- Versatile production tool for S-VHS, MII and D-3 ▪ 5-VTR, RS-422 direct control (4 source, 1 record) ▪ 130M byte hard disk drive
- Video and audio control by means of RS-422 ports ▪ Preset-MEM control will read, store and write to memories in switcher devices; EDL will store memory settings, allowing perfect retrieval of effects
- 10 GPI outputs, 2 GPI inputs ▪ Centronics standard printer port
- RS-232C (25-pin) port ▪ PC compatible RS-232C (9-pin) port for a mouse, modem or other peripheral ▪ ISA standard bus ▪ A/B/C roll editing
- Toggle A/B after edit ▪ Auto tag source after edit ▪ 4-channel audio editing ▪ Variable memory editing ▪ Fit and fill editing
- Pre-read editing ▪ Temporary recording ▪ Color frame detection and control ▪ 2000 event memory and CMX format EDL, including notes and block division ▪ Built-in 3.5" floppy disk drive ▪ Help key and interactive dialogue displays ▪ Color graphic display ▪ Programmable function keys, up to 50-key stroke can be registered using PF keys 1-8 ▪ Multi-preview ▪ Assign any 4-digit numbers to an event
- Arrow keys

AU-A950HD \$15,500.00

C-1381i Color computer monitor \$65.00

AG-A800 Multi-Event Editing Controller

- 128-event memory using control track or SMPTE time code ▪ 2-source VCRs can be alternated for multi-source editing ▪ Use of an A/V mixer (WJ-MX50, optional) enables simultaneous playback from 2-source machines for creation of special effects in multi-event editing ▪ A/B roll editing ▪ Single jog/shuttle search dial ▪ External capstan override ▪ Audio split editing ▪ Aux control for remote control of playback start/stop of external equipment ▪ RS-232C 25-pin D-Sub connector ▪ Separate control panel and interface unit
- Digital edit point memory ▪ Remote selection of time code generator modes ▪ Switchable preroll time settings: 3/5/7/10/15 seconds ▪ 19" rack-mount adaptor ▪ 15-pin to 15-pin cable

AG-A800 \$5,000.00



AG-A770 Multi-Event Serial Editing Controller

- 128-event edit memory ▪ RS-422 (9-pin) serial control capability
- Performs editing control using SMPTE time code (or CTL) ▪ Audio split editing ▪ Auto tag and event increment functions ▪ Separate jog/shuttle dials and mark in/out buttons for player side and recorder side

AG-A770 \$3,150.00

AG-A750 Editing Controller

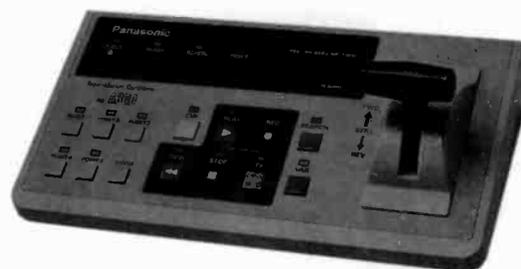
- Edit point setting with large jog and search dial ▪ Frame trim for simple revision of edit in and out points ▪ Auto-prompting illuminated switches ▪ Preview of programmed edit prior to actual editing ▪ Easy automatic review ▪ LED frame counter (green) readout in hours, minutes, seconds and frames ▪ Free choice of editing mode
- Preroll for both source machine and editor ▪ Lap time display
- Audio monitor level adjustment for both source machine and editor ▪ Trigger output

AG-A750 \$2,350.00

AG-A350 Editing Controller

- 9-pin RS-422A serial remote control ▪ Compact design (9 1/4" x 5 1/4")
- Jog/shuttle dial ▪ Insert/assemble editing ▪ CTL/TC switchable counter display ▪ Noiseless slow motion editing with AT/slow motion VCRs ▪ Selectable preroll time ▪ Audible and visual error display ▪ ±0 frame accuracy (with a reference input)

AG-A350 \$1,000.00



AG-A300 Slow Motion Controller

- Jog/shuttle lever ideal for slow motion control ▪ 9-pin RS-422A serial remote control for S-VHS or MII with AT/slow motion function
- 5 cue point entry for easier editing ▪ Compact design (9 1/4" x 5 1/4")
- CTL/TC switchable counter display ▪ Error display (LED/audible)

AG-A300 \$1,500.00

AG-A570 RS-232C Editing Controller for AG-5700

- Jog/shuttle dial ▪ 2 RS-232C 25-pin connectors to VCR ▪ 2 AG-5700 units connected by RS-232C terminals can be used as a player and a recorder ▪ Facilitates single-event editing using the control track signal; insert/assemble editing (video, audio, audio/video insert modes) ▪ Includes AC adaptor

AG-A570 \$700.00



AG-A96 Multi-Event Editing Controller

- Controls 2 AG-1970 VCRs for automatic editing ▪ Direct tape search ▪ 8 programmable memory inset and outset points
- Assemble/insert/audio dub ▪ Built-in jog/shuttle search dial
- Preview and edit stop functions ▪ LCD multi-function display
- High-speed edit function

AG-A96 \$520.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**AS-D700
Composite
Digital
Production Switcher**

• Meets SMPTE standards for composite serial digital • Custom developed ASICs provide compact size and low power consumption • Provides 4 buses for up to 10 inputs and is supported by a wide array of available options, including analog and parallel digital I/O • User friendly

Multiple Input/Output Format: ASICs provide stable crosspoint switching and also operates as an AUX bus; optional modules can be added to expand to as many as 4 parallel digital inputs and 8 analog composite inputs for a max of 27 inputs.

Keying (4-bus System): Background effects, key source and key fill for keys 1/2 can be selected independently; keys can be synthesized, combining key buses and external keys as sources; switcher can be combined with digital video effect processor to provide 3-D effects; variety of fills: matte, key bus, color background 1/2, plus motion color is possible; over-key changes priority; chroma key option

Transitions: Wipe, mix and NAM; linked with digital video processor, 3-D effects can be controlled by fader; 3 types of transitions: fader, cut and auto (1-999 frames)

User-Friendly and Memory Functions: Up to 20 wipe, DSK and other patterns can be stored into preset memory; transition memory has a total of 20 registers, 10 for each of the 2 types of effect sequences; contents of preset and transition can be backed up to an optional memory card; key memory function can store keying parameter for each element; high resolution wipe patterns; 48 wipe patterns, including matrix wipe, are standard; wipe key sets softness, border, reverse, position, aspect and spin; wipe patterns are displayed with LEDs

Motion Color Background: Frequency, angle and phase can be freely adjusted; 4 gradation patterns

Shadow Generator (option): Edge, outline, drop shadow and flying shadow effects can be added to the DSK; flying shadow can be set to any position on the screen; AVDL adjusts phase of input signals to synchronize with reference; look ahead preview; clean feed output; fade to black

Interfaces for VCR Editors and Effect Processors—(Optional digital video effect processor interface): Fader link operation, switcher fader can control effects such as squeezing and sliding; normal mode output can be selected as a switcher input; input can be an aux bus; forced background, effects can be layered **(Editor interface):** Interface functions for AU-A65 and AU-A950 standard; GPI control **(Tally output):** Output for each crosspoint **\$28,500.00**

Accessories

- AS-A701/702 Analog composite signal input/output module for using the AS-D700 in existing analog systems (up to 2 boards can be mounted)
- AS-A701 8 bits, 4 inputs, 2 outputs **\$4,000.00**
- AS-A702 10 bits, 2 inputs, 2 outputs **7,600.00**
- AS-A703 Parallel input/output module, provides 4 inputs and 2 outputs conforming with SMPTE parallel digital standards **1,200.00**
- AS-A704 RGB chroma key unit **3,800.00**
- AS-A705 Shadow generator **3,000.00**
- AS-A706 Video effect processor interface **3,300.00**
- AS-A707 Extender board **490.00**
- AS-A708 Rack-mounting adaptor **100.00**
- AS-A709 Memory card **80.00**
- AS-A720 Analog processing rack. Mount up to 10 digital/analog modules **4,000.00**
- AS-A721 Module. Converts analog signals into 8-bit serial digital signals. Has 3 analog distribution lines and 3 digital outputs **2,200.00**
- AS-A722 Module. Converts analog signals into 10-bit serial digital signals. Has 3 analog distribution lines and 3 digital outputs **3,000.00**
- AS-A723 Module. Converts serial digital signals (8-bit D/A conversion). Has 3 digital distribution lines and 3 analog outputs **1,000.00**
- AS-A724 Module. Converts serial digital signals into analog signals (10-bit D/A conversion). Has 3 digital distribution lines and 3 analog outputs **1,600.00**
- AS-A730 Digital processing rack. Mounts up to 12 serial digital parallel signal conversion modules **3,500.00**
- AS-A731 Module. Converts serial digital signals into parallel digital signals. Has 3 distribution lines and 1 parallel digital output **800.00**
- AS-A732 Module. Converts parallel digital signals. Has 3 serial digital outputs **900.00**

AS-D740 Component Digital Production Switcher

• 10-bit 4:2:2 at 13.5MHz component digital I/O • 1 mix/effects processor • 3 linear key processors • 16 standard serial inputs (auto timing) • 12 assignable external keys • 20 effects memories with transitions • Dual chroma key option • 625/525 selectable • 16:9 aspect at 13.5MHz selectable • Rack-mount control panel • 5 RU main chassis **TBA***

AS-D590 32x32 Digital Routing Switcher

• Can be set up by connecting coaxial cables • Dedicated 16 input/16 output crosspoint ASIC • Dedicated ASICs make serial digital switching stable and precise • Automatic cable equalizer for serial digital signal input; equipment can be connected with cables up to 650' (using 8281 cable) • Switcher is equipped for RS-232D, RS-422 and parallel switching control. **\$25,200.00**

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WJ-MX50 Professional Digital A/V Mixer

- 2-channel digital frame synchronization permits special effects in each of the A/B program buses
- 4 sources can be switched and any 2 of them routed to the program buses
- A/B program buses can be monitored at the A/B program outputs while the mixed picture is monitored at the preview output
- The master recording output can be selected at the effect switch in the program out section
- Compatible with a wide variety of video editing devices
- GPI input



Other features

- RS-232C connection: it is possible to program more wipe patterns by combining external wipe pattern control numbers assigned with zoom, scroll, multi, blinds, pairing, multi and pairing and other operating mode details
- RS-422 connection: 1-99 wipe patterns can be accessed from AG-A800 optional Multi-event Edit Controller. Maximum accessible number via RS-422 is 255. An additional 32 wipe patterns can be operated manually on the WJ-MX50
- Digital special effects: 62 steps strobe, still, frame, mosaic, negative, paint (posterization), mono, multi (1/4, 1/2 or 3/4 screen), trail and AV synchro (any combination of 6 of the digital visual effects can be programmed to trigger with selected levels of the accompanying audio)
- 287 wipe patterns: combination of 7 basic patterns and other effects can create 287 patterns. Basic wipe patterns: multi wipe, pairing, wipe edge decoration (blinds), compression, slide, H/V aspect, wipe boundary effects, joystick positioner, wipe direction
- Wipe/mix section: non-additive mix (NAM); B-bus luminance key/line chroma key; when luminance key is selected, low-luminance portions of the picture are cut off and mixed with the A-bus video; when chroma key is selected it is possible to address the colors in the B-bus video to be cut off and mixed with the A-bus video; automatic A/B roll (auto take); audio follow
- Fade-in/fade-out: video/title/audio individually or synchronously faded; fade to/from white/black/black color/A-bus/B-bus; automatic fade run (auto fade)
- Downstream key: selectable sources: character generator, A-bus, B-bus, external camera; key level control adjusts pattern sensing level; reverse switch permits interchanging patterns high and low; selectable 8-color matte generator to the DSK; edge effects; connection with optional WJ-KB50 and WJ-KB15 character generators
- Automatic programmable effects: incorporates 8 separate memories; serial switching of events 1-8 using auto take or GPI trigger; effect run transition control is available
- Color correction
- Audio mixing capability

- Wipe/mix section
- Fade-in/fade-out
- Downstream key with 8-color matte generator
- 3 sources plus matte generator can be switched, any 2 of them routed to the program buses
- A/B program buses can be monitored at the A/B program outputs while the mixed picture is monitored at the preview output
- Color correction
- Audio mixing with audio-follow or breakaway capability
- Master recording output can be selected at the Effect switch in the Program Out section
- External remote control input for RS-232C serial control
- GPI input
- Compatible with WJ-KB15 and WJ-KB50 character generators

..... \$2650.00

WV-KB12A Full keyboard titler with scroll 230.00

WJ-KB50 Character Generator

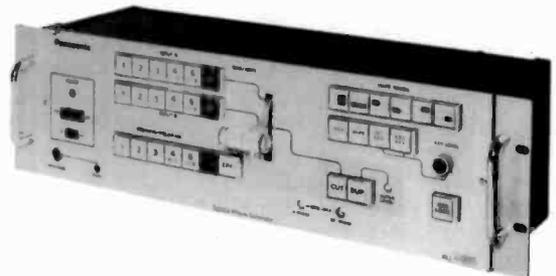
- Designed to operate with WJ-MX50/MX30
- Character size: 4 levels (horizontal) x 4 levels (vertical), adjustment on an individual line is available
- 5 language modes: English, German, French, Spanish, Italian
- Scrolling: P1-P10, up/down/to right/to left
- Crawl mode (single-line scrolling); upper/lower, from right to left
- Fonts: Gothic/Roman normal/Roman Italic
- Wipe/window wipe functions
- Date/time/stopwatch functions

..... \$690.00

WJ-KB15 Character Generator

- Random access key selections
- When the WJ-KB15 is connected with the WJ-MX30/MX50 the following functions/operations are possible: 9 pages of character displays and a scroll feature for versatile program productions; 1 page (page A) of character display with date and time display capability; stopwatch with lap time; title positioning feature

..... \$360.00



WJ-4600C Color Special Effects Generator

- DC operation for EFP use
- Vertical interval switching of 6 program inputs
- Fades, dissolves and 6 wipe patterns
- Super external key (monochrome); internal key
- Built-in EIA RS-170A sync generator (HD, VD, sync, BL, BFP, SC and blackburst outputs) plus genlock capability
- Genlock circuitry for non-synchronous video signal mixing
- Subcarrier phase and horizontal phase adjustments for genlock
- Blackburst (program output only) 3 outputs
- Can mix composite and non-composite video inputs
- Effect, preview and 2 program outputs
- "Cut" pushbutton transfers program and preview buses
- 2-step illuminated, non-locking pushbuttons—light dimly when pressed to indicate selected preview inputs; light brightly when pressed to indicate selected program inputs
- Illuminated lock-release buttons light up when pressed to show function selected
- Supplies intercom power to 6 cameras and level adjustable
- Supplies tally light on/off switching to all 8 inputs
- BNC connectors
- Audio amplifier for intercom with level control
- Rack-mountable
- AC or 12VDC

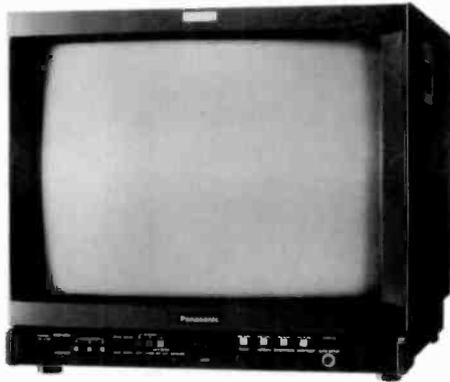
..... \$3190.00

WJ-MX30 Digital A/V Mixer

- 2-channel digital field synchronization
- Allows special effects in each of the A/B program buses
- 3-step picture-in-picture
- Digital effects include: 62 steps strobe, still, mosaic/scramble, negative, paint, mono, AV synchro
- 108 wipe patterns



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AT-H1905D 19" Diagonal NTSC/PAL Selectable Digital Signal Color Video Monitor

- PAL/NTSC Decoder for AT-H1905D— Decodes PAL or NTSC composite analog or digital signals
- Auto setup probe optional
- Digital signal processing of analog and digital signals through 5-line adaptive comb filter for elimination of dot crawl
- I and Q axis demodulation
- Direct inputs for serial composite, serial component, parallel composite and parallel component digital signals for the highest versatility
- NTSC analog inputs and RGB/Y_PP_R input
- Switchable 4:3 and 16:9 aspect ratio
- SMPTE-C phosphor for true color renditions
- EDH check function for early warning of deteriorating serial digital transmission
- Improved extra high tension voltage for very stable bright pictures
- UL listed
- More than 900 lines horizontal resolution
- Frequency response: 100Hz–8MHz ±1dB
- CRT: (0.28mm, dot pitch) dot inline 90° deflection impregnated barium cathode for long CRT life, Invar shadow mask for stable purity
- Color temperature: 9300K; 6500K; 3200K and user memory TBA*
- ET-AK105 Auto setup probe. For automatic white balance adjustment or copying master monitor's settings to other AT-H1905D monitors \$2700.00
- RSK-L1905 Rack slide kit 110.00



AT-H1900 19" Diagonal High Resolution Color Video Monitor

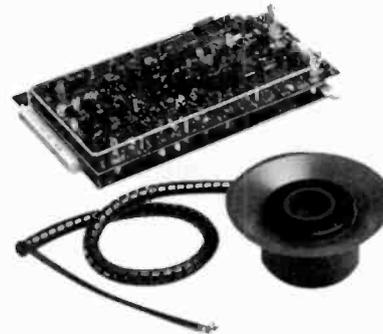
- 600-line horizontal resolution
- NTSC chroma decoder with I and Q demodulation
- Beam current feedback system
- Wideband CCD comb filter
- Switchable comb and trap filters
- Separated Y/C signal inputs
- RGB/Y_PP_R inputs
- 3 selectable video inputs
- PAL capability can be added to NTSC chroma decoder
- Front panel controls
- Color/

- monochrome split screen display
- Residual subcarrier display switch
- NTSC correction matrix circuit (switchable)
- Aperture correction circuitry (up to >10dB)
- Automatic degasser with manual switch
- Blue only switch
- Horizontal AFC time constant is switchable between 0.5ms and 2ms
- Normal/underscan selection switch
- Monitoring of blanking intervals
- Horizontal scanning automatically detects and switches between 525/625 lines (optional PAL decoder is needed)
- No burn in
- R/G/B cathode drive circuit can be switched on/off individually
- Dedicated DC power supply for CRT heater
- 145W power consumption
- Remote control capability
- AT-H1900 \$8000.00



ST-1000M 10" Diagonal Color Video Monitor

- 100% solid-state IC chassis
- 300 lines resolution
- BNC video in/out with automatic termination
- Comb filter
- Metal cabinet and magnetic shield ring (for the deflection yoke) to reduce interference
- B/W color mode switch
- Front panel controls
- Optional rack angle brackets for rack-mounting
- Use in security, medical, scientific/industrial process observation, fiberoptic and studio monitoring, closed circuit TV applications
- No audio
- ST-1000M \$730.00



ET-AK100 Auto Setup Kit

- For AT-H1900
- Consists of the auto setup probe and a CPU circuit board
- To record brightness data simply plug the probe into the terminal and position it in the center of the screen
- Simply position the sensor probe in the middle of the screen and press auto setup button to correctly adjust chroma, phase and white balance automatically
- Any 1 of 5 color temperature setups can be selected as standard
- Choose between the built-in 9300K, 6500K and 3000K presets as well as 2 additional user-defined settings
- Also possible to record the color temperature setup of a different monitor to achieve matched color reproduction
- All operating menus and current settings appear on screen for easy confirmation
- ET-AK100 \$2700.00
- ET-LK190 19" rack-mount kit (AT-H1900) 300.00

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



BT-D1920Y/BT-M1310Y High-Grade S-Video Color Video Monitors

Common Features

- S-VHS compatible
- More than 560 lines of horizontal resolution
- Versatile in/out connectors, including line 1/2/ext sync/RGB, all with automatic termination; also 8-pin VCR in/out
- Line 1/2/VCR/RGB selectable
- Component (Y, R-Y, B-Y) input available as option
- Versatile front panel controls: Preset picture on/off; line 1/2 split; setup switch; RGB cutoff; fast/slow time constant; pulse cross; normal/underscan; blue signal only; color/auto/mono mode; comb/trap filter; degauss
- Separate H/V size controls; H and V centering controls; V-hold control
- Commercial UL listing; 3-prong AC power cord
- Rack-mountable
- Front panel tally lamp
- Rugged metal cabinet construction



BT-H1350Y 13" Diagonal Color Video Monitor

- SMPTE Type-C phosphor
- 0.31mm dot pitch
- 750 lines horizontal resolution
- Line 1, Line 2, RGB input
- External sync in/out
- Front mounted 1.5W speaker
- Selectable color temperature (9300K or 6500K)
- Blue only, underscan, pulse cross
- Multi-standard (PAL, SECAM, NTSC 3.58, NTSC 4.43)
- MII and S-VHS compatible
- Rack-mountable with optional rack-mount . . . \$1430.00



BT-D1920Y 19" Diagonal High-Grade S-Video Color Video Monitor

Includes common features plus:

- 0.55mm dot pitch data-grade CRT
- Gray face screen (transparency, 70%)
- More than 90fL brightness and 40 + 5fL preset contrast. \$2265.00

Accessories for BT-D1920Y/M1310Y/H1350Y

BA-131	
Rack-mount brackets, 1 pair (BT-H1350Y)	\$130.00
BA-M100	
Component (Y/R-Y/B-Y) adaptor	110.00
ET-100YC	
S-Video/BNC conversion adaptor, 2 pieces	75.00
AG-C70AE	
S-Video (Y/C) cable (10')	20.00
AG-C71AE	
S-Video (Y/C) cable (16.6')	25.00



BT-M1310Y 13" Diagonal High-Grade S-Video Color Video Monitor

Includes common features plus:

- 0.39 dot pitch medium-grade CRT \$2000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



BT-S1900N 19" Diagonal Color Video Monitor
 ■ High resolution CompuFocus picture tube with overlapping field lens gun ■ Line 1/2/VTR selectability ■ External sync switch for use with non-composite video signal ■ Normal/underscan switch ■ Chroma switch for black and white display ■ Blue only switch defeats red and green signals; makes hue and chrominance adjustment easier ■ Pulse cross switch (H-delay, V-delay) ■ Audio monitoring with built-in speaker ■ Comb filter ■ Rack-mount kit included (slides required) \$1095.00



BT-S1360Y 13" Diagonal Color Video Monitor
 ■ 420 lines horizontal resolution ■ Auto white balance ■ Blue signal only; underscan, pulse cross and comb filter switches ■ AFC select ■ 1.5W speaker ■ Rack-mountable with optional bracket, BA-131 ■ Line 1 or S-Video, Line 2 or VTR inputs \$1065.00

BT-S1370Y 13" Diagonal Multi-Standard Color Video Monitor
 ■ Multi-standard compatibility (NTSC, PAL, SECAM, M-NTSC) ■ Auto white balance ■ Blue signal only ■ Selectable Line 1 (BNC/S-Video)/Line 2 (BNC/VTR) ■ 420 lines horizontal resolution ■ Rack-mountable with optional bracket, BA-131 ■ Headphone jack \$910.00

BT-S1000N 10" Diagonal AC/DC Color Video Monitor
 ■ Built-in audio ■ Normal/underscan switch ■ Built-in pulse cross circuit ■ Blue only capability ■ 300 lines of resolution with comb filter ■ AC/DC operation ■ Line/VCR selectable ■ Automatic 75 ohm termination ■ External sync switch ■ Rack-mountable or desktop \$760.00



BT-S900Y 9" Diagonal AC/DC Portable Color Video Monitor
 ■ AC/DC operation with optional AG-BP212 (2 batteries required) ■ Blue signal only, underscan, pulse cross and comb filter ■ Line/S-Video in/out ■ 1.0W speaker ■ 300 lines horizontal resolution ■ Built-in battery charger ■ Rack-mountable with optional bracket, BA-90A \$945.00

BT-S901Y/S901YW 9" Diagonal High-Grade Color Video Monitors
 ■ 300 lines horizontal resolution ■ S-VHS compatible ■ Compact metal cabinet ■ 0.47mm dot pitch ■ 90° deflection angle ■ Underscan; pulse cross; blue signal only ■ Comb filter for color resolution ■ Rack-mountable; dual rack-mountable with optional heavy-duty rack-mount bracket, BA-90A ■ Line 1/Line 2 selectable; S-Video/video selectable for Line 1 ■ External sync input/output for non-composite video signals ■ Built-in audio amp and speaker, 1.0W audio output ■ Auto termination ■ Automatic degaussing . . \$720.00
 BT-S901YW Same as above except with white cabinet 735.00



Accessories

- AG-BP212 Battery pack 12V, 2.3AH (BT-S900Y) \$ 70.00
- AG-C70AE S-Video (Y/C) cable (BT-S1360Y/S1370Y/S900Y/S901Y) 20.00
- AG-C71AE S-Video (Y/C) cable (BT-S1360Y/S1370Y/S900Y/S901Y) 25.00
- BA-90A Rack-mount brackets, 1 pair (BT-S900Y/S901Y) 92.00
- BA-100 Rack-mount brackets, 1 pair (BT-S1000N) 70.00
- BA-131 Rack-mount brackets, 1 pair (BT-S1360Y/S1370Y) 130.00
- ET-100YC S-Video/BNC conversion adaptor 2 pieces (BT-S900Y/S901Y/S1360Y/1370Y) 75.00
- NV-C450 Car battery cord, 16.7' (BT-S900Y) 50.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



COLOR VIDEO MONITOR/RECEIVERS

CT-2584VY 25" Diagonal Color Video Monitor/Receiver

- 100° deflection tint face screen ▪ 450 lines horizontal resolution
- Easicon™ on-screen menu ▪ Selectable S-Video or Line/RF
- Wireless infrared remote control ▪ On-screen display for adjustment of sharpness, brightness, color, tint and channel selection ▪ 181-channel cable compatible tuner ▪ Programmable channel scan ▪ Auto power on/off ▪ Built-in closed caption decoder
- 1.5W audio amp ▪ Two 2.5" speakers \$695.00



CT-2084VY 20" Diagonal Color Video Monitor/Receiver

- 90° deflection flat square screen ▪ 450 lines horizontal resolution
- Easicon on-screen menu ▪ Selectable 1/2/3/S-Video/RF ▪ 20-function wireless infrared remote control ▪ 181-channel cable compatible tuner
- Programmable channel scan ▪ Auto power on/off ▪ Built-in closed caption decoder ▪ 1.5W audio amp ▪ 2.5" speaker \$495.00

CT-1384VY 13" Diagonal Color Video Monitor/Receiver

- 90° deflection screen ▪ 420 lines horizontal resolution ▪ Easicon on-screen menu ▪ Selectable line 1/2/3/S-Video/RF ▪ Wireless infrared remote control ▪ 181-channel cable compatible tuner ▪ Programmable channel scan ▪ On-screen display for adjustment of sharpness, brightness, color, tint and channel selection ▪ Auto power on/off
- Built-in closed caption decoder ▪ 1.5W audio amp ▪ 2.5" speaker
- 1/8" mini-plug headphone jack \$410.00

COLOR VIDEO MONITORS

CT-2584Y 25" Diagonal Color Video Monitor

- 100° tint face screen ▪ 450 lines horizontal resolution ▪ Either S-Video (4-pin Y/C) or line (BNC) input/output ▪ Audio input/output (RCA) ▪ Automatic 75-ohm termination ▪ Auto on ▪ On-screen display for adjustment of sharpness, brightness, color, tint, channel selection ▪ Built-in comb filter TBA*

CT-2084Y 20" Diagonal Color Video Monitor

- Flat square screen ▪ 450 lines horizontal resolution ▪ Audio and video monitor out connectors ▪ Video in/out BNC ▪ Automatic 75-ohm termination ▪ S-Video in/out (4-pin) ▪ Audio input/output (RCA) ▪ 1.5W amplifier ▪ 2.5" speaker, front panel ▪ Auto on ▪ Line 1/2/3/S-Video, switchable ▪ Built-in comb filter ▪ On-screen display for adjustment of sharpness, brightness, picture, color and tint TBA*

CT-2010Y 20" Diagonal Color Video Monitor

- Square corner screen ▪ 450 lines horizontal resolution
- Video/audio (line 1/line 2) ▪ Video input/output BNC ▪ Automatic 75-ohm termination ▪ S-Video input/output (4-pin) ▪ VCR terminal 8-pin ▪ Monitor out terminals ▪ Phono input/output ▪ 1.5W speaker, front panel ▪ Comb filter ▪ Direct compatibility with S-VHS ▪ Input source is switch selectable from the front panel ▪ Quick-on CRT uses no current when unit is off ▪ Auto degaussing ▪ Front panel controls for color, tint, brightness, contrast, sharpness, volume and hold
- Headphone jack \$755.00



CT-1331Y 13" Diagonal Color Video Monitor

- Tint face screen ▪ 420 lines horizontal resolution ▪ Video/audio (line 1/line 2) ▪ Video input/output BNC ▪ Automatic 75-ohm termination ▪ S-Video in/out 4-pin; VCR terminal: 8-pin; monitor out terminals ▪ Phono input/output ▪ 1.5W amplifier ▪ Speaker, front panel ▪ Comb filter ▪ Direct compatibility with S-VHS ▪ Input source is switch selectable from the front panel ▪ Front panel controls also include color, tint, brightness, contrast, sharpness, volume and vertical hold, headphone jack \$605.00

CT-1384Y/1384YW 13" Diagonal Color Video Monitors

- 90° deflection screen ▪ 420 lines horizontal resolution ▪ Audio and video monitor out connectors ▪ Video in/out: BNC ▪ Automatic 75-ohm termination ▪ S-Video in/out (4-pin) ▪ Audio input/output (RCA) ▪ 1.5W amplifier ▪ 2.5" speaker, front panel ▪ Auto on ▪ Line 1/2/3/S-Video, switchable ▪ Built-in comb filter ▪ Front mounted headphone jack ▪ On-screen display for adjustment of sharpness, brightness, picture, color, tint and audio level TBA*
- CT-1384YW Same as above except with white cabinet TBA*



CT-1030M 10" Diagonal Color Video Monitor With Audio

- Solid-state IC chassis ▪ Automatic termination ▪ Comb filter ▪ Metal cabinet ▪ Front panel push controls ▪ BNC video/8-pin VCR connectors (selectable) ▪ RCA audio connector ▪ Rack-mountable
- 300 lines resolution \$505.00
- *To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

COLOR/B&W MONITORS



Panasonic
Broadcast & Television Systems Company



DT-2700MS 27" Diagonal Video/Data Multi-Scan Monitor

- Invar mask CRT ▪ Resolution: video 600 TVL, RGB 640 x 480 dots
- Variable scanning rate: horizontal 15.5-38kHz, vertical 50-100Hz
- Selectable inputs: RGB1/RGB2/RGB3/video or S-Video ▪ Remote input for wired remote capability ▪ Advanced digital scan compatible (with optional TS-100DS) ▪ Built-in stereo audio amp/speakers

DT-2700MS \$3450.00

PC-2700 Shipping and Storage Case for DT-2700MS

- Steel construction, recessed, spring loaded twist latches ▪ Steel machine driven rivets ▪ Heavy-duty casters ▪ Conforms to Air Transport Association specifications ▪ Interior padding, custom designed to provide 27" maximum shock protection

PC-2700 \$745.00

C-1381i 14" Diagonal Variable Frequency Multiscanning Color Monitor

- Compatible with: MCGS, VGA, SVGA, XGA and 8514/A ▪ 14" diagonal, with 13" diagonal viewing area ▪ 0.28mm dot pitch
- Black matrix ▪ Tinted, non-glare super dark screen ▪ Horizontal scan rate: 30-38kHz ▪ Vertical scan rate: 50-90Hz ▪ Tilt and swivel stand

C-1381i \$565.00

WV-5380A 9" Diagonal B&W Deluxe Desktop Video Monitor

- Pulse cross ▪ Underscan ▪ DC restoration ▪ Horizontal AFC ▪ Audio and external sync ▪ 8-pin connector ▪ 120VAC/VDC 12V power 'Quick On' jack

WV-5380A \$ 520.00

WV-5382A Double rack-mount version of WV-5380A (19" rack-mount) 1025.00

WV-Q27V 19" rack-mount interface for Tektronix 528 waveform monitor (WV-5380A) 100.00



FT-2700 27" Diagonal Multisystem Color Video Monitor

- High contrast flat CRT ▪ 700+ lines horizontal resolution ▪ Auto white balance ▪ Wired/wireless remote control ▪ Blue only function
- ABL in/out ▪ Preset control for color, brightness, contrast, tint and sharpness ▪ 4 standard color system (PAL, SECAM, NTSC, NTSC 4.43)

FT-2700 \$2260.00

WV-5200B 5" Diagonal B&W Desktop Video Monitor

- 600 lines ▪ DC restoration switchable

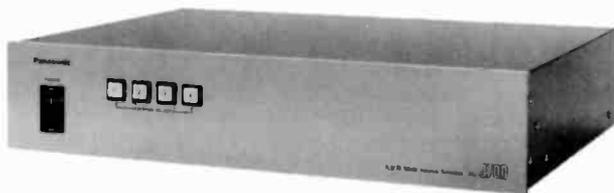
WV-5200B \$ 445.00

WV-5203B Triple 5" monitors. Designed for 19" rack-mount 1340.00

Accessories

- AG-C70A S-Video (Y/C) cable (DT-2700MS/FT-2700) (10') \$ 20.00
- AG-C70AE S-Video (Y/C) cable (DT-2700MS/FT-2700) (16.6') 25.00
- ET-100DS Advanced digital scan converter (DT-2700MS) 4800.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AG-J700 A.V.R. Multi-Source Selector

▪ Switches between video (S-Video or composite), audio (XLR) and remote control (RS-422A) sources at the touch of a button ▪ Can connect up to 4 VCRs (or other sources) ▪ Can be used as an input selector with 4 inputs and 1 output, or as an output selector with 1 input and 4 outputs ▪ 5-pin remote terminal for remote control capability of the AG-J700 ▪ Offers improved editing efficiency, easy system expansion and interformat editing with a wide range of professional formats, such as S-VHS and MII \$1480.00

UTP-2 Video Signal Transcoder

▪ Transcodes virtually any video signal into virtually any other video signal ▪ Can handle S-VHS, U-Matic, RGB and RGB with separate sync, as well as MII and Betacam ▪ Input signals: Y/688kHz; Y/C 3.58MHz, Y, R-Y; B-Y; linear RGB w/sync ▪ Output signals: Y/688kHz, Y/C 3.58MHz; Y, R-Y, B-Y; linear RGB w/sync, NTSC composite (monitoring) ▪ 5.5MHz (-1dB) bandwidth, 60dB S/N ratio ▪ Front level controls with preset switch, front panel NTSC monitoring point ▪ 19" rack-mountable, 1 rack unit high ▪ Rack slides provided \$2300.00

- AG-C65 7-pin dub cable, 10' 60.00
- AG-C70AE S-Video (Y/C) cable, 10' 20.00
- AG-C71AE S-Video (Y/C) cable, 16.6' 25.00



IFP-3342 Parallel-To-Serial Interface Unit

▪ Permits control of Panasonic MII or S-VHS RS-422 serial pin VCR controllers from Sony 33-pin parallel edit ▪ Specifically designed to be used with Panasonic AU-65H acting as a source or record machine ▪ No modifications to VCR or edit controller ▪ Microprocessor based ▪ CMOS logic ▪ Supports all Sony shuttle speeds ▪ Insert (V/A1/A2) and assemble edits ▪ Power supply adaptor supplied ▪ Full emulation of Sony source/record machines. . \$800.00

IFP-45A Machine Control Interface Unit

▪ For editing with SONY RM-440/RM-450 and selected Panasonic 34-pin control professional VCRs ▪ Controls selected Panasonic 34-pin control VCRs on the source side ▪ Controls AG-7750H on the edit side ▪ No modifications required to VCRs or Sony RM-440/RM-450 ▪ Microprocessor based design/CMOS logic ▪ Power: Maximum of 120mA, 12VDC from VCR, maximum of 650mA, 9VDC external power supply ▪ 1½"H x 5½"W x 5¼"D ▪ 10' cable/34-pin connector to Panasonic VCRs \$950.00

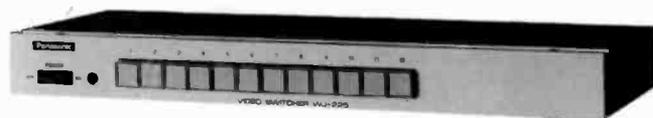
WJ-SW104 Y/C Switcher

▪ 4-input, 2-output matrix switcher ▪ Y/C or composite in/out ▪ Vertical interval switching \$800.00

WJ-220/220R Active Manual Switchers

▪ 6 composite video inputs that can be switched to a single video output ▪ Switching is accomplished during the vertical interval for glitch-free results ▪ Non-locking pushbuttons light up to show which input has been selected ▪ Clear cover on each pushbutton snaps out for insertion of input labels ▪ Inputs are Hi-Z looping with BNC connectors

- WJ-220 Desktop \$360.00
- WJ-220R 1½" high EIA rack-mount 360.00



WJ-225/225R Active Manual Switchers

▪ Same as WJ-220/220R but with 12 composite video inputs

- WJ-225 Desktop \$530.00
- WJ-225R 1½" high EIA rack-mount 530.00

WJ-300C Video Distribution Amplifier

▪ Selectable 1 input to 6 outputs or 2-channel with 1 input to 3 outputs each channel ▪ BNC connectors ▪ Use with all video cameras and system equipment \$330.00

- WJ-A01 3½" rack-mount frame 80.00
- WJ-B01 Blank panel, 3½"H x 2¼"W (¼" span) 50.00
- WJ-B02 Blank panel, 3½"H x 5½"W (½" span) 50.00
- WJ-B03 Blank panel, 3½"H x 8¼"W (½" span) 50.00



WJ-450 Digital Color Quad System

▪ Allows up to 4 different camera or VCR outputs to be displayed on 1 monitor ▪ Suitable for use with virtually any 2:1 interlace camera without external synchronization ▪ Genlock input terminal allows external synchronization of different video sources, such as cameras, VCRs, video floppy disk recorders ▪ Advanced digital processing technology ▪ Remote control for selecting quad mode, individual input mode and freeze-frame ▪ Front panel switch calls up white borderline as a helpful quad-mode screen divider; also enables quick selection of the display mode: quad or individual (full screen) ▪ Built-in character generator allows alphanumeric display of up to 6 characters on each of the 4 screen blocks to permit quick identification of the input ▪ Built-in backup memory for title display ▪ Sync output terminal. \$2050.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AG-DA700 Transcoder/S-Video Distribution Amplifier

- Switchable input terminals: component (12-pin)/composite (BNC)/S-Video (4-pin) ▪ Simultaneous separated Y/C dubbing for 1 to 10 VCRs ▪ Composite monitor output terminal (BNC) ▪ Test terminal on front panel for easy maintenance ▪ Rack-mountable, adaptor included

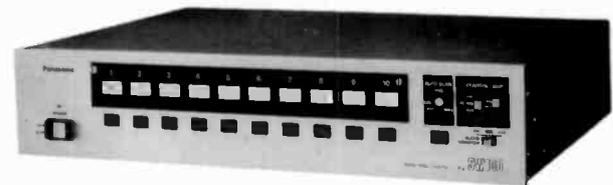
The AG-700 provides outstanding video quality by using a 3-line corrective decoder that completely separates the Y and C signals out of a composite input signal. And the encoder processes **MII** component signals for S-VHS recording/dubbing. The 10 Y/C output channels allow you to dub on up to 10 S-VHS VCRs simultaneously. A composite monitor output terminal (BNC) allows monitoring while dubbing is in progress.

AG-DA700	\$2650.00
AG-C70AE S-Video (Y/C) cable 10'	20.00
AG-C71AE S-Video (Y/C) cable 16'	25.00

AG-DA100 Audio/Video Distribution Amplifier

- 2 inputs, A and B, selectable for 2 outputs: A (1-5) and B (2-10)
- Because loopthrough type input terminals are used, video/audio distribution can be further expanded by using an additional AV distributor
- Video and audio output level can be adjusted while monitoring the level meter
- Distribution to as many as 40 slave VCRs is possible by using the multi-connection system (with 4 dubbing controllers, AV distributors and switchers)
- Rack-mountable, bracket included
- Stereo audio

AG-DA100 \$990.00



AG-SW100 Audio Follow Video Automatic Switcher

- Video/audio selection of one from as many as 10 input signals for monitoring
- Manual and automatic modes can be selected for the output signal
- Selection timing for the automatic mode ranges from about 1 second to 30 seconds
- Selection timing can be set according to the external pulse
- Stereo audio
- Audio monitoring selectable as either audio channel 1, mixed or audio channel 2
- Mode lock function for inhibition of remote control input (normal side) and front panel control (remote side)
- Automatic skip function makes selection quicker by skipping terminals with no input signal
- Interval switching function makes it possible to switch within the synchronized signal of the video signal if a video input signal is present at input terminal 1
- Rack-mountable, bracket included

AG-SW100 \$1200.00



AG-DA760 Audio Distribution Amplifier

- Stereo XLR and RCA input terminals
- 10 CH1/CH2 outputs
- Switchable input levels
- Monitor output (Mix) for maintenance use
- Test terminal for easy maintenance
- Rack-mountable, adaptor included

The AG-DA760 provides stereo audio distribution from either an RCA or XLR stereo input pair to as many as 10 VCRs.

AG-DA760 \$1160.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SV-4100 Pro-DAT Recorder/Player

- Front panel shuttle wheel ▪ 0.5-15X speed range ▪ IR remote control ▪ 4 stage, 1-bit Delta-Sigma A-to-D converters ▪ Horizontal cassette tray ▪ Program, absolute and time-remaining displays
- Pushbutton selection of 44.1kHz/48kHz sampling rates via either analog or digital inputs ▪ Pushbutton fade-in and fade-out functions
- Balanced inputs and outputs via XL-type connector with choice of -10dBu or +4dBm output levels ▪ Up to 400X fast forward/rewind and search speeds to provide high-speed access to any point on a 2-hour DAT tape within 27 seconds ▪ Instant playback ▪ Time cue search ▪ Accurate synchronization to external video sync or word clock during digital transfers ▪ External sync capability: 25Hz PAL, 29.97Hz video and 30.00Hz NTSC video/film ▪ Word sync frequency in both record and NTSC playback mode

SV-4100 \$2695.00
SH-MK410 Wired remote control 250.00



SV-3900 DAT Digital Audio Tape Deck

- 1-bit precision analog-to-digital converters ▪ Advanced 4-DAC system with 18-bit resolution ▪ For enhanced remote control, bi-directional serial interface supports industry-standard P2 and ES-bus protocol—ES-bus ensures sophisticated control between multiple audio/video machines on a serial local area network—P2 compatible interfaces use similar commands ▪ Optional SH-MK390 remote controller provides ES-bus serial control of all transport modes and functions ▪ Includes shuttle wheel, backlit LCD window, dedicated keys and numeric keypad for system assignments, cueing and program play ▪ Software developer's tool kit available ▪ Headphone output ▪ Rack-mount

SV-3900 \$2500.00
SH-MK390 Wired remote control 430.00
SDT-390M Software development tool kit for Macintosh computer \$650.00
SDT-390B Software development tool kit for IBM compatible computer 650.00



SV-3700 Pro-DAT Recorder/Player

- Front-panel shuttle wheel ▪ 0.5-15X speed range ▪ IR remote control ▪ 4 stage, 1-bit Delta-Sigma A-to-D converters ▪ Horizontal cassette tray ▪ Program, absolute and time-remaining displays
- Pushbutton selection of 44.1kHz/48kHz sampling rates via either analog or digital inputs ▪ Pushbutton fade-in and fade-out functions
- Balanced inputs and outputs via XL-type connector with choice of -10dBu or +4dBm output levels ▪ Up to 400X fast forward/rewind and search speeds to provide high-speed access to any point on a 2-hour DAT tape within 27 seconds ▪ Automatically clocks to incoming frequencies of 32kHz, 44.1kHz or 48kHz.

SV-3700 \$1840.00
SSE-44 Wired remote control 50.00

Digital Audio Tapes

RT-R120P 120 minutes ea./\$11.00
RT-R90P 90 minutes ea./10.00
RT-R60P 60 minutes ea./9.00
RT-R46P 46 minutes ea./8.00
RT-RCLP Cleaning tape for digital audio tape recorder ea./10.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WP-1400



WP-1400/1200 Professional Power Amplifiers

▪ High performance ▪ Fast and efficient Class H circuitry instantaneously switches to higher voltage power when high-level input signal appears ▪ Output transistors installed in a "wind tunnel" style heat sink for efficient and cool operation ▪ "Peak" and "Protect" LED indicators ▪ "Intelligent" high-speed "crowbar" circuit for speaker protection ▪ Balanced "instrumentation" quality inputs ▪ Female XLR and 1/4" TRS phone connectors ▪ 5-way binding (dual banana) speaker output posts ▪ UL listed ▪ 70V output transformers available

WP-1400	400WRMS per channel into 4 ohm load 240WRMS per channel into 8 ohm load Bridged output; 800W, 8 ohms	\$800.00
WP-1200	200WRMS per channel into 4 ohm load 120WRMS per channel into 8 ohm load Bridged output; 400W, 8 ohms	650.00

WP-9440/9220/9110/9055 Professional Power Amplifiers

▪ 20Hz to 20kHz frequency response with THD of 0.006% at 1kHz at full power ▪ Dual voltage "Super Rail" design ▪ Power bandwidth well beyond 85kHz with flat frequency response ▪ Low overall feedback ▪ Precision detented input attenuators ▪ Built-in remote status monitoring ▪ Instrumentation quality electronically balanced inputs ▪ Configured for stereo, mono or bridged input switch selectable operation ▪ AC breaker ▪ Delayed turn-on surge protection ▪ Multi-way thermal protection ▪ "Intelligent" V-I limiting ▪ Telemetry available via 4-pin Molex type connector for remote monitoring ▪ 5-way binding post connectors for each channel ▪ UL listed ▪ 70V output transformers available ▪ Rack-mountable ▪ Wattage ratings at 8 ohms

WP-9440	2x 400W, 5.25" rack space, forced-air cooling	\$2490.00
WP-9220	2x 200W, 5.25" rack space, forced-air cooling	1190.00
WP-9110	2x 100W, 3.5" rack space, forced-air cooling	1000.00
WP-9055	2x 50W, 1.75" rack space, convection cooled	760.00

Accessories

HXF-7050	70V output transformer, 50W for WP-9055 (4)	\$250.00
HXF-7100	70V output transformer, 100W for WP-9110/1200 (4)	350.00
HXF-7200	70V output transformer, 200W. All models except WP-9440 (2)	250.00
HXF-7350	70V output transformer, 350W, WP-1200/9055/9110/9220/9440 (2)	350.00

WR-133 Portable 8-Input/2-Output Audio Mixer

▪ High-quality performance characteristics-extended frequency response, wide dynamic range and noise-free performance ▪ Switchable remote broadcasts, recording or sound reinforcement modes ▪ Can be connected to cue to echo effect unit through pre-mix outputs, and to echo effect unit through from echo and to echo ▪ Peak-level LED indicators ▪ 2 VU meters ▪ Frequency response: 20Hz to 20kHz ▪ Rugged construction ▪ Rack-mountable

WR-133	\$1470.00
WR-Q51	Rack-mount adaptor 100.00

WR-M10A Multiple Source Stereo Mixer

▪ 4 balanced mono input circuits ▪ 6 stereo input circuits ▪ 2 stereo phono input circuits ▪ Mic priority override ▪ Mono master control ▪ Micro switches for remote-machine start per input fader ▪ 1/0 connector panel can be moved to the rear, top or bottom surface ▪ Rack-mount angle fittings allow installation flexibility ▪ Can be mounted on a standard 19" EIA rack or a wall surface ▪ Can also be flush-mounted in the wall or on a tabletop ▪ Main output frequency response (with output transformer): 30Hz to 20kHz, +0.5dB, -2dB ▪ THD: 0.3% max. (+18dB output, 50Hz to 15kHz, main output)

WR-M10A	\$995.00
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WR-S4424

WR-S4424/S4416/S4412 24/16/12-Input Mixers

▪ Professional 4-bus mixers designed for permanent and portable sound systems ▪ High quality 100mm faders ▪ Balanced XLR per channel, plus B input TRS per channel ▪ 48V phantom power on each channel ▪ 3-band equalization with sweepable midrange on each input ▪ Direct access to the left/right mixing buses from each input channel ▪ 4 aux sends plus direct out per channel ▪ 12-channel console has 15 discrete aux sends ▪ 16-channel console has 19 discrete aux sends ▪ 24-channel console has 27 discrete aux sends ▪ Each input channel includes LED peak/signal present indicators ▪ Balanced output on all 4 groups and left and right masters ▪ PFL (Pre-Fader Listen) system per channel

WR-S4424	24 inputs	\$3750.00
WR-S4416	16 inputs	2800.00
WR-S4412	12 inputs	2350.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WS-T212/T215 Trapezoidal Speaker Systems Common Features

- Wide-range compact systems with ruggedness for sound reinforcement applications
- Sound quality comparable to studio monitor loudspeakers
- High frequency waveguides
- Wide frequency constant directivity performance
- Trapezoidal footprint allows transducer-to-transducer spacing within 30° between adjacent systems' radiation axes
- Completely self-contained; no external control electronics
- Compact portable enclosure
- 2-way bass reflex
- 8 ohms nominal impedance

WS-T212 Includes common features plus: 12" low frequency cone driver ■ 150WRMS, 300W continuous program input ■ 97dB sound pressure level ■ Frequency response 50Hz to 25kHz ■ 1600Hz crossover frequency. \$720.00

WS-T215 Includes common features plus: 15" low frequency cone driver ■ 200WRMS, 400W continuous program input ■ 98dB sound pressure level ■ Frequency response 45Hz to 25kHz ■ 1500Hz crossover frequency. \$770.00



WS-A200 Modular Speaker Systems

- Sensitivity rated at 98dB
- Frequency response 70Hz-20kHz
- 12" low frequency cone transducer
- Compression driver with Twin Bessel Horn
- High-impact molded resin enclosure with integral mounting hardware

WS-A200K Black \$760.00
WS-A200W White 760.00

WS-A10 Compact, Wide-Range Speaker System

- 80W continuous power handling
- Sensitivity rated at 88dB SPL (1W/1m)
- Magnetic shielding allows placement next to video monitor

WS-A10K Black (sold in pairs only) ea./\$165.00
WS-A10W White (sold in pairs only) ea./165.00

WS-A35 Compact, Shielded, Near Field Speaker System

- 70W continuous power handling
- 2-way bass reflex
- Frequency response 80Hz-20kHz
- 90° spherical constant directivity horn
- 6" cone woofer
- Built-in mounting points
- Magnetic shielding permits placement next to video monitor
- Gray

WS-A35 \$350.00



WS-A80 Compact, High-Powered Speaker System

- 80W continuous power handling
- Sensitivity rated at 92dB SPL (1W/1m)
- Frequency response 65Hz-18kHz
- 8" low frequency driver
- Thermal protection circuit
- Molded resin enclosure with built-in handle

WS-A80K Black \$350.00
WS-A80W White 350.00

WS-A240 Subwoofer

- 400W (EIA RS-426A)
- Requires WS-SP2A subwoofer processor
- Sensitivity 91dB
- Frequency response from 30-125Hz
- High impact molded resin enclosure
- Recessed handle
- Interlocking stacking ribs

WS-A240K Black \$620.00
WS-A240W White 620.00
WS-SP2A Subwoofer processor 350.00

Accessories

WS-AQ1W Speaker wall mount for WS-A35/A200/A240/A80. pr./\$170.00
WS-AQ2C Speaker ceiling mount for WS-A35/A200/A240/A80. pr./150.00
WS-AQ2W Speaker wall mount for WS-A10. pr./70.00
WS-AQ3C Speaker ceiling mount for WS-A10. pr./40.00
WS-AQ4W Wall mount bracket for WS-A35. pr./115.00
WS-AQ5C Ceiling mount bracket for WS-A35. pr./115.00
WS-AQ124 Lean-back stand for WS-A200/A80 6 pk./120.00
W2-SA14 Flexible speaker mount for WS-A10 pr./100.00
W2-SA15 Mic stand speaker mount for WS-A10 55.00

WM-S1/S2/S5/S10 Miniature Condenser Microphones

Common Features

- Electret-condenser mics
- Cardioid response gives excellent off-axis rejection for high noise environment
- Sonic performance
- Excellent transient response
- Balanced XLR outputs
- Adapts easily to a wide variety of wireless systems

WM-S1 Includes common features plus: positive quick-mount system, 1.3" x 0.5" diameter mic head, 48V phantom powered. Designed for 148dB SPL level \$230.00

WM-S5 Same as above except designed for 158dB SPL level 330.00

WM-S2 Includes common features plus: positive quick-mount system, 1.3" x 0.5" diameter mic head, 2-way power: 12-48V phantom, 3V battery. Designed for 138dB SPL level 200.00

WM-S10 Includes common features plus: 2-way power: 12-48V phantom, 3V battery. Designed for hands-free vocals via headset and boom 260.00

WM-Q01 Telescoping mini boom for WM-S1/S2/S5 66.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIRELESS MICROPHONE SYSTEM



Panasonic

Broadcast & Television Systems Company

WX-RP410/RP700 800MHz UHF ENG/EFP WIRELESS MICROPHONE SYSTEM

A compact and lightweight Wireless Microphone System offering outstanding mobility and impeccable sound quality. The WX-RP410/RP700 Wireless Microphone System is the culmination of RAMSA's advanced LSI technology and years of experience providing professional application wireless microphones to the broadcast industry. You benefit from this technology by experiencing the remarkably clear and stable audio reception this system provides.

With the WX-RP410/RP700 Wireless Microphone System, you can take full advantage of the freedom and superior mobility of wireless audio for greater flexibility in news gathering, sports or any other type of production—even at the most challenging production sites.

WX-RP410 Wireless Transmitter

- Phase lock loop synthesizer system for stable carrier frequencies
- Comander system enables wide dynamic range of 100dB
- 49 channels selectable with group/channel select
- Ultra-small omnidirectional electret condenser microphone (5mm in diameter)
- Highly resistant to surface friction and handling noise
- Movable clip on the accessory case rotates in 90° increments. \$2150.00



WX-RP700 Wireless Receiver

- Phase lock loop synthesizer system for stable carrier frequencies
- Comander system enables wide dynamic range of 100dB
- 49 channels selectable with group/channel select
- Low voltage battery alert indicator
- Reception level meter
- Antenna selection indicator
- Can be continuously operated for up to 6 hours with alkaline type batteries. \$3450.00



PRO WIRELESS

WX-RP110 Handheld Wireless Microphone

- Cardioid dynamic microphone
- Phase lock loop synthesized system for stable carrier frequencies
- Comander system enables wide dynamic range of 100dB
- Highly resistant to crashing shock
- 49 channels selectable with group/channel select
- Selectable input level (PAD): 0dB/-6dB/-12dB
- RAMSA's highly evaluated mic cartridge performance provides clear sound in high band and extended response in low band
- 8-hour battery life using a single "AA" type dry battery
- Battery alarm LED indicates low power battery
- Unique UHF handheld transmitter with internal antenna \$2050.00



WX-RP158 Handheld Wireless Microphone

- Cardioid dynamic microphone
- Incorporates Shure® SM58 microphone unit which is highly evaluated by professionals
- Phase lock loop synthesized system for stable carrier frequencies
- Comander system enables wide dynamic range of 100dB
- Highly resistant to crashing shock
- 49 channels selectable with group/channel select
- Selectable input level (PAD): 0dB/-6dB/-12dB

- 8-hour battery life using a single "AA" type dry battery
- Battery alarm LED indicates low power battery
- Unique UHF handheld transmitter with internal antenna \$1950.00

WX-RP300 Lavalier Belt Pack Type Transmitter

- Optimum performance for speech
- Phase lock loop synthesized for stable carrier frequencies
- 49 channels selectable with group/channel control
- LED indicates low power battery
- Selectable input level: 0dB/-6dB/-12dB
- Highly resistant to handling noise and surface friction
- Optimum characteristics for wearing the microphone inside clothes
- Resistant to moisture
- Omnidirectional characteristics
- Compact belt pack type with shielded antenna \$2150.00



WX-RP810 True Diversity Single Receiver

- A less interference, very stable, space diversity type wireless microphone receiver
- It has one UHF receiver unit
- Adding an optional Wireless Tuner Unit, WX-RP800, it is possible to receive different frequencies at the same time
- Electronically balanced outputs with level switch (-20dB/-60dB)
- Squelch circuitry automatically triggers audio mute when noise increases due to sudden drop of field intensity
- A/B antenna receiving level meters: signal of the antenna in superior receiving level is displayed in green, while signal of the other one is in red
- Headphone monitor output
- Sound indicator for microphone input level. \$2700.00



WX-RP820 UHF Band True Diversity Receiver

- Same as above except : It has 2 UHF receiver units
- Possible to receive 2 different frequencies at the same time \$3700.00

WX-RP921 UHF Band Booster Antenna

- Compensates for coaxial cable loss from the antennas to the UHF diversity receivers WX-RP810/RP820
- Prevents S/N ratio deterioration caused by dead points and voice interruption by squelch operation
- Phantom power supply system is employed to supply DC power from the WX-RP810/RP820 or UHF antenna distributor WX-RP900 to the WX-RP921
- Coaxial cables are needed separately for antenna connection
- Includes wall mount bracket \$550.00



WX-RP900 Distributor

- 2 antenna inputs per channel A/B
- Up to 3 wireless receivers can be connected
- Phantom power LED lights in green normally, but turns red when problems occur. \$1100.00

WX-RP800 Wireless Tuner Unit

- (Optional) \$1000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CameraMan® Videomaking System

■ CameraMan's autoTRACK™ automatic tracking technology, coupled with either a camcorder or video camera, creates professional quality videos without anyone behind the camera ■ Serial networking capabilities offer videoconferencers, desktop video users and A/V presentation professionals new ways to create and control extraordinary productions



Basic Stand-Alone System Consists of 4 Components:

- 1). **CameraMan Base Unit:** Allows CameraMan to pan and tilt simultaneously with 360° of rotation, and 50° up and down. Moves are surer, smoother and swifter than any handheld shot a human camera operator could accomplish. Available in choice of UVM or CXL models, depending on needs.
- 2). **CameraMan Wand™:** Creates an invisible electronic link with autoTRACK mode. Users walk with the Wand in hand and CameraMan follows its signal, tracking the action flawlessly at distances up to 80'. The Wand incorporates a built-in VHF wireless microphone so audio is recorded at the source without ambient noise. The sound system includes a diversity receiver, helping to eliminate dropouts as you move around the room.
- 3). **CameraMan Lavalier™:** Offers users hands-free communications; a mini tracking sensor combined with a professional mic. Provides all the advantages of the Wand in a lightweight, almost unnoticeable unit that can be easily clipped to a shirt or tie.
- 4). **CameraMan Infrared Camera Controller:** Stand-alone controller for zoom lens control and other camcorder functions when used with infrared remote-controlled camcorders in stand-alone applications (UVM or CXL base units only).

Stand-Alone Base Units

1150E CameraMan UVM: autoTRACK base unit with WhisperDRIVE™ (rated for 1,500 hours of continuous motion) and rechargeable battery for portability; audio patch cord; AC power supply; unbalanced, mic-level audio output from radio frequency diversity receiver. Rated for infrared remote controlled camcorders up to 10 lbs. location preset repeatability accuracy of $\pm 0.5^\circ$ **\$1495.00**

CameraMan CXL Model 1150E: autoTRACK base unit with WhisperDRIVE Plus (rated for 5,000 hours of continuous motion) and rechargeable battery for portability; audio patch cord; AC power supply; unbalanced, mic-level audio output from radio frequency diversity receiver. Rated for infrared remote controlled camcorders up to 15 lbs. location preset repeatability accuracy of $\pm 0.5^\circ$ **\$2495.00**

Integrated/Network Base Units

1150E CameraMan XLX: autoTRACK base unit with WhisperDRIVE Plus (rated for 5,000 hours of continuous motion); AC power supply; audio balanced microphone level output; network RS-485 compatible with RS-232 integration capability via PCM-1100E or PCM-1200E. Rated for camcorders or camera/lens combinations up to 15 lbs. location preset repeatability accuracy of $\pm 0.5^\circ$ **\$3495.00**



1150E CameraMan JXL: Standard pan/tilt, non-autoTRACK base unit with WhisperDRIVE Plus (rated for 5,000 hours of continuous motion); AC power supply; network RS-485 compatible with RS-232 integration capability via PCM-1100E or PCM-1200E. Rated for camcorders or camera/lens combinations up to 15 lbs. location preset repeatability accuracy of $\pm 0.5^\circ$ **\$2995.00**

Tracking Units

WTU-1000E CameraMan Wand Tracking Unit: Wireless, handheld remote command control with built-in RF microphone and autoTRACK capability. Powered by two 9V batteries. Provides remote control capability of UVM, CXL and XLX CameraMan base units. Features autoTRACK, manual pan, tilt and zoom, 4 location presets, 2 autoTRACK presets and other remote command control capabilities. **\$675.00**

LTP-1000E CameraMan Lavalier Tracking Package: Allows presenter "hands-free" autoTRACK and RF audio capability for distance learning/presentation applications. Includes lavalier tracking unit, front sensor and back sensor. **\$755.00**

Keypad Accessories

LKP-1000E CameraMan Lavalier Keypad: For complete command control capability of UVM, CXL and the XLX series base units when using LTP-1000E (wires directly to the lavalier tracking package). Features autoTRACK, manual pan, tilt and zoom, 8 location presets, 4 autoTRACK presets, Softkey and Template (with XLX base units only) functions and other remote command capability. Includes belt clip **\$225.00**

IDW-1000E CameraMan Infrared Director's Keypad: For complete "infrared" remote command control of XLX/JXL series base units when used with the PCM-1200E. Features autoTRACK, manual pan, tilt, zoom, 8 location presets, 4 autoTRACK presets, softkey and template functions and other remote command capability. **\$295.00**

HDW-1000E CameraMan Hard Wired Director's Keypad: For complete "hard-wired" remote command control of XLX/JXL series base units when used with the PCM-1100E, PCM-1200E or NFC-1000E (used with NFC-1000E in stand-alone, "far-end" control only). Features autoTRACK, manual pan, tilt and zoom, 8 location presets, 4 autoTRACK presets, softkey and template functions and other remote command capability. **\$295.00**

Camcorder Lens Controller

ICC-1000E CameraMan Infrared Camera Controller: Stand-alone controller for zoom lens control and other camcorder functions when used with infrared remote-controlled camcorders in stand-alone applications (UVM or CXL base units only). For "integrated system" with XLX or JXL base units, use the PCM-1200E **\$195.00**

Servo Lens Controllers for XLX/JXL Base Units

CameraMan Servo Lens Controller for CCTV Camera Lens: Stand-alone controller for applications requiring the control of zoom, focus and iris of a CCTV servo-controlled lens. **\$595.00**

CameraMan Servo Lens Controller for CCTV Camera Lens: Plug-in module for the control of zoom, focus and iris of a CCTV servo-controlled lens when used in combination with a PCM-1100E or PCM-1200E communications module and XLX/JXL series base units . . . **\$495.00**

CameraMan Servo Lens Controller for Broadcast Lens: Stand-alone controller for applications requiring the control of zoom, focus and iris of a broadcast servo-controlled lens **\$895.00**

CameraMan Servo Lens Controller for Broadcast Camera Lens: Plug-in module for the control of zoom, focus and iris of a broadcast servo lens when used in combination with a PCM-1100E or PCM-1200E communications module and XLX/JXL series base units **\$845.00**

Network and Communications Accessories

PCM-1100E CameraMan Communications Module: For use with XLX and JXL series base units to provide serial communications and lens control card interface. Provides RS-232, RS-485 and ParkerVision bus compatibility; utilized to network multiple units and control interface to new and existing control systems and PCs. Also provides the Hard Wired Director's Keypad (HDW-1000E) input port **\$795.00**

PCM-1200E CameraMan Communications Module: For use with XLX and JXL series base units to provide serial communications and lens control card interface. Provides RS-232, RS-485 and ParkerVision bus compatibility; utilized to network multiple units and control interface to new and existing control systems and PCs. Includes infrared receiver for Infrared Director's Keypad operation and infrared remote learning head with IR transmitter for lens control on camcorders and other IR remote controlled equipment. Hard Wired Director's Keypad connection is also provided. **\$995.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MONITOR MOUNTS



peerless



Single Arm Style Wall Swivel Mounts

Wall swivel mounts conserve valuable floor space and provide a perfect viewing angle from any point in the room. The universal, random perforated trays and a wide range of available sizes assure you of getting the right mount for the job.

All of the single arm style wall mounts offer 120° of swivel. Some models feature a mounting platform with 10° tilt. Locking trays allow for easy removal of the set for servicing as well as added security. Finish is a scratch-resistant black epoxy.



- LWB 307A For 9" monitors (9" x 9" tray); adjustable tilt . . . \$62.00
- LWB 310A For 9" monitors (10¼" X 11½" tray); adjustable tilt . . . 62.00
- LWB 314A For 13" monitors (13" x 12" tray); adjustable tilt . . . 62.00
- LWB 334A For 16" monitors (17" x 12" tray); adjustable tilt . . . 66.00
- LWB 354 For 20" monitors (20" x 11" tray); no tilt . . . 73.00
- LWB 354T For 20" monitors (20" x 11" tray); 10° tilt . . . 75.00
- LWB 530 For 19"W chassis - monitors (22" x 13" tray); no tilt. . . 73.00
- LWB 530T For 19"W chassis - monitors (22" x 13" tray); no tilt. . . 75.00
- LWB 375 For 25"-27" monitors (24" x 15" tray); no tilt . . . 95.00
- LWB 375T For 25"-27" monitors (24" x 15" tray); 10° tilt . . . 98.00
- WB 217 For 19"-20" monitors (24" x 13½" tray); no tilt. . . 55.00
- WB 217T For 19"-20" monitors (24" x 13½" tray); 10° tilt . . . 57.00

Yoke Style Wall Mounts

Sturdy construction and high-tech good looks make the yoke style mount a favorite choice of professionals for TV and video monitor installations.

These mounts feature tilt, swivel and adjustable height and width. The yoke style mount comes equipped with a random perforated tray, 10" deep, for easy attachment of almost any set. Finish is a scratch-resistant black fused epoxy.

- WMY 113 For 13" set; 13"-18"H x 14"-20½"W \$192.00
- WMY 119 For 19" set; 18"-24"H x 24½"-31"W 192.00
- WMY 120 For 20" set; 18"-24"H x 19"-25½"W 192.00

Yoke Style Ceiling Mounts

- YK 113 For 13" set; 13"-18"H x 14"-20½"W \$160.00
- YK 119 For 19" set; 18"-24"H x 24½"-31"W 160.00
- YK 120 For 20" set; 18"-24"H x 19"-25½"W 160.00

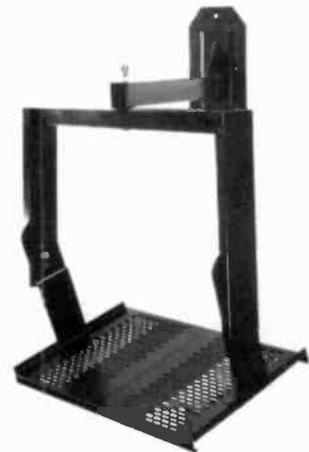
Order yoke style ceiling mounts with one of the following ceiling attachment kits:

- CMY 460 For structural ceiling \$ 32.00
- CMY 465 For finished ceiling. 32.00
- CMY 450 For suspended ceiling 124.00

To lower the evaluation of a yoke style ceiling mount, use one of the Peerless extension columns:

- EXT 001 1' length
- EXT 002 2' length
- EXT 003 3' length
- EXT 004 4' length

Cost for extension columns is \$12.00 per lineal foot.



VCR Attachment for Yoke Mounts

Allows the addition of a VCR to a yoke wall or ceiling mount. Easy to assemble and can be retrofitted to an existing installation. 13.25"-17.25"W x 3"-4.25" H; height and width adjust to fit the VCR.

- VPM 317-Y \$49.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



RM4000 Routing Switcher

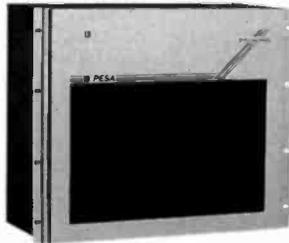
- 48 x 40 matrix routing switcher capable of routing any 1 of 48 inputs to any or all of 40 available outputs
- Compact size
- Wide bandwidth: >-3dB @ 100MHz, >-1dB @ 75MHz
- Same crosspoint card and switch card used in the RM5000
- No internal wiring
- Internal system controller or external system controller may be used
- Rearmounted power supply
- Looping inputs
- 10 1/2"H x 19"W x 13 1/2"D

RM5000 Video Routing Switcher

- Whether requirements are digital switching, analog HDTV or other high performance bandwidths, the RM5000 can handle it
- Configured for 48 looping inputs
- Each of the 48 x 8 matrix cards comes with 8 video output amplifier plug-in SIMM cards with an additional 8 SIMM slots located on the board for optional plug-in modules
- Comes with an auxiliary 9-pin connector that provides the input for an external 4V backup
- Configured for 96 outputs
- Can accommodate 2 rearmounted power supply modules, allowing for total redundancy in critical applications
- Connects to the Pesa Control System through 37-way parallel control bus connector
- Four 3-pin power connectors allow maximum expandability for power connection support to equipment such as video distribution amplifiers and combiner modules
- Comes with 2 sync inputs, allowing loophrough or dual sync
- Compact: 48 x 96 in 9 RU; 96 x 96 in 24 RU including dual power supplies
- Wide bandwidth: <3dB 100MHz, <1dB 75MHz = RGB and RGB+ sync configurations: 16 x 32 RGB in 9 RU, 24 x 48 RGBs in 18 RU including power supplies
- Looping inputs
- Optional cable equalization on outputs
- Optional unique output vertical interval trigger module

RM5000 Audio Routing Switcher

- Handles all stereo audio or mono audio configurations
- Configured for 48 balanced inputs
- Comes with an auxiliary 9-pin connector that provides the input for an external 4V backup
- Configured for 48 stereo or 96 mono outputs
- Can accommodate 2 rear-mounted power supply modules, allowing for total redundancy in critical applications
- Connects to the Pesa Control System through 37-way parallel control bus
- Four 3-pin power connectors allow maximum expandability for power connection support to equipment, such as audio distribution amplifiers and combiner modules
- Compact: 48 x 96 dual audio in 9 RU, 96 x 96 single audio in 9 RU, 40 x 40 dual audio and 16 x 16 timecode in 9 RU, including dual power supplies
- Integral stereo to mono converters
- Full stereo operation with facility for L + R, L to L and R, R to L and R swap
- Configurable for forward and reverse talkback
- Suitable for timecode
- Over 150kHz bandwidth



6600E Control System

- For Series H and 40X switchers
- Up to 256 x 256 capacity and 128 control panels
- Break-away control of 4 levels
- User-definable 7-character alphanumeric mnemonics
- Component switching for RGB, stereo audio or other signals
- Input blocking for specific outputs
- Control panels; mnemonics and system configurations are stored on E² PROMS which can be updated



- Status display, all-call and 64 salvos are programmable from CRT terminal
- Supervisory/non-supervisory control with locks and passwords

6600E Control Panels

- Pushbutton panels; universal alphanumeric panel; rotary matrix panel; 10/20-bus panel; 24-category pushbutton panel; universal model II panel; 40-position pushbutton panel; tally relay status indicator panel; video terminal/CRT ANSI; special software

Lynx RM2416V/2416A Routing Switchers

Common Features

- Compact
- Wideband
- High performance
- Designed primarily for small system installations, although it can be used in conjunction with larger System 5 matrices
- Ideal for broadcast, post production, corporate or educational users
- Expandable to a maximum of 48 inputs by 64 outputs
- Single or dual power
- Supplied with single internal power supply

RM2416V Video Routing Switcher

- Includes common features plus:
 - Supports 24 inputs and 16 outputs in 1 RU
 - An external, rearmounted connector allows a second backup supply to be connector for critical applications
 - An internal controller supports operation from a simple pushbutton or touchpad type control panel

RM2416A Audio Routing Switcher

- Includes common features plus:
 - Supports 24 stereo inputs and 16 stereo outputs in 2 RU
 - Additional space within the frame allows a second backup supply to be installed for redundancy
 - Optional internal controller supports operation from simple pushbutton or touchpad type control panels

RCP-241 24x1 Control Panel for Lynx Systems

- Up to 16 levels of control
- Quick access button-per-source direct tasks
- Offers lock feature
- 7.5VDC using standard plug-in-the-wall power packs
- 1 1/2"H x 19"W x 2"D
- Standard RS-485 interface
- 1 RU, requires only 2" depth

RCP-248 24 x 8 control panel for 8 destinations

RCP-TP Touchpad XY Control Panel for Lynx Systems

- Up to 16 levels of control
- Easy-to-read LCD display
- Quick access Previous and Next pushbuttons
- Can configure panel to control 1 or more destinations with either single-bus or XY operations
- 6 multi-function select buttons for control
- 24 illuminated pushbuttons that are user reprogrammable and relegendable
- 7.5VDC using standard plug-in-the-wall power packs
- 1 1/2"H x 19"W x 2"D
- Standard RS-485 interface

RCP-2416 Control Panel for Lynx Systems

- Pushbutton control panel allows fast intuitive control of 1 to 16 destinations
- This button-per-source panel features direct take operation for applications requiring minimum keystrokes and access to a limited number of sources
- An LED is incorporated into each pushbutton for display of status
- Up to 8 independent levels of control are available for the most demanding applications

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO PRESENTATION SYSTEMS/ VCRs/ MONITOR/RECEIVERS



LC2000G LCD Projector

- 650,000+ pixels, data configuration ▪ 200W metal halide lamp
- Variable image ▪ 32kHz line doubled scanning
- Built-in 178-channel cable-ready tuner ▪ Built-in closed caption decoder
- Built-in 2 x 10W stereo amplifier ▪ Remote control power focus and zoom capability ▪ Remote control on-screen adjustments of picture, sound and source selections ▪ Sealed light path \$6690.00



CCR Series TV/VHS VCR Combinations

Common Features

- 181-channel cable-ready FS tuning ▪ Auto tuner setup ▪ Digital tracking system ▪ Repeat play ▪ Sleep timer ▪ Closed captioning
- 3-speed play/record ▪ On-screen time display ▪ On-screen tape counter with memory ▪ Channel search ▪ 90° in-line picture tube ▪ Picture reset
- Remote random access tuning

CCR095AT 9" TV/VHS VCR Combination

- Includes common features plus:
- AC/DC operation ▪ Does not include closed captioning ▪ Car battery cord ▪ Detachable sunscreen
 - 8-event/1-year programming
 - 1-touch record ▪ Automatic daylight savings time adjust
 - Menu on-screen display (English and Spanish) ▪ Alternate channel
 - Earphone jack ▪ 35-button TV/VCR remote control ▪ 15X forward/reverse Latching Search (SLP) \$556.00



CCR132AT 13" TV/VHS VCR Combination

- Includes common features plus:
- 8-event/1-year programming
 - 1-touch record ▪ Automatic daylight savings time adjust ▪ Menu on-screen display (English and Spanish) ▪ Alternate channel ▪ Earphone jack
 - 35-button TV/VCR remote control ▪ 15X forward/reverse Latching Search (SLP) \$510.00

CCR136AT 13" TV/VHS VCR Combination

- Includes common features plus:
- 4-event/1-year programming
 - 1-minute timer backup system ▪ 1-touch record with standby ▪ Menu on-screen display ▪ 37-button TV/VCR remote control ▪ 27X forward/reverse Latching Search (SLP) ▪ Slow motion ▪ 2X play
 - Programmable scan tune ▪ Mute \$550.00

CCR190AT 19" TV/VHS VCR Combination

- Includes common features plus:
- 8-event/1-year programming
 - 1-touch record ▪ Automatic daylight savings time adjust ▪ Menu on-screen display (English and Spanish) ▪ 35-button TV/VCR remote control ▪ Alternate channel ▪ 15X forward/reverse Latching Search (SLP) ▪ Mute . . . \$609.00

CCR202AT 20" TV/VCR Combination

- Includes common features plus:
- 4-event/1-year programming
 - 1-minute timer backup system ▪ 1-touch record with standby ▪ Menu on-screen display ▪ 37-button TV/VCR remote control ▪ 27X forward/reverse Latching Search (SLP) ▪ Slow motion ▪ Time search ▪ TV monitor function ▪ Programmable scan tuning ▪ Mute \$649.00

VR6425AT/6625AT VHS Recorder/Players

- 181-channel cable-ready FS tuning ▪ 8-event/1-year programming
- English/Spanish on-screen menu displays ▪ Remote control on-screen programming ▪ Digital auto tracking ▪ Variable slow motion, still frame
- Universal remote control, automatic head cleaner ▪ 4 heads
- VR6425AT \$391.00
- VR6625AT Hi-Fi stereo version 508.00

VR9100AT VHS Player

- Playback only ▪ Auto tracking ▪ Quick play ▪ 11-function infrared remote ▪ Monaural audio ▪ Rotary 2-head helical scan system ▪ Auto repeat play ▪ 15X forward/reverse \$239.00

VR9000AT VHS Player

- Auto repeat play ▪ AC/DC operation ▪ 15X forward/reverse latching
- 11-function remote control \$267.00

PA3520C/3627C/3531C Professional Color Monitor/Receivers With "Pro-Control" Tuning Software

Common Features

- Programmable to automatically tune up to 5 events per day
- Programmable min./max. volume range ▪ Programmable power lock by event ▪ Locked and unlocked event modes ▪ Full access control mode
- MTS stereo decoder and dbx noise reduction ▪ Non-volatile clock ▪ FS tuning with 178-channel capability
- Audio/video patch panel includes: audio input/output (loop), composite video input/output (BNC/loop), S-Video input/output (loop), RF input
- PA3520C 20" screen \$ 520.00
- PA3627C 27" screen and Invar mask 780.00
- PA3531C 31" screen and Invar mask 1384.00



PL3119C/3120C/3125C Commercial Color Monitor/Receivers†

Common Features

- Include both FCC recognized closed caption modes as well as both FCC recognized text modes ▪ Smart connection eliminates set top movie box ▪ Smart loader reduces installation time by programming all sets exactly like the first ▪ No guest accessible secondary controls ▪ Pay-per-view compatible ▪ Automatic programming ▪ On-screen channel identification ▪ Marquis channel ▪ Easy conversion to consumer television
- PL3119C 19" screen \$388.00
- PL3120C 20" screen 403.00
- PL3125C 25" screen 582.00
- †Requires RG9172BK setup transmitter, 1 per location 57.00

Monitor/Receiver Accessories

- RG9165GN Limited function remote control (2 series) \$ 38.00
- RG1165G1 Limited function remote control (3 series) 38.00
- RG9166B PA series remote control—full function 40.00
- RL9180BK Clone programmer for the PL series televisions 152.00
- HF5802BK Locking wall mount for the PA and PL series (19" to 20") 45.00
- HF5804BK Locking wall mount for the PA and PL series (25" to 27") 152.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PINNACLE

SYSTEMS
Broadcast Products Group



GRAPHICS/STILL STORE SYSTEMS



Prizm Video Workstation

- 3-D effects system with rotation and perspective ▪ Standard warp curvilinear effects package with page turns ▪ Palette functions ▪ Auto cube for solid building preview ▪ Advanced sequencing and timeline features ▪ Sophisticated motion path control with TCBW (tension, continuity, bias and weight) ▪ Full bandwidth 4:2:2:4 processing (with option key channel) ▪ Analog composite and component (Y, R-Y, B-Y) inputs and outputs ▪ A/B switching capability ▪ Downstream keyer combiner for keying over background video ▪ Linear key output ▪ High resolution menu driven user interface (monitor sold separately) ▪ Remote control of external routers, EMEM™ peripheral, VTR emulation and GPI, RS-422 and RS-232 interfaces ▪ Full size control panel and 15" interconnect cables ▪ Alphanumeric keyboard ▪ Operation and maintenance manuals. **\$23,990.00**
- Refractor™ Single Pass Effects Package 6,490.00
- Refractor/Montage/Key Channel/Still Store Package 14,990.00
- 3-D Montage 6,990.00
- Still Store 4,990.00
- Key Channel 3,990.00
- Prizm DVEator Playback 15,990.00
- Prizm DVEator Creation Station
- Additional optical drive 4,990.00
- Prizm DVEator Sequence Compact Disk Drive
- 2 disk set 390.00
- Digital Dual Channel Combiner 5,990.00
- Serial Digital (SMPTE 259M) Inputs and Outputs 4,990.00
- Additional Still Storage Capacity Fixed drive 3,990.00
- Additional Still Storage Capacity Removable drive 4,990.00
- Additional Standard Control Panel 8,990.00
- Additional Prizm Mini Panel Includes processor unit 10,990.00
- 17" VGA Menu Monitor 1,990.00
- 14" VGA Menu Monitor 690.00
- Additional 1G Byte Disk Cartridge 390.00
- Basic Prizm Service Spares Kit 17,990.00

Note: Standard control panel supplied. Mini panel available at time of order for an additional \$1,000.00

Flash Grafix Composer

Still Storage ▪ FlashFile still store system ▪ 1.0G byte drive provides >1500 fields (750 frames) on line ▪ FlashStore instant access to multiple stills ▪ Full bandwidth 4:2:2:4 internal processing ▪ Color FlashPix pictorial browse feature ▪ Still Prep for sizing, positioning and cropping stills ▪ Internal digital stills montage ▪ Advanced library management system ▪ Creative transitions including wipes and dissolves ▪ Powerful sequence creation ▪ Pictorial play list sequencing ▪ Software based interfield deflicker filter ▪ Analog composite and component (Y, R-Y, B-Y or RGB) I/O ▪ GPI inputs, RS-422 and RS-232 interfaces ▪ Import/export of Tiff, Pict and BMP files ▪ 486 66MHz processor: full size alphanumeric keyboard and trackball ▪ Power cord and interconnection cables (15') ▪ Operators and maintenance manuals

Paint Package ▪ Wide range of brushes ▪ Geometric shape creation with automatic fill capability ▪ Contrast, negative, mosaic, deflicker and noise reduction ▪ Hardware assisted zoom ▪ Size, position and rotation of cut outs ▪ Shares central stills library with still store ▪ Variable key opacity ▪ Cordless pen and tablet

Titling/Typography Package ▪ Includes 40 True Type fonts ▪ Reads TrueType and Adobe typefaces ▪ Positionable borders and drop shadows ▪ Variable border and shadow opacity ▪ Size, position and rotate text ▪ AllType™ conversion program **\$26,990.00**

- 3-D Modeling Package 2,990.00
- Second Channel 4,990.00
- Serial Digital Inputs and Outputs With second channel 8,990.00
- Additional Storage Capacity 1.2G byte optical disk 5,990.00
- Removable Storage 1.2G byte optical disk 5,990.00
- Shot Box Control Panel Maximum 2 per system 2,490.00
- Networking Software Package 2,990.00
- Network File Server 13,990.00
- Ethernet Hardware 990.00
- Flash Browse 5,990.00
- VGA Extension Cable 100.00
- Network File Server Additional storage 5,990.00
- 14" Super VGA Menu Monitor 690.00
- 17" Super VGA Menu Monitor 1,990.00



FlashFile Still Store System

▪ 1.0G byte drive provides >1500 fields (750 frames) on line ▪ FlashStore instant access to multiple stills ▪ Full bandwidth 4:2:2:4 internal processing ▪ Color FlashPix pictorial browse feature ▪ Still Prep for sizing, positioning and cropping stills ▪ Internal digital stills montage ▪ Advanced library management system ▪ Creative transitions including pushes, slides and wipes ▪ Software based interfield deflicker filter ▪ Analog composite and component (Y, R-Y, B-Y or RGB) I/O ▪ GPI inputs, RS-422, RS-232 interfaces ▪ Import/export of Tiff, Pict and BMB files ▪ Full size alphanumeric keyboard and trackball ▪ Power cord and 15' interconnection cables ▪ Operators and maintenance manuals **\$21,990.00**

- Second Channel 4,990.00
- Serial Digital Inputs and Outputs With second channel 8,990.00
- Additional Storage Capacity 3,990.00
- Removable Storage 1.2G byte optical disk 4,990.00
- Shot Box Control Panel 2,490.00
- Networking Software Package 1,990.00
- Ethernet Hardware 990.00
- Network File Server 13,990.00
- Network File Server Additional storage capacity 3,990.00
- Network Browse Station 3,990.00
- Flash Browse^{PC} 3,990.00
- FlashNet^{PLUS} POR*
- 17" Super VGA Menu Monitor 1,990.00
- 14" Super VGA Menu Monitor 690.00
- Additional Trackball 130.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO CARTS/CASES



Porta-Brace
K & H Products, Ltd.

Porta-Brace Monitor Cases

Protection and glare reduction guard with adjustable pedestal, also easy access to battery, switches, controls and cable connections.

Lightweight Field Monitors

(Stays in protective case)
Adjustable pedestal and glare reduction guard. \$78.00 to \$143.00



Large Portable Monitor/Player

(Remove from case for use)
Heavy-duty shoulder strap included, firm grip hardwood handle, great lightweight transport case. Many models available, check supplier . . . \$153.00



Porta-Brace Filter Case

Holds four 4" square or four 4½" round filters in padded sections. \$58.00
Add 1 or 2 sections ea./11.00



Porta-Brace Mic Holsters

(With Video Belt add \$20.00)
8" and 10" lengths. \$42.00
15" length. 45.00

Porta-Brace Cargo Case

(In 2 sizes with HB-10)
A case with 5 outside pockets and a wide double zippered top cover, for easy access to the large interior. A flip-up pocket for special documents or treasures is located on the inside wall.
CAR-1 Inside measurements 10"H x 8"H x 13"L. \$156.00
CAR-2 Inside measurements 10"H x 8"H x 18"L. 160.00



Porta-Brace Run Bags

(Choice of 3 sizes)
Why should a run bag be cluttered? Speed is necessary, so be organized, find those spares and extras in a hurry.
RB-1 9½"H x 7"W x 18"L . . \$132.00
RB-2 9½"H x 7"W x 21"L . . . 137.00
RB-3 9½"H x 7"W x 25"L . . . 142.00



Porta-Brace "Grip"

(With 2 swivel front wheels)
Versatile, heavy-duty carts for studio or field use. Optional light stands and carry-all cases available from from \$660.00

Porta-Brace Waist Belt Production Packs

Basic pack includes waist belt with quick-release buckle and 2 multi-pocketed, general purpose pouches, other optional specialized pouches can be added. (Designed for Beta-cam users and others.)
BP-2 \$123.00



Porta-Brace Polar Bear

This case is designed to keep your camcorder warm in cold temperatures with air activated warmers. It is thickly padded with a high loft insulating material. The interior is lined with silver mylar fabric to reflect heat back into the camera chamber. Camcorders with bottom mounted brick batteries will not fit this case. \$325.00



Porta-Brace Rain Slicker

Rain slicker is a lightweight cover for camcorders and is at home on the shoulder or a tripod. It provides dedicated protection, as it covers the entire camcorder, top to bottom. All controls are accessible through covered zippered openings.
RS-model no ()
for camcorders only \$190.00



Porta-Brace Carry-On Camera Case

This camera case has been designed to meet FAA suggestions for carry-on luggage: 9" x 14" x 32" for underseat storage; 10" x 14" x 36" for overhead. The Carry-on still offers protection from bumps, dust, rain and snow while in transit \$300.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Porta-Brace
K & H Products, Ltd.



VIDEO CASES

Porta-Brace® Shoulder Cases for Camcorders

With Rain-Top.
Full-time shoulder case provides protection against bumps, scrapes, dust, heat and cold on your shoulder or off. Featuring the lightweight pop-out Rain-Top which is sewn to the main body, so it can't be lost or left behind. (Just stuff it into the slim side pocket when the sun shines.)
When ordering be sure to send camera model number, recorder model number and battery style. \$302.00



Porta-Brace Tool Kit Case

Use alone or as a companion that fits into the Tech Case, a small optional engineer's Tool Kit Case is available.
TC-T 9"H x 2½"W x 6½"L \$80.00



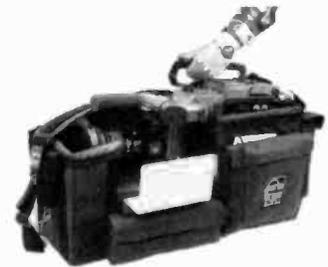
Porta-Brace Camcorder Special Camera Case

With the advent of the professional Hi8 camcorders, this case provides padded protection as well as ample room to carry cassettes, batteries and handle grip inside, with pockets on the outside for papers, notes and window pocket for identification. \$177.00



Porta-Brace Quick-Draw Camera Case

This professional camera case is a convenient way to carry and protect your camcorder on the ground, in your car and in the air. With its hard-shell construction and aluminum viewfinder guard, this padded nylon case means lightweight security for your camera. Heavy-duty shoulder strap is included.
Check for models available . . \$308.00 and \$312.00



Porta-Brace Production Cases

Large Capacity Organizer Cases

With heavy-duty shoulder strap.
PC-1 1 divider, 5 outside pockets, 2 mesh pockets \$302.00
PC-2 2 dividers, 5 outside pockets, 6 mesh pockets 330.00
PC-3 7 outside pockets, 3 dividers, 2 extra handles (for 2-person carry), 9 see-through mesh pockets 354.00



Porta-Brace Production Vest

Porta-Brace has designed this vest especially for ENG or EFP photographers. Pockets are provided for cassettes, batteries, cables, microphones and accessories. Provisions are made for attaching other optional Porta-Brace accessory pockets. The vests are a generous cut, for wearing over heavy clothing.
VP-1 Sizes S, M, L, X Tall . . \$195.00



Medium Capacity Organizer Cases

With heavy-duty shoulder strap.
PC-101 1 divider, 1 clip-on pouch, 4 see-through mesh pockets, 3 outside pockets \$193.00
PC-202 Lights and tapes case. 1 divider, 1 clip-on pouch, 1 see-through mesh pocket, 5 outside pockets 189.00



Porta-Brace Tripod Mummy Case

(For tripods with fluid heads.) A soft lightweight thickly padded Cordura® case, with pockets for many accessories. Comes with maple wood handle and shoulder strap.
TM plus (length of tripod in folded position) \$250.00



Porta-Brace Light Pack

This pack for lighting equipment carries just about any combination of lighting gear needed for ENG or EFP production work. A unique stack system of compartments with zippered front door carries lights, barndoors, stands, umbrellas, gels, gel frames, reflectors, cables and clamps. Carried by hand or as a back pack.
LP-2 \$287.00
LP-3 302.00



Porta-Brace Tech Case (2 sizes)
This versatile over-the-shoulder bag is designed for engineers, technicians, reporters and other video professionals. Use as a combination personal bag and service equipment bag.
TC-1 11"H x 4"W x 15"L \$163.00
TC-2 11"H x 5½"W x 17½"L 173.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TIME BASE CORRECTORS/ SYNCHRONIZERS



**Prime
Image**

TIME BASE CORRECTORS/SYNCHRONIZERS EXCEL 6.5 Series

- 6.5MHz high bandwidth operation
- Full transcoding between Y/C, 1/4 DUB, Y/R-Y/B-Y and composite
- 0-20dB variable noise reduction
- Front panel selectable comb filter
- Built-in digital effects
- Passes VITS and VIRS without degradation
- 6 models available
- All functions available on optional remote control panel



HR 600 II Series Time Base Correctors

- 3-way wideband (8.0MHz) digital adaptive comb filter
- RGB 3- and 4-wire input/output
- Multi-format transcoding; composite, S-VHS, Y688, Y/R-Y/B-Y in/out
- Component processing
- 0dB to 20dB variable noise reduction
- DT; DOC; SC feedback
- Freeze and strobe
- Composite only operation



50 II TBC/Freeze II

- NTSC, PAL or PAL-M
- AGC on/off; H-position; vertical color advance (1, 2 or 3 lines); horizontal chroma-to-luma adjust
- 3 levels of detail enhancement
- Frame or field freeze and variable rate strobe
- Transcodes composite and component inputs to all outputs
- Full proc amp controls
- Optional 3-way adaptive comb filter

TBC/Freeze

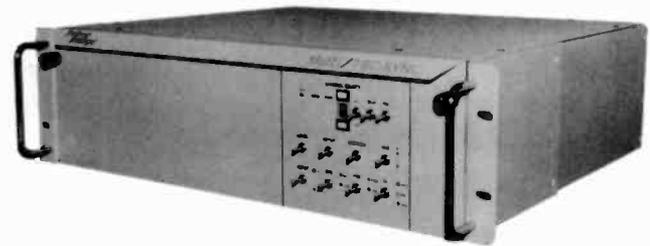
- True component processing
- 8-bit luma and chroma
- Full frame memory
- Time base correction
- Freeze function
- Full proc amp signal processing
- Available for S-VHS operation (Model 50S)

Two

- 2 channels of TBC/synchronizer in 1 rack unit frame
- NTSC or PAL models
- All-digital design for no-drift operation
- Accepts non-synchronous feeds—Y/C or composite
- Transcodes to Y/C and component regardless of input type
- Operates with all VCRs
- Full proc amp controls—both channels
- Occupies one 19" x 1 1/2" rack unit
- Channels may be genlocked together or independent

TBC+ and TBC+SYNC+

- Composite video in/out
- True component processing
- 4.2MHz bandwidth
- DOC, SC feedback, DT (Models 150, 100)
- DOC, SC feedback, freeze, strobe (Models 250, 200)
- Optional posterization, mosaic, sepia effects
- Available in S-VHS format (Models 150S, 100S, 250S, 200S)



Multi/TBC+SYNC

- 1 to 10 channels of TBC/synchronizer in 1 rack frame
- NTSC or PAL models
- All-digital design for no-drift operation
- No on-board adjustments
- Accepts non-synchronous feeds—Y/C or composite
- Transcodes to Y/C and component regardless of input type
- Operates with all VCRs
- Low power consumption
- Occupies one 19" x 1 1/2" rack frame unit fully loaded
- Channels may be genlocked together or independent
- Easily expanded from 1 to 10 channels
- NTSC, PAL or PAL-M



STILL STORES

access II

- Dual channel electronic still store
- Transition effects
- Composite and Y/C in and out
- Time base corrects and synchronizes input
- Multiple preprogrammable sequences
- Auto sequence loop
- 100 or 1000 frames (NTSC, PAL or PAL-M)
- Removable backup; 2-frame disc
- 75-frame tape option

access

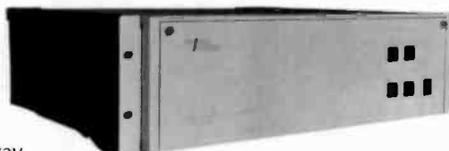
- On-line (hard disk) 100 frames
- Optional 400 or 1000 frames
- In/out transcoding for composite, Y/3.58, Y/R-Y/B-Y or RGB (3 or 4 wire)
- Digital sampling 4:2:2
- Accepts non-time base corrected, non-synchronous inputs
- Multiple programming sequences
- Backup (removable disk) 2 frames
- Optional backup (tape cartridge) 80 frames
- Video control panel: sequence generate/recall, proc amp, I/O type select, store and recall
- Optional library control systems

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

STANDARDS CONVERTERS SC Series

- All-digital design
- NTSC-to-PAL; PAL-to-NTSC; and 2-way models available
- 2-way upgrade card option
- Multi-channel model for 1 to 6 channels
- 4:2:2 digital sampling—all models
- 4-field + conversion
- 8-bit luma/8-bit chroma
- Ultra-smooth interpolation
- Accepts non-time base corrected and non-synchronous inputs
- Input sources are time base corrected and synchronized
- Provides composite and Y/3.58 in and out transcoding—Y/688 input option available
- Advanced algorithms—Olympic quality video output



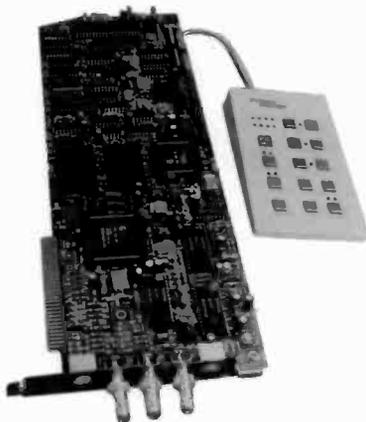
Std/Con Series

- NTSC, PAL, PAL-M, PAL-N, SECAM, NTSC 4.43
- 1 or 10 channel standards converters
- Each channel has composite or Y/C in and out
- Time base corrects and synchronizes input
- Each channel has 3-way adaptive comb filter
- Full digital design—no drift, no alignment
- Many features; freeze, strobe, enhance, AGC, vertical and horizontal color-to-luma adjust and more

DIGITAL DESKTOP VIDEO

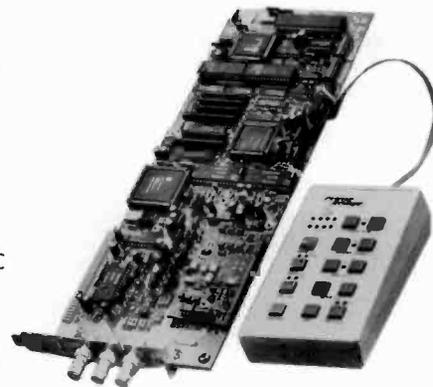
TBC/PCB Plug-In Board

- Full digital operation—no drift, no adjustments
- NTSC or PAL models
- Stable freeze frame/field—variable rate strobe
- Provides timing into switcher (Toaster)—horizontal phase and subcarrier phase
- Signal enhancement
- Proc amp and all other settings controlled through video remote or host computer
- Composite and Y/C in and out with transcoding
- Built-in genlock
- Vertical color advance—1, 2 or 3 lines
- Horizontal chroma/luma adjust
- 4-event memory presets per board
- Go to black/white (color kill)
- Automatic gain control (AGC) on/off



All-In-1 Plug-In Standards Converter, Time Base Corrector and Synchronizer

- NTSC, PAL, PAL-M, PAL-N, SECAM, NTSC 4.43
- Full-blown plug-in standards converter
- Composite and Y/C in and out
- Time base corrects and synchronizes input
- 3-way adaptive comb filter
- Full digital design—no drift, no alignment
- Many features: freeze, strobe, enhance, AGC, vertical and horizontal color-to-luma adjust and more

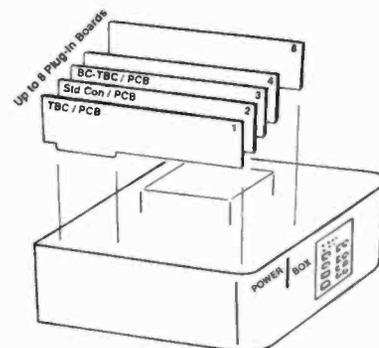


Full-True-Broadcast TBC and Sync Plug-in Board

- 3-way adaptive comb filter
- Composite and Y/C in and out
- Full digital design—no drift, no alignment
- NTSC, PAL or PAL-M
- Full proc amp controller
- Freeze frame/field
- Strobe-variable rate
- Signal enhance
- Vertical color advance—1, 2 or 3 lines
- Horizontal chroma-luma adjust
- AGC on/off
- Go to black/white on/off
- H-position
- Optional: remote, works without remote

Power/Box

- Video expansion chassis with controls
- Accepts up to 8 of any of Prime Image plug-in boards
- TBC/PCB; time base corrector and synchronizer
- Standard con/PCB; standards converter for NTSC, PAL, PAL-M, PAL-N, SECAM and NTSC 4.43
- BC-TBC/PCB; full-true-broadcast time base corrector and synchronizer



Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO PRODUCTION EQUIPMENT



408 Colorbar Generator

- SMPTE colorbar generator with 8-character ID positionable within the active area
- 64 characters, numbers and symbols available for each of the 8 character positions
- Field programmable via internally mounted DIP switches
- ID flashing or constant
- 1 blackburst output
- 1000Hz audio tone
- 1 3/4"H x 19"W x 12"D
- Rackmount
- 117VAC

408 \$1895.00

424 Colobar Generator

- Same as 408 except 24-character identification

424 \$1995.00



2400 Video Identifier

- 24-character video identifier
- Designed for identifying satellite video uplinks, with 10-digit telephone point of contact programmable from front panel
- 12 internally programmable alphanumeric characters for FCC license number and user identification and a 2-digit user number controlled from the front panel
- ID appears in active picture area over user furnished video in setup mode
- ID can be deleted or switched to the VBI during program transmission
- 1 1/2"H x 19"W x 12"D
- Rackmount
- 117VAC

2400 \$1995.00

PCID-864 Portable Identifier

- Portable (ENG) camera identifier with 8 characters
- Internal selection for active picture area or VBI display
- 32-hour operation from 9V alkaline battery, or operates from external DC
- Belt/pocket clip
- Active area/vertical interval display
- Lightweight flitop case
- External floating power supply 12-20VDC or 8-15VAC

PCID-864 \$625.00



VSID-24 Video Source Identifier

- Remote control of active/VBI display
- Remote display delete
- Remote display flash
- 1RU high
- 1 to 24-character display
- Field changeable characters
- Digital vertical positioning
- Display flashing or constant

VSID-24 \$1695.00

908 Multi-Image Inserter

- 24-bit color
- 256 different colors on screen at the same time from a palette of 16 million colors
- Built-in 8-bit linear keyer
- Imports images
- Digital fader
- 1 RU high
- Floppy drive unit
- 8 programmable input ports
- Mouse controlled menu driven
- Repositionable images
- Resolution 720 x 480
- Rear panel RS-232/mouse port allows for changing logos via remote control
- Key edit software available

908 \$2995.00

808 Image Inserter

- Self-contained unit, 1RU high
- Image size, corner screen to full frame
- 24-bit color
- Built-in 8-bit linear keyer, 256-step
- 256 colors on-screen at any time from a palette of 16 million colors
- Resolution 720 x 480
- Digital fade
- NTSC in/out
- Non-volatile CMOS memory
- Logo generation
- Full bit mapped frame

808 \$1995.00

3000 Safe Area Generator

- Generates 6 different safe area patterns (per SMPTE RP 27.3) plus 2 cross-hatch patterns over user's video
- Front panel adjustable marker level, plus pushbutton pattern selection and mark delete
- Relay bypassing on power-down
- 1 3/4"H x 19"W x 12"D
- Rackmount
- 115VAC

3000 \$995.00

5400 Sync Processor

- Sync processor with full sync, burst and blanking replacement
- Line-by-line selectable replacement in the VBI of either field
- Front panel controls from video gain, burst gain, burst phase, horizontal phase and setup
- Automatic bypass on loss of lock
- 1 3/4"H x 19"W x 12"D
- Rackmount
- 115VAC

5400 \$1995.00

5700 Automatic Video Switchover

- Automatic video switchover switches to auxiliary source on program loss, low amplitude or excessive noise
- Front panel indication of input and output states
- Local/remote override to either program or auxiliary source
- Adjustable hang and hold times
- Adjustable noise and amplitude windows
- Defeatable alarm on program loss
- Relay bypass (program to output) on power-down
- 1 3/4"H x 19"W x 12"D
- Rackmount
- 115VAC

5700 \$1795.00

6100 Microwave AGC Meter

- Produces variable length, vertical interval single white line in response to microwave receiver's AGC output
- Loophrough input picks up AGC flag
- Selectable vertical interval flag line for multiple hops
- 117VAC
- 1 1/5"H x 8 1/2"W x 5 3/8"D

6100 \$695.00



VT-7 Video Leader Countdown Generator

- 10-second video leader countdown generator
- 7-segment character in 8 user selectable sizes or expanding incrementally in size as countdown progresses from 10 seconds to 2 seconds
- 400Hz audio tone as each second passes, then 200Hz tone at 2-second mark
- Rear panel remote
- 1 3/4"H x 19"W x 12"D
- Rackmount
- 115VAC

VT-7 \$1595.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PROMPTER SYSTEMS

COMPUTER PROMPTER SOFTWARE (PC Compatible)

QCP LT Software

- 2-button variable speed hand control
- Pro Sentinel key
- For studio or on-location
- Easy-to-use package
- File import enables you to load WordPerfect, MS Word and ASCII files right on the set
- Wide selection of fonts and smooth scroll **\$2650.00**

QCP Mark 1.5 Software

- 2-button variable speed hand control
- Pro Sentinel key
- Full-featured prompting software for production and public speaking
- Closed captioning
- Split, full screen and prompter word processor modes
- Dynamic run-order management
- Drop down menus
- International fonts
- Ultra-smooth glide scroll **\$3450.00**

QCP Mark II Software

- 12-button variable speed desk control
- Pro Sentinel key
- For real time applications like news and demanding production situations
- Simultaneous scroll/edit
- Closed captioning
- Print and communications
- Special versions available for most electronic newsrooms **\$4450.00**

CueMac Software (Macintosh Compatible)

- CueMac software program license
- Pro Sentinel key
- RGB/composite cable
- Prompts on virtually all Macs including the Powerbook line
- Create scripts with CueMac's powerful editor or import them automatically from popular wordprocessors—even Windows, DOS and Unix originated documents
- Choose typestyles, fonts and character sets, including Arabic, Chinese, Hebrew, Japanese, etc. **\$3990.00**

Computer Video Options

- VGA card with NTSC output **\$599.00**
- VGA card with genlockable NTSC output **895.00**
- EGA card with composite output **275.00**
- VGA-to-NTSC (monochrome) encoder **450.00**
- RGB (TTL)-to-composite encoder **95.00**

ON-CAMERA VIDEO PROMPTER EQUIPMENT

17" On-Camera Prompter (Studio)

- Prompter camera mount
- Camera balancing plate
- VPS eyeline
- Utilizes 39% more viewing area than the 15" on-camera prompter
- Uses modular printed circuit board design
- Weighs 27 lbs. **\$2600.00**

15" On-Camera Prompter (Studio)

- Prompter camera mount
- Camera balancing plate
- VPS eyeline
- Exceptional brightness and contrast
- Use with any camera application **\$2375.00**

MVP-11 11" Video Prompter (Studio)

- MVP-11 eyeline
- Prompter camera mount
- Below-the-lens system
- Weighs only 20 lbs.
- 27% larger viewing area than 9" prompters
- Great for mid-size studios
- AC/DC powered **\$2575.00**

MVP-9 9" Mini Video Prompter(Studio/Remote)

- AC/DC powered
- MVP-9 eyeline
- Prompter camera mount
- Lightweight, rugged and portable
- Proven under an infinite variety of conditions **\$2150.00**



FDP-9 Flat Display Prompter (Studio/Indoor Remote)

- AC/DC powered
- FDP-9 eyeline
- Prompter camera mount
- Award winning flat screen technology and design
- Superior optics ensure easy-to-read copy up to 20'
- Compact and weighs only 10 lbs.
- Studio/indoor use only **\$3250.00**



MINI COMPUTER PROMPTER PACKAGES (Remote/Studio)

MVP9-C Mini Computer Prompter Package

- QCP-LT software program
- Variable speed script control
- Pro Sentinel
- MVP-9 prompter monitor (AC/DC) with eyeline
- Camera mount **\$4675.00**

FDP9-C Mini Computer Prompter Package

- QCP-LT software program
- Variable speed script control
- Pro Sentinel
- FDP-9 flat display prompter (AC/DC) with eyeline
- Camera mount **\$5750.00**

MVP-11-C Mini Computer Prompter Package

- QCP-LT software program
- Variable speed script control
- Pro Sentinel
- MVP-11 prompter monitor (AC/DC) with eyeline
- Camera mount **\$5100.00**

COMPUTER PROMPTER PACKAGE (Studio)

150NCAM-C Computer Prompter Package

- QCP Mark 1.5 software program
- Variable speed script control
- Pro Sentinel
- 15" prompter monitor with eyeline
- Camera mount and balancing plate **\$5675.00**

Note: For multiple on-camera prompters, refer to On-Camera Video Prompters and add package prompter as required.

VIDEO PROMPTER EQUIPMENT

15" Freestanding Prompter System (Studio)

- Heavy-duty elevated stand with casters
- VPS eyeline
- Mounted independently on a rollaway stand
- For lightweight pan/tilt heads and camera support tripods. **\$2810.00**

Presidential Executive Speech Prompter (Public Speaking)

- 15" high resolution prompter monitor
- High efficiency 2-way optical panel, aluminum base, matching side panels, locking cap and adjustable black anodized rod
- Ideal for a public speaking forum **\$2375.00**

VPS-100 Console Paper Transport

- Vidicon camera with lens
- Remote hand control
- Scans and scrolls 8 3/8" wide paper for display on a prompter monitor **\$3200.00**

VPS-300 Conveyor Paper Transport

- Vidicon camera with lens
- Remote hand control
- Same functionality as the VPS-100 but accepts paper in single sheet form **\$3400.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TELEPRODUCTION TITLERS



quanta
Dynatech Production Products



Delta Classic Character Generator

Single Channel Standard Features ■ Less than 1ns resolution ■ 256 levels of anti-aliasing and transparency ■ 16.7 million colors
 ■ Unlimited on-line fonts ■ Dynamic character sizing ■ Unlimited graphic planes ■ Free-form character placement ■ Programmable page transitions ■ Ultra-smooth, sub-scan rolls ■ Shade, neon, blur, extrude, rotate ■ 32-bit frame buffer(s) ■ Full bandwidth key/alpha channel ■ Linear downstream keyer/fader ■ Sync generator with genlock ■ Composite, RGB and key outputs ■ 127M byte hard disk ■ 8M byte CPU RAM ■ 1.44M byte, 3.5" floppy drive ■ Local keyboard-6' (English) ■ International character set ■ 10 vector-based master typefaces

Dual Channel Standard Features ■ Includes all of the above features plus: ■ Panimation™ Effects ■ Dynamic Digital Compositing ■ Additional page transitions

Options
 ■ Video camera capture ■ Logo compose software ■ CCIR-601 digital video board ■ PC or Mac Toolkit Software ■ MacLoad software ■ PostScript Type 1 conversion software ■ Integrated networking ■ Remote keyboard adaptor ■ PAL/NTSC switchable video board ■ Full-color texture mapping ■ 16:9 widescreen format ■ Typing on a curve ■ Macro Editor ■ Remote recall keyboard ■ Additional vector-based typefaces ■ Expanded CPU memory/hard drives ■ 44M byte or 88M byte removable hard drives ■ International language keyboards/typefaces ■ Video touch-up software (dual channel only)
 Delta Classic Prices starting at \$20,500.00
 Note: Call for pricing with options

Spectra PC-Based Production Titler

■ Single channel/single board solution ■ Real time operation ■ 10 on-line type styles ■ 35ns resolution ■ 5 edge types—instant selection ■ Freeform placement of text or logos ■ Word wrap, centering, tabs and justify ■ Adjustable fade, cut and wipe transitions ■ Vertical color spreads—character, logos, back-grounds ■ Automatic page sequencing ■ PCX image file format compatibility ■ Instant sizing (16-256 scanlines) ■ Instant italicizing and character kerning ■ Multiple speed rolls, crawls and page transitions ■ Quick-access pull-down menus ■ Ease of use/on-line help ■ Standard DOS disk utilities ■ Internal linear downstream keyer ■ Built-in sync generator ■ Composite and Y/C program outputs ■ Upstream key output ■ Composite preview output ■ Composite and Y/C inputs ■ International character/accent sets
 Spectra \$3,500.00



Orion SE Teleproduction Titling Systems

■ 3000 typeface library selection ■ 5ns effective resolution ■ Real time operation ■ 256 levels of transparency ■ 30M byte hard drive ■ 72 anti-aliased fonts ■ On-screen status display ■ Adjustable safe title area indicators ■ International character sets with accents ■ Automatic or manual page sequences ■ Insert/delete/erase by character, word or row ■ 16.7 million colors ■ Color spreads ■ Rolls, multi-line crawls, reveals, flash—all at 99 speeds ■ Fade with user-defined rate ■ Built-in downstream linear keyer ■ Broadcast quality encoder ■ Y/C output standard (S-Video) ■ Linear key output standard ■ Built-in sync generator ■ Keyboard controlled horizontal and subcarrier phase adjustment ■ 12/24 hour clock ■ 500K bytes of RAM memory—expandable to 2M bytes ■ 32-bit central processor ■ Adjustable tabs and tab position indicators ■ Pages stored on hard disk or floppy ■ NTSC, PAL, PAL-M ■ Multi-colored character/logo display ■ Multiple character edge selections ■ 16 levels of anti-aliasing ■ Center by row or page ■ Selectable left/right justification by row or page ■ Lower third tilting and character underline ■ Random or sequential page recall ■ Preview next/previous page
 ORISE-XX [XX indicates PAL (PL) or NTSC (NT)] . . . \$ 11,000.00
 ORISE-SF/FEC With Logo Capture, Page Effects, Fontmaker and 500K byte RAM memory upgrade 14,500.00

Options
 ORI-LC Monochrome Logo Capture \$2,000.00
 ORI-CVA Component video adaptor RGB or YUV (Y, R-Y, B-Y) video output adaptor board. . . 1,500.00
 ORI-FM Fontmaker for user definition of font attributes from master typefaces 1,500.00
 ORI-EF Page effects, dynamic, real time page transitions 750.00
 ORI-RAM RAM memory upgrade, 500K byte. Required for Logo Capture and Fontmaker options. . . 500.00
 ORI-FD Factory installed second disk drive, 3.5" 1.4M byte, floppy disk drive. 700.00
 ORI-RKA Remote keyboard adaptor for remote operation of single keyboard up to 1000' from chassis. Includes 100' of cable and rackmount ears. . . 850.00
 ORI-RKACC Custom cable length up to 1000' ft./1.00
 ORI-KBD Additional remote keyboard. English standard . . 600.00
 LCK-ORI International language keycap conversion kit. . . 250.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

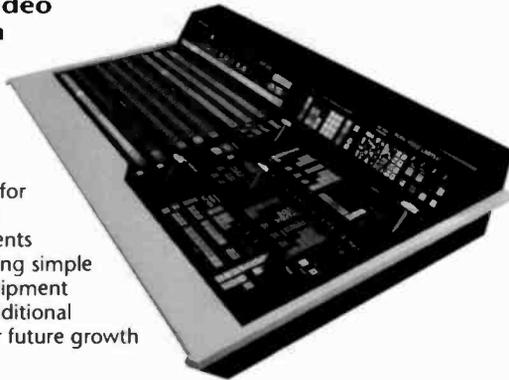


PRODUCTION SWITCHER

RVS 630 Video Production Switcher

30 Inputs

- Extra inputs may eliminate the need for a router
- Allows for more complete coverage of events while maintaining simple and logical equipment operations
- Additional inputs allow for future growth of studio



True Preview

- Allows preview of the full multi-level effects system
- Allows for accuracy of preview monitor
- Make simple changes before committing effects to air

Transition Preview

- Patented transition preview
- See exactly what will go to air before it actually does
- Preview all components of the transition
- Preview wipes or check auto transition rates

Downstream Keyers

- Patented downstream multi-keyer
- 8 independent keys on-air at once
- Independent control of all 8 keys
- 3 modes of keying—single, cumulative and multi
- All keys have independent controls for key level, softness, mask size and position, invert, non-add key, matte color, bordering and border edge intensity
- 8 auto transition units
- 8 independent mask generators with auto mask features
- Keys are linear and can be bordered independently with all-around border, drop shadow or outlined in color

DVE Interfacing and Control

- Interface to all popular DVEs
- Comprehensive DVE interface
- DVE module complete with joystick is built into the switcher control panel
- Control of DVE is simple, straightforward
- Simple 1-step operations for: recall, run forward, run reverse and pause, go to start and go to end, freeze and trim (x,y, size and rotation)

Extended Memory and Personality Programming

- Allows switcher to be personalized to specific needs and to save all settings to a 3.5" disk
- Set up and recall a detailed sequence of events or swap setups between MLEs
- No need to recreate detailed setting for each use
- Can perform personality programming directly from switcher control panel—with or without memory option

Fade to Black

- Fade to black fader bar
- Auto trans and cut to black buttons for freedom to get out of "tight" situations

Aux Bus Expansion

- Expandable to 12
- Rackframe housing holds 4 aux buses before extra rackspace is required
- Allows for addition of buses as needed
- Buses fully timed and can be customer programmed for full tally compatibility

Tally Systems

- Provide absolutely correct tally information for up to 12 aux buses
- Aux systems can interface to and tally all popular models of DVEs

Keys Only Recall Button

- Allows for instant recall of switcher settings without affecting the background buses
- Key settings can be recalled without recall of program and preset buses
- For recall of all settings just deactivate this function

Microprocessor Safety Net

- 5 microprocessors in rack unit on MLE1, MLE2, PGM/PST, AUX and DSK
- 1 processor failure does not affect the entire system—other parts still function and allow programming to carry on
- Unique application of RS-422 communication cable to all microprocessors by combining into a single 50-conductor cable

Ergonomic Layout

- Common sense layout for common sense operation
- 2 keys—visible simultaneously
- No controls in "safe-space" where operators may rest their hands
- Consistency of design throughout the line
- RVS 630 one of the smallest big switchers with 10 RU rackframe and control panel measurements of 47.25" x 27.25"
- Control of external equipment by incorporating peripheral interface II bus protocol

VTR Control From The Switcher Panel

- Full time code control of up to 4 Sony or other VTRs. Preroll, play, record, etc. Up to 100 clip locations on your tapes can be memorized and then stored to disk. Let the switcher operator control the sources and improve your station efficiency.

M630-001 Video Production Switcher

Includes: program and preset buses, downstream multi-keyer, event memory system, key assignment switcher, pulse regenerator for external reference input, basic wipe patterns, mask generator on MLE 1 and MLE 2, 10m control cable, extender board and connector kit, DVE control \$59,950.00

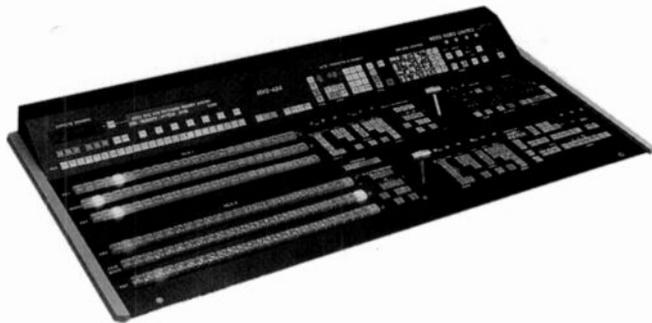
Options

- M630-181 Extended memory system with disk
- M630-201 Serial interface, both MLEs
- M630-321 RGB/component switcher
- M630-322 Safe title generator
- M630-360 Set of 2 aux buses
- M630-380 Aux bus extension frame (required for more than 4 aux buses)
- M630-400 Aux bus control on main control panel, for up to 4 aux buses, assignable
- M630-401 Remote panel for 1 aux bus, includes 10m cable
- M630-402 Remote panel, for up to 4 aux buses, assignable, includes 10m cable
- M630-420 Redundant power supply, main switcher and aux extension frame
- M630-240 Spare parts kit
- M630-244 Programmable device spares kit
- M630-280 Additional technical manual
- M630-281 Additional operator's manual
- M630-282 Additional installation manual
- M630-300 Additional cable for main panel, per meter
- M630-301 Additional cable for aux panel, per meter

Note: Auxiliary (aux) buses are supplied only in sets of 2 and require a control panel.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PRODUCTION SWITCHERS



RVS 424 Production Switcher

▪ Includes all features of RVS 416 ▪ 24 inputs ▪ Complete switcher setup storage ▪ Rotary and matrix wipe patterns ▪ Linear keys ▪ RGB, component and encoded chroma keys ▪ Stores up to 50 complete effects setups ▪ Separate control of MLE1, MLE2 and downstream keyer ▪ Storage of memory and personality on 3.5" diskettes ▪ Main panel controls assignable to 4 fully timed buses ▪ 5 independent auto transitions (6 with DSK) ▪ Modify button ▪ 2 completely independent pattern generators ▪ 4 user assignable buttons have access to a library of additional patterns ▪ Pattern edges and colored borders can be hard or soft ▪ Rate-controlled positioner gives smooth pattern movement ▪ 12 mask generators ▪ Either RGB or component chroma key is available for each MLE

Options

▪ Editor serial interface ▪ Extended effects memory system ▪ RGB/component chroma keyer ▪ Chroma key switcher ▪ Linear key border generator ▪ Rotary, star wipe and pointer generator ▪ Matrix wipe generator ▪ Auxiliary buses ▪ Safe title area generator ▪ Redundant power supply

M424-001 \$41,950.00

RVS 416 Production Switcher

▪ 16 inputs ▪ Two 4-bus Multi-Level Effects (MLE) systems permit manipulation of 8 sources simultaneously ▪ Transition preview system enables the operator to see every effect or wipe before taking it, even with the switcher on the air ▪ Program/preset buses ▪ 6 separate matte generators provide color for wipe borders, title matte and background ▪ Expanded GPI interface function means any editor with GPI has access to all auto transition starts as well as several of the switcher memory modes ▪ Modify button allows the user to select many alternate modes of operation and to access useful operator aids and diagnostic routines from the control panel without the need for a separate configuration device ▪ Video output pulse processor has sync and burst replacement ▪ Preset black permits a 2-stage transition starting with the present source followed by a fade-to-black, then to the next source selected on the preset bus ▪ 5 independent auto transition units, programmable from 1 to 999 frames ▪ Master fade-to-black ▪ Non-sync inhibit detects non-synchronous sources and inhibits keys, wipes or dissolves, and substitutes a cut at the end of the transition ▪ Non-sync LEDs indicate the presence of a non-synchronous source ▪ 2 independent pattern generators controlled by pushbutton selector ▪ Wipe limit is available to stop the auto transition of any pattern at a predetermined size ▪ Keyer 1 features video or matte fill, internal, external or split screen key, optional RGB and encoded chroma key, key invert and key

mask ▪ Keyer 2 features video or matte fill, internal, external or character generator key, optional border controls and independent auto transition and cut buttons for additions without leaving the MLE control group ▪ Key over enables selection of key 1 over key 2 or key 2 over key 1 within each of the MLE systems ▪ Key memory permits key 1 and key 2 to "remember" key and softness levels, fill source, borders, mask parameters, etc., for each source on the keyer ▪ Operator, technical and installation manuals ▪ Extender board ▪ Connector kit ▪ Mask generator on MLE1 and MLE2 10m cable

Options

▪ Editor serial interface ▪ Event memory ▪ Pulse regenerator ▪ Linear key border generators ▪ RGB/encoded chroma keys ▪ Rotary, star wipe and pointer generators ▪ Matrix wipe generators ▪ Extended memory

M416-001 \$29,950.00

RVS 210A/216A Production Switchers

▪ 210A 10 inputs, 216A 16 inputs ▪ 3-bus Multi-Level Effects (MLE) system lets you change foregrounds, backgrounds and titles without ever locking up the switcher ▪ Transition Preview system enables you to see every effect or wipe before you take it, even with the switcher on the air ▪ The Program and Preset buses operate in a flip/flop manner after a transition ▪ Independent auto transition for fade-to-black with post-fade preview system ▪ The fade can be stopped and reversed ▪ GPI inputs can start each of the 3 auto transitions ▪ A fourth input can be assigned from the panel to control any 1 of the 3 ▪ 3 matte generators provide color for MLE key and wipe borders, downstream key and background input ▪ All keyers offer video or matte fill, key invert and key masking using the pattern generator ▪ Key Memory — both keyers "remember" key level and softness, fill, borders, etc., for each source ▪ Pulse processor inserts fresh sync and burst at switcher output for improved signal stability ▪ 3 completely independent auto transition units, programmable from 1 to 999 frames ▪ Modify button gives access to a wide range of useful operational and diagnostic aids as well as many ways to "personalize" the switcher ▪ Edit button selects serial input from editing system ▪ 12 complete switcher setups can be stored and recalled including key levels, patterns, matte levels, transition information, etc. ▪ Shares the pattern selector controls ▪ Offers 53 bordered wipe patterns providing excellent effects with the wide adjustment range of the colored soft border ▪ Pattern positioning is very smooth, thanks to the rate-controlled pattern positioner

Options

▪ Linear key border generator ▪ RGB chroma key ▪ Event memory ▪ Editor serial interface ▪ Pulse regenerator ▪ Combination RGB/encoded ▪ Chroma keyer (216A only)

RVS 210A

M210A-001 Video Production Switcher, tabletop model including 10m control cable, operator, installation and technical manuals \$9,995.00

M210A-002 Same as above except in-desk model ... 9,995.00

RVS 216A

M216A-001 Video Production Switcher, tabletop model including 10m control cable, operator, installation and technical manual \$12,490.00

M216A-002 Same as above except in-desk model. . . 12,490.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SERIES 800

802 Master Station

▪ A sophisticated microprocessor-assisted intercommunications control station ▪ Capable of providing 22 independent signal paths operating in up to 6 separate modes ▪ Features intercom, squawk, IFB/SA, station-isolate and signaling ▪ Combination of hardware and software programmability allows the user to conveniently structure an individualized operating format ▪ Front panel layout ▪ Momentary/latching action buttons ▪ Individual channel listen level controls ▪ Stereo headset source assignment ▪ Utilizes a powerful Z80 type microprocessor ▪ Refined firmware package offers immense capabilities via the standard EPROM ▪ Can operate independently and may be employed as a single unit or used in multiples ▪ Programmable signaling circuitry (call lights) may be incorporated as an option ▪ A memory circuit holds the flashing call signal for a predetermined time or until answered ▪ Each individual channel can operate in either a 2- or 4-wire balanced line mode ▪ Completely self-contained, requiring no external electronics ▪ Adaptability, non-volatile user memory and presets ▪ All front panel switches have dual level illumination and large easy-to-read interchangeable legends ▪ Compatible with dynamic and carbon microphone headsets as well as "plantronics" type mini headsets ▪ Front panel mounted gooseneck microphone may be used in conjunction with the loudspeaker for headset-free operation

- 802 Master station/communications control center \$4995.00
- 862 System interconnect for 802/I/O to other equipment 1750.00

Options

- 802-A1 Option base \$ 350.00
- 802-B3 Talk, channels 7-12 495.00
- 802-C2 4-wire receive, channels 1-6 315.00
- 802-C3 4-wire receive, channels 7-12 315.00
- 802-D2 Call signal, channels 1-6 315.00
- 802-D3 Call signal, channels 7-12 315.00
- 802-E1 Chime signal 100.00
- 802-F1 Squawk/dedicated address, 6 channels 575.00
- 802-F5 Squawk/dedicated address, additional 4 channels 560.00
- 802-G1 IFB/4001 emulate 275.00
- 802-G5 IFB/4002 emulate 275.00
- 802-H1 ISO/VCP6A emulate 185.00
- 802-H5 ISO/VCP1 2A emulate 185.00
- 802-J1 E&M signaling 750.00
- 802-K1 Handset interface 675.00
- 802-FS Master station field spare parts kit 1350.00
- 802-DS Master station depot spare parts kit 1600.00
- EPROMS Master station updated software 250.00

Notes: Option A1 is required for options D, E, F, G, H; Option E1 requires options D2 or D3; Option F5 requires option F1.

848A Programmable Matrix Intercom Station

▪ Main component of a "distributed summing bus" matrix intercom system ▪ In a point-to-point system arrangement, each station can talk to any 1 or combination of other stations ▪ A quantity of 2 stations can be used to create a 2 x 2 minimum size system, while a quantity of 24 stations make up a 24 x 24 maximum size system ▪ In

addition to 24 regular talk buses each station has an All Talk bus for system paging and 2 TW intercom conference-line circuits for direct connection to standard RTS system intercoms ▪ Programming features include electronic momentary/latching switch action, latch disable, instant mic-on, calling station tallies, received call stacking, auto-stacking answer-back, forced crosspoints, crosspoint inhibit, auto return talk, crosspoint grouping, and busy line lock out ▪ A dedicated-line matrix intercom system can be used wherever point-to-point intercommunications are required ▪ The ability to set up and alter (in real time) each station for a group of specific "talk-to" destinations ▪ Each talk path is dedicated to a send/receive bus ▪ Each station is augmented with 2 TW intercom conference line circuits, which allows each station to connect to standard TW intercom system lines

- 848A User station/24-channel matrix line \$2500.00
- 4025A 1 x 4 25-pair 50-pin passive switcher 95.00
- DC848 Data concentrator 1425.00



Matrix/Conference-Line Intercommunications

810 Master Station

▪ Compatible with other Series 800 products ▪ All intercom lines are balanced line-level, and operate in a full-duplex mode ▪ Interconnection to TW intercom circuits is also possible through ancillary equipment ▪ A group of 11 pushbuttons serve as the selection switches ▪ A momentary-action All Talk pushbutton enables each station to talk simultaneously ▪ Can be used to create a 10 x 10 point-to-point squawk system ▪ A station can talk to multiple stations simultaneously by depressing any combination of buttons ▪ Depressing the All Talk button will page all stations simultaneously ▪ The 810-AA can be used as a user station within a 10 x 10 matrix intercom system ▪ The 810-CL can be used as a user station within a 10-channel conference line intercom system ▪ Pushbuttons are latching action ▪ The 810-5CTL can be used within a 5-channel conference line intercom system ▪ Pushbuttons are latching action ▪ Each channel has a separate talk and listen pushbutton, allowing any combination of listening and talking to selected channels

- 810 Master station/10-channel squawk system station \$ 1850.00
- 810-AA 10-channel matrix system station 1925.00
- 810-CL 10-channel conference line station 1950.00
- 810-5CTL 5-channel talk/listen conference line station 1950.00
- M 20" gooseneck panel microphone 140.00
- 865 Central matrix/required for 810 squawk system 1335.00
- 4012 50-pin x 12 (3-pin XLR-type connectors) system interconnect 590.00
- TWSW 1 x 5 2-channel, 3-pin XLR-type passive splitter 106.00
- 4022 1 x 2 25-pair, 50-pin passive splitter 40.00
- 4024 50-pin connecting block with hand tool 62.00
- 4025A 1 x 4 25-pair, 50-pin passive splitter 95.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

INTERCOM SYSTEM



RTS BY TELEX

TW Intercom System

▪ Over 25 different components and accessories ▪ Operate duplex mode, simultaneous talk and listen to and from each user station ▪ Up to 75 user stations can be employed ▪ Phase III circuitry permits 12V power operation, multi-channel selection, 10 mile range and balanced line operation

BP300 Belt Pack User Station

This lightweight user station provides 2-channel operation and may be used in portable, semi-portable and fixed position applications. **\$312.00**



MRT327 User Station

This modular package, 2-channel station features call signaling and remote talk/off. It can be used in a portable or permanent application, as a headset or speaker station **\$350.00**



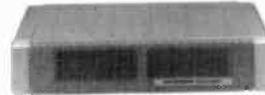
MCE325 Programmable User Station

This modular package station features user programming, 2- or 4-channel operation, headset or speaker operation, call signaling, 4-wire mode, IFB and more **\$805.00**



MCS325 Modular Speaker

This unique low profile loudspeaker serves as a matching package to the MRT327 and MCE325 User Stations. It can also be used with any other user station or as a program audio monitor. **\$128.00**



WM300 Wall Mount User Station

This 2-channel, headset user station fits into a 2-gang electrical box or can be installed in a desktop as a low profile console mount station . . . **\$394.00**



WMS300 Wall Mount Speaker Station

Designed to fit into a standard 4-gang electrical box, this station augments headset/handset operation with a loudspeaker for monitoring the line **\$590.00**



SAP612 Source Assign Panel

This multiple switch assembly assigns any 1 of 6 intercom channels and/or 2 program audio channels to 12 separate intercom 2-channel user stations **\$700.00**



PS15 Power Supply

A single PS15 (2 channels) can power 6 to 30 user stations, depending on model and combinations. Typically, a combination of 15 headset and speaker stations can be powered from a single PS15. **\$350.00**



BP325 Portable User Station

This 2-channel unit features user programmable operational functions. It is a stereo/mono unit with program input and call light **\$340.00**



BP317 Portable User Station

This single channel belt pack is small, lightweight and easy to use with only 2 controls: headset volume and mic on/off **\$195.00**



TWI222, TWI224 System Interfaces

These units are designed to provide the best possible coupling between the TW intercom system and other types of intercom and communications systems.

TWI222 **\$597.00**
TWI224 **\$22.00**



TWI222



TWI224

SSA324 System Interface

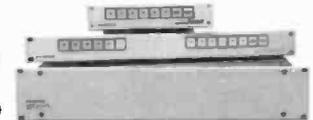
Provides 2 channels of RTS 2-wire to 4-wire conversion or 1 channel of RTS 2-wire to 2-wire conversion. **\$550.00**



VIE306, VCP6A, VCP12A Station ISO System

These components provide control, switching and interface (4-wire or 2-wire) functions for private communications between 3 control stations and 6 user stations.

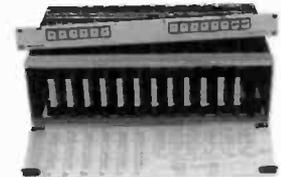
VIE306 **\$3087.00**
VCP6A **1015.00**
VCP12A **1705.00**



CIF612, VCP12B Station ISO System

These components provide control, switching and interface (4-wire only) functions for private communications between 6 control stations and 12 user stations.

CIF612 **\$3450.00**
VCP12B **1705.00**



TWSW Splitter

A completely passive 1 x 5 connector splitter assembly **\$106.00**



CPK62 Circuit Card Kit

A small-size user station plug-in circuit (CC62) is provided with all external controls and connectors **\$139.00**



SAP1626 Source Assignment

This multiple switch assembly assigns any 1 of 12 intercom channels and/or 3 program audio channels to 26 separate intercom 2-channel user stations **\$2950.00**



PS31 Power Supply

A single PS31 can power approximately 30 user stations on any combination of 3 powered output channels. A program audio input can be added to any 1 of the 3 channels **\$1175.00**



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Series 4000 IFB System

This program-interrupt system is used primarily for cueing on-air talent. It is based on a modular building-block concept that allows the user to configure a system sized to meet his requirements. Main system components consist of control stations, user stations and central electronics. A system may grow to four 4003 Control Stations, three 4010 Central Electronics and twelve or more 4020 User Stations.

A brief operational description of an IFB System: The talent is receiving a program feed through the IFB System components. The director pushes a button on his control station which interrupts the program feed and permits the talent to receive a message from the director's microphone. 2 or more talent positions may be interrupted independently or together.

The Series 4000 IFB System control stations are designed to provide the necessary switching commands and voice signal origination that ultimately becomes the part of the composite IFB signals to the talent user stations. Each station provides a given number of switch functions according to its model number. (All switches are illuminated momentary pushbuttons with 2 brightness levels.) The 4001 has 6 switches: IFB-1 through IFB-4, IFB All and SA (studio announce). The 4002 has 11 switches: IFB-1 through IFB-8, IFB All, SA-1 and SA-2. 4003, with 16 switches, provides IFB-1 through IFB-12, IFB-All, SA-1, SA-2 and SA-3.

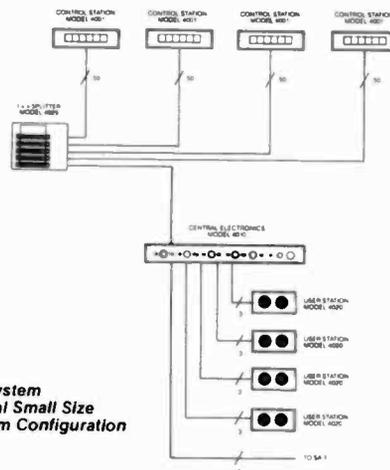
Each control station model may be ordered with a high quality gooseneck microphone permanently attached to the top panel. (An "M" suffix is added to the model number; 4001M, 4002M and 4003M.) Should an existing microphone be more suitable for operations, the "M" suffix model need not be ordered. A terminal-strip connection on the control station microphone preamplifier circuit board accepts a microphone- or line-level signal from the existing microphone. Any convenient nearby microphone may be used, i.e., an intercom headset microphone, a paging microphone, audio-slate microphone, etc.

The 4010 central electronics unit contains all the necessary control functions and electronics to provide the active link between 4001, 4002 and 4003 control stations and 4020 user stations. It performs the silent electronic switching between program and voice, assigns the program channels to the appropriate outputs, sets the program/voice level mix to the talent, and supplies 2 channels of composite audio, combined with a DC voltage, to the 4020 user stations. In addition, it provides convenient front panel monitoring facilities for set-up and testing.

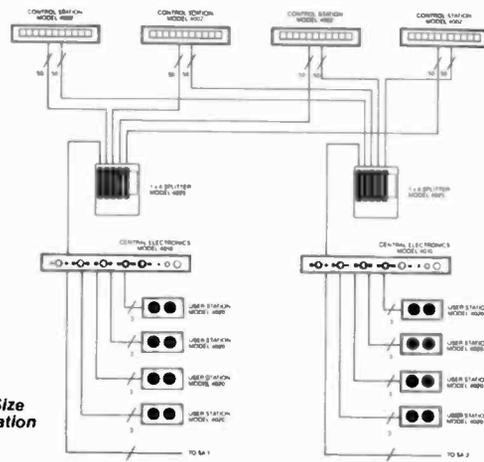
The 4020 user station, a small "belt pack" package, allows the user to receive audio signals as designated by the central electronics unit and the control stations. It is the electronics package typically used by talent personnel, such as newscasters, sportscasters, musicians, etc.

Each 4020 contains the necessary electronics to provide a stereo audio signal to the user. 2 power amplifiers rated at 1/2W each are capable of driving almost any set of headphones, earphones or even small loudspeakers.

4020	Talent electronics/portable user station	\$ 256.00
4001-RMA	Rackmount adaptor for 4001 or VCP6A	90.00
4002-RMA	Rackmount adaptor for 4002	90.00
4025A	1 x 4 25-pair 50-pin passive splitter	95.00
4001M-20	4001 with 20" gooseneck mic	745.00
4001M-12	4001 with 12" gooseneck mic	745.00
4002M	4002 with gooseneck mic	915.00
4003M	4003 with gooseneck mic	1136.00
2233	Wide response announcer earset with 1/4" phone plug	33.00
2234	Wide response announcer earset with coiled acoustical interface tube with 1/4" phone plug	46.00



IFB System
Typical Small Size
System Configuration



IFB System
Typical Medium Size
System Configuration



4001 4 IFB, 1 SA control station \$ 605.00



4002 8 IFB, 2 SA control station \$775.00
4003 12 IFB, 3 SA control station 996.00
-M 20" gooseneck panel microphone 140.00



4010 Central electronic, 4 IFB, 1 SA \$1920.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA SUPPORT EQUIPMENT



Combi Pedestal

- Studio and field operation
- Compact, modular setup
- Long-time wheel alignment of casters based on overload protection at each wheel case and after half a cycle of the steering wheel, all casters are aligned again
- Double-wheeled casters with plained treads
- Center column is supported with a low pressure pneumatic system
- A hand pump which is attached to the pedestal can be used to make readjustments while on location
- Primary filling is made with a manual compressor
- Brake for the center column
- Make use of the pedestal's "on air" height adjustments without attaching the dolly
- On slippery or delicate surfaces clip-on rubber feet for the pedestal are taking effect
- 3-legged support construction
- Safety catch prevents the center column from raising
- Transport-clips at the center column prevent the tripod from unfolding while being carried
- Precisely steerable dolly can be changed from a 1-wheel to a 3-wheel steering mode (grab and steer)
- Big steering wheel and telescopic transmission
- Cable guards (height is adjustable)
- Overload protection within each wheel guard ensures that the casters continue to run parallel
- Transport and operation lock for the dolly arms
- Folding design for pedestal and dolly to ease transport, no tools required; built-in handles
- Twin wheels with a 4" diameter. Option: 6" ▪ Maximum load: 55kg ▪ Weight: 21kg



5198 Combi Pedestal	\$13,380.00
5196 Combi Pedestal/154 Dolly with twin wheels of 6" (154mm) diameter.	14,380.00
5194 Pedestal CII Identical to Combi except a steerable dolly.	7,385.00
5202 Vario Pedestal 1-90 Quick fix	14,850.00
5201 Vario Pedestal 2-75 Quick fix	17,495.00

OB 2 Tripod/OB Dolly

- Developed especially for outside broadcasting
- Can be extended twice
- Crank operated elevation unit
- OB Dolly can have pneumatic tires of 8" diameter
- As a special feature Sachtler offers an extender for the OB dolly
- This extender, on the 1 side increases the size of the supporting base and on the other side it takes the weight off the wheels

6200 OB 2 tripod.	\$3,695.00
7060 OB dolly	2,740.00
6202 OB elevation column	3,295.00
6400 OB 1 tripod.	2,195.00
6486 XL 2 tripod	2,995.00
7080 XL dolly	2,195.00



Video 30 II EFP Fluid Head

- Heavy-duty 7 position dynamic counterbalancing system
- 2 EFP pan arms
- 150mm ball
- 40kg capacity
- 9kg
- For studio and field production using small studio or O.B. cameras

3000 Video 30 II.	\$8,975.00
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Video 80 II Fluid Head

- OB/Studio applications
- Leakproof, zero-friction fluid head
- Fluid damping modules control very precisely camera/lens combinations weighing up to approx. 80kg
- Damping modules guarantee grades of drag which can be reproduced exactly at all temperatures at which cameras can still be operated
- Seven settings of drag for the horizontal and vertical position
- Locks for the horizontal and vertical direction are working independent of the damping and counterbalancing system
- They bring the camera to a stop, wherever desired, without transmitting vibrations
- Maximum load: approx; 198 lbs.
- Drag can be completely turned off, if 1 has to make sudden movements with the camera
- Grades of drag: horizontally and vertically 7 each and 0
- V-shaped wedge plate is used to mount the camera to the sliding balance plate
- Tilt angle: ±60°

8086 Video 80 II.	\$10,585.00
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Video 25 II ENG/EFP Fluid Head

- A medium sized ENG/EFP fluid head optimized for on location shooting combining the stability and pan and tilt comfort previously offered only by significantly larger and heavier camera support systems
- Balancing momentum adjustable in 7 steps
- Positive operational pan and tilt lock
- Safety lock
- 150mm ball, Mitchell intermediate tripod interface
- 25kg capacity
- 6.5kg

2500 Video 25 II.	\$7,385.00
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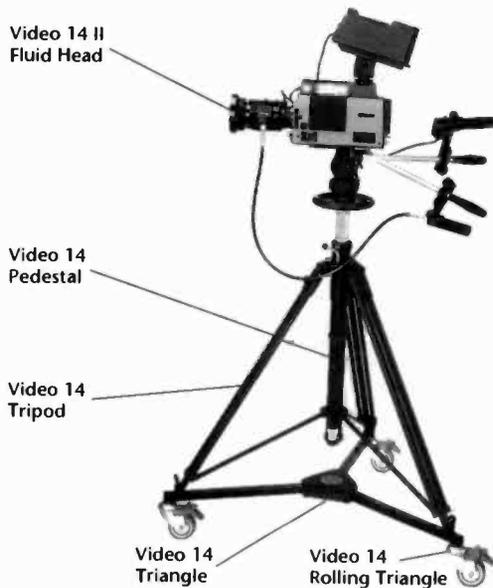
Video 17 III/ 18 III/20 III ENG/EFP Fluid Heads

- Powerful counterbalancing spring
- Positive operational pan and tilt lock
- Safety lock
- 100mm ball
- Medium sized ENG/EFP fluid heads for the ultimate in mobility
- Lightweight but stable enough to accept ENG camera with EFP accessories

1700L Video 17 III 3 step on/off drag control for pan + tilt	\$4,175.00
1800L Video 18 III 7 step on/off drag control for pan + tilt	4,295.00
1800P Video 18 Plus, 4" (100mm)	4,560.00
1800S Video 18 Sensor, 4" (100mm)	4,770.00
2000L Video 20 III 7 step on/off drag control for pan + tilt	6,095.00
2000P Video 20 Plus, 4" (100mm)	6,395.00
2000S Video 20 Sensor, 4" (100mm)	6,595.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Sachtler Tripods

Extremely lightweight, robust and twist-free. Ball-ring leg clamping devices with pre-set end pressure point. Double claws for attaching triangle or rolling triangle—or stainless steel spikes for soft ground.

Video 17 III thru Video 20 III Panorama, 4" Interface:

	Code No.	Price
Aluminum (Dural)		
DA 100 ENG 2D	5186	\$1195.00
DA 100 ENG HD 2DA	5490	1535.00
DA 100 long	5182	985.00
DA 100 HD long	5480	1395.00
DA 100 medium	5151	975.00
DA 100 short	5122	865.00
Hot Pod		
HP 6	5185/6	1865.00
HP 10	5185/10	1865.00
HP 14	5185/14	1865.00
Carbonfiber		
CF 100 ENG 2CF	5386	1785.00
CF 100 ENG HD 2CF	5390	1995.00
CF 100 long	5382	1595.00
CF 100 HD	5380	1695.00
CF 100 medium	5351	1555.00
Pro 100		
Tripod Extender	5550	440.00

Video 25 II thru Video 80 II/Horizon II, Studio II, 65, 80 and Standard 7 + 7, 6" Interface:

Aluminum (Dural)		
DA 150 EFP 2D	6186	\$1545.00
DA 150 HD 2	6286	2635.00
DA 150 long	6192	1460.00
DA 150 HD	6280	2195.00
DA 150 medium long	6181	1350.00
DA 150 medium	6157	1345.00
DA 150 short	6132	1050.00
Carbonfiber		
CF 150 EFP 2CF	6386	2085.00
CF 150 long	6392	1845.00
CF 150 medium long	6381	1695.00
Mitchell		
DA 150 Mitchell long	6400M	2460.00

Pedestal 14 II

Pneumatically supported center column tripod. Air pressure in the inside of center column can be exactly adjusted to camera's weight. Center column can be locked in any position. Even while center column is under pressure, a safety catch is engaged. Center column runs on ball bearings. Using extendable tripod, stroke range of center column can be adapted to shooting requirements. Height range: Spreader 27/46+ 16.5". Center column range: 16.5". Maximum load: up to 44 lbs. 4191 Pedestal 14 II \$1965.00

Video 14 II Fluid Head

3-step dial-in drag adjustment. Damping can be set for 3 different drag levels but the drag can also be disengaged. Free-wheeling for pan and tilt. Sliding platform for center of gravity compensation. Touch and go system quickly fastens the camera to the supporting mount. 2 adjustable pan arms. Built-in counterbalance spring tilt $\pm 60^\circ$. Tripod interface flat base for video 14 pedestal/75mm bowl tripod. Vertically and horizontally working brakes which when applied do not transmit vibrations to the camera. For horizontal levelling, a precise circular waterlevel is built in. Maximum load: approximately 33 lbs. 1400 Video 14 II \$1995.00

Dolly 14 II Rolling Triangle

For pedestal and 75mm bowl tripod. Heavy-duty 3.15" diameter casters. Built-in handle. 9.7 lbs. Dimensions for transporting: 75"H x 7.9"W x 24.2"L. Maximum load: 88 lbs. 7051 Dolly 14 II \$435.00

Tripods 14

Work with a height of 15cm off the ground up to a height of approx. 1.50m. 75mm bowl leveling. Black anodized aluminum construction. Maximum load: 33 lbs.

Tripod 14 Medium

Height range: Spreader 14: 15.9"-31.1"; Dolly 14: 16.1"-33.5". 4151 Medium \$455.00

Tripod 14 Long

Height range: Spreader 14: 24.8"-54.3"; Dolly 14: 32.8"-59.4". 4182 Long \$475.00

System Packages

1410 System 14 II: Video 14 II; S14 long; SP14; Cover 14 II \$2890.00
 1420 System 14 II Pedestal: Video 14 II; Pedestal 14 II; Dolly 14 II 4395.00

Dolly S

Through the angle lock of the spinning wheel and the independent wheel brake, defined circles and precise parallel movements can be made. All wheels have cable protection which can be adjusted according to the required height. 7065 Dolly S \$1395.00

Spreaders

7001	SP 14	For S 14 Tripod and Pedestal 14 \$199.00
7002	SP 100	For Series 100 Tripod especially for Carbonfiber 435.00
7002K	SP-Mini	For DA Tripod short 100 and 150 435.00
7003	SP 100/150	Heavy-duty, for all Series 100 Tripods and 150. 545.00
7013	SP 150 EX	For DA 150 HD/DA 150 Tripods HD2 and DA 150 Mitchell 599.00
7004	Rubber Feet (set of 3)	For Pedestal CII and Combi and Series 100 and 150 Tripods 330.00
7014	Rubber Feet (set of 3)	Excenter locking for DA 150 HD and DA 150 HD 2, OB 1, XL2 330.00
7005	SP 150 HD	Off-ground spreader for DA 150 HD, DA 150 HD 2, DA 150M 875.00
7007	SP 100	Off-ground spreader for Series 100 and 150 599.00
7007G	SP 100G	Same as above with rubber feet. 720.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

FLUID HEADS



FLUID HEADS FOR 16mm/ 35mm FILM CAMERAS

Panorama 3+3/ Panorama 7+7 Fluid Heads

A compact fluid head for 16mm film cameras which is sturdy in spite of its light weight. The built-in counterbalance spring is big enough so that cameras with standard size zoom lenses can be balanced. The spring can be engaged in 7 different settings to compensate the eccentricity of the center of gravity of front heavy or tail heavy cameras. The counterbalance system can also be completely disengaged.

The Panorama 7+7 head has 7 settings of damping for horizontal as well as vertical movements. The Panorama 3+3 has the first 3 settings of damping.

The pan bar remains attached to the head even during transport. The height and tilting angle of the pan bar can be set according to field experience.

1711	Panorama 7+7	\$4375.00
1311	Panorama 3+3	3995.00



Horizon II Fluid Head

For studio or field work where high quality has to be achieved, using a 16mm production camera or a compact 35mm camera. This fluid head has the necessary stability which is required when using long focal lengths. The head has a sliding camera mount (balance plate), so when the center of gravity is displaced because of the weight of tele- or zoom lenses with a long focal length, the necessary compensation occurs.

The Horizon II has a dynamic counterbalance system with 7 settings, which can be engaged with the 3 setting levers in order to compensate the tilt momentum resulting from the camera weight and the height of the center of gravity.

The horizontal and vertical movement can be dampened with 7 definable and exactly reproducible settings. The damping modules are leakproof by design and guarantee durable precision.

In addition to the very effective brakes of the Horizon II for pan and tilt movements, this head has a horizontal lock which can be very useful and give additional security while setting up or dismantling the equipment.

The height, angle and length of the pan bar of the Horizon II can be adjusted and attached to the left or right side of the head.

2502	Horizon II	\$7090.00
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Studio II Fluid Head

The Studio II is an excellent performing fluid head for modern production cameras, usable within the studio as well as out in the field.

The camera can be panned and tilted smoothly, more easily and calmer so that this head is an excellent substitute for gear-heads. Only 1 hand is necessary to control the camera and to follow the action, even extreme close-ups.

The damping modules operate without friction, are leakproof by design and offer higher damping values in comparison to other fluid heads.

The Studio II has a dynamic counterbalancing system. By means of the sliding camera platform (balance plate) the camera and its accessories will be balanced out while in a horizontal position. By means of 3 levers choose 1 of 7 settings for dynamic counterbalancing.

The pan bar is adjustable in height, angle and length. It can be attached either right or left of the fluid head.

3002	Studio II	\$8395.00
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Standard 7+7 Fluid Head

The Standard 7+7 was especially developed for the Arri 35 II/IIIC.

Pan and tilting drag are independent of each other and each can be set at 7 different drag stages. The settings are made with the help of 2 easy to operate adjusting rings. The damping stages can be reproduced at any time. Pressure or temperature changes do not influence the mode or operation of the fluid head.

The Standard 7+7 has a counterbalance spring which is sufficient to balance an Arri 35 II/IIIC with a heavy zoom lens within the entire tilt range. Additionally, the counterbalance spring can be inserted in any chosen position within the tilting range when working with front heavy or tail heavy cameras, so the tilting range is not curtailed in any manner.

3310	Standard 7+7	\$7385.00
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Studio 65 Fluid Head

The Studio 65 fluid head offers a combination of features ranging from the stronger drag of the Studio 80 to the smaller size of the Studio 2.

Studio 65	\$8960.00
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Dutch Head Attachment

The Dutch Head attachment has the ability to move your camera in the third axis. It also has the advantage of being an attachment rather than a whole fluid head unit, so it can be mounted onto an existing fluid head via the Touch & Go base. Equipped with such features as leak proof fluid damping, dynamic counterbalance, balance plate and a lock for the diagonal movement.

Dutch Head	\$4775.00
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VHF Wireless Systems

All Sennheiser VHF wireless systems operate on 1 VHF carrier frequency between 165 and 216MHz.

VHF Camera Mount Systems
VHF 1H

Handheld transmitter system with body pac receiver for camera and/or portable use. The transmitter is a rugged, cordless, handheld condenser microphone with a supercardioid pickup pattern capable of handling high SPLs (145dB). Excellent for MCs, field broadcasts and portable interviewing applications. The system uses a slim, small and lightweight body pac receiver. Each unit is powered by 3 "AAA" batteries (approximately 5 hours). System includes: 1 SKM4031-90 handheld transmitter, 1 EK2012-90 body pac receiver. Shipping weight: 3 1/4 lbs. **\$3490.00**

VHF 1B

Body pac transmitter system with body pac receiver for camera mounting and/or portable use. The transmitter has a switchable audio limiter, is extremely compact, lightweight and can be easily concealed under clothing. The receiver is also slim, compact and lightweight. For use in ENG and EFP applications. Each unit is powered by 3 "AAA" batteries (approximately 4 1/2 hours). System includes: 1 SK2012-90 body pac transmitter, 1 EK2012-90 body pac receiver, 1 MKE2-2-R RD omnidirectional lavalier microphone. Shipping weight: 4 lbs. **\$4185.00**

VHF Diversity Systems
VHF 2H

Handheld transmitter system and single frequency switching diversity receiver. The transmitter is a rugged, wireless, handheld condenser microphone designed for vocalists, MCs and interviewing where high quality is a must. The diversity receiver has adjustable balanced audio output and squelch, LED indicators for RF and AF levels and a built-in antenna splitter. Suitable for rackmounting with optional panel. System includes: 1 SKM4031-90 handheld transmitter, 1 EM2003-90 diversity receiver, 1 VGP-SET ground plane antenna, 2 PLB25 antenna cables (25'). Shipping weight: 10 lbs. **\$3720.00**

VHF 2B

Body pac transmitter system and single frequency switching diversity receiver. The transmitter is extremely compact, lightweight and can easily be concealed under clothing or attached to a belt with a removable clip. The diversity receiver has an adjustable squelch, adjustable balanced audio output, LED indicators for RF and AF levels and built-in antenna splitter. Suitable for rackmounting with optional panel. System includes: 1 SK2012-90 body pac transmitter, 1 EM2003-90 diversity receiver, 1 MKE2-2-R RD omnidirectional lavalier microphone, 1 VGP-SET ground plane antenna, 2 PLB25 antenna cables (25'). Shipping weight: 10 1/4 lbs. **\$4415.00**

VHF 2G

Guitar transmitter system and switching diversity receiver. System comes complete with 1/4" guitar interface cable and rugged, compact, lightweight transmitter which can be mounted on the guitar strap. The diversity receiver has adjustable squelch and adjustable audio output LED for RF and AF levels. Suitable for rackmounting with optional panel. System includes: 1 SK2012-90 body pac transmitter, 1 EM2003-90 diversity receiver, 1 GC2012-1 guitar interface cable, 1 VGP-SET ground plane antenna, 2 PLB25 antenna cables (25'). Shipping weight: 10 1/4 lbs. **\$4139.00**

VHF Transmitters
SKM4031-90

Single channel handheld microphone/transmitter **\$1595.00**


SK2012-90

Single channel body pac transmitter **\$1895.00**


VHF Receivers
EK2012-90

Portable body pac receiver (DC powered) **\$1895.00**

EK2003-90

Single channel diversity receiver **\$2075.00**

Transmitter and Receiver Antennas

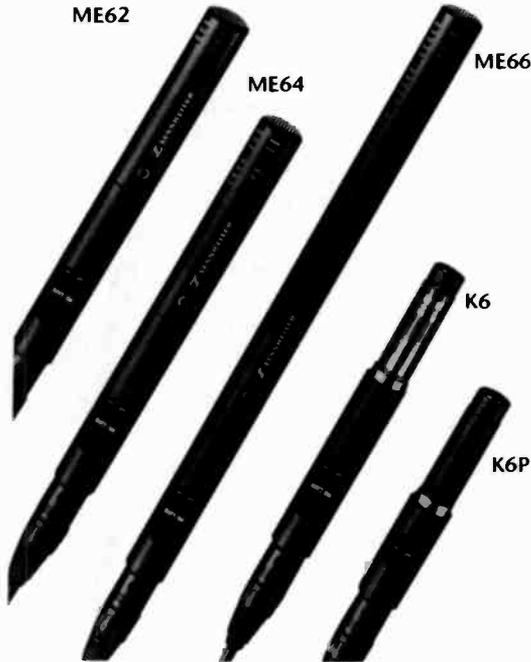
A3	Tuned rubber duck antenna for SKM 4031 (VHF)	\$ 42.00
A5	Tuned headset antenna for SK/EK 2012 (UHF)	360.00
A6	Tuned rubber duck antenna for SK 2012 (VHF)	40.00
GZA 1010-2	Tuned whip antenna for SKM431(VHF or UHF)	29.00
GZA 2012-1	Tuned whip antenna for SK2012 (VHF or UHF)	48.00
A2P	VHF antenna for EM2003-90.	250.00
GZA 1036-9	Ground plane antenna (VHF or UHF)	440.00
GZA 2003-TV	Active directional antenna (UHF)	590.00
GZA 2003-TVP	Passive wideband antenna	250.00
VDA 1	Directional multi-dipole antenna (VHF)	395.00

Antenna Cables and Accessories

NMNM 2	2' RG 213 jumper cable, N male to N male	\$ 13.00
NFNM 30	30' RG 213 antenna cable, N female to N male	40.00
NN100	100' RG 213 antenna cable, N female to N male	290.00
BB 3	3' RG 58 jumper cable, BNC male to BNC male.	10.00
BB 6	6' RG 58 jumper cable, BNC male to BNC male.	12.00
BB 25	25' RG 58 antenna cable, BNC male to BNC male	18.00
BB 100	100' RG 58 antenna cable, BNC male to BNC male	34.00
NFBF	Adaptor, N female to BNC female	8.00
NMBF	Adaptor, N male to BNC female	11.00
BFBF	Adaptor, BNC female to BNC female.	3.00
AB 1036-TV	UHF antenna booster	1850.00
AB100	1 TV channel antenna booster UHF/VHF	525.00
AB200	2 TV channel antenna booster UHF/VHF	650.00
AB300	3 TV channel antenna booster UHF/VHF	750.00
AB400	4 TV channel antenna booster UHF/VHF	850.00
SAS100	Up to 6 channel antenna splitter in 1 TV channel UHF/VHF	1150.00
SAS200	Up to 12 channel antenna splitter in 2 TV channel UHF/VHF	1350.00
SAS300	Up to 18 channel antenna splitter in 3 TV channel UHF/VHF	1500.00
SAS400	Up to 24 channel antenna splitter in 4 TV channel UHF/VHF	1650.00
CM/SAS	Channel module.	90.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MODULAR MICROPHONE SYSTEM



MICROPHONE CAPSULES

ME62 Omnidirectional

- Very broad and smooth frequency response without proximity effect
- Good for interviews or discussions
- Low handling noise
- Integrated windscreen reduces pop and wind noise dramatically
- Use with K6 or K6P
- Frequency range: 20-20kHz ±2.5dB
- Black finish
- Length: ME62 3 3/8", ME62/K6 7 3/8"

ME62	\$159.00
ME62/K6	414.00

ME66 Short Shotgun

- Combination of supercardioid at low frequencies and shotgun above 2000Hz
- Excellent mic for on-camera or interview for ENG/EPF use
- Will increase gain before feedback by using as a podium mic in sound reinforcement
- Use with K6 or K6P
- Frequency range: 50-20kHz ±2.5dB
- Black finish
- Length: ME66 8 3/4", ME66/K6 12 3/8"

ME66	\$269.00
ME66/K6	524.00

ME64 Cardioid

- A tight directional pattern insures isolation from surrounding noise and provides high gain before feedback
- Use with K6 or K6P
- Frequency range: 50-20kHz ±2.5dB
- Black finish
- Length: ME64 4 1/4", ME64/K6 7 3/8"

ME64	\$190.00
ME64/K6	445.00

MKE2-60 Omnidirectional Lavalier

- Open natural sound plus extremely small size (less than 1/8" dia., approximately 3/16" long)
- May also be used as a clip-on instrument mic
- Very popular with broadcasters
- Stranded steel cable
- Frequency range: 20-20kHz ±3dB
- Matte black

MKE2-60	\$285.00
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MKE102-60 Omnidirectional Lavalier

- Natural sound with high intelligibility and transparency
- Low noise and high SPL
- Exchangeable capsule allows different cables to be used with straight or right-angle connectors
- Stranded steel cable
- Frequency range: 40-20kHz ±3dB

MKE102-60	\$275.00
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MKE40-60 Cardioid Lavalier

- For applications where isolation from ambient noise is needed and/or increased gain before feedback
- Well-suited as instrument clip-on microphone, where advantages of isolation and proximity effect are desired
- Swivel mount for easy positioning
- Stranded steel cable
- Frequency range: 40-20kHz
- Matte black finish

MKE40-60	\$330.00
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K6 Modular Electret Microphone System

This rugged system has separate capsules and powering modules that can be combined to produce a wide variety of microphones. A single module plus a few capsules can provide the user with a flexibility that would otherwise require investing in a number of individual microphones. It converts quickly from one type of microphone to another by simply threading together various system components. All capsules use back-electret technology for uncompromised quality. Output of all powering modules is balanced, low impedance (200 ohms) and terminates in a standard 3-pin XLR connector.

K6 Powering Module

- "Universal" powering module for the system
- Powered by a single 1.5V AA battery with a life of 150 hours, or phantom power (12-48V)
- On/off switch with LED indicator, bass rolloff switch (flat, -11dB)
- Use with ME62, ME64, ME65, ME66, ME67, MKE2-60, MKE40-60, MKE102-60
- Black finish
- Length: 6 1/4"

K6	\$255.00
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K6P Powering Module

- Same as K6 powering module except phantom power only with no on/off switch or battery compartment

K6P	\$255.00
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.


FULL-SIZED CIRCUMAUURAL HOME HEADPHONES
HD560 II Digitally Compatible Circumaural Headphone

- Silk dome-damping for brilliant highs and ultra-smooth midrange reproduction
- Bass-tube tuning means extended, powerful low frequencies
- Velvet ear cushions provide lavish comfort
- 10' kevlar-reinforced oxygen free copper signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 16-30,000Hz
- Impedance: 300 ohms
- Sensitivity: 94dB \$279.00


HD25 SP Studio Monitor Headphone

- High-efficiency drivers for portable and field use
- Modular parts for long term value and durability
- Neodymium-ferrous magnets for broad frequency response
- Frequency Response: 16-22,000Hz
- Sensitivity: 105dB
- Impedance: 70 ohms
- Weight: 5.0 oz. \$129.00


HD540 II Digitally Compatible Circumaural Headphone

- Polycarbonate dome-damping materials for clearer highs
- Triple-wound aluminum voice coils mean powerful bass, high output and greater durability
- 10' kevlar-reinforced oxygen-free copper signal cable assures optimal signal transfer
- Frequency Response: 16-25,000Hz
- Sensitivity: 94dB
- Impedance: 300 ohms
- Weight: 8.8 oz. \$199.00


FULL SIZED SUPRAURAL HEADPHONE
HD440 II Digitally Compatible Supraural Headphone

- Radial bead diaphragm for more accurate reproduction
- Replaceable parts for lasting value
- 10' kevlar-reinforced oxygen-free copper signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 20-20,000Hz
- Sensitivity: 94dB
- Impedance: 60 ohms
- Weight: 4.5 oz. \$79.00


HD520 II Digitally Compatible Circumaural Headphone

- Earcups surround listeners' ears rather than resting on them
- Open-Aire® design for extended listening comfort
- Oval ear cups prevent buildup of standing waves
- Neodymium-ferrous magnets mean controlled diaphragm motion
- Field-replaceable parts assure long life and a generous return on listener investment
- 10' kevlar-reinforced oxygen-free copper signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 18-22,000Hz
- Sensitivity: 94dB
- Impedance: 300 ohms
- Weight: 7.5 oz. \$169.00


LOW IMPEDANCE MINI HEADPHONES
HD55 Digitally Compatible Reference Mini Headphone

- Extended frequency response, deep bass, sophisticated styling and extended wearing comfort
- Neodymium-ferrous magnets mean rich bass and extended highs
- 3' kevlar-reinforced oxygen-free signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 20-20,000Hz
- Sensitivity: 100dB
- Impedance: 32 ohms
- Weight: 2.5 oz. \$69.00


FULL-SIZED STUDIO MONITOR SEALED HEADPHONES
HD250 II Studio Monitor Headphone

- Sealed-chamber headphone format
- Neodymium-ferrous magnets mean superb diaphragm control
- Radial-bead diaphragm reduces distortion
- Triple-wound aluminum voice coils for quick transients
- Field-replaceable parts prevent down time
- Polycarbonate dome-damping minimizes resonant distortion
- 10' kevlar-reinforced oxygen-free copper signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 10-25,000Hz
- Sensitivity: 94dB
- Impedance: 300 ohms
- Weight: 8.9 oz. \$239.00


HD35 Digitally Compatible Mini Headphone

- Triple-wound aluminum voice coils for precise diaphragm control
- Single-sided cable routing for optimal freedom of movement
- 3' oxygen-free copper signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 50-18,000Hz
- Sensitivity: 100dB
- Impedance: 32 ohms
- Weight: 2.2 oz. \$49.00


HD10 Digitally Compatible Mini Headphone

- Open-Aire design means extended listening comfort
- Radial-bead diaphragm for more accurate reproduction
- 3' oxygen-free copper signal cable with 1/8" to 1/4" stereo phone plug
- Frequency Response: 50-17,000Hz
- Sensitivity: 100dB
- Impedance: 32 ohms
- Weight: 2.1 oz. \$29.00


ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

INFRARED LISTENING SYSTEMS



AudioLink™ * Personal Infrared Listening Systems

Ideal for: ■ The hard of hearing in theaters, houses of worship, schools and auditoriums ■ Cost effectively rectifying acoustical deficiencies in lecture halls and other venues ■ Multi-lingual use in courts of law, international conferences, and political and cultural institutions ■ Simultaneous audio programming in neighboring rooms without interference ■ Secure, contained communications and information exchange ■ Specialized medical applications such as auscultation

PERSONAL SYSTEMS PLS 100 Standard TV System

The PLS 100 is a small, lightweight, portable infrared assistive listening system ideal for use in situations where it is desirable to listen to TV without disturbing others. The H100 features an extended frequency response (30-18,000Hz), tone control, individual left/right balance adjustments and output up to 124dB SPL. It also has a 2.5mm audio output for hearing aid accessories, such as induction loops. It operates for approximately 10 hours on 1 BA 90 rechargeable battery, but 2 are included for extended listening periods. The T100 transmitter covers up to 435 square feet.



PLS 200 Stereo TV System

The PLS 200 is a wireless stereo/2-channel listening system designed for use with stereo audio or TV equipment. The H200 receiver features an extended frequency response (30-18,000Hz), and output up to 118dB SPL. For compatibility with larger systems, such as those found in theaters, churches and community halls, the receiver is equipped with a switch that allows its operation in mono. It operates for approximately 7 hours on 1 BA 90 rechargeable battery (included). The T200 transmitter covers up to 435 square feet. Its input cable can be plugged into a 1/4" or 3/8" (mini plug) headphone socket on a TV, VCR or Hi-Fi system. An automatic switch-on circuit and level control senses and adapts to the input signal.

IS 490

The IS 490 is a superior quality stereo wireless system using the T200 transmitter and the HDI 490 headphone. This provides a superior frequency response of 20-22,000Hz, making the IS 490 more suited to critical listening environments.

MEDIUM AREA SYSTEMS SI 20/SZI 20 Standard Systems

The SI 20 is a medium area transmitter/emitter combination designed for use in classrooms, courtrooms and other venues of similar size. This transmitter can be switched between single-channel and dual channel operation. In single-channel mode the SI 20 can cover up to 750 square feet. When switched to 2-channel mode, it covers up to 375 square feet. Coverage can be further extended through the use of slave emitter panels such as the DC-powered SZI 20 or the AC-powered SZI 1219-120. Audio components are connected to the SI 20 via a stereo 3/8" or 1/4" plug.

The perfect supplement to the SI 20 for small to medium areas is the SZI 20 slave emitter panel. It provides an additional coverage area of 750 square feet in single channel mode and 375 square feet in 2-channel mode. The SZI 20 is ideally suited for use in large conference rooms, common areas in nursing homes or dormitories and any venues not quite big enough for the SZI 1219-T1 or similar large area systems. The SZI 20 is DC powered and can easily be mounted anywhere in a room with the IZK 20 mounting clamp and GZG 1019-US wall mount. This feature makes it an ideal fill-in emitter for large area installations where columns or balconies create small areas of unreliable reception.

LARGE AREA SYSTEMS SZI 1219-T1 Single-Channel System

This master transmitter/emitter combination is suitable for theatres, auditoriums, churches and schools. The SZI 1219-T1 is a convenient package requiring only 1 AC power hookup and 1 line-level audio connection. The SZI 1219-T1 covers up to 11,000 square feet; additional SZI 1219-120 or SZI 20 emitters may be added for more radiating power.

S8 Dual-Channel System

This 2-channel system for 2-language translation or stereo sound consists of an SI 25-120 transmitter affixed to an SZI 1219-120 high power emitter. The S8 requires only 1 AC power hookup and two 1/4" input jacks for line level audio connections. The S8 covers up to 5500 square feet; additional SZI 1219-120 or SZI 20 emitters may be added for more radiating power.

S101 Portable System

The S101 portable infrared system is geared toward the conference and meeting room market. The system sets up easily on a podium or microphone stand requiring the simple connection of a microphone, tape recorder or similar audio source and wall outlet. With the ability to cover approximately 11,000 square feet, the S101 can be used in applications ranging from translation in small courtrooms to assistive listening in huge auditoriums. This transmitter/emitter combination is designed with both line and microphone level input and output connections. These outputs allow the S101's input signals to be fed through the unit to a house PA system or a tape recorder (i.e., for the taking of minutes). The S101-10 and S101-20 systems include the S101 with its padded case, microphone and cable, a durable plastic headset case with charger, various headset accessories and 10 or 20 H100A headsets, respectively.

LARGE VENUE SYSTEMS

SI 1013

The SI 1013 accepts both microphone and line-level audio, both with independent level controls. A front panel LED bar graph displays the audio level. The system can be easily configured for 2-channel (stereo) operation by connecting a jumper between two SI 1013s (1 operating at 95kHz and the other at 250kHz) at their rear panel summing connections.



SZI 1219-120

The SZI 1219-120, suitable for either single- or multi-channel operation, turns on only when a subcarrier signal is sensed at its input. Virtually any number of emitter panels can be daisy-chained together, each adding up to 11,000 square feet of coverage in single-channel mode or 5500 square feet in 2-channel mode.



SZI 20

The SZI 20 slimline emitter covers areas under balconies and other obstacles while remaining unobtrusive.



SPECIAL APPLICATIONS

SI 1019 Rackmount Multi-Channel System

This narrow-band system handles as many as 12 channels and is designed for simultaneous interpretation systems, convention centers, exhibition halls, theaters, health clubs, hospitals or any application requiring multi-channel simultaneous programming. Channel subcarriers cover frequencies from 55-535kHz. Each channel module accepts line-level audio input of 60mV to 3V. For assembling a system of more than 9 channels, a summing point on the back of each chassis allows 2 units to be linked together. The output drives 1 or more SZI 1219-120 high power emitters. The SIC 1019A-20 chassis fits into a standard 19" rack or into the SIG 1019 housing for use as a desktop unit.

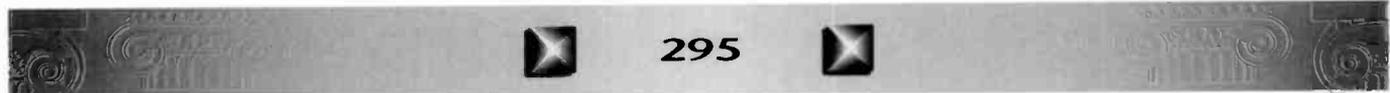
Auscultation Systems

Auscultation systems are ideal for medical schools, clinics and physicians' seminars because they enable any number of people to move about freely while simultaneously listening to a stethoscope. The sound of the patient's heartbeat, picked up by the stethoscope/microphone, is broadcast throughout the room, via infrared light, by the transmitter/emitter.

*AudioLink is a trademark of the National Captioning Institute

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Consensus™ ST2500/ST2500X Teleconferencing Systems

- 2-wire, tabletop teleconferencing system provides small to medium group teleconferencing applications with full duplex audio-communication capability
- Adaptive acoustic echo canceller and adaptive line echo canceller permit full duplex operation
- Selective automatic gain control automatically adjusts microphones to compensate for talkers who are not near the acoustic module
- Adaptive Noise Floor Detector™ constantly monitors ambient room and telephone line noise, eliminating the need for special acoustic room treatment
- Dynamic Telephone Line Loss Compensator™ adjusts for weak telephone line levels and low PBX gain
- Built-in DTMF dial pad with conference on/off key and loudspeaker volume control
- 3 surface-mounted unidirectional condenser microphones provide uniform coverage over a full 360°
- 3 microphone mute on/off switches with LED indicators
- Selectable visual and audible signals for incoming calls
- Built-in ring detect enable/disable switch
- Auxiliary output port for tape recorder
- Single interconnecting cable for minimal cable clutter
- Wall-mountable telephone network interface module

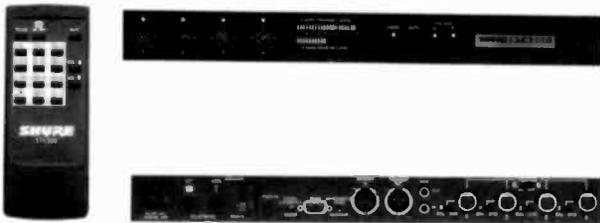
ST2500	.....	\$1495.00
ST2500X	Expandable teleconference system, includes microphone expansion ports for improved sound pickup.	1595.00
SM90T	Expansion microphone for use with ST2500X . . .	150.00
A400S	Shipping case for ST2500/ST2500X	250.00

ST3000 Teleconferencing System

- Automatically compensates for the difference in sound levels found when teleconferencing between 2 or more remote locations
- Automatically adjusts for different voice levels and the varying locations of participants in a room. Once volume is set, no readjustment is required
- Both audio module and control console fit into an optional heavy-duty, lockable carrying case

There are only 2 components in the ST3000 system. The round audio module contains 3 unidirectional microphones and a specially designed loudspeaker. The control console houses master controls, power and connections.

ST3000A	Complete teleconferencing system (oak finish)	\$3495.00
ST3000W	Complete teleconferencing system (oak finish)	3495.00



Consensus ST4300 Teleconferencing System

- Adaptive acoustic echo canceller and adaptive line echo canceller for full-duplex operation, allowing completely natural operation
- Nonlinear processing maintains absolute stability and ensures interactive operation even with very high loudspeaker volume settings
- Proprietary speech detection and control permits operation in a wide variety of conference rooms without special, expensive room treatment
- 4- and 2-wire ports with software-based, full-duplex bridge permits simultaneous 2- and 4-wire telecommunications interface
- 4 microphone or mixer inputs for use with 2 conductor-shielded cables and 3-pin connectors compatible with

- STM teleconferencing or balanced, low impedance microphones
- Optimized frequency response shaping provides highest speech intelligibility for clear voice-band communication
- High receive volume and adaptive noise floor detection for system operation in relatively noisy environments
- Wide dynamic range and wide bandwidth signal processing capability using 16-bit linear A/D and D/A conversion
- Simple front panel setup and operation with LED 4-wire transmit and 4-wire receive level displays
- Infrared remote control duplicates front panel controls and contains DTMF keypad
- Ring detection with audible ringer for signaling incoming calls
- Modular connectors for telephone network interface and standard telephones set connection
- Aux in and out connectors for adding recorded sound and using PA systems
- Serial data port (RS-232) for system control integration and computer control diagnostics
- Selectable audio bandwidth and audio loopback options
- Universal switching power supply for use with a wide voltage range at 50 or 60Hz

ST4300	Console with IR remote control	\$3995.00
ST4300LR	Console only	3795.00
STR43	IR wireless remote control	310.00

ST6000 Type 2 Teleconferencing System

- Automatically adjusts to changes in background room noise
- Quasi-duplex operation—rapid, automatic switching between transmit and receive with full interrupt capability
- Optimized, natural voice quality without "boominess"
- Remote control with conference/phone, speaker volume and mute switches
- No threshold settings to misadjust
- Selectable 2- or 4-wire operation
- Selectable send or receive muting
- Automatic volume adjustment for weak long-distance calls
- Frequency response modifiable for various bandwidth systems
- Logic input and outputs enhance system versatility
- Linking capability for systems with as many as 200 microphones
- LED indications of system operation
- 6 microphone inputs use standard 2-conductor shielding cables and 3-pin connectors
- Front and rear panel PA output and unbalanced aux input
- Headphones monitor jack

ST6000 Type 2A	Console with remote control (oak finish)	\$8200.00
ST6000 Type 2W	Console with remote control (walnut finish)	8200.00

ST6300 Type 2 Teleconferencing System

- Complete 4-wire audio system providing high-quality, wideband (to 15kHz), echo-free speech communication in a videoconferencing environment
- Echo Reduction Circuit virtually eliminates annoying residual echo which may be present in audio-delayed systems
- Full-duplex, echo-free satellite and compressed video conferencing can be achieved without the fidelity compromises—distortion, noise, restricted bandwidth—of many conference systems
- Incorporates the necessary bridging circuitry to establish (using Shure's STC64-SPL-B controller and ST2AC canceller) a fully interactive teleconferencing site communicating with both a 4-wire video-conference link and the 2-wire public telephone network
- A telephone line can be brought into a 2-way satellite videoconference or be used for down-link site return audio in a 1-way broadcast satellite conference
- Supplied in a 3-microphone-channel configuration housed in a single 3½" rackmount package with a detachable oak or walnut finish remote control unit, screws and washers for rackmounting, and an alternate line fuse for 240V operation
- In addition to microphone, loudspeaker and 3-pin XLR (transformer-balanced, 600-ohm terminated, at 0dBm level) connectors, the ST6300 contains logic terminals for microphone gating indicators and muting control, link circuitry for expansion to as many as 200 microphones, connectors for an ST2AC telephone line echo canceller, telephone line audio lip-synchronization delay unit and headphones and monitor outputs

ST6300 Type 2	Console	\$7130.00
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

AUTOMATIC MICROPHONE SYSTEMS



SHURE®

AMS Automatic Microphone System

The Automatic Microphone System (AMS) consists of dedicated microphones and mixers that function exclusively together. AMS solves the many problems of multi-microphone applications. It is used in thousands of systems worldwide such as those found in boardrooms, legislative chambers, senates, city halls, conference rooms, courtrooms, churches, broadcast studios and the fast-growing distance learning classroom environment.

The patented Automatic Microphone System provides unique direction-sensitive gating by continually "reading" and comparing the separate audio signals provided by 2 matched unidirectional capsules placed back-to-back in each AMS microphone. AMS microphones are activated only when addressed within a 120° acceptance angle. No threshold or sensitivity adjustments are necessary.

The AMS 4000/8000 incorporates a full complement of logic terminals to provide functions such as LED indicators, mute switches, loudspeaker attenuation, chairman override, etc.

AMS mixers can be linked together to control up to 200 AMS microphones.

Only AMS microphones should be used with AMS mixers. The AMS system will provide optimum automatic performance results only when AMS components operate together.



AMS8000 Mixer



AMS4000 Mixer

Specifications

AMS8000/AMS4000 Mixers

- Frequency: Aux input: 30 to 20,000Hz ±2dB Mic input: 70-20,000Hz ±2dB
- Response: 70-20,000Hz ±2dB
- Distortion: THD 0.35% or less; IMD 0.5%
- Operating Voltage: 105-132VAC, 50/60Hz, 20W. Can be rewired for 210-264VAC, 50/60Hz, 20W
- Dimensions: 3½"H x 19"W x 11¼"D
- Weight: AMS8000: 14 lbs. 8 oz.
AMS4000: 12 lbs. 13 oz.



AMS880 Video Switcher Interface

Connects to AMS mixers. AMS 880 directs a video switcher to activate cameras based on which AMS microphones are activated.

- Power: External power transformer: 120VAC ±10%, 60Hz, 6W
 - Dimensions: 1¼"H x 19"W x 5"D
 - Weight: 2.5 lbs. including transformer
- | | |
|---------------|-----------|
| AMS8000 | \$2950.00 |
| AMS4000 | 1950.00 |
| AMS880 | 1960.00 |
| AMS28 | 260.00 |
| AMS26 | 235.00 |
| AMS24 | 265.00 |
| AMS22 | 235.00 |

AMS28 Lavalier Microphone

- Type: Condenser (electret bias)
- Polar Pattern: Cardioid (unidirectional)
- Dimensions: Length: 1¼"; Diameter: 2¼"
- Weight: 5.5 oz.
- Supplied with neck cord assembly, 20' cable with XLR connector.



AMS26 Probe Microphone

- Type: Condenser (electret bias)
- Polar Pattern: Cardioid
- Dimensions: Length: 5²½"; Diameter: 1¹½"
- Weight: 4.4 oz.
- Supplied with foam wind-screen and stand adaptor.



AMS24 Gooseneck Mounted Microphone

- Type: Condenser (electret bias)
- Polar Pattern: Cardioid
- Dimensions: Length: 15"; Diameter: 1¹½"
- Weight: 5.6 oz.
- Supplied with foam wind-screen, 20' cable and mounting flange.



AMS22 Low-Profile Microphone

- Type: Condenser (Electret Bias)
- Polar Pattern: Semi-Cardioid
- Dimensions: 1¼"H x 3½"W x 3"D
- Weight: 6.1 oz.
- Supplied with 20' cable with XLR connector.



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



FP410 Portable Automatic Mixer

- Designed for use in video production, corporate television, A/V rental and meeting room applications
- Minimizes the number of open microphones with its patented Shure Intellimix circuitry, thereby improving overall audio quality
- Automatic or manual operation
- 4 transformer balanced mic/line inputs
- 2 isolated transformer balanced outputs
- 48V phantom power
- Peak or VU metering
- 1kHz tone
- Linkable for a maximum of 100 inputs
- Powered by two 9V batteries or 120/240VAC
- 50/60Hz with detachable AC power cord
- Includes rack ears . . . **\$1650.00**

FP42 Stereo Microphone Mixer

- Handles remote mixing jobs with 2 outputs (1 for each stereo channel) and 4 balanced inputs, each switchable for line or mic level operation
- Each input channel also has a low-frequency rolloff switch and a center-detented stereo pan pot for convenient stereo mixing
- Concentric clutched stereo master level control
- Pull-pot cueing permits cueing or checking each input via headphones
- Can be battery or AC operated
- Mini and 1/4" stereo headphone jacks with level control included
- 120/240VAC or three 9V batteries . . . **\$1150.00**



FP32A Portable Stereo Microphone Mixer

- Compatible with digital recording formats and transmission schemes
- Both 48V and 12V phantom, as well as 12V T (A-B) power are available to operate all types of condenser mics
- Active input gain controls simultaneously lower an input's volume level and increase its clipping point
- Low cut filter roll off frequencies below 150Hz to reduce wind noise and rumble
- Peak limiters for left and right outputs
- Bi-color LEDs for each input indicate signal presence and peak levels
- 2 compact VU meters illuminate with the flip of a toggle switch and measure output as well as battery level
- 3 female XLR inputs and 2 male XLR outputs are transformer balanced and all are switchable to mic or line level
- Soft-touch knobs with raised position indicators for "no look" mixing
- Powered by two 9V batteries or external 12-30VDC . . . **\$1795.00**

FP32 Stereo Microphone Mixer

- 2 transformer balanced outputs (1 for each stereo channel) and 3 inputs, each switchable for low impedance microphone or line level operation
- Stereo capability is enhanced by a concentric clutched stereo master gain control
- Built-in slate microphone and slate tone
- Built-in tone oscillator for level checks or line tests
- Built-in phantom and A-B(T) power for condenser microphones
- Phantom jack permitting use of an external microphone power supply (up to 48VDC)
- With carrying case
- Battery power . . . **\$1295.00**

FP22 Stereo +1 Headphone Amplifier

- Provides two 1/4" or 3.5mm headphone feeds from any type of audio input
- Can mix a line or mic level mono signal (via XLR input) with a stereo signal (via 1/4" phone jack input)
- Loophrough mono XLR and stereo phone plug connectors allow the mixed signal to go to head-

- phones while original signals are passed on unaffected
- Provides a maximum gain of 81dB for sufficient amplification of any source
- Stereo input line pad, mono/stereo headphone mode switch and balance control
- Powered by a single internal 9V battery (or external 12-24VDC)
- Weighs only 1 lb.
- Ideal for troubleshooting audio lines, driving stereo headphones for studio foldback, wired in-ear monitoring for stage performance, providing additional headphone feeds or boosting the output of headphone circuits, or creating a simple intercom system . . . **\$375.00**

FP16A Distribution Amplifier

- Mic/Line switchable
- 1-input, 6-output, portable audio distribution amplifier for routing multiple audio feeds
- Phantom power
- Link jacks
- Specially designed for field production use
- All transformer balanced
- 120/240VAC or battery power, 3 x 9VDC . . . **\$625.00**

FP11 Microphone-to-Line Level Amplifier

- Portable, 1-input, 1-output
- Provides up to 84dB of gain so that microphone and auxiliary level devices can be boosted to line level
- Transformer balanced, XLR input and output
- Switchable peak limiter, peak limiter LED indicator, aux level mini-phone jack input, powered by standard 9V battery . . . **\$325.00**

M268 Microphone Mixer With Phantom Power

- Compact 5-input mixer for use in PA/paging applications
- 4 transformer-balanced XLR low impedance inputs and 4 high-impedance 1/4" phone jack inputs
- High-level auxiliary input
- Phantom power
- Mix bus jack
- 120/240VAC, 50/60Hz . . . **\$350.00**



M267 Professional Mixer With Limiter

- For recording or broadcast use
- 4 low-impedance balanced inputs switchable to mic or line level
- Phantom power on each input
- Fast-acting limiter
- Built-in battery supply
- Headphone level control
- Illuminated VU meter with LED peak level indicator
- Low-cut filters and tone oscillator
- Battery check switch
- Mix bus jack
- Mic and line level outputs
- 120/240VAC, 50/60Hz, 9.5W or three 9V batteries . . . **\$565.00**

M68FCA Microphone Mixer

- 5 channels with 4 microphone inputs (each switchable for high or low impedance) and a high-level auxiliary input
- Mic level output and auxiliary output
- Can be easily connected to provide additional inputs to existing sound system
- 120/240VAC, 50/60Hz
- Female XLR input connectors . . . **\$255.00**

M64A Universal Stereo Preamp

- Permits turntables to be used with PA mixers and amplifiers without phono inputs
- Also useful as a microphone preamplifier or low-gain buffer amplifier
- Includes a 3-position slide switch for selecting Phono, Tape, or Flat frequency compensation
- 120/240VAC, 50/60Hz . . . **\$160.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MICROPHONES



SHURE®

VOCAL MICROPHONES



SM58 Unidirectional Dynamic Microphone

Professional stage microphone with self-contained spherical filter to control explosive breath sounds and wind noise. Uniform cardioid pickup pattern minimizes off-axis coloration and rejects background noise. Effective presence rise in mid-frequencies and a fixed low-frequency rolloff to minimize boominess. Frequency response: 50-15,000Hz

- SM58-CN With 25' cable \$213.25
- SM58-LC Without cable 188.75
- SM58S Without cable, includes on/off switch 198.50

SM48 Unidirectional Dynamic Microphone

Equipped with its own specially designed cartridge. Utilizes a highly efficient cartridge shock mount, which reduces handling and stand noise dramatically. Extremely smooth peak-free frequency response with a slight midrange presence rise for enhanced vocal intelligibility. Built-in spherical windscreen. Uniform cardioid pickup pattern greatly reduces off-axis coloration and rejects background noise to permit higher sound system gain before feedback. Non-glare gray handle finish and satin chrome grille.



- SM48-LC Supplied without cable only \$134.80
- SM48S-LC With on/off switch 144.20

SM87LC Supercardioid Condenser Microphone

Supercardioid pickup pattern. Flat response means less equalization is needed, for fewer potentially troublesome response peaks. Tight pickup pattern results in greater gain before feedback and less microphone "bleed" (unwanted pickup of other voices, instruments or room noise). Especially useful in multiple-miking situations or single-miking in a noisy or reverberant environment. Frequency response: 50-18,000Hz

- SM87LC Without cable \$283.50

INSTRUMENT/LECTERN MICROPHONES

SM57 Unidirectional Dynamic Microphone

Provides wide range reproduction of music and voice. Exceptionally uniform and effective unidirectional pickup pattern. Cartridge shock-mounted for quiet operation. Frequency response: 40-15,000Hz

- SM57-CN With 25' cable \$171.50
- SM57-LC Without cable 147.00



SM62LC Unidirectional Dynamic Microphone

Use on stage, in interviews or on podiums. Unobtrusive in both handheld and stand-mounted use. Flat, uncolored frequency response and uniform cardioid pickup pattern provide excellent performance as well as control of feedback and unwanted background noise. Carefully controlled low-frequency rolloff prevents the "boominess" associated with close miking. Rubber cartridge shock mount keeps han-



dling noise low and integral windscreen minimizes breath pop. Durable champagne enamel finish with matching swivel adaptor. Supplied without cable only

- SM62LC \$192.00

SM81LC Condenser Microphone

Unique backplate structure maximizes S/N ratio. THD significantly lower than most condenser microphones. Frequency response: 20-20,000Hz



- Extremely rugged. Very low RF susceptibility
- SM81LC Unidirectional, supplied without cable \$441.50
- R104 Omnidirectional replacement cartridge 195.10

SM94 Unidirectional Condenser Microphone

Wide-range, smooth, flat frequency response has no presence boost or low-end rolloff, making it an ideal choice for live instrument miking or recording. Cardioid polar pattern is exceptionally smooth and uniform at all frequencies. Elastomer "space frame" shock mount makes it practically immune to handling noise, hum and RF interference. Can be used at sound pressure levels up to 141 dB (800-ohm load). May be powered by standard phantom power supplies or by an internal 1.5V AA battery. Swivel adaptor and vinyl storage bag included. Supplied without cable only



- SM94-LC \$280.00

SM98A Miniature Musical Instrument Microphone

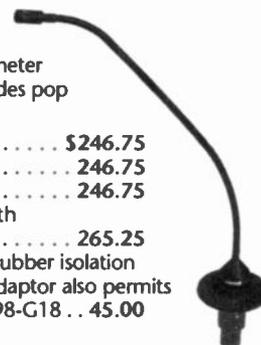
Wide, extremely smooth frequency response for accurate, faithful reproduction of acoustic instruments. Nearly perfect cardioid polar pattern at all frequencies for superior source isolation. Detachable cable. Low noise preamp is powered by an 11-52VDC phantom power. 10dB gain boost switch and 12dB/octave low-end cutoff switch. Swivel adaptor, windscreen, zippered vinyl storage bag and A98SPM supercardioid polar modifier included



- SM98A \$291.50

SM99 MicroFlex Miniature Gooseneck-Mounted Supercardioid Condenser Microphone

Designed primarily for speech and vocal pickup. Also provides excellent reproduction of acoustic instruments. Can be surface, flange or stand mounted. Integrated pre-amplifier. Satin black finish. Only 1/8" diameter. Frequency response: 80-20,000Hz. Includes pop filter and mounting hardware



- SM99-6 Attached 6" gooseneck \$246.75
- SM99-12 Attached 12" gooseneck 246.75
- SM99-18 Attached 18" gooseneck 246.75
- SM99SE Attached 12" gooseneck with side-exit cable 265.25

- A99SM Recessed "Shock-Stopper"™ rubber isolation mount for SM99. Supplied adaptor also permits use with SM99SE, SM98A/A98-G18 . . 45.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SPECIALTY MICROPHONES



SM89 Condenser Shotgun Microphone

- Suitable for distant pickup required in location film and TV production
- Smooth on-axis frequency response with a slight presence rise
- With foam windscreen and carrying case
- Optional A89SM shockmount

SM89 \$927.00
 A89SM Shockmount 105.00



VP88 MS Stereo Microphone

- Designed specifically for mid-side (MS) recording in video field production
- Frequency response: 40-20,000Hz
- Single point stereo condenser microphone incorporating 2 independent mic elements to produce a classic MS stereo signal
- Supplied with battery, carrying bag, foam windscreen, swivel adaptor and Y-splitter cable

VP88 \$995.00
 A88SM Shockmount 201.25

SM7 Unidirectional Dynamic Microphone

- Excellent for use with either instruments or voice in multi-track recording situations
- Designed for boom or stand-mounting
- Frequency response: 40-16,000Hz
- Graphic response-tailoring switches to permit 4 different microphone response curves

SM7 \$566.50

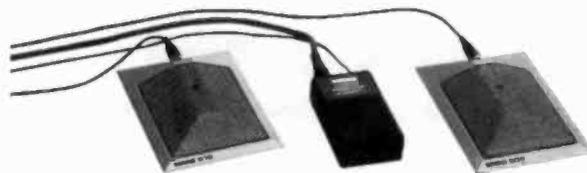
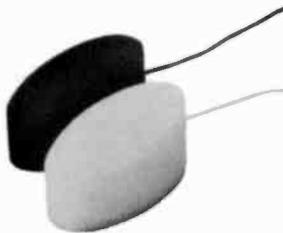


SURFACE-MOUNT MICROPHONES

SM18 Surface-Mount Dynamic Microphone

- Color-coordinated foam enclosures and matching cables, with palm-size microphone that "disappears" by blending into its surroundings
- Ideal for use on altars or conference tables where ordinary stand-mounted microphones might be visually distracting
- Mounted in foam enclosure at an angle that places the cartridge about 1/8" from the hard surface
- Frequency response: 150-10,000Hz

SM18B Brown foam enclosure, 9' attached brown cable with 3-pin professional audio connector \$114.75
 RK205F White foam enclosure 11.65



809/819 Surface-Mount Microphones

- Electret condenser
- Low profile design
- Low susceptibility to RFI, electrostatic and electromagnetic hum
- Frequency response: (809) 50-20,000Hz, (819) 60-20,000Hz
- Suitable for general purpose sound reinforcement
- The electronics module features a built-in, low-end rolloff and is phantom or battery powered
- Both microphones platinum beige finished for handsome appearance
- Durable vinyl zipper bag provided for storage of microphone and electronics module

809 Omnidirectional \$227.25
 819 Unidirectional 227.25

SM90A/SM91A MicroFlex Products

- Designed for use with tables, walls and stages
- Frequency response: 20-20,000Hz
- Supplied with a low distortion preamplifier which operates on 11-52V phantom power

SM90A Omnidirectional \$310.00
 SM91A Unidirectional 310.00



OVERHEAD/LAVALIER MICROPHONES

SM102 Series MicroFlex Products

- Designed to be hung from overhead
- Permanently mounted to a slim 6" gooseneck which allows the user to aim the microphone at various angles
- 30' cable connects to an included preamplifier

SM102B Black, includes in-line (tubular) preamplifier . . . \$245.00
 SM102W Same as above, in white 260.00
 SM102PB Black, includes wall plate preamplifier designed for permanent mounting in standard electrical wall box 225.00
 SM102PW Same as above, in white 240.00

SM83A Omnidirectional Condenser Lavalier Microphone

- Amplifier supplied can easily clip onto a belt or fit into a pocket
- Powered by 9V battery or by an external power supply
- Frequency response: 80-20,000Hz

SM83A \$208.35



SM84A Supercardioid Lavalier Microphone

- Controlled low-frequency rolloff reduces low-frequency room noise
- Operates on either phantom power or standard 9V battery
- Versatile mounting accessories permit fast and simple user installation
- Amplifier assembly can be pocketed, strapped to body or clipped to belt or waistband
- Frequency response: 80-20,000Hz

SM84A \$309.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIRELESS MICROPHONE SYSTEMS



SHURE®

L SERIES WIRELESS MICROPHONE SYSTEMS

L3 Single Antenna Receiver

▪ Completely RF shielded design ▪ Double-tuned RF stages with high-gain, MOSFETS for reducing noise ▪ Removable, flexible, insulated, 1-piece ¼-wave antenna ▪ Mount the antenna remotely, with the WA440 rackmount kit or upgrade to the optional ½-wave high-gain antenna ▪ Rackmountable



L4 MARCAD® Diversity Receiver

▪ "Intelligent" circuitry monitors both RF signals ▪ Increase in RF gain, improved reception and exceptional freedom from dropouts ▪ MARCAD circuitry blends both signals for the best RF S/N performance ▪ Rackmountable ▪ 2 detachable ¼-wave whip antennas ▪ Status indicators—Green "power on" LED. 2 yellow "RF" LEDs indicate signal presence and blending of 2 signals by MARCAD circuitry. "Normal" and "peak" LED indicators show audio level ▪ 2 volume-controlled outputs: ¼" phone and 3-pin XLR

L2 Transmitter

▪ Interchangeable heads; use either the SM87 or SM58 head with the same L2 transmitter ▪ Gold-plated wiper contacts ▪ Internal loop antenna ▪ 14-20 continuous hours of performance from a standard 9V alkaline battery ▪ Full 50mW output assures long-range operation and stable performance ▪ Double-tuned RF output stages, "Mirror Image" companding and a low-distortion modulated oscillator ▪ Continuous-on LED saves battery usage ▪ Concealed audio gain switch

L11 Body-Pack Transmitter

▪ Extended battery life (14 to 20 hours) and surface-mount construction ▪ "Mirror Image" companding circuitry ▪ Universal input connector ▪ Removable belt clip ▪ Permanently attached battery door ▪ LED status indicator ▪ Microphone muting switch ▪ Wide range gain adjustment—40dB gain adjustment range allows the L11 to handle anything from a low-output, low-impedance microphone to a high-level, high-impedance guitar pickup ▪ 50mW RF output provides the strongest signal permitted by the FCC



L SERIES COMPLETE DIVERSITY SYSTEMS Body-Pack Systems

	Consist of: (1) L11 body-pack transmitter, (1) L4 MARCAD diversity receiver, (1) condenser mic	
LS114	Less mic; includes WA300 instrument cable	\$535.00
LS114/83	Includes WL83A omnidirectional lavalier mic	605.00
LS114/84	Includes WL84A unidirectional lavalier mic	645.00
LS114/93	Includes WL93 micro-lavalier omnidirectional mic	605.00
LS114/16	Includes WCM16 headworn mic	770.00
LS114/98	Includes WM98 miniature instrument mic	730.00

Handheld Systems

LS24/58	Consist of: (1) L2/58 handheld transmitter with SM58 mic, (1) L4 MARCAD diversity receiver, (1) swivel adaptor	\$690.00
LS24/87	Consist of: (1) L2/87 handheld transmitter with SM87 mic, (1) L4 MARCAD diversity receiver, (1) swivel adaptor	750.00

L SERIES SINGLE ANTENNA SYSTEMS Body-Pack Systems

	Consist of: (1) L11 body-pack transmitter, (1) L3 single antenna receiver, (1) condenser mic	
LS113/83	Includes WL83A omnidirectional lavalier mic	\$465.00

LS113/84	Includes WL84A professional unidirectional lavalier mic	\$505.00
LS113/93	Includes WL93 micro-lavalier omnidirectional mic	465.00

Handheld System

LS23/58	Consists of: (1) L2/58 handheld transmitter with SM58 mic, (1) L3 single antenna receiver, (1) swivel adaptor	\$550.00
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SC SERIES WIRELESS MICROPHONE SYSTEMS

The SC Series is a complete wireless system—including a receiver, handheld transmitters and body-pack transmitters for use with lavalier and headset microphones. The SC Series has all the features and performance of the L Series, including MARCAD diversity, and adds a battery fuel gauge (no more throwing away half-used batteries), tone key squelch (eliminates annoying "pops") and frequency agility (simply change the RF frequency—in 200kHz steps, within a range of 1.4MHz—to dial away from the interference).

SC Series Diversity Body-Pack Systems

Consisting of: SC1 Body-Pack transmitter ▪ SC4 MARCAD® Diversity Receiver with PS30 power supply ▪ 2 ¼-wave antennas ▪ Rackmount kit ▪ Condenser lavalier or headworn microphone* ▪ 9V Duracell® battery ▪ Zippered bag for microphone and microphone cable

*Not included with "SC14" model.

SC14	Less mic; includes S or D rackmount kit	\$690.00
SC14	Less mic; includes F rackmount kit	710.00
SC14/83	Includes WL83A lavalier mic and S or D rackmount kit	775.00
SC14/83	Includes WL83A lavalier mic and F rackmount kit	795.00
SC14/84	Includes WL84A lavalier mic and S or D rackmount kit	815.00
SC14/84	Includes WL84A lavalier mic and F rackmount kit	835.00
SC14/93	Includes WL93 micro-lavalier mic and S or D rackmount kit	775.00
SC14/93	Includes WL93 micro-lavalier mic and F rackmount kit	795.00
SC14/16	Includes WCM16 headworn mic and S or D rackmount kit	940.00
SC14/16	Includes WCM16 headworn mic and F rackmount kit	960.00

SC Series Diversity Handheld Systems

	Consisting of: SC2 handheld transmitter with mic ▪ SC4 MARCAD Diversity Receiver with PS30 power supply ▪ 2 ¼-wave antennas ▪ Rack-mount kit ▪ 9V Duracell battery ▪ Swivel adaptor ▪ Zippered bag for microphone and swivel adaptor	
SC24/58	Includes SC2/58 handheld transmitter with SM58 mic and S or D rackmount kit	\$875.00
SC24/58	Includes SC2/58 handheld transmitter with SM58 mic and F rackmount kit	895.00
SC24/87	Includes SC2/87 handheld transmitter with SM87 mic and S or D rackmount kit	935.00
SC24/87	Includes SC2/87 handheld transmitter with SM87 mic and F rackmount kit	955.00

S=Single mounting with antenna on back or remote mounted
D=2 in a single rack space, antennas on back or remote mounted
F=Single mounting with antenna located on front

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



...you can see the difference!



ROUTING SWITCHERS/ KEYERS



SIERRA SERIES ROUTING SWITCHERS 51C

This compact, 1 RU 3-channel video router has looping inputs and dual outputs. 2 control panels are available, both with incandescently-illuminated pushbutton switches. The 51C features an internal power supply.

51C Component video routing switcher. \$1095.00

161VS

Only 1 RU in height, this very popular routing switcher provides audio-follow-video switching for high-quality stereo audio routing along with NTSC or PAL composite video. The BNC video inputs are terminated internally, while convenient screw-type terminal blocks are provided for easy-to-install audio connections. The unit is furnished with an external UL-approved power supply. The 19" rackmounted remote control panels are 1 RU in height.

161VS 16 x 1 video plus stereo audio routing switcher \$995.00

321V

This compact, 1 RU single-channel video router has 32 terminated inputs and dual outputs. With a built-in RS-232 serial interface and an external UL-approved power supply, the 321V is ideal for those unusual applications where many sources are needed. The Model 321S stereo audio routing switcher can be slaved to this unit to provide stereo AFV operation. The control panel is designed for 19" rackmounting and is 1 RU in height.

321V 32 x 1 composite video routing switcher \$1145.00



321S

Designed as a companion to the 321V, this stereo audio routing switcher can be operated with a separate 32 x 1 control panel or it can be slaved to a 321V for stereo AFV operation. An external UL-approved power supply is supplied with the unit. The 19" rackmounted control panel is 1 RU in height.

321S 32 x 1 stereo audio routing switcher \$1145.00



82VS

The 82VS is an 8 x 2 video plus stereo audio routing switcher with audio-follow-video operation. The unit is designed for either PAL or NTSC use and meets broadcast specifications. It has an external UL-approved power supply and an optional serial interface adaptor. Inputs are terminated, and the unit has a single BNC output. The control panels for the 82VS are designed for installation in standard 19" racks and are 1 RU in height. Remote control panel cables are 15m long.

82VS Video with stereo audio routing switcher \$1295.00

82C

A compact 1 RU routing switcher for Y/C or RGB/YUV operation, this 3-channel routing switcher is ideal for graphics suites and small edit bays. Like its companion model, the 82VS, it has an external power supply, terminating inputs, a single output and an external serial interface option. The control panels are designed for 19" rackmounting and are 1 RU in height. Cables for the remote control panels are 15m in length.

82C Component video 8 x 2 routing switcher \$1595.00

44VS

The 44VS is a 4 x 4 video plus stereo audio routing switcher with AFV operation. The unit is designed for either PAL or NTSC use and meets broadcast specifications. Inputs are looping with a single output connector. Designed with an external UL-approved power supply, it features an internal serial interface adaptor. The 19" rackmounted remote control panel is 1 RU in height and comes with a 15m cable.

44VS Video with stereo audio routing switcher \$1595.00

44C

A compact 1 RU routing switcher for Y/C or RGB/YUV operation, this 3-channel routing switcher is ideal for graphics suites and small edit bays. Like its companion model, the 44VS, it has an external power supply, looping inputs, a single BNC output and an internal serial interface adaptor. The control panel option is 1 RU in height and mounts in a standard 19" rack. A 15m cable is furnished with each remote control panel ordered.

44C Component video 3-level routing switcher, 4 x 4 . . . \$1895.00

88V

The 88VS is a compact 1 RU 8 x 8 video and stereo audio routing switcher. It offers audio-follow-video operation when the audio channel is present. The unit is designed for either PAL or NTSC use and meets broadcast specifications. Designed with an external UL-approved power supply, an internal serial interface adaptor is optional. Control panel cables must be ordered separately.

88V NTSC or PAL video only \$2100.00

88S Stereo audio only 2100.00

88VS Video with stereo audio 3500.00



CIK-1 Component Insert Keyer

The CIK-1 is a true stand-alone keyer that can be used by itself or with other component video production devices to add an additional key level to a production facility. The CIK-1 is supplied with 1 of 3 versatile control panels. 2 are designed for console mounting and 1 is for mounting in a 19" rack. 1 of the console models includes a lever arm or fader bar for controlling key transitions. The other 2 feature an automatic transition generator with a programmable (0 to 20 seconds) duration. Automatic transitions are initiated by a serial command, a pushbutton or through the GPI input. When ordering, specify 1 of the 3 control panels and whether or not the component format is RGB or YUV.

CIK-1A Insert keyer for YUV video systems, 1 RU \$3195.00

CIK-1B Insert keyer for RGB video systems, 1 RU 3195.00

BetaKey™ CIK-2 Component Video Chroma Keyer

The CIK-2 BetaKey chroma keyer is a very cost-effective chroma keyer with extremely good video performance. Its operation relies on the use of a standard chroma key blue color and a well-lit set or cyclorama. Graphic workstations or other video generators can use the same background hue with deep saturation to feed a BetaKey keyer, expanding the director's creative horizons. Designed for use in the news studio and graphics suite where excellent video quality is maintained, the CIK-2 system generates excellent, artifact-free chroma keys that approach the performance of the most expensive, high-end color matte systems. Blue flare suppression circuitry removes the bluish fringe on the edges of the foreground video due to reflections from the chroma key set. As if this were not enough, BetaKey goes 1 more step by adding prominent shadows from the foreground scene onto the background. Thus, when the weather person points to a location on the weather map, the shadow of his or her arm appears in a life like manner where it belongs—on the map. This avoids the usual cartoon-like appearance of most chroma keyers. With BetaKey, realistic chroma keys are now available at reasonable prices. The CIK-2 was designed so a separate control panel is not required. Once installed and set up, the system only needs an occasional fine-tuning as studio conditions change or perhaps when a new camera is installed.

CIK-2A YUV component chroma keyer, 1 RU \$2290.00

CIK-2B RGB component chroma keyer, 1 RU 2890.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SYNC/DISTRIBUTION EQUIPMENT



SIGMA ELECTRONICS INC.

Series 26 Stand-Alone DAs

Series 26 is available in 5 different video DA configurations, an audio DA and a pulse DA. Each model can be operated at either 115VAC or 230VAC, 50/60Hz. Unless otherwise specified, the unit comes from the factory set for 115VAC. They all can be rackmounted in the RMK-26 rackmount kit.



VDA-26	General purpose video DA 1 x 6 looping input, 35MHz bandwidth	\$295.00
ADA-26	High performance audio DA 1 x 6, 150kHz bandwidth	300.00
VDA-2600	Wideband video DA 1 x 6 for high resolution graphics, 90MHz bandwidth	500.00
VEQ-2601	Wideband video EQ, for up to 500' of 8261 cable	500.00
VEQ-2605	Video equalizer, 1 x 6 for cables up to 1100', continuous adjustment	375.00
VDA-2606	Precision video DA, differential in, 1 x 6, 40MHz, NTSC, PAL, HDTV	350.00
VDA-2602x3	Dual 1 x 3, wideband DA for high resolution graphics, 110MHz bandwidth	455.00
PDA-2615	Pulse DA, 1 x 6, for negative 2V or 4V signals, NTSC or PAL	350.00
RMK-26	Rackmount kit, any 3 models, 1RU	50.00
SSB-21	Empty box for any Series 2100 DA module	175.00

Series 2100 Modular Distribution

Series 2100 offers 5 different video DAs, an audio DA and a pulse DA. They are available in 3 different frame sizes, 2, 6 and 16 modules which can be mixed in any desired combination. Additionally, these modules can be mixed in the frames with Sigma Switching and Timing modules.



SS-2100-2	Module mounting frame, 2 modules half-rack width (use RMT-2100-2)	\$250.00
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SS-2100-6	Module mounting frame, 6 modules, 1 RU	\$450.00
SS-2100-16	Module mounting frame, 16 modules, 3 RU	650.00
VDA-2100	Wideband video DA, 1 x 6, for high resolution graphics, 90MHz	350.00
VEQ-2101	Wideband video EQ, for up to 500' of 8281 cable	350.00
VDA-2102x3	Dual 1 x 3, wideband video DA for graphics, 110MHz	280.00
VEQ-2105	Video equalizing DA, 1 x 6, for up to 1100' of cable, continuous adjustment	225.00
VDA-2106	Precision video DA, 1 x 6, differential in 40MHz, for NTSC, PAL and HDTV	200.00
VDA-21	General purpose video DA, 1 x 6 looping input, 35MHz	125.00
ADA-2110	Audio DA, 1 x 6, 150kHz bandwidth pluggable screw terminal connectors	200.00
PDA-2115	Pulse DA, 1 x 6, for negative 2V or 4V signals, NTSC or PAL	200.00
RMT-2100-2	Rackmount tray	70.00
IAM-2100	Service extender	50.00
SBP-2102	Blank panel	16.00

Series 2100 Small Matrix Routing Switchers (8X/16X)

For ordering and pricing convenience, small-scale matrix routing switchers are listed in 2 manners: as a complete system and as individual components.

Note: A complete system includes: frame, switch module(s), system control interface, system control panel and any additional hardware that may be required to make the system complete. Normally, the only additional items added would be additional control panels, custom control software or new modules for expansion.

Complete System Pricing

Note: A specific part number has been assigned to every switcher size and configuration. Locate the precise size and configuration to determine the model number/total price.

8 x 8		8 x 16	
2188 VO	\$2,300.00	21816 VO	\$3,875.00
2188 AO	2,100.00	21816 AO	3,075.00
2188 AV	3,100.00	21816 AV	5,675.00
2188 SV	4,100.00	21816 SV	7,275.00
2188 2C	3,500.00	21816 2C	6,425.00
2188 3C	4,500.00	21816 3C	8,825.00
16 x 8		16 x 16	
21168 VO	\$3,450.00	21616 VO	\$ 5,975.00
21168 AO	2,975.00	21616 AO	4,275.00
21168 AV	4,750.00	21616 AV	8,575.00
21168 SV	6,050.00	21616 SV	11,925.00
21168 2C	5,225.00	21616 2C	10,275.00
21168 3C	7,000.00	21616 3C	15,325.00

Note: VO = Video only; AO = Audio only; AV = Audio/video; SV = Stereo/video; 2C = S-VHS; 3C = RGB/comp.

For wideband graphics applications, the following models offer 95MHz+ bandwidth:

2188 3C EXB RGB	\$5,100.00
2188 3C EXB(S) RGB (Sync)	6,300.00
21168 3C EXB RGB	7,900.00
21168 3C EXB(S) RGB (Sync)	9,975.00

Small Matrix Routing System Components

VSM-2188	Video switch module, 8 inputs x 8 outputs, occupies 2 slots	\$1,000.00
VSM-21168	Video switch module, 16 inputs x 8 outputs, occupies 3 slots	1,775.00
ASM-2188	Audio switch module, 8 inputs x 8 outputs, occupies 2 slots	800.00
ASM-21168	Audio switch module, 16 inputs x 8 outputs, occupies 3 slots	1,300.00
PSM-2188	Pulse switch module, 8 x 8, occupies 2 slots	1,200.00
PSM-21168	Pulse switch module, 16 x 8, occupies 3 slots	2,075.00
SCI-2188	System control interface, 1 required per system, provides control panel and serial interface, specify RS-232 or RS-422 for serial	425.00
SYC-2188	System control panel, XY (any input to any output) for 8 x 8 systems, 1 RU	425.00
SBC-2188	Single bus control panel, any input to 1 output for 8 x 8 system, 1 RU	400.00
UCP-21168	System control panel, XY (any input to any output) for all systems up to 16 x 16	600.00
SBC-2116	Single bus control (16 buttons), any of 16 inputs to a single output, 1 RU	500.00
PVS-21816	Passive video splitter, required for 8 x 16 systems for input splitting	400.00
PVS-2116	Passive video splitter, required for 16 x 16 systems for input splitting	750.00
CS-MAC	Mac computer screen control, software for up to 16 x 16 systems, includes 10' cable	350.00
CS-PCC	PC computer screen control, software for PC control of all systems to 16 x 16 includes 10' cable between PC and switcher (specify connector type and number of pins at serial port)	350.00
SS-2100-6	Module mounting frame for 8 x 8 systems except RGB or stereo audio video	450.00
SS2100-16	Module mounting frame for systems up to 16 x 16 (2 required for 16 x 16 RGB), 3 RU	650.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Series 3200 Mid-Sized Routing Switchers

Series 3200 is available in various types and sizes of routing switchers from 16 x 16 to 64 x 32 (all expandable to 96 x 96). It can be used in applications of video only, audio only, stereo-audio only, any combination of these 3, as well as 2-channel and 3-channel video with pulse and multi-layer audio. The control scheme provides 4 levels of control, and all systems come with both RS-232 and RS-422 serial control interface.

System Building Blocks

1616 MV	16 x 16 master video frame	\$5100.00
1616 SLV	16 x 16 slave video frame	4500.00
1616 SLP	16 x 16 slave pulse frame	4500.00
3216 MV	32 x 16 master video frame	7350.00
3216 SLV	32 x 16 slave video frame	6750.00
1602 SVF	16-input secondary video frame	2700.00
1602 DSV	16-in dual secondary video frame	4000.00
3216 MA	32 x 16 master audio frame	4650.00
3216 SLA	32 x 16 slave audio frame	4050.00
1602 SAF	16-input secondary audio frame	2300.00
3216 MS	32 x 16 master stereo frame	7425.00
3216 SLS	32 x 16 slave stereo frame	6825.00
1602 SSF	Dual 16-in, secondary stereo frame	3550.00
3216 SLP	32 x 16 slave pulse frame	6750.00
1602 SPF	16-input secondary pulse frame	2700.00
SYC-3200	Master control panel	750.00
SBC-3200	Single bus control panel	675.00
RTP-3200	Rapid take single bus panel	675.00
MAC-3200	Mac control software	500.00
PCC-3200	PC control software	500.00

Series SLX Source Selection Switchers

Available in 16 x 1, 16 x 2, 32 x 1 and 32 x 2 sizes, and in combinations of Audio, Video and Pulse. Series SLX features an "extremely wide bandwidth" for high resolution graphics. All models include: Local Control Panel and Serial RS-232/422 control.

SERIES SLX 16 x 1 MODELS

SLX-161 AO	Mono-audio only, 1RU	\$1075.00
SLX-161 SO	Stereo-audio only, 1RU	1350.00
SLX-161 VO	Video only, 1RU	1075.00
SLX-161 AV	Mono-audio and video, 1RU	1350.00
SLX-161 SV	Stereo-audio and video, 1RU	1650.00
SLX-161 2C	2-channel video, for YC, 1RU	1350.00
SLX-161 3C	3-channel video, for RGB or component, 2RU	2075.00

SERIES SLX 16 x 2 MODELS

SLX-162 AO	Mono-audio only, 1RU	\$1350.00
SLX-162 SO	Stereo-audio only, 2RU	2425.00
SLX-162 VO	Video only, 2RU	1925.00
SLX-162 AV	Mono-audio and video, 2RU	2500.00
SLX-162 SV	Stereo-audio and video, 3RU	3425.00
SLX-162 2C	2-channel video, for YC, 3RU	2925.00
SLX-162 3C	3-channel video, for RGB or component, 5RU	4275.00

SERIES SLX 32 x 1 MODELS

SLX-321 AO	Mono-audio only, 1RU	\$1350.00
SLX-321 SO	Stereo-audio only, 2RU	2425.00
SLX-321 VO	Video only, 1RU	1350.00
SLX-321 AV	Mono-audio and video, 2RU	2425.00



SLX-321 SV	Stereo-audio and video, 2RU	\$2825.00
SLX-321 2C	2-channel video, for YC, 2RU	2425.00
SLX-321 3C	3-channel video, for RGB or component, 3RU	3350.00

SERIES SLX 32 x 2 MODELS

SLX-322 AO	Mono-audio only, 2RU	\$2425.00
SLX-322 SO	Stereo-audio only, 3RU	3925.00
SLX-322 VO	Video only, 2RU	2575.00
SLX-322 AV	Mono-audio and video, 5RU	5050.00
SLX-322 SV	Stereo-audio and video, 6RU	6575.00
SLX-322 2C	2-channel video, for YC, 6RU	5575.00
SLX-322 3C	3-channel video, for RGB or component, 9RU	7925.00

REMOTE CONTROL PANELS

RMP-SLX 1	For inputs 1-16, (can be used for 1-32 in "follow" mode)	\$425.00
RMP-SLX 2	For inputs 17-32	425.00

Series 100 Stand-Alone DAs and Accessories

VDA-100A	Video distribution amplifier, 1 x 6, 10MHz bandwidth, 115/230VAC	\$310.00
VDA-110	Video DA with sync add, 1 x 4	340.00
VDA-115	Video equalizing amplifier, 1 x 6, compensates for 1100' of cable	360.00
ADA-106	Audio distribution amplifier, 1 x 6, flat to 30kHz, gain of -8 to +23dB, 115/230VAC	310.00
PDA-100A	Pulse distribution amplifier, 1 x 6, pulse regenerative, 115/230VAC	310.00
AFV-100	Passive audio follow video switcher, 6 x 1, RCA jacks for audio	195.00
SAG-100	Safe area generator, superimposes safe title and safe action area over input video (2 out)	495.00
CSG-160	Color sync generator, full complement of RS-170 pulses + subcarrier and blackburst	800.00
CBI-155	Color bar generator, SMPTE bar and audio tone out + digits 1-9	695.00
FR3-100	Rackmount tray, for 3 of above modules	70.00
BP3-100	Blank panel for unused positions in tray	16.00

Series 100 Timing and Testing

BSG-100A	Black signal generator, 2 RS-170A blackburst outputs	\$495.00
CGM-100A	Color genlock module, used to provide genlock for associated CBG-100A or BTM-100A modules	495.00
CBG-100A	Color bar generator, front panel selectable SMPTE bars, red field, crosshatch or safe areas out. Must have BSG-100A or CGM-100A	495.00
BTM-100A	Blackburst timing module, advance or delay timing adjustment of sync, subcarrier, blanking and blackburst signals. Must have BSG-100A or CGM-100A	495.00

Timing, Synchronizing and Testing

Stand-Alone Timing With Blackburst

ATB-21	Adjustable timing box, locks to blackburst or composite, ±1.5u sec adjustment range	\$500.00
BSG-2640	Blacksignal generator, 3 RS-170A output	500.00
BSG-2641	Blacksignal generator, CCIR 624, 3 PAL out	525.00
RMK-26	Rackmount kit for the above boxes, 1RU	50.00

Plug-In Blackburst Modules for System 2100

These modules plug into any Series 2100 Module mounting frame

ATM-21	Adjustable timing module, locks to blackburst or composite, ±1.5u sec. adjustment range	\$325.00
BSG-2140	Blacksignal generator, 3 RS-170A out	325.00
BSG-2141	Blacksignal generator, 3 CCIR 624 PAL out	350.00

Color Synchronizing Generators

CSG-450	Master sync generator, RS-170A and 3 blackburst	\$1050.00
CSG-455	Master sync and 4 patterns out, SMPT bars crosshatch, red field, safe areas. RS-170A	1395.00
CSG-460	Master and genlock version of CSG-450	1450.00
CSG-465	Master and genlock version of CSG-455	1750.00

Test Generators

TSG-375A	Test and sync generator, 24 patterns, 3 blackburst source ID, countdown, audio tone. RS-170A	\$2795.00
TSG-440	Test and sync generator, 8 patterns, 10 ID memory, countdown, time/date, audio tone, RS-170A	1995.00

Encode/Decode/Synchronization

IGM 1.0	Encoder and RS-170A sync generator second "adjustable sync" out	\$2950.00
IGM 2.0	Encoder/decoder/sync generator plus "adjustable sync" out	3695.00
DEC 1.0	Decoder, NTSC/YC to RGB and sync	2250.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



NEW FROM SONY



SONY

Business and Professional Group



UVW-100L Betacam SP 1-Piece Camcorder

- Three 1/2" IL (Interline Transfer) Hyper HAD™ (Hole Accumulated Diode) CCD sensors
- High sensitivity of f/8.0 at 2000 lux
- 60dB S/N ratio
- 700 TV lines horizontal resolution
- 26-pin VTR interface, allowing component Y/C and composite signals to be fed to an external VTR for simultaneous recording
- Quick start 1.5" viewfinder
- Zebra video indication
- Built-in color bar generator
- Built-in time code generator/reader
- Built-in safety zone and center marker generator
- Supplied detachable microphone
- Selectable master gain for brighter pictures
- Recording review function
- Viewfinder playback
- Real time/date recording function
- LCD multiple display
- Back space editing capability. . . \$14,000.00

See page 308



FXE-100 Video Editing System

- Provides 3 switchable RS-422 and RS-232C ports for control over 2 players and 1 recorder VTR
- Time code, CTL (Control Track Signal) and 8mm time code are accepted as editing references
- Editing can be performed in assemble or insert mode
- Split edit function
- 99 events can be stored in the memory system
- EDL data can be saved and loaded onto the floppy disk via the provided RS-232C port which interfaces to an IBM/PC compatible computer
- 2 buses with a frame synchronizer in each
- A variety of wipe patterns, including picture scroll and slides, are programmed into the FXE-100
- A range of mix effects such as mosaic mix, black and white mix, posterization and mix and picture-in-picture are provided
- As all of the special effects can be set separately to the video sources of each bus, wipe or dissolve of the sources with digital effects can be executed
- Effective 2-machine editing
- Chromakeyer and luminance keyer superimpose characters, figures or video sources onto the background scene
- GPI input/output
- Accepts both composite and Y/C video signals
- 4 blackburst outputs
- 1-dial 1-monitor operation. \$7,200.00

See page 321



UVW Series Betacam SP™ Recorder/Players

- More than 90 minutes of playback time using L-size metal Betacam SP cassettes
- 2 longitudinal audio channels with Dolby™ C-type noise reduction system
- Built-in time base stabilizer with advanced, high quality digital dropout compensation
- Built-in SMPTE time code (LTC/user bits) reader
- RS-232C D-sub 25-pin interface for external computer operation
- Y/R-Y/B-Y component signal output via BNC connectors switchable to RGB output
- S-Video (Y/C separate) output connector
- Built-in character generator to display information such as VTR status, time code, self-diagnostic message, setup menu, etc.
- Initial setup menu to preset various detailed operational parameters

UVW-1200	Player only	\$5,375.00
UVW-1400	Recorder/player	7,300.00
UVW-1600	Editing player	8,260.00
UVW-1800	Editing recorder/player	9,800.00

See page 315



PVE-500 A/B Roll Edit Controller

- 3 RS-422 9-pin remote control interfaces for 2 players and 1 recorder
- Variable speed control over VTRs equipped with Dynamic Tracking
- Accepts time code, control track signal and relative time code as editing references (any of these can be set separately for each VTR)
- Editing data for 99 edits can be stored in the built-in EDL
- Audio split capability allows the audio edit-in point to be set separately from the video edit-in point
- Can remotely control an audio mixer, allowing audio-follow-video editing
- For save/load of EDL data onto a floppy disk, an RS-232 interface port is provided for interface to a compatible PC
- GPI output enables basic control of peripheral equipment such as audio tape recorders and title generators which cannot be directly interfaced with the PVE-500. \$3,650.00

See page 321

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SONY

Business and Professional Group



BETACAM CAMCORDERS



DVW-700 PAC 1

One-Piece Digital Betacam Camcorder

- Both video and audio signals are digitally processed, thereby staying in the digital domain from image and sound acquisition recording
- Three 2/3" Hyper HAD, 1000 FIT CCDs
- 850 TV lines horizontal resolution
- High sensitivity of f/8.0
- S/N ratio of 62dB
- High sensitivity of f/8.0
- Robust cassette compartment and dust protection systems
- Low acoustic noise
- Field playback capability and viewfinder playback
- 10-bit/36MHz full digital signal processing
- Comprehensive LCD display
- Audio tone generator
- 10-bit A/D converters for the RGB output signals of the CCDs obtain a wide dynamic range and superior picture quality
- Setup card
- Selectable gamma correction curve
- Variable linear matrix
- Variable detail frequency
- Skin tone detail
- Detail clip
- Level dependence and crispening
- Knee correction control and dynamic contrast control
- Black/white shading compensations
- Cross color suppression
- Dual optical filter
- Variable speed electronic shutter

DVW-700 PAC 1 \$65,000.00



BVW-D600 One-Piece Betacam SP Camcorder

- Three 2/3" Hyper HAD 1000™ FIT CCDs
- 850 TV lines horizontal resolution
- High sensitivity of f/8.0
- S/N ratio of 62dB
- 10-bit/36MHz digital signal processing
- 10-bit A/D converters for the RGB output signals of the CCDs obtain a wide dynamic range and superior picture quality
- Selectable gamma correction curves
- Variable linear matrix circuit
- Variable detail frequency
- Skin tone detail
- Detail clip
- Level dependence crispening
- Knee correction control and dynamic contrast control
- Black/white shading compensations
- Cross color suppression
- Dual optical filter
- Variable speed electronic shutter

BVW-D600 \$61,500.00



BVW-400A PAC 1

One-Piece Betacam SP Camcorder

- 700 lines horizontal resolution
- 62db S/N ratio
- Incorporates an Extended Clear Scan (ECS) function, allowing the variable shutter speed to be extended below field rate. As a result, the BVW-400A PAC 1 can work with any PC monitor
- Incorporates advanced 768 FIT "HyperHAD" sensor CCD technology in the camera section and Betacam SP recording technology in the VTR section to cover from ENG to the most complex and quality conscious EFP applications
- Sensitivity of f/8.0 at 2000 lux and 89.9% reflectance
- Ultra compact mechanical deck allows the smallest body in Betacam SP lineup
- Approx. 15 lbs., 7 oz. including battery, cassette and 13x9 lens with extender
- Up to 50 minutes of operation with a single NP-1A battery
- More than 30 minutes of recording time using an S-cassette
- Electronic shutter with shutter speeds of 1/100, 1/250, 1/500, 1/1000, 1/2000 second
- 2 AFM audio channels in addition to 2 longitudinal channels with Dolby C-type NR (Noise Reduction) system
- Audio confidence playback (longitudinal)
- Viewfinder playback (luminance or CTDM selectable)
- Recording review function
- Built-in LTC/VITC/User Bit generator and LTC reader with external time code lock capability
- Frame accurate back space editing
- Built-in loudspeaker
- Phantom power supply (+48V, Ch-1/2)
- External DC out for Sony wireless microphone receiver

BVW-400A PAC 1 \$53,500.00



BVW-300A PAC 1

One-Piece Betacam SP Camcorder

- Shares most features of BVW-400A PAC 1 differing only in imager type
- Incorporates 768 IT (Interline Transfer) "HyperHAD" CCD imager with 380,000 active pixels
- 700 TV lines resolution
- S/N ratio of 62dB
- Sensitivity of f/8.0 at 2000 lux
- 1.5" viewfinder with removable eyepiece
- Viewfinder playback and VTR status indications
- Small, maneuverable and low power consumption

BVW-300A PAC 1 \$43,260.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CCD CAMERAS



SONY

Business and Professional Group

BVP-375/1 3-CCD Color Studio Camera

- 1000H FIT Hyper HAD sensor CCD provides a total of 520,000 picture elements (480,000 effective picture elements)
- 800 TV lines horizontal resolution
- 62dB S/N ratio
- Sensitivity of over f/8.0 at 2000 lux
- Extremely high sampling frequency of 18MHz
- Invisible smear level
- Minimum aliasing and improved frequency response
- Enhanced Vertical Definition System (EVS) gives pictures a major improvement in vertical resolution
- 2 independent intercom channels
- 4 filing facilities to support camera system operation

BVP-375/1 \$73,825.00



BVP-370A 3-CCD Color Studio Camera

- Designed with many technical features and operational benefits that give the cameras the ability to meet the broadcaster's most demanding studio and field assignments
- 768 FIT CCD imager utilizes an HAD sensor, provides 700 lines of horizontal resolution and increased dynamic range
- 768 FIT virtually eliminates vertical smear, lag and image burn
- High sensitivity (f/5.6 at 2000 lux)
- Soft detail
- S/N ratio of 62dB
- Superb color reproduction
- Unaffected by shock or vibration
- Immune to electronic or magnetic fields
- Electronic shutter provides multiple speeds from 1/100 to 1/2000 sec.
- Automatic setup of all color balance aspects and flexible file system
- In multiple-camera production applications, portable CCD cameras like Sony BVP-70, BVP-50 and BVP-7 can be easily integrated with the BVP-370 system
- Choice of remote control panels (either joystick or rotary control)
- Choice of viewfinder (either color or black and white)
- Prompter video and AC power are provided at the head of each unit

BVP-370A \$56,800.00



BVP-90/1 3-CCD Portable Color Camera

- 1000H FIT Hyper HAD sensor attains a high packing density of 520,000 picture elements (480,000 effective)
- Outstanding horizontal resolution of 800 TV lines
- Sensitivity of f/8.0 at 2000 lux
- 62dB S/N ratio
- Ergonomically correct design makes it easy to operate in fast moving field operations, with a low profile body which gives the operator an excellent range of view when tripod or shoulder mounted
- Virtually invisible vertical smear level
- Minimum aliasing and improved frequency response
- Super

- Enhanced Vertical Definition System (Super EVS)
- Wideband 1-H delay line
- Highlight aperture correction
- Lens shading compensation
- Variable speed electronic shutter (1/100, 1/25, 1/50, 1/100, 1/200 sec.)
- Clear Scan and Extended Clear Scan systems enable a shutter speed to be selected which precisely matches the computer scanning frequency and eliminates the banding effect
- 1.5" monochrome viewfinder with 600 TV lines horizontal resolution
- Auto setup capability

BVP-90/1 \$47,690.00



BVP-70 IS 3-CCD Portable Color Camera

- "Hyper HAD" 768 Frame Interline Transfer (FIT) CCD imager effectively doubles the camera's sensitivity to f/8.0 at 2000 lux and 89.9% reflectance
- 700 TV lines resolution
- No lag or burn-in, impervious to vibration and shock and not affected by magnetic or electric interference
- Free from registration adjustments (0.05% registration in all zones)
- Variable electronic shutter (1/100, 1/25, 1/50, 1/100, 1/200 sec.)
- Dynamic contrast control (auto knee control) extends highlight dynamic range by 600%, producing a clear picture in high contrast environments (switchable)
- Vertical smear resulting from intense highlights is eliminated by the FIT system
- Ability to handle intense highlights makes the BVP-70 excellent for EFP applications such as rock concerts and documentaries where lighting conditions can vary from extreme darkness to brightness
- Automatic W/B balance system includes 2 white balance memories for each optical filter (4 positions)
- Viewfinder features high resolution CRT (550 lines) with quick startup (1.5 sec.)
- Sharp-directional microphone and 2-direction position adjustment
- 2H image enhancer produces Crisp pictures
- Can be coupled with a Betacam SP VTR to configure a camcorder unit for EFP

BVP-70 IS \$32,500.00

BVP-7A 3-CCD Portable Color Camera

- "Hyper HAD" 768 Interline Transfer (IT) CCD imager effectively doubles the camera's sensitivity to f/8.0 at 2000 lux and 89.9% reflectance
- 700 TV lines resolution
- No lag or burn-in, impervious to vibration and shock and not affected by magnetic or electric interference
- Free from registration adjustments (0.05% registration in all zones)
- Variable electronic shutter (1/100, 1/25, 1/50, 1/100, 1/200 sec.)
- Dynamic contrast control (auto knee control) extends highlight dynamic range by 600%, producing a clear picture in high contrast environments (switchable)
- Vertical smear resulting from intense highlights is eliminated by the FIT system
- Automatic W/B balance system includes 2 white balance memories for each optical filter (4 positions)
- Viewfinder features high resolution CRT (550 lines) with quick startup (1.5 sec.)
- Sharp-directional microphone and 2-direction position adjustment
- 2H image enhancer produces crisp pictures
- Can be coupled with a Betacam SP VTR to configure a camcorder unit for EFP

BVP-7A \$19,950.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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CCD CAMERAS/ Hi8/BETACAM SP CAMCORDERS

DXC-537A 3-HAD CCD Color Camera

- 1/2" IT (Interline Transfer) Hyper HAD™ image sensor ▪ 380,000 picture elements ▪ 62dB S/N ratio
- 750 TV lines horizontal resolution ▪ HAD sensor structure uses a vertical overflow drain which enables a larger light sensitive area to be used
- Use in camcorder, stand-alone or studio configurations ▪ High sensitivity of f/8.0 at 2000 lux ▪ Variable speed electronic shutter ▪ Shutter speeds: off, 1/100, 1/250, 1/500, 1/1000, 1/2000 second
- "Clear Scan" function enables a precise shutter speed to be selected so that it can be matched with the computer display scanning frequency, eliminating the horizontal streak that occurs with conventional cameras ▪ Designed to directly dock with the PVV-1A or EVV-9000 via the pro 50-pin connector ▪ Built-in character generator ▪ Built-in microphone ▪ Zebra video level indication ▪ White balance, black balance and black set-up can be adjusted automatically ▪ SMPTE type color bars ▪ Gain-up switch: 0, +9, +18dB ▪ Automatic iris ▪ Genlock capability ▪ ABL (Automatic Black Level) function ▪ 2-line image enhancer ▪ External DC input

DXC-537AL Includes: DXC-537AH camera head, DXF-501 quick start viewfinder, VCT-14 tripod plate, CCZQ-A2 camera cable, LC-421 carrying case. Requires 1 of the following: CA-537/327/325 series adaptor, EVV-9000, PVV-1A, BVV-5/CA-511 and lens **\$11,500.00**



DXC-327A 3-HyperHAD™ CCD Color Camera

- 700 TV lines horizontal resolution ▪ S/N ratio of 62dB ▪ 3 interline-transfer CCD chips featuring On-Chip-Lens (OCL) array accurately mounted on a prism optical block by Sony's spatial offset mounting technology
- Over 380,000 picture elements packed within a tiny area (6.4 x 4.8mm) on each chip, corresponding to red, green and blue ▪ HAD sensor offers ideal colorimetry, minimizes dark current noise level and reduces vertical smear level ▪ Wide aperture ratio in the photo sensing area due to VOFD structure
- High sensitivity of f/8.0 at 2000 lux ▪ 2 white balance memories
- Variable speed electronic shutter—shutter speeds: off, 1/100, 1/250, 1/500, 1/1000, 1/2000 sec. ▪ Built-in character generator ▪ Built-in microphone
- Zebra video level indication ▪ Equipped with a 10-pin remote connector for interface with the RM-M7G remote control unit
- White balance, black balance and black setup level can be adjusted automatically ▪ Gain-up switch: 0, +9, +18dB ▪ Automatic iris control
- Genlock capability ▪ External microphone input connector ▪ Built-in color bar generator ▪ 2-line image enhancer ▪ External DC input

DXC-327AH Camera head only **\$6,070.00**
DXC-327AL Includes: DXC-327AH camera head, DXF-501 viewfinder, LC-420 carrying case, CCQ-2BRS camera cable and VCT-12 tripod adaptor. **7,120.00**



DXC-325 3-HAD CCD Color Camera

- 1/2" interline-transfer CCD ▪ Integration of over 250,000 picture elements within an image sensing area that is only 6.4 x 4.8mm
- 58dB S/N ratio is maintained even in high temperatures ▪ 530 TV lines horizontal resolution ▪ Wide aperture ratio in the photo sensing area due to Vertical Over Flow Drain (VOFD) structure and therefore provides a high sensitivity of f/5 at 2000 lux
- Smear phenomenon has been considerably reduced due to the HAD sensor and the double P-well structure ▪ Variable speed electronic shutter—shutter speeds: off, 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000 sec. ▪ Built-in character generator ▪ Provides a 50-pin interface and can be interfaced with various adaptors
- Built-in microphone ▪ Auto white and black balance ▪ Gain-up switch: 0, +9, +18dB ▪ Zebra video level indication ▪ Built-in color bar generator ▪ Color temperature conversion filters ▪ Automatic Black Level (ABL) function ▪ Can be a stand-alone camera, a computer image input camera or an ITV camera

DXC-325L Includes: DXC-325H camera head, LC-325 carrying case, CCQ-2BRS camera cable, DXF-325 viewfinder, CA-325 camera adaptor and VCT-12 tripod adaptor **\$4,925.00**

EVW-300L Hi8™ Camcorder

- 3 high density 1/2" IT Hyper HAD sensors
- 700 TV lines resolution
- 60dB S/N ratio
- 2 hours of recording capability
- Camera genlock capability for multiple camera operation
- Built-in 8mm time code generator ▪ Quick start recording—0.5 seconds from pause to recording mode . . . **\$7,700.00**



UVW-100L Betacam SP 1-Piece Camcorder

- Three 1/2" IT (Interline Transfer) Hyper HAD (Hole Accumulated Diode) CCD sensors
- High sensitivity of f/8.0 at 2000 lux
- 60dB S/N ratio ▪ 700 TV lines horizontal resolution ▪ 26-pin VTR interface, allowing component, Y/C and composite signals to be fed to an external VTR for simultaneous recording
- Zebra video indication ▪ Color bar generator ▪ Built-in time code generator/reader ▪ Supplied detachable microphone ▪ Selectable master gain for brighter pictures ▪ Recording review function ▪ Viewfinder playback ▪ Real time/date recording function ▪ Back space editing capability **\$14,000.00**



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PROFESSIONAL CAMERA ACCESSORIES



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9000-HW	Medium duty wall mount	\$ 59.00	CCF-10	6-pin extension cable	\$ 50.00
A10X10BMD-D8/B	Fujinon 10:1 zoom lens	2,485.00	CCF-5	Cable	40.00
A12X10BRM/B	12-pin 12:1 servo zoom lens	1,265.00	CCJQ-0.5	Camera adaptor cable	63.00
A14X8BERM/B	Fujinon 14X high quality EFP lens	15,500.00	CCM-1210	100m 12-pin to 10-pin cable	975.00
A15X8BEVM	Fujinon ENG/EFP lens	9,900.00	CCM-1212	100m 12-pin to 12-pin cable	875.00
A16X9BERM	Fujinon 16:1 zoom lens	5,990.00	CCM-2004	100m 20-pin to 4-pin cable	560.00
A16X9BMD-D8	Fujinon 16:1 zoom lens	3,550.00	CCM-2010	5m 20-pin to 10-pin cable	250.00
A16X9BRM	Fujinon 16X zoom lens	2,800.00	CCMC-1210P3	3m cable for RM-930 to CCU	128.00
A18X8.5BEVM/B	Fujinon 18X zoom lens with 2X extender	15,000.00	CCMC-12P02	2m cable for use with CMA-D2 or CMA-D7	109.00
A8.5X5.5BEVM/B	Fujinon ENG lens	15,875.00	CCMC-12P05	5m cable for use with CMA-D2 or CMA-D7	155.00
A8.5X5.5BVM/B	Fujinon 8.5X wide-angle zoom lens (without extender)	12,850.00	CCMC-12P10	10m cable for use with CMA-D2 or CMA-D7	213.00
BC-1WD	Battery charger for NP-1, NP-1A, NP-1B	755.00	CCMC-12P25	25m cable for use with CMA-D2 or CMA-D7	381.00
BC-410	Sony battery charger	1,020.00	CCMC-9DS	RGB cable	119.00
CA-325A	Docking AC adaptor for DXC-325/ 327/537 series	935.00	CCQ-100AM	100m cable for CCU-M3/M5 and DXC-3000/325/327/537	1,660.00
CA-325B	12VDC docking adaptor for DXC-325/ 327/537 series	560.00	CCQ-10AM	10m cable for CCU-M3/M5 and DXC-3000/325/327/537	232.00
CA-327	Camera adaptor for DXC-325/ 327/537 series	1,250.00	CCQ-10AR	Camera/projector cable	237.00
CA-3A	Stand-alone camera adaptor for all Betacam cameras	2,275.00	CCQ-10BR5	10m shielded camera/projector cable	390.00
CA-50A	Multicore CCU adaptor for Betacam cameras	4,865.00	CCQ-25AM	CCU cable	445.00
CA-511	Camera adaptor for DXC-537, DXC-327A and BVV-5	1,290.00	CCQ-2BR5	2m shielded camera/projector cable	192.00
CA-512	S-VHS docking adaptor	1,130.00	CCQ-50AM	50m cable for CCU-M3/M5 and DXC-3000/325/327/537	715.00
CA-513	S-VHS docking adaptor	1,130.00	CCQ-5AR	Camera/projector cable	171.00
CA-514	Camera adaptor to interface "BVP" cameras to PVV-1	1,930.00	CCQ-5BR5	5m camera/projector cable	280.00
CA-537	DXC-537 camera adaptor	1,355.00	CCQQ-1	CCQ cable extension connector	68.00
CA-55A	Triax CCU adaptor for Betacam cameras	9,625.00	CCQX-3	2m cable VTR/camera with CMA-8/8A	113.00
CA-57A	Triax CCU adaptor for Betacam cameras	10,275.00	CCQZ-10V	Camera to VTR cable	365.00
CA-M7	Studio enclosure for DXC-M7	2,325.00	CCQZ-2V	Camera to VTR cable	229.00
CAC-1	Microscope holder	68.00	CCRZ-5	Camera/VTR cable, 5m	395.00
CAC-12	Microphone holder for DXC and BVP series cameras	176.00	CCTQ-3RGB	3m cable for DXC-930	294.00
CAC-21	Battery attachment for DXC-3000 for DC-8	85.00	CCTZ-3RGB	3m cable for DXC-930	391.00
CAC-4	Chest pad	237.00	CCU-M5	DXC camera control unit	2,270.00
CAC-50	Counterbalance support for DXF-50 with CA-M7	835.00	CCU-M7	Full control CCU for DXC-M7 and DXC-537 series	4,175.00
CAC-GR02	Mounting adaptor for pistol grip	950.00	CCXC-9DB	5m RGB cable	110.00
CAC-RM01	Adaptor	149.00	CCXC-9DD	5m RGB cable	110.00
CC-7TII	Remote control unit for REA type Canon lenses	620.00	CCZ-10	Camera/VTR cable, 10m	385.00
CC-8TII	Remote control unit for R and REA-1A Canon lenses	440.00	CCZ-2	Camera/VTR cable, 2m	239.00
CCA-2/5	5m cable for CCU-350	121.00	CCZ-A10	5m cable DXC-537, DXC-M7 to CCU-M7, CCU-M5	505.00
CCA-7-100	100m connection cable for RM-M7G	950.00	CCZ-A100	100m cable DXC-M7/537 to CCU-M7, CCU-M5	2,735.00
CCA-7-25	25m connection cable for RM-M7G	330.00	CCZ-A2	2m cable for DXC-M7/537 to CCU-M7/M5 or BVW-35/50	300.00
CCA-7-5	5m connection cable for RM-M7G	192.00	CCZ-A25	25m cable for DXC-537, DXC-M7 to CCU-M7, CCU-M5	860.00
CCA-7-50	50m connection cable for RM-M7G	565.00	CCZ-A5	5m cable for DXC-M7/537 to CCU-M7/M5 or BVW-35/50	385.00
CCDC-10	10m DC cable for DXC-151, DXC-930	69.00	CCZ-A50	50m cable for DXC-537, DXC-M7 to CCU-M7, CCU-M5	1,440.00
CCDC-100A	100m DC power cable	361.00	CCZJ-2	2m cable DXC-M7/537 to VCR	216.00
CCDC-25	25m DC power cable for DXC-151, DXC-930	109.00	CCZJ-5	5m cable DXC-537/M7 to 10 pin VCR	237.00
CCDC-5	5m camera cable	50.00	CCZQ-10	Camera/VTR cable, 10m	335.00
CCDC-50A	50m DC power cable	189.00	CCZQ-2	Camera/VTR cable, 2m	204.00
CCDD-2.5	2.5m tally cable	24.00	CCZQ-A10	10m cable DXC-M7/537 to VO-8800 and similar VTRs	390.00
			CCZQ-A2	2m cable DXC-M7/537 to VO-8800 and similar VTRs	260.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CCQ-A2AM	2m cable	\$ 216.00	MCL-710H	7.8-78mm, f/1.8, 1-touch zoom lens with macro	\$ 4,390.00
CCZQ-A5	5m cable DXC-M7/537 to VO-8000 and similar VTRs	305.00	MCL-806H	8-48mm, f/1.8, 1-touch zoom lens for MVC-7000	1,470.00
CMA-8A	AC adaptor for VO-8800, DXC-M7, DXC-3000A/325/327	705.00	MCL-807TA	8-56mm, f/2.8, zoom lens for MVC-7000	1,400.00
CMA-D2	13 VDC output power supply	178.00	MCL-913T	13X zoom lens with macro for MVC-7000	3,360.00
CMA-D7	AC adaptor for AVC-D7 and DXC-107	391.00	MFL-30	Electronic flash for MVC-7000	480.00
DXF-40A	4" viewfinder	840.00	MFL-36	Electronic flash for MVC-7000	521.00
DXF-50	5" high resolution viewfinder	1,265.00	MKA-7PF	Adaptor for Mamiya 7000PAC	557.00
DXF-501	Quick start 1.5" monochrome viewfinder	900.00	MKA-T4	IR transmitter for MVC-7000	221.00
DXF-M7	1.5" high quality viewfinder for DXC-M7 series	1,050.00	PH10X8REAIAll	Canon remote control 10:1 servo lens	2,410.00
ECL-11052	Close-up lens	110.00	PH10X8RII	Canon remote control 10:1 servo zoom lens	2,080.00
ECL-12L6C	Step down cable used for 12-pin lens with cameras	135.00	PH12X7.5BKTSa	Hot shoe 12:1 zoom lens—DXC-325, DXC-327 series	2,780.00
ECL-6L12C	Setup cable for 6-pin lens with DXC-M7/537	135.00	PH15X7BIRS	Hot shoe servo zoom lens for DXC-325/327	5,790.00
ECL-8072	Close-up lens	235.00	PH6MM	Canon 6mm fixed focal length lens	220.00
ECM-025F	25m extension cable between teleconference lenses	415.00	PH6X8II	Canon manual 6:1 zoom lens	720.00
ECM-050F	50m extension cable between teleconference lenses	590.00	PH6X8REAIAll	Canon remote control 6:1 servo zoom lens	1,870.00
ECM-100F	100m extension cable between teleconference lenses	905.00	PH6X8RII	Canon remote control 6:1 servo zoom lens	1,620.00
J10X10REAIAll	Canon remote control 10:1 zoom lens	1,970.00	S12X7.5BMD-D8	Hot shoe 12:1 zoom lens	2,780.00
J10X10REAI	Canon remote control 10:1 zoom lens	1,750.00	S12X7.5BRM	Fujinon "hot shoe" 12:1 servo zoom lens	1,720.00
J10X10RII	Canon remote control 10:1 zoom lens	1,620.00	S15X8.5B1/EMS20	Nikon 15X servo zoom lens with 2X extender	7,995.00
J12X10BKTSa/B	Zoom lens	2,570.00	S16X6.7BERM	Fujinon "hot shoe" 16:1 zoom lens	5,990.00
J14X8.5BIRS/B	Canon 14X zoom lens with built-in 2X extender	9,400.00	S16X6.7BMD-D8	Fujinon 16:1 zoom lens	3,550.00
J14X8BIE/B	Canon 14X EFP lens with 2X extender	16,300.00	S16X6.7BRM	Fujinon 16:1 servo zoom lens	2,800.00
J15X9.5BIRS	15:1 servo zoom lens	5,790.00	S19X8B1/B	Nikon 19X zoom lens with 2X extender	13,576.00
J15X9.5BKTSa/B	Zoom lens	2,470.00	S9X5.5B1/B	Nikon 9X zoom lens with 1.7X extender; 2/3" bayonet	14,725.00
J6X11II	Canon manual 6:1 zoom lens	720.00	SRD52B	Camera grip for Fujinon lenses	1,010.00
J6X11REAIAll	Canon remote control 6:1 auto zoom lens	1,400.00	TCC-005M	5m, 12-pin connection cable	340.00
J6X11REAI	Canon remote control 6:1 servo zoom lens	1,210.00	TCC-010M	10m, 12-pin connection cable for Canon lenses	450.00
J6X11RII	Canon remote control 6:1 servo zoom lens	1,130.00	TCC-020M	20m, 12-pin connection cable for Canon lenses	730.00
LC-421	Carrying case for PVW/DXC/ EVW-537 series	540.00	TCC-050M	50m, 12-pin connector cable for Canon lenses	1,670.00
LC-422	Carrying case for EVW-300 series Hi8 camcorder	255.00	TCF-025M	Extension cable for CRD Fujinon CCTV control box	50.00
LC-422TH	Thermodyne shipping/carrying case for EVW-300	335.00	TCF-050M	Extension cable for CRD Fujinon CCTV control box	62.00
LC-M7G	Carrying case for DXC-M7 series	565.00	TCF-100M	Extension cable for CRD Fujinon CCTV control box	79.00
LCM-5000	Carrying case for MVC-7000	214.00	TCR-101	Remote control box for Canon lenses	820.00
LCR-1	Rain cover for DXC-325/327/537 series cameras	198.00	TCR-201	Remote control box	1,010.00
LO-1011	Lens rear control kit for Fujinon lenses	1,188.00	VCL-707BXM	7X manual zoom lens	2,650.00
LO-1309	Lens rear control kit for Canon lenses	1,980.00	VCL-712BXEA	12X zoom lens with focus control	2,627.00
LO-1310	EFP/studio deluxe rear control kit	2,340.00	VCL-716BXEA	16X zoom lens with focus control	5,060.00
LO-1410	Lens rear control kit for Canon lenses	2,340.00	VCL-810BX	Hot shoe 10:1 servo zoom lens for DXC-325/327	1,405.00
LO-26	Studio remote control kit for Canon lenses	1,310.00	WCV-75	Wide-angle converter	2,220.00
LO-27	Studio remote control for Canon lenses	1,310.00	WCV-80	Wide-angle converter	2,220.00
LO-32BMT	Lens mount adaptor for 3 2/3" CCD lenses	665.00	WCV-90	Wide-angle converter	2,220.00
MCL-05H	5mm wide-angle lens for MVC-7000	2,420.00	YH13X7.5BKRS	Hot shoe cableless 13:1 servo zoom lens	1,810.00
MCL-06T	Wide-angle lens	2,475.00	YH17X7KRS	Canon 17X servo zoom lens for 1/2" CCD cameras	2,800.00
MCL-200N	Nikon lens adaptor for MVC-7000	2,195.00	YJ17X9.5BKRS	Canon 17X servo zoom lens	2,800.00
MCL-300C	Canon lens adaptor for MVC-7000	1,785.00	ZSG200M	Camera grip for Canon lenses	790.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DIGITAL BETACAM VTRs



SONY

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DVW Series Component Digital Betacam VTRs

Digital Betacam adopts component digital recording which provides superb picture quality and multi-generation capability, overcoming the limitations of analog recording. This feature provides much wider operational flexibility by minimizing dubbing limitations and thereby allowing more efficient and complex multi-layering and editing.

Digital Betacam adopts coefficient recording technology within the signal process which has made possible the recording of component digital signals within a Betacam size VTR and cassette tape.

High Quality Digital Audio

Digital Betacam provides the capability to record 4 channels of 20-bit digital audio signals which can be independently editable. To ensure wide dynamic range for analog audio signals, super linear A/D and D/A converters are used for Digital Betacam, achieving high resolution and dynamic sound quality.

Long Recording Time

In order to obtain maximum performance for high density digital recording, new metal particle cassette tapes have been developed exclusively for Digital Betacam VTRs. To cover many applications, large and small size cassettes are available, which have the same dimensions as current Betacam cassettes.

The adoption of the coefficient recording technology achieves longer recording time than the current Betacam format. While a large cassette provides a maximum recording time of 124 minutes, a small cassette supports up to 40 minutes of recording.

Betacam SP Playback Capability

The DVW-A500 and A510 have the capability to play back tapes which are recorded in the current Betacam SP (Metal/Oxide tape) format. This is made possible by using dedicated playback heads and a signal processor for analog playback, without compromising any performance. This compatibility is highly beneficial for users to utilize existing tape archives while realizing many advantages of digital technology. Therefore, a current system can be upgraded from analog to digital step-by-step or all at once.

To prevent accidental recording on Betacam SP cassette tapes, an automatic detector is employed so that recording is inhibited.

Serial Digital Interface

The DVW Series is equipped with SDI (Serial Digital Interface) which conforms to the SMPTE 259M. A 4:2:2 component digital video signal embedded with 4 channels of digital audio signals is carried via a single co-axial cable allowing simple connection with other SDI equipped devices, including Sony DV5 Series switchers. Furthermore, SDI also gives the benefit of long distance transmission up to 200 meters without any extra hardware, which is much farther than parallel digital signals can reach.

Digital Jog Sound

Complete reproduction of 4 channels of digital audio is achieved within the range of -1 to +1X normal playback speed even in the jog mode.

High Speed Picture Search

Recognizable color pictures can be obtained even in shuttle mode at up to approximately +50X normal playback speed. This capability allows for quick search for the desired picture.

Dual Dial Operation

The DVW Series adopts a dual dial operation to select jog and shuttle modes. For users familiar with current Betacam VTR operation, the mode can be switched by pressing the search dial in the same manner as current Betacam VTRs. Additionally, jog, shuttle and VAR select buttons are located just above the search dial, so that the operator can also switch the mode by selecting a button in the same manner as with Sony BVH Series 1" VTRs and DVR Series D-1 /D-2 VTRs.

Dynamic Tracking™ Playback

The DVW Series has DT playback capability which provides broadcast quality pictures over the range of -1 to +3X normal playback speed. Equipped with dedicated analog DT heads, the DVW-A500 and A510 can also provide DT playback of analog signals from Betacam tapes within the same range.

Program Play

The DVW Series supports program play mode which allows video recordings to be reproduced within the range of ±15% normal speed in increments of 0.1%.

With BKDW-507 optional audio program play board installed, 4 digital audio signals can also be compressed or extended with pitch control along with video. This is useful to change the duration of a program in order to fit into an allocated time period of longer or shorter duration.

Read Before Write; Pread Editing Capability

In the DVW-A500 and DVW-500, DT playback heads for digital signals are located ahead of the record heads on the head drum. Previously recorded video and audio signals are read by these DT heads, enabling the signal to be instantly re-recorded onto the same track after signal processing by external equipment. This capability is ideal for titling, color correction and layering for video, and mixing or sweetening for audio.

Digital Audio Crossfade

The DVW-A500 and 500 recorders are equipped with a digital audio crossfade system which achieves smooth audio transition during audio insert editing. Previously recorded audio signals are read by advance DT heads and immediately re-recorded onto the same track after being mixed with input audio signal. The crossfade duration can be selected.

Automatic Equalizer

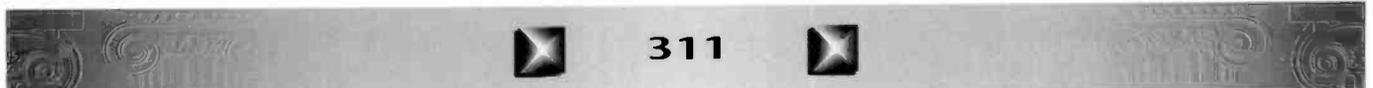
Digital Betacam VTRs employ an automatic equalizer to optimize reproduction of digital data by adjusting gain and phase of the off tape RF signal. With powerful error correction and concealment capability, this automatic equalizer supports accurate reproduction of video and audio data, ensuring stable picture and sound quality.

Auto Edit Tracking

The DVW-A500 and DVW-500 has an automatic edit tracking system for accurate tracking during editing. When in the pre-roll mode, recording heads play back pre-recorded video tracks and their tracking is automatically optimized by referring to this off tape RF signal. This secures precise tracking for editing and also minimizes the need for manual tracking adjustment, achieving efficient editing.

DVW-500 Editing recorder (digital only)	\$46,000.00
DVW-510 Player (digital only)	35,000.00
DVW-A500 Editing recorder (analog/digital)	54,000.00
DVW-A510 Editing player (analog/digital)	40,000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





DVR-2100/DVR-2000 D-1 Component Digital Video Tape Recorders

The DVR-2100 is 8 rack units high, weighs 154.5 lbs. and has a power consumption of 450W. The DVR-2100 accepts small, medium and large-size cassettes with a maximum recording time of 94 minutes.

The DVR-2100 offers Dynamic Tracking Heads. This feature permits broadcast-quality, variable speed playback from -1 to 2X normal speed, including still and slow motion modes.

To integrate the DVR-2100 effectively into a component digital system, the VTR is equipped with only the digital input and output ports for video and audio. Both parallel and serial A/V digital I/O ports are provided for the DVR-2100, optimizing use of the product in both digital video interface environments. Serial operation, based on the SMPTE Draft T 14.224, provides convenient handling of digital video, audio (4 channels), digital VITC and video index information on a single, low-cost coaxial cable.

The DVR-2100 incorporates various enhanced editing function, greatly enlarging the scope of video application. Special editing modes are provided for animation recording, for pin-registered film-to-tape transfer and for sequential playback using 2 DVR-2100s.

Additional features of the DVR-2100 include: ■ Automatic Playback Equalization: Automatically detects and compensates for playback equalizing errors ■ Automatic CTL System: Eliminates the need to manually optimize tracking adjustments during normal playback and during use of the Dynamic Tracking feature ■ Channel Conditional Checking and Logging: Capability to check the condition of each channel during normal playback and confidence playback modes for easy monitoring of audio/video channel condition ■ Built-In Test Signal Generator: 5 video test signals and 2 audio test signals built in and selectable from a control panel menu

DVR-2100	\$128,100.00
DVR-2000 Same as the DVR-2100 except without Dynamic Tracking	110,280.00

DVR-20/DVR-28 D-2 Composite Digital Video Tape Recorders

The DVR-20 is a 94-minute recorder which accepts small and medium size cassettes. The DVR-28 is a 208-minute VTR which accepts small, medium and large size cassettes and is intended for the most advanced recording and editing applications.

An advanced tape transport design features Ultrasonic (US) guides which decrease the friction between



the tape and guide, resulting in high response operation in jog, still and shuttle modes. An advantage of this increased responsiveness is the ability to quickly locate and precisely make in/out editing point decisions. The adoption of US guides also contributes to reducing servo lock-up times from the standby On mode.

The DVR-20/28 series incorporates digital jog sound, a feature that provides excellent quality recovery of the digital audio channels while in the jog mode. This "intelligibility" makes it possible to make speedy and precise in/out editing point decisions.

The monitoring system offers channel condition monitoring and error message logger systems. When an error occurs during the recording or playback mode, the operator is alerted via an error message displayed on a diagnostics menu. This Error-Logger feature, which alleviates the need for real time observation of the condition of the VTR, captures errors, warnings and other conditions by timecode location for later analysis and printout, if needed.

The adoption of an ultra-linear A/D video converter enables the DVR-20/28 series to provide excellent differential and integral linearity characteristics while working in an analog environment. The D-2 units also use a high resolution audio A/D converter at 20 bits/sample for all 4 digital audio channels to achieve a wide dynamic range of 105dB. Another factor contributing to the wide dynamic range of audio is the use of advanced audio signal processing circuits. ADSPs (Audio Digital Signal Processors) used in the audio signal processing block allow audio signals to be handled at a 20 bit/sampling rate.

The addition of a Multi-Loop test feature, for use in multiple generation analog dubbing, allows the operator to simulate the result of multiple generations without actually performing the edits on tape. To further enhance customer satisfaction and ease of setup and operation, Sony has incorporated Edit Tracking during preroll and Auto EQ for use during playback mode.

Additional features shared by the 2 machines include: ■ Dynamic Tracking Heads™: The 2 units are equipped with DT heads, which extend the high quality video applications for these recorders. Using this feature, broadcast quality video can be reproduced within the range of -1 to 3X normal speed playback including still and slow motion ■ Audio Program Play: With the addition of the optional BKDV-110 audio program play board, the DVR-28 can offer broadcast quality play of all 4 digital audio channels within the range of ± 15% normal speed in increments of 0.1%.

DVR-20	\$59,700.00
DVR-28	80,300.00

DVR-P20 D-2 Composite Digital Player

■ Player only version of the DVR-20

\$42,330.00

DVR-P28 D-2 Composite Digital Player

■ Player only version of the DVR-28

\$62,380.00

DVR-2 D-2 Digital Video Tape Recorder

■ Designed primarily for electronic field production ■ Can be connected to the BVP-70 or any other camera outfitted with 26-pin connectors, including Betacam SP® cameras ■ Mic and line level audio inputs ■ Phantom power for microphones ■ Backspace editing capability ■ Accepts both small (32 minutes of recording time) and medium cassettes (90 minutes of recording time) ■ High performance system, uses advanced electronic chips to provide a broadcastable picture with full error correction and error concealment ■ Video bandwidth of 6MHz ■ Video S/N ratio of 54dB ■ Shuttle speed at 16X play speed ■ 65W power consumption ■ Battery life of 100 minutes

DVR-2	\$42,500.00
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

BETACAM SP RECORDERS/PLAYERS



SONY®

Business and Professional Group

BVW-75 Betacam SP Studio Editing Recorder/Player

- Can be directly connected to other Betacam studio VTRs, BVE Series editors and BVH Series 1" VTRs via the RS-422 communication cable
 - 36-pin parallel interface
 - Dynamic tracking range of -1 to +2 times normal speed
 - Variable memory for DT editing
 - 4-channel audio
 - Capstan override ±16%
 - Time code reader/generator for LTC, VITC, U-bits
 - Video/audio confidence
 - Character display
 - High speed picture search
 - 2 independent SC-H phase indicators
 - Built-in TBC with remote control
 - Color framing
 - Simple audio mixing
 - 66 lbs.
- BVW-75** \$48,500.00

BVW-D75 Betacam SP Recorder/Player

- 1 component digital video serial input (active loopthrough) and 4 component digital video serial outputs—each handles 4:2:2 component digital video signals
 - 4 channels of digital audio are transmitted along with the digital video signal on 1 single coaxial cable, greatly simplifying system connections and enabling long distance transmission of the digital video and audio signal with virtually no signal degradation
 - In addition to 4 channels of digital audio embedded in the component digital video serial interface via BNC connectors, 4 channels of digital audio inputs and outputs which conform to the AES/EBU format are provided through XLR connectors
 - Capable of producing a component analog monitor output (Y/R-Y/B-Y, 3 BNCs), allowing the unit to provide easy picture monitoring with the superimposed characters such as time code data
 - Dynamic tracking capability provides noiseless, broadcast-quality playback range of -1 to +3 times normal speed
 - High speed picture search provides recognizable color pictures at up to 10 times normal speed in forward and reverse
 - RS-422 9-pin remote interface
 - 36-pin parallel interface
 - Audio/video confidence playback
 - Built-in, full-scale editing functions
 - Sophisticated built-in time base corrector with advanced high quality digital dropout compensator, and processing controls for video, chroma setup levels, 4/C delay and system sync phase
 - Built-in time code generator/reader
 - More than 90 minutes of playing time with L-size cassette
 - Built-in, sophisticated self-diagnostics
- BVW-D75** \$39,300.00



BVW-70 Betacam SP Studio Recorder/Player

- Maximum playback time of over 90 minutes
- In addition to the 2 conventional longitudinal audio channels, 2 AFM audio channels are added, making a total of 4 channels available
- High speed picture search
- Built-in time code reader and time base corrector
- Built-in character generator and characters can be super-imposed via Video Output 3
- Free from color framing as long as the recording component signals are fed directly from the component signal source
- RS-422 serial interface and 36-pin parallel interface
- Recording capability
- Built-in



- editing facility
 - 225W power consumption
 - 2 independent SC-H phase indicators for composite input and output
 - 66 lbs., 2 oz.; 5 rack units high
- BVW-70** \$43,000.00

BVW-D265 Betacam SP Player

- Dynamic tracking head offers 4fsc serial composite digital output for direct video and audio signal transmission to D-2
 - The serial digital signal carries digital video as well as 4 channels of embedded digital audio
 - Component analog video outputs, AES/EBU digital audio outputs and analog outputs of the same channels for interface to existing equipment
- BVW-D265** \$38,700.00

BVW-65 Betacam SP Studio Player With Dynamic Tracking (DT)

- Maximum playback time of over 90 minutes
 - In addition to the 2 conventional longitudinal audio channels, 2 AFM audio channels are added, making a total of 4 channels available
 - High speed picture search
 - Built-in time code reader and time base corrector
 - Built-in character generator and characters can be superimposed via Video Output 3
 - RS-422 serial interface and 36-pin parallel interface
 - Dynamic motion control (DMC) playback which, when activated, will allow the BVW-65 to memorize the tape speed trajectory for noiseless playback picture within the Dynamic Tracking range of -1 to +2 times normal speed
 - 175W power consumption
 - 61 lbs., 11 oz.; 5 rack units high
- BVW-65** \$36,200.00



BVW-60 Betacam SP Studio Player

- Maximum playback time of over 90 minutes
 - In addition to the 2 conventional longitudinal audio channels, 2 AFM audio channels are added, making a total of 4 channels available
 - 160W power consumption
 - High speed picture search
 - Built-in time code reader and time base corrector
 - Built-in character generator and characters can be superimposed via Video Output 3
 - RS-422 serial interface and 36-pin parallel interface
 - 59 lbs., 8 oz.; 5 rack units high
- BVW-60** \$30,700.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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BETACAM SP RECORDER/PLAYERS



Betacam® SP 2000 Pro Series PVW-2800 Recorder/Player

- More than 90 minutes of recording/playback time using L-size metal (for both recording and playback) or oxide (for playback only) cassettes
- High speed picture search provides recognizable color pictures at up to 10X normal speed in forward and reverse (24X in monochrome)
- 2 longitudinal audio channels with Dolby™ C-type NR (Noise Reduction) system
- Direct RS-422 9-pin interface with other RS-422 equipped Sony machines (Betacam/Betacam SP VTRs, BVU series U-Matics)
- Built-in comprehensive editing facilities
- Dynamic Motion Control with memory provides slow-motion editing capability (when used with a player VTR equipped with DT™ function)
- Built-in time base corrector with advanced high quality digital dropout compensator
- Built-in LTC/VITC/user bits generator and reader
- Built-in character generator
- Enhanced serviceability with built-in self-diagnostics
- User friendly dial menu operation
- Y/R-Y/B-Y component signal inputs and outputs via BNC or 12-pin Betacam DUB connectors
- S-Video (Y/C separate) input/output connectors
- 7-pin U-Matic DUB output capability (option)
- Compact and lightweight (5 units high, 19" rackmountable, approximately 55 lbs.)
- Low power consumption (130W)..... **\$19,080.00**

- machines (Betacam/Betacam SP VTRs, BVU series U-Matics)
- Built-in time base corrector with digital dropout compensator
- Built-in LTC/VITC/user bits reader
- Built-in character generator
- Enhanced serviceability with built-in self-diagnostics
- User friendly dial menu operation
- Y/R-Y/B-Y component signal outputs via BNC or 12-pin Betacam DUB connectors
- S-Video (Y/C separate) output connector
- 7-pin U-Matic DUB output capability (option)
- Compact and lightweight (5 units high, 19" rackmountable, approximately 55 lbs. 2 oz.)
- Low power consumption (130W)..... **\$18,050.00**



PVW-2600 Player

- More than 90 minutes of playback time using L-size cassettes with metal or oxide tape
- High speed picture search provides recognizable color pictures at up to 10X normal speed in forward and reverse (24X in monochrome)
- 2 longitudinal audio channels with Dolby C-type NR system
- Direct RS-422 9-pin interface with other RS-422 equipped Sony machines
- Built-in time base corrector with digital dropout compensator
- Built-in LTC/VITC/user bits reader
- Built-in character generator
- Built-in self-diagnostics
- User friendly dial menu operation
- Y/R-Y/B-Y component signal outputs via BNC or 12-pin Betacam DUB connectors
- S-Video (Y/C separate) output connector
- 7-pin U-Matic DUB output capability (option)
- Compact and lightweight (5 units high, 19" rackmountable, approximately 54 lbs.)
- Low power consumption (110W)..... **\$12,700.00**



PVW-2650 Player With Dynamic Tracking

- Superior picture quality, inherent in the Betacam SP format
- Dynamic Tracking (DT) provides broadcast quality noiseless playback within -1 to +3X normal speed
- More than 90 minutes of playback time using L-size cassettes with metal or oxide tape
- High speed picture search provides recognizable color pictures at up to 10X normal speed in forward and reverse (24X in monochrome)
- 2 longitudinal audio channels with Dolby C-type NR system
- Direct RS-422A 9-pin interface with other RS-422A equipped Sony

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

BETACAM SP/SP U-MATIC RECORDER/PLAYERS



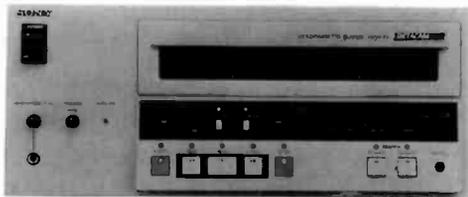
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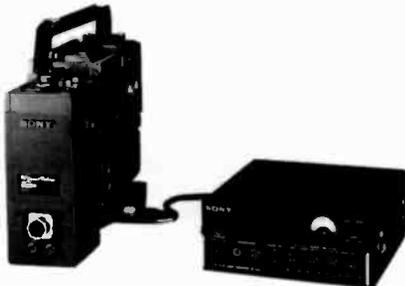
BVW-50 Portable Betacam SP™ Recorder/Player

- 90-minute recording/playback time
- Built-in time base corrector
- Continuous operation for up to 200 minutes
- 4 audio channels consisting of 2 longitudinal and 2 AFM channels
- Longitudinal audio provided with Dolby Type-C noise reduction (NR) system
- FM modulated audio simultaneously recorded with video information by rotary video head
- Audio/video confidence playback during recording
- 9-pin remote control interface
- Built-in time code generator/reader; time code genlock capability
- Input using component or composite signals
- Automatic backspace editing
- Built-in character generator \$19,000.00



BVW-22 Betacam SP Player

- Plays back Betacam SP (metal particle) and conventional Betacam (oxide) videotapes
- 4 audio channels feature 2 linear channels with Dolby Type-C NR and 2 AFM channels
- Dolby NR is automatically switched on when a metal tape is played and switchable when an oxide tape is played
- RM-770 wired/wireless remote control, supplied
- Recognizable monochrome pictures at 3.5X speed in search mode with instant lockup
- Built-in RF modulator
- Superimpose function
- Compact and rackmountable (4 units high) \$7,600.00



BVV-5 Betacam SP Recorder Unit

- Simultaneous playback of video and audio
- Can be operated as a combo camcorder when connected to BVP Series camera, or as a portable recorder VTR when connected to an optional VA-5 VTR adaptor
- 4-channel audio
- Built-in LTC, VITC, user bit generator with genlock capability
- Audio/video confidence playback
- Phantom power supply
- Built-in loudspeaker
- 8-digit LCD display
- Backspace edit
- 7 lbs., 3 oz. \$15,700.00



PVV-1A Dockable Recorder

- Designed to dock directly to the DXC-537A camera to make the PVW-537 camcorder
- 2 longitudinal audio channels with Dolby Type-C NR system
- Luminance or CTDM viewfinder playback
- Record review function
- Built-in LTC/VITC/user bits generator and LTC reader with external time code lock capability
- Frame accurate backspace editing without time code discontinuity at the editing points
- 8-digit display
- Built-in loudspeaker
- Phantom power supply . . . \$9,130.00

Optional Accessories

VA-5 VTR Adaptor

- When attached to the BVV-5, the BVV-5 can be operated as a stand-alone recorder
- Accepts composite or VA-5 component signals via the 26-pin connector from the camera head . . \$2,995.00

VA-500 Playback Adaptor

- When connected to the BVV-5 via a 20-pin connector, the BVV-5 can provide color playback and outputs either VA-500 or VHF RF signals \$3,325.00

BVU-950 SP U-Matic® Recorder/Player

- Sendust heads
- 340 TV lines
- Dolby NR Type-C
- 15kHz ±3dB
- 52dB S/N with Dolby NR off
- 72dB with Dolby NR on
- Dolby NR auto detection system
- Accurate audio insert editing
- Dial operation
- Built-in editing facility
- Speeds of still to 10X high speed picture search
- RS-422 serial interface (remote 1, 9-pin)
- TBC remote connector
- 24-pin parallel interface (remote 2, amphenol)
- External TBC connection
- Video/out -1/-2 two monitor output connectors \$14,900.00

BVU-950 PAC Digital Noise Reduction (DNR) Package

- Includes: (1) BVU-950, (1) BKU-901A Time Base Corrector, (1) BKU-902 Noise Reducer \$20,523.00



UVW Series Betacam SP Recorder/Players

- More than 90 minutes of playback time
- 2 longitudinal audio channels with Dolby Type-C noise reduction system
- Built-in time base stabilizer with digital dropout compensation
- Built-in SMPTE time code (LTC/user bits) reader
- RS-232C D-sub 25-pin interface for external computer operation
- Y-R/Y-B-Y component signal output via BNC connectors switchable to RGB output
- S-Video (Y/C separate) output connector
- Built-in character generator
- Initial setup menu to preset various detailed operation parameters
- UVW-1800 Editing recorder/player \$9,800.00
- UVW-1600 Editing player 8,260.00
- UVW-1400 Recorder/player 7,300.00
- UVW-1200 Player 5,375.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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SP U-MATIC RECORDERS/ PLAYERS



VO-9850/9800 SP U-Matic Videocassette Recorder/Players

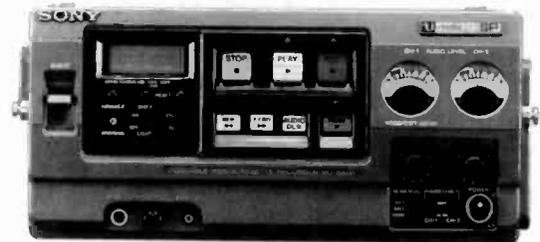
- Type-C Dolby noise reduction ▪ 9-pin RS-422 serial interface
- TBC connection ▪ Jog/Shuttle dial operation $\pm x^{1/30}$ to x^8 ▪ Dial menu operation ▪ Dubbing connectors ▪ Balanced audio with XLR connectors ▪ 8-digit LED counter ▪ Front panel can be slanted at a 0°, 30°, 60° or 90° angle for operational convenience ▪ 5 rack units high ▪ 47 lbs., 2 oz.

- VO-9850 With full automatic assemble and insert editing \$10,800.00
- VO-9800 Without full automatic assemble and insert editing 7,080.00
- BKU-703A 33-pin editing interface board for VO-9850/9800 536.00
- BKU-704 Time code reader for VO-9850/9800 1,179.00
- BKU-705 Time code generator/reader for VO-9850. Features regeneration to external time code, drop frame/non-drop frame, free run/record run, user bits enter 1,535.00

VP-9000 SP U-Matic Videocassette Player

- Automatic SP mode detection system ▪ Type C Dolby noise reduction with auto detection ▪ Sendust Head for improved signal-to-noise ratio ▪ XLR balanced audio connectors ▪ System versatility ▪ TBC connection facilities ▪ RS-232C interface capability ▪ 33-pin parallel remote control interface ▪ Real time counter ▪ Timer operation ▪ Programmed operation ▪ RF modulator ▪ 4-unit height/rackmountable ▪ Still picture ▪ Quick start ▪ Self-diagnostic functions ▪ 7.6"H x 16.7"W x 19.3"D ▪ 37.5 lbs.

- VP-9000 \$3,560.00



VO-8800 SP U-Matic Portable Videocassette Recorder/Player

- Type-C Dolby noise reduction ▪ Separate Y/C interface with camera ▪ Optional plug-in Time Code Generator capability with BKU-706 ▪ Video confidence ▪ Remaining tape time display ▪ Continuous battery operation ▪ Backspace editing ▪ Picture search ▪ 3-way warning system ▪ Built-in RF modulator ▪ Headphone jack ▪ Remote control ▪ Self diagnostics ▪ 13 lbs., 10 oz.

- VO-8800 \$4,750.00
- VO-8800 plus BKU-706 plug-in time code generator 5,861.00
- BKU-706 Plug-in time code generator for VO-8800. Features regeneration to external time code, drop frame/non-drop frame, free run/record run, user bits entry, reader capability 1,427.00
- CMA-8A AC adaptor for VO-8800 and camera 705.00
- LC-8800 Carrying case for VO-8800 340.00
- AH-8800 Carrying handle for the VO-8800 111.00



VO-9600 SP U-Matic Videocassette Recorder/Player

- Type C Dolby noise reduction with auto detection ▪ XLR connectors for balanced audio input/output ▪ Audio dubbing on channel 1 ▪ System versatility ▪ Sendust Head for improved signal-to-noise ratio ▪ TBC connection facilities ▪ Rotary 2-head helical scan system ▪ RS-232C interface capability ▪ 33-pin parallel remote control interface ▪ Real time counter ▪ Timer operation ▪ RF modulator ▪ 4-unit height/rackmountable ▪ Still picture ▪ Quick start ▪ Self-diagnostic functions ▪ 7.6"H x 16.7"W x 19.3"D ▪ 37.5 lbs.

- VO-9600 \$4,920.00

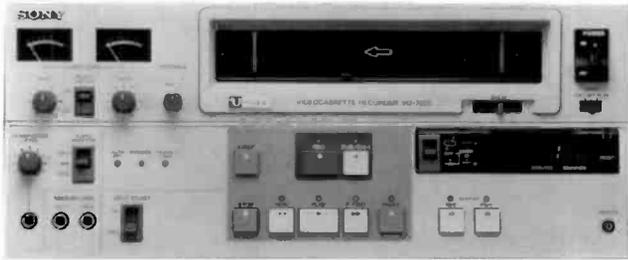
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

U-MATIC RECORDERS/ PLAYERS/REMOTE CONTROLS



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VO-7600/VP-7020 U-Matic Videocassette Recorders/Players

- Frame code and RS-232C interface capability
- 33-pin parallel remote control interface
- External sync
- Timer operation
- Optional wired/wireless remote control (RM-690 or RM-770)
- Picture search
- Still picture
- Long pause with tape protection
- Programmed operation
- 4 units high rackmountable
- Digital hour meter
- Self-diagnostics
- RF modulator
- Audio dubbing on channel 1
- 7.6"H x 16.7"W x 19.4"D
- 37.5 lbs.

VO-7600 Recorder/player \$3800.00
VP-7020 Player 2170.00



VP-7040 U-Matic Videocassette Player

- PAL/SECAM/modified NTSC
- Picture search 5X fwd/rev
- Wireless/wired remote control (optional)
- Still picture
- LED real time counter
- External sync input
- Optional frame code and RS-232C capability with BKU-701
- Optional 33-pin remote control capability with BKU-702
- Self-diagnostic functions
- 7.6"H x 16.7"W x 19.3"D
- 35.31bs. \$3050.00

BKU-701 Interface Board

- Computer interface board which reads frame code and provides an RS-232C interface for Type 7 and 9 U-Matics \$489.00

BKU-702 Interface Board

- 33-pin parallel interface board for Type 7 and 9 U-Matics . . . \$613.00

IF-500 Interface Box

- Multiple interface box, enables interfacing between Sony VO/VP, SLO, BVH BVU, BVW, BVE series. \$1617.00

RFK-634 RF Modulator

- Switchable CH3/CH4 RF modulator for Type 7 and 9 U-Matics
- Switchable CH3/CH4 RF modulator for Type 7 and 9 U-Matics \$169.00

RM-555 Multi-Unit Remote Controller

- Simultaneous control with RM-500 or RM-580: up to 5 VTRs controlled simultaneously; up to 4 RM-555s can be connected in series for control of up to 20 VTRs
- Sequential record/playback with DA-500 or VCS-500: up to 5 VTRs can be controlled to record or play back in one sequence or in continuous sequences; timer operation capability permits unattended operation
- Individual control with VCS-500 and RM-V5: any 1 of up to 5 VTRs can be selected with the RM-V5 for control by an RM-500, RM-580 or RM-440. VCS-500 will select appropriate video and audio outputs. RM-300 or RX-303/RX-353 can be used for random access multi-VTR operation \$2853.00

RM-580 Remote Control Unit

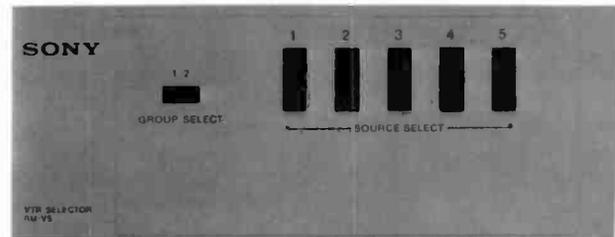
- Bidirex search dial
- Controls Stop, FF, Play, Rew, Pause, Search (Bidirex Dial), Rec, Edit, Preroll
- LED tape timer, includes frame counts
- DC operation (power supplied from VTR)
- Preroll start jack for remote start
- Cable length 10' can be extended to 60' \$1040.00

RM-690 Remote Control Unit

- For VO-8800, Type VII U-Matics, VP-9000, VO-9600 and BVU-150
- Handheld
- Wired operation
- Controls FF, Rew, Rec, Play, Pause, Stop and Search \$187.00

RM-770 Remote Control Unit

- For VO-8800, Type VII U-Matics, VP-9000, VO-9600 and BVU-150
- Handheld
- Wired or wireless operation with supplied wire and plug-in sensor
- Controls FF, Rew, Rec, Play, Pause, Stop and Search \$211.00



RM-V5 VTR Selector

- Up to 5 VTRs can be selected
- 1 out of 5 selection with VCS-500
- Selection can be expanded to 1 out of 1-4 or 1 out of 5-9 using VCS-500 group selector switch
- Remote cable length 10' with 20-pin connector can be extended up to 160' \$361.00

VCS-500 Video and Audio Switcher

- 5 video inputs (BNC), 2 channel audio (RCA) and 2 dub-in inputs (7-pin)
- Video output (BNC), 2 channel audio output (RCA) and dub-out (7-pin)
- 1 sync input (BNC) and 5 sync outputs (BNC) for external sync-lock operation
- Vertical interval switching
- Interface with RM-V5 or RM-555
- Dual VCS-500s can be used for control of up to 9 inputs
- Power consumption: 20W \$1931.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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Hi8/8mm RECORDER/ PLAYERS



EVO-9850 Hi8 Recorder/Player

- Superior editing picture quality
- High luminance FM carrier of 7MHz and a wide deviation level of 2MHz
- 400 TV lines of resolution and a high S/N ratio
- Built-in digital noise reduction
- 4-channel audio
- Incorporates both PCM digital stereo and AFM analog stereo recording systems
- Can record or play back both the video Hi8 and Video 8 formats
- Assemble and insert capability
- Built-in time base corrector
- Sound monitoring in the jog mode
- Built-in 8mm time code
- Frame accurate editing
- Dial menu operation
- S-Video in/out connectors
- Optional SMPTE generator/reader
- Quick response mechanism
- 3 rack units high, 19" rackmountable \$7600.00



EVO-540 8mm Recorder/Player

- 230 lines resolution
- Auto repeat function
- Preset program and playback
- Auto play
- High durability
- AC/DC operation
- Picture search and clean still/reverse
- External sync capability
- Function lock capability
- Cue-in connector
- Microphone input . . . \$1216.00



EVO-9800A Hi8 Feeder/Recorder

- SMPTE compatible time code out via 9-pin remote, built-in chroma noise reducer
- Time code after recording capability
- U-Matic dub out
- Gentle tape tension regulation system ensures longer tape life \$6170.00



EVO-220VID 8mm Recorder/Player

- Quasi playback capability of Hi8 recorded tapes
- SP/LP mode recording
- Quick-start recording, AFM Hi-Fi stereo audio recording
- Bilingual or stereo program sound monitoring
- AC/DC operation \$1000.00

EVO-9720 Hi8 Recorder/Player

- Twin-deck desktop editor
- 7.0MHz high luminance FM carrier frequency along with wide 2MHz frequency deviation provides 400 TV lines of horizontal resolution
- Digital noise reduction (YNR/CNR)
- Digital DOC (Drop-Out Compensator)
- S-Video in/out connector
- High fidelity audio
- RS-232C interface ports
- External sync input
- GPI out terminal
- Provides 2 ways to assemble editing when using the supplied RM-E9720 edit controller—Quick Edit or Program Edit
- Slow/freeze edit function
- Black/white fader
- 8mm time code generator/reader and RC time code read capability
- Audio signal flow indicator
- Background color generator
- Still timer
- PCM/AFM audio mix ratio volume \$8170.00

EVV-9000 Hi8 Dockable Recorder

- Directly dockable with DXC-325 camera
- 400 TV lines horizontal resolution
- Built-in 8mm time code generator
- Y/C separate video input
- PCM and AFM audio
- Built-in ear speaker
- Rec/review function
- Audible alarm tone \$3650.00
- VA-90 VTR adaptor for EVV-9000 994.00



EVO-9650 Hi8 Recorder/Player

- Computer controllable
- Single frame recording
- Built-in frame buffer
- 400 lines resolution
- S-Video in/out
- Digital noise reduction
- Digital special effects
- Insert for video/PCM audio and time code
- Includes RM-9650 remote \$6550.00

EVM-8010R 8" Color Monitor/8mm VCR Combination

- 8" black face Trinitron
- 230 TVL resolution
- DC audio/video/headphone outputs
- Audio/video inputs
- 8mm format front loading VCR
- Optional infrared remote control
- Record SP mode
- Playback SP or LP mode \$1646.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

**S-VHS/VHS
RECORDER/PLAYERS**



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SVO-9600 S-VHS Hi-Fi Recorder/Player
 ■ 4-channel audio system (2 Hi-Fi/2 normal channels with Dolby NR)
 ■ 90dB of wide dynamic range in Hi-Fi recording ■ Auto repeat/auto
 rewind/counter memory function by programmed operation ■ Timer
 "play" function for unattended VTR operation ■ S-Video out
 connectors—4-pin DIN ■ Sync "in" connector (BNC) **\$3350.00**

SVP-9000 S-VHS Hi-Fi Player
 ■ Same as the SVO-9600 except player only version. **\$2670.00**

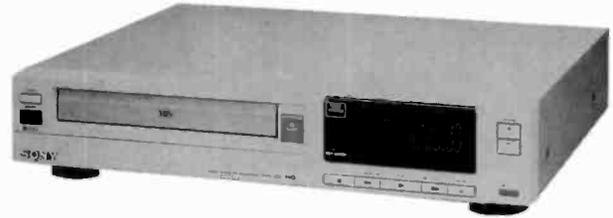


SVO-5800 S-VHS Recorder/Player
 ■ Built-in TBC ■ Chroma process improvement ■ 4-channel audio
 playback system ■ Dolby noise reduction ■ Frame accurate editing
 ■ Built-in SMPTE time code reader ■ 9-pin remote interface
 ■ Character superimposition ■ On-screen setup menu
 ■ Correspondence to 16:9 wide screen ■ Auto head cleaner ■ S-Video
 signal output (4-pin DIN) **TBA***

SVP-5600 S-VHS Player
 ■ Same as the SVO-5800 except player only **TBA***



SVO-1610 VHS Hi-Fi Recorder/Player
 ■ HQ circuitry ■ Hi-Fi stereo ■ 4 double azimuth heads ■ SP/LP/
 EP recording/playback ■ Endless auto repeat playback ■ Sensor
 recording ■ Sequential playback ■ Power-on recording/playback
 ■ VISS (Video Index Search System) ■ Dual mode shuttle ring
 ■ Auto tracking ■ Key inhibit ■ Auto head cleaner ■ Anti-theft
 mechanism ■ BNC video input/output ■ Control-S input/output
 (VTR-3) mode only ■ TV 8-pin connector (output only) ■ 3-pin AC
 power plug **\$765.00**



SVO-1410 VHS Recorder/Player
 ■ HQ circuitry ■ SP/LP/EP modes for both recording and playback
 ■ DA 4 heads ■ Noiseless clear still ■ Auto repeat ■ Index search
 ■ Control-S (input only) ■ TV 8-pin connector (output only) ■ Key
 inhibit switch ■ Anti-theft hook ■ 3-pin AC power plug **\$576.00**

SVO-1300 VHS Recorder/Player
 ■ Monaural 2-head design ■ Extremely compact and lightweight
 (only 8 lbs. 9 oz.) ■ Dual mode shuttle ring ■ SP/LP/EP mode
 recording capability ■ Auto head cleaner ■ Control S in terminal for
 remote operation ■ Supplied remote control ■ HQ circuitry for high
 quality picture ■ Rental picture function on/off **\$440.00**



SVO-1250 VHS Recorder/Player
 ■ Monaural 2-head design ■ SP/LP/EP mode recording/playback
 ■ Auto head cleaner ■ Optimum Picture Control (OPC) system
 automatically changes the frequency response according to the S/N
 ratio of the tape being played ■ Auto tracking ■ Control S in terminal
 ■ Auto power on and auto rewind ■ Supplied wireless remote control
 ■ Weighs only 8 lbs. 9 oz. **\$370.00**

SVP-1210 VHS Hi-Fi Player
 ■ Dual Azimuth (DA) 4-head design ■ Tape stabilizer ■ VHS Hi-Fi
 stereo sound ■ Rapid Access Tape Transport System for quicker
 image access ■ High speed rewind ■ Auto repeat ■ Auto tracking
 ■ SP/EP/LP playback capability ■ Control S terminal ■ BNC video out
 connector ■ Supplied wireless remote commander **\$485.00**

SVP-1000A VHS Player
 ■ Monaural 4-head design ■ Tape stabilizer ■ Rapid access tape
 transport system ■ High speed rewind button ■ On-screen menu
 ■ Auto tracking ■ Auto repeat ■ Control S terminals **\$330.00**
 *To Be Announced

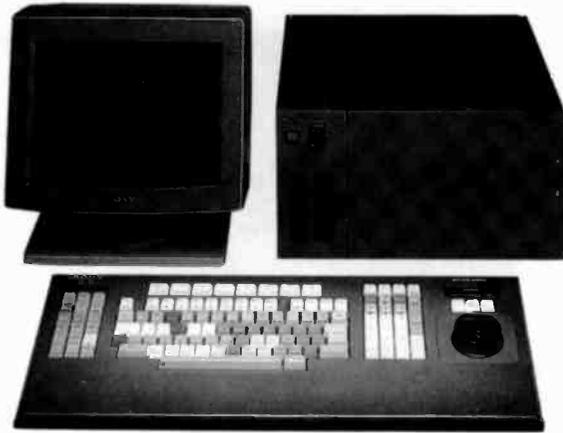
ADDITIONAL PRODUCTS-AVAILABLE. PLEASE CALL.

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EDIT CONTROLLERS



BVE-9100+ Edit Controller

- Full nonlinear operation when used with digital disk recorders
- Expanded control of learn/recall of the production equipment built around itself and extensive data management as well
- Synchronized jog feature with BZE-9102 V1.2 advanced operating software, giving the user simultaneous jog control over a VTR, a digital disk recorder and the keyframe effects of a switcher and digital effects system
- The implementation of 9-pin protocol allows the BVE-9100+ to download a number of edits as a sequence of events to a digital disk recorder; the digital disk recorder then executes these as a seamless pass preview
- EDL management capability has been enhanced in addition to the full list management functions which were already available on the BVE-9100
- The maximum number of edits in a single EDL has been increased to 9998 edits
- Auto-B roll means you no longer have to make a manual copy when performing an A/B roll edit with both sources required from the same reel
- Archive recorder function records all of the edits onto a separate VTR, keeping a history of the edit sessions on tape
- Option of adding a graphic display to enhance the operability and data display by presenting the relevant video frames on a high resolution 1280 x 1024 display
- Has enough memory to capture 1 second of video around a point specified by the editor
- Switchable 525/625 operation

BVE-9100+ \$16,500.00

BVE-2000 Version 2 A/B/C Roll Edit Controller

- Enhancements to the original BVE-2000 have been added, including: Color VDU capability
- DMC Learn
- Audio mixer initial panel
- Display process delay adjustment
- Arithmetic function
- TBC snapshot for digital Betacam
- Switcher preview function
- Setup for data storage to floppy disk
- Save/recall of PF key data
- In addition to the dedicated keyboard a QWERTY type keyboard has been developed

- Original BVE-2000 Features:**
- Connects to a maximum of 12 VTRs and controls up to 6 simultaneously
 - Variable speed control over VTRs equipped with Dynamic Tracking™
 - Full recorder assignment; monitor switcher interface ensures correct previews will be made
 - 4 VTR audio channels can be independently controlled during insert of split editing
 - For Sony D-2 and Digital Betacam VTRs which incorporate pre-read capability, the BVE-2000 provides control of this feature on an edit-by-edit basis
 - LTC (Longitudinal Time Code), VITC (Vertical Interval Time Code) or CTL (Control Track) based editing can be independently selected for each VTR
 - Crosspoint assignment, wipe pattern recall, keyers and other switcher functions can be controlled
 - Separate control of downstream keyer function
 - Pop-up window menus
 - Graphic display shows current edit status
 - Supports both 90-pin serial control using ESAM II protocol and a 15-pin parallel connector to interface to a variety of audio mixers
 - 6 alphanumeric characters can be used to specify source tapes being used for editing
 - 20 programmable function keys store 255 keystroke sequences in memory
 - Advanced match frame edits
 - Up to 998 events can be stored in EDL memory system and data is protected by backup battery in case of power failure
 - Built-in 3.5" floppy drive
 - 8 standard GPI ports
 - 2 RS-232 ports

BVE-2000 Version 2 \$10,560.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



320



EDIT CONTROLLERS



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FXE-100 Video Editing System

- Provides 3 switchable RS-422 and RS-232C ports for control over 2 players and 1 recorder
- Time code, CTL (Control Track Signal) and 8mm time code accepted as editing references
- Editing can be performed in assemble or insert mode
- Split edit function
- 99 events can be stored in the memory system
- EDL data can be saved and loaded onto the floppy disk via the provided RS-232C port which interfaces to an IBM/PC compatible computer
- 2 buses with a frame synchronizer in each
- A variety of wipe patterns, including picture scroll and slides, are programmed into the FXE-100
- A range of mix effects such as mosaic mix, black and white mix, posterization and mix and picture-in-picture are provided
- As all of the special effects can be set separately to the video sources of each bus, wipe or dissolve of the sources with digital effects can be executed
- Effective 2-machine editing
- Chromakeyer and luminance keyer superimpose characters, figures or video sources onto the background scene
- GPI input/output
- Accepts both composite and Y/C video signals
- 4 blackburst outputs
- 1-dial, 1-monitor operation \$7200.00



BVE-600 Automatic Edit Control Unit

- A/B roll editing with Type C, Betacam®, BVU and VO Series VTRs
- Serial remote control of 3 VTRs (2 playback, 1 record)
- Reads VTR time code and CTL pulses
- Split audio/video edits
- Automatic audio mixer control for audio/video coordination
- Dynamic Motion Control with Sony Dynamic Tracking™ VTRs
- Plug-in video switcher options with wipe, dissolve, superimpose
- Assemble and insert edits
- 2-channel audio control
- Easy 2 search dial operation for record and playback VTRs, similar to the familiar cuts-only edit units
- Convenient editing with Go To, Last X and Fast Mark In features \$8580.00



PVE-500 A/B Roll Edit Controller

- 3 RS-422 9-pin remote control interfaces for 2 players and 1 recorder
- Variable speed control over VTRs equipped with Dynamic Tracking
- Accepts time code, control track signal and relative time code as editing references (any of these can be set separately for each VTR)
- Editing data for 99 edits can be stored in the built-in EDL
- Audio split capability allows the audio edit-in point to be set separately from the video edit-in point
- Can remote control an audio mixer, allowing audio-follow-video editing
- For save/load of EDL data onto a floppy disk, an RS-232 interface port is provided for interface to a compatible PC
- GPI output enables basic control of peripheral equipment such as audio tape recorders and title generators which cannot be directly interfaced with the PVE-500. \$3650.00



RM-450 Editing Control Unit

- Interfaces among Betamax™, U-Matic®, U-Matic-SP, Betacam™ and 1" VTR formats
- 33-pin and 9-pin connectors for various VTRs
- Can reference off of control track (CTL), time code or relative time code (RTC)
- Variable preroll lengths
- Shuttle/jog modes
- Dynamic Tracking functions (noiseless slow-motion, freeze) with VTRs having Dynamic Tracking capability
- Error indicators with audible warning
- Assemble or insert editing
- Split editing (insert mode only)
- Butt editing
- Quick editing
- Trim functions
- Preview/review functions
- Tape protection function prevents tape damage
- Cue out connector for tally signal
- 3-position synchronization selector for absolute precise editing
- VTR time delay pinch learning capability (memory)
- Easy data pre-setting (preroll, edit timing, etc.) through 2 DIP switches \$1950.00

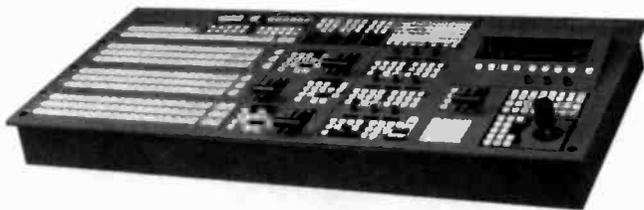
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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DIGITAL VIDEO SWITCHERS



DVS-8000 Composite/DVS-8000C Component Digital Video Switchers

- A total of 32 primary/external key inputs—DVS-8000: 8 channels of composite serial digital video (standard), 24 channels of composite analog or composite serial digital video (option); DVS-8000C: 32 channels of component serial digital video (standard) ▪ 24 inputs are assigned as primary sources and 8 for external key sources
 - 2 M/E buses plus program/preset bus with mix/wipe/DSK capabilities ▪ Clean Chromakey™ system for each M/E bus (option)
 - 2 independent key processors with priority control for each M/E bus
- | | |
|---------------------------|--------------|
| DVS-8000 Composite | \$ 80,810.00 |
| DVS-8000C Component | 110,315.00 |

are used for foreground and background sources, resulting in clear key edges ▪ The component switcher takes both sources from any primary inputs, while the composite switcher requires exclusive analog component signals for chromakey sources ▪ RGB Chromakey (DVS-6000 only) uses component signals from exclusive inputs for foreground source and composite signals from primary inputs for background source ▪ Powerful effect memories—the contents of the memory can be saved onto and loaded from a 3.5" floppy disk via a built-in floppy disk drive

DVS-6000 Composite	\$50,265.00
DVS-6000C Component	60,100.00



DVS-6000 Composite/DVS-6000C Component Digital Video Switchers

- Incorporates M/E architecture which is simple to use for those familiar with conventional analog switchers ▪ 32 primary inputs
- 2 mix/effect banks and a downstream keyer ▪ With the downstream keyer and the 2 keys provided in each of the M/E banks, 5 simultaneous key layers are possible ▪ Modular design allows easy system integration with existing analog equipment
- "Shotbox" function offers instant recall of effects, making the switchers suitable for live operation ▪ Superb interface capability with other Sony digital equipment enables configuration of powerful and compact post-production systems ▪ Control panel is menu-driven, not conventional button-per-function design for more user-friendly operation; electroluminescent display prevents menu structure from being complicated ▪ Super Mix™ capability allows a full amplitude contribution from both buses at the mix mid-point for artistic effect
- Clean Chromakey is common to both models; component signals



DVS-2000C 4:2:2 Component Digital Video Switcher

- 4 serial digital inputs ▪ Accepts up to 16 serial digital inputs in a single mix/effects (M/E) bank ▪ Allows mixed operation of analog and digital component video inputs ▪ Up to 3 keys including a DSK can have powerful modifiers and a high quality chromakey effect ▪ Dynamic priority control of the 2 keys provided on the M/E bank ▪ DME/WIPE™ feature allows integrated control of the DME-3000 digital multi-effects system ▪ 8 matte generators with color mix capability ▪ Up to 99 snapshot memories available for storing panel status ▪ Dedicated control panel with integral LCD screen
- | | |
|-----------------|-------------|
| DVS-2000C | \$21,000.00 |
|-----------------|-------------|

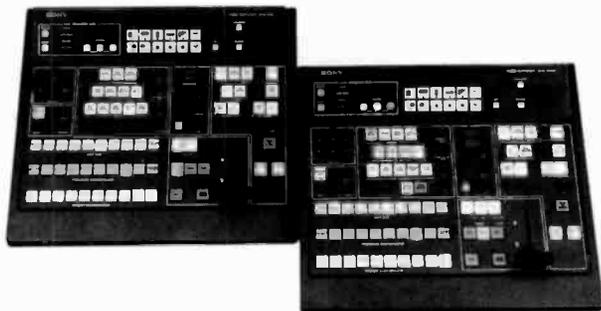
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SWITCHERS/EDIT CONTROLLERS



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BVS-3100/BVS-3200/BVS-3200C Video Switchers

- 1 or 2 linear keyers and standard E-FILE™ switcher memory
- Multiple layer mix/effects architecture for both live and post production
- Linear downstream keyer (DSK)
- Linear keying provides component chroma key, key/fill selection, key mask, key priority and DSK border controls as standard
- 8 loophrough primary inputs plus black and color background
- 2 program outputs, 1 preview output
- 2 external key sources and fills for use by the M/E keyer(s)
- Chroma key input with 3 BNC connectors for both RGB and Betacam signals
- 1 composite external key mask input
- Downstream keyer features separate external key source and fill
- Built-in sync generator for peripheral equipment reference
- RS-422 interface through 9-pin D-sub connector
- Tally connector assignable to Primary inputs, External Key source/fills and DSK source/fill
- Transition rate adjustable from 0 to 999 frames in single steps
- 10 basic patterns for Wipe transitions, plus 8 matrix patterns stored in ROM
- "Flip-flop" transitions for automatic transfer of input in Preset Bus to Program Bus
- 1 linear M/E keyer (BVS-3100) and 2 independent linear M/E keyers (BVS-3200)
- Standard component video chroma key accepts both RGB and Betacam format signals
- Adjustable box mask and external key mask available to both M/E and downstream keyers
- Standard Border Line, Drop Shadow and Outline features on DSK

BVS-3100 Composite \$14,600.00

BVS-3200 Composite Video Switcher

- 2 keyers plus DSK
- 10 primary inputs including color-black and color background
- 10 basic and 8 matrix wipe patterns with modifiers
- Fully adjustable internal Box Mask and Ext Mask input

BVS-3200 \$20,000.00

BVS-3200C Component/Composite Video Switcher

- 10 primary inputs including color-black and color background
- 2 keyers plus DSK
- Composite/component mixed operation possible
- RGB, Y/R-Y/B-Y or Betacam (12-pin) inputs available
- Fully adjustable internal Box Mask and Ext Mask input

BVS-3200C \$28,800.00

SEG-2550A Color Special Effects Generator

- The E-FILE function, which memorizes and reproduces the setting of switches and buttons and the movement of the controls, levers and sticks, is adopted
- A total of 137 wipe patterns
- 8 video inputs and 4 bus lines (A, B, PGM and PST) for special effects (Mix, Wipe and External Key)
- Built-in downstream keyer
- Shadow and edge adjustment for the key signal
- Built-in sync generator
- 4 blackburst signal outputs for synchronization of video equipment
- SC and H phase indicators for easy phase adjustment
- 19" rackmountable
- Torque adjustment of the effects levers

SEG-2550A \$10,920.00

DES-500 Destiny™ Video Workstation Bundles

- Incorporates a DFS-500 for switcher and DME effects, a 3-VTR edit controller and a 2-channel audio processor
- Operates using a supplied 486/66 PC
- Performs all effects in real time
- On-screen animated icons, ANIMICONS, give you a visual preview of each effect

DES-510 Includes 486/66 PC, DES-500, BZDE-500 software, EDLEXPRESS software, DFS-500 mainframe only, audio speakers and SVGA board for PC \$28,500.00

DES-520 Same as DES-510 with DFS-500 control panel .. 32,500.00

DES-530 Same as DES-510 except does not include DES-500 mainframe or control panel 15,500.00

Note: DES-500 bundles are not sold as separate components and an SVGA monitor such as CPD-1304S, CPD-1604S or GDM-1936 and a video monitor are required.



DFS-500 Digital Multi-Effects Switcher

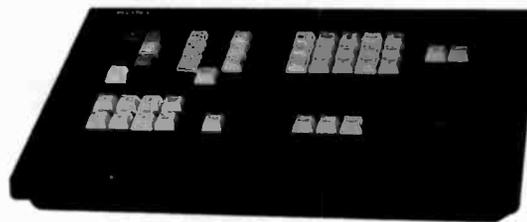
- 2-D, 3-D, linear and nonlinear effects
- Dropshadow, trails and lighting effects can be easily created using an optional board
- Over 200 factory preset patterns
- 4 primary inputs, a fader lever and title keyer
- Accepts input signals in composite, component (Y, R-Y, B-Y) and S-video formats. Any combination of these signal formats can be used within the system
- Processes all input signals in the digital component domain

DFS-500 \$18,000.00

BKDF-501 Trail and lighting board 5,230.00

BKDF-502 Downstream keyboard 2,430.00

BKDF-503 Rackmount kit 212.00



DME-450 Digital Multi-Effects Switcher

- May be used as a switcher with digital effects with an edit controller for 2-machine or A/B roll editing, or as the digital effects source for the BVS-3000 switcher series
- 3 primary video inputs plus color background
- 5 transition speeds
- 3 sync outputs for system reference
- Over 280 effects stored in ROM
- 2 built-in field memories
- Freeze function permits A/B roll-like editing when only 2 machines are used, with an RM-450 or BVE-600 edit controller
- Title function for superimposing foreground sources over background video
- Key signal output for use with other switchers such as the BVS-3000 series or the SEG-2550A
- Accepts external cue pulses from an RM-450 or BVE-600 for triggering effects
- Serial interface included for control from a BVS-3000 series switcher or BVE-910 editor

DME-450 \$5,300.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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MULTI-EFFECTS PROCESSORS



DME-9000 (SYSTEM-G) Digital Multi-Effects Processor

- Allows simple, fast, interactive creation of complex objects of revolution
- Controls menu monitor and displays a central axis of revolution and a profile outline
- Specific object is created in real time by deforming the profile outline and/or shifting the axis of revolution to produce the desired output
- Can map incoming video to the created object
- Once an object has been created, you can deform the surface of the object
- All internal video processing uses 10 bits and the component serial digital input and output signals are also 10-bit format
- Also provides an 8-bit key channel
- Utilizes adaptive field/frame conversion
- Anti-aliasing filter
- Keyframe animation in the DME-9000 allows you to develop sequences of effects up to 60 seconds in duration
- Extensive range of standard digital effects ranging from simple 2-D linear all the way to 3-D non-linear

DME-9000 \$224,910.00



DME-5000 Digital Multi-Effects Processor

- At home in either composite or component environments with only a change of input/output boards
- Employs frame-based processing which uses 3 field memories for storing data
- Automatically switches to field-based processing when the signal contains movement
- Anti-aliasing filter
- Combines a wide range of 2-D/3-D effects such as slide, squeeze, expansion, split, 3-axis rotation and perspective with superb picture quality
- Can function as an independent digital multi-effects system
- A stand-alone

control panel is used to control picture manipulations and to program key frames

- The 3-axis joystick, transition lever, numeric keypads and various pushbuttons are functionally arranged for easy operation with a minimum of keystrokes
- All operational information is provided on a large Electroluminescent (EL) display
- Key channel input/output
- Keyframe effects can be linked with the DVS-8000/C and DVS-6000/C keyframe effects
- Keyframe menu shows up to 4 channels of DME-5000 timelines, a DVS timeline and a Global Channel timeline independently for integrated operation
- When interfaced with the BVE-9100, both keyframe effects and VTR replay can be run in synchronization at variable speeds by use of the editor jog/shuttle control

DME-5000 \$55,620.00



DME-3000 Digital Multi-Effects Processor

- Perfectly handles either composite or component video signals with just a change of input/output boards
- All signals are processed in 10-bit resolution, contributing to high quality picture manipulation
- In the digital component mode, digital signals from VTRs are directly processed in the 4:2:2 mode; in the analog component mode, signals are A/D converted at a sampling frequency rate of 13.5MHz for the luminance signal and 6.75MHz for each of the color difference signals; in the composite mode digital signals are processed in the DME-3000 without bit rate conversion
- Frame-based picture processing
- Anti-aliasing filter
- A variety of visual effects from 2-D to 3-D nonlinear such as rotation, perspective, skew, slide, page turn and sphere
- Video modifying effects such as solarization, posterization, mosaic, defocus and negative
- Designed to interface with and complement Sony switchers, editors and VTRs

DME-3000 \$21,855.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

COLOR MONITORS



SONY

Business and Professional Group



BVM-2811 28" Color Monitor

- CPU based control system enables combinations of display parameters such as aspect ratio, signal standard and internal/external sync to be assigned to the monitor inputs and held in 4 memories for later recall at the touch of a button
- Specifically designed for critical signal evaluation use
- 16:9 aspect ratio CRT
- 750 TV lines horizontal resolution

BVM-2811 \$26,250.00

BVM-1912 19" Color Monitor

- Auto convergence and geometry adjustment
- Stabilized color temperature is obtained by employing a beam current feedback
- Picture setup switch adjusts incoming video level alignment for accuracy
- Up to 6dB of aperture correction at 4.5MHz and 6.5MHz, selectable
- Built-in cross hatch and white signal generator (100 IRE)
- Split screen (upper half: color mode; lower half: monochrome mode)
- Blue only mode with monochrome display for noise component evaluation
- Lockable pull-out drawer
- Comb filter
- Overdrive protection circuit
- Provided with D-sub 9-pin RS-422 interface for future available remote control unit
- 19" rackmountable

BVM-1912 \$14,035.00



BVM-1911 19"/BVM-1311 13" Color Monitors

- CPU control system for enhanced monitor operations and remote control flexibility
- Aspect ratio is switchable between 4:3 and 16:9
- Stabilized color temperature is obtained by employing a developed beam control unit
- Unique picture setup switch adjusts incoming video level alignment for accuracy
- Up to 6dB of aperture correction at 4.5MHz and 6.5MHz selectable
- H. delay/V. delay functions are provided to check the horizontal and vertical syncs simultaneously
- Built-in cross hatch and white signal generator (100 IRE) for easy monitor alignment
- Split screen (upper half: color mode; lower

- half: monochrome mode) for precise picture confirmation
- Blue only mode with monochrome display to evaluate noise components precisely
- Digital 4:2:2 input capability (with optional BKM-2085)
- Auto/manual degaussing
- Provides SMPTE C and EBU standard phosphors to meet customer requirements
- The AFC switch provides 3 modes (fast/normal/slow)
- Overdrive protection circuit
- 19" rackmountable

BVM-1911

- Resolution of 900 TV lines at 30fL
- Raster size stability within 1% from 0 to 30fL
- Precise convergence; convergence errors are less than 0.4mm at the center and 0.7mm at the edges

BVM-1911 \$9,540.00

BVM-1311

- Resolution of 700 TV lines at 40fL
- Raster size stability within 1% from 0 to 40fL
- Precise convergence; convergence errors are less than 0.3mm at center and 0.6mm at the edges

BVM-1311 \$6,815.00



BVM-1916 19"/BVM-1316 13" Color Monitors

- CPU control system for enhancing monitor operating conditions and remote control flexibility
- Aspect ratio is switchable from 4:3 to 16:9
- Auto setup (with the optional probe BKM-2053 and adaptor BKM-2056) with capability of fine adjustment
- SMPTE C standard phosphors
- Stabilized color temperature obtained with a beam current feedback
- Component (Y, R-Y, B-Y) and R, G and B inputs standard
- Selectable NTSC comb filter: 2-line simple comb filter/3-line dynamic comb filter (supplied with BKM-1412)
- Optional plug-in type decoder boards available for PAL, SECAM and PAL-M operation (supplied with BKM-1410 for NTSC)

BVM-1916 \$6,815.00

BVM-1316 \$5,110.00

BVM-8044Q 8" Color Monitor

- Component serial digital interface terminal
- Aspect ratio is selectable from 4:3 and 16:9
- High resolution CRT assures 450 TV lines horizontal resolution at center (composite video)
- Stabilized color temperature with a beam current feedback circuit
- Analog component (Y/R-Y/B-Y or RGB), Y/C and analog composite video inputs
- NTSC comb filter
- Accepts external sync
- Tally input
- Blue only, H/V delay, underscan capability

BVM-8044Q TBA*

*To Be Announced



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PVM-2930/BS 29" Cubic Color Monitor

- 600 TV lines resolution
- Prismatic cube shape, can be stacked both vertically and horizontally
- Auto white balance with beam current feedback
- 16:9 aspect ratio
- Index remote control
- 2000 character display with RGB input
- Quad standard — PAL/SECAM/NTSC/NTSC 4:43
- 5W amplifier per channel stereo amplifier
- Component input (Y/R-Y/B-Y)

PVM-2930/BS TBA*

PVM-2030/BS (20")/ PVM-3230/BS (32") Cubic Color Monitors



- 560 lines resolution
- Prismatic cube shape, can be stacked both horizontally and vertically
- Monitor function controls replaced by a hidden front touch panel embedded under the monitor's thin frame
- 2000 character display with RGB input
- Delay line aperture control uses comb filter with notch switch
- Dynamic Focus™ circuitry with electromagnetic quadrupole lens
- Velocity Modulation™ scanning system continually adjusts the speed of the electron beam
- Auto white balance with beam current feedback
- 3 video inputs, BNC loopthrough, 8-pin VTR input and a 25-pin connector for RGB
- 5W amplifier (PVM-2030/BS)
- Unswitched AC input allows other monitors or video equipment to be directly connected

PVM-2030/BS \$1430.00

PVM-3230/BS 3190.00

PVM-1954Q 19"/PVM-1354Q 13" Color Monitors

- 600 lines horizontal resolution
- Accurate color matching
- Beam current feedback circuit
- NTSC comb filter
- Various input terminals such as component (Y/R-Y/B-Y), RGB, Y/C and composite for flexible use
- Will accept NTSC, PAL and SECAM signals; NTSC 4.43 can also be reproduced
- Caption vision decoder
- External sync
- 4:3/16:9 capability
- Color temperature is changeable among 6500K/9300K/user preset (3200K to 10,000K)
- Blue only mode
- Underscan, H/V delay capability
- Automatic color control (ACC) off mode
- Auto/manual degaussing
- Auto chroma/phase setup
- On-screen menu
- Remote/tally
- Sub control mode
- User preset memory
- Rackmountable

PVM-1954Q \$2345.00

PVM-1354Q 1390.00

PGM-2710 27" Graphic Color Monitor

- Accepts analog RGB signals with a horizontal frequency of 31.5kHz and a vertical frequency of 60/70Hz (switch selectable)
- Accepts sync on green
- Remote operation capability of power on/off with a custom made selector (wired)
- Input impedance of H/V sync signal switchable, 75 ohms
- H/V shift and H/V size control for preferable picture positioning and sizing
- Auto/manual degaussing
- Ideal for applications where a large information display is required, such as in airports and other public venues

PGM-2710 \$1985.00

GVM-2020 20" MultiScan Color Monitor

- MultiScan capability: horizontal 15kHz-36kHz, vertical 50Hz-100Hz
- A high resolution of 720 x 480 pixels (RGB)/560 TV lines (composite video)
- Multiple inputs with audio inputs; composite video, Y/C and analog/digital RGB inputs
- Can be used with IBM PC with CGA/EGA card, IBM PS/2 and Apple Macintosh II color mode
- Beam current feedback circuit for stable color reproduction
- 8/16/64-color and monochrome display capability
- Slot type RGB input modules for future I/F board
- Horizontal shift and horizontal/vertical size controls in RGB mode
- Sub picture control for RGB mode



GVM-2020 \$1870.00

GVM-1311Q/GVM-1316TSQ 13" MultiScan Color Monitors

- MultiScan capability: horizontal 15kHz-36kHz, vertical 50Hz-100Hz
- High resolution of 1024 x 768 pixels (RGB)/600 TV lines (composite video)
- VGA auto size function in RGB A mode
- Multiple inputs with audio inputs; composite video, Y/C and analog/digital RGB inputs
- Can be used with IBM PC with CGA/EGA card, IBM PS/2 and Apple Macintosh II color mode
- Built-in speaker and earphone jacks for audio monitoring
- Horizontal and vertical size/shift controls in RGB mode
- Slot type RGB input for future I/F board
- 8/16/64-color and monochrome display capability
- Sub picture control for RGB mode
- Shielded especially to prevent the leakage of VLF (Very Low Frequency)/ELF (Extremely Low Frequency) magnetic fields



GVM-1311Q \$1515.00

GVM-1316TSQ Same as GVM-1311Q plus touch screen . . 3010.00

CKV-20HX1 20" Color Monitor

- Highblack™ Trinitron® tube
- Multi-channel TV sound (MTS)
- Matrix surround sound system
- Supplied remote control unit
- Closed caption display
- Multi-band VHF/UHF/CATV tuner is capable of receiving up to 125 cable channels and several VHF/UHF channels for a total of 181 possible channels
- S-Video, 8-pin and composite video input terminals, allowing many signal sources to be connected
- Headphone jack for audio monitoring
- Ideal for when both TV reception and viewing of various video signals are required

CKV-20HX1 \$685.00

CKV-20DST1 20" Color Monitor

- Highblack Trinitron tube
- Multi-band VHF/UHF/CATV tuner is capable of receiving up to 125 cable and several VHF/UHF channels for a total of 181 possible channels
- Video/audio input with loop out
- Closed caption display
- Supplied remote control unit

CKV-20DST1 \$525.00

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MONOCHROME/COLOR MONITORS



SONY

Business and Professional Group

PVM-1351Q 13" Color Monitor

- 450 lines horizontal resolution
- Stable color balance with the beam current feedback circuit
- Comb filter for precise Y/C separation
- Component (Y/R-Y/B-Y), RGB, Y/C and composite video inputs
- External sync output
- Caption vision decoder
- Aspect ratio is switchable between 4:3 and 16:9
- Underscan, blue only mode, H/V delay for signal evaluation
- Color temperature is switchable between 6500K/9300K user preset (3200 to 10,000K) (factory preset 6500K)
- Auto/manual degaussing
- Auto chroma/phase setup
- On-screen menu
- Sub control mode shifts adjustable range on the knob controls
- User preset memory for brightness, chroma, phase, contrast, volume and aperture control settings

\$1085.00

PVM-1350 13" Color Monitor

- 450 lines horizontal resolution
- Stable color balance with the beam current feedback circuit
- Auto chroma/phase setup
- Comb filtering for precise Y/C separation
- RGB, Y/C and composite video inputs available
- Blue only mode available
- 6500K color temperature
- Auto/manual degaussing
- On-screen menu facilitates adjustment/operation
- Caption vision decoder

\$950.00

PVM-1390 13" Fine Pitch Trinitron Color Monitor

- 450 lines resolution
- S-Video connector
- Analog/digital RGB input allows microcomputer connection
- Dual video inputs (BNC, 8-pin/S-Video)
- Computer input (D-sub, 25-pin)
- Sound monitoring capability
- NTSC color system

\$745.00

PVM-1380 13" Trinitron Color Monitor

- Picture tube: black face Trinitron 14", visible picture size 13" measured diagonally
- Horizontal resolution: 250 TV lines at center
- 25 lbs., 6 oz. ■ 14.4"H x 14"W x 16.1"D

\$395.00

PVM-8044Q 8" Color Monitor

- High resolution of 450 TV lines at center (composite video)
- 3 inputs: component (Y, R-Y, B-Y or analog RGB), Line A (composite video or Y/C), Line B (composite video)
- Beam current feedback circuit
- Accepts external sync and sync on green
- Blue only, HV delay, underscan capability
- 19" EIA standard rackmountable
- AC/DC operation capability
- Wired remote control capability
- Built-in speaker
- Tally input

\$1495.00

PVM-8041Q 8" Color Monitor

- 3 inputs: component (Y, R-Y, B-Y or analog RGB), Line A (composite video or Y/C), Line B (composite video)
- Employs beam current feedback circuit for stability in color balance
- Accepts external sync and sync on green
- Blue only, HV delay, underscan capability
- 19" EIA standard rackmountable
- AC/DC operation capability
- Wired remote control capability
- Built-in speaker
- Tally input

\$1060.00



PVM-8040 8" Color Monitor

- Can be used as basic monitoring device
- Employs beam current feedback circuit for stability in color balance
- Composite video or Y/C input with audio input
- 19" EIA standard rackmountable
- Built-in speaker

\$895.00

PVM-5041Q 5" Color Monitor

- 220 TV lines horizontal resolution
- Especially suited for field operation
- Beam current feedback circuit
- Comb filter for NTSC
- Component (Y/R-Y/B-Y) and composite video inputs
- Normal scan/underscan
- Pulse cross
- Blue only mode
- AC/DC operation
- Audio monitoring
- Carrying handle

\$1165.00



PVM-411 4" Quadruple Monochrome Monitor

- 4 independently controlled 4" screens (measured diagonally)
- Fits EIA standard 19" rack
- Individual unit shielding
- Loop-through capability
- Individual front-mounted contrast, brightness
- V-hold and H-hold controls

\$1860.00

PVM-136 13"/PVM-96 9" High Resolution Monochrome Monitors

- Compatible with EIA and CCIR systems
- Aspect ratio is switchable between 4:3 and 16:9 to accommodate wide screen formats
- Horizontal resolution of 1000 TV lines for PVM-136 and 900 TV lines for PVM-96
- Convenient operating functions such as underscan, H/V delay, notch filter and tally lamp
- Accepting external sync signals, the monitors can be synchronized with other equipment
- Built-in speaker
- Metal cabinet minimizes signal interference

PVM-136 **\$920.00**
 PVM-96 **710.00**

PVM-135 13"/PVM-95 9" High Resolution Monochrome Monitors

- Compatible with EIA and CCIR systems
- Horizontal resolution of 1000 TV lines for PVM-135 and 900 TV lines for PVM-95
- Accepting external sync signals, the monitors can be synchronized with other equipment
- 2 composite inputs (line A/B) are available
- Built-in speaker
- Metal cabinet minimizes signal interference

PVM-135 **\$565.00**
 PVM-95 **415.00**



TU-1040 Tuner

- Tuner for PVM 8" and 5"
- For VHF, UHF, and CATV use
- Direct tuning by 10-key PLL
- Channel memory function
- Auto memory function
- Dual language audio selectable
- MB-512 monitor mounting bracket for 8" and 5"
- MB-510 19" rackmount kit
- AN-1040 antenna with F connector
- 3 power sources available: AC, DC 12V and battery (NP-1 type)

\$430.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SONY

Business and Professional Group



DAT RECORDERS/ WORKSTATION

PCM-7000 Series 2-Channel DAT Recorders

- Allows flexible system configurations with 3 recorders and a full range of options for each recorder
- Sophisticated electronic editing capability
- SMPTE/EBU time code recording/reading
- Memory start for instant-start playback
- Synchronized operation with video/audio equipment
- Time code chase synchronization (PCM-7050/7030 with appropriate options)
- 4-head construction for RAW (Read-After-Write) and RMW (Read-Modify-Write)
- Search/location capability
- Variable speed playback in a range of $\pm 12.5\%$
- Switchable sampling frequencies of 48kHz and 44.1kHz (PCM-7010 supports recording and playback of digital audio data sampled at 32kHz)
- Controlled from Sony video editor BVE-9100/910 or digital audio editor DAE-3000
- 19" rackmountable with optional rail/adaptor RMM-30/31

PCM-7050 PAC

- Top of the line model recommended for use as the recorder in an editing system
- Millisecond accurate editing capability . . . \$12,000.00

PCM-7030 PAC

- Optimized for use as a player in an editing system
- Ideal also for use in on-air or integrated audio/video systems \$9,750.00

PCM-7010

- An affordable recorder suited for simple on-air applications
- Recording/playback of digital audio data sampled at 32kHz. \$4,350.00

PCM-7000 Series Options and Accessories

RM-D7300 Editing Remote Controller ■ Provides comprehensive control over editing operations with PCM-7050 and PCM-7030 via Sony 9-pin serial interface ■ Makes it easy to input time code address, various ID codes and program numbers ■ Enables gain control of both analog and digital inputs in the digital domain when used with PCM-7050 with DABK-7055 \$4,865.00

RM-D7200 Dual Remote Controller ■ Provides remote control of 2 recorder transports \$2,585.00

RM-D7100 Remote Controller ■ Provides remote control of recorder transport functions of PCM-7050/7030/7010 via 37-pin parallel interface \$685.00

DABK-7030/7010 Time Code Reader/Generator ■ Provides capability of reading and generating SMPTE/EBU time code ■ Enables recorder to operate in synchronization with an external video sync signal ■ Provides time code chase synchronization facility to PCM-7050/7030 (DABK-7030)

DABK-7030 \$1,620.00
DABK-7010 1,220.00

DABK-7031/7011A/7011B Digital I/O ■ Conforms to the AES/EBU format (all models); offers unbalanced (IEC-958) digital I/O (DABK-7011A/7011B) and Sony SDIF-2 interface (DABK-7011B) ■ Allows recorder to lock to an external word sync signal

DABK-7031 \$540.00
DABK-7011A 555.00
DABK-7011B 665.00

DABK-7032/7012 Memory Start ■ Uses 4M-bit digital memory to give an instant start playback facility to PCM-7030/7010

DABK-7032 \$1,080.00
DABK-7012 1,105.00

DABK-7033/7013 Computer Interface (RS-232C) ■ Enables recorder to be controlled from a computer RS-232C port ■ Useful for building up a sound effects library or a programmed playback system

DABK-7033 \$540.00
DABK-7013 555.00

DABK-7014 Remote Interface ■ Optional interface board for the PCM-7010 including serial remote interface connectors ■ Enables connection between the PCM-7010 and the RM-D7300 . . . \$380.00



PCM-E7700 DAT Workstation

- Excellent portability and simple operation
- Design is like that of a laptop computer with an EL display
- Both a player and a recorder, the unit weighs 18 lbs.
- No complex interfacing
- Employs EDL based auto-assemble editing, which significantly reduces editing time
- Edit-in and out points are displayed on the EL screen
- Up to 100 bars can be displayed on the screen as the EDL
- Auto Edit key initiates the complete editing sequence
- EDL and set-up data can be memorized in a backup memory
- Real time monitoring during auto editing and dubbing is provided, and detected errors can be automatically listed and reviewed in the ERROR REVIEW mode function
- Level and balance are adjustable, and their settings are stored along with the EDL and can be recalled during auto editing
- Real time jog capability with high sound quality
- RAW (Read-After-Write) function for real time monitoring
- Internal SMPTE/EBU/Film time code formats and absolute time code (A-Time) can be used during recording and dubbing by the PCM-E7700 for editing
- Headphone jack and unbalanced analog monitor outputs
- AES/EBU digital and balanced analog inputs

PCM-E7700 \$15,000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DIGITAL MIXER/ CD PLAYERS/MINIDISCS



SONY

Business and Professional Group



DMX-E3000 16-Channel Digital Audio Console

- Fully digital audio console designed for DVTR based video post production
- 16 into 4 configuration with additional 32 x 16 input router
- Control surface and signal processing matched the style of video switchers
- AES/EBU I/O ports, direct connection to DVTRs, PCM-3402, DAT etc.
- Video style monitoring with 4 internal preview buses and analog outputs via 20-bit D/A converters
- Optional EQ processing (3-band with HP and LP filters)
- Phase inversion and programmable delay (0-9.9 frames)
- Editor, auto and manual crossfade modes
- Assignable audio insert send and return
- Supports 48kHz (DVTR audio), 47.998kHz (HDVS transfer), 44.1kHz (CD) sample rates
- Video, word, DI inputs and Word output sync
- Serial video edit controller interface (Sony Serial and ESAM II)
- Parallel interface for GPIs and remote control
- Snapshot automation with 99 audio registers

Supplied Accessories

- 30m connecting cable (control panel/processor)
- 10m connecting cable (control panel/meter bridge)
- Rackmount kit
- Meter housing installation kit
- Operation and maintenance manual . . . \$29,200.00

Optional Accessory

DMBK-3000 Equalizer/Filter Unit

Equipped with the DMBK-3000, the DMX-E3000 provides assignable control of equalizer along with low/high cut filters \$4,540.00

CDP-3100 CD Player/CDS-3100 Remote

- 18-bit D/A conversion system with 8X oversampling, gives excellent sound quality and an outstanding dynamic range
- Jog Search Function operated from the CDS-3100 allows speedy and precise location of a desired source
- Preview "END" and "BEGIN" Functions. The END REHEARSAL function plays back the last 15 seconds of a selected track. The BEGIN REHEARSAL function makes it possible to play back from the beginning of a track
- 3 timer modes: remaining time, actual time and set time are selectable
- Variable speed playback
- AMS (Auto Music Sensing) function
- Cue point memory/last cue memory functions
- Fader start function

CDP-3100 \$3,475.00

CDS-3100 1,775.00

Options

DABK-3101 Memory Board

Provides instant memory start and a memory jog function with an accuracy of 1 CD frame \$585.00

DABK-3102 Interface Board

Allows control from a digital mixer or video editor via a 9-pin serial remote connector. AES/EBU digital output, reference video sync input, word sync input, D-1 sync input and timecode signals are provided. \$1,335.00

DABK-3103 Interface Board

Allows the CDP-3100 to be controlled from a DAE-3000 digital audio editor. SDIF-2 output and word sync input are provided . . \$3,175.00



MDS-B1 MiniDisc Recorder/ MDS-B2P MiniDisc Player

- Quick random access
- Program playback capability
- Auto pause and auto cue functions for rapid playback
- Easy-to-read FL display
- Switchable repeat-one and repeat-all modes
- Up to 74 minutes of digital recording and playback
- EOM (End of Message) function
- Excellent durability
- 19" rackmountable
- Remote control capability
- Balanced XLR analog outputs (L/R)
- Hours meter for maintenance scheduling

MDS-B1 Recorder \$3,000.00

MDS-B2P Player 2,200.00

CDP-2700 CD Player

- Ideal for broadcast stations and post-production houses
- Accommodates both 3" and 5" compact discs
- Built-in digital outputs conforming to the AES/EBU and unbalanced (IEC-958) formats
- Built-in DIN 8-pin remote control connector for enabling fader start/stop from a mixing console
- Auto cue playback for rapid start from a point where modulation is detected on the disc
- Variable speed playback ($\pm 12.7\%$ in 0.1% steps)
- Various playback modes including programmed playback, delete playback, etc.
- 19" rackmountable with supplied rackmount adaptor

Supplied Accessories

19" rackmount adaptor; AC power cable \$1,445.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SONY

Business and Professional Group



ANALOG MIXERS/ CASSETTE RECORDER



MXP-S390/MXP-P390 12-Channel Audio Mixers

- Analog audio consoles for video post production ▪ 4 mono, 8 stereo inputs, 4 program, 4 auxiliary and 4 monitor outputs ▪ Wide range of inputs; microphone, balanced line, unbalanced line
 - Advanced machine assignable using the configuration and preview switches ▪ Unique monitoring capabilities with monitor switching matrix ▪ Video edit control of crossfades and monitoring ▪ Depth-of-fade control and local switch for each input channel
- MXP-S390 Serial Version—Incorporates a D-sub 9-pin remote interface which conforms to the industry standard ESAM II extended protocol. This provides comprehensive external control from a wide range of video editors, such as the BVE-2000/9100 systems (with appropriate optional boards installed) \$7500.00
- MXP-P390 Parallel Version—Provides Sony standard parallel remote interfaces for flexible control from appropriate Sony editing equipment 6770.00

MXP-210 8-Channel Audio Mixer

- Suitable for a variety of institutional audio/video applications
 - 8 channels of balanced Mic/Line inputs, plus unbalanced line (6 channels) and phono (2 channels) inputs ▪ 30dB trim on microphone and balanced line inputs ▪ 48VDC external power switch on microphone channel ▪ 3-band EQ, 2 aux sends and PFL on each channel ▪ 2 sub-inputs with level and panpot control
 - 2 external monitor inputs and switch ▪ Separate L and R master faders ▪ Two 15-segment VU meters ▪ 1kHz test tone oscillator
 - Talkback microphone, talkback output and "talk to master" switch
 - Headphone amplifier \$2400.00
- MXBK-200 Optional rackmount adaptor for the MXP-290/210. 112.00
- MXBK-201 Optional arm rest kit for the MXP-290/210. 285.00



MXP-290 8-Channel Audio Mixer

- Suitable for video editing applications in broadcast and video post-production ▪ Video editor control over VCA gain, preview switcher and monitor output mute via parallel 15-pin and 25-pin connectors
 - Local switchable-channel to disable editor control ▪ Wide range of inputs; 8 channels of balanced Mic or Line, unbalanced line (6 channels) and phono (2 channels) ▪ 30dB trim on microphone and balanced line inputs ▪ DC-48V external power switch on microphone channel ▪ 3-band EQ, 2 Aux sends and PFL on each channel ▪ 2 sub-inputs with level and panpot control ▪ 2 external monitor inputs and switch ▪ Separate L and R master faders ▪ Two 15-segment VU meters ▪ 1kHz test tone oscillator ▪ Talkback microphone, talkback output and "talk to master" switch
 - Headphone amplifier \$4300.00
- MXBK-200 Optional rackmount adaptor for the MXP-290/210. 112.00
- MXBK-201 Optional arm rest kit for the MXP-290/210. 285.00



TC-D5PROII 2-Channel Stereo Cassette Recorder

- Microphone inputs: Cannon connector XLR-3-31 (female) type
- AC/DC operation ▪ Dolby "B" noise reduction system ▪ Twin VU meters and LED peak level indicator ▪ Built-in monitor speaker and earphone jack let you check your recording results immediately \$999.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIRELESS MICROPHONE SYSTEMS



SONY®

Business and Professional Group

UHF Synthesized Wireless Microphone System

- 800MHz UHF band operation
- PLL synthesized wireless microphone system
- Space diversity reception system
- Pre-programmed channel plans
- LCD display for multiple information

UHF COMPONENTS

Transmitters

WRT-810A (CH) Handheld microphone transmitter with dynamic capsule. **\$890.00**



WRT-820A (CH) M166* Body-pack transmitter with ECM-166BC unidirectional electret condenser lavalier microphone. . . **\$890.00**



WRT-820A (CH) M77* Body-pack transmitter with ECM-77BC omnidirectional electret condenser lavalier microphone **\$1090.00**

WRT-820A (CH) M66* Body-pack transmitter with ECM-66BC unidirectional electret condenser lavalier microphone **1040.00**

WRT-820A (CH) M55* Body-pack transmitter with ECM-55BC omnidirectional electret condenser lavalier microphone **1040.00**

WRT-820A (CH) M44* Body-pack transmitter with ECM-44BC omnidirectional electret condenser lavalier microphone **940.00**

WRT-820A (CH) K116* Body-pack transmitter with K-1161 guitar adaptor. **895.00**

Receivers



WRR-820A (CH)* Single diversity receiver, 19" rackmount (1 space) **\$1455.00**



WRR-840A (CH)* Dual diversity receiver, 19" rackmount (1 space) **\$2175.00**

Tuners

WRR-810A68 Non-diversity UHF synthesized tuner with 6 pre-programmed channel plans which are factory-preset for use in a multi-channel operation at 1 location; LCD display; monitor jack; compander system for wide dynamic range and low noise. **\$1185.00**

WRR-860A68 Diversity version of the WRR-810A68 **5380.00**

Antenna Systems

WD-820A Antenna divider, rackmount (1 space) . . **\$1300.00**

AN-820A Active antenna **183.00**

UHF Multi-Channel Wireless Microphone System

This wireless microphone system is the answer to professional demands for a wireless microphone system featuring each of the 3 essentials of quality, reliability and versatility. The system offers extended dynamic range and the unique "Space Diversity Reception" assures failsafe operation as well as expands the possible service area. All units in the system are not only compact but also of the convenient plug-in type. The system can thus be adapted to many different applications with utmost precision.

UHF COMPONENTS Transmitters

WRT-28 Miniature pack transmitter with lavalier microphone (ECM-77B) **\$1770.00**



WRT-57 Microphone transmitter with back electret condenser capsule. **\$1320.00**



WRT-67 Microphone transmitter with dynamic capsule **\$1710.00**

UHF Transmitter Accessories

AD-27 12VDC adaptor for 500mW system **\$ 181.00**

AN-17 Headset mount transmitting antenna **250.00**

WP-27 500mW power amplifier **1060.00**

Receivers

WRR-28 Miniature portable receiver **\$2795.00**



WRR-37 Diversity receiver. **\$5570.00**

Racks, Cases and Attachments

BTA-37 Betacam attachment for WRR-37 **\$ 310.00**

PB-36 Portable base unit for 6 WRR-37s **7055.00**

SC-38 Carrying case for 28 Series **158.00**

Antenna Systems

AN-57 Ground plane antenna **\$ 193.00**

WB-57A Antenna booster **1080.00**

Adaptor and Battery

K-1108 DC adaptor for WRR-27/37 **\$103.00**

7MR9 9.45V cell for WRT-57 **8.00**

* Note: (CH) stands for the 2-character channel number. At the present time, Channel 68 is the only available channel; however, more channels are expected to be added in the future.

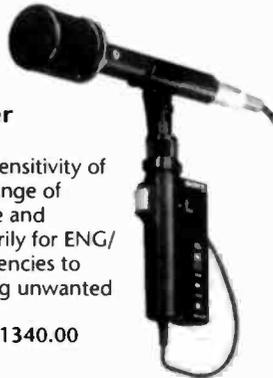
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ECM-531 Electret Condenser Microphone

- Designed for voice pickup and recording in PA systems
- Goose-neck and extendable stem for flexible microphone positioning
- Slim, elegant design
- Low-cut switch for enhanced sound intelligibility
- LED power indicator
- Frequency response: 70-18,000Hz
- Sensitivity of -49dB
- S/N ratio of 64dB
- Supplied with windscreen

ECM-531 \$340.00



ECM-M55 Electret Condenser Stereo Microphone

- Frequency response: 70-20,000Hz
- Sensitivity of -40dB
- S/N ratio of 74dB
- Dynamic range of more than 108dB
- Supplied with cable and urethane windscreen
- Designed primarily for ENG/EFP
- Low cut switch rolls off low frequencies to achieve optimum recording by reducing unwanted noise or vibration pickup

ECM-M55 \$1340.00



ECM-23F3 Cardioid Back Electret Condenser Microphone

- Operates for more than 6000 hours with 1 AA size battery
- Suited to professional and creative use in recording and broadcast studios as well as sound reinforcement systems

ECM-23F3 \$295.00

ECM-44B Omnidirectional Lavalier Electret Condenser Microphone

- Miniature 1/2" x 1/2" 0.07 oz. microphone head
- Operation on 1 AA size battery
- Supplied holder clip and urethane windscreen

ECM-44B Black anodized finish \$245.00

ECM-55B Omnidirectional Lavalier Electret Condenser Microphone

- Omnidirectional electret condenser design
- Designed for miking musical instruments and voice pickup
- Frequency response range of 30-18,000Hz

ECM-55B Black anodized finish \$375.00



ECM-66B Unidirectional Lavalier Electret Microphone

- Wide-range, unidirectional back electret capsule
- Clean, natural reproduction of musical instruments
- Excellent isolation from the acoustic environment
- Power supply includes a battery on/off switch
- LED battery condition indicator
- Frequency range of 70-14,000Hz

ECM-66B Black anodized finish \$429.00



ECM-77B Omnidirectional Lavalier Microphone

- Fingernail-size—5.6mm
- Frequency response range of 40-20,000Hz
- Enables unobtrusive miking but reduces glare
- Permits intelligible voice reproduction even if the microphone is hidden inside a costume

ECM-77B Black anodized finish \$429.00

ECM-672 Unidirectional Back Electret Condenser Microphone

- Frequency range of 50-16,000Hz
- Operates on 1 AA size battery for 3000 hours
- LED battery condition indicator
- Built-in low cut filter operated by on/off switch
- Supplied urethane windscreen has a stopper to prevent it from falling off the microphone

ECM-672 \$585.00

C-76/C-74 Super Unidirectional Gun-Type Condenser Microphones

- For use in theaters, on sound stages, in large halls, in television studios and even outdoors
- Simply aimed at the sound source
- High sensitivity
- Broad frequency response
- Discriminate against background noise and unwanted sounds
- The C-74 is shorter than the C-76 and therefore slightly more maneuverable

C-74 \$1100.00

C-76 1220.00



C-535P/C-536P Unidirectional Condenser Microphones

- Inconspicuous
- C-535P is designed for on-axis sound pickup
- C-536P is designed for applications requiring minimum clearance and right angle pickup
- Frequency response of 30-16,000Hz
- Dynamic range of 116dB
- Output impedance is 200 ohms
- Maximum sound input pressure level is 138dB
- 48VDC phantom powered, equipped with a 10dB switchable pad and offer a Cannon XLR-3-12C type connector

C-535P/C-536P \$605.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEOTAPE



SONY®

PROFESSIONAL MEDIA

1" High Band V1-KQ Series Cardboard Box

Model	Master Carton Quantity	Price Each
V1-K-18BQ	5	\$ 56.77
V1-K-34BQ	5	83.51
V1-K-66BQ	5	122.55
V1-K-96BQ	5	186.52
V1-K-105BQ	5	218.09
V1-K-126AQ	4	258.01
V1-K-188AQ	4	418.39

D-1 Digital Video Master Cassettes

D1S-6	10	\$ 63.05
D1M-12	10	108.39
D1M-22	10	151.50
D1M-34	10	190.48
D1L-76	5	328.07
D1L-94	5	415.84

D-2 Digital Video Bulk Cassettes

D2S-3MNP	20	\$29.78
D2S-6MNP	20	39.46

D-2 Digital Video Master Cassettes

Model	Shell	Quantity	Price Each
D2S-6M	Small Shell	10	\$ 42.86
D2S-12M	Small Shell	10	76.14
D2S-22M	Small Shell	10	102.31
D2S-32M	Small Shell	10	134.63
D2M-6M	Medium Shell	10	42.86
D2M-12M	Medium Shell	10	76.14
D2M-22M	Medium Shell	10	102.31
D2M-34M	Medium Shell	10	134.63
D2M-64M	Medium Shell	10	196.24
D2M-94M	Medium Shell	10	296.55
D2L-105M	Large Shell	5	344.23
D2L-126M	Large Shell	5	409.55
D2L-156M	Large Shell	5	484.90
D2L-188M	Large Shell	5	606.22
D2L-208M	Large Shell	5	652.20

Betacam Oxide Series

BCT-5G	50	\$12.20	
BCT-10G	50	14.41	
BCT-20G	50	18.36	
BCT-20GSC	Shipper	50	18.36
BCT-30G	50	23.36	
BCT-30GSC	Shipper	50	23.36
BCT-30GL	Large Shell	10	32.14
BCT-60GL	Large Shell	10	58.91
BCT-90GL	Large Shell	10	77.73

Betacam Oxide Bulk Cassettes

BCT-5GNP	50	\$10.55
BCT-10GNP	50	13.93
BCT-20GNP	50	17.50



Betacam Metal Particle Professional Series

Model	Master Carton Quantity	Price Each
UVWT-10MA	50	\$ 40.61
UVWT-20MA	50	45.11
UVWT-30MA	50	49.63
UVWT-60MLA	10	70.39
UVWT-90MLA	10	110.32

Betacam Metal Particle Broadcast Bulk Cassettes

BCT-5MNPA	50	\$41.50
BCT-10MNPA	50	46.71
BCT-20MNPA	50	51.91
BCT-30MNPA	50	57.09

Betacam Metal Particle Broadcast Master Series

BCT-5MA	50	\$ 44.16	
BCT-10MA	50	47.77	
BCT-20MA	50	53.07	
BCT-20MSCA	Shipper	50	53.07
BCT-30MA	50	58.39	
BCT-30MSCA	Shipper	50	58.39
BCT-30MLA	Large Shell	10	58.39
BCT-60MLA	Large Shell	10	82.82
BCT-90MLA	Large Shell	10	129.80



Digital Betacam Cassettes

Model	Master Carton Quantity	Price Each
BCT-D6	40	\$ 66.24
BCT-D12	40	71.66
BCT-D22	40	79.61
BCT-D32	40	87.59
BCT-D40	40	92.15
BCT-D64L	10	124.23
BCT-D94L	10	194.70
BCT-D124L	10	248.30

U-Matic SP Series

KSP-S10	Mini	50	\$22.98
KSP-S20	Mini	50	26.57
KSP-10		50	24.14
KSP-20		50	27.73
KSP-30		50	31.18
KSP-60		50	40.89

U-Matic XBR Series

KCS-10XBR	Mini	50	\$21.16
KCS-20XBR	Mini	50	24.48
KCA-10XBR		50	22.20
KCA-20XBR		50	25.52
KCA-30XBR		50	28.70
KCA-60XBR		50	37.64

U-Matic BRS Series

KCS-10BRS	Mini	50	\$19.84
KCS-20BRS	Mini	50	21.66
KCA-10BRS		50	19.59
KCA-20BRS		50	20.82
KCA-30BRS		50	23.20
KCA-60BRS		50	32.30

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SONY®

PROFESSIONAL MEDIA



VIDEO/AUDIO TAPE



U-Matic Bulk Cassettes—Tabs In

Model	Master Carton Quantity	Price Each
KSA-5BRST	20	\$13.68
KSA-10BRST	20	14.75
KSA-15BRST	20	15.82
KSA-20BRST	20	16.93
KSA-30BRST	20	19.14
KSA-60BRST	20	27.89

Professional S-VHS Cassettes

Model	Master Carton Quantity	Price Each
MQST-30	40	\$18.41
MQST-60	40	19.89
MQST-120	40	20.95



Broadcast Grade Professional VHS Cassettes

Model	Master Carton Quantity	Price Each
T-30BA	50	\$ 8.65
T-60BA	50	9.98
T-120BA	50	11.90

Premier Grade Series Professional VHS Cassettes

Model	Master Carton Quantity	Price Each
T-30PM	50	\$ 8.65
T-60PM	50	9.98
T-120PM	50	11.90

Professional Grade VHS Cassettes

Model	Master Carton Quantity	Price Each
T-30PR	50	\$5.74
T-60PR	50	6.41
T-120PR	50	6.77

VHS Bulk Cassettes

Model	Master Carton Quantity	Price Each
TS-15S	50	\$3.45
TS-30S	50	3.88
TS-45S	50	4.47
TS-60S	50	4.99
TS-90	50	5.74
TS-10S	50	6.12
TS-120	50	6.50
TS-127	50	6.76
TS-160	50	6.81

Hi8mm Professional Packaged Cassettes

Model	Master Carton Quantity	Price Each
P6-30HMPX	50	\$14.28
P6-60HMPX	50	20.42
P6-120HMPX	50	27.63
P6-120HMPX/CC*	50	27.63

*Clear plastic case

Hi8mm Metal Evaporated Professional Packaged Cassettes

Model	Master Carton Quantity	Price Each
E6-30HMEX	50	\$20.02
E6-60HMEX	50	28.64
E6-120HMEX	50	38.75

8mm MP Series Packaged Cassettes

Model	Master Carton Quantity	Price Each
P6-30MPB	50	\$ 9.52
P6-60MPB	50	11.57
P6-120MPB	50	16.18

Professional DAT Digital Audio Cassettes

Model	Master Carton Quantity	Price Each
PDP-15	50	\$10.29
PDP-30	50	12.03
PDP-46	50	13.80
PDP-60	50	15.73
PDP-90	50	19.13
PDP-120	50	22.50

Professional DAT Digital Audio Cassette Album Packs (Includes 1 Tape)

Model	Master Carton Quantity	Price Each
PDP-30A	50	\$13.93
PDP-46A	50	16.93
PDP-60A	50	18.05
PDP-90A	50	21.25
PDP-120A	50	24.43

3/4" Digital Audio Cassettes

Model	Master Carton Quantity	Price Each
MDU-30	10	\$32.50
MDU-60	10	45.00
MDU-75	10	57.50

1/4" Open Reel Digital Audio Tape

Model	Master Carton Quantity	Price Each
D-1/4-730	20	\$ 41.25
D-1/4-1460	10	67.50
D-1/4-2190	10	125.63

1/2" Open Reel Digital Audio Tape

Model	Master Carton Quantity	Price Each
D-1/2-1460	5	\$131.25
D-1/2-2920	5	262.50

MiniDisc

Model	Master Carton Quantity	Price Each
MDW-60	5	\$13.99
MDW-74	5	16.99

Audio Cassettes

Model	Master Carton Quantity	Price Each
C60HF	100	\$ 2.18
C90HF	100	2.55
C120HF	100	2.69
C60UXPRO	100	6.23
C90UXPRO	100	7.20
C60MTLSR	100	4.85
C90MTLSR	100	5.88
M90SMMST	50	20.00

DAT Digital Audio Cleaning Cassette

Model	Master Carton Quantity	Price Each
DT-10CL	10	\$17.18

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



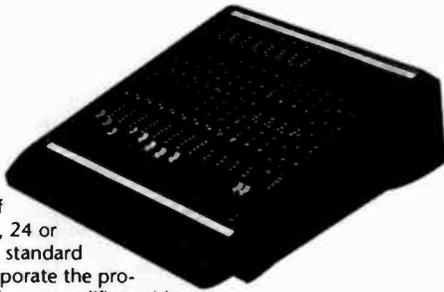
MIXING CONSOLES



Soundcraft USA

Delta Mixing Consoles

- Individual output connectors
- Can be specified with any combination of input modules—standard, deluxe, stereo and dual line—within any of the 4 frame sizes (8, 16, 24 or 32 channels)
- Both the standard and deluxe inputs incorporate the proprietary padless microphone amplifier, with a single control providing a sensitivity range of -2dBu to -70dBu
- Patented active panpot design which generates precise stereo imaging and allows the safe use of group outputs as individual mono sends
- Advanced EQ on the deluxe input modules include HF (12kHz) and LF (60Hz hybrid peak/shelf) sections
- Sweepable Hi Mid and Lo Mid sections give precise control over the vital midrange bands, together covering 150Hz to 10kHz



8-channel console	\$ 4,490.00
8-channel rackmount console	4,490.00
16-channel console	6,950.00
24-channel console	9,450.00
32-channel console	11,950.00

Delta SR Mixing Consoles

- Designed for all applications in which a compact professional PA mixer is required
- The output section includes 4 stereo returns as well as a 4 x 4 matrix with talkback to individual matrix outputs and a 2-track replay facility which allows auditorium music to be played while a sound check is in progress

8-channel console	\$2,950.00
8-channel rackmount console	2,950.00
16-channel console	4,650.00
24-channel console	6,150.00
32-channel console	7,950.00

Delta 8 Mixing Console

- Designed for both 8- and 16-track recording
- Includes meter bridge
- Circuitry designed for low crosstalk and distortion figures
- Ideal choice for studios using digital recording formats
- Classic split format completely modular
- 8 groups with a choice of 20, 28 or 36 input channels
- Mono input facilities include 6 independent auxiliary sends, 4-band sweep EQ and direct output facility—enabling any signal to be recorded directly to tape
- Two 2-track returns for use with stereo machines
- 2 control room monitor speaker outputs for selecting between main and nearfield speakers
- 16 monitor returns can be used as extra inputs during mixdown

20-channel console	\$11,395.00
28-channel console	14,795.00
36-channel console	17,995.00

Delta AVE Mixing Consoles

- Will interface with virtually any type of edit controller
- For stereo modules specify stereo option frame

Delta AVE With Mono Inputs (Serial Interface)

8-channel mono console	\$ 9,495.00
8-channel rackmount mono console	9,495.00
16-channel mono console	14,795.00
24-channel mono console	19,295.00

Delta AVE With Stereo Inputs (Serial Interface)

8-channel stereo console	\$10,995.00
8-channel rackmount stereo console	10,995.00
16-channel stereo console	17,495.00
24-channel with 16 mono and 8 stereo channels	20,175.00

Spirit Series Mixing Consoles

- When recording, the console has total input gain control, 2 foldback sends and a 4-band swept EQ
- Spirit Live 4 is ideal for demanding PA requirements
- Spirit Monitor is a stage monitor mixer with 8 monitor outputs, 16 segment bargraph metering and swept high-pass filters
- Spirit Folio professional portable mixer features 60mm linear faders on every input and master outs; comprehensive 3-band EQ with swept mid-frequency on mono inputs; high-pass filter on all mono inputs and 2 stereo inputs with 2-band EQ



Spirit Folio Consoles

6-mono + 2-stereo (10-2)	\$545.00
8-mono + 2-stereo (12-2)	695.00
8-mono + 2-stereo rack (12-2R)	695.00

Spirit Folio Si Consoles

8-stereo + 2 mono (18-2)	\$795.00
8-stereo + 2 mono rack (18-2R)	795.00

Spirit Folio 4 Console

12 mono + 4 stereo + 4 buses	\$1,795.00
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Spirit Live 3-Bus Consoles

Spirit 83 8-channel	\$1,345.00
Spirit 163 16-channel	2,445.00
Spirit 243 24-channel	3,545.00

Spirit Live 4-Bus Consoles

Spirit 1242 12-mono + 4-stereo	\$2,395.00
Spirit 1642 16-mono + 4-stereo	3,195.00
Spirit 2442 24-mono + 4-stereo	4,295.00
Spirit 3242 32-mono + 4-stereo	5,295.00

Spirit Monitor Consoles

Spirit 2481 24-channel	\$4,950.00
Spirit 3281 32-channel	5,950.00

Spirit Studio 8-Bus Consoles

Spirit 1682 16-channel	\$4,275.00
Spirit 2482 24-channel	6,195.00
Spirit 3282 24-channel	7,995.00

BVE 100 Audio-Follow-Video Mixing Console

- Externally controllable for audio-follow-video
- Individual VCA per channel
- Compatible with a wider range of video editors
- Optional serial control interface compatible with: GVG 100, ESAM 1, ESAM 2 and AMX100 communications protocols

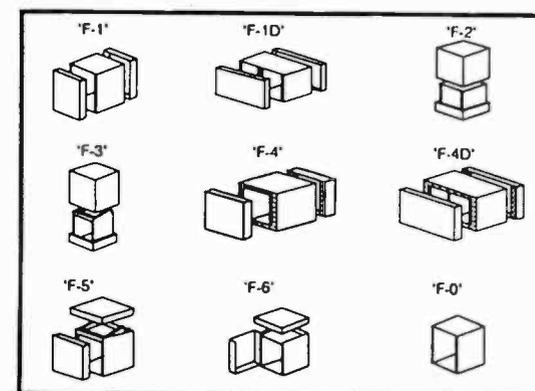
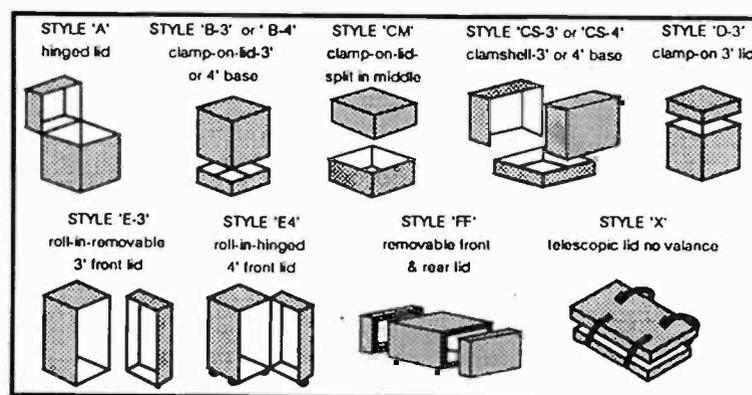


8-channel mono	\$ 6,150.00
16-channel mono	10,750.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

Star Cases

Star Case specializes in both customized case exteriors as well as customized case interiors. We can cradle and protect even the most fragile equipment. We work with numerous densities and grades of polyester and polyethylene foams, anti-statics, cubed foams, special cotton and synthetic material lining, hidden compartments, roll-out desk surfaces, roll-in ramps, and special partitioning devices for all types of audio, video, and computer magnetic media. Where permissible by design, all interior treatments and customizations area available on all Star Case types.



STARCASE TYPE	PLYWOOD THICKNESS	MEANS OF TRANSPORT	STYLES AVAILABLE	ATA* COMPLIANCE	COLOR CHOICES**
ULTRA STAR	1/2"	AIR & SURFACE	All closure & rack-mount style shown	YES	1-10
SUPER STAR	1/4"	AIR & SURFACE	All closure & rack-mount style shown	YES	1-10
ATA STAR (3/8")	3/8"	AIR & SURFACE	All closure & rack-mount style shown	YES	1-3
ATA STAR (1/4")	1/4"	AIR & SURFACE	All closure & rack-mount style shown	YES	1-10
CARRY STAR	1/8"	SURFACE	All closure & rack-mount style shown	NO	1-4
EXPO STAR (1/4")	1/4"	SURFACE	Style X only	NO	1-10
EXPO STAR (1/8")	1/8"	SURFACE	Style X only	NO	1-4

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PORTABLE LIGHTING KITS



FLIGHT AND LOCATION KITS

- Selection of luminaires and accessories in tough durable cases for people on the move
- Developed specifically for ENG, video and motion picture production vehicles
- Choice of 9 kits
- Lightweight and varied assortment meet any requirement
- Designed for speedy setup and knock-down
- Can be used for 220V operation



Pulsar™

- Lightweight and compact open-faced floodlight with wireguard
- Designed for portable and video lighting
- Variable beam from 21° to 71°
- Cool heat-resistant polyester/glass fiber fixture with red/orange finish housing
- Supplied with 12' power cable with in-line switch and molded GR connector

Mizar™

- Smallest focusing fresnel in the Quartzcolor range
- Ideal for situations where lighting detail, key light or special effects are required from

a concealed source • 2-part cast alloy body • Black finish with wireguard, special yoke for compact rigging with 3/8" female socket and 11 1/2" power cable with in-line switch and molded GR connector

Bambino™

- Powerful "baby" size 1000W fresnel
- Specifically designed for location lighting, rental applications and for situations where physical size is a problem
- Black with wireguard, mounting yoke fitted with dual-purpose 1/2" male spigot with 3/8" female receiver, 23' power cable with in-line switch and molded GR connector

ladi™

- Compact, high power fill and cyc light
- Ideal for small video and TV studios and on location
- Yoke has 3/8" female socket for stand mounting or optional C-clamp
- Black finish with wireguard, integral barndoors (with gel clips) and 12' power cable with in-line switch and molded GR connector

lanebeam™ Redhead

- Lightweight and compact open-faced floodlights
- Ideal for location and video lighting
- Quick and easy to use focus control
- Heat-resistant polyester/glass fiber fixture housing
- Yoke has 3/8" female socket for stand mounting or optional C-clamp
- Orange finish with 12' power cable with in-line switch and molded GR connector

lanebeam Blonde

- Lightweight high-power variable beam floodlight
- Widely used for ENG, outside broadcast and location lighting
- Reflector focus control improves lamp life
- Yoke has 3/8" female socket for stand mounting or optional C-clamp
- Yellow finish with 16' power cable with in-line switch and molded GR connector

Flight Kit #1 (3901)

- 3-4515MP Pulsar 600W
- 3-1310 4-leaf barndoor
- 2-1225 Full double scrim
- 2-1226 Full single scrim
- 2-1227 Half double scrim
- 2-1228 Half single scrim
- 3-1529 Stands
- 1-1977 Case \$1500.00

Flight Kit #2 (3902)

- 3-3102 Mizar 500W fresnel
- 3-1310 4-leaf barndoor
- 2-1225 Full double scrim
- 2-1226 Full single scrim
- 2-1227 Half double scrim
- 2-1228 Half single scrim
- 3-1133 Color frames
- 3-1529 Stands
- 1-1977 Case \$1775.00

Flight Kit #3 (3903)

- 2-4515MP Pulsar 600W
- 1-3102 Mizar 500W fresnel
- 3-1310 4-leaf barndoor
- 2-1225 Full double scrim
- 2-1226 Full single scrim
- 2-1227 Half double scrim
- 2-1228 Half single scrim
- 3-1133 Color frames
- 3-1529 Stands
- 1-1977 Case \$1500.00

Location Kit #1 (3904)

- 2-3201ST 5" 1000W Bambino
- 2-1143 Color frame
- 2-1306 4-leaf barndoor
- 2-1200 Full double scrim
- 2-1205 Full single scrim
- 2-4503MP lanebeam 1000W
- 2-1216 Half double scrim
- 2-1217 Half single scrim
- 2-1324 Barndoors
- 2-1230 Accessory holders
- 4-1535 Stands
- 1-1978 Case \$2525.00

Location Kit #2 (3905)

- 2-3201ST 5" 1000W Bambino
- 2-1143 Color frame
- 2-1306 4-leaf barndoor
- 2-1200 Full double scrim
- 2-1205 Full single scrim
- 2-3102 Mizar 500W fresnel
- 2-1225 Half Double scrim
- 2-1226 Half single scrim
- 2-1310 Barndoors
- 2-1133 Color frames
- 2-1535 Stands
- 1-1529 Stands
- 1-1978 Case with casters ... \$2675.00

Location Kit #3 (3906)

- 2-4503MP lanebeam 1000W (Redhead)
- 2-1230 Accessory holder
- 2-1324 4-leaf barndoor
- 2-1216 Full double scrim

- 2-1217 Full single scrim
- 3-4523 ladi fill 1000W
- 1-1963 Gaffers grip
- 4-1535 Stands
- 1-1978 Case with casters ... \$2425.00

Location Kit #4 (3907)

- 4-4503MP lanebeam 1000W (Redhead)
- 4-1230 Accessory holder
- 4-1324 4-leaf barndoor
- 2-1216 Full double scrim
- 2-1217 Full single scrim
- 4-1535 Stands
- 1-1978 Case with casters ... \$1995.00

Location Kit #5 (3908)

- 3-4501MP lanebeam 650W (Redhead)
- 3-1230 Accessory holder
- 3-1324 4-leaf barndoor
- 2-1216 Full double scrim
- 2-1217 Full single scrim
- 3-1535 Stands
- 1-1978 Case with casters ... \$1550.00

Location Kit #5 (3908)

- 2-4505MP lanebeam 2000W (Blonde)
- 3-1325 4-leaf barndoor
- 1-1221 Full double scrim
- 1-1222 Full single scrim
- 1-1223 Full double scrim
- 1-1224 Full single scrim
- 2-1535 Stands
- 1-1979 Case with casters ... \$1625.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CD80™ Dimmer Packs With Digital Control

- Rugged dimmer packs for portable and permanent applications
- Full range of capacities: 24–1.2kW, 12–2.4kW, 6–6kW or 6–12kW
- Full range of output connectors: pin connectors, twist locks and parallel blades or terminal strip output for permanent installations
- Plug-in digital command module
- Automatic multiple protocols—automatically selects for DMX 512, AMX 192 and Fiber Optic (DMX 512) with active protocol LED display
- Overlapping simultaneous 0 to +10V analog control output
- Illuminated push buttons for local control (full/normal) plus “panic” feature for instant on
- Input and output XLR connectors for daisy-chaining packs
- RS-232C serial port for interfacing capability
- Entire pack UL and CSA approved as an assembly and appropriately labelled
- Simple phase change from single phase 3-wire to 3 phase 4-wire
- Toroidal chokes for high-quality filtering

CD80 Digital Pack 1.2kW

Digital dimmer pack with twenty-four 1.2kW dimmers. Includes low noise cooling fan and primary circuit breakers.

- 8324 CD80 1.2kW pack, 24 dimmers, primary circuit breakers, one 20A GTL connector per dimmer . . . \$5900.00
- 8325 CD80 1.2kW pack, 24 dimmers, primary circuit breakers, one 20A GP connector per dimmer . . . 5400.00
- 8326 CD80 1.2kW pack, 24 dimmers, primary circuit breakers, one 20A GR connector per dimmer . . . 5300.00
- 8327 CD80 1.2kW pack, 24 dimmers, primary circuit breakers, terminal strip output 4980.00

CD80 Digital Pack 2.4kW

Digital dimmer pack with twelve 2.4kW dimmers. Includes low noise cooling fan and primary circuit breakers.

- 8524 CD80 2.4kW pack, 12 dimmers, primary circuit breakers, two 20A GTL connectors per dimmer . \$4000.00
- 8525 CD80 2.4kW pack, 12 dimmers, primary circuit breakers, two 20A GP connectors per dimmer . . . 3950.00
- 8526 CD80 2.4kW pack, 12 dimmers, primary circuit breakers, two 20A GR connectors per dimmer . . . 3950.00
- 8527 CD80 2.4kW pack, 12 dimmers, primary circuit breakers, terminal strip output 3700.00

CD80 Digital Pack 6kW

Digital dimmer pack with six 6kW dimmers. Includes low noise cooling fan and primary circuit breakers.

- 8566 CD80 6kW pack, 6 dimmers, primary circuit breakers, one 60A GTL connector per dimmer . . \$3980.00
- 8567 CD80 6kW pack, 6 dimmers, primary circuit breakers, one 60A GP connector per dimmer . . . 3900.00
- 8568 CD80 6kW pack, 6 dimmers, primary circuit breakers, terminal strip output 3700.00

CD80 Digital Pack 12kW

Digital dimmer pack with six 12kW dimmers. Includes low noise cooling fan and primary circuit breakers. Choice of portable pack with one 100A Cam-loc/GP connector per dimmer or wall mounted pack with terminal strip for wiring.

- 8563 CD80 12kW pack, 6 dimmers, primary circuit breakers, one 100A Cam-loc/GP connector per dimmer \$4950.00
- 8564 CD80 12kW pack, 6 dimmers, primary circuit breakers, terminal strip output 4500.00

Accessories

- 8215 Digital pack controller for 24–1.2kW CD80 dimmer packs \$1500.00
- 8216 Digital pack controller, to retrofit analog 2.4kW, 6kW, and 12kW CD80 dimmer packs or as a spare 1300.00
- 8179 Touring case for CD80 packs 698.00

LD90™ 220V Digital Dimmers

▪ Digital dimming system for 220V regions with choice of dimmer “blocks” for custom requirements at an economical price

▪ Local control panel for local programming and rack status

▪ Smooth 2000-step fade resolution

▪ 99 programmable preset memories per rack

▪ Programmable choice of backup memory when Mux signal is not present

▪ System Wide Control (SWC) for setting and selection of internal programmable memories using the SWC programmer

▪ Handheld SWC programmer option provides simple direct control of all dimmers for focusing

▪ Multiplex or analog control input

▪ Second DMX control input option

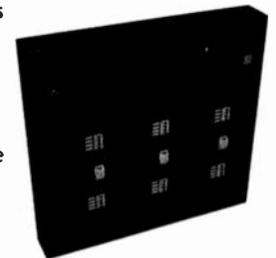
▪ 2 analog control signal outputs for auxiliary equipment such as houselight dimmers, relays etc.

▪ Fluorescent control modes including unique “kick start” to ensure smooth dimming with 220V high-frequency European electronic ballasts

▪ Data security—setup data can be stored on a personal computer

▪ Available as complete racks or as component parts to construct custom configured racks

▪ Suitable for use with Outlook™ controls



LD90 24—2.4kW

A standard rack configuration comprising three 220V power blocks, each with eight 2.5kW dimmers and a choice of MCB/terminal configurations. NDT version has Neutral Disconnect Terminal blocks for circuit checking using high-voltage testers, SPN are fitted with Neutral Switch MCBs which give double pole isolation from the AC supply but trip only on phase overload.

- 74102 LD90 24—2.5kW, single-pole MCB POR*
- 74104 LD90 24—2.5kW, single-pole MCB (NDT) POR*
- 74105 LD90 24—2.5kW, SPN MCB. POR*

LD90 12—5kW

A standard rack configuration comprising 3 220V power blocks, each with four 5kW dimmers and a choice of either single or double-pole MCBs. Accessories include RCD kit (1 required per power block), additional DMX signal input, larger cable termination and single phase operation.

- 74103 LD90 12—5kW, single-pole MCB POR*
- 74106 LD90 12—5kW, double-pole MCB POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



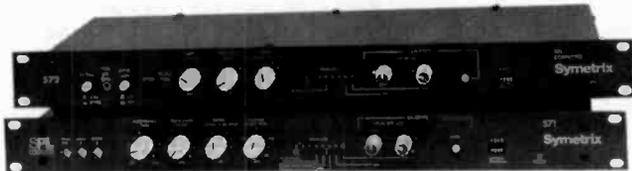
602 Stereo Digital Processor

▪ Accepts mic or line level analog signals, converts to digital (18 bits) and then performs 24-bit digital domain signal processing at a rate of over 50 million instructions per second ▪ Version 2.0 software ▪ Fully parametric EQ, shelving EQ, notch filtering, dynamic filtering, de-essing, delay (first reflection), stereo synthesis, gating, expansion, compression and automatic gain control ▪ Digital (AES/EBU and S/PDIF) input and output and analog stereo line level inputs and outputs ▪ 128 RAM and 128 ROM presets ▪ Comprehensive real time MIDI implementation **\$1995.00**



601 Digital Voice Processor

▪ Accepts mic or line level analog signals, converts to digital (18 bits) and then performs 24-bit digital domain signal processing at a rate of over 50 million instructions per second ▪ Version 2.0 software ▪ Processing includes fully parametric EQ, shelving EQ, notch filtering, dynamic filtering, de-essing, delay (first reflection), stereo synthesis, gating, expansion, compression and automatic gain control ▪ Analog inputs (mic or line) are monaural, stereo input signals may be processed via the AES/EBU-S/PDIF input ▪ Ideal "intermediary" for stereo digital transfers (sample rate selectable at 48kHz or 44.1kHz) **\$1995.00**



572 SPL Computer™

▪ Senses ambient noise, automatically adjusts levels ▪ Uses the system's loudspeakers as input transducers for ambient noise sensing ▪ Page mic XLR ▪ Balanced/unbalanced in/out connections on #6 barrier . . . **\$699.00**

571 SPL Computer

▪ Senses ambient noise, automatically adjusts levels ▪ Music input, paging controller ▪ Semi-automatic calibration ▪ Sensing mic inputs XLR ▪ Page mic XLR ▪ Balanced/unbalanced in/out connections on #6 barrier . . **\$849.00**
571S SPL computer slave **349.00**



564E Quad Expander/Gate

▪ Hipass/lowpass controls for frequency conscious gating ▪ XLR balanced inputs and outputs plus control loop/key input ▪ 6 LED gain reduction meter per channel ▪ Balanced inputs/outputs XLR ▪ Control loop/key input in/out TRS 1/4" **\$989.00**

528E Voice Processor

▪ Performs 6 separate functions: microphone pre-amplification, de-essing, compression/limiting, downward expansion, parametric EQ and voice symmetry alignment ▪ Mic preamp gain is variable up to 60dB and 48V phantom power is provided for condenser mics ▪ Enhances vocal intelligibility ▪ Increases perceived loudness and "presence" ▪ Works with any microphone (or line input) **\$699.00**



524E Multi-Mode Crossover

▪ Mono 2-3-4 or stereo 2-way operation ▪ User interchangeable cards ▪ Phase alignment between bands ▪ Individual band limiting ▪ Individual band muting **\$1095.00**

501 Peak-RMS Compressor/Limiter

▪ Separate processors for both compression and peak limiting ▪ Balanced in/out XLR ▪ Unbalanced in/out 1/4" ▪ Sidechain in/out 1/4" ▪ Stereo connect 1/4" **\$349.00**
501 Option 01—Transformer coupled output. **389.00**

425 Stereo Compressor/Limiter

▪ Independent downward expander, compressor, limiter ▪ Individual LED meters for each processing section ▪ Stereo or dual-mono operation ▪ Balanced/ unbalanced XLR ▪ Balanced/unbalanced 1/4" connectors ▪ Soft-knee compression curve **\$579.00**

421 AGC-Leveler

▪ Smart gated release true AGC-Leveler with peak limiting, speech filtering and intelligent downward expansion ▪ For use in PA, post, duplication, studio and broadcast environments ▪ Perfect for gain riding microphones used for on-air talent **\$549.00**

420 Stereo Amplifier

▪ Offers 20W (4 or 8 ohms) and 40W bridged mono (8 ohms) in a 1 rack space chassis ▪ XLR and 1/4" inputs ▪ Barrier strip outputs ▪ Front panel headphone jack ▪ Dual tracking mode for accurate L-R balance ▪ Front panel speaker-mute button disengages the main outputs for altering between headphone and speaker monitoring and a mono mode for testing the mono compatibility **\$369.00**

402 Dual Output Delay

▪ Dual outputs ▪ Front panel security lockout ▪ Barrier XLR and 1/4" connectors ▪ UL listing ▪ Maximum delay of 884ms per output (999) ▪ 19-bit A/D, 18-bit D/As for >100dB dynamic range ▪ 12-segment LED headroom indicator ▪ Delay settings store in non-volatile memory, no batteries ▪ 1ms minimum delay increments. **\$695.00**

SX208 Stereo Compressor/Limiter

▪ Exceptionally low noise and distortion ▪ Simple, straightforward operating controls ▪ LED indicators for input level, compression and clipping ▪ Balanced or unbalanced signal connection ▪ UL approved power supply. **\$299.00**

SX204 Headphone Amplifier

▪ 4 channels ▪ Stereo operation ▪ All headphone impedances ▪ Balanced/unbalanced in TRS 1/4" ▪ Outputs TS 1/4" **\$299.00**

SX202 Dual Microphone Preamp

▪ Variable gain with 15dB pad ▪ Polarity switch on 1 channel ▪ +48V phantom power ▪ Mic inputs XLR ▪ Outputs TRS 1/4" **\$299.00**



SX201 Parametric EQ Preamp

▪ Studio quality ▪ +15dB boost, -30dB cut ▪ High headroom ▪ Unbalanced in TS 1/4" ▪ Balanced in/out TRS 1/4" **\$279.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PBM 8 II Discrete Playback System

- Smooth 1" ferrofluid cooled polyamide high frequency driver
- Impedance: 8 ohms
- Peak power handling: 125W
- Frequency response: 47Hz-20kHz
- Crossover frequency: 2.4kHz
- Finish: pewter gray
- Sensitivity: 92 domestic; 89 anechoic
- Dimensions: 15"H x 10 1/2"W x 10 1/2"D
- Weight: 18.5 lbs.

PBM 8 II pair/\$795.00

PBM 6.5 II Discrete Playback System

- Woofer: 6 1/2" injection molded cone with nitrile rubber surround
- Tweeter: 3/4" polyimide dome ferrofluid cooled
- Impedance: 8 ohms
- Peak power handling: 100W
- Frequency response: 54Hz-20kHz
- Sensitivity: 90dB
- Finish: pewter gray vinyl
- Dimensions: 12 1/2"H x 8 1/2"W x 8 1/2"D
- Weight: 12 lbs.

PBM 6.5 II pair/\$450.00

PBM 5 II Discrete Playback System

- Woofer: 5" injection molded cone with nitrile rubber surround
- Tweeter: 3/4" polyimide dome ferrofluid cooled
- Impedance: 8 ohms
- Peak power handling: 85W
- Frequency response: 63Hz-20kHz
- Sensitivity: 88dB
- Finish: pewter gray vinyl
- Dimensions: 11 1/2"H x 7 3/4"W x 7 3/4"D
- Weight: 9 lbs.

PBM 5 II pair/\$350.00

System 215 DMT II

- 15" PcQ full-range, point source, phase coherent dual concentric DMT transducer
- Secondary 15" low frequency drive unit
- Bi-wired gold plated terminals
- Minimalist crossover topology
- Highest quality film capacitors and air cored inductors utilized in the crossover network
- Rugged cabinet styling with high pressure twin laminated MDF walls within a gray soft-texture space frame
- Drive unit diffraction ring ensures smooth high frequencies and better imaging
- Braced cabinet/driver energy system
- User serviceable self-centering HF unit diaphragm assembly
- HF waveguide for ideal spherical high frequency wavefront
- Copper cap for flux modulation control
- Vented drive unit chassis increases heat dissipation and power handling
- User adjustable high frequency response ± 1.5 dB
- Individual, optimized drive unit enclosures each with twin laminar flow port tubes
- User adjustable bass response
- Can be soffit mounted in recognized size cutouts

System 215 pair/\$6695.00

System 15 DMT II

- 15" PcQ full-range, point source, phase coherent, dual concentric DMT transducer
- Bi-wired gold plated terminals
- Minimalist crossover topology for minimum phase effects
- Highest quality film capacitors and air cored inductors utilized in the crossover network
- Rugged cabinet styling with high pressure twin laminated MDF walls within a gray soft-texture space frame
- Drive unit diffraction ring ensures smooth high frequencies and better imaging
- Braced

- cabinet/driver energy system
- User serviceable self-centering HF unit diaphragm assembly
- 98dB sensitivity
- Extended low frequency response flat to 38Hz
- Twin laminar low port tubes
- HF waveguide for ideal spherical high frequency wavefront
- Copper cap for flux modulation control
- Vented die cast drive unit chassis for increased heat dissipation and power handling
- User adjustable high frequency response ± 1.5 dB

System 15 pair/\$3995.00



System 12 DMT II

- 12" PcQ full-range, point source, phase coherent, dual concentric DMT transducer
- Bi-wired gold plated terminals
- Minimalist crossover topology for minimum phase effects
- Highest quality film capacitors and air cored inductors are utilized in the crossover network
- Rugged cabinet styling comprising high pressure twin laminated MDF walls within a gray soft-texture space frame
- Twin laminar flow port tubes
- Drive unit diffraction ring ensures smooth high frequencies and improved imaging
- Braced cabinet/driver energy system
- User serviceable self-centering HF unit diaphragm assembly
- HF waveguide for ideal spherical high frequency wavefront
- Copper cap for flux modulation control
- Vented die cast drive unit chassis for increased heat dissipation and power handling
- User adjustable high frequency response ± 1.5 dB

System 12 pair/\$2595.00

System 10 DMT II

- 10" full-range, point source, phase coherent, dual concentric, DMT driver
- Bi-wired gold plated terminals
- High quality Van den Hul internal wiring gives greater clarity and accurate image placement
- User adjustable high frequency response ± 1.5 dB
- High quality minimalist crossover network
- Rugged cabinet styling comprising high pressure twin laminated MDF walls within a gray soft-texture space frame
- Braced cabinet/driver energy system
- Vented die cast drive unit chassis increases heat dissipation and power handling
- Twin laminar flow port tubes
- Drive unit diffraction ring ensures smooth high frequency and better imaging

System 10 pair/\$1895.00

System 8 NFM II

- 8" single point source, dual concentric DMT driver
- High sensitivity, high power design
- Bi-wired gold plated terminals
- Hard-wired crossover network
- Twin laminar flow port tubes
- Rugged cabinet styling comprising high pressure twin laminated MDF walls within a gray soft-texture space frame
- Braced cabinet/driver energy system
- Liquid cooled, duralumin/polyamide high frequency unit

System 8 pair/\$1295.00

System 6 NFM II

- 6" single point source dual, concentric DMT driver
- High sensitivity, high power design
- Bi-wired gold plated input terminals
- Hard-wired crossover network
- Optimum tuned rear firing port
- DMT molded cone/surround "MICCA filled"
- Tulip wave guide for ideal H.F. spherical wavefront
- Fluid cooled, duralumin/polyamide H.F. unit

System 6 pair/\$795.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

RECORDER/ REPRODUCERS/MIXERS



TASCAM

TEAC Professional Division

Series 30

Recorder/Reproducers

- Use 1/4" tape and have selectable 15 or 7 1/2 ips tape speeds
- Durable FG servo DC capstan motor and 2 slotless DC reel motors
- Microprocessor-controlled full-logic transport
- Precision digital tape counter with zero return function
- ±1.2% pitch control
- Bipolar power supply for stable operation and high sound quality
- Direct-coupled amplifiers for minimum distortion
- Dump edit function
- Cueing lever
- Microphone inputs
- Input and output level controls
- Frequency response: 40Hz-22kHz, ±3dB at 15 ips



34B

- 34B 4-track, 4-channel \$2,599.00
- 32 2-track, 2-channel 2,099.00

22-2 2-Track, 2-Channel Recorder/Reproducer

- Uses 1/4" tape and has selectable 15 or 7 1/2 ips tape speeds
- Durable FG servo DC capstan motor and 2 AC reel motors
- Bipolar power supply for stable operation and high sound quality
- Front-panel microphone inputs with level controls
- Input and output level controls on each channel

- \$1,399.00

BR-20/BR-20T 1/4" 2-Track Recorder/Reproducers

- Specially designed for use in radio broadcast production facilities
- +4dBm XLR balanced half-track, equipped with built-in rackmounts, has a highly-functional shuttle control by using a combination of Edit and FFWD/REW ("Quick Cue") that provides for smooth and accurate cue and review

- BR-20 \$2,799.00
- BR-20T Same as BR-20 plus center track time code 3,299.00

MSR Series Recorder/Reproducers

- Switchable 15/7.5 ips tape speeds
 - Brushless DD capstan motor for extended durability and reliability
 - Bar graph level meters with peak-hold mode
 - Auto punch in/out function with rehearsal mode
 - Microprocessor control achieves gapless and noiseless punch in/out
 - 3-point auto locator function with 2-point repeat function
 - Full tension servo transport
 - Spot erase function
 - Dump and manual edit capability
 - Serial port for external control via computer or the Tascam MIDiiZER, and a parallel port for control via a synchronizer
- MSR-16 10 1/2" reels, 1/2" sync, 16-track, dbx NR \$ 7,999.00
 - MSR-16S 10 1/2" reels, 1/2" sync, 16-track, Dolby S NR 8,999.00
 - MSR-24 10 1/2" reels, 1" sync, 24-track, dbx NR 13,499.00
 - MSR-24S 10 1/2" reels, 1" sync, 24-track, Dolby S NR 14,999.00

TSR-8 8-Track Recorder/Reproducer

- dbx Type-1 noise reduction
- Auto punch in/out in conjunction with special proprietary circuits provides gapless and noiseless punch in/out performance
- Transport externally controlled for lockup within a wide range of recording applications
- Comes with a serial port for external control via computer or the Tascam MIDiiZER and a parallel port for control via synchronizer
- Sync lock mode switch for SMPTE or FSK

M-2500 Series Mixing Consoles

- XLR mic, 1/4" line and RCA tape channel inputs
 - Channel direct out and insert jacks
 - Sub L & R, ext in L & R and 2-track in L & R inputs
 - Stereo XLR and 1/4", 8-group, studio L & R and control room L & R outputs
 - 4 auxiliary outputs
 - 2 stereo, 2 mono effect returns
 - MIDI in, out and thru jacks
 - 100mm linear faders
- M-2516 16 x 8 x 2, 16 inputs, 8 progressive outputs, 2 master outputs \$3,299.00
 - M-2524 24 x 8 x 2, 24 inputs, 8 progressive outputs, 2 master outputs 4,399.00



M-1516

M-1500 Series Mixing Consoles

- Balanced XLR mic, 1/4" line inputs for each channel
- Top access connector panel for easy patching
- 3-band mid-sweep EQ on each channel
- 3 aux sends with independent send controls
- 2 stereo and 2 mono assignable effects returns
- Insert and direct out patch points on channels 1-8
- Bar graph meters for group and monitor outputs
- PFL facility

- M-1508 8 x 4 x 2, 8 dual inputs, 4 progressive outputs, 8 monitor \$1,099.00
- M-1516 16 x 4 x 2, 16 dual inputs, 4 progressive outputs, 16 monitor 1,699.00

M-1000 Series Mixing Consoles

- Balanced XLR and unbalanced 1/4" inputs on mono channels, independent left and right 1/4" inputs on stereo channels
- Balanced XLR and unbalanced 1/4" stereo outputs
- Switchable phantom power for microphone inputs
- 2 aux and 4 effect sends
- 2 mono and 4 stereo effect returns
- Dual headphone jacks with level control
- Aux 1 and 2, and stereo sub inputs (RCA)
- Insert patch points on mono channels
- 12-segment left and right LED peak meters

- M-1016 16-input with rack ears \$1,499.00
- M-1024 24-input 2,199.00

M-108 4-Bus Recording Mixer

- 12 input channels (8 mono and 2 stereo)
- 4 outputs with 8 tape returns
- High and low band EQ
- 2 effects buses
- Selectable aux bus which can be used for either tape monitoring or as a pre-fader send

M-06/M-06ST Compact Mixers

- M-06 6-input channel stereo mixer
- Effects system includes an effect output and stereo returns
- Phono input on Ch 5 and 6
- Mic inputs for each channel accept a wide signal range from microphone, instrument and audio components
- Access send/receive jacks on Ch 5 and 6
- Hi and Low EQ on each channel
- 2 M-06s can be stacked to double inputs \$439.00
- M-06ST Channels 1 and 2 have stereo phono inputs for direct connection of record players, while channels 3-6 have stereo line inputs \$549.00

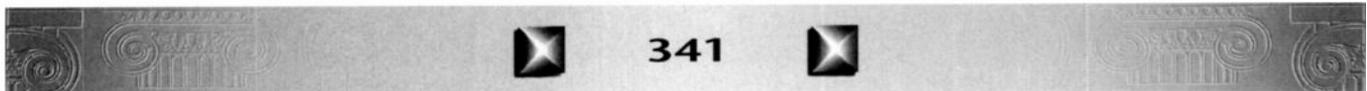
MM-1 Midi-Equipped Keyboard Mixer

- 4 stereo input channels
- 16 mono input channels
- 4 effect sends
- 4 stereo effect returns
- Mic level inputs on all channels
- MIDI controlled muting
- Direct outputs for optimum flexibility in multichannel recording and patching options
- 4 effect sends allow individual contouring of different inputs \$1,099.00

MM-100/MM-200 Keyboard Mixers

- Rackmountable 16-input mixers
- 8 stereo input channels with 4 effect sends, which can be integrated with numerous multi-effect signal processors
- Each stereo channel includes both low and high band EQ
- MM 100 4 effects sends \$649.00
- MM 200 Same as the MM-100 with MIDI patch and BBE sound 849.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





688/644 "Midistudio" Cassette Recording Systems

- Multi-function dual mix system effectively doubles input capacity
 - Built-in MIDI tape synchronizer
 - "Scene Display" system with memory and MIDI control
 - MIDI-controlled real time channel mute automation
 - Auto punch-in/out with rehearsal mode
 - 3-point auto-locator function with dual displays
 - Independent 8 x 2 cue monitor section on the 688
- 688** 10-channel (20-input) 8-group mixer and 8-track recorder. \$3799.00
- 644** 8-channel (16-input) 4-group mixer and 4-track recorder. 1599.00



488 Portastudio Cassette Recorder/Mixer

- 2 mono mic/line, 6 mono and 2 stereo line inputs
- 4 independent group outputs
- 2 effect sends
- 2-band EQ on mixer channels 1-8
- Switchable dbx noise reduction
- Input assign allows mic/line access directly to group masters
- Record up to 4 tracks at the same time
- Return-to-zero, auto-locate to memo point 1 or 2, loop between memo points 1 and 2
- Mix feature allows tape and input to share a channel
- Switchable sync in and out jacks
- 8 tape track and 2 monitor LED meters. \$1799.00

464 Portastudio Cassette Recorder/Mixer

- 4-track format
- 4 low impedance XLR microphone inputs which are also suitable for line sources
- Inputs have 3-band, sweep mid-range equalization circuits
- 2 stereo inputs with 2-band shelving EQ
- Dual effects sends and 2 stereo effects returns
- 2-speed transport features all solenoid-type controls
- Dual-point autolocator (plus RTZ), full auto-rehearse and auto punch-in/out capability
- Capable of recording on all 4 tracks simultaneously. \$999.00

424 Portastudio Cassette Recorder/Mixer

- 8-input mixer (4 mic/line inputs plus 2 stereo line inputs)
- 4-track simultaneous record via direct mode
- Input bypass and cue assign accommodate virtual tracks
- Sync in/out jacks
- Pitch control ($\pm 12\%$)
- Headphone jack. \$699.00

Porta 07 Ministudio Mixer/Recorder

- 4 input channels
- 3 1/2 ips tape speed (2X the normal cassette speed) for superior audio quality
- High and low EQ controls on each input channel
- Stereo sub inputs can be used to bring virtual MIDI tracks back to the mix
- Stereo effect returns
- Input selectors on each input channel and monitor outputs
- Built-in dbx II noise reduction with sync off selector
- Zero return function
- Sync out terminal for easy MIDI/tape synchronizing. \$499.00

Porta 03 Ministudio Mixer/Recorder

- 4-track, 4-channel cassette recorder section
- Standard 4.8 cm/sec. cassette speed
- Switchable Dolby B noise reduction
- 2-channel mixer section offers an input trim control, record track select switch and linear fader on each channel
- Stereo master bus
- 4 x 2 cue mixer with level and pan controls for each track, and a linear master fader
- 2 level indicator LEDs—overload and normal—for each track
- Stereo output jacks
- Headphone jack with independent level control. \$289.00

122 MKIII 4-Track 2-Channel Stereo Cassette Deck

- 3-head design
- Cobalt amorphous record and playback heads permit independent azimuth adjustment plus uncompromising electronics
- Both +4 XLR balanced inputs/outputs and -10 unbalanced RCA inputs/outputs on the back panel, plus 1/4" unbalanced phone jacks on the front panel so input is switchable. \$1299.00

112R MKII Bidirectional Stereo Cassette Deck

- 3-head design
- Bidirectional transport with Super Acculign rotating head. \$1099.00
- RC-112R Remote control. 225.00
- LA-112 Balance kit. 100.00

112 MKII 4-Track 2-Channel Stereo Cassette Deck

- 2-head design
- Dolby HX Pro, B and C noise reduction
- Audible cue and review
- Precision VU meters with peak LEDs
- Real time tape counter
- 3 locate points (zero, memo 1, memo 2)
- 25-pin D sub connector parallel port allows either connection for multi-deck operation of an external transport control
- RCA connectors on rear panel and 1/4" phone on front panel
- 19" rackmountable. \$829.00
- LA-112 Balance kit. 100.00



134B 4-Track/4-Channel Cassette Recorder/Reproducer

- Ideal for A/V and multi-image production and presentation
- Balanced inputs and outputs
- 25Hz cue tone
- 5 repeat modes
- 3 locate points
- Cue rewind
- Cue stop
- Locate/auto play
- Sophisticated auto-presentation features
- Mic mixing
- Dolby B and C noise reduction
- Shuttle control
- Accessory II port for external control
- 4 x 2 mixing capability. \$1549.00
- RC-134 Remote control. 225.00

103/102 Stereo Mastering Cassette Decks

- Dolby HX Pro, B and C noise reduction
- Auto tape type automatically adjusts recording electronics to any standard tape formulation
- 103 3-head design. \$549.00
- 102 2-head design. 379.00



202 MKII Dual Record Dubbing Deck

- Parallel record allows 2 identical copies to be made simultaneously from an external master
- Offers both a twice speed and real time mode
- Cost effective duplicating system for church and studio users
- Dual synchronous record mode allows sequential recording of both sides of the tape on both transports
- Both decks include Dolby B and C, as well as Dolby HX Pro
- Dual microphone inputs
- Headphone output
- Wireless remote capability. \$499.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CD PLAYERS/DAT RECORDERS/MIDI



TASCAM TEAC Professional Division



CD-701 Compact Disc Player/ RC-701 Multi-Player Control Unit

■ CD-701 CD Player/RC-701 Control Unit combination features an auto cue function, event play and link play ■ By doing away with rise time, the RAM buffer enables continuous looping between any 2 points ■ RC-701 Control Unit controls up to 4 CD player units and features $\pm 6\%$ pitch control with frame-accurate search using an easy-to-handle dial or numeric keys \$2499.00
RC-701 Multi-player control unit 1349.00
RC-7 Remote control unit 200.00

CD-601 Compact Disc Player/ RC-601 Multi-Player Control Unit

■ Auto Cue starts play on the first frame of a program ■ End Check function allows user-definable monitoring of a program's end and is ideal for planning cross-fades ■ Integral, frame-accurate jog wheel for fast, repeatable searching ■ Front-panel variable pitch and 12-position LED readout ■ Audio output is via both balanced XLR jacks and unbalanced RCA jacks ■ XLR digital output ■ RS-232 port for external computer control, off-line monitoring, cue return and display of elapsed time, track remain time, total remain time or total disc time
C-601 \$1649.00
RC-601 849.00

CD-401MKII Compact Disc Player

■ Designed for the professional recording production studio or broadcast environment ■ Rackmountable ■ Fader start ■ Auto cue ■ Pitch control ■ Single play ■ Digital out ■ 20-selection calendar ■ 4-mode time counter ■ 4-mode repeat ■ Index search ■ Auto space ■ Both XLR balanced and RCA unbalanced outputs \$999.00

CD-301 Compact Disc Player

■ Balanced XLR and unbalanced RCA audio outputs ■ Hard-wired 10-key remote control ■ 20-program memory ■ Single-play function ■ Link function ■ Center-drawer design ■ Standard 19" rackmountable ■ Ideal for use in studio, radio and mobile DJ environments \$649.00

DA-88 8-Track Digital Audio Recorder

■ Utilizes a rugged compact 8mm cassette transport that records on Hi8 tape ■ Capability of recording up to 100 minutes on a standard 120 tape, allowing the audio for an entire CD project, feature film or video project to fit on 1 tape ■ Records at both 44.1kHz or 48kHz with a variable pitch of 6% at each sampling rate ■ Up to 16 DA-88 units may be locked together by connecting a simple 15-pin D-sub connector between each unit, giving you a total of 128 audio tracks ■ Word sync I/O utilizes 2 BNC connectors and digital I/O uses a 25-pin D-sub connector for easy copying of tracks from 1 machine to another ■ The digital I/O port supports both external AES/EBU and S/DIF II digital interfaces ■ 8-digit LED time display shows absolute time in hours, minutes, seconds and frames. The display will also show memo times, pitch change, SMPTE T/C and SMPTE offset \$4499.00
RC-848 Remote controller for the DA-88, can directly control up to 6 units (48 total tracks) 1499.00

DA-60 Digital Audio Recorder

■ 4 heads for off-tape "confidence" monitoring ■ AES/EBU and SP/DIF digital I/O ■ Word clock I/O ■ 37-pin parallel port for external transport control \$5999.00
SY-D6 Synchronizer board. With the SY-D6 the DA-60 will offer a SMPTE/EBU reader/generator; chase SMPTE time code with offset

capability; lock to video sync; and offer a 9-pin serial port for direct editor control \$649.00

DA-30 Digital Audio Recorder

■ Analog to digital converters use Delta-Sigma modulation and 64X oversampling ■ S/N ratio in excess of 94dB ■ AES/EBU digital I/O ■ +4dBm balanced inputs and outputs plus -10dBV unbalanced inputs and outputs ■ Ability to interact with other professional digital equipment via the AES/EBU interface ■ 48kHz, 44.1kHz and 32kHz sampling frequencies \$1499.00



ES-50 Synchronizer

■ Automatic machine interface calibration for all popular ATR/VTRs ■ Read and generate all timecode standards: 30, 29.97 (30DF), 25 and 24 fps ■ $\frac{1}{2}$ to 100X play speed time code reader ■ Timecode generator integrated for restart, jam sync and regenerate ■ RS-232C serial port for remote computer/editor control \$2699.00

ES-51 Control Unit

■ Full transport control of up to 4 audio and/or video transports ■ Programmable preroll and postroll times from 0 frame to 36 minutes ■ 10-digit time data display and 8-digit keyboard display \$1349.00

MTS-1000 MIDiZER Multi-Synchronizer/ Controller

■ Built-in timecode generator provides all standard timecode formats (30, DF, 25 and 24 fps) and offers a jam sync function ■ 2 internal wideband timecode readers ($\frac{1}{2}$ to 100X) accept all standard timecode formats ■ Direct plug-in compatibility with the Tascam 238, MSR-16 and future models via Master and Slave serial I/F ports \$1999.00



MMC-100 MIDI Interface Unit

■ Enables musicians to control tape transport and record functions on Tascam multi-track recorders from their computer-based MIDI sequencers ■ Capable of SMPTE/EBU-to-MTC translation \$599.00

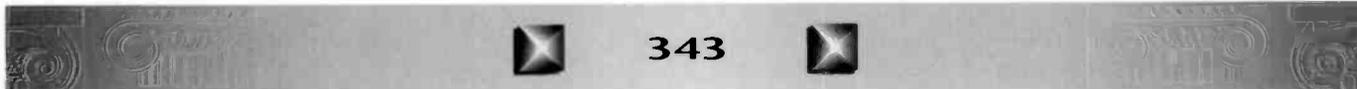
238/238S Syncaset 8-Track Cassette Recorders

■ Auto punch in/out ■ Unique "hysteresis tension servo control system" for exceptionally stable transport ■ Tape shuttle control ■ Serial interface for external synchronizer control ■ 3-point memory locator function ■ 4-digit counter and memory displays ■ Insert function permits tape monitoring in record-ready mode to facilitate punch-in ■ Pitch control (12%) ■ 19" rackmountable
238 Switchable dbx noise reduction \$1799.00
238S Dolby S noise reduction 2199.00

T2640 MS/T2640 2S High Speed Cassette Duplicating Systems

■ Duplication speed of 8X normal speed, with a choice of simultaneous copying of both sides of the tape or track-independent duplication ■ $\pm 3\%$ pitch control on master deck for fine adjustment of the master tape speed
T2640 MS 4-track, 4-channel, 1 master, 1 slave deck \$2999.00
T2640 2S 4-track, 4-channel, 2 slave decks 2749.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





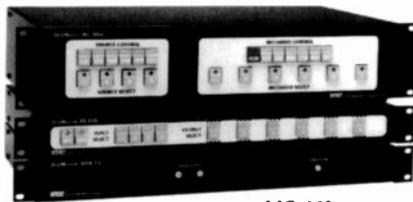
DubMaster Series

The DubMaster Series is engineered as a "building block" system. This modular design allows for maximum flexibility in system design and provides for unlimited expansion possibilities. The complete DubMaster Series consists of the MC-460 and MC-110 remote controllers, RS 4 x 6 video and audio signal routing switcher and the DVA-12 video and audio distribution amplifier. Breakout boxes and control cables are used to provide connection to the VCRs.

MACHINE CONTROL

**DubMaster
MC-460**

The DubMaster MC-460 provides selectable source and recorder control for duplication systems with multiple source and multiple recorder groups. This allows independent transport control of up to 4 source decks and up to 6 banks of recorders. Control functions include: record, play, stop, rewind, fast forward, pause and eject.



MC-460
DVA-12

- Remote control of most industrial VTR source decks, including Betacam and 1" formats
- Remote control of most industrial recorders, including serial and infrared types
- Individual selection and control of up to 4 source decks and up to 6 recorder banks of any size
- Engineered to allow for virtually unlimited expansion of recorders
- Ability to intermix parallel, serial or infrared control formats \$1850.00

DubMaster MC-110

Like the MC-460, the MC-110 also provides full transport control but is designed for systems requiring only a single source deck and 1 bank of recorders. The bank of recorders may contain any combination of serial, parallel and infrared control formats. \$895.00

DM-960 Controller

Designed to work with the Sony SVO-960 by providing remote control of the machine functions as well as lamp feedback. User ID controls, test function and auto changer control (SVCC-960) are a few of the remote functions controlled by the DM-960 \$1349.00

**AUDIO AND VIDEO ROUTING AND DISTRIBUTION
RS 4 X 6 Routing Switcher**

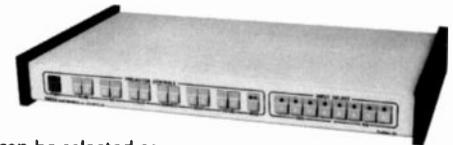
Designed as a stand-alone front panel control routing switcher. 4 sources (stereo audio and video) can be routed to any 1 or all of the 6 outputs. The audio and video can be routed together or separately, making the RS 4 X 6 a true 2-level routing switcher. The video connectors are BNC and the audio (unbalanced) connectors are RCA \$1495.00

DVA-12 Audio and Video Distribution Amplifier

A 1-in, 12-out video and stereo audio DA. Connectors are BNC and RCA. Looping outputs are also provided as well as front mounted trim pots for individual level adjustments of video and each audio channel . . \$699.00

**SPECIAL APPLICATION PRODUCTS
PROFLEX S-1 Remote Control**

For most Sony video projectors. Along with projector controls, the Proflex provides for routing of 8 video sources including 4 composite. 2 of these can be selected as S-VHS, the other 4 are RGB and sync \$1495.00



MVI-2

Provides machine control through contact closures. Most industrial VCRs can be controlled with the use of (CC) control cables. Serial, parallel or infrared control is available. \$125.00

VDS-2 (Video Detector/Switcher)

A 2-in, 1-out active switcher with stereo audio-follow-video. The primary video source is monitored for vertical sync. If not present, the default input is switched to the output. LED indicator and contact closure provided for visual indication and for control of additional alarm or other functions . . \$195.00



AUTO-FLIP VCR Controller

Designed to provide continuous playback from 2 VCRs. Stereo audio-follow-video switching is provided. When a loss of vertical sync is detected, the other VCR is given a play command, video is switched and the VCR that was playing is given a rewind command. 2 (CC) control cables are required. VCRs that produce a "blue screen" are not appropriate for this application \$249.00

DVI-2 (DTMF Tone/VCR Interface)

VCRs can be remotely controlled with the DVI-2 by the use of DTMF tones (telephone touchtones) over an audio link. The DVI-2 responds only to the DTMF tones and rejects all other audio. When a unique combination of tones is received, the DVI-2 will activate a VCR function. Control data is generated by the DVI-2 and linked to the VCR by either infrared or wired serial means \$350.00

TVI (Telephone/VCR Interface)

The TVI is designed to interface the transport functions of a VCR or laser-disc player to the public or a private telephone system. The unit monitors the line and connects upon sensing ring voltage. Once connected, the TVI responds to incoming DTMF (touchtones) generated by the telephone handset by activating the transport functions accordingly \$445.00

CVI-1 (Computer/VCR Interface)

The CVI-1 is designed to allow computer remote control of any VCR that has external control capabilities. Communications (ASCII) from the computer's RS-232 port are translated by the CVI-1, and, with the use of standard Tech Electronics CC control cables, functions are remotely controlled by the computer keyboard. Each CVI-1 can hold up to 128 different addresses assignable by the end user. Multiple machines may be assigned the same address if the user needs the machines to work in groups \$125.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

UNATTENDED/AUTOMATED PLAYBACK SYSTEMS/ COMMERCIAL INSERTION



Family of reliable controllers designed to activate VCR functions (play, stop, rewind and record) from internal clocks or from remote locations via DTMF or RS-232. Most units provide stereo audio and video switching.

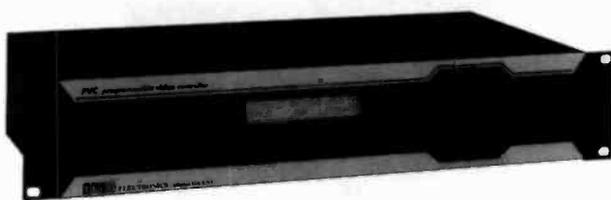


AUTOMATOR

Single VCR controller, second accurate, DTMF input, RS-232 interface and auxiliary input. Programming for up to 100 events per day/7-day programming, VCR commands include play, stop, record and rewind and uses standard control cable (CC) interfaces. **\$569.00**

AUTOMATOR LD

Provides frame-accurate control of laserdisc players via the RS-232 port. A user-defined video segment can play up to 12 segments upon activation of an external pushbutton or input device. Places the laserdisc player in still frame, video loop or spin down between playbacks. The internal time clock is programmable to start and stop the playback action on a daily basis. The system can be wired to power the system, including the monitor, up and down automatically. Includes day of week programming, security code and battery backup for both clock and memory. **\$569.00**



PVC-2/4/8 PROGRAMMABLE VIDEO CONTROLLERS

The PVC family is microprocessor based and can be programmed for up to 1000 events on a 7-day basis, providing complete unattended automated operation. Video and audio are always present at the outputs due to constant valid video detection. Manual override is available at all times from the front panel or by computer via RS-232 link.

The front panels consist of a 2-line LCD display, prompt buttons and a full keypad. On-screen prompts lead the operator step by step through the setup, programming and manual procedures. All keypad buttons are individually labeled for their function. Operation of the local controls is extremely intuitive. Adding or deleting a program command is simple and fast.

All PVC models are programmable in minutes or seconds for increased accuracy. All commands are time based, so the program tapes do not need to be modified for cue tones. Verification is accomplished by internal logging of date and time of each video change. This date is available through the RS-232 link.

The RS-232 interface port allows complete function and programming control through use of a Windows-based PC, either by direct connection or through a modem link. This feature is particularly useful to users with remotely located units or for composing and updating lengthy programs. Program composition is done on the computer and then downloaded to the controller as needed. As with most Windows programs, a dedicated PC is not required.

Programmable pre-roll can be specified in seconds for up to 99 minutes and is individually entered for each input. This eliminates the need to queue up tapes for playback. The processor automatically calculates the start time based on the input pre-roll, then rolls tape and switches the signal to the output at the precise time the event is scheduled to begin.

Each model of the PVC family can be programmed for 1-, 2- or 3-channel operation. Any input source can be switched to any of outputs A, B or C in a true matrix. All inputs, including the default inputs, have unbalanced stereo audio follow, making the PVC family compatible with stereo TV or bilingual applications that utilize separate audio tracks for different languages.

Two special default inputs that can be assigned to outputs A and B are provided on all models. These default inputs are typically used for character generators or computer generated video that is switched to output between programmed playback times. During playback, video sensing circuitry in the PVC monitors the incoming video signal, and will automatically switch to the default input when there is no video present, or if stable sync is lost. Default switching can be defeated on any particular playback, if desired, through programmed commands.

System flexibility is further enhanced with the ability to program VCRs for recording. This is particularly useful for recording program material after hours for playback at a later time on the same VCR.

- PVC-2 Two input sources, 2 defaults, 3 output channels . . . **\$1650.00**
- PVC-4 Four input sources, 2 defaults, 3 output channels . . . **2950.00**
- PVC-8 Eight input sources, 2 defaults, 3 output channels . . . **5150.00**
- Expander-4 Four input sources, 2 defaults, 3 output channels . . . **2400.00**
- Expander-8 Eight input sources, 2 defaults, 3 output channels . . . **4000.00**



COMMERCIAL INSERTION

AUTO SPOT is a DTMF-actuated machine controller and switcher used to insert commercials on 1 or 2 channels. Commercial verification, storage of billing information as well as RS-232 interface are just a few of the features of this economical controller.

- AutoSpot 100 Single channel **\$1375.00**
- AutoSpot 200 Dual channel **1595.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SL-P1300 Professional Cueing Compact Disc Player

- 8X (352.8kHz) oversampling digital filter
- 4 digital-to-analog converters (2 per channel)
- 18-bit high resolution signal processing
- A-B repeat
- $\pm 8\%$ pitch control
- Optical and electrical digital outputs
- Rocker switch for precise mixing control
- Can be cued via direct entry of CD time code
- Balanced outputs
- Wired remote control terminal on back panel for connection of momentary or sustained contact remote triggers
- 10-key pad allows direct access by time code or track
- Operator can preview in-point and then recall it
- Auto-Cue automatically positions laser pickup at the first sound of a track
- Analog and digital circuits have separate power supplies, including transformers
- High resolution laser pickup
- Skip-keys
- 2-speed audible search buttons
- Track repeat
- Disc repeat
- Program repeat
- Headphone output with level control
- Line output via unbalanced (phono) pin connectors or balanced (XLR) connectors
- Balanced output: +8dBm
- Sub-code output
- 6.7"H x 16.9"W x 14.8"D
- Infrared wireless remote control
- Full-function FL display includes $\frac{1}{10}$ sec. time indication

SL-P1300 \$2099.95

SL-P1200 Compact Disc Player

- Twin class AA circuitry
- Dual high-speed D/A converter
- High resolution digital filter
- Separate power supply for digital and analog
- Serial transfer of digital data
- Select audio circuit parts
- Tri-layer base construction
- Double insulation helps prevent structural vibrations
- FF1 fine focus single beam system
- 2-speed search dial cueing
- Precision pitch control
- 20-selection random access programming
- Multi-mode repeat
- Auto space for convenient tape editing
- Music matrix
- Elapsed time indication

SL-P1200 \$1799.95



RS-DC10 Digital Compact Cassette Recorder

- Digital record/playback system (DCC)
- Playback compatibility with analog cassettes (in analog format)
- Text information display
- Quick track access with address data
- PASC—intelligent digital data coding
- Precision-thin-film head
- 29-key wireless remote

- control
- 1-bit analog-to-digital converter (ADC)
- 1-bit digital-to-analog converter (DAC)
- Auto reverse tape transport mechanism/horizontally mounted
- Analog in/out; digital in/out
- Automatic track number recording
- Gold plated jacks

RS-DC10 \$1099.95



SV-DA10 Digital Audio Tape Deck

- MASH 1-bit A/D and D/A converters
- Shuttle search dial
- High speed search at up to 400X normal tape speed
- Digital fade-in and fade-out
- Post recording end marker, start ID, program number and skip ID
- Rewritable absolute time code and program numbers
- 37-key wireless remote control
- Serial copy management system
- Optical digital input

SV-DA10 \$899.95



SL-1200MK2 Turntable

- Quartz direct drive disco type manual turntable with tonearm
- 33 $\frac{1}{3}$ and 45 rpm speeds
- All quartz-locked variable slide type pitch control ($\pm 8\%$)
- Quick start-up and quick braking
- Wow and flutter 0.025%WRMS
- Pop-up stylus illuminator
- Strobe illuminator
- Gimbal-suspension tonearm with variable height adjustment
- Brushless DC motor
- Aluminum diecast cabinet
- Anti-resonant visco-elastic main base

SL-1200MK2 \$499.95

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PROMPTERS



COMPUTER PROMPTERS 909C Computer Prompter

The 909C lets you compose, edit and play back scripts anywhere in a case small enough to fit under an airplane seat. It has a 128K memory, a display, a keyboard and its own microprocessing system built in. The 909C comes with its own 12V power source and takes a live feed from the camera or any output from the switcher and lets you see it on the prompt monitor. The talent can also use it via remote control.

Includes

- 909C Computer Prompter ■ Carrying case ■ IBM PC compatible keyboard ■ 128K high capacity text file cartridge ■ 2 handheld remote controls \$5995.00

Price does not include the Tekskil Field Keyboard (\$288.00) or the Tekskil 12VDC power supply (\$449.00). Add \$219.00 for each additional 128K high capacity cartridge.

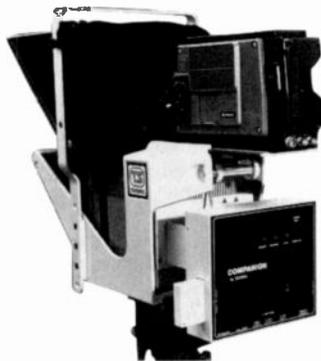


ValuPrompt Computer Prompter

- Designed to meet the needs and budget of smaller in-house video production facilities ■ Fully dedicated prompting microprocessor with custom firmware ■ No software or computer to buy ■ Full function keyboard allows the user to create, edit and prompt a script from a single unit ■ Built-in script speed control from a keyboard forward/reverse slide mechanism ■ Interfaces with files from IBM, Macintosh and Amiga computers through the serial port ■ Solid-state script storage handled through a 128K cartridge. Each 128K script cartridge can store up to 2 hours of speech \$2395.00

Companion Portable Computer Prompting System

- Lightweight turnkey prompting system for the budget minded ■ 12VDC power (power supply is available as an option) ■ Built-in serial port ■ Composite video output ■ Auxiliary video input ■ Includes the 909V video prompter with an Ikegami 9" B/W monitor, portable keyboard, 128K solid-state script cartridge and 25' handheld remote control. \$3995.00



MONITOR PROMPTERS 909V Video Prompter

The 909V camera viewing unit mounts on any standard-mount field or studio tripod and accepts any portable camera. It holds the prompting monitor below the camera, so that both are balanced over the tripod head. Tekskil uses folded optics—a surface-reflectance mirror and a 70/30 beamsplitter—to bring the prompts up in front of the lens.

Includes

- 909V Video Prompter ■ 50' BNC cable \$1895.00

Price does not include the 9" monitor. Use a Panasonic TR-930 monitor or equivalent. Studio configuration may require a 45° lens adaptor for the focus cable.

Easy-View 15" Monitor Prompter

- 15" large format AC/DC prompter ■ High contrast, high resolution monitor ■ Fast setup and take-down ■ Complete with all mounting hardware for standard studio tripods rated for 60 lbs. or more. \$2465.00

PAPER SCRIPT TRANSPORT 909T Script Transport

The 909T provides for 2 NTSC inputs: 1 for the text camera and 1 for your portable camera, with instant switching between cameras. Script feed stops when the talent or operator switches to the auxiliary video feed. When the script is recalled, it continues where it left off, at the exact speed it was moving before the switch.

The 909T uses a pulse frequency modulation circuit to give you precise 1-touch control of script speed forward and backward. A bargraph display indicates scroll-ready status, direction of movement and speed. Once your script assistant has established the best speed for the talent, that precise speed can be used every time. Scrolling speed and video-input switching can also be controlled by means of a plug-in remote controller.

Includes

- 909T Text Transport ■ Handheld remote control ■ 3' BNC cable . . . \$2785.00

Note: Price does not include the CCTV camera. Use a Panasonic WV-1410 with a 16mm manual iris lens (or equivalent). For 220V (50Hz) or 12VDC operation add \$375.00.

SPEECH PRESENTATION EQUIPMENT

ValuPrompt Speech Prompter

- Frees the speaker to concentrate on delivery, not memorization ■ Unique design provides the speaker with 2 displays—eye level and floor level ■ High resolution 17" presentation monitor ■ Quick setup and take-down ■ Can be used in combination with any Tekskil prompter/controller \$2239.00



SpeakEasy Speech Prompter

- Allows the speaker to maintain eye contact and yet have the comfort of having a complete script available at all times—which is totally invisible to the audience ■ Fully integrated unit ■ Heads up display (HUD) technology ■ 15 lbs. total weight ■ Composite video input (looping with 75 ohm termination) ■ Automatic NTSC/PAL sensing and selection ■ Operates on 110/220VAC and 12VDC \$6995.00

Presentation Controller

- Used with the ValuPrompter speech prompter ■ Triple mode operation—prompt, view or prompt overlay ■ Quickfind feature for effortless recall—ideal for question and answer sessions ■ Features a built-in serial port, composite video output and an auxiliary video input ■ Complete with 128K solid-state script cartridge ■ Remote control ■ Full-function keyboard \$3095.00

TELECONFERENCING SYSTEMS Eyeline Teleconferencing

- Ideal for applications such as remote deposition (where eye-to-eye contact is critical) ■ Uses a 20" color monitor and a folded optics system to send image through a video camera hidden in the hood assembly ■ Fits many standard monitors ■ Interfaces with a wide variety of cameras ■ Complete with all mounting hardware POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



1730D Digital Waveform Monitor

- 2 analog composite inputs
- 2 serial digital composite inputs
- 1 parallel digital composite input
- Passive loopthrough for serial inputs
- Precision analog display of digital input
- Full time DAC output
- Serial digital bit stream EYE Pattern display
- Error detection and handling display mode (EDH)
- Displays D-2 servo waveforms

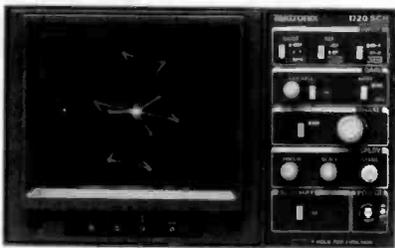
The 1730D offers an analog output derived from a precision 10-bit D to A converter (DAC). This full time DAC output operates for the serial or parallel digital inputs and can be used as an alternative to other digital video equipment's DAC circuits.

The 1730D offers the additional benefit of digital video testing via serial composite digital inputs. These wideband, high return loss loopthroughs allow the instrument to "tap" and monitor a 143M bit/sec. (177M bit/sec. PAL) Serial Composite Digital link. The 1730D also offers an EYE Pattern display of the serial input. This provides an indication of the analog performance of the digital channel. The EYE display is formed by equivalent time sampling. A wideband sample-and-hold takes "snapshots" of the data stream's voltage at particular instants in time and displays these values against a calibrated time axis. This allows observation of the amplitude, rise time and jitter of the serial bit stream. InterSymbol Interference (ISI) caused by bandwidth loss and improper cable termination is clearly seen, a useful tool when installing and troubleshooting serial systems.

The 1730D includes a unique method for checking serial path integrity. This mode provides an error detection scheme when used with the TSG-170D digital video generator. The Error Detection and Handling (EDH) operation is based on the instrument calculating a check-word for the received digital video, then comparing this with the check-word sent from the generator. Further, in-service error rate monitoring is possible when used with picture sources that comply with the proposed EDH standard.

Parallel digital or serial digital inputs can be paraded side by side with an analog input on the CRT's display.

1730D NTSC \$3350.00
 1731D PAL 3350.00
 Option 74 Substitute P4 white phosphor on CRT 100.00



1720

1725/1720 SCH/1720 Vectorscopes 1735/1730 Waveform Monitors

- Complete line select
- Simultaneous Channel A and B display
- Dual filter display
- 1-button front panel recall
- Differential phase and gain measurement
- Stereo audio phase measurement
- RGB/YRGB display capability
- Vector center dot clamping
- Parallax-free internal graticules
- Portable DC power
- Remote control capability
- SCH capability with 1720 SCH

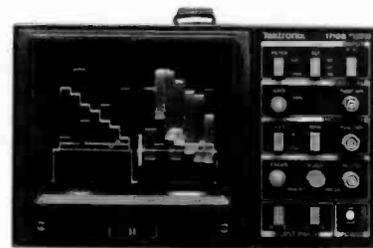
These versatile instruments are lightweight, half-rack width and have bright CRTs for comprehensive video signal monitoring. Both instruments exceed normal monitoring capabilities. Their unique features make them even more powerful when operated in tandem. Each monitor has its own advanced feature set and the proven 1700 Series family performance to provide more monitor for the money.

In addition to being ideal for camera control units and video tape recorders, these instruments can be equipped with cabinet and field upgrades allowing them to operate from a 12VDC source for portable operation. They can be used with the Tektronix BP1 or

other 12V supply. Coupling this DC operation with their light weight (about 9 lbs., including cabinet), low power consumption and compact size make these instruments well suited for use on a portable production cart.

Internal front panel presets, RGB/YRGB enable, along with front panel recall/setup, can be accessed through the Waveform Monitor Remote Connector.

1725 Vectorscope (NTSC/PAL) \$3400.00
 1720 SCH Vectorscope/SCH (NTSC) 3400.00
 1720 Vectorscope (NTSC) 2395.00
 1735 Waveform monitor (NTSC/PAL) 2600.00
 1730 Waveform monitor (NTSC) 2395.00
 Option 74 Substitute P4 white phosphor on CRT 100.00
 1700F10 12V field upgrade kit (1720, 1730, 1735 only) 230.00



1710B Waveform Monitor

- Burst phase indicator
- Low power consumption
- Dual filter display
- Half rack width
- Bright CRT display
- Internal graticule
- DC operation (option)
- Available in NTSC and PAL standards

The 1710B Waveform Monitor provides all of the commonly used display modes. In addition, the 1710B adds relative burst phase indication and dual filter display. All of this in a cost effective package for the user who wants high quality at a low price. These monitors are mechanically compatible and retrofit into an existing system that uses half rack width, 5 1/4" high waveform monitors.

Because of its extreme light weight, low power consumption and DC operation (field installable kit), the 1710B is ideal for field production, mobile operations and any other application where space, power consumption and/or portability are prime considerations.

The relative burst phase between external reference and an input is displayed on the LED bar graph. The center green LEDs indicate the 2 signals are phase matched. The yellow ones warn the phase is slipping out of an acceptable range. Finally, the red LEDs flag an unacceptable amount of phasing error. This feature allows 1 instrument to do the complete job of timing and phasing in a basic television system.

The dual filter display allows the user to view both the complete video signal and the luminance information at the same time using just 1 instrument. This eliminates the need for switching back and forth between filters and makes the instrument easier to operate. Ideal for camera setup.

1710B NTSC \$1795.00
 1711B PAL 1795.00
 Option 74 Substitute P4 white phosphor on CRT 100.00
 1700F10 12V field upgrade kit 230.00

Mounting Configurations

The 1710B, 1720, 1720 SCH, 1725, 1730, 1735 and 1730D are shipped without a case for mounting. The following mounting configurations are supported:

1700F05 For rackmounting 2 half rack products;
 dual rack adaptor \$230.00
 1700F00 For custom mounting a single half rack product;
 plain case 65.00
 1700F02 For portable use with a single half rack product;
 portable case with handle, feet and front cover 100.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**1760/1750A/1740A Series
Waveform/Vector Monitors**

Common Features

- Composite or component waveform monitoring
- Straightforward interface
- 8 loopthrough video inputs
- Composite vectorscope
- Picture monitor
- Stereo audio amplitude and phase
- Longitudinal time code
- Multiple display modes
- Easily configured for special monitoring applications which may be stored in 1 of 9 user presets for easy recall
- Based on Application Specific Integrated Circuits (ASICs), a high performance analog video electronics system
- Audio frequency response is accurate to -3dB at 500kHz
- Phase match between left and right channels is better than 1° at 20kHz

8 Video inputs eliminate the need for external input selectors. All inputs are connected directly to the instrument. Signals may be paraded, overlaid or displayed in comparison modes not normally available with a simple external switcher.

Waveform monitoring is analog for maximum waveform fidelity. No digital processing of the displayed signal. Selected input may be displayed in 1- or 2-line or 1- or 2-field sweeps on a continuous basis or identified lines of any field may be selected and displayed. Multiple inputs may be displayed at the same time or multiple filters may be applied to 1 input for signal analysis. Time and voltage cursors may be activated and positioned for reference or measurement.

Composite vectorscope demodulates and displays the color components of the NTSC or PAL signal. A microprocessor controlled phase shifter provides accurate vector positioning and eliminates readjustment when switching between internal and external reference modes. Phase and amplitude cursors with on-screen readout allow system setup to reproduce specific chroma values and colors when luminance is similarly set using the waveform display voltage cursors.

Picture monitor provides easy signal identification, which is useful when the instrument is used to monitor many sources. In waveform or vector line select mode, a line bright-up marker in the picture display identifies the selected line.

Stereo audio amplitude and phase is monitored using a calibrated X/Y Lissajous display. Correct phasing between 2 audio channels is quickly verified by the direction of the display; signal level is confirmed relative to the CRT graticule; and stereo separation is displayed in quadrature to the level display.

Longitudinal time code is monitored in a frame rate display to allow observation of amplitude, synchronization and phase with respect to reference vertical.

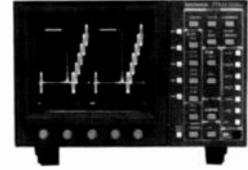
Subcarrier/horizontal phase and color framing (available only on the 1750A and 1760 with SCH option). Sync jitter over the field is displayed as a moving sync vector dot, or displayed as a timing error at a vertical rate to identify the relationship over the field time. Correct color framing is quickly verified by the position of the single sync vector dot relative to the color subcarrier vector when the monitor is externally referenced.

1760 Series

- For mixed format component/composite applications
- Optional SCH available
- Deluxe composite/component monitor
- Provides all 1740A features for checking the input and output of the edit suite
- Lighting display for quick, accurate setup of component sources
- Bowtie mode allows precise timing measurements

1750A Series

- Provides all 1740A features plus:
- Polar SCH display
- Color frame verification capabilities
- Ideal setup and maintenance tool
- Provides complete monitoring of the television signal in a single hand-carried package
- A natural for mobile production applications
- Full size display
- Permits observation of the video signal at up to 10X vertical and 25X horizontal magnification
- Portable carrying case available



1740A Series

- Provides basic component waveform monitoring
- Serves as a platform for the enhanced 1750A/1760 series
- Ideal for portable applications where a single, small, lightweight monitor can speed equipment setup and adjustment
- Picture display may be used to verify the feed to the recorder or transmission link
- Perfect for many VTR bridge applications when SCH capability is not required
- Includes remote control and 90/100Hz sweeps for D-2 servo observation

1740A	.....	\$4,395.00
1745A Dual-standard—NTSC/PAL version	.....	4,695.00
1750A	.....	5,900.00
1755A Dual-standard version	.....	6,200.00
1760	.....	4,900.00
1765 Dual-standard version	.....	5,200.00

Options:

74 White phosphor (for all models)	.....	\$ 100.00
SC SCH/color framing (1760 and 1765 only)	.....	1,700.00

Mounting Configurations

The 1760, 1750A and 1740A are shipped without a case for mounting. The following mounting configurations are supported:

1700F05 For rackmounting 2 half rack products; dual rack adaptor	.....	\$230.00
1700F00 For custom mounting a single half rack product; plain case	.....	65.00
1700F02 For portable use with a single half rack product; portable case with handle, feet and front cover	.....	100.00

1700F07 Utility Drawer

- Provides a tidy solution for accessory storage needs
- Over 1/2 cubic foot storage space and fits in an unused side of the 1700F05 side-by-side rack adaptor
- Can keep tools, cables, patch cords, terminators or office supplies handy, but out of the way
- For installation in remote van, thumbscrew holds the drawer securely shut, preventing any untimely accidental openings

1700F07	\$155.00
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1780R Video Measurement Set

- Full bandwidth analog video processing
- Precision waveform and vector measurements
- Polar SCH presentation with calibration mode
- 4 loopthrough video input channels
- Front panel probe input
- Component or composite waveform evaluation
- Measurement-grade, time and voltage cursors
- Precision differential phase/differential gain measurements even with noisy signals
- Stereo audio phase and amplitude display
- Digital control of all functions
- Touch screen user interface
- User definable semi-automatic setups
- Available for either NTSC or PAL standards



1780R	.....	\$10,500.00
Option 74 P4 white CRT phosphor (2 CRTs)	.....	200.00
1780F02 Portable carrying case for 1780R series sets	.....	295.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TSG-601 Serial Component Generator

▪ Provides a complement of 16 test signals selected for their utility in installation and maintenance applications in serial digital component environments ▪ Provides a 3-level approach to stress testing. . \$2495.00



TSG-422 Digital Component Generator

▪ Conforms to CCIR recommendation 601, SMPTE RP 125 and EBU Tech. 3246-E ▪ 4:2:2 format ▪ 8-bit signal generation ▪ Digital test signal outputs ▪ Separate Y, B-Y, R-Y clock outputs ▪ 525/60 and 625/50 operation ▪ NTSC or PAL blackburst outputs ▪ Genlock to 525/60 or 625/50 \$5500.00
Option 15 Serial video interface 800.00



TSG-370 Television Generator

▪ Simultaneous and independent component and composite test signal outputs ▪ 10-bit signal generation in all channels ▪ Test signals for routine maintenance and post production operations ▪ High stability, correctly SCH phased internal sync generator ▪ Blackburst (6 outputs), comp sync and comp blanking outputs ▪ Full color genlock ▪ Betacam®/NTSC and MII/NTSC versions \$5050.00
Option 01 Replaces Betacam signals with MII signals N/C



TSG-300 Component Television Generator

▪ 10-bit digital signal generation ▪ Bowtie ▪ Coring ▪ Valid ramp ▪ Shallow ramp ▪ User configurable controls ▪ Digital genlock. \$6500.00

TSG-200 Signal Generator

▪ Multiple blackburst outputs ▪ Character identification positionable within the active field ▪ Tape leader countdown with visual and audio cues ▪ Stereo audio tone with channel 1 identification ▪ 12VDC input ▪ Remote Control ▪ Applications: small production system SPG: bars/ID source for microwave links \$1950.00



TSG-170D Digital Composite Generator

▪ Digital and NTSC analog test signal outputs ▪ Digital and analog audio tone outputs ▪ RS-170A blackburst output for master SPG application ▪ Genlock with output timing offset ▪ 12-character identification ▪ Tape leader countdown \$5600.00
Option 15 Serial digital output 800.00



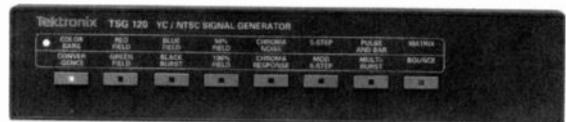
TSG-170A Test Signal Generator

▪ Simple, effective test signal complement ▪ RS-170A sync pulse generator with digital genlock ▪ Separate timing controls for sync and test signals ▪ Tape leader countdown \$5250.00
Option 01 Adds separate SMPTE bars output with 12-character ID, audio tone output and tape leader countdown 1000.00

TSG-130A

Multiformat Test Signal Generator

▪ Tailored for service applications ▪ Supports Betacam, MII, S-VHS, Hi8, GBR and NTSC formats ▪ BNC and S-connector outputs ▪ High accuracy test signal generation ▪ 2 channels of audio tone with channel 1 identification ▪ Compact and lightweight ▪ Blackburst output (option) . . . \$2595.00
Option 01 MII test signals N/C
Option 02 Adds a dedicated blackburst output (-4V composite sync). 300.00
Option 2) 0 IRE setup and blackburst (-4V composite sync). . . 300.00
Option 03 Sony PVW series service (includes blackburst; -4V composite sync) 300.00
Option 04 Panasonic MII service (no blackburst). 300.00



TSG-120 Test Signal Generator

▪ Tailored to service applications ▪ Supports S-VHS, Hi8, and NTSC formats ▪ Y/C, NTSC and S-connector outputs ▪ 2 channels of audio tone with channel 1 identification ▪ Blackburst output (option) . . . \$1850.00
Option 01 Adds blackburst option 300.00
Option 02 Cable signal set N/C

TSG-100 Test Signal Generator

▪ Transmission test signal set (option 01) ▪ 8-bit digital generation ▪ Conforms to RS-170A timing specifications ▪ 1kHz audio tone ▪ H or V rate scope trigger signal ▪ 12VDC operation also provided. \$1250.00
Option 01 Transmission test signal kit N/C

TSG-95 Handheld PAL/NTSC Signal Generator

▪ Complement of 20 PAL and 16 NTSC test signals ▪ Designed for applications ranging from transmission line testing to production equipment setup to general maintenance and troubleshooting to calibration ▪ Equally useful in testing audio links, providing 13 discrete audio tones from 50Hz-20kHz plus a tone sweep that covers the same range ▪ Audio output level can be set to 0, +4 or +8dBu ▪ Output is via 2 balanced XLR connectors, and identification clicks can be selected to easily distinguish between audio channels 1 and 2. \$895.00

Pathfinder TSG-90 NTSC Signal Generator

▪ 16 video test signals ▪ Extensive video ID capabilities ▪ 8 storage ID captions ▪ 2 channels of audio tone ▪ 13 selectable audio tone frequencies ▪ Audio tone sweep ▪ Audio tone ID ▪ Front-panel-selectable tone levels ▪ 4 front-panel user presets ▪ 10 to 16 hours alkaline battery life. \$695.00
119-4488-00 Rechargeable battery pack 55.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SPG-170A Sync Generator

▪ Digitally generated RS-170A blackburst ▪ Digital genlock ▪ High stability subcarrier ▪ Flexible pulse outputs ▪ Pulse timing independent of black ▪ Remote control timing presets ▪ Remote control ID presets
 This microprocessor-based system calculates genlock input burst phase and sync timing to control output timing and color framing. When no input signal is present, it switches to an internal oscillator. This high stability crystal oscillator, enclosed in a constant temperature oven, ensures long term frequency accuracy.

SPG-170A \$3475.00
 Option 01 SMPTE bars with ID and audio tone 1000.00



SPG-422 Component Digital Sync Generator

▪ Designed to integrate digital islands into an analog facility or provide master sync generation in an all-digital facility ▪ Provides up to 6 independently timeable analog blackburst outputs, full-time serial digital bars and black outputs, and clock-locked AES/EBU digital audio outputs ▪ The AES/EBU audio may also be embedded in the serial digital video

The SPG-422 can operate in single standard or dual standard modes. In single standard mode, blackburst outputs track the line and field rate selection for the digital outputs. Dual standard mode provides the flexibility needed in a master sync generator for post houses working in 525 and 625 component digital and analog PAL and NTSC, with every digital and analog black output individually configurable for line rate or standard. With the addition of 4 optional blackburst outputs, a total of 6 independently timeable analog reference signals are available to simplify timing of complex systems.

SPG-422 \$3900.00



ECO-170A Synchronous Changeover

▪ Automatic sync changeover ▪ Clean electronic switching ▪ Unique fault detection system ▪ 8 channels ▪ Manual override ▪ Remote control with fault indicators

The ECO-170A provides transparent, automatic selection of sync sources. Front panel controls allow simple access to changeover functions. A 2-level front panel lockout protects these controls in critical master sync systems.

The ECO-170A employs electronic sync transfer to ensure uninterrupted sync for critical production and on-air operations. Unlike other sync changeovers, the ECO-170A uses relay switching only for bypass in case of power failure. Manual sync source selection provides a means for periodic verification of changeover and backup sync generator operation.

ECO-170A \$2000.00

ECO-422 Digital Sync Changeover

▪ Each of the ECO-422's 11 user-configurable channels consists of primary and backup inputs and an output ▪ Amplitude detection is available on every channel but can be disabled on individual channels when needed ▪ All channels are capable of handling serial digital video, AES/EBU digital audio and analog blackburst

The ECO-422 provides automatic and manual operating modes. In automatic, the ECO-422 monitors the primary sync source outputs and switches to the backup should the primary fail. The manual mode allows the user to select the desired source in the unlikely event both sources have faults. The manual mode also facilitates periodic testing of the changeover itself. Fault and operating indicators provided on the front panel make it easy to keep track of the unit's operational status.

ECO-422 \$2500.00



WFM-90 Waveform/Vector/Picture/Audio Monitor

▪ Designed for audio and NTSC video monitoring in field production applications ▪ Combines the capabilities of 4 products: color picture monitor, waveform monitor, vectorscope and voltage-vs.-time audio monitor in a palmtop unit

Color Picture Monitor The WFM-90's 4" color Thin Film Transistor (TFT) LCD provides a full-screen display of any of the 4 display modes, which are accessed through a simple keypad and menus. Additionally, the waveform, vector or audio displays can be cut into a corner of the color picture display.

Waveform Monitor To identify amplitude and timing problems, the WFM-90's waveform monitor mode provides the functionality expected in a basic, single-input waveform monitor: X1 and X5 vertical gain; 1H, 2H and 2F sweep rates; vertical and horizontal positioning; and a luminance filter. To simplify identification of signals with excessive gain, an amplitude alarm changes the waveform's color above 100 IRE. System timing adjustments are made possible with an external reference input.

Vectorscope The vectorscope mode allows complete adjustment and evaluation of a video signal's color parameters. Simple on-screen menus provide access to the controls most commonly used on a vectorscope: X1, X5 or variable gain; color bar amplitudes of 75% or 100%; and a 360° phase shifter.

Audio Monitor Audio setup and monitoring in the field is simplified by the WFM-90's monaural audio display, which features variable reference level settings. A built-in headphone jack and an XLR input connector provide the capability to listen to program audio and to perform quick microphone checks.

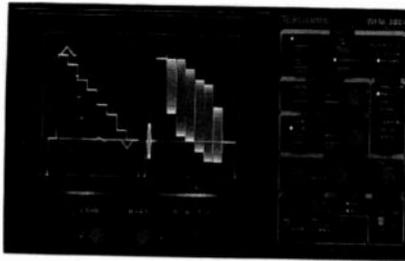
WFM-90 \$1995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WFM300A Component/ Composite Waveform Monitor

- Component and composite waveform display
- Menu selectable electronic graticules
- Lightning display for equipment setup and monitoring
- Bowtie display for system timing
- Menu selectable component format options
- Menu selected 625/50 or 525/60 configuration
- Separate GBR and composite picture monitor outputs
- Color gamut violation indication
- Front panel user recalls for fast operation
- UL, CSA, ANSI, IEC and FCC approved



The WFM300A provides a full set of component monitoring features. Its innovative and unique lightning display allows accurate adjustment of component equipment to replay Betacam or MII format tapes without a requirement for special test signals. Off-tape color bars provide all necessary information to quickly set the playback recorder setup, video gain, chroma and Y/C delay for accurate reproduction.

A component vector mode, useful for estimating color hue and saturation values, provides a familiar color bar vector display of color difference signals. Select option 10 or 14 for NTSC applications.

- WFM300A \$3900.00
- Option 05 Delete color shutter Deduct 350.00
- Option 10 Betacam/NTSC, 60Hz, IRECRG graticule N/C
- Option 14 MII/NTSC, 60Hz, IRECRG graticule N/C

WFM601i Serial Component Monitor

- Adds an eye pattern display for evaluating transmission path integrity
- Monitors the serial digital component signal for data, format and transmission errors to SMPTE RP165 standards (Tektronix EDH-error detection and handling)

Format and data errors are detected and clearly reported on 2 screens, the Status screen and the Format screen. The Status screen indicates: the presence or absence of video and embedded audio, whether the video is 8 or 10 bits, format errors, and full field and active picture CRC errored seconds. The Format screen provides additional detail when the Status screen indicates a format error. Illegal data, start of active video (SAV) placement error, line and field too long, and ancillary data checking are all indicated by the WFM601i. An integral Eye Pattern display provides definitive indication of the digital signal channel's analog performance.

- WFM601i \$6495.00

SDA601 Serial Digital Analyzer

- Analyzes the digital video signal for data errors and the presence and status of ancillary (ANC) data
- Battery operated, handheld package
- Convenient and practical tool for the critical task of stress testing digital transmission paths

Analysis performed by the SDA601 performs 4 categories of analysis:



Video Format Analysis Detects and reports on signal parameters including line/field rate, clock rate, active picture resolution (8- or 10-bit) and embedded audio status.

Data Format Analysis Reports data errors, including line/field length, illegal vertical interval switch, EAV/SAV format, illegal data values, ANC packet format and missing data bits.

Transport Layer Analysis Reports on errors typically caused by degradations in transmission path quality. Reporting includes full-field and active-picture EDH (error detection and handling) errors, EDH flags, full-field and active-picture CRC changes and incoming signal strength.

Video Content Analysis Verifies that Y, B-Y and R-Y amplitudes are within headroom specifications and provides additional information about the blanking intervals. Report information is displayed on a built-in LCD screen or can be routed to an external monitor. Additionally, reports can be sent directly to a printer or personal computer. A watch-dog mode automatically generates reports whenever errors occur. The SDA601 also contains a frame buffer. Video stored in the frame buffer can be used as a reference or output via the picture monitor output for further analysis. Users can manually store a frame or configure the SDA601 to automatically store a frame when an error is detected.

- SDA601 \$2495.00

AM70 Handheld Digital Audio Analyzer/Generator

- Designed for troubleshooting audio systems
- Simplified menus and keypad controls
- Compact display screen

The AM70 operates in 3 modes:

Generator Mode Lets the AM70 serve as a source of analog and digital test signals. The AM70 generates the signals by direct digital synthesis, using either its own internal clock or an external digital signal. Output signals from the instrument can be synchronized with external digital audio signals.

Monitor Mode Lets the AM70 display important aspects of a digital signal. By connecting an optical or electronic signal, an operator can monitor states of validity, parity, channel status and user bits. The AM70's internal D/A converter makes the signal audible through an internal speaker or headphone jack. A user's option is for the AM70 to route signals to the instrument's balanced analog outputs or echo the digital input signal on the optical or electronic digital outputs.

Modify Mode Lets a user install the AM70 in-line with a digital signal to perform real time editing of digital audio data. This capability lets the user edit status and user bits, validity and parity bits, the length of audio samples, and left/right audio signals.

Users will have the option of defining 4 "Quick Keys," or presets, for each operating mode. Each key can invoke a series of tests, simplifying routine calibration and troubleshooting tasks. The AM70 features balanced analog outputs, balanced and unbalanced digital inputs and outputs, optical inputs and outputs, an internal speaker and a headphone jack. It is battery-powered and adaptable to AC.

- AM70 \$1995.00



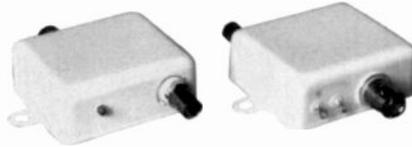
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Fiber Optic Video Link

- Compact in size
- Offers full interface of video transmission via a multi-mode ST to a 75 ohm BNC
- Flat frequency response
- Better than 65dB S/N ratio
- Miniature size, very low power consumption
- Wide operating temperature and power supply range
- Frequency response: 5Hz - 40MHz, -3dB point
- Video input level: 1V peak to peak
- Video output level: 0.5V to 2V peak to peak, adjustable
- S/N ratio: Better than 65dB, back to back
- Optical link margin: 10dB @ 40MHz (50/125), 12dB @ 40MHz (62.5/125)

100716 Fiber Optic Video Link (pair) \$575.00



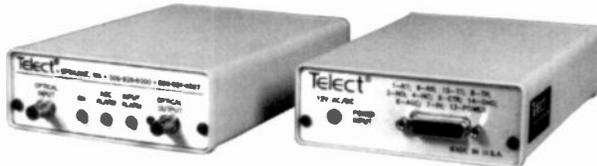
Light Source and Power Meter Test Kit

- Compact and easily carried on-site for maintenance, testing and installation activities
- Complete with operating manual, carrying case and ST type adaptor
- -50dBm receiver sensitivity
- -20dBm optical output

015-7000-0003 Multimode fiber optical light source and power meter test kit for 850nm and 1300nm wavelength \$1495.00

015-7001-0002 Multimode optical light source for 850nm and 1300nm wavelength, ST launch interface \$995.00

015-7002-0002 Optical power meter for dual 850nm and 1300nm wavelength light sources 495.00



Full Duplex Modems

- Meets Bell System operating standards
- Full optical dynamic range
- Blue signal and AIS insertion for alarms
- VCXO phase-locked clock recover loop
- Transparent to all line codes
- Voltage options: +15VDC, -48VDC
- Low power consumption
- Ideal for small office sites, customer premise applications and local area networks
- Designed for transmission of DS1 signals over a pair of multimode fiber optic conductors for distances up to 16,400'
- Rackmountable or stand-alone

015-7601-0000 850nm multimode Fiber Optic T-1 Link, with LED/PIN optical device, +15VDC \$ 522.00

015-7603-0000 850nm multimode Fiber Optic T-1 Link, with LED/PIN optical device, -48VDC 698.00

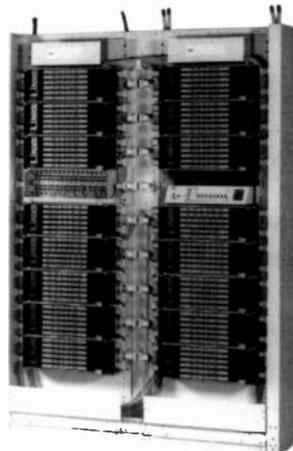
101797 +15VDC power supply 35.00

015-7702-0000 1300nm single mode Fiber Optic T-1 Link, with laser/APD optical device, -48 VDC and +15VDC input voltage 3319.00

015-7722-0000 1300nm single mode Fiber Optic E-1 Link, with laser/APD optical device, -48VDC and +15VDC input voltage. . . 3395.00

LINXSM Lightwave Integrated Network Cross-Connect System

- Modular, expandable network hub for fiber optic cable interconnection, termination and storage
- Ensures crush, crimp and micro-bend protection while providing exceptional cable organization for up to 12 fibers per tray
- Patch and splice trays accept all industry standard connectors or splice pads
- Patch shelves available with pre-connectorized stubs for routing to the splice vault
- Each shelf accepts 6 splice, patch or storage trays in any configuration providing flexible installation for any site, from a full multi-frame lineup to a wiring closet application
- Standardization: 23" wide fiber frame fits into existing

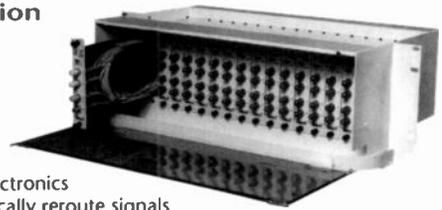


- 12" deep equipment lineups
- Splice: 24 fibers per tray, 144 fibers per shelf, 1,296 fibers per 7' frame (using 1.7mm jacketed fibers or 900(micro)m unjacketed fiber)
- Patch: 12 ports per tray, 72 ports per shelf, 648 ports per 7' frame (using 3mm fiber)
- Storage: 30m per tray, 180m per shelf, 1,620m per 7' frame (using 3mm fiber)

LINXS POR*

Optical Protection Switch

- 19" switch chassis accepts up to 14 FP or EP modules
- FP modules protect optical facilities without the need for redundant electronics
- FP modules automatically reroute signals from a working line to a protection line when a signal outage condition is generated from the receive equipment
- EP modules equipped with a detector circuit that recognizes degradation of the fiber transmission equipment and automatically reroutes optical feeder trunk to redundant fiber transmitter
- Switch configuration: 2 x 2 (2 inputs, 2 outputs)



- Control: 3-position front panel switch for manual control, A, B or auto setting (auto or remote control requires optical switch controller), bi-color LED indicates switch setting, green for position A (straight through), red for position B (optical paths crossed)
- Switch characteristics: Insertion loss: <0.5dB, 0.3dB typical, Wavelength range: 1310 ±20nm, or 1550 ±20nm, Crosstalk: <20dB across entire wavelength range, Back reflection: <55dB, Switching speed: 10ms, Repeatability: <0.05dB
- Fiber connection: single mode, ST connector

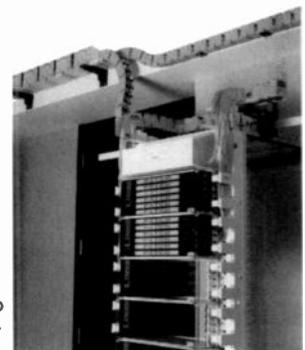
Equipment protection, 1 x 2 or 2 x 2 switch module with built-in detector circuit \$3850.00

Feeder protection, 1 x 2 or 2 x 2 switch module 2250.00

19" chassis, 14-position with power supply 485.00

KutschLinx CMS

- Overhead cable management
- Constructed with yellow UL 94V-0 fire retardant plastic
- Mounted anywhere overhead cable trays are used to replace the inflexible, rain gutter-like troughs and to create a flexible routing system
- Single-piece main units snap together to form cable routing channels of any desired length providing complete fiber optic protection and routing between fiber frames and transmission equipment or fiber vaults
- Routing channels can be rotated in the horizontal plane to conform to any degree turn while maintaining a minimum radius for cable, effectively eliminating microbending as well as providing a secure path for the fiber
- Will hold 800 fiber cables or 144 coax cables



KutschLinx CMS POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VCR Paks

VCR Paks feature vinyl, double-sided white card balance. Velcro-closing pockets for videotapes. Handy pouch for gadgets and accessories. Velcro straps to hold microphone. Loops to keep cables untangled. Made with rustproof welded "D" rings and tough-as-nails seat-belt strapping. Comes with short handle strap and padded shoulder strap. Available in wide selection of sizes designed to hold all popular models.

TD2	Sony portable DVR-2 recorder	\$185.00
T20	Sony BVU-20, Thomson VT-625, Bosch BCB-20, CVR 201	185.00
T25	Sony BVW-21/25, Thomson VT-624/626, Bosch BCB-21/25	185.00
T35	Sony BVW-35 Betacam SP portable recorder/player	185.00
T50	Sony BVU-50	185.00
T68	Sony VO-6800	185.00
T74	Panasonic AG-7400	185.00
T88	Sony VO-8800	185.00
T100	Hitachi VL-S100 S-VHS Hi-Fi	185.00

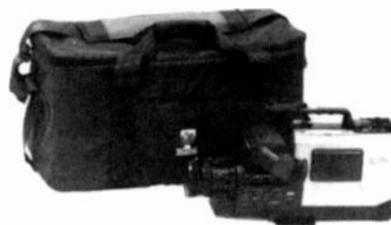
All models available in blue, black, burgundy and camouflage*.

Camera Paks

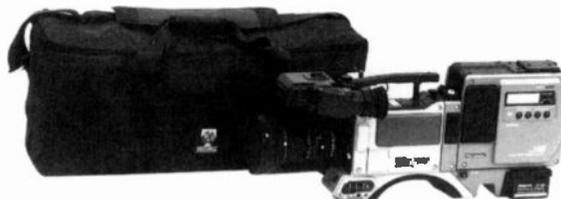
Professional cameras survive the daily bumps and jolts with these top performing foam-cushioned paks. Durable and stain repellent Nylon pakcloth keeps safety in, dust and weather out. Comes with heavy-duty padded handle strap and adjustable shoulder strap.



TCAM-Mini For camcorders and small cameras, 9 1/2"H x 17"W x 7"D \$140.00



TCAM-Small Universal case for cameras, 11 1/4"H x 21"W x 9"D \$200.00



TCAM-Large Universal case for Betacams, 11 1/4"H x 26 1/2"W x 9"D \$200.00
TCAM-X Large 13"H x 28 1/2"W x 9"D 210.00

All models available in blue, black, burgundy and camouflage*.

Computer Paks

Shields delicate chip electronics and keyboards in rugged travel and field conditions. Great portable protection for small computers, peripherals and cellular phones. Plenty of sleeves and pockets for diskettes, pens, file folders and accessories. Secured with smooth-zippered closures. Comfortable padded handles; palm model has detachable wrist strap.

T200 Holds desk Macintosh, with keyboard pouch, 17"H x 11"W x 10"D .. \$103.00



T300 Holds handheld palm computer, 9 1/2"H x 9 1/2"W x 5"D \$20.00



T450 Holds laptop and notebook computers, 12"H x 15"W x 2"D \$60.00

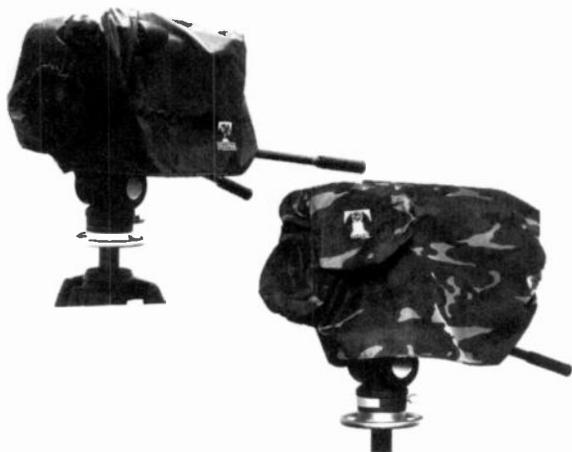


All models available in blue, black, burgundy and camouflage*.

*Price of camouflage fabric may be slightly higher. 2 camouflage types available: tropical (various shades of green) and desert (various shades of brown).

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Camera Rain Covers

Tough, tight-woven nylon pakcloth insulates all popular models of video cameras from damaging weather. With sturdy elastic neck guards for lens and viewfinder. Also available in lightweight metallized fabrics to protect your gear against surveillance, radar, antenna dish reflection, electromagnetic interference (EMI), radio frequency interference (RFI), and electrostatic charges.

- T1 Sony, DXC-3000, EVW-300, Hitachi Z-One SK-F2, Panasonic AG-460u, 11½"H x 5½"W x 28"D \$ 60.00
- T2 RCA TK-76/86 others, 19½"H x 5½"W x 41"D 60.00
- T3 Betacams, Sony DXC-537/BVW-5, BVW-300, Panasonic WV250/AG-7450, others, 12¾"H x 5½"W x 31½"D 60.00
- T4 Panasonic AG-186, 195 others, 10"H x 5½"W x 22½"D . . 60.00
- T5 Panasonic AG-455, 10"H x 5½"W x 19½"D 60.00
- T6 Sony EVO-9100, 10¾"H x 5"W x 13½"D 60.00
- T1RFI With metallized covers, 11½"H x 5½"W x 28"D . . . 350.00
- T2RFI With metallized covers, 19½"H x 5½"W x 41"D . . . 350.00
- T3RFI With metallized covers, 12¾"H x 5½"W x 31½"D . . . 350.00
- T4RFI With metallized covers, 10"H x 5½"W x 22½"D . . . 250.00
- T5RFI With metallized covers, 10"H x 5½"W x 19½"D . . . 250.00
- T6RFI With metallized covers, 10¾"H x 5"W x 13½"D . . . 250.00

All models available in blue, black, burgundy and camouflage*.

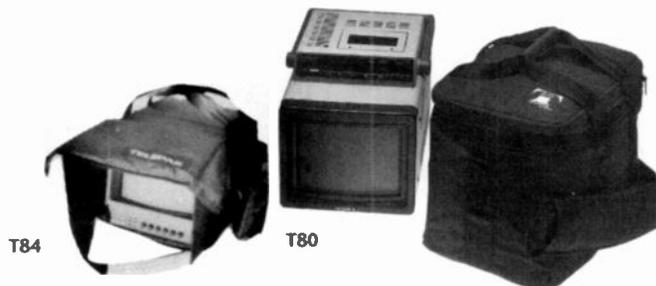
Projector Paks

Defend your projector against the whacks and jostles of travel with this padded and weight-balanced carrying case for your Sharp or GE models.

- T1XV Holds Sharp XV10P, 23"H x 9¾"W x 10½"D \$150.00
- TGE Holds GE LCD-12 and LCD-15, 22"H x 9¾"W x 9¾"D . . . 135.00



All models available in blue, black, burgundy and camouflage*.



Monitor Paks

With grip-friendly padded handle and shoulder strap. Quick and easy, 2-way zippered closures. Generous side pockets for videotapes and accessories.

- T84 Sony, PVM-8044Q/8041Q/8040 \$135.00
- T80 Sony EVM-8010, BVM-8021, PVM-8020, 8½"H x 9"W x 14"D . . 125.00
- TM5 Panasonic AG-520, 21"H x 20½"W x 19"D 185.00
- TAG Panasonic AG-513, 15"H x 15"W x 14"D 150.00
- TAGM Panasonic AG-500, AG-550, AG-560, 11½"H x 16½"W x 13½"D . . . 125.00



All models available in blue, black, burgundy and camouflage*.



Universal Paks

Just outline the footprint of your equipment and grab an Xacto knife. You'll have a completely customized carrying case within minutes. Theft-deterrent design and extra-resilient padding will safeguard your most delicate gear. Non-memory foam won't shift or pack down with time. Insulates equipment from high-level impacts and temperature extremes.

- Tucp-Small 5½"H x 19"W x 14"D \$120.00
- Tucp-Large 5½"H x 22½"W x 16½"D 134.00

All models available in blue, black, burgundy and camouflage*.

*Price of camouflage fabric may be slightly higher. 2 camouflage types available: tropical (various shades of green) and desert (various shades of brown).

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Tripod Paks

Lightweight and convenient protection for tripods on the go. Strap handle affords best balance. Inside pockets hold tripod plates and accessories. 2-way zipper closing for easy access and loading.



- Tri-Medium 7"H x 42"W x 8"D \$140.00
 Tri-Large 7½"H x 45"W x 10¼"D 160.00

Lighting Pak

This heavy-duty case safely holds up to 3 lights, with removable dividers and handy end pockets for cords and lighting accessories. 2-way zipper.



- TLite 8"H x 25"W x 10"D \$150.00

SPECIALTY PAKS

Briefcase Pak

A place for all your paperwork, contracts, cards, pens and notebooks—in a matching soft carrying case with crisp, no-nonsense styling. Might as well stick in the calculator, trade journals and passport, too. There's plenty of room in this multi-pocketed attache with unique zippered front panel.



- T-Brief 12"H x 16½"W x 21½"D \$135.00

Gaffer Paks

Favorite working bag of videographers. 3 huge zippered pouches expand to meet your every need. These practical and versatile bags will look great through years of steady, heavy use.



- TGaf-20 8"H x 18"W x 6"D \$120.00
 TGaf-Mini 8"H x 12"W x 8"D 90.00

Mouse Pad

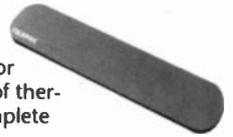
Finest cushioned traction for top mouse performance. 1 size.

- TMP ¼"H x 9½"W x 8"D \$8.00
 Gray. Also available in blue and burgundy for custom orders.



Wrist Pad

Say "hello" to ergonomic relief, and avoid carpal tunnel syndrome. Perfect wrist-saver for use with trackballs, mice or calculators. Pad of thermo-formed cross-link polyethane retains complete memory for proper arm support.



- TWP ¾"H x 18½"W x 4"D \$15.00
 Gray. Also available in blue and burgundy for custom orders.

Diskette Cases

Keep those irreplaceable diskettes under lock and cover. Sharp styling in no-guesswork clear plastic makes for efficient organization of your computer files.



- TLD3 Holds 80 3.5" computer diskettes \$12.00
 TLD5 Holds 120 5.25" computer diskettes 15.00

Hip Pak

Belted gaffer bag keeps batteries and everything else within easy reach. Pockets safely hold items large and small, with secure 2-way zippered closures.



- THip-Small 4½"H x 12½"W x 3"D \$20.00
 THip-Large 6½"H x 16"W x 3¼"D 90.00
 Available in blue, black, burgundy and camouflage*.

Lens Pak

Cushion your precision optics against shake, rattle and collision. Safeguard your lens in this small but mighty piece of insurance against shock, dust and dampness. Velcro closure. Universal size fits all standard lenses.



- TL-pak 4"H x 3½"W x 4"D \$20.00
 Available in blue, black, burgundy and camouflage*.

Lens Cover

With elastic neck guard to shield your camera lens from marring damage, dust and weather. Universal size fits all standard lenses.



- TL-cov 5½ x 5¼ x 4 \$20.00

T-Strap

Most TELEPAK soft-sided cases come with this universal thick-padded shoulder strap. 2 straps, used together, instantly transform a carrying case into a front-pack or backpack. With 14" of the finest quality suede backing. Tough, detachable and adjustable, with heavy-duty, non-slip metal fasteners.

- T-Strap 3¾"W x 57"L . . . \$20.00
 Available in blue, black, burgundy and camouflage*.



*Price of camouflage fabric may be slightly higher. 2 camouflage types available: tropical (various shades of green) and desert (various shades of brown).

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PROMPTING SYSTEMS



TeleScript Delivery
(computer not included)

Complete Package Prices

	1-Camera System	2-Camera System
17" TV Studio On Camera System w/TeleScript PC Delivery System	\$4,810.00	\$6,680.00

System includes 17" monitor prompter, monitor lensview assembly, monitor mount assembly, workstation monitor, computer not included

12" TV Studio On Camera System w/TeleScript PC Delivery System	\$4,410.00	\$5,880.00
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System includes 12" monitor prompter, monitor lensview assembly, monitor mount assembly, workstation monitor, computer not included

9" TV Studio On Camera System w/TeleScript PC Delivery System	\$4,210.00	\$5,480.00
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System includes 9" monitor prompter, monitor lensview assembly, monitor mount assembly, workstation monitor, computer not included

	1-Podium System	2-Podium System
17" Public Speaking System w/TeleScript PC Delivery System	\$6,390.00	\$10,350.00

System includes two 17" monitor prompters, 2 mirrorview bases, poles, clamps and beamsplitters, workstation monitor, computer not included

12" Public Speaking System w/TeleScript PC Delivery System	\$6,090.00	\$9,250.00
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System includes two 12" monitor prompters, 2 mirrorview bases, poles, clamps and beamsplitters, workstation monitor, computer included

To include 386 Desktop or Keycomp computer Add \$1,575.00

To substitute a Telepod for the monitor mount assembly . . . Add \$125.00

To make 9" and 12" monitors DC powerable Add \$185.00

Computer Programs

TeleScript PC \$2,830.00
Program includes controller and EGA/IVSS boards, master disk, cables and manual

TeleScript LT \$2,830.00
Program includes VGA to NTSC composite converter, mouse or trackball, master disk, cables and manual



Paper Feed Systems

Telecue with hand control	\$2,590.00
Telescript with hand control	2,890.00

Accessories

Dual control for telecue	\$310.00
IVSS board	510.00
EGA video board	460.00
Controller board	580.00
10 pushbutton controller	890.00
Manual	120.00
Cables	90.00
Master disks	180.00
Fail safe controller	650.00
Show controller	850.00
4-position video blanking box	145.00
2-position video blanking box	115.00

Beamsplitters

Public speaking B/S	\$115.00
TV studio B/S for 9"	115.00
TV studio B/S for 12"	135.00
TV studio B/S for 17" (standard hood only)	145.00

Counterweights

For 12" system	\$ 77.00
For 17" system	128.00

Telepods

Off camera support with casters	\$790.00
Lowboy adaptor plate	310.00

Monitor Mount Assemblies

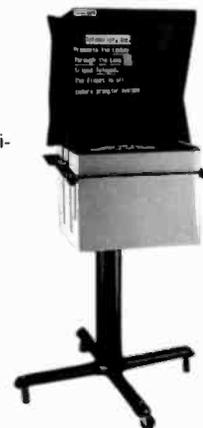
Assembly includes CBG plate, riser block, monitor mount, counter-weight and hardware

9" monitor mount assembly	\$395.00
12" monitor mount assembly	475.00
17" monitor mount assembly	505.00
3" riser block	75.00
4" riser block	85.00
9" monitor mount	125.00
12" monitor mount	150.00
17" monitor mount	175.00

Monitor Lensview Assemblies

Assembly includes beamsplitter, hood and mask

9" lensview assembly	\$325.00
12" lensview assembly	365.00
17" lensview assembly	515.00



Monitor Prompters

9" studio monitor prompter	\$ 690.00
12" studio monitor prompter	830.00
17" studio monitor prompter	1,190.00
12" podium monitor prompter	790.00
17" podium monitor prompter	990.00
5" Ikegami workstation monitor	400.00
9" Ikegami workstation monitor	270.00
12" Ikegami workstation monitor	500.00

Podium System Parts

12" mirror view base, pole, panels, clamp and beamsplitter	\$790.00
17" mirror view base, pole, panels, clamp and beamsplitter	990.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TELEX®

TELEX COMMUNICATIONS, INC.



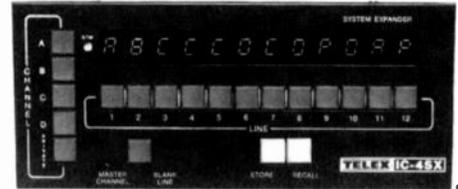
INTERCOM SYSTEMS

Audiocom Headset/Intercom System

Audiocom is a headset intercom system consisting of modular components that can be connected with conventional wiring to form a simple party line communication system or a more sophisticated network using "director controlled" multi-channel configurations.

Audiocom Cabled System Components

Model No.	Description	Price
Power Supplies		
PS-1F	1-channel, flush mount	\$160.00
PS-2L	2-channel with combine/isolate feature	340.00
Programmable Station Controller		
IC-4SX	12-channel matrix controller, for IC-4M or IC-4R.	\$710.00
Remote Belt Pack Stations		
BP-1	1-channel with call light and mic kill. Compatible with unbalanced systems	\$199.00
BP-2	2-channel with call light and mic kill. Compatible with unbalanced systems	269.00
IC-1B	1-channel, circuit board only.	95.00
IC-1/LS	1-channel with call light, metal case	210.00
IC-2A	2-channel with call light, metal case	280.00
IC-2B	2-channel binaural with call light, metal case.	330.00
Remote Stations, Flush Mount		
IC-1F/LS	1-channel flush mount with call light.	\$185.00
IC-2A/F	2-channel flush mount with call light.	225.00
Remote Speaker Stations		
IC-SR	Speaker only, for IC-4M, IC-4R, BTR-200 and IC-2 MAX	\$130.00
SS-2F	2-channel flush mount with mic, balanced/unbalanced compatible.	299.00
SS-2P	2-channel portable with mic, balanced/unbalanced compatible	399.00
Interface and Accessories		
CCB-1	Interface Telex balanced line to Clear-Com unbalanced line	\$100.00
IF-1	Interface to 2, 3 or 4 wire systems with holding coil for telephone systems	595.00
JB-2	2-channel/1-channel splitter junction box	150.00
TW-5W	1-in 5-out splitter box	106.00
Wall Plates (Passive Junction Plate Without Electronics)		
WP-1	Wall plate, 1-channel (XLR-3)	\$19.00
WP-2	Same as above, with 1-channel/2-channel switch	25.00
WP-3	Wall plate, 2-channel (XLR-6 Neutrik)	25.00
Rackmount Kits		
RMK-S	Single rackmount kit mounts 1/2 rack components in center of 19" rack	\$40.00
RMK-D	Dual rackmount kit mounts 1/2 rack components side-by-side in 19" rack	35.00
RMK-M	Quad rackmount kit mounts 1/4 rack components with 1/2 rack components or three 1/4 rack components together in a 19" rack	45.00
RM-11	Single rack, fits PS-2L, IC-2MAX, IC-4M, IC-4R, IC-4SX, IC-SR and IF-1	40.00
RM-12	Dual rack, fits same as above	31.40
RM-13	Single rack for metal belt packs	52.00
RM-14	Rack for SS-2P	30.00



RADIOCOM™

Wireless

Intercom System

The RADIOCOM system operates in the high band, 150-216MHz frequency range, and Telex offers several frequencies available from stock. The BTR-200 base station repeater has 4 receive channels and 1 (common) transmit channel. The TR-200 belt-pack transceiver has 1 transmit and 1 receive channel. As many as 4 belt-pack transceivers can operate in a fully duplex network with 1 BTR-200 base station. By "daisy-chaining" 2 stations together, larger networks can be achieved. The RADIOCOM wireless system can be integrated into most existing wired intercom systems, including RTS and Clear-Com. The TR-200 belt-pack transceiver is compatible with most intercom headsets with 4-pin XLR connectors.

The lightweight (13 oz.) belt-pack transceiver was designed to be water resistant and withstand abusive industrial applications. It features simple push-to-talk operation with handy low battery and overmodulation indicators. It has an impressive 24-hour battery life using 6 alkaline "AA" batteries. By using "AA" rechargeable NiCad batteries, 8 hours of use can be expected.



RADIOCOM WIRELESS INTERCOM SYSTEM COMPONENTS

WIRELESS COMPONENTS		Price
BTR-200 II	4-person base station with antennas, power supply and rackmounts	\$1625.00
BTR-200B II	BTR-200 for base-to-base operation only, with accessories	1775.00
TR-200	Portable belt-pack transceiver with battery sled	550.00
TR-200P	Push-to-transmit portable belt-pack transceiver with battery sled	550.00
BASE STATION ACCESSORIES		Price
UA-58L	Omnidirectional 3/4-wave transmit/receive antenna low, 154-172MHz	\$ 63.00
TX-58H	Omnidirectional 3/4-wave transmit antenna high, 177-184MHz	63.00
RX-58H	Omnidirectional 3/4-wave receive antenna high, 205-216MHz	63.00
YAG-1	High performance directional Yagi antenna 150-157MHz	66.00
YAG-2	High performance directional Yagi antenna 169-186MHz	66.00
YAG-3	High performance directional Yagi antenna 204-216MHz	66.00
ALP-1	Directional super performance log antenna 165-216 MHz	250.00
CX-4	50 ohm copper stranded coax cable 4'	15.70
CX-25	50 ohm copper stranded coax cable 25'	21.40
AWB-1	Wallmount bracket and screws for 3/4 wave antennas	12.10
ASA-1	Microphone stand bracket for 3/4 wave antennas	15.70
PA-2	Replacement wall type power supply BTR-200 120V	35.00
PA-2E	Replacement wall type power supply BTR-200 240V	38.00
AUDIOCOM™/RADIOCOM™ BELT-PACK ACCESSORIES		Price
CL-1	Replacement wire clip for metal series belt-packs	\$ 9.60
CL-2	Replacement black plastic clip for BP-1, BP-2, TR-200	5.99
CL-3	Replacement gray plastic clip for BP-1, BP-2, TR-200	5.99
BC-4	NiCad battery charging system with charger, sled and batteries for TR-200	50.00
BSL-1	Spare battery sled for TR-200	11.98
NCB-AA	NiCad AA size battery for TR-200 (requires 6)	3.85
CG-9	9V charger for TR-200 (snaps onto battery sled)	24.00
TRH-1	Heavy-duty leather swivel holster with belt loop for TR-200	89.95

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MICROPHONES/ WIRELESS MIC SYSTEMS



TELEX®

TELEX COMMUNICATIONS, INC.

ELM Series Micro-Mini™

Electret Lapel Microphones

The ELM series offers an 18' cable with stripped and tinned leads, a LEMO connector with a 4' cable, and a TA-4F connector with a 4' cable designed for wireless applications, or a 6' cable ideal for wired use. A foam windscreen, tie tack and clothing clip (adjustable for vertical or horizontal use) is included.

ELM-22SYS Omnidirectional

Includes: ELM-22SL with 6' cord, universal tie clip, tie tack, windscreen and PS-9 power supply with 9V alkaline battery . . . \$325.00

ELM-33SYS Unidirectional

Includes: ELM-33SL with 6' cord, universal tie clip, tie tack, windscreen and PS-9 power supply with 9V alkaline battery . . . \$330.00

ELM-22 Omnidirectional Electret Lapel Variations

ELM-22PT Stripped and tinned leads, 18' cord length \$180.00

ELM-22S TA-4F connector, 4' cord length. 195.00

ELM-22SL TA-4F connector, 6' cord length. 195.00

ELM-22L LEMO connector for Telex wireless transmitters, 4' cord length 200.00

ELM-33 Unidirectional Electret Lapel Variations

ELM-33PT Stripped and tinned leads, 18' cord length \$195.00

ELM-33S TA-4F connector, 4' cord length. 200.00

ELM-33SL TA-4F connector, 6' cord length. 200.00

ELM-33L LEMO connector for Telex wireless transmitters, 4' cord length 205.00

EGM Series Microneck™ Gooseneck Microphones

These perma-mount and quick-mount gooseneck microphones are available in either a 12" or 19" style. The sleek and sturdy EGM Micronecks offer outstanding gain before feedback and background rejection, as well as a silent mic on/off switch. These microphones are perfect for high quality sound reinforcement, recording and public address applications.

EGM-40Q 19" Microphone System

Includes: EGM-40Q with XLR-3M quick-mount connector, windscreen, matte black finish. \$220.00

EGM-40P 19" Microphone System

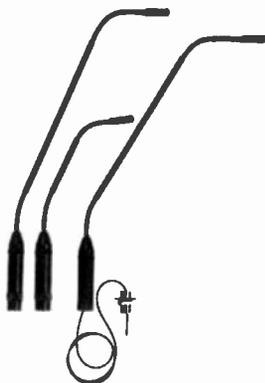
Includes: EGM-40P permanent mount with 10' unterminated cord, XLR-3M connector, windscreen, podium mounting hardware, matte black finish. \$240.00

EGM-41Q 12" Microphone System

Includes: EGM-41Q with XLR-3M quick-mount connector, windscreen, matte black finish 210.00

EGM-41P 12" Microphone System

Includes: EGM-41P permanent mount with 10' unterminated cord, XLR-3M connector, windscreen, podium mounting hardware, matte black finish 230.00



Accessories

PS-9 9V Microphone Power Supply Module

Matte black diecast metal housing with belt clip, alkaline battery, low noise circuitry with chest resonance filter, transformer isolated, balanced XLR-3M output, TA-4M input connector, power on switch. . . . \$130.00

SH-40 Shockmount Kit

Matte black heavy-duty rubber shockmount with hardware and trim ring. For use with all EGM series microphones \$50.00

MC-S Single mic clip for all ELM models 6.50

MC-D Double broadcast clip for all ELM models. 7.50

MC-T Tie tack for all ELM models. 3.60

- WS-E Windscreen for all ELM models \$ 4.25
- WS-G Windscreen for all EGM Microneck gooseneck models 7.50
- ZP-1 Simulated leather zipper pouch for all ELM models 6.80
- PL-50 Replacement Switchcraft TA-4F connector 16.00
- PL-100 Replacement LEMO connector. 24.00

Wireless And Assistive Listening Systems

FMR-70L Lapel Mic System (71063-XXX)

Includes: ■ FMR-70 True Diversity Pos-i-Phase receiver ■ WT-55 belt pack transmitter ■ WLM-50 lapel microphone ■ Two ¼ wave antennas ■ UL and CSA approved AC wall pack transformer \$599.00

FMR-70H Handheld System (71066-XXX)

Includes: ■ FMR-70 True Diversity Pos-i-Phase receiver ■ HT-100/10 electret handheld transmitter/mic (with Telex TE-10 head) ■ Microphone stand adaptor ■ Two ¼ wave antennas ■ UL and CSA approved AC wall pack transformer \$690.00



FMR-100L Lapel Mic System (70884-XXX)

Includes: ■ FMR-100 True Diversity Pos-i-Phase receiver ■ WT-60 belt pack transmitter ■ ELM-22S MicroMini electret lapel microphone ■ Two ¼ wave antennas ■ UL and CSA approved AC wall pack transformer \$899.00

FMR-100H Handheld System (70886-XXX)

Includes: ■ FMR-100 True Diversity Pos-i-Phase receiver ■ HT-100/10 electret handheld transmitter/mic (with Telex TE-10 head) ■ Microphone stand adaptor ■ Two ¼ wave antennas ■ UL and CSA approved AC wall pack transformer \$925.00

FMR-450L Omni Lapel Mic System (71139-XXX)

Includes: ■ FMR-450 True Diversity Pos-i-Phase receiver ■ WT-450 UHF metal micro belt pack transmitter ■ ELM-22L MicroMini electret lapel microphone ■ 2 colinear ground independent antennas with remote antenna mounting hardware and 6' cable assemblies ■ UL and CSA approved AC wall pack transformer \$1399.00

FMR-450C Cardioid Lapel Mic System (71140-XXX)

Includes: ■ FMR-450 UHF True Diversity Pos-i-Phase receiver ■ WT-450 UHF metal micro belt pack transmitter ■ ELM-33L cardioid MicroMini electret lapel microphone ■ 2 colinear ground independent antennas with remote antenna mounting hardware and 6' cable assemblies ■ UL and CSA approved AC wall pack transformer \$1415.00

FMR-450H Cardioid Handheld System (71145-XXX)

Includes: ■ FMR-450 UHF True Diversity Pos-i-Phase receiver ■ HT-450/65 UHF handheld transmitter with Telex 65ELE condenser element ■ 2 colinear ground independent antennas with remote antenna mounting hardware and 6' cable assemblies ■ UL and CSA approved AC wall pack transformer TBA*

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TELEX®

TELEX COMMUNICATIONS, INC.



WIRELESS MIC SYSTEMS

Wireless and Assistive Listening Systems (cont'd)

SM-1 SoundMate+ Assistive Listening System (70679-XXX)

Includes: ■ AAT-2N base station narrowband transmitter ■ 3 AAR-10N single channel narrowband receivers ■ 3 SEB-1 earbuds with foam covers ■ WP-1 wall plaque ■ One ¼ wave antenna ■ UL and CSA approved AC wall pack transformer \$780.00

PAS-1 Portable Sound System With Wireless Mic Receiver (70995-XXX)

Includes: ■ PAS-1 portable sound system with control panel, wireless receiver, collapsible antenna, AC cord, 50W amplifier, 8" H compliance woofer and high frequency horn tweeter \$925.00



Receivers

FMR-70 True Diversity Pos-i-Phase Receiver (71061-XXX)

Includes: ■ Two ¼ wave antennas, balanced output, audio and RF meters and UL and CSA approved AC wall pack transformer \$329.00

FMR-100 High Performance True Diversity Pos-i-Phase Receiver (70880-XXX)

Includes: ■ Two ¼ wave antennas, transformer balanced output, audio and RF meters and UL and CSA approved AC wall pack transformer . . . \$567.00

FMR-450 Broadcast Quality Pos-i-Phase True Diversity UHF Receiver (71131-XXX)

Includes: ■ Transformer balanced output, level adjustment, audio and RF meters, diversity phase indicators, (2) co-linear ground independent antennas, remote mounting hardware, and 6' coax cables and UL and CSA approved AC wall pack transformer \$840.00

FMR-200 Extra High Performance Pos-i-Phase True Diversity Receiver (70882-XXX)

Includes: ■ TLX RF noise reduction, two ¼ wave antennas, cables, line/mic switchable output, audio and RF meters, headphone output, rack-mount kit and UL and CSA approved AC wall pack transformer . . \$899.00

FMR-4 Broadcast Quality 4-Channel Frequency-Agile Pos-i-Phase True Diversity Receiver (70270-XXX)

Includes: ■ TLX RF noise reduction, two ¼ wave antennas, line/mic switchable output, frequency indicator, audio and RF meters, headphone output, IEC type voltage selectable power receptacle and cord and rackmount kit \$2000.00

ENG-1 Extra Small, Portable, Single-Channel Dockable Receiver (71078-XXX)

Includes: ■ Balanced output, headphone output, level and squelch controls, "rubber duckie" antenna, removable belt clip and Velcro® mounting strip ■ Operates on 9V battery ■ Cables sold separately \$285.00



ENG-4 Portable, Frequency-Agile Dockable Receiver (64490-XXX)

Includes: ■ 4 selectable frequencies, Pos-i-Squelch, RF/audio/battery meter, balanced output, headphone output, level controls, "rubber duckie" antenna and Velcro mounting strip ■ Operates on 4 "AA" size batteries \$1500.00

Transmitters

- HT-100/10 (70660-XXX) Handheld mic/transmitter with Telex TE-10 electret mic head \$ 381.00
- HT-100/11 (70661-XXX) Handheld mic/transmitter with Telex TD-11 dynamic mic head 381.00
- HT-100/58 (70662-XXX) Handheld mic/transmitter with Shure SM-58 dynamic mic head 443.00
- HT-100/757 (70665-XXX) Handheld mic/transmitter with E-V N/Dym 757 dynamic mic head 473.00
- HT-100/87 (70663-XXX) Handheld mic/transmitter with Shure SM-87 electret mic head 638.00
- HT-400/10 (70331-XXX) Handheld mic/transmitter with interchangeable Telex TE-10 electret mic head 1050.00
- HT-400/58 (70332-XXX) Handheld mic/transmitter with interchangeable Shure SM-58 dynamic mic head 1200.00
- HT-400/757 (71107-XXX) Handheld mic/transmitter with interchangeable E-V N/Dym 757 dynamic mic head 1250.00
- HT-400/87 (70333-XXX) Handheld mic/transmitter with interchangeable Shure SM-87 electret mic head 1300.00
- HT-450/65 (71144-XXX) Broadcast quality handheld UHF transmitter with separate RF on and mic mute-switches, low battery LED, Telex 65ELE, condenser mic element TBA*
- HT-450/757 (71142-XXX) Transmitter with E-V N/Dym-757 dynamic mic head TBA*
- HT-450/58 (71143-XXX) Transmitter with Shure SM-58 dynamic mic head TBA*
- HT-450/87 (71141-XXX) Transmitter with Shure SM-87 condenser mic head TBA*
- WT-450 (71132-XXX) Broadcast quality metal, micro belt pack transmitter, separate RF on and mic mute switches, field replaceable antenna, gold plated LEMO microphone connector, charge pins on bottom of unit (for use with optional NiCad battery and BC-80 charger) and belt clip case \$560.00

Antenna Splitter

AD-200 (71108-000) Wideband 150-234MHz diversity antenna splitter/combiner with power supply for 4 FMR series receivers. Combines as many as 8 antennas into 2. Includes rackmount, and (8) 2' cables for receivers and (4) power hook-up cables \$499.00

Microphones

- AT/Pro8 (71110-000) Headworn, unidirectional, Audio Technica dynamic with TA4 connector \$150.00
- PH-21 (64327-001) Headworn, unidirectional Telex electret mic with TA4 connector 115.00
- PH-22 (64327-002) Headworn, unidirectional Telex electret mic with LEMO connector 140.00
- PH-23 (70730-000) Headworn, unidirectional Telex electret mic with TA4 connector, includes sweatband and Velcro strip for mic attachment 115.00
- WLM-50 (64277-000) Telex omnidirectional lapel mic with TA4 connector 93.00
- ELM-22S (70925-001) Telex micro-mini, omnidirectional lapel mic with TA4 connector 195.00
- WLM-60 (70482-000) Telex unidirectional lapel mic with TA4 connector 93.00
- ELM-33S (70926-001) Telex micro-mini unidirectional lapel mic with TA4 connector 200.00
- AT-831b (70856-000) Audio Tehnica unidirectional lapel mic with TA4 connector 140.00
- WLM-200 (63852-001) Telex omnidirectional lapel mic with LEMO connector 135.00
- ELM-22L (70925-002) Telex micro-mini omnidirectional lapel mic with LEMO connector 200.00
- ELM-33L (70926-002) Telex micro-mini unidirectional lapel mic with LEMO connector 205.00

*To Be Announced

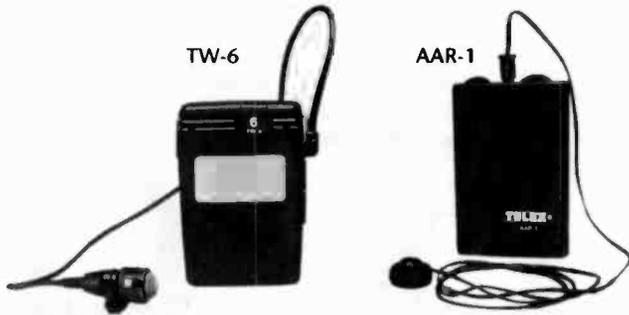
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

ASSISTIVE LISTENING SYSTEM/ ANNOUNCER'S EARSETS



TELEX®

TELEX COMMUNICATIONS, INC.



Wireless Sound Enhancement System (72-76MHz) for Hearing Assistance (Complies With American Disability Act)

This personal FM sound system is designed especially for use in churches, theaters, auditoriums, amusement parks or any situation—indoors or outdoors—where hearing can be difficult. It actually brings a speaker's voice, music or other program sound directly to the listener's ear, so that distracting noises, reverberation or distance from the sound source no longer interfere with a person's ability to hear.

The system consists of a single-channel base station or belt-pack transmitter and any number of tunable, personal receivers, which operate on the FM wideband frequencies between 72 and 76MHz. Up to 8 operating channels are available and the receivers may be easily tuned to any of the channels being used. All components are compatible with all FM wideband auditory assistance equipment.

Complete System

Model	Cat. No.	Description	Price
	70679-XXX*	Single channel high-performance system includes: 1 AAT-2N High performance transmitter 3 AAR-10N Single channel receivers 3 SEB-1 Earbuds with cushion covers 1 WP-1 Wall plaque	\$780.00

Transmitters

AAT-2N	70676-XXX*	Base transmitter with balanced mic/line/70.7V input	\$540.00
TW-6	19758-XXX*	Portable battery transmitter with auxiliary input and TLM-0 microphone	415.00

Receivers (earbuds priced separately)

AAR-10N	19791-XXX*	Single channel receiver without earbud	\$ 75.00
AAR-1	19726-000	Multi-channel tunable receiver without earbud	115.00

Earphones (for non-hearing impaired to moderate hearing loss)

SEB-1	59840-005	Single earbud with cord	\$ 8.50
DEB-2	59840-001	Dual earbud with cord	10.80
CCS-12	59840-006	Cushion covers for SEB-1 and DEB-2 package of 12)	4.10
HED-1	59840-003	Ultra lightweight headphone	10.00
HED-2	59840-003	Lightweight headphone	12.50
HED-3	63510-021	Full cushion noise reduction headphone	37.95

Microphones

NCM-1	70486-000	Noise cancelling boom mic with earhook	\$89.00
NCM-2	64100-000	Noise cancelling boom mic with headband	89.00
TLM-D	17765-003	Directional lapel mic, clip, windscreen	47.00
TLM-0	17765-005	Mini lapel mic, clip, windscreen	47.00
TLM-012	65702-000	Mini lapel mic with 12' cord	53.00

*The last 3 digits in the transmitter catalog number (XXX) will be determined by the frequency that is selected.

Announcer's Earsets

▪ Field replaceable cords and accessories ▪ Snap-fit, positive contacts ▪ Superflex cables with strain relief ▪ Interchangeable component parts ▪ Telethin miniature magnetic receiver available in 5 different impedances ▪ Volume control optional with cords ▪ Frequency response 70-3000Hz ±dB usable ▪ Weight 1.7 oz.—complete with cord ▪ Typical applications—TV/broadcast cue monitor, surveillance monitor, private listening

Telethin Magnetic Receivers

Model	Cat. No.	Description	Price
RTR-04	60012-000	15 ohms, earset, Tele-Fi	\$11.00
RTV-04	60012-003	125 ohms, earset, Tele-Fi	11.00
RTW-04	60012-005	500 ohms, earset, Tele-Fi	11.00
RTW-04V	60150-039	500 ohms, earset, Tele-Fi with volume control	33.00
RTX-04	60012-007	1000 ohms, earset, Tele-Fi	11.00
RTY-04	60012-009	2000 ohms, earset, Tele-Fi, Persona Phone	11.00

Earset/Telethin Accessories

AEM-2	18013-000	Tele ear acoustical shell, earset, Persona Phone, Telethin receivers	\$ 7.75
AEF-2	09252-000	Plastic covered metal earloop, earset, Telethin receivers	3.50
AEF-3	18304-000	Nylon earloop, earset, Telethin receivers	3.50
AFC-1	18068-000	Under chin tube and foam cushion, Tele-Fi	7.75
EH-S	71116-000	Earphone shell holder, small ear	10.00
EH-L	71116-001	Earphone shell holder, large ear	10.00
HMV-2	18183-000	Monoset stethoscope	47.00
HMV-3	18183-003	Monoset stethoscope with 5' cord	47.00
EML-1	35401-014	Earmold, large right, earset	15.00
EML-2	35401-019	Earmold, large left, earset	15.00
EMM-1	35401-012	Earmold, medium left, earset	15.00
EMM-2	35401-017	Earmold, medium right, earset	15.00
EMS-1	35401-010	Earmold, small right, earset	15.00
EMS-2	35608-000	Earmold, small left, earset	15.00
ET-1	35608-000	Eartip, earset	4.50

Standard Cords—(Color Gray)

CMT-2	60013-000	Tele-Fi monoset receiver, 5' cord, 1/4" plug	\$14.00
CMT-92	60013-013	Tele-Fi monoset receiver, 5' cord, 90°/.140" plug	14.00
CMT-98	60013-015	Tele-Fi monoset receiver, 5' cord, .140" plug	14.00
CCT-2	19652-000	Tele-Fimonoset receiver, 5' coil cord, 1/4" plug	16.00
CMT-95	60013-073	Tele-Fi monoset receiver, 5' cord, .097" plug	16.00
CMM-2	03280-000	Twinsset, 5' cord, 1/4" plug	14.00
CCM-2	19652-001	Twinsset, 6' coil cord, 1/4" plug	19.00
VXT-3	19619-001	Tele-Fi monoset receiver, 500 ohms, with volume control, 5' cord, 1/4" plug	36.00
VYT-3	19616-000	Tele-Fi monoset receiver, 2K ohms, volume control, 5' cord, 1/4" plug	36.00
CCX-2	19652-004	Persona Phone, 5' coil cord,	

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TELEX®

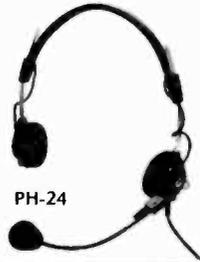
TELEX COMMUNICATIONS, INC.



HEADPHONES/CASSETTE DUPLICATORS

Professional Monitor Headphones

Model	Description	Impedance in Ohms	Plug Type	Price
Full Cushion Mono				
PH-7	Dynamic Dual, 5' cord	600	¼"	\$115.00
PH-11	Dynamic Single, 5' cord	600	¼"	79.00
Lightweight Mono				
PH-36	Lightweight Dual, 6' cord	600	¼"	\$63.00
HTW-2	Twinset Dual, 5' cord	500	¼"	57.00
Full Cushion Stereo				
PH-6	Dynamic Dual, 12' cord	600/side	¼"	\$147.00
Lightweight Stereo				
PH-35	Dynamic Dual, 6.5' cord	300/side	¼"	\$63.00



PH-24

Professional Headsets

Broadcast and Announcers Headsets
(With Push-to-Cough Switch)

Lightweight (Mic 150/200 Ohms)

PH-24	Dynamic Dual Noise-Cancelling Condenser, 9' Cord	150	None	\$233.00
PH-25	Dynamic Binaural/Omni With Condenser, 9' Cord	300	A3M/¼"	270.00



PH-2

Intercom Headsets

Dynamic Intercom Headsets
With Dynamic Noise-Cancelling
Microphone (Plug Compatible
With Audiocom/Radiocom, RTS,
Clear Com and Other Intercom Systems)

Full Cushion

PH-1	Single, 6' cord	150	A4F	\$126.00
PH-2	Dual, 6' cord	150	A4F	155.00
PH-3	Binaural, 6' cord	150	A5F	163.00

Lightweight

PH-4	Dual, 6' cord	150	A4F	\$142.00
PH-5	Binaural, 6' cord	300/side	A5F	147.00
PH-8	Single, 6' cord	150	A4F	126.00

Dynamic Intercom Headsets With Dynamic Noise-Cancelling
Microphone (Plug Compatible With RTS Intercom Systems)

Full Cushion

PH-1R	Single, 6' cord	150	A4M	\$126.00
PH-2R	Dual, 6' cord	150	A4M	155.00
PH-3R	Binaural, 6' cord	150/side	A5M	163.00

Lightweight

PH-4R	Dual, 6' cord	150	A4M	\$142.00
PH-5R	Binaural, 6' cord	300/side	A5M	147.00
PH-8R	Single, 6' cord	150	A4M	126.00

Video Camera Intercom Headsets

(For Use With Sony, JVC, Panasonic Cameras With 50 Ohm Carbon Microphone)

Model	Description	Impedance in Ohms	Plug Type	Price
PH-45	Dynamic Dual, 5' cord	600	(2) ¼"	\$145.00
PH-78	Dynamic Single, 5' cord	600	(2) ¼"	132.00



V-210



V-220

V-Series Full Cushion Modular Headset Systems

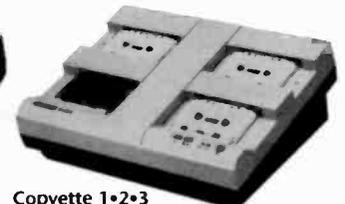
Model	Description	Price
V-200*	Round Full Cushion Dual Headphone, 300 ohms impedance	\$127.00
V-210*	Round Full Cushion Single sided with boom, 160 ohms impedance	105.00
V-220*	Round Full Cushion Double sided with boom, 80 ohms impedance	147.00

Microphone Cartridges for V Series Headsets

MB-11	Cardioid Dynamic, 150 ohms impedance	\$42.00
MB-12	Cardioid Electret, 150 ohms impedance	42.00



Copyette 1•2•1



Copyette 1•2•3

Copyette™ Series Cassette Duplicators

- Simple, 1-button operation
- Rewinds tapes to the beginning, copies, then rewinds back to the beginning before stopping
- Can be stopped at any time by pressing the cycle button, with LEDs clearly identifying the mode in which the Copyette is operating
- Ergonomically designed, slanted work surface along with unobstructed, open cassette wells feature a "heads up" design to support quick cassette loading and unloading
- Easy access for normal maintenance such as head cleaning
- Track select allows you to copy 1 side of a tape at a time or both sides at once
- Optical, non-reflective end-of-tape sensing system provides gentle tape handling
- AV programs can be copied with sync cues for automatic slide advancement
- DC servo motors
- No clutch mechanisms
- Impact-resistant housing with removable AC cord and protective plastic dust cover

Copyette 1•2•1

300071-000 Mono, copies 1 cassette at a time \$ 450.00

Copyette 1•2•1

300071-001 Stereo, copies 1 cassette at a time 735.00

Copyette 1•2•3

300071-100 Mono, copies 3 cassettes at a time 1099.00

Copyette 1•2•3

300071-101 Stereo, copies 3 cassettes at a time 1800.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





SpectraGen Z Series Character Generators

Slim Frame

The Z Series frame is a slim 1 1/4" high and can be mounted in a single rack space, or used as a tabletop unit. The keyboard layout conforms to other familiar computer keyboards, grouping the functions by category. Key-per-function features improve data input ease and operator recall.

Text and Fonts

Upper and lower case characters with full descenders plus mosaic graphics and symbols are standard on all Z Series character generators. The screen display can be divided into 6 independent display regions. The system can accommodate even the largest of messages with a maximum of 26 lines of 40 characters. To add to the impact of your messages, characters may be proportionately spaced and sized in 8 heights and 8 widths. The Z 3000 and Z 4000 offer up to 4 different fonts, borders and edges to provide variety and impact to your messages. The text flash feature increases viewer attention.

User-Defined Colors

Colors are selected by the line or page from a palette of character and background colors with reverse color and alternate color—giving you over a quarter of a million display combinations. The Z Series 4000 offers the capability to customize your display color choices (optional in the Z 3000).

Titling Capabilities

The Z Series can be used alone as a titler in a studio application or may be connected in a network with other systems for multichannel displays. Downstream keying is possible when using the Z 3000 and Z 4000 as a titler. The manual display mode permits the operator to control titling from the keyboard or remotely.

Presentation Modes

Automatic page display modes include bang, crawl, page print, splash and roll (in 3 different speeds), independently programmable by page, including a new roll and hold feature. The roll and hold feature freezes the message up to 10 seconds for increased readability. The Z Series can be programmed by page and region, providing you with versatile simultaneous rolls, crawls, bangs, splashes and print pages.

The optional off-line message generator (OLMG) allows the operator to program and display a "stand by" message while text is being edited on the preview output.

Continuous Weather Updates

Texscan's local "Weatherview" weather sensor system automatically feeds current outside environmental information directly to your display system, or you can select the NOAA-ARC accessory, which allows your system to display National Weather Service information (a Contel receiver is also required).

Network Capabilities

One Z Series can control an unlimited number of other Texscan character generators via telephone or cable lines, transferring pages or changing menus—making information updates a cinch. Access may be limited by password entry for security.

Event Scheduling

The Z Series can be programmed to perform up to 512 operator-defined real time events. Events can be scheduled by day, hour, minute and second to control external devices or text pages. At a specified time the normal text display sequence can be interrupted to insert a single page or group of pages. Event scheduling can also be used to replace the existing page sequence list with a new list—providing the flexibility to schedule a group of pages for a specific time window.

Model	SG-Z 3000	SG-23000GL	SG-Z 4000
Keyboard	Custom	Custom	Custom
Number of Fonts	1	1	4
Number of Pages	264	264	617
Preview Out	Standard	Standard	Standard
Programmable Colors	Optional	Optional	Standard
PB-1 Interface	Standard	Standard	Standard
CSS Mini Plus Interface	Standard	Standard	Standard
Line Level In	2	2	2
Line Level Out	4	4	4
Serial Ports	5	5	5
Dial Out	Standard	Standard	Standard
Batch Transfer	Standard	Standard	Standard
4 Fonts	Optional	Optional	Standard
Off-Line Message Generator	Optional	Optional	Standard
Variable Color	Optional	Optional	Standard
Genlock	Optional	Standard	Standard
Add Memory—615 Max. Pgs.	Optional	Optional	Standard
Weatherview Interface	Optional	Optional	Optional
Price	\$2449.00	\$3199.00	\$4649.00

All 3 models are available without the keyboard for networking applications.

Options For SG-Z 3000/SG-23000GL

Z-FONTS	Font Upgrade Package, for SG-Z 3000 Provides a total of 4 fonts. Standard, Serif, Serpentine, and Napoleon style fonts	\$395.00
Z-COLORS	Varicolor, Operator Programmable Colors	495.00
Z-GENLOCK	Genlock Upgrade—Factory install only.	949.00
Z-MEMORY	Expanded Memory to 617 Pages Total	479.00
Z-OLMG	Off-Line Message Generator Keyboard programmable interrupt message for display on the program output while editing text on the preview output	479.00
Z-KB	Keyboard, Z 3000/4000	249.00
Z-RK	Remote Keyboard Adaptor	289.00
Z-RMB	Rackmount Bracket, Chassis.	34.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.


MX-601 Powered Mixer

■ 6 input channels, each with: 1. 4-band EQ for precise sound tailoring; 2. Lo-Z balanced XLR input; 3. Hi-Z unbalanced 1/4" input; 4. Input trim control with LED pre-peak indicator; 5. Pre-EQ foldback send; 6. Post-fader reverb/effects send ■ 300WRMS at 2 ohms ■ Auto comp compression circuitry with indicator ■ 10-band graphic equalizer with bypass switch ■ Independent phantom power selection (CH 5, 6) ■ Power amp protection circuitry with indicator ■ Complete patch bay with bus link ■ Aux input with pan and level controls ■ Reverb-effects return to PGM and FB ■ Tape input with pan and level controls ■ Independent foldback mix ■ Dedicated 2-band EQ for reverb ■ Built-in spring reverberation unit ■ LED bar graph metering

MX-601 \$1174.00

MX-401 Powered Mixer

■ 4 input channels, each with: 1. Lo-Z electronically balanced XLR input; 2. Hi-Z unbalanced 1/4" input; 3. High/low 2-band active EQ; 4. Pre-EQ foldback send; 5. Input level control; 6. Post-fader reverb send ■ 150W into 4 ohms, 100W into 8 ohms ■ Patchable 5-band graphic EQ ■ Auto comp and amp protection with LEDs ■ Full patch bay ■ Individual reverb level to PGM and FB ■ Aux and tape inputs with level control, RCA and phone jacks ■ Independent foldback (stage monitor) mix ■ Portable, lightweight enclosure with handle

MX-401 \$680.00

MX-101 Powered Mixer

■ 4 input channels, each with: 1. Lo-Z electronically balanced XLR input; 2. Hi-Z unbalanced 1/4" input; 3. Tone-type active EQ; 4. Input level control; 5. Post-fader reverb send ■ 75W into 4 ohms, 57W into 8 ohms ■ 3-band EQ and built-in spring reverb ■ Auto comp compression circuitry with indicator ■ Aux tape inputs with level control ■ System output jack ■ Internal power amp protection with indicator ■ Reverb level to system ■ Separate foldback (monitor) level control ■ Portable, rugged, lightweight (16.5 lbs.) enclosure with handle

MX-101 \$498.00


M-900MK2 8-Channel Mixer/Preamplifier

■ Wide frequency response: 20-20,000Hz, ±1dB ■ Low distortion and noise level ■ Excellent output regulation ■ Bass and treble controls ■ Bridging input and output ■ Signal processing input and output ■ Built-in protection circuitry ■ Transformer-isolated output of 150/600 ohms ■ Full range of plug-in modules ■ Portable or rack-mounted type

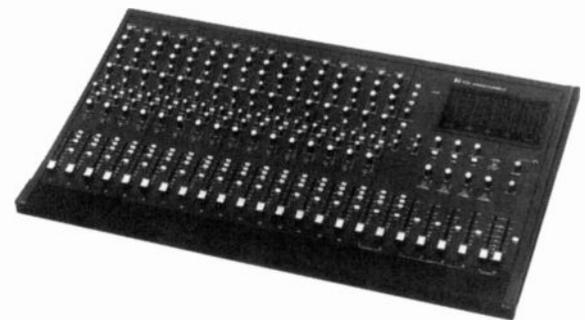
M-900MK2 8-input (less modules) \$492.00

Accessories

MB-921A Rackmount brackets (pair) for M-900MK2 \$34.00

PF-511 Perforated blank panel, 1 3/4" 24.00

YA-920 Volume control cover (basic unit) 2.00


CX Series Mixing Consoles

■ Low noise, wide, flat frequency response and low distortion for professional-quality performance ■ Phantom power switch for each set of 4 input channels ■ Cut switch on each input channel, stereo input, aux input, group output, stereo output and aux output ■ All faders are long-linear type with 100mm travel ■ Additional stereo inputs for connecting a stereo playback deck, CD player and other auxiliary equipment ■ 6 LED bargraph peak meters allow monitoring of groups 1, 2, 3, 4; Aux Sends 1, 2, 3; stereo L, R; and Sum ■ Internally installed kit (optional) adds transformer balancing to 4 adjacent channels ■ An outboard 1-rack space unit (optional) transformer balances 4 outputs ■ Brightly-colored knobs permit visibility in low light applications and are designed for precise, comfortable operation ■ Rugged internal supports and cast-aluminum side/back panels for long term durability ■ Each input channel includes: electronically balanced, low impedance XLR connector with an unbalanced 1/4" phone jack; accessory input/output jack; input pad switch and trim control on each input channel; 3-band equalizer with sweepable mids; signal/peak indicator LED

CX-124 12-channel, 4-program out, stereo console \$3736.00

CX-164 16-channel, 4-program out, stereo console 4378.00

IT-M4CX Mic input X-fmr (X4) 190.00

IT-L4CX Line input X-fmr (X4) 250.00

OT-X4 Output X-fmr (X4) 418.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MIXER/POWER AMPLIFIERS



P-924MK2



P-912MK2



A-512A/A-506A/A-503A Mixer/Power Amplifiers

- Designed to bring reliable power to PA applications of all sorts in industrial plants, offices, schools, churches, etc.—anywhere there is a need for paging, announcements, intercommunications, etc.
- Simplified control layout ▪ 4 microphone inputs ▪ Record player input ▪ A radio tuner, tape player, chime, mixer/preamplifier, compact disc player or other high level input sources may be connected to the Aux-1, Aux-2 or Aux-3 inputs ▪ Inputs 3, 4 and 5 can be muted, allowing inputs 1 and 2 and Aux-3 to override them ▪ Remote volume control ▪ Link switch provides for the insertion of signal processing equipment ▪ A tape recorder may be driven from the tape output jack on the amplifier; the output is controlled at the tape recorder ▪ A booster amplifier may be driven from the booster output jack ▪ 24VDC operation

A-512A	120W integrated amplifier	\$718.00
A-506A	60W integrated amplifier	636.00
A-503A	30W integrated amplifier	494.00
U-51	Microphone input module	78.00
U-52	Line matching transformer	40.00
MB-21B2	Rackmount brackets, black	34.00
PF-511	Perforated panel, 1 3/4", black	24.00

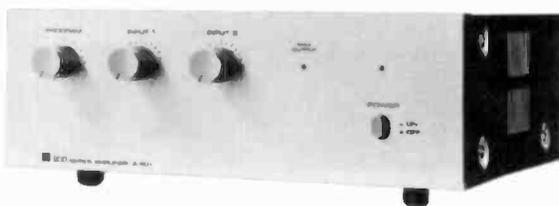
P-924MK2/P-912MK2/P-906MK2 Power Amplifiers

- 20-20,000Hz frequency response, ± 1 dB ▪ Low distortion and noise level, excellent output regulation and built-in protection circuitry
- Full range of plug-in modules ▪ High impedance direct input and an input port (edge connector) that can accept 1 module ▪ Separate output terminals for 4/8 ohms, 25/70V ▪ Input level switch (1000mV/100mV) ▪ 8 module input ports ▪ Rear panel terminals for a remote master volume control ▪ Easy reference front panel LEDs indicating power, signal presence, peak, clip and protection ▪ 2 rack space height on all models (except P-924MK2) ▪ 2 levels of priority mute

P-924MK2	240WRMS	\$1384.00
P-912MK2	120WRMS	796.00
P-906MK2	60WRMS	648.00

Accessories

MB-920	Rackmount brackets (pair) for A-901A	\$34.00
MB-921A	Rackmount brackets (pair) for A-903MK2	34.00
MB-25B	Rackmount kit for A-903MK2, A-906MK2, A-912MK2, P-906MK2, P-912MK2, black	34.00
MB-35B	Rackmount kit for P-924MK2, black	36.00
PF-511	Perforated blank panel, 1 3/4"	24.00
YA-920	Volume control cover (for basic units)	2.00



A-901A 3-Channel Mixer/Power Amplifier

- 10WRMS output power ▪ 20-20,000Hz frequency response, ± 1 dB ▪ Low distortion and noise level and excellent output regulation ▪ Bass and treble controls for Input #1 and Program Input ▪ Muting function and protection circuitry ▪ Separate output terminals for 4/8 ohms, 25/70V ▪ Full range of plug-in modules ▪ Portable or rackmounted type

A-901A	10WRMS, 2 ports (less modules)	\$258.00
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A-912MK2



A-903MK2

A-912MK2/A-906MK2/A-903MK2 6-Channel Mixer/Power Amplifiers

- 20-20,000Hz frequency response, ± 1 dB ▪ Low distortion and noise level ▪ Excellent output regulation ▪ Bass, treble and master gain controls ▪ Bridging and signal processing input and output
- Built-in protection circuitry ▪ Separate output terminals for 4/8 ohms, 25/70V ▪ Full range of plug-in modules ▪ 8 module input ports ▪ Rear panel terminals for a remote master volume control
- Easy reference front panel LEDs indicating power, signal presence, peak, clip and protection ▪ 2 rack space height on all models
- 2 levels of priority mute

A-912MK2	120WRMS	\$922.00
A-906MK2	60WRMS	766.00
A-903MK2	30WRMS	528.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

900 SERIES MODULES

Microphone Modules: LoZ, Balanced, 200 Ohm, Phantom Power, Gain Control and Lo/Hi Filters

Each module has been precisely designed to cover its specific function. Through the use of these modules, your amplifier becomes a custom-made unit to exactly fit your sound needs. Various types of connectors are provided with each module to facilitate matching it to the equipment with which it is to be used. Microphone preamplifier, mag, phono preamplifier, auxiliary preamplifier, bridging transformer, line matching transformer, paging input, line output and signal generator modules are included here. They are easy to install and cover a wide variety of sound needs.



M-01F	XLR (F)	\$ 84.00
M-01M	XLR (M)	82.00
M-01P	1/4" phone jack (P)	74.00
M-01S	(S)	64.00
M-11S	Receive mute, select normally on or off (S)	84.00
M-21S	Remote volume control (S)	94.00
M-51F	Voice gate, XLR (F) (no high filter)	102.00
M-51S	Voice gate (S) (no high filter)	86.00
M-61F	Compressor, XLR (F)	112.00
M-61S	Compressor (S)	90.00

Note: Phantom power is defeatable by cutting jumper J-1 on circuit board.

Microphone Module: HiZ, Unbalanced, 10K Ohm

M-03P
Lo/Hi filter, gain control (P) \$46.00



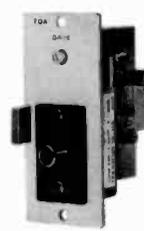
Magnetic Phono, RIAA Equalization

R-01R
RIAA mag phono (R) \$42.00



Auxiliary Modules: HiZ, Unbalanced, 220K Ohm, GC

U-01F	XLR (F)	\$56.00
U-01P	(P)	46.00
U-01R	(R)	42.00
U-01S	(S)	42.00
U-11R	Receive mute (R)	54.00
U-11S	Receive mute (S)	54.00
U-12S	Receive mute, adjustable attenuation (S)	64.00
U-21S	Remote volume control (S)	76.00
U-61S	Compressor (S)	96.00



Note: The U-61S can be used as a "Master Compressor" by cutting jumper J-2.

Balanced Line Output Module.

T-01S LoZ, 600 ohm, bal. out, signal derived from mix bus, gain control (S) \$94.00

Note: T-01S functions only in ports 5 and 6 of the following models: M-900A, A-903A, A-906A, A-912A, W-906A and W-912A. The T-01S will not function in the A-901A.

Auxiliary Input—Balanced Line Out Module

T-02S Unbal., 220K aux. input, 600 ohm bal. out, gain control for both input and output (for music-on-hold) \$110.00



Bridging Transformers: 10K Ohm, Balanced Input

B-01F	XLR (F)	\$76.00
B-01P	(P)	70.00
B-01S	(S)	60.00
B-11S	Receive mute (S)	76.00



Line Matching Transformer Modules: 600 Ohm, Balanced

L-01F	XLR (F)	\$76.00
L-01P	(P)	64.00
L-01S	(S)	60.00
L-11S	Receive mute (S)	76.00
L-41S	Send mute (S)	88.00

Note: When used with the A-901A, the L-41S must occupy port #2.



Signal Generator Modules

S-01S	1kHz, sine wave, gain control (S)	\$74.00
S-02S	Buzzer/yelp, gain control (S)	74.00
S-03S	Chime/continuous, gain control (S)	82.00



Notes

Suffix Guide: F = Female XLR; M = Male XLR; P = 1/4" Phone Jack; R = RCA Pin Jack; S = 3/8" Screw Terminal

U-61S Aux. Mod: For the U-61 to function as a "Master Compressor" between mixer and amp, cut jumper J-2. Pin 1 = Line Out and Pin 3 = Line In.

Receiver Mute: Receives closure from mute bus on unit. Closure originates either from mute plug or from L-41 module.

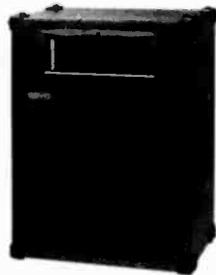
Send Mute: Develops its own mute closure due to signal input and sends along mute bus.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

LOUDSPEAKERS



SL-120



SL-150



SL-120M



SL-150M

280-ME-AV Studio Monitor

The 280-ME-AV 3-way monitoring system is ideal for primary or secondary reference monitor applications. It features extended frequency response, low distortion, smooth crossover and a wide dispersion pattern. The 280-ME contains a 7.9" polypropylene cone woofer, a 1.2" soft dome tweeter and a polyester dome "super" tweeter—both with diffuser.



280-ME-AV pr./\$598.00

312-ME-AV Studio Monitor

The 312-ME-AV is a 3-way system intended for primary reference monitoring. Its superb transient characteristics, outstanding performance and array of features suit all types of studios.

312-ME-AV pr./\$1098.00

22-ME-AV Studio Monitor

The 22-ME-AV is a compact system that incorporates a full-range, 5" cone speaker in a sealed enclosure. It features remarkably high power capacity for its small size (120WRMS continuous program) and a smooth, extended frequency response (100 to 17kHz).



22-ME-AV pr./\$198.00

265-ME-AV Studio Monitor

The 265-ME-AV is a 2-way system, ideal for either primary or secondary reference monitor applications. It features smooth crossover and symmetrically arranged components that enhance stereo imaging characteristics. The 265-ME-AV contains a 6.3" polypropylene cone woofer and a 1.2" soft dome tweeter with diffuser for extra clarity in the high end. Power handling is 75WRMS continuous program.

265-ME-AV pr./\$458.00

SL Series Loudspeakers

- 4 different models ▪ Stage monitor and main speaker systems
- Wide frequency response ▪ Constant directivity horn with a coverage pattern of 90° horizontal x 40° vertical ▪ Easily stackable on similar speakers and mountable on a speaker stand (Except SL-120M and SL-150M) ▪ High power handling: 240W RMS continuous program ▪ Instantaneous peak rating of 600W ▪ Uniform sound dispersion ▪ Paralleled phone jacks ▪ Protective steel mesh grille ▪ Durable, convenient carry straps ▪ Built-in stand mounting adaptor ▪ Interlocking corner-guards allow safe, easy stacking ▪ Attractive, textured gray finish resists scratching

2-Way Speaker Systems

- SL-120 12" plus CD horn \$358.00
- SL-150 15" plus CD horn 428.00

2-Way Floor Monitor Speakers

- SL-120M 12" plus CD horn \$386.00
- SL-150M 15" plus CD horn 460.00

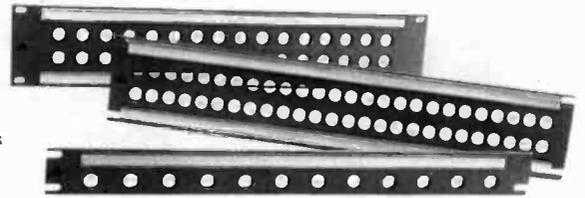
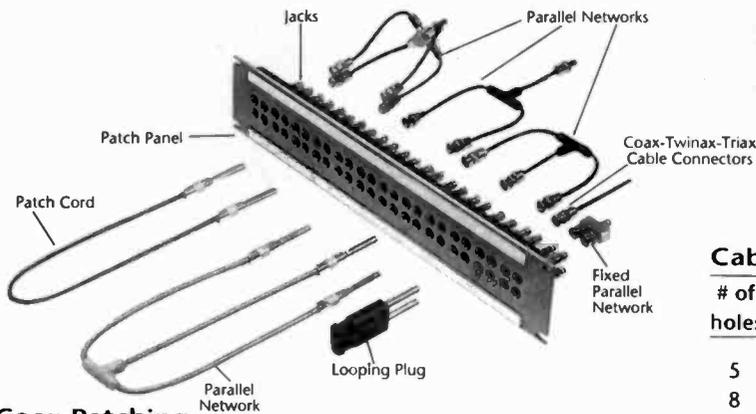
Accessories

- SLB 15" subwoofer, 240W RMS \$638.00
- ST-20 Speaker stand, tripod style 198.00

Specifications

Model Number	SL-120	SL-120M	SL-150	SL-150M
Enclosure	Sealed type			
Speakers	12" woofer, CD horn and piezo driver		15" woofer, CD horn and piezo driver	
Handling Power Capacity	80 RMS of band-limited pink noise (50Hz-20kHz)			
Continuous Pink Noise	240W			
Continuous Program	240W			
Impedance	8 ohms			
Sensitivity	95dB (1W/1m)	95dB (1W/1m)	98dB (1W/1m)	98dB (1W/1m)
Frequency Response	70Hz-20kHz			
Input Terminals	In/out 1/4" phone jacks			
Finish (Enclosure)	Gray leatherette			
Dimensions	20.5"Hx15.0"Wx12.2"D	15.3"Hx14.4"Wx20.5"D	23.6"Hx18.1"Wx12.2"D	17.8"Hx17.6"Wx22.6"D
Weight	28.7 lbs.	24.3 lbs.	35.3 lbs.	30.9 lbs.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

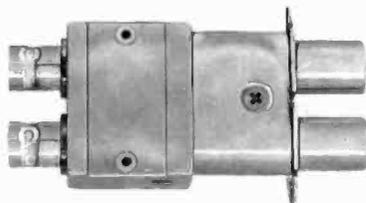


Coax Patching

Patching connectors provide maximum flexibility needed to re-route signals and are used in "shielded cable" video, and RF applications. These jacks may be intermixed on the same panel provided the mechanical limitations are recognized. Microswitches may be added to all jacks in this series (except as noted) by adding the letter "A" to the part number.

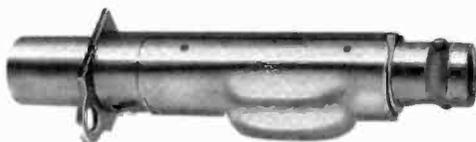


Patch Cord PC-L-Z RCA
Patch plug to patch plug PCW-L-Z WE



J14 Series Normal-Through Patch Jacks

The J14 Series of connectors are dual coax jacks which automatically provide a normal-through signal path without the use of looping plugs or patch cords. The normalizing switch contacts utilize a unique self-wiping action for positive contact. Mounting tabs are normally back-to-back as shown. To order side-to-side for horizontal mounting and the letter "L" to the part number for left-hand tabs or "R" for right-hand tabs.



Self-Terminating Patch Jack J13-R RCA
BNC J13W-R WE
Circuit is terminated when plug is removed.

Cable Distribution Panels

# of holes	Panel Type	Panel Ht.	Hole Hor.	Spacing Vert.	Table Col.
5	JS(I)-5	1.75"	2.500"	-	A
8	JS(I)-8	1.75"	2.070"	-	B
10	JS(I)-10	1.75"	1.656"	-	C
12	JS(I)-12	1.75"	1.430"	-	D
14	JS(I)-14	1.75"	1.210"	-	E
16	JS(I)-16	1.75"	1.000"	-	F
20	JS(I)-20*	1.75"	0.830"	-	G
24	JS(I)-24	1.75"	1.460"	1.250"	H
24	JS(I)-24W	3.50"	1.430"	1.000"	I
32	JS(I)-32	3.50"	1.000"	1.000"	J
40	JS(I)-40*	3.50"	0.875"	1.000"	K
40	JS(I)-40W*	3.50"	0.875"	1.000"	L
52	JS(I)-52	3.50"	0.675"	1.000"	M

*JS(I)-20 - Horizontal spacing 0.875" for D2 and D3 hole types.
*JS(I)-40 - Horizontal and Vertical spacing 0.830" for D3 hole types.
*JS(I)-40W - Horizontal spacing 0.830" for D3 hole types.

Ordering Information

Panels can be ordered separately or combined with any combination of jacks (provided the mechanical restrictions are recognized) by using the following part number format.

Example:

JS-12 Standard non-insulated panel loaded with (12) J3 Standard 50 ohm patch jacks.

Selected panel part number JS-12

JS = Aluminum panel (Open notch)

JSI = Insulated panel (Open notch)

Selected jack part number J3

**CALL FOR PRICING
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.**

DISTRIBUTION AMPLIFIERS/ RACKMOUNT SYSTEMS



VB/VDA Brick Series Video Distribution Amplifier

The VB/VDA is a 1-input, 4-output composite video distribution amplifier with exceptional DC to 120MHz frequency response and selectable single-ended or differential (to alleviate ground loops) 75-ohm input. Dimensions are 3" x 0.6" x 2.65". AC adaptor included. **\$136.00**



LTVB/VDA Brick Series Video Distribution Amplifier

The LTVB/VDA is a 1 lothrough input, 4-output composite video distribution amplifier with exceptional DC to 120MHz frequency response and gain control. Dimensions are 3" x 0.6" x 2.65". AC adaptor included. **\$146.00**

YCVB/VDA Brick Series S-Video Distribution Amplifier

For S-Video, the YCVB/VDA provides 4 Y/C outputs from a single 75-ohm terminated Y/C input using 4-pin mini-DIN connectors. The amplifier features DC to 45MHz frequency response and independent Y and C adjustments to facilitate signal level matching. Dimensions are 3" x 0.6" x 2.65". AC adaptor included. **\$189.00**

EQVB/VDA Brick Series Cable Equalizing Video Distribution Amplifier

The VB/VDA is a one 75-ohm input, 4-output, composite video distribution amplifier capable of frequency compensating zero to 1000' of Belden 8281 video cable. Useful frequency response is DC to 40MHz. Separate gain and equalization adjustments are provided. Dimensions are 3" x 0.6" x 2.65". AC adaptor included. **\$189.00**

VB/12V Brick Series DC-DC Adaptor for 12 VDC Applications

Although all Brick series distribution amplifiers require 12 to 24VAC or DC, their power supplies can not share ground with their inputs or outputs. The VB/12V adaptor provides a power supply isolated from your system ground, allowing Bricks to operate properly in 12 to 24V systems. **\$29.00**

VDA-640 Video Distribution Amplifier

Features 6 wideband outputs with 45MHz bandwidth, 75-ohm output impedance, gain adjustable from -6dB to +6dB and a single-ended lothrough input. Rackmountable **\$249.00**



HN/VDA Hum-Nulling Video Distribution Amplifier

Allows the functions of video distribution and hum reduction in a single wideband unit with adjustable gain. Reduces or eliminates AM broadcast interference. 6 video outputs, isolated BNC connectors standard on input, 75-ohm output impedance, differential input, 60dB hum reduction adjustable, wide bandwidth and rackmountable. **\$279.00**

XB/VDA Extended Bandwidth Video Distribution Amplifier

Featuring extra-wide bandwidth of 0-120MHz, this unit provides precise, accurate and reliable high resolution video distribution through 8 isolated outputs from a single video input. The user may switch between differential input and single-ended input modes of operation. Differential input mode is useful in avoiding hum and interference, because the input and output grounds are isolated from each other and from the power line ground. Due to the extra-wide bandwidth of this amplifier, you can use it to distribute the Channel 3 and 4 RF output signals from your VCR. **\$445.00**



CVDA-3 Clamping Video Distribution Amplifier

Featuring an adjustable clamping level to allow proper setup level and help eliminate hum bars and black level retention problems, the CVDA-3 also has a single lothrough input, 6 outputs, adjustable gain and 30MHz bandwidth to provide excellent picture resolution. **\$360.00**



ADA-3 Audio Distribution Amplifier

The direct coupled ADA-3 offer a single lothrough input, adjustable gain and 6 outputs for proper distribution of your audio. The unit is available with RCA jacks or terminal blocks. **\$360.00**

PDA-3 Pulse Distribution Amplifier

This is a 1-in, 6-out, lothrough input unit with adjustable output level. The PDA-3 utilizes pulse regeneration to clean up noisy pulse synchronization signals and keep the noise out of your equipment. **\$300.00**



YCDA-2 Y/C (S-Video) Distribution Amplifier

A 1-input, 6-output component video DA with 45MHz bandwidth. Internal gain controls are provided for each Y or C channel and equal signal paths alleviate Y/C timing errors. Connections are through standard 4-pin mini-DIN (S-Video) connectors. **\$425.00**

BRM Brick Rackmount System

The Brick rack holds up to 8 VAC Brick series distribution amplifiers in a 1.75" H, 19" rackmount configuration. The Brick rack is compatible with all other VAC rackmount hardware allowing side-by-side mounting of Bricks and other VAC equipment. Brick racks are available in 1/4, 1/2, 3/4 and full-rack widths, holding 1 or 2, 3 or 4, 5 or 6, and 7 or 8 Brick DAs respectively. Each brick provides 4 outputs from 1 input. At its highest density of 8 DAs per 1.75" rack space, the Brick rack system offers 32 outputs, one of the highest densities in the industry.

- VBRM8 7 or 8 Bricks **\$159.00**
- VBRM6 5 or 6 Bricks **135.00**
- VBRM4 3 or 4 Bricks **100.00**
- VBRM2 1 or 2 Bricks **65.00**
- Brick™ and Conventional Combinations**
- VBRM6 and RM-1/4 5 or 6 Bricks **\$162.00**
- VBRM4 and RM-1/4 or RM-1/2 3 or 4 Bricks **118.00**
- VBRM2 and RM-1/4, RM-1/2 or RM-3/4 1 or 2 Bricks **74.00**
- Conventional Rackmount**
- RM-1/4, 1/2, 3/4 Rackmount for conventional products (per rack width) . . **\$30.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



GENERATORS/SWITCHES

SG-2PG Genlockable Test Pattern, Blackburst and Sync Generator

The SG-2PG provides all of the features of the SG-2 plus a selection of test patterns. The pattern output provides 1 of 5 test patterns or blackburst, selected by front panel controls. 2 additional customized test patterns may be specified when the unit is ordered. Custom test patterns can use any configuration of the available colors in an 84H x 64V pixel array. 1 or 2 customized alphanumeric IDs can also be ordered for each test pattern and turned on/off as desired. When activated, these IDs overlay the selected test pattern. Chrominance values are internally adjustable to allow precise matching of the SG-2PG's color vectors to the characteristics of the vectorscope being used. The pattern output timing and phase parameters match those of the 8 blackburst outputs whether the unit is genlocked or free-running.

SG-2PG \$1395.00

SG-2 Genlockable RS-170A Blackburst and Sync Generator

The SG-2 genlockable blackburst and sync generator provides 8 blackburst, 1 subcarrier and 6 pulse outputs. An array of front panel indicators provides information about the sync tip level, SC/H phase and frequency of the signal at the genlock input to help diagnose any genlock problems that may arise. The SG-2 automatically falls back to its internal temperature compensated crystal time base without interruption of the output signals if the genlock input signal fails. The 8 identical blackburst outputs are guaranteed to meet RS-170A specifications including SC/H phase, frequency accuracy, rise times and amplitudes from the moment the unit is plugged in. Multiple outputs eliminate the need for a blackburst distribution amplifier. The subcarrier and pulse outputs allow equipment requiring them to genlock to a composite video or blackburst signal by using the SG-2 as a means of conversion. Such equipment can now also be synchronized with other equipment requiring blackburst. Each pulse output connector can be internally reprogrammed to carry a particular pulse.

SG-2 \$987.00

BBG-2 Blackburst Generator

The BBG-2 provides 9 identical blackburst outputs for system synchronization. This unit includes a temperature compensated crystal time base to help guarantee compliance with RS-170A specifications including SC/H phase, frequency accuracy, rise times and amplitudes from the moment the unit is plugged in. Multiple outputs eliminate the need for a blackburst distribution amplifier. Burst, sync, blanking and setup levels are internally adjustable. Specify 120VAC or 12VDC power supply when ordering.



BBG-2 \$495.00

Signal Alarms

Prevent unnoticed loss of signal. The VA-2 and AA-2 alarms provide both audible and visible alarms whenever the input signal is lost. The alarm continues to sound until the loss of signal condition is corrected.

AA-2 Audio signal loss alarm \$210.00
VA-2 Video signal loss alarm 210.00

Power Switches

Prolong equipment life and save energy by automatically switching off equipment when signals are no longer present, and automatically turning it back on when the signal is reapplied.

APS-2 Audio activated power switch \$210.00
VPS-2 Video activated power switch 210.00



VMPS Video Monitor Power Switch

The VMPS senses the presence or absence of acceptable video sync tip levels to automatically control monitors or other equipment. The loop-through input allows the VMPS to be easily installed at the input of the controlled equipment. The grounded, switched outlet can provide up to 800W. Internal sensitivity controls are factory preset, so no user adjustments are required for operation. Power-off is delayed until approximately 35 seconds after signal loss.

VMPS \$180.00



VS-2 Video Squelch

When unsatisfactory degradation or loss of main video occurs, this unit automatically switches to alternate video and audio source feeds, and provides an alarm to alert you to the condition. Stereo audio, internal termination of the unused audio signal, remote control and XLR connectors are available as options. The basic unit features RCA jacks for audio, but terminal blocks are available.

VS-2 \$995.00
OPT-ST Stereo audio option 206.00
OPT-AT Audio terminate option 103.00
OPT-XLR XLR connectors (3- or 4-pin) 52.00
OPT-RC Remote control option 206.00

VL-2 Video Line Isolator

Remove ground loop generated hum bars from your system with the VL-2. Optical coupling provides 80dB of ground noise reduction and the unit can withstand up to 1500V between input ground, output ground and AC ground. A front panel lamp warns of potential shock hazards due to voltages between the 3 "grounds." Internal gain and frequency adjustments provide compensation for long cable runs.

The unit is also available with an audio isolator so both audio and video can be distributed through the same isolated path.

VL-2 Video line isolator \$340.00
VL-2A Video line isolator with audio option 395.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIRELESS MICROPHONE SYSTEMS



a MARK IV company

Pro Plus Professional Wireless Microphone Systems

Transmitters (150-216MHz)

- 77/DIII Dynex®III pocket transmitter; includes 153A belt clip, short flexible antenna, battery, 119 audio input plug and C157 soft zippered protective case for transmitter **\$1086.00**
- T-82/DIII Dynex III handheld transmitter with Shure SM85 dynamic microphone element; includes battery, 226 mic-stand holder and C-158 soft zippered protective case **1365.00**
- T-87/DIII Same as T-82 transmitter but with Shure SM87 condenser microphone element; includes same accessories as T-82 **1365.00**
- T-88A/DIII Same as T-82 transmitter but with EV N/D757B dynamic microphone element; includes same accessories as T-82. **1248.00**
- T-89/DIII Same as T-82 transmitter but with EV N/D857 dynamic microphone element; includes same accessories as T-82. **1299.00**



Receivers (150-216MHz)

- R-27 Miniature portable receiver with DYNEX®III, includes one 124 whip antenna, 9V battery, velcro mounting strips and soft zippered protective case **\$846.00**



- R-42A Pro Plus diversity receiver with Dynex III (no antennas included) **\$3636.00**
- R-42AW R-42A diversity receiver with two 120U whip antennas **3672.00**
- R-42AX R-42A diversity receiver with two 123 heavy-duty dipole antennas (metal balun cases) **3936.00**
- R-42AY R-42A diversity receiver with two 123U high-performance dipole antennas (telescoping elements) **3844.00**
- 67B/DIII Dynex III portable, diversity, battery-powered receiver; includes four 9V alkaline batteries and two 121 BNC antennas **1794.00**

Lavalier Microphones (include 3' cable and Lemo connector to plug into 77/DIII transmitter)

- 113 Shure 838 miniature omnidirectional electret condenser microphone **\$147.00**
- LM-201 Sony ECM-44B miniature omnidirectional electret condenser microphone **231.00**
- LM-202 Crown GLM-100E miniature omnidirectional electret condenser microphone with windscreen, tie bar and belt clip. **234.00**
- LM-203 Vega RSX-12 miniature unidirectional electret condenser microphone **150.00**
- LM-204 Sennheiser MKE-2 miniature omnidirectional electret condenser microphone. **420.00**
- LM-207 PSC Millimic omnidirectional electret condenser microphone **219.00**
- LM-210 Vega RSX-7 omnidirectional electret condenser microphone **285.00**

Accessories

Multicouplers and RF Line Amplifiers

- M-117B Wideband (169-216MHz) multicoupler with UHF connectors to split the RF signal from a 50-ohm antenna (such as 123) to feed 4 receivers; includes four 155 coaxial cables and AC adaptor **\$ 495.00**
- M-217B Same as M-117B multicoupler, but with BNC connectors and cable **435.00**
- M-282 Rackmounting wideband (169-216MHz) multicoupler; splits RF signals from two 50-ohm antennas to feed 4 diversity receivers. Includes eight 155 cables with BNC connectors **1047.00**
- M-284 Same as M-282 multicoupler, but with PL-259 output cables. **1047.00**

Pro 2 Wireless Microphone Systems

Pro 2 Diversity Wireless Microphone Systems

- PRO-2 BPM Bodypack system; T-37 transmitter and R-32A diversity receiver with accessories, with LM-206X miniature omnidirectional electret mic. **\$2136.00**
- PRO 2-BP Bodypack system with accessories except without mic **2046.00**
- PRO 2-HE Handheld system; T-36 transmitter and R-32A diversity receiver with accessories **2457.00**
- PRO 2-HN Handheld system; T-38 transmitter and R-32A diversity receiver with accessories **2457.00**
- PRO 2-HS Handheld system; T-58 transmitter and R-32A diversity receiver with accessories **2550.00**

Pro 2 Receivers and Transmitters

- R-32A Diversity Pro 2 receiver with Dynex III; includes two 120U whip antennas **\$1410.00**
- T-36 Dynex III handheld transmitter, with EV BK-1 element, same accessories as T-37 **1047.00**
- T-37 Dynex III bodypack transmitter; includes C-157 protective case, 9V alkaline battery, 119X miniature XLR audio input plug, wired-in flexible wire antenna, 153A heavy-duty belt clip, power on/off switch, mic on/off switch, mic level control and instruction manual **636.00**
- T-38 Same as T-36 transmitter, but with EV N/D457B dynamic microphone element; includes same accessories as T-37. **1047.00**
- T-58 Dynex III handheld transmitter, with Shure SM58 element, 9V battery, 126 mic holder, C-158 protective case, built-in antenna and instruction manual. **1140.00**

VX-20 Wireless Microphone Systems

- VX-20 BPM Bodypack system with lapel microphone consisting of: T-25 transmitter and R-27 receiver with accessories and LM-206X omnidirectional electret condenser mic. . . **\$1485.00**
- VX-20 BP Bodypack system with accessories, consisting of T-25 and R-27 **1395.00**
- VX-20 HE Handheld system; T-28 transmitter and R-27 receiver with accessories. **1560.00**
- VX-20 HN Handheld system; T-24 transmitter and R-27 receiver with accessories **1560.00**
- VX-20 HV Handheld system; T-29 transmitter and R-27 receiver with accessories **1560.00**
- R-27 Miniature portable receiver with Dynex III, includes 124 whip antenna, 9V battery, Velcro mounting strips and soft-zippered protective case **846.00**
- T-24 Dynex III handheld transmitter with EV N/D757B Series III cardioid dynamic element; includes 9V battery and internal dipole antenna **714.00**
- T-25 Dynex III bodypack transmitter; includes C-157 protective case, 9V alkaline battery, 4-pin miniature XLR (TINI "Q-G"), 153A heavy-duty clip, mic on/off switch. **549.00**
- T-26 Same as T-25, but with 4-pin Lemo connector, compatible with existing Vega lavalier mics and accessories wired with Lemo plugs; includes 153A heavy-duty clip, 9V battery **606.00**
- T-28 Dynex III handheld transmitter with EV BK-1 element, includes 9V battery, C-158 protective case, internal dipole antenna and instruction manual **714.00**
- T-29 Same as T-28, but with Vega X4 cardioid condenser element, includes same accessories. **714.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PAN/TILT DRIVES

NON-PROGRAMMABLE (MANUAL) SYSTEMS

Pan/Tilt Drives

V6033PT 24VDC; variable speed; 15 lb. load rating; tilt range +10° to -20°, pan range 150°. Designed to provide low profile . . . **\$1395.00**
V6135BPT 24VDC; variable speed; environmentally sealed; 15 lb. load rating; Tilt range +20° to -70°, pan range 0 to 350° . . . **1995.00**



V6000PT 24VDC; variable speed; 30 lb. load rating; Tilt range ±40°, pan range 315° (maximum). Tilt speed 25°/second (maximum), pan speed 25°/second (maximum). Use with V7000C control (2-camera capacity). For use with ENG type cameras. Unit measures 14.75"H . . . **\$2300.00**

Analog Controls

V7000C Desktop; proportional speed: for V6000PT, V6033PT and V6135BPT. Dual joystick operation. 2-camera capacity. a) Vector-solving joystick for pan-and-tilt. b) Vector-solving joystick for zoom and focus. c) Speed trim control (sets maximum speed limits). d) Power on/off switch. . . . **\$1600.00**



V7070C Standard rackmounted, 3.5" (height). Same features as above . . . **\$1600.00**

Lens Modification

V6605LM Modification of ENG type lens: provides zoom and focus servo motors for Fujinon A10, A12, A14, etc., and Canon J9, J13, J15, etc., lenses . . . **\$775.00**
V6615LM Modification of ENG type lens: provides focus servo motor for Fujinon A10, A12, A14, etc., and Canon J8, J13, J15, etc., lenses . . . **650.00**

PROGRAMMABLE (PRESET) SYSTEMS

Pan/Tilt Drives

V6033PT 24VDC; variable speed; 15 lb. load rating; tilt range +10° to -20°, pan range 150°. Designed to provide low profile. Built-in feedback potentiometers . . . **\$1395.00**
V6135BPT 24VDC; variable speed; environmentally sealed, 15 lb. load rating. Tilt range +20° to -70°, pan range 0 to 350° . . . **1995.00**
V6100PT 24VDC; variable speed; 30 lb. load rating. Tilt range ±40°, pan range 270° (maximum), tilt speed 25/second (maximum), pan speed 25°/second (maximum). Use with V7100C control. Requires 1 V7700R receiver per pan-and-tilt unit. For use with ENG type cameras. Unit measures 14.75"H . . . **3850.00**
V6150PT 24VDC; variable speed; 30 lb. load rating; tilt range ±20°, pan range 270° (maximum), tilt speed 25/second (maximum), pan speed 25°/second (maximum). Use with V7100C control. Requires 1 V7700R receiver per pan-and-tilt. For use with ENG type cameras. Unit measures 12.15"H . . . **3850.00**



Microcomputer Controls

V7100C 4-camera control keypad. Up to 99 presets per camera. 2-joystick system (1 for pan-and-tilt, 1 for zoom and focus). Cascadable up to 8 daisy-chained controls and 32 cameras. Operates with V7700R single-camera receiver . . . **\$4700.00**

Receiver

V7700R Single-camera power supply and velocity control, digital: for control of pan, tilt and lens functions. Operates with V7100C control. 1 receiver required per pan-and-tilt . . . **\$2850.00**

Lens Modification

V6604LM Modification of ENG type lens: provides zoom and focus servo motors and follow pots for Fujinon A10, A12, A14, etc., and Canon J8, J13, J15, etc., lenses. . . . **\$1200.00**
V6614LM Modification of ENG type lens: provides focus servo motor and follow pots for zoom and focus for Fujinon A10, A12, A14, etc., and Canon J8, J13, J15, etc., lenses . . . **925.00**
V6634LM Modification to all videoconferencing lenses: required for programmable (preset) system to assure specification accuracy . . . **350.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



System 2000 CG-2000 Character Generator

- Off-line edit channel ▪ Genlock ▪ Up to 8 fonts of 128 characters each
- Diskette memory ▪ Display regions ▪ Unattended automation ▪ Real time programmable controller ▪ 512-color palette ▪ Character sizing
- Help mode ▪ Downloadable software and fonts ▪ Animation

The System 2000 is an integrated, versatile events controller and full color character generator system. External devices such as tape recorders/players, laserdisk players, switchers, etc., may be controlled in real time in conjunction with the display of text and video. Automated operation is achieved by means of user prepared control files which can run automatically. Event timing can be for any second, minute, hour, day, date, month and year. Logging capability is available to record the exact time, to the second, at which an event was initiated. In addition to keyboard input of data, the System 2000 accepts weather transducers. Multiple System 2000 units can be interconnected locally or remotely by means of telephone modems.

CG-2000	.....	\$3995.00
CG-2000S Less keyboard	.....	3795.00

Options

SC	System communication software (networking multiple CG2000 units).....	\$ 600.00
SD	Second disk drive	400.00
KB	Keyboard	200.00
SF	Standard fonts.....	200.00
LG	Logos (from customer artwork)	400.00
WI	Weather interface and software and instruments.....	1900.00
NC	NOAA weather interface and box (800NC)	2000.00
CI	Computer interface and software (IBM compatible) ..	600.00
PI-S	Printer interface and software, serial	300.00
PI-P	Printer interface and software, parallel.....	300.00
SI	Serial interface RS-232 and software (for control of serial devices)	300.00

Machine Control-External Events

GP 1	General purpose interface 1 (8 TTL lines)	\$ 300.00
GP 2	General purpose interface 2 (16 TTL lines)	500.00
GP 3	General purpose interface 3 (32 TTL lines)	900.00
GP 4	General purpose interface 4 (64 TTL lines)	1295.00
SW	Sigma model 210 10 x 1 switcher with interface and cable.....	1500.00



800CI Crawl Inserter

- Compact downstream keyer provides a 1-line message for applications such as promotion of pay TV for local news and advertising
- Battery backed-up memory (5000 characters) ▪ 2 crawl speeds ▪ Word flash
- RS-232 serial port ▪ Queue format flexibility: number of messages and frequency ▪ 1-line crawl with available time line or fixed header line with optional positioning
- Real time clock and calendar line with battery

backup ▪ Automatic deletion of time tagged messages
800CI \$1295.00

800NC Crawl Inserter

- Set position and size of crawl and time line ▪ Font and border selection
 - 2 crawl speeds ▪ Real time clock display ▪ External contact closure controls keying of crawl information into supplied video signal
- 800NC** \$2000.00

800A Annotation Unit

- Full screen keyer ▪ Information can be placed anywhere from blanking to blanking ▪ Powered 8VDC nominal
- 800A** \$1500.00

810 Page Titler

- Compact downstream keyer provides a full screen message display for titling applications ▪ Battery backed-up 8K memory ▪ Keyboard ▪ Font and border selection ▪ Dwell time 0-99 seconds ▪ Real time clock and calendar line with battery backup ▪ Automatic deletion of time tagged messages
 - Set position and size of text line ▪ Remote contact closure of page sequencing ▪ Queue format flexibility (number of messages and frequency) ▪ 2 fonts ▪ Auto reboot ▪ Ease of operation ▪ Variable background sizing ▪ Status monitoring ▪ Word flash ▪ RS-232 serial port ▪ Full screen editor ▪ Full screen display (8 text rows)
- 810** \$1295.00

830/830E Color Billboard System

- Full screen, full color, page oriented message display for CATV, education, hotel/motel and industry ▪ Battery backed-up 8K memory ▪ Keyboard ▪ Font and border selection ▪ Dwell time 0-99 seconds ▪ Real time clock and calendar line with battery backup ▪ Automatic deletion of time tagged messages
- Set position and size of text line ▪ Remote contact closure of page sequencing ▪ Queue format flexibility (number of messages and frequency) ▪ 2 fonts ▪ Auto reboot ▪ Variable background sizing
- Status monitoring ▪ Word flash ▪ RS-232 serial port ▪ Full screen editor
- Full screen display (8 text rows) ▪ Character by character color background

830	Color Billboard System 8 color background, 64 pages of non-volatile memory keyboard, real time clock and calendar line, crawl line.....	\$ 995.00
830E	Color Billboard System (Enhanced) 16 background colors, 16 character colors, 16 line display, 99 pages of non-volatile memory, remote control	1295.00



840 Color Billboard System

- Genlock ▪ 16 background colors ▪ 16 character colors ▪ 50ns resolution
 - 4 fonts ▪ 16-line display ▪ 100-page non-volatile
 - Remote control RS-232 interface ▪ 1-line crawl
- 840** \$1695.00

Options for 800, 810, 830, 840

SF	Standard fonts.....	\$ 200.00
CL	Customized logo (customer artwork required).....	400.00
SI	Serial interface—RS485 and software.....	200.00
GP	General purpose interface (12 TTL lines)	400.00
WI	Weather interface (software and weather instruments)	1900.00
PAL	PAL differential (800/810)	200.00
PCS PC	Menu driven software	450.00
KB	Keyboard.....	150.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Standard V-LAN Components

- V-LAN-T V-LAN transmitter with cable. Stand-alone "black box" module. Connects to any computer serial port. Specify computer type for correct cable. Includes cable. Not rackmountable. **\$1115.00**
- V-LAN-R-SER V-LAN receiver for serial devices. Stand-alone "black box" module. Specify device type and node number with order. Includes cable. Not reprogrammable or rackmountable **\$1115.00**
- V-LAN-R-XXX V-LAN receiver for parallel devices. Stand-alone "black box" module. Specify device type and node number with order. Includes cable. Not reprogrammable or rackmountable. (XXX=type of parallel VTR; PAN=Panasonic; JVC=JVC; HIT=Hitachi; Type5=Sony U-Matics) . . . **\$1815.00**
- PS-OPTION SMPTE/EBU time code reader **\$700.00**
- V-LAN-S External V-LAN switcher interface module. Used for control of serial audio mixers or video switchers. Includes cable. Not reprogrammable. **\$1115.00**
- V-LAN-G General purpose interface (GPI) module provides 16 individually addressable open collector driver outputs. Specify node number. Includes cable. **\$1115.00**
- V-LAN-G-R General purpose interface (GPI) module with relay contacts. 16 quick connect 3-pole connectors are provided. **\$1865.00**

**V-LAN-CX
"Prosumer" VTR
Control Component**



V-LAN-CX V-LAN compatible receiver for control of selected low cost "prosumer" VTRs and camcorders used for desktop video applications. Specify for Control-L (LANC), Control-M (Panasonic 5-pin) or Sony VISCA. Includes cable. **\$795.00**

VTR Specific V-LAN Component

V-LAN-605 V-LAN compatible receiver plug-in board for JVC BR-S605U VTR **\$495.00**

VLX V-LAN Compatible Components

- VLX-RP Rackmount housing, universal switching power supply and sync, reference module for any 2 VLX modules **\$595.00**
- VLX-T Enhanced V-LAN compatible transmitter. Includes all features of standard V-LAN-T plus software downloadable drivers **\$1150.00**
- VLX-R Enhanced V-LAN compatible receiver. 1 module required per transport or switcher to be controlled. Includes front panel switchable node addressing, software downloadable device drivers, optional SMPTE/EBU time code reader/generator and transport specific software for parallel or serial controlled machines. Order VTR cables separately **\$1250.00**
- VLX-2R Dual V-LAN compatible receivers for serial controlled machines only. Optional SMPTE/EBU time code reader/generator. Order VTR cables separately. **\$1500.00**
- VLX-SM SMPTE/EBU time code reader/generator option for VLX-R module. Option for all VLX, PACE and Alix modules **\$250.00**

**V-LAN External Animation Controllers
for All Computer Platforms**

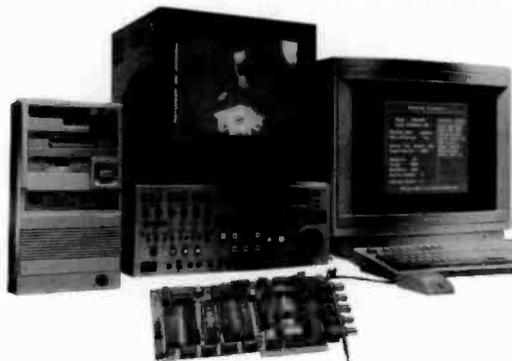
PACE Professional animation control engine for any computer platform. Rackmount unit housing VLX-T and VLX-R. VLX receiver is reprogrammable for serial and parallel devices. Specify computer for correct cable. Order VTR cables separately **\$2995.00**

Alix 1 Low cost animation solution for any computer platform. Compact desktop unit houses V-LAN compatible transmitter and receiver. Receiver is user reprogrammable for serial devices. Optional time code reader/generator. Specify computer for correct cable. (Serial VTR control only, not rackmountable.) Order VTR cables separately **\$1695.00**

Alix 2 Alix 2 houses a second V-LAN receiver to Alix for control of 2 video devices from 1 desktop unit. Use for animation or editing with OZ programs when an external V-LAN is preferred. Can be stacked for expansion.

(Serial VTR control only, not rackmountable.) Order VTR cables separately. **\$2495.00**

Express Low cost single device controller for animation, rotoscoping and authoring applications. Stand-alone unit controls 1 serial video device. Does not require a V-LAN transmitter. Does not operate on V-LAN network. Specify computer for correct cable. Order VTR cables separately **\$795.00**



**V-LAN Controller Cards (AT Bus Slot)
for IBM/Amiga Computers**

- PC-T (PC-R) Low cost V-LAN transmitter or receiver (PC-R) on a card that plugs into any AT-bus computer slot. Connects to external V-LAN receivers, editing systems, etc. **\$795.00**
- Animax (PC-2R) Low cost V-LAN transmitter and serial receiver for frame accurate control of 1 serial device (or 2 serial receivers (PC-2R) on a card). Plugs into AT-bus computer slot. User reprogrammable. (No time code reader option, serial devices must have internal time code.) Order VTR cables separately **\$1250.00**
- Animax 2 (PC-3R) Low cost V-LAN transmitter and 2 serial receivers for frame accurate control of 2 serial devices (or 3 serial receivers (PC-3R) on a card). Plugs into AT-bus computer slot. Connects to additional cards or external V-LAN components. User reprogrammable. (No time code reader option, serial devices must have internal time code.) Order VTR cables separately **\$1995.00**

**Dedicated Video
Editing Systems**

MICRON 2.0 Dedicated keyboard editing system. Self-contained unit houses 2 VLX receivers. User reprogrammable for serial or parallel devices. Specify IBM, Mac or Amiga platform for proper download disk. GPI for switcher control. Expandable with additional receiver for A/B roll. Upgradable to SuperMICRON. Order VTR cables and TTL display monitor separately **\$3500.00**

SuperMICRON Full-featured upgrade to the MICRON. Dedicated keyboard adds 1 V-LAN-R for third device control, 1 V-LAN-S switcher interface, variable speed control and VPC-1 EDL software. Option: audio mixer control with additional V-LAN-S. Order VTR cables and TTL display monitor separately **\$6500.00**

VLC-32 High performance keyboard editor with single rack CPU. Can be combined with standard V-LAN modules, VLX, Alix or AT-bus cards. Includes VPC-1 EDL software **\$5800.00**



MICRON and SuperMICRON Options

VPC-1 Off-line edit lister allowing storage and retrieval of edit lists from IBM compatible PC. Includes translation TO and FROM CMX/DOS format and view list **\$375.00**

TurboVPC Enhanced version of VPC-1. Includes advanced list management, multiple lists in a windowed environment, block manipulation, comments, reel and scene archiving **\$750.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Dedicated Video Editing "Pro-Package" Systems

- MICRON PC+ MICRON 2.0 packaged with the PC-T transmitter for IBM/Amiga computer animation support plus video editing control. Order VTR cables and TTL display monitor separately **\$3,995.00**
- MICRON+ MICRON 2.0 packaged with the V-LAN-T transmitter for computer animation support plus video editing control. Specify computer platform for proper cable. Order VTR cables and TTL display monitor separately **\$4,500.00**
- SuperMICRON-CUTS Base version of SuperMICRON for control of 2 VTRs. Includes variable speed control and VPC-1. Order VTR cables and TTL display monitor separately **\$4,270.00**
- SuperMICRON PC SuperMICRON editor with PC-2R AT-bus card configured for control of 2 serial VTRs. Provides A/B roll, serial switcher control, VPC-1 EDL software, variable speed control. Order VTR cables and TTL display monitor separately **\$5,520.00**
- SuperMICRON CX SuperMICRON editor with 2 V-LAN-CX receivers. Provides A/B roll with 2 prosumer VTRs, 1 serial/parallel VTR and 1 switcher interface, VPC-1 EDL software, variable speed control. Order VTR cables and TTL display monitor separately **\$4,995.00**
- SuperMICRON PC+ SuperMICRON editor with 1 Animax-2 AT-bus card. Provides A/B roll, serial switcher control, VPC-1 EDL software, variable speed control and V-LAN compatible transmitter for single frame animation. (Requires IBM or Amiga computer.) Order VTR cables and TTL display monitor separately **\$6,265.00**
- SuperMICRON VLX-2R SuperMICRON A/B roll editor with serial switcher control and VPC-1 EDL software. 2 VLX serial receivers in rackmount unit for "B" deck and switcher. VLX-RP rack unit has room for optional VLX-T for animation support for any computer platform. (For parallel "B" deck, add optional VLX-R) Order VTR cables and TTL display monitor separately **\$6,365.00**



- VLC-32 6/16 PC Package includes VLC-32 base unit, plus 6 V-LAN serial receivers on 2 AT-bus boards to control 4 serial VTRs, 1 switcher, 1 audio mixer and 1 V-LAN-G 16 GPI interface. User reprogrammable. Order VTR cables separately **\$10,900.00**
- VLC-32 6/16 Package includes VLC-32 with 6 rackmountable serial VLX receivers (3 VLX-2Rs) to control 4 serial VTRs, 1 switcher, 1 audio mixer and 1 V-LAN-G 16 GPI interface. User reprogrammable, rackmountable. Order VTR cables separately **\$12,500.00**

**OZ Windows
Video
Editing
Systems**

OZ Windows software can be combined with any V-LAN compatible components for custom systems.



- OZ-WIN-1 OZ Windows 1.x software (software only) **\$795.00**
- OZ-WIN-1-PC OZ Windows 1.x software combined with Animax-2 AT-bus card. Supports cuts editing and animation with 1 source and 1 record. (Serial VTRs only, no time code option.) Order VTR cables separately **\$2,495.00**
- OZ-WIN-1-CX OZ Windows 1.x software combined with PC-T and 2 V-LAN-CX interfaces for prosumer cuts editing. Specify VTR cable for appropriate cable **\$1,995.00**
- OZ-WIN-2 OZ Windows 2.x software (software only, requires additional V-LAN switcher interface) **\$1,995.00**
- OZ-WIN-2-A/B ROLL OZ Windows 2.x software combined with Animax-2 and PC-2AR AT-bus card. Supports 2 source, 1 record and 1 serial switcher interface. Order VTR cables separately **\$4,495.00**
- OZ-WIN-PRO A/B ROLL OZ-WIN-PRO software, PRO-I keyboard, PC-3R and PC-R AT-bus cards. Supports 2 source, 1 record and 1 switcher interface. Order VTR cables separately **\$5,495.00**
- OZ-WIN-PRO II A/B ROLL OZ-WIN-PRO software, PRO-II keyboard (with internal V-LAN transmitter, 2 VLX-R serial/parallel) and PC-2R AT-bus card. Supports 2 source, 1 record and 1 switcher. Order VTR cables separately **\$5,995.00**
- OZ-WIN-PRO II VLX OZ-WIN-PRO software, PRO-II keyboard (with internal V-LAN transmitter, 2 VLX-R serial/parallel) and VLX-2R in rackmount. Supports 2 source, 1 record and 1 switcher. Order VTR cables separately **\$6,995.00**
- PRO-I Keyboard Jog/shuttle keyboard with internal V-LAN transmitter. Includes 15 dual function keys for primary editing functions with OZ software or VTR functions for animation programs. (OZ software not included.) **\$1,995.00**
- PRO-II Keyboard Jog/shuttle keyboard with internal V-LAN transmitter and 2 VLX-R V-LAN receivers. Numeric keys and editing keys for full control of OZ software or VTR functions for animation programs. (OZ software not included.) **\$3,495.00**

OZ Macintosh Video Editing Systems

- OZ Macintosh software can be combined with any V-LAN compatible components for custom systems.
- OZ-MAC-1 OZ Macintosh 1.x software (software only) **\$795.00**
- OZ-MAC-1 ALIX-2 OZ Macintosh 1.x software with Alix-2. Supports cuts editing and animation with 1 source and 1 record. Order VTR cables separately **\$2,995.00**
- OZ-MAC-1 CX OZ Macintosh 1.x software, V-LAN-T transmitter and (2) V-LAN-CX interfaces for prosumer cuts editing. Specify VTR cable for appropriate cable **\$2,295.00**
- OZ-MAC-2 OZ Macintosh 2.x software (software only, requires additional V-LAN interface) **\$1,995.00**
- OZ-MAC-2 A/B ROLL OZ Macintosh 2.x software with Alix-2 and Alix-1. Supports 2 source, 1 record and 1 switcher interface. Order VTR cables separately **\$5,495.00**
- OZ-MAC-PRO-A/B ROLL OZ Macintosh 2.x software with PRO-I and (2) Alix-1. Supports 2 source, 1 record and 1 switcher interface. Order VTR cables separately **\$6,495.00**

Macintosh Animation Software

- Auto-PICT QT Macintosh animation software for all V-LAN components. Provides for video capture and record output of PICT and PICS files and QuickTime movies **\$395.00**
- MacAnimator Pro V-LAN High performance Macintosh animation software for all V-LAN components. Features FastPass mode for high speed capture/record of multiple animation frames. Supports PICT, PICS, QuickTime movie and audio files **\$995.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MX-1 Digital Video Mixer

- 4-input synchronized video switcher
- Digital synchronizer mixes video images from virtually any 2 sources (cameras, VCRs, live feeds, etc.)
- Dual-field time base correction (TBC)



automatically corrects time base ▪ Meets broadcast video standards (CCIR 601 and RS170A) ▪ Over 200 video effects, including fade, wipes, slides, dissolve (mix), zoom, picture-in-picture, picture flip, luminance and chroma key, superimpose, mosaic, strobe, freeze frame, posterization (paint), solarization, negative, color inverse, zoom, filter ▪ Chroma key keys on any color ▪ Compose "paints" a video picture ▪ Combines lines, rectangles and borders in any color with still or moving frames ▪ Background color generator creates solid color background behind effects ▪ Border color generator creates borders between wipes ▪ Mix or fade audio, with video transitions or independently ▪ Preview display shows all 4 inputs at once, at reduced frame rate (depending on how many inputs are live) ▪ Manual transitions using T-bar or automatic transitions (9 speeds) using Auto-Take ▪ GPI trigger input ▪ Sequencer memorizes and repeats user actions automatically ▪ S-Video (Y/C) and composite (RCA-style) video inputs on all 4 channels and on output. Use all S, all composite or any combination ▪ Color bar and blackburst generators **\$1199.00**

TM-2000 Video TitleMaker 2000 Character Generator

- High resolution: 720 pixels per line, 480 lines (70ns) ▪ 8000-character memory; hundreds of pages
- Page index screen allows easy page identification and access ▪ 23 fonts, 4 sizes, 27 style combinations ▪ Drop shadow, outline, 3 grades of bold, variable character spacing ▪ Over a million colors, custom color palette ▪ 20 special effects (fades and wipes) in 8 speeds each ▪ Multi-directional scroll and crawl (each in 8 speeds) ▪ Superimpose (genlock): Title over video, or use video for letters, outlines or borders ▪ Separate selection of colors and patterns for letters, outline/shadow colors can also change for each line ▪ 32 rainbow and pixel patterns, including animated patterns, can be used on background, letters, outline/shadow and borders
- Background video mix: Mix colors or patterns with video for see-through or tinted-video effects ▪ On-screen text modes: Play prearranged program with times set for each page; play pages manually (slide show); repeated play sequence (video billboard); play 1 page ▪ Full keyboard includes special and foreign characters such as ©, Û, °, Ø, etc. ▪ Video and audio inputs and outputs
- S-Video and composite video in and out ▪ GPI trigger input
- 10-year lithium battery backup ▪ Compatible with all video sources and videotape formats **\$599.00**



TU-1 Thumbs Up Video Editor

- Records "thumbs-up" video on new tape, leaving "thumbs-down" portions behind
- On-screen thumb display ▪ Automatic fade-to-black between scenes (can be disabled) ▪ Built-in video enhancer
- Up to 40 marked scenes ▪ VIEW: Automatically plays thumbs-up sections ▪ EDIT: Automatically assembles thumbs-up sections on new tape ▪ Patented "Universal" editing method works with virtually all VCRs and camcorders ▪ Works with all videotape formats ▪ Supports Control-L and Panasonic 5-pin edit control on camcorder/play-VCR ▪ S-Video connections for Super-VHS and Hi8 ▪ Reads and writes SMPTE VITC time code
- Supports Sony-RC time code ▪ Titler control triggers Video TitleMaker ▪ Battery or AC powered **\$229.00**



VE-1 Video Equalizer

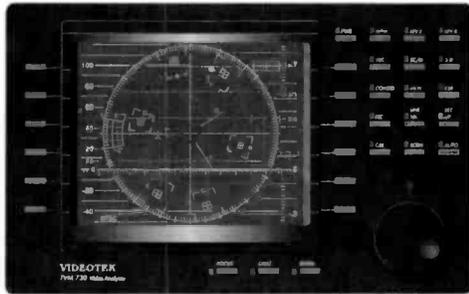
- Digital video technology ▪ Colorizer with independent red, green and blue controls
- Video processor with separate contrast, brightness, color and tint controls ▪ Enhancer with sharpness and video noise controls
- Moveable split screen for before and after comparison
- Advanced functions including black-and-white image, tinted image, posterization, color negative and color bars ▪ Digital paintbrush to select and modify some colors without affecting the others ▪ S-Video compatible ▪ Dual video outputs ▪ 3-channel audio mixer ▪ Compatible with all tape formats **\$329.00**



SE-1 Sound Effects Mixer

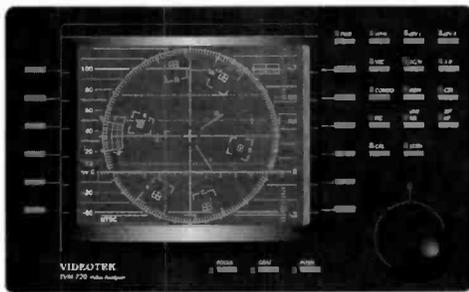
- 3-channel audio mixer combines 2 stereo line-level sources and 1 mono microphone channel ▪ Pushbutton digital sound effects generator ▪ 59 sampled sounds ▪ 18 electronic tunes and arcade sounds ▪ Sounds can be modified for hundreds of variations ▪ Sounds can be played lower or higher in pitch ▪ Sounds can be faded in or out ▪ Sounds can be played backward ▪ Stutter (r-r-rap) effect ▪ Effects can be combined for even more variation ▪ Stores a sequence of up to 31 sounds ▪ Sequences can be played 1 at a time or automatically ▪ Stereo in and out; stereo headphone jack ▪ Video pass-through connection (for convenience in video editing setups) **\$149.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TVM-730 Composite Video Analyzer With Auto Measure

Auto measure provides text readouts for horizontal blanking measurements, frequency response, test signal parameters and many other measurements. An innovative combination of analog and digital signal processing provides the fidelity of analog resolution with the unquestionable accuracy of digital measurements. Operator defined measurement parameters can be stored in memory for instant recall and the output can be downloaded to a personal computer for storage or to generate a hard copy printout. 2 operating levels are provided. Level I lets operators display waveforms, vectors, pictures and 1 SC/H phase. Level II gives engineers a complete range of tools, including digital line selects, quad SC/H phase displays, measurement cursors with on-screen digital readouts and a revolutionary 3-D display. 4 composite inputs and a wide variety of functions provide monitoring flexibility. 9 different inputs/filters can be displayed simultaneously. Waveforms can be displayed in simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Vector displays can be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. On-screen writing completely describes the display on the CRT. The picture mode displays monochrome pictures individually or paraded. Remote control (RS-232/RS-422) of all functions may be accessed via a personal computer **\$12,950.00**



TVM-720 Component Analog/Composite Video Analyzer

Operator defined measurement parameters can be stored in memory for instant recall and can be downloaded to a personal computer for storage. 2 operating levels are provided. Level I lets operators display waveforms, vectors, pictures and 1 SC/H phase. Level II gives engineers a complete range of tools, including digital line selects, quad SC/H phase displays and measurement cursors with on-screen digital readouts. Multiple input configurations (2 component and 2 composite or 1 component and 5 composite or 8 composite) and a wide variety of functions provide monitoring flexibility. 9 different inputs/filters can be displayed simultaneously. Waveforms can be displayed in simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Vector displays can be overlaid for simulta-

neous observation and comparison of the phase and amplitude of up to 3 signals. On-screen writing completely describes the display on the CRT. The picture mode displays monochrome pictures individually or paraded. Remote control (RS-232/RS-422) of all functions may be accessed via a personal computer **\$7,275.00**

TVM-710 Composite Video Analyzer

Operator defined measurement parameters can be stored in memory for instant recall and can be downloaded to a personal computer for storage. 2 operating levels are provided. Level I lets operators display waveforms, vectors, pictures and 1 SC/H phase. Level II gives engineers a complete range of tools, including digital line selects, quad SC/H phase displays, measurement cursors with on-screen digital readouts and a revolutionary 3-D display. 4 composite inputs and a wide variety of functions provide monitoring flexibility. 9 different inputs/filters can be displayed simultaneously. Waveforms can be displayed in simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Vector displays can be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. On-screen writing completely describes the display on the CRT. The picture mode displays monochrome pictures individually or paraded. Remote control (RS-232/RS-422) of all functions may be accessed via a personal computer **\$6,395.00**

Options

- SSC-1 Single standard case **\$ 60.00**
- PTC-1 Portable case with handle and sunshield **155.00**
- DRC-1 Double rackmount case **220.00**
- DAT-3 Half-rack tray for DRC-1 to mount PVS-6, PVS-6A or self-contained series distribution amplifiers **135.00**
- BLK-1 Blank panel **45.00**
- WP-1 White phosphor tube for TVM-710, TVM-720, TVM-730 **225.00**



S-2000 Video Analyzer/System

S-2000 is a unique video analyzer that automatically and unattended performs hundreds of both NTSC and PAL systems tests. This instrument performs automatic measurements in NTSC (FCC, FCC/Cable, RS-17QA, RS-250C, NTC-7, ICPM) and in PAL CCIR (473, 567, 569, 624, ICPM) plus common basic measurements for both formats. 10-bit 8-times subcarrier sampling assures the high resolution and extreme accuracy of this innovative instrument. S-2000 is easy to learn, and intuitive operation via on-screen PC menus makes it extremely user-friendly. Its ease of operation allows non-technical staff to program the instrument for testing. Full user control of the 4 video inputs is achieved through any standard PC in defining and scheduling an unlimited series of tests at predetermined intervals. Any test can be performed instantly at the press of a button. Test results are available for immediate on-screen review and hard copy output. In addition, the results are stored in disk files for future review. (IBM compatible software is provided.) Through the use of a modem or similar device, S-2000 can be accessed to perform measurements from any remote location in the world. One central computer can access multiple S-2000 installations. **\$9,450.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TVM-621 Combination Waveform Monitor/Vectoroscope

The TVM-621 is a full featured half-rack width combination waveform monitor/vectoroscope which produces a variety of unique display modes. 1, 2 or 3 video signals may be observed individually or in any combination of 3 inputs. Waveforms can be displayed in either simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Any 1 input may be displayed with simultaneous flat, low pass and chroma filters. Vector displays can also be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. 4 user defined memories permit rapid recall of frequently used modes. Diagnostic testing of the front panel controls and LEDs are built in. An R-Y mode displays the demodulated chrominance with horizontal sweep. A graticule scale is provided to aid in measuring differential phase. This display can be viewed simultaneously in the parade mode with 1 or 2 additional filter waveforms. The TVM-621 is available with an optional AC/DC power supply (ADC-1), allowing an external DC power source or battery to be input via a 4-pin XLR connector for portable field use. **\$3828.00**

VSM-61 Vectoroscope

The VSM-61 is designed for convenience and ease of operation in observing the vector display of video signals at an economical price. Market proven traditional features are combined with ergonomically designed controls. Proven, reliable circuit design permits accurate measurement of differential gain and differential phase of color television signals. Selection of inputs (A, B or subcarrier A) and references (A, B or external subcarrier) are easily accomplished via tactile membrane control switches. Rapid A/B comparisons may be made by directly switching between the A and B inputs. Requiring only 3 rack units (5.25") and 1 half-rack width, the VSM-61 vectoroscope may be mounted in the optional DRC-1 double rackmount case along with a TSM-51 or TSM-61 waveform monitor for complete signal monitoring. **\$2132.00**



TSM-61 Waveform Monitor With Line Select

Designed for convenience and ease of operation, the TSM-61 is an excellent value in waveform monitors. Market proven traditional features are combined with ergonomically designed controls. Proven, reliable circuit design permits a variety of measurement parameters.

Selection of filter response (flat, IRE, chroma or differential gain) and time base sweep (1H, 2H, 2V, 1H mag, 2H mag, 2V mag) are easily accomplished via tactile membrane control switches. Rapid A/B comparisons may be made by directly switching between A and B inputs. Line Select permits the observation of lines 14 through 21, field 1 or field 2. An auto bright-up circuit increases the intensity of the selected line for observation of VITS, VIRS or closed caption signals being displayed. Additionally, auto focus assures a clear, well defined image of the line selected, without readjustment. Requiring only 3 rack units of vertical rack space (5.25") and 1 half-rack width, the TSM-61 waveform monitor may be mounted in the optional DRC-1 double rackmount case along with a VSM-61 vectoroscope for complete signal monitoring. **\$2132.00**

TSM-51 Waveform Monitor

The TSM-51 offers the most commonly used waveform monitor functions at an economical price. Market proven traditional features are combined with ergonomically designed controls. Proven reliable circuit design permits a variety of measurement parameters. Selection of filter response (flat, IRE or chroma) and time base sweep (2H, 2V, 2H mag, 2V mag) are easily accomplished via tactile membrane control switches. Rapid A/B comparisons may be made by directly switching between the A and B inputs. Requiring only 3 rack units of vertical rack space (5.25") and 1 half-rack width, the TSM-51 waveform monitor may be mounted in the optional DRC-1 double rackmount case along with a VSM-61 vectoroscope for complete signal monitoring. **\$1729.00**

TVM-675 Component Analog/Composite Combination Waveform Monitor/Vectoroscope Audio Monitor

The TVM-675 is a full-featured half-rack width combination waveform monitor/vectoroscope, audio monitor engineered to observe either composite or component analog signals. Stereo audio phase and levels may be monitored via the audio display. The audio may be displayed alone or in any combination with waveform and/or vector. 1, 2 or 3 composite video signals may be observed individually or in any combination of 3 inputs. Waveforms can be displayed in either parade modes or overlaid for comparison of timing and amplitude characteristics. All 3 composite inputs may be displayed simultaneously with Flat, Low Pass and Chroma filters. Vector displays can also be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 composite signals. The TVM-675 can display component analog video signals from Beta, SMPTE, EBU or MII standards of 75% and 100% equivalent saturations. Component vectors may be displayed by themselves or in combination with the waveform display. 4 user-defined memories permit rapid recall of frequently used modes. Diagnostic testing of the front panel controls and LEDs is built in. An R-Y (V axis PAL) mode displays the demodulated chrominance with horizontal sweep. A graticule scale is provided to aid in measuring differential phase. This display may be viewed simultaneously in the parade mode with 1 or 2 additional filter waveforms. The TVM-675 is ideal for multi-format analog video and stereo audio monitoring. **\$4228.00**

Options

- SSC-1** Single standard case **\$ 60.00**
- PTC-1** Portable case with handle and sunshield. **155.00**
- DRC-1** Double rackmount case **220.00**
- BLK-1** Blank panel for DRC-1 **45.00**
- DAT-3** Half-rack tray for DRC-1 to mount 2 PVS-6 or PVS-6A, stand-alone distribution amplifiers or VSG-21 color sync and test signal generator **135.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PRODUCTION SWITCHERS

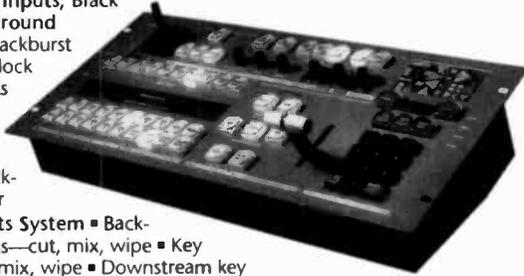


VIDEOTEK™
World Class Quality From a Zero Defects Company

Prodigy Production Switcher

8 Primary Video Inputs, Black and Color Background

- Input 1 is the blackburst reference for genlock plus black
- Inputs 2-9 are primary video inputs
- Input 10 is the internal color background generator



- Multi-level Effects System** ■ Background transitions—cut, mix, wipe ■ Key transitions—cut, mix, wipe ■ Downstream key transitions—cut, mix ■ Combined background and key transitions—provides the power of a 2-mix/ effect switcher
- Look Ahead Preview** ■ Displays the result of the next transition
- Integrated Stereo Audio-Follow-Video System** ■ 2-bus system—preset and program ■ Cut or fade between audio sources ■ Editor control of audio transitions ■ Audio hold—inhibits AFV operation
- Fade-to-Black** ■ Integrated with transition system
- System Timing Reference** ■ System genlocks to blackburst reference signal on input 1 (Prodigy Composite) ■ System locks to composite sync reference signal (Prodigy Component) ■ Has chroma and luminance linear keys on all primary inputs (Prodigy C Component)
- Blanking Processor** ■ Provides high stability video output and masks minor timing errors between primary inputs
- Linear Keying System** ■ Allows the keyer to be adjusted to match the rise time of the key source for high quality keying (Prodigy Composite)
- Key Memory** ■ Automatically remembers the Key Clip and Key Gain settings for each input in both Self Key and Auto External Key modes
- 3 External Key Inputs** ■ Can integrate a "wide key" character generator, digital effects system and graphics camera
- Auto External Key Follow** ■ Automatically selects External Key when primary input for which it is programmed is selected ■ Selects Self Key for primary inputs which do not have an External Key programmed to follow
- Downstream Keyer** ■ User programmable in and out (0 to 999 frames) ■ External key cut and key fill
- Extensive Wipe Pattern Selection and Modifiers** ■ 24 wipe patterns standard ■ Hard, soft and hard or soft bordered wipe edges with variable inside to outside softness balance ■ Rate controlled joystick for positioning and pattern modification ■ Pattern Memory System—allows editing system to select a pattern with all modifiers through standard editor interface
- Programmable Effects Transition System** ■ 100 on-line events with battery backup ■ Recall pre-programmed effects at the touch of a button ■ Effects transitions smoothly change analog control settings between the values stored in 2 ET events ■ Instant Replay allows Prodigy to learn the operator's actions against a real time clock ■ Programmed sequences for repeatability without setting the effect up in real time
- Serial Editor Interface for Video and Audio** ■ RS-422 port interfaces with most available editing systems
- General Purpose Interface (GPI)** ■ Integrates Prodigy with other devices through contact closure interface ■ Prodigy may be controlled from inexpensive "cuts only" editing systems ■ Can access memory recall ■ Allows external device with GPI input to be triggered by Prodigy

Prodigy Composite \$ 8,665.00
Prodigy C Component 17,185.00

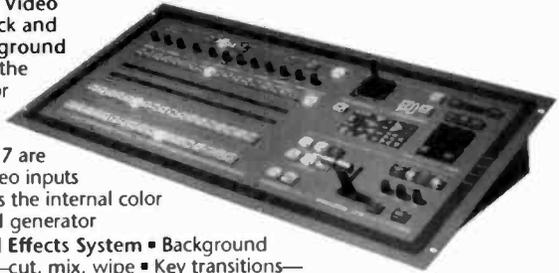
Options

- RGB-1** RGB chroma keyer for Prodigy. Can be mounted in CTC-2 console extension \$ 995.00
- EX-P** Extender cards for servicing electronics frame circuit boards 495.00
- CTC-1** Console for countertop installation of Prodigy. Solid hardwood construction 225.00
- CTC-2** Console for CTC-1 to mount RGB-1 control panel. Solid hardwood construction 150.00
- EI-1** Serial editor interface 1,028.00
- SA-1** Stereo audio-follow-video 1,995.00
- Prodigy Composite service manual 75.00
- Prodigy C Component service manual 125.00

PDG-418 18-Input Production Switcher

16 Primary Video Inputs, Black and Color Background

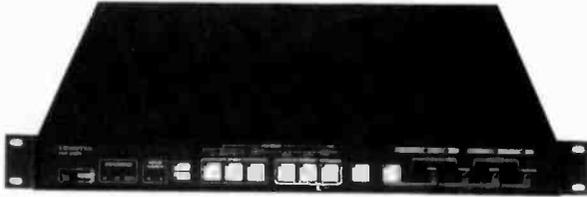
- Input 1 is the reference for genlock plus black
- Inputs 2-17 are primary video inputs
- Input 18 is the internal color background generator



- Multi-Level Effects System** ■ Background transitions—cut, mix, wipe ■ Key transitions—cut, mix, wipe ■ Downstream key transitions—cut, mix ■ Combined background key and downstream key transitions—provide the power of a 2 mix/effect switcher
- Program Video Bus** ■ Permits direct switching of video
- Clean Feed** ■ Provides third program video output. Bypasses downstream keyer and blanking processor
- Look Ahead Preview** ■ Displays the result of the next transition
- Integrated Stereo Audio-Follow-Video System (Optional)** ■ 2-bus system—preset and program, inputs 1-10 ■ Cut or fade between stereo audio sources ■ Editor control of audio transitions ■ Audio hold—inhibits AFV operation
- Fade to Black** ■ Integrated with transition system
- System Timing Reference** ■ System locks to blackburst reference signal on input 1
- Blanking Processor** ■ Provides high stability video output and masks minor timing and sync level errors between primary inputs
- Linear Keying System** ■ Allows the keyer to be adjusted to match the rise time of the key source for high quality keying
- Key Memory** ■ Remembers the key clip and key gain settings for each input in both self key and auto external key modes ■ Includes chroma key
- 3 External Key Inputs** ■ Allows integration of a "wide key" character generator, digital effects system and graphics camera
- Key Loop** ■ Allows key bus cut and fill to be looped through an external digital effects processor. Alternate software setting will send only key bus fill to the external processor loop and key bus cut will remain for internal processing only
- Auto External Key Follow** ■ Automatically selects external key when primary input for which it is programmed is selected ■ Automatically performs self key if selected primary input is not programmed for external key
- Downstream Keyer** ■ User programmable in and out (0 to 999 frames), or manual cut or fade ■ May be operated independent of the main mix effects system ■ External key cut and key fill
- Extensive Wipe Pattern Selection and Modifiers** ■ 24 wipe patterns standard ■ Hard, soft and hard or soft bordered wipe edges with variable inside to outside softness balance ■ Rate controlled joystick for positioning and pattern modification ■ Pattern memory system—allows editing system to select a pattern with all modifiers through standard editor interface
- Programmable Effects Transition System** ■ 100 on-line events with battery backup ■ Recall pre-programmed effects at the touch of a button ■ Effects transitions smoothly change analog control settings between the values stored in 2 events ■ Instant replay allows PDG-418 to learn the operator's actions against a real time clock ■ Programmed sequences for repeatability without setting the effect up in real time
- General Purpose Interface (GPI)** ■ Integrates PDG-418 with other devices through contact closure interface ■ PDG-418 may be controlled from inexpensive "cuts only" editing systems ■ Can access memory recall ■ Allows external device with GPI input to be triggered by PDG-418
- Serial Editor Interface for Video and Audio (Optional)** ■ RS-422 port interfaces with most available editing systems

PDG-418 18-input production switcher \$16,995.00
CK-1 RGB/Y,R-Y,B-Y Chromakeyer for PDG-418 995.00
BG-1 Border generator for PDG-418 downstream keyer 1,995.00
EX-PDG Extender cards for servicing electronics frame circuit boards 550.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VDP-8000/VDP-8400 Frame Store Synchronizers

- Synchronizes noisy feeds from satellite, microwave, ENG, remote broadcasts and other non-synchronous sources
- Proc amp controls with presets for video gain, pedestal, chroma gain and chroma phase
- Full proc amp controls in Freeze mode
- Freeze enable/disable allows constant processing of the input regardless of signal quality
- Hot switching
- Line select
- 2 video outputs
- Standby video input (VDP-8400)
- Selectable vertical blanking width
- Individual adjustments for H phase, SC phase and SC/H phase
- Selectable normal/bypass operation
- Remote connector
- Audio steering signal to control an audio synchronizer
- Can insert burst in monochrome signals
- Blackburst output for use as a stand-alone sync generator
- Genlock
- 1 3/4" rackmountable

The VDP-8000 has a unique independent Freeze Field capability which permits the storage of 2 different fields, or 1 field without interruption of live video synchronizing. The VDP-8400 with 4 field memory can store 2 frames, or 1 frame without interruption of live video synchronizing. Stored images remain clear and sharp through the use of a 3-line digital comb filter.

- VDP-8000 \$4995.00
- VDP-8400 \$995.00
- VDP-Remote Remote control panel 995.00

Times Six/Times Six Plus Blackburst Generators

- 6 individual composite blackburst outputs
- 6 horizontal and subcarrier phase timing adjustments
- Stand-alone or genlock operation (automatically switches to internal if external reference signal is lost)
- Genlock input loss/presence indicators
- Compensates for up to 1000' of cable
- Automatically compensates for cable length and equipment drift (Times Six Plus)
- 1 3/4" high, rackmountable
- Times Six Manual \$2428.00
- Times Six Plus Manual/automatic 3095.00

VSG-21 Color Sync and Test Signal Generator

- Selectable test patterns: SMPTE color bars, modulated ramp, multi-burst, 10-step unmodulated staircase, audio test tone, blackburst output \$995.00

VSG-201 Color Sync Generator

- RS-170A specifications
- Genlock
- Genlock input subcarrier loss/presence indication on front panel
- Genlock input sync loss/presence indication on front panel
- 6 isolated blackburst outputs
- SMPTE color bars—dual outputs
- Color field 1 ID pulse output
- Front panel adjustments for H phase and SC phase
- Selectable vertical blanking width (lines 16-21 internal)
- +4dBm 1kHz tone output, balanced or unbalanced outputs into 600 ohms
- 1 3/4" high, rackmountable \$1995.00

VTM-100 Television Signal Monitor

- Displays component signals and automatically detects NTSC or PAL composite signals
- Drop down menus allow a myriad of choices including mix of display over picture (adjustable from 0-100%), waveform, vector, waveform/vector overlaid and dual audio
- Includes time base modes from 1H to 3H, 1V to 3V plus magnifications of 1X to 20X
- Separate flat, low pass chroma filters can be used in parade or overlay mode, a full-field line select and user adjustable alarms for sync and SCH employing automeasure which eliminates those subjective test results

- Component features include the display of all common CAV signals in waveform, bowtie and vector modes
- Graticules, displays and user adjustable alarms, indicated in color, are generated electronically so they are not affected by a non-linear monitor raster \$2395.00

BTG-100P PAL Handheld Color Bar Generator

- Color bar display digitally generated at 8 times subcarrier frequency
- Programmable source ID with memory
- DC operation with 4 AA batteries
- AC operation with power adaptor \$595.00



DM-141A 154-Channel Stereo Tuner/Demodulator

- Automatic/manual fine tuning
- Varacter tuning/frequency synthesized channel selection
- BTSC (MTS) stereo decoder output with LED pilot indicators
- Balanced stereo outputs
- Internal audio monitoring — 1" speaker
- Random access or up/down channel selection
- Front panel LED channel display
- Tactile feel membrane front panel keyboard with LED feedback
- Front panel antenna/cable select
- Access to controls for video gain, audio gain and balance on front panel
- Short-term front panel memory maintained during power loss (1 week)
- 75 ohm "F" connectors for antenna/cable inputs
- 100% solid-state circuitry
- 1 3/4" high, rackmountable \$1995.00

DM-154 Precision Stereo Demodulator

- 154 channels (VHF/UHF/cable)
- Synchronous detection
- Frequency synthesized channel selection
- Random access, search or single channel up/down tuning
- HRC/IRC offset tuning capability with memory for every channel selection
- Front panel antenna/cable selection
- Full FCC bandwidth video -4.1MHz ±0.5dB
- 2 baseband video outputs
- BTSC (MTS) stereo decoder output with LED stereo pilot indicator
- Balanced (XLR) stereo audio outputs
- SAP presence LED indicator
- User selection of stereo, mono, SAP or SAP and mono outputs
- Internal audio monitoring, 1" speaker
- RS-232 remote control
- Tactile feel membrane front panel keyboard with LED feedback
- Quadrature output for transmitter measurements
- Chopper circuit on user selectable line for zero carrier modulation
- IF (45.75MHz) loop, enabled by an internal jumper
- 4.5MHz output
- Front panel LED channel display
- Front panel memory maintained during power loss (approximately 3 days)
- 75 ohm F connector for antenna/cable input
- 1 3/4" H, rackmountable ... \$4995.00

APM-800 Stereo Audio Program Monitor

- Requires only 3 1/2" of vertical rack space
- 8 inputs—balanced/unbalanced
- Barrier strip input/output connections
- Internal 3" speaker
- 15W amplifier
- 5m sensitivity ranges
- 0dBm, 600 ohm line output
- Calibrated tone output
- Hi/Low input impedance select \$995.00

APM-200 Audio Program Monitor

- Stereo input—balanced or unbalanced
- 3-pin female XLR input connectors, balanced
- RCA phono jack connectors, unbalanced
- Input mode switching: L - R, L + R, stereo, reversed stereo, L only, R only
- Two 3" speakers
- 10-segment bargraph VU meter displays
- 4 input sensitivity ranges (-10dBu, 0dBu, +4dBu, +8dBu) selectable
- 600 ohm or hi-impedance selectable, balanced inputs XLR
- Power output 4WRMS per channel (nominal)
- 1/4" stereo headphone jack
- 1 3/4", rackmountable \$575.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

ROUTING SWITCHERS



VIDEOTEK™
World Class Quality From a Zero Defects Company

PVS-6A 6 x 1 Audio Follow Video Passive Switcher

■ 100% passive—no power requirements ■ Low insertion loss ■ Low video/audio crosstalk ■ 6 video/audio (unbalanced) inputs ■ 1 video/audio (unbalanced) output ■ BNC video connectors ■ Barrier strip audio connection ■ 1 3/4" rackmount height ■ Can mount 3 units side by side using a Videotek DAT-1 rackmount tray

PVS-6A \$225.00

PVS-6 6 x 1 Passive Video Switcher

■ 100% passive—no power requirements ■ Low insertion loss ■ Low video crosstalk ■ 6 video inputs/1 video output ■ 1 3/4" rackmount height ■ Can mount 3 units side by side using a Videotek DAT-1 rackmount tray

PVS-6 \$182.00

RS-103A 10 x 1 Routing Switcher Series With RS-422 Interface

■ 10 looping video inputs ■ Wide bandwidth for high resolution applications (1.0dB at 40MHz) ■ DC restored output amplifier ■ High speed clamping provides excellent hum rejection ■ Low return loss >55dB at 5MHz ■ +24dBm audio headroom ■ 3 audio channels per input, balanced or unbalanced ■ Transformer coupled audio outputs, balanced or unbalanced ■ 2 channel audio breakaway ■ Auxiliary channel can be programmed to follow video or audio breakaway ■ Microprocessor control with battery backup ■ Serial data bus for communication within the system and remote control ■ Data bus interconnection via RJ11C telephone connectors ■ System expandable horizontally to 40 x 1 and vertically to 30 x 10 ■ 1 3/4" rackmountable

RS-103A \$1895.00

RS-103AL Same as RS-103A but without switches. May be controlled by computer or optional RSP-4 remote switching panel 1732.00

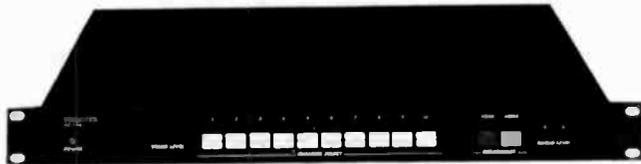
RS-103 10 x 1 vertical interval switcher, video only. RS-422 computer control interface 1350.00

RS-103L Same as RS-103 but without switches. May be controlled by computer or optional RSP-4 remote switching panel 1220.00

RSP-4 10 x 1 remote switching panel for RS-103A, RS-103AL, RS-103, RS-103L. RS-422 computer control interface 819.00

RSP-5 10 x 1 expansion remote switching panel for RSP-4. Permits remote switching from 2 locations 312.00

ABP-3 Audio breakout panel for RS-103A, RS-103AL. Converts audio I/O 37-pin D connectors to latching terminal blocks. Includes 3 18" 37-pin to 37-pin interconnect cables 373.00



RS-10A 10 x 1 Routing Switcher Series Audio Follow Video With Breakaway Feature

■ 10 video inputs, bridging 2 video outputs ■ 2 audio inputs for each video channel ■ Video/audio latching breakaway control ■ Balanced/unbalanced audio inputs or outputs ■ Overnight channel memory ■ Vertical interval switching/momentary contact pushbut-

tons with changeable legends and "LED" audio/video indicators ■ 1 3/4" rackmount or freestanding with rubber feet

RS-10A \$1199.00

RS-10ARC Remote 10 x 1 vertical interval switcher with 2 audio channels and audio (or) video breakaway feature, includes RCT-1 Remote Connector Kit. 1760.00

RS-10ARC-L Local portion of RS-10ARC only, includes RCT-1 Remote Connector Kit 1361.00

RS-10ARC-LS Same as RS-10ARC, but with switching capability at the local and remote locations, includes RCT-1 Remote Connector Kit 2028.00

RS-10ARC-L-SW Local portion of RS-10ARC-LS only includes RCT-1 Remote Connector Kit 1428.00

RSP-1 10 x 1 remote switching panel (may be added to RS-10ARC or RS-10ARC-LS to provide a second remote switching location). 629.00

RCT-1 Remote connector kit 56.00

CR-1 Cable for remote. ft./99

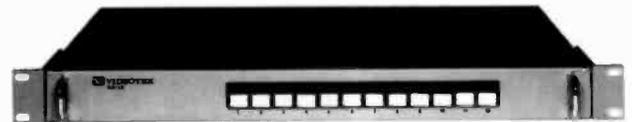
RSCC-1 Contact closure interface for RS-10ARC-L, RS-10ARC-L-SW 260.00



VIS-1201 12 x 1 Video Only Routing Switcher

■ 12 video inputs, bridging/2 isolated video outputs ■ 24-hour channel memory ■ Vertical interval switching ■ Momentary contact illuminated pushbuttons with changeable legends ■ 1 3/4" rackmount

VIS-1201 \$485.00



RS-12 12 x 1 Routing Switcher Series Video Only Routing Switcher

■ Video inputs, bridging/2 video outputs ■ Overnight channel memory ■ Vertical interval switching/momentary contact pushbuttons with changeable legends and "LED" video indicators ■ 1 3/4" rackmount or freestanding with rubber feet

RS-12 \$1128.00

RS-12RC Remote 12x1 vertical interval switcher, video only, includes RCT-2 Remote Connector Kit 1396.00

RS-12RC-LS Same as RS-12RC, but with switching capability at the local and remote locations, includes RCT-2 Remote Connector Kit 1465.00

RS-12RC-L Local portion of RS-12RC only, includes RCT-2 Remote Connector Kit 1092.00

RSP-2 12x1 video switching panel with RRK-2 Remote Rackmount Kit 395.00

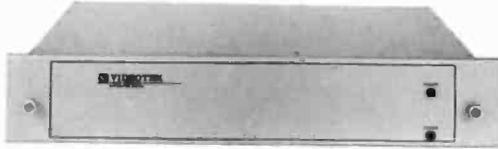
RRK-2 Remote rackmount kit 190.00

BLK-2 Blank panel 95.00

RCT-2 Additional remote connector kit. 39.00

CR-2 Cable for remote ft./1.93

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**MODULAR SERIES
800 Series Distribution Amplifiers**

800 Series Distribution Amplifiers are engineered to meet critical video distribution needs in all types of applications. The 800 Series is based on the TR-800 8-bay modular tray and PS-800 power supply. Up to 8 distribution amplifier modules may be mounted in the TR-800 tray, in addition to a second PS-800 power supply for backup in case of primary supply failure.

The VDA-816S is a standard video DA with 1 looping single-ended input and 6 outputs. Up to 300' of Belden 8281 may be equalized via a front card equalizer adjustment.

The VDA-816 is a precision video clamping DA with 1 looping differential or single-ended input and 6 outputs. An optional EQ-800 card may be added to the VDA-816 to allow front panel adjustment of equalization up to 1000' of Belden 8281.

TR-800 Modular DA Tray

▪ 8-bay modular 2 rackmount high tray ▪ Will accept any combination of VDA-816 precision DAs or VDA-816S standard DAs ▪ Also permits the use of a redundant backup PS-800 supply ▪ Comes standard with a single PS-800 supply **\$1198.00**

PS-800 Redundant Power Supply

▪ Provides unregulated ±16VDC to the TR-800 rack tray ▪ Additional PS-800 can be installed as a backup supply in case of primary supply failure **\$265.00**

EQ-800 Equalizing module for VDA-816. Equalizes up to 1000' of Belden 8281 **72.00**

EX-800 Extender card for servicing DA modules **105.00**

VDA-816 Precision Video Clamping DA Module

▪ Front card output level adjustment ▪ Front card equalizer adjustment when optional EQ-800 equalizer card is employed ▪ Can equalize up to 1000' of Belden 8281 ▪ Switchable clamping or DC restoration ▪ Modular plug-in card ▪ 1 looping differential or single-ended input and 6 outputs **\$395.00**

VDA-816S Standard Video DA Module

▪ Front card output level adjustment ▪ Front card equalizer adjustment can equalize 300' of Belden 8281 cable ▪ Modular plug-in card ▪ 1 looping single-ended input and 6 outputs **\$264.00**

SELF-CONTAINED SERIES

VDA-16 Video Distribution Amplifier

▪ 1 looping video input ▪ 6 isolated video outputs ▪ Front panel output level adjustment ▪ Cable equalizer front panel adjustment (300' Belden 8281) ▪ Front panel input/output test points ▪ Front panel LED power indicator ▪ BNC input/output connectors ▪ Rackmountable **\$306.00**



VDA-16WB Wide Band Video Distribution Amplifier

▪ 40MHz video bandwidth ▪ 1 looping video input ▪ 6 isolated video outputs ▪ Front panel output level adjustments ▪ Wide band cable

equalization from panel to adjustment ▪ Front panel LED power indicator ▪ BNC input/output connectors ▪ Rackmountable
VDA-16WB **\$396.00**

ADA-16 Audio Distribution Amplifier

▪ 1 balanced/unbalanced audio input ▪ 6 balanced audio outputs ▪ Front panel output level adjustment ▪ Front panel input/output test points ▪ Front panel LED power indicator ▪ Barrier strip input/output connectors ▪ Rackmountable **\$306.00**



PDA-16 Pulse Distribution Amplifier

▪ 1 looping pulse input ▪ 6 pulse outputs ▪ Front panel input/output test points ▪ Front panel LED power indicator ▪ BNC input/output connectors ▪ Rackmountable **\$375.00**

SDA-14 Subcarrier Distribution Amplifier

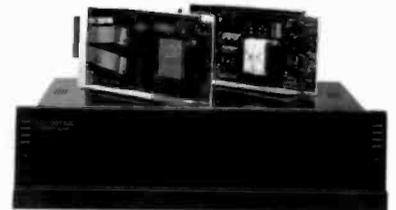
▪ 1 looping subcarrier input ▪ 4 isolated subcarrier outputs ▪ Regeneration technique removes noise and distortion from input signal ▪ Available for NTSC, PAL, PAL-M ▪ Front panel 0°-360° output phase adjust with 0° preset ▪ Front panel input/output test points ▪ Front panel LED power indicator ▪ BNC input/output connectors ▪ Rackmountable **\$446.00**

Options for All Self-Contained Distribution Amplifiers

DAT-1 Rackmount frame, accommodates 3 DAs **\$99.00**
DAT-2 Blank panel **25.00**

Omniframe Distribution Amplifier System

Omniframe is a versatile rackmount frame architecture, accommodating 10 modules. Any combination of Videotek's current or future modules may be installed in Omniframe to meet a variety of applications. Video, audio and pulse distribution amplifiers, sync and test signal generator all may reside in this universal frame. 8 outputs per distribution amplifier result in a low cost per output. Since it is not necessary to have a dedicated frame for each type of module, Omniframe saves valuable rack space. Each module has a self-contained power supply so there is no single point of failure as with common power supply frames.



Omniframe Frame accommodates 10 modules. VDA-18F, ADA-8F, ADS-24F, RS-61F and VSG-21F may be mixed in 1 frame **\$575.00**
VDA-18F 1 x 8 video DA with equalization for 400' Belden 8281, 10MHz bandwidth **259.00**
ADA-18F 1 x 8 audio DA **259.00**
VSG-21F Color sync and test signal generator. Selectable test patterns: SMPTE color bars, multiburst, 10-step modulated staircase, 10-step staircase, audio test tone. Blackburst output **995.00**
RS-61F 6 x 1 vertical interval video routing switcher with remote control capability **595.00**
ADS-24F 2 x 4 stereo audio DA **280.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



More than a century ago Thomas Alva Edison's experiments started the revolution marked by the use of tungsten in lamp filaments. During the 1980s, a California inventor believed that this technology had long outlived its usefulness. Thus began a 10-year research project to produce a sustained light source that would be a suitable replacement for non-energy-efficient incandescent lighting in the television and motion picture industries.

At first it was difficult to gain acceptance from media comfortable with incandescent. VIDESSENCE nevertheless demonstrated a new optimized video and visual process in trichromatic fluorescent lamps (a culmination of stable luminescence with spectral output peaks in the red, green and blue channels). The VIDESSENCE technology has become the solution for energy conscious users and engineers seeking a highly stable light source, both in color temperature and luminance. With VIDESSENCE, essentially all light output is usable by the camera, whereas 90% of the output of conventional incandescent lamps is wasted heat.

Diascope Difference

During the early stages of the research project when the first trichromatic lamps were used in a color television studio, the findings revealed that results of color tests were excellent. VIDESSENCE also noticed that the diascope had made a completely different set of adjustments in the white balance process than those it made under incandescent lamps. Yet color rendition was equivalent, if not superior. How could a fluorescent lamp with a very near 3200° Kelvin temperature (actual correlated color temperature of the first test lamps was 3340° Kelvin) cause such radically different matrix characteristics in the camera's white and black balance process?

The answer lies behind the lens of a modern video camera. Incoming light is allowed through the lens and through the "color splitter". The incoming light is "split" into 3 values: red, blue and green (RGB). The internal workings of the camera process visual images which, after this point are—for lack of a better word—"triphonic". That is, the camera does not require a continuous spectrum of light to produce its 20 million colors. In fact, it "filters" incoming light into 3 values and then establishes a matrix of RGB values. Any visible light entering the camera's lens follows the same process.

Heat

About 85% of incandescent light is infrared, or heat. It is not visible light and does not contribute to camera performance. Of the 15% that is near the visible light range, there is approximately 25-40% blue, 50-75% green, and 30-90% red relative spectral energy (color) value. 2 things are important to observe here: First, a wide range of color values can result from a number of incandescent light sources—no 2 are alike nor age identically. And second, by the time incandescent light is "split" in the color splitter and processed by the camera, it is low in energy. In fact, the 3 "channels" of light represent less than 5% of the original incandescent light produced in the studio.

Essence of RGB

VIDESSENCE, on the other hand, is only RGB light. It enters the camera in an already discrete set of RGB values. These values are consistent from lamp to lamp and each lamp ages with the same characteristics. So any number of VIDESSENCE lamps provides the same color of light to the RGB areas and produces them at very high relative spectral energy levels. For example, the VIDESSENCE 3500 Kelvin tungsten standard lamp has a relative spectral emission average at 55% blue, 49% green and 100% red. Note that these are averages and all about or above 50%. This means that to a camera there are stimulation values of 100% relative spectral energy present for camera simulation in RGB light.

Meeting the critical needs of the camera to optimize camera performance is one reason why VIDESSENCE RGB products are superior to incandescent light.

Lighting Design and Control

VIDESSENCE has pioneered fluorescent-lamped lighting technology that produces perfectly even baselight as well as "spot" light qualities that are superior to incandescent lighting. Lighting designers can use these fixtures to achieve any "style" or "look" in their studios. Whether used with very narrow beam patterns or large radiating areas, the VIDESSENCE product group produces a naturally soft, pleasing light with less annoying glare. Here, dynamic artistic results can be affected with mechanical and optical control devices from VIDESSENCE.

Studio Economics

VIDESSENCE studio installations save money 4 ways when compared to traditional incandescent studio lighting: First, they require 90% less power to operate. Second, studio air conditioning loads are reduced by as much as 80%. Third, lamps typically last up to 100X longer and cost significantly less. Because VIDESSENCE fixtures only require relamping every 10,000 hours (typically 5 years of operation), labor costs are greatly reduced. And fourth, the cost of periodic touch-ups due to improper repositioning of fixtures after relamping is eliminated with VIDESSENCE.

VIDESSENCE products provide soft-edged zones of light that, when used in a studio setting, produce a uniform level of lighting without the "washed-out" look of fluorescent systems.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





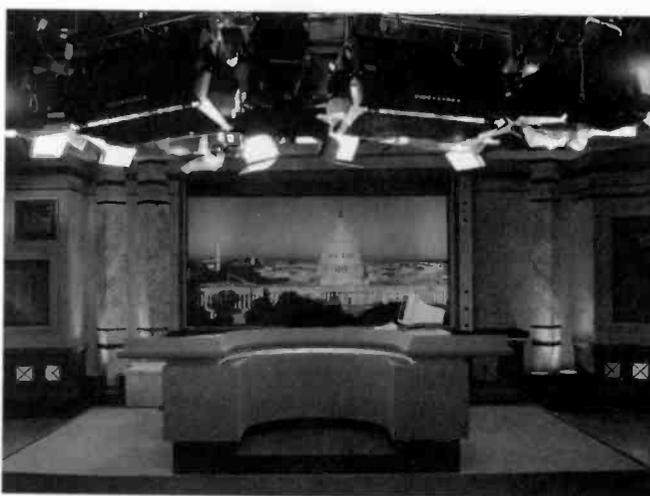
Sustained RGB: First Light for Television

VIDESSENCE Studio 2000 Products

The Studio 2000 product lines create systems that have set new standards of quality in the television industry. Programs ranging from international news to soap operas are being lit with these energy-efficient video optimizing lighting instruments.

VIDESSENCE Studio 2000 Fixture Systems have been accepted as the first effective lighting technology capable of replacing incandescent lighting in the studio environment. With over 100 fixture configurations the VIDESSENCE Studio 2000 Fixture Products can replace incandescent fixtures from 50 to 10,000W of light. The prices for these fixtures range from \$95.00 to \$3,600.00. These products can be accessorized with optical films to produce hard edged circular patterns of "spot" light values, or used out of the box to create balanced directional soft lighting within talent zones.

Factory design for your studio needs. **No Charge**
Turnkey studio lighting packages starting at. **\$24,495.00**



CNN Washington DC Bureau uses a medium zone VIDESSENCE STUDIO 2000 FIXTURE SYSTEM in daily programming.

VIDESSENCE Studio 2000 Modular

Studio 2000 Modular Lighting Systems provide extreme versatility within the studio environment. The concept of modular lighting was developed to address studio environments that needed to change quickly and easily. Once released to the industry, the system proved versatile, energy-efficient, artistic, and in a word, "incredible". The modular systems are "turnkey" lighting inventories. A studio facility acquires an inventory of lighting sections, hangers, mounting and optical accessories. In concept, a studio can be configured in very short order (a 4-person news desk can be lit in an hour), stored after production and reconfigured the next day. Broadcasters will not have to change their modular lighting systems for years once the system is installed.

Factory design for your studio needs. **No Charge**
Turn-key modular lighting packages starting at. **\$9,945.00**



KOIN-TV, Portland Oregon uses a 2,000W VIDESSENCE Modular Studio System on their 4-person news desk. The system provides +100' candles of light on talent zones and is portrait in quality.

VIDESSENCE Studio Specialty Lighting

VIDESSENCE is committed to replacing incandescent lighting within the studio environment with sustained RGB light. This commitment has led to the development of small "effect" light instruments that provide "non-talent" lighting. These areas include backgrounds, coves, rear lighting of transparencies, down lights, "built-in" set lighting effects and "anywhere you need it" lighting. These products range from small 15W "disposable" fixtures to large wall panel units. These products also include several "special effect" lighting products that are excellent for U.V. Black Light composite image lighting, as well as table top and miniature imaging work.

Factory design for your production needs. **No Charge**
Individual products range from. **\$95.00 to \$849.00**



This TeleClassroom of the future operates with complete video optimization—made possible through the studio quality lighting in the environment.

VIDESSENCE Teleconferencing Lighting

VIDESSENCE VID-COM products bring television studio lighting into any video environment.

Teleconferencing and video conferencing have emerged as less than broadcast quality video media. The perfect light makes the imperfect video process better.

Factory design for your video environment. **No Charge**
VID-COM lighting products range from. **\$149.00 to \$995.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Location Product Line: VID-LITES and VID-STICKS



The VID-STICK products fill in any gap you may have in your lighting design. These products can virtually be configured in thousands of ways to meet your on-the-spot needs.

VIDESSENCE VID-STICK products are expendable lighting instruments. Actually they are very versatile and lightweight modular lighting products that are fabricated out of plastic. Small fixtures can gang with others to form larger units. These products are packaged in kits. Kits contain a number of lighting "STICKS", stands, power cords, optical films, gel frames and carrying cases.

VID-STICK Lighting Kits range from \$395.00 to \$2495.00

VID-LITE fixtures are built to be portable and rugged. They range from very small intense "gadget" lights to large instruments capable of lighting an entire scene.

Videscence Location Lighting

VIDESSENCE VID-LITE products represent all of the technical and artistic properties of VIDESSENCE Studio lighting products except they are constructed of metal and reinforced to withstand the rigors of constant use and repackaging. These fixtures are dynamic in range, replacing incandescent fixtures between 200 and 3000 watts. VID-LITES are intended to light large outdoor areas, motion picture production locations, and can provide daylight fill within a scene. They speed production with ease of use and require no long cool down or strike cycle. Fixtures are individually packaged in carrying bags with minimal accessories and/or hard cases with stands, mounting hardware, accessories, spare lamps and gel frames.

VID-LITE products range from \$350.00 to \$3495.00



VIDESSENCE RGB Cosmetics compliment anyone's appearance if they are working under visible light. The first cosmetic product line to be formulated upon RGB reflectance values.

Videscence RGB Cosmetics

VIDESSENCE has produced the first high quality cosmetic line which is formulated on RGB color reflectance values. These products form the first standardization of cosmetics for visible light. Use of these products ensure that "what you see is what you get" on camera. You don't need to be using VIDESSENCE Sustained RGB Light-VIDESSENCE RGB Cosmetics work under any visible light-to make your talent look better.

RGB Cosmetics POR*

*Price On Request



The VIDESSENCE VID-COM 54 brings modular studio qualities of lighting to the "non-studio" environments of offices and classrooms.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Standard ATA Cases

Second only to the spec 300 case. Available in 1/4" and 1/2" construction using furniture grade plywood laminated to A.B.S, stucco aluminum or fiberglass. Double edge extrusion is used for exceptional strength and support plus heavy-duty steel twist locks, corners and handles.



Carrylite Cases

This semi-molded case is made from 1/4" tough, scratch resistant A.B.S. It has steel corners that protect better than an all molded case and is available in gray or dark blue. Recommended for equipment that weighs 40 lbs. or less.

Tilt n' Go Travel Cases

- Standard sizes or built to your specifications
- Telescopic handle
- Sturdy built-in wheels

Viking cases offer a logical solution to those travelers who need to carry heavy items aboard aircraft but are hindered by long walks to and from the boarding gate.

Simply pull out the telescoping handle, tilt the case back on its sturdy built-in wheels and go.



Crosstown Cases

Priced 40% less than standard ATA cases, they are very popular with rental departments where strength and durability are important.



Norseman Cases

An economical, local duty shipping case using non-recessed hardware. This is a very strong case but because of the non-recessed hardware, it cannot be recommended for air or surface common carrier type of shipments. Available only in black and 1/4" construction. Priced less than standard ATA cases.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA SUPPORT EQUIPMENT



Vinten

VISION/PETREL PAN/TILT HEADS

Vinten's patented, continuously variable and calibrated fluid drag pan/tilt controls allow the smoothest camera movement with absolute precision and stability. Another Vinten exclusive—continuously variable counterbalance control lets you achieve perfect "hands off" camera balance at any angle.

- 3325-3S Vision 5 ENG head, pan bar and clamp with 100mm ball base \$1900.00
- 3325-3N Vision 5 ENG head, pan bar and clamp with flat base to accept intermediate adaptors 2035.00
- 3364-3S Vision SD-12 ENG dual fluid and lubricated friction serial drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base 3925.00
- 3364-3N Vision SD-12 ENG dual fluid and lubricated friction serial drag pan/tilt head, single telescoping pan bar and clamp with flat base to accept intermediate adaptors 4150.00
- 3386-3S Vision SD-22 ENG, single telescoping pan bar, clamp; 100/150mm ball base. Capacity: 55 lbs. 5535.00
- 3386-3N Vision SD-22 ENG, single telescoping pan bar, clamp; flat base for intermediate adaptors. Capacity: 55 lbs. ... 5725.00
- 3259-3S Vision 30 EFP head, pan bar and clamp with male/female quickfit adaptor and 150mm ball base \$8215.00
- 3259-3F Vision 30 EFP head, pan bar and clamp with male/female quickfit adaptor and flat base to accept intermediate adaptors 8400.00
- 3076-3 Petrel Mark II fluid link head with dual pan bar and clamp. Capacity: 100 lbs. \$3685.00



VISION TRIPODS

Because the legs meet to form an almost perfect triangle, Vinten's traditional design is inherently more rigid and resistant to twisting regardless of panning speed and drag setting. Vision lightweight tripods feature "torque safe", a leg lock standard on all Vision tripods. It always maintains its factory-set clamping efficiency, never needs maintenance and cannot be over-tightened.

- 3513-3 2-stage ENG tripod with 100mm bowl \$1140.00
- 3518-3 Single-stage ENG tripod with 100mm bowl. . . . 875.00
- 3387-3 Mid-level spreader tripod with 100mm bowl. . . 1375.00
- 3516-3 2-stage EFP tripod with 150mm bowl 1325.00
- 3521-3 ENG "Baby Legs" tripod with 100mm bowl. . . 1025.00
- 3522-3 EFP "Baby Legs" tripod with 150mm bowl . . . 1225.00
- 3523-3 2-stage carbon fiber ENG tripod with 100mm bowl. . . 1600.00
- 3380-3 2 stage, heavy-duty ENG/EFP carbon fiber tripod with 100mm bowl \$1935.00
- 3383-3 2-stage EFP carbon fiber tripod with 150mm bowl. . . 1935.00
- 3320-3C Studio pedestal with self-pumping pneumatic elevation unit, track lock, cable guards and hi-hat with 100mm bowl. Capacity: 44 lbs 2810.00



- 3063-3 Combination tripod/elevation unit/dolly. Capacity: 100 lbs \$3300.00
- 3315-100 Cable guard kit for 3063-3 combo unit. 395.00
- 3425-3A ENG tripod carrying strap 150.00
- 3425-3C EFP tripod carrying strap 175.00
- 3316-12 Carpet spreader feet Vision tripods (set of 3). 315.00

VISION SYSTEM PACKAGES

VISION 5 SYSTEMS

VIN-SAB System—3325-3S Vision 5 ENG fluid pan/tilt head, single pan bar and clamp with 100mm ball base; 3518-3 Single-stage ENG tripod with 100mm bowl; 3363-3 Lightweight calibrated floor spreader; 3334-3 Soft case. For CCD cameras in ENG configuration. Capacity: 18 lbs. . . . \$2600.00
VIN-SCB System—3325-3S Vision 5 ENG fluid pan/tilt head, single pan bar and clamp with 100mm ball base; 3513-3 2-stage ENG tripod with 100mm bowl; 3363-3 Lightweight calibrated floor spreader; 3340-3 Soft case. For CCD cameras in ENG configuration. Capacity: 18 lbs. . 3295.00

VISION 12 SYSTEMS

SD-12A System—3364-3S Vision SD 12 dual fluid and lubricated friction drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base; 3518-3 Single stage ENG tripod with 100mm bowl; 3363-3 Light-weight calibrated floor spreader. For full size camcorders or CCD cameras in studio configuration. Capacity: 35 lbs \$4950.00
SD-12AB System—Same as SD-12A with 3339-3 soft case. . . . 5295.00
SD-12M System—Same as SD-12A with 3387-3 single-stage ENG tripod with mid-level spreader 5050.00
SD-12D System—3364-3S Vision SD-12 dual fluid and lubricated friction drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base; 3513-3 2-stage ENG tripod with 100mm bowl; 3314-3 Heavy-duty calibrated floor spreader. For full size camcorders or CCD portable cameras in studio configuration. Capacity: 35 lbs 5150.00
SD-12DB System—Same as above with 3340-3 soft case 5500.00
SD-12P Pedestal System—3364-3S Vision SD-12 dual fluid and lubricated friction drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base; 3219-52 Second telescoping pan bar and clamp; 3220-3C Vision studio pedestal with self-pumping elevation unit, track lock, cable guards and 100mm hi-hat. For full size camcorders or CCD portable cameras in studio configuration. Capacity: 35 lbs. 6425.00
SD-12LT System—3364-3S Vision SD-12 dual fluid and lubricated friction drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base; 3523-3 2-stage carbon fiber ENG tripod with 100mm bowl; 3363-3 Lightweight calibrated floor spreader; 3425-3A Carrying strap; 3340-3 Soft case. For full size camcorders or CCD portable cameras in studio configuration. Capacity: 35 lbs \$6375.00
SD-12XLT System—3364-3S Vision SD-12 dual fluid and lubricated friction drag pan/tilt head, single telescoping pan bar and clamp with 100mm ball base; 3380-3 2-stage heavy-duty carbon fiber ENG tripod with 100mm bowl; 3363-3 Lightweight calibrated floor spreader; 3341-3 Soft case. For full size camcorders or CCD portable cameras in studio configuration. Capacity: 35 lbs. 6975.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

Vinten

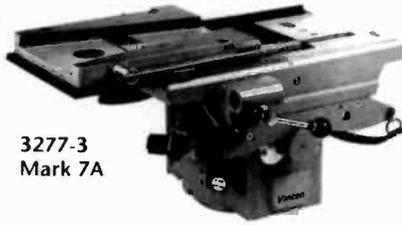


CAMERA SUPPORT EQUIPMENT

CLASSIC SERIES

Mark 7A, Mark 7B and Mark 5 Pan and Tilt Heads

All prices include female wedge adaptor, full size male wedge plate, 1/2" bolt fixing to camera, full size pan bar, pan bar clamp and Vinten Mitchell base.



3277-3
Mark 7A

3277-3 Mark 7A Fluid Cam—The industry standard. Continuously variable, fluid drag systems for pan and tilt; external cams to permit balancing the heaviest camera/ lens/prompter configurations. Tilt range: $\pm 60^\circ$. Pan rotation: 360° . Capacity: 250 lbs. Weight: 42 lbs **\$7,315.00**

3388-3 Mark 7B Fluid Cam—The studio standard. Continuously adjustable fluid drag tilt and pan controls and a pan disc brake. Unique "park" position separates the cams from the rollers for greater safety in transit. Drag controls are on the same side of the head and the range of drag adjustments has been increased by 75%. Tilt range: $\pm 60^\circ$. Pan rotation: 360° . Capacity: 250 lbs. Weight: 42 lbs **TBA***

3716-3 Mark 5 Cam—Compact, economical and ideal for location work. Continuously variable friction pan and tilt drag plus platform position adjustments for perfect camera balance. Tilt range: $\pm 60^\circ$. Pan rotation: 360° . Capacity: 180 lbs. Weight: 24 lbs. **\$5,775.00**

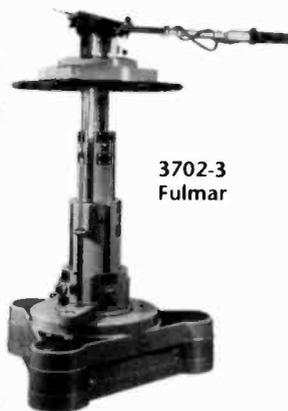
ACCESSORIES—PAN AND TILT HEADS

3052	Full size male wedge plate	\$ 280.00
3256-3	Short male wedge plate for HK 355/353	280.00
3069-3	Adjustable wedge extender (sandwiches between female wedge adaptor and top of head for an additional 8" offset fore and aft)	895.00
1123	Ikegami "HK" series offset adaptor	335.00
1134	Ikegami HK-322/357 and Hitachi SK-110 series offset adaptor.	335.00
3308-156	Cork handle sleeve for short pan bar	215.00
3308-157	Short pan bar for zoom controls 14" long	130.00
3308-158	Extended pan bar—22" long.	195.00
3277-13	Pan bar clamp	130.00
3219-41	Telescoping pan bar/clamp for 3076 Petrel head	265.00
3078-25	Pan bar and bracket assembly for 3078 Swan post head. . .	215.00
3076-13A	Male/female quick-release adaptor including 1 each: female wedge adaptor, male wedge plate, full size pan bar and clamp for use on 3076 Petrel head.	1,600.00
3104-3	150mm ball base	310.00
3750-3	Mitchell base with wingnut	365.00
1212-7	Adaptor for use with 3750-3 Mitchell base on other manufacturers' tripods/ pedestals	155.00
3432-2	Wingnut for use with Mitchell base	85.00

Note: Other base fittings available on request.

PNEUMATIC STUDIO PEDESTALS

3702-3	Fulmar extended range. Capacity: 350 lbs. Height range: 21 1/2" to 59". Weight: 383 lbs . . .	\$29,860.00
3741-3	Tern standard range. Capacity: 290 lbs. Height range: 33" to 54". Weight: 250 lbs	16,995.00



3702-3
Fulmar

3267-3B	Hawk extended range. Capacity: 175 lbs. Height range: 24" to 59". Weight: 212 lbs	\$24,950.00
3197-3	Teal standard range. Capacity: 160 lbs. Height range: 30" to 51". Weight: 176 lbs	14,900.00
3328-3C	Osprey II-S pneumatic, 2-stage, steering, portable pedestal. Capacity: 120 lbs. Height range: 26" to 58". Weight: 99 lbs	12,980.00
3323-3C	Osprey I-S pneumatic, 1-stage, steering, portable pedestal. Capacity: 150 lbs. Height range: 28" to 48". Weight: 98 lbs	12,475.00
3381-C	Pro-Ped, studio version. Capacity: 120 lbs	7,365.00
3381-3B	Pro-Ped, OB version. Capacity: 120 lbs.	6,695.00
3806-1135	Nitrogen regulator with hose and adaptor for all pedestals . .	645.00

VISION SPREADERS

3363-3	Lightweight calibrated floor spreader	\$395.00
3314-3	Heavy-duty calibrated floor spreader	430.00

VISION DOLLIES

3319-3B	Folding/castoring dolly with 5" wheels for Vision 5 and 10 systems (Recommended for remote use)	\$705.00
3319-C	Folding/castoring dolly with 4" wheels and cable guards for Vision 5 and 10 systems (Recommended for studio use)	800.00
3315-3	Folding/castoring dolly with 5" wheels	925.00
3315-100	Cable guard kit for 3315-3 dolly	395.00

VISION AND PETREL ACCESSORIES

Pan Bar/Clamp Assemblies

3219-26	Pan bar and clamp for Vision 5	\$130.00
3219-21	Pan bar and clamp for Vision 10	130.00
3219-39	Telescoping pan bar and clamp for Vision 5	215.00
3219-52	Telescoping pan bar and clamp for Vision 10/12/20 . . .	215.00
3219-42	Telescoping pan bar and clamp for Vision 30.	280.00
3219-41	Telescoping pan bar and clamp for Petrel	265.00
3308-157	Classic pan bar for Vision 30, 14" long	130.00
3259-30	Classic pan bar clamp for Vision 30	130.00
3219-34	Sideways extension clamp for Vision 10/12/20	260.00

VISION ADAPTORS

Quick Release Adaptors

3761-3	Quickfit automatic adaptor for Vision 30	\$415.00
3761-13	Quickfit wedge for Vision 30.	130.00
3371-3	ENG quickfit automatic adaptor with wedge	415.00
3763-11	ENG quickfit wedge	130.00

OSPREY STUDIO PEDESTALS

3328-3C	Osprey II-S 2-stage steering pedestal. Capacity 120 lbs.	\$12,980.00
3323-3C	Osprey I-S single-stage steering pedestal. Capacity 150 lbs.	12,475.00
3381-3C	Pro-Ped, studio version. Capacity 120 lbs.	7,365.00
3381-3B	Pro-Ped, OB version. Capacity 120 lbs.	6,695.00
3329-21	Tiller for 3328-3C and 3323-3C	285.00
3806-1135	Nitrogen regulator, hose and adaptor for all pedestals . .	645.00

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO CONFERENCING



Benchmark™ MediaConferencing Systems

- Basic MediaMax™ platform
 - ITU-T standards
 - Multipoint interoperable
 - TrueTalk 7™ audio system
 - Motorized pan/tilt/zoom main camera
 - System control tablet
 - Handheld IR controller and detector
 - Local and remote camera control
 - Blue Chip™ Algorithm
 - Does not include network or VCR cables
 - 2 tabletop microphones and speaker(s)
 - Umbilical cable (system enclosure to conference tabletop)
 - Compatible with VTEL personal and VisionPlus® systems
 - ComputerWare™
 - 386SX or 486DX computer
 - Document camera (EV-274)
 - Pen Pal Graphics®
 - VideoMail™
 - RS-232 data port
 - RS-449 data port
 - Group III FAX port
 - Monitors
 - Rollabout enclosure
- VTEL227BK-MCU* Dual 27" monitor MediaConferencing system \$52,500.00
- VTEL227BK Dual 27" monitor MediaConferencing system 59,500.00
- VTEL227BK/486-MCU* Dual 27" monitor 486 MediaConferencing system 57,500.00
- VTEL227BK/486 Dual 27" monitor 486 MediaConferencing system 64,500.00
- VTEL235BK-MCU* Dual 35" monitor MediaConferencing system 66,000.00
- VTEL235BK Dual 35" monitor MediaConferencing system 75,000.00
- VTEL235BK/486-MCU* Dual 35" monitor 486 MediaConferencing system 71,000.00
- VTEL235BK/486 Dual 35" monitor 486 MediaConferencing system 80,000.00

VisionPlus® VideoConferencing Systems

- Basic MediaMax platform
 - ITU-T standards
 - Multipoint interoperable
 - TrueTalk 7 audio system
 - Motorized pan/tilt/zoom main camera
 - System control tablet
 - Picture-in-picture (VTEL125VP only)
 - Handheld remote controller and detector
 - Local and remote camera control
 - Blue Chip Algorithm
 - 2 tabletop microphones and speaker(s)
 - Does not include network or VCR cables
 - Umbilical cable (system enclosure to conference tabletop)
 - Compatible with VTEL personal and Benchmark systems
 - Upgrade path to full Benchmark capabilities
- VTEL125VP-MCU* Single 25" monitor Video Conferencing system \$37,500.00
- VTEL125VP Single 25" monitor Video Conferencing system 42,500.00
- VTEL227VP-MCU* Dual 27" monitor Video Conferencing system 42,500.00
- VTEL227VP Dual 27" monitor Video Conferencing system 47,500.00

*NOTE: This pricing is only available if: 1) The system(s) are on the same PO as a MultiMax (MCU); 2) There is one customer per PO; 3) The systems and the MultiMax are delivered within 6 months of the PO.

Desktop and Small Group Conferencing Systems

- 486 PC/AT based
 - ITU-T standards
 - Full CIF resolution at 15 fps
 - Multipoint interoperable
 - TrueTalk 7 audio system
 - Camera unit
 - Software controlled local camera control (pan/tilt/zoom)
 - VGA or composite monitor, depending on system
 - Network interfaces: RS-449 (384K and S56), ISDN, or X.21
 - Windows® user interface
 - Compatible with VTEL VisionPlus and Benchmark systems under ITU-T standards
- VTEL115 Single 15" monitor small group/desktop system \$14,950.00
- VTEL117 Single 17" monitor small group/desktop system 16,450.00
- VTEL127 Single 27" monitor small group system 19,500.00
- OP1 Document and computer conferencing software and modem 1,000.00
- OP2 Freeze frame, far-end camera control and presets. . . . 3,500.00

MediaMax Configurations

Basic MediaMax Platform

- ITU-T Standards
- TrueTalk 7 audio system
- Multipoint interoperable
- System control tablet with simple videoconferencing overlay
- No monitor or communications cables are provided

- VTEL BMP \$33,000.00
- VTEL MM386 VTEL MediaMax 386 package 40,000.00
- VTEL MM486 VTEL MediaMax 486 package 45,000.00

BK/VP/MediaMax System Option Matrix

	VTEL125VP	VTEL227VP	VTEL227BK VTEL235BK	VTEL Basic MediaMax Platform	VTEL MediaMax 386/486 Pkg.	Price
Pen Pal Graphics	Opt.	Opt.	Std.	Opt.	Opt.	\$ 7,000.00
ComputerWare	Opt.	Opt.	Std.	Opt.	Std.	6,000.00
VideoMail	Opt.	Opt.	Std.	Opt.	Std.	3,000.00
Document Stand (274)	Opt.	Opt.	Std.	Opt.	Opt.	3,500.00
MediaConferencing Upgrade (includes PPG, CW, VM, Doc. stand)	Opt.	Opt.	Std.	Opt.	N/A	16,000.00
QuickFrame	Opt.	Opt.	Opt.	Opt.	Opt.	9,500.00
Picture-In-Picture	Std.	Opt.	Opt.	Opt.	Opt.	2,000.00
486 Performance Pack Upgrade	Opt.	Opt.	Opt./Std.	Opt.	Opt./Std.	9,000.00
SmartCam	Std.	Std.	Std.	Opt.	Opt.	6,000.00
TrueTalk 7	Std.	Std.	Std.	Std.	Std.	2,500.00
Blue Chip Algorithm	Opt.	Opt.	Opt.	Opt.	Opt.	1,000.00
ITU-T Standards H.261/H.221	Std.	Std.	Std.	Std.	Std.	Included

MaxLine™ Multipoint Products

VTEL MCU II/8

MCU-II-8 Sites
Provides multipoint digital conference switching simultaneously in any combination for 8 VTEL MaxLine Conference Systems as well as other ITU-T standards based systems. (Expandable to 20 ports. The Expansion Chassis is not required). Requires user-supplied PC. \$90,000.00

VTEL MCU IIp

MCU-II-additional ports (each)
Incrementally upgradable to maximum of 20 \$570.00

RCS-II

Remote Call Setup for MCU-II

Includes modem card and software to make an IBM-compatible PC into a call setup terminal. Permits remote call setup and remote diagnostics over a regular telephone line. Requires user-supplied PC \$5,000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**Webb
Electronics, Inc.**



SPORTS VIDEO SYSTEMS

Coach's Play-Maker Editing System

Using 1 player and 1-4 recorders the Coach's Play-Maker enables you to break down your source tape into 16 or more different tapes: offense, defense, kicks, first downs, long yardage, etc. Information for 16 games can be kept in memory. The Play-Maker will record segments in slow-motion automatically for easily made highlight tapes.

The CPM3 Play-Maker system enables you to break out offense, defense and kicks or any 3 categories.

Play-Maker edit systems include: edit panel, control box and cable for edit panel. An edit cable is needed in addition for each VCR.



- CPM3 1 source, 3 manual edit VCR system \$1130.00
- CPM8 1 Panasonic AG-1970 source, 4 Sharp XA-410 edit VCR system..... \$1995.00
- CPM12 1 source, 4 automated edit VCR system 1995.00
- CPM22 2 source, 4 automated edit VCR system 2495.00
- CABED60 VCR edit cable. 26.00



DA10 Distribution Amplifier

- 1-in, 6-out S-VHS and stereo audio (may be needed with edit system) \$645.00
- DA8 1-in, 6-out composite 645.00

"Cowboy Remote" Control

The Cowboy Remote is designed to meet the needs of coaches and players reviewing game and practice videotapes. The remote comfortably fits in your hand with buttons strategically placed for instant access and control. This remote is used by more than 22 NFL organizations and many colleges and high schools.

- These functions are at your fingertips: ■ Reverse while pressed, returns to play when released ■ Reverse-Play while pressed, returns to play when released ■ Slow-Motion ■ Reverse-Slow-Motion ■ Still Frame ■ Reverse-Frame ■ Fast View ■ Play ■ Rewind ■ Stop ■ On/Off ■ Record/Record Pause ■ Lighted buttons let you operate in dark offices and conference rooms ■ 3-year warranty
- RCP1960 Panasonic AG-1960, AG-1970 \$375.00
- RCP1960FS Same as RCP1960 with foot switch for Reverse-Play operation. 419.00
- Beamer Remote: Cowboy remote with laser pointer built in \$49.00



Note: Remotes are available for use with other Panasonic, Sony and JVC VCRs.

VP5 Video Pickle

- Use as a pointer
- Quickly place Os, Vs and Xs on the video
- Use as an electronic chalkboard (no VCR needed) ■ Hundreds of formations can be saved for future review ■ Selectively erase the whole screen or just small portions ■ Works with S-VHS and composite signals



The Video Pickle enables you to draw over video, highlighting coaching points and drawing plays during video sessions. Pressing a button on the pen activates a menu of formations and symbols. Offensive and defensive formations are simply programmed and easily added to the menu.

- VP5 \$1339.00
- VP5.P With printer port. 1595.00
- VP1 Draw on video only 965.00
- VP3 Draw on video; set diagrams for football, basketball and volleyball 1055.00

Coach Potato Sideline Video Recording System

Coach Potato is a portable system allowing easy copying or breakdown of game video while you're on the field. As soon as you step off the turf, your tapes are readily available. Coach Potato products make it easy to record the action without taping unwanted material by mistake. Once you begin recording with the camera, the VCR also begins recording. When you stop taping, the VCR stops taping. With this system, you won't have to worry about turning the VCR on and off between each play - all you have to do is aim and shoot. Several options are available with the Coach Potato family. You can choose a specific product in the Potato family to meet your needs as well as your budget.

Making 1 copy—the One Potato: This product enables you to produce 1 copy of your game tape.

Making 2 copies—the Two Potato: The Two Potato consists of 2 connecting potatoes controlling 2 VCRs. Immediately after the game, you have 2 copies .

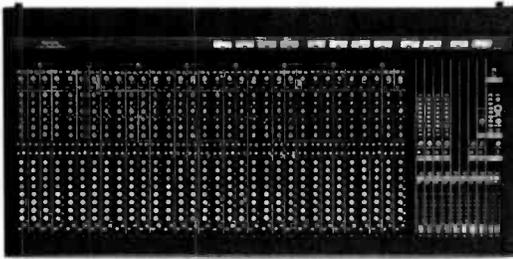
Break out 1 or 2 categories with the Potato Switch Box: Along with 1 or 2 Potatoes, the switch box enables you to divide your game video into 1-2 categories. All you have to do is select 1 of the buttons on the face of the box and the corresponding VCR will be controlled by the camera as you tape .

Break out 1-4 categories—the Three Potato: The Three Potato has the ability to control up to 6 editing VCRs generating a maximum of 7 tapes. For, example, you can have as many as 4 categorized tapes: offensive, defensive, punts, PATs, etc., plus 3 duplicates.

- Coach Potato (1) CSP1960 \$ 299.00
- Three Potato CS3P1960. 1130.00
- Potato Switch Box 119.00
- Potato Cable 9.00



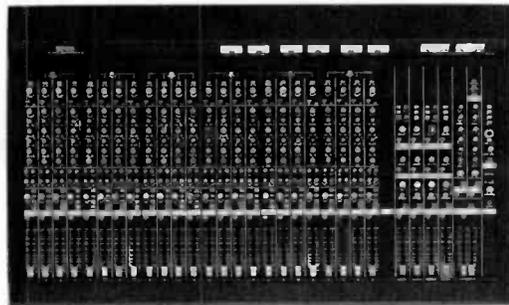
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MC3210M/2410M Monitor Mixing Consoles

- 12-bus format allows up to 10 independent monitor mixes and 2 auxiliary mixes; input channels can be routed to any of the 12 buses by using rotary level controls
- Balanced XLR connectors on all primary input and output channels, plus balanced phone jack line inputs, for compatibility with nearly all professional equipment
- Phase switches on all input channels reverse XLR input polarity without rewiring or adaptors
- +48V phantom power supply for condenser microphones
- Switchable pad and continuous gain controls allow input channel sensitivity to be set for nearly any audio signal
- Insert patches on all input channels and master buses for maximum system flexibility
- Dedicated group and auxiliary sub in connectors allow another mixer to be patched directly into the console for additional input channels
- Comprehensive 4-band parametric EQ, with 2 variable midrange controls, on each input channel
- 4 effect return inputs, with rotary level controls, cue and group routing switches
- Large VU meters on all input and auxiliary channels provide accurate indication of signal level and include built-in LED peak indicators
- Comprehensive talkback system permits total communication between operator, crew and performers
- Channel on/off switches allow muting of individual channels without altering fader settings
- Sophisticated, easy-to-use cue system allows headphone or speaker monitoring of all inputs, buses, output buses and effects without interrupting mix

MC3210M 32 inputs. \$7999.00
 MC2410M 24 inputs. 5999.00

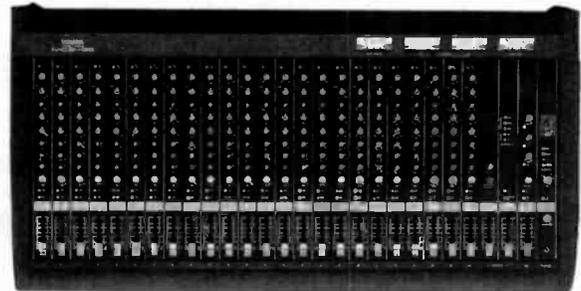


MC3204II/2404II/1604II/1204II 4 x 2 Mixing Consoles

- Balanced XLR connectors on all primary input and output channels for complete compatibility with virtually all professional equipment
- 8 mixing buses—4 program, 2 echo and 2 foldback—and a stereo master bus
- Insert patch points on all input channels and program buses offer maximum flexibility
- Input channel equalizers offer a full 15dB of filtering in three bands with a sweepable midrange control for extra fine EQ control
- On/off switches on all input channels greatly simplify channel punch-in/out operation
- Phantom power supply with 4 input channel selections

- for ease and convenience when using phantom-powered microphones
- Sophisticated cue system allows operator to monitor via headphones all inputs, buses, and/or effects without altering or interrupting mix
- Switchable pads and gain controls on all channels allow channel sensitivity to be set to accept microphones, electrical instruments, or output from nearly any signal processing equipment
- Illuminated, highly precise VU meters are switchable to provide accurate monitoring of program, foldback, echo, and stereo mixing buses (the MC2404II has independent meters for each bus); built-in peak LEDs indicate light level peaks to avoid even momentary distortion
- Peak LEDs on each input channel light whenever post-EQ/pre-fader signal comes within 3dB of clipping
- Sophisticated talkback system permits total communication between operator, crew and performers
- Pan and group assignment switches on all inputs allow channel signals to be either independently assigned to one of the program buses or simultaneously panned between groups 1 & 2 and 3 & 4
- Foldback and echo master control the signal level sent to respective output channels; stereo master faders control overall level of corresponding stereo output channel
- Echo pan and stereo assign switches and group pan controls give exceptional flexibility in signal placement
- Rugged construction throughout, and lightweight, compact overall dimensions make the MC series ideal for both touring and in-house installation

MC3204II 32 inputs, 4 program buses, stereo output \$5999.00
 MC2404II 24 inputs, 4 program buses, stereo output 4799.00
 MC1604II 16 inputs, 4 program buses, stereo output 3899.00
 MC1204II 12 inputs, 4 program buses, stereo output 3359.00



MC2403/1603/1203/803 Mixing Consoles

- Designed primarily for sound reinforcement applications which require maximum sound quality and reliability with straightforward control and features
- Input pad and gain controls with peak indicator
- 3-band equalizer with sweepable mid-band
- 3 auxiliary sends
- Pan control
- Cue switch
- Channel on/off switch
- Linear channel fader
- Auxiliary send masters with cue switches
- 2 stereo auxiliary returns
- Left and right stereo faders with cue and stereo on/off switch
- Mono mix output with balance control, cue switch and on/off controls
- Meter select switches
- Assignable talkback
- Master cue/ phones control
- XLR and TRS phone jack inputs
- Channel insert connectors
- Aux and stereo sub inputs
- Balanced XLR and unbalanced phone jack outputs
- Aux sends and returns
- Phantom master power switch

MC2403 24 in/stereo and mono out \$2099.00
 MC1603 16 in/stereo and mono out 1499.00
 MC1203 12 in/stereo and mono out 1299.00
 MC803 8 in/stereo and mono out 999.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



D2040 Digital Channel Divider

Stereo 4-channel (2-in/8-out) digital channel divider ■ RS-485 serial interface allows external computer control over all parameters ■ Top performance A/D and D/A converters provide outstanding audio quality, with 110dB S/N ratio and frequency response of 20Hz to 20kHz ■ Independent crossover filter, EQ, compression and digital delay available on each channel ■ Fader settings and digital parameters can be stored to 15 user memory locations. \$3899.00



gram for precise tonal control ■ Internal parameters, provided in addition to the basic effect and EQ parameters, offer further control over effect sound ■ Full MIDI compatibility with a MIDI in terminal for MIDI selection of internal programs ■ Switchable MIDI thru/out terminal; when switched to MIDI out, edited programs can be bulked to a MIDI data recorder for temporary storage ■ Switchable -20dB or +4dB line levels on both analog input and output terminals \$1799.00



DMP9 Digital Mixing Processor

■ All-digital signal processing—accepts analog input and delivers analog output, but all mixing and signal processing is carried out in the digital domain ■ 2-band sweepable digital EQ ■ 4 auxiliary sends ■ Instant scene recall ■ MIDI control capability ■ Dual stereo outputs ■ Easy programming and parameter control ■ Width/balance control for stereo channel pairs ■ Channel delay for microphone placement compensation ■ Channel grouping for simultaneous level control ■ Parameter copy function allows channel settings to be copied between channels ■ Built-in digital utility and calibration oscillator ■ User bit entry for CD/DAT format digital 1 output ■ Compact 3U rackmount chassis
DMP9-8 8 channels. \$3199.00
DMP9-16 16 channels. 4199.00



SPX990 Simul-Effect Processor

■ Offers unprecedented effect quality and programming versatility for a wide range of applications ■ Based on current SPX900, but provides significantly improved performance ■ 20-bit A/D and D/A conversion ■ RAM card memory expansion ■ Balanced inputs and outputs ■ Tempo-based delay time programming ■ Improved reverb sound ■ Superior pitch change precision ■ Intelligent pitch change. \$1149.00

Q1131 Professional Graphic Equalizer

■ 1/3-octave 31-band graphic equalizer ■ High and low notch filters with variable frequency and Q controls provide 30dB of attenuation ■ EQ bypass switch for instant A-B comparisons. \$1149.00

Q2031A Graphic Equalizer

■ Highly sophisticated stereo 31-band graphic equalizer ■ Automatic muting circuit mutes output for 3 to 5 seconds after power is switched on ■ 6 or 12dB of boost or cut, with points centered at ISO 1/3-octave frequencies from 20Hz-20kHz ■ Both balanced XLR connectors and standard unbalanced phone jacks. \$729.00



REV5 Digital Reverberator

■ Professional quality digital stereo reverb/effects unit ■ Increased sampling frequency, delay time ■ Extensive preset program selection ■ Expanded control over effect parameters ■ Comprehensive, programmable digital 3-band parametric EQ in addition to a master 3-band parametric EQ section. \$2099.00



EMP700 Stereo Multi-Effect Processor

■ 2 inputs/2 outputs ■ 80 preset effects in ROM ■ 50 user programmable effects can be stored in internal RAM ■ Optional RAM cards can be used for storage of 50 effect programs each ■ Ideally suited for a multitude of uses in the areas of home recording and musical instruments. \$629.00



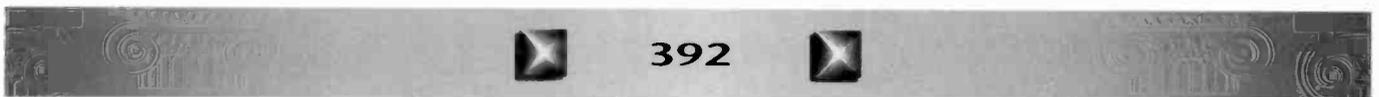
SPX1000 Digital Multi-Effect Processor

■ 40 preset effect programs including: accurate simulations of natural reverberation and early-reflections ■ Delay and echo ■ Gated reverb ■ Independent 2-channel effects ■ Preset effect programs can be edited, retitled and stored in any of 59 RAM user, memory locations ■ Sampling frequency of 44.1kHz and full frequency response from 20Hz-20kHz ■ Digital inputs and outputs ■ Individual 2-band parametric EQ and dynamic filter parameters on each effect pro-

EMP100 Multi-Effect Processor

■ A wide range of high quality digital effects right at your fingertips ■ A comprehensive selection of presets for effects for all applications, plus programmability when you need it \$369.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



EQUALIZERS/STUDIO MONITORS



YAMAHA®

YDP2006 Digital Parametric Equalizer

▪ Choice of 2 EQ modes: 2-channel, 6-band parametric EQ with 4 programmable notch filters plus high and low pass filters, or single-channel 12-band EQ with 8 notch filters as well as high and low pass filters ▪ 20-bit A/D and D/A converters ▪ Variable output delay for time alignment and distance compensation ▪ 40-program memory ▪ MIDI interface for remote control, and a Y-485 interface for computer control and expansion \$1299.00
YDG2030 2-channel 1/3 octave 30-band graphic EQ version of YDP2006 1299.00



Q2031A Graphic Equalizer

▪ Highly sophisticated stereo 31-band graphic equalizer ▪ Automatic muting circuit mutes output for 3-5 seconds after power is switched on ▪ 6 or 12dB of boost or cut, with points centered at ISO 1/3-octave frequencies from 20Hz-20kHz ▪ Both balanced XLR connectors and standard unbalanced phone jacks \$729.00



Club Series Sound Reinforcement/Monitoring Speakers

▪ Custom high-level passive crossovers specifically tailored to cabinet and driver characteristics for exceptionally flat and accurate response ▪ Integral high frequency level control allows precise adjustment of sound quality to satisfy any requirement ▪ Dual parallel input jacks provided for cascading speaker connections ▪ Front-mounted drivers for easy access ▪ Rugged miter-fold cabinet construction with beveled edge joints for durability ▪ Recessed hand grips for ease in loading and setup ▪ Protective, high-strength, black metal mesh grille ▪ Sleek, contemporary styling enhances the appearance of any stage arrangement

S110H II	1x10" with horn, 150W into 8 ohms	\$334.80
S110PH	1x10" with piezo-horn, 150W into 8 ohms	238.80
S112H II	1x12" with horn, 200W into 8 ohms	394.80
S112PH	1x12" with piezo-horn, 200W into 8 ohms	274.80
S115H II	1x15" with horn, 200W into 8 ohms	430.80
S115MT II	1x15" with cone, 1 6.5" cone, One 3.2" tweeter, 200W into 8 ohms	442.80
SM10H II	1x10" with horn, floor monitor, 150W into 8 ohms	346.80
SM12H II	1x12" horn, floor monitor, 150W into 8 ohms	418.80
SM15H II	1x15" with horn, floor monitor, 200W into 8 ohms	454.80

All Club Series speakers are also available in oak.

Q1031BII Graphic Equalizer

▪ 1/3 octave 31-band graphic equalizer ▪ EQ switch in addition to main power switch determines whether equalizer circuitry is on or bypassed ▪ Input and output connections are via either standard 1/4" phone jacks or XLR balanced connectors ▪ 5-segment LED peak indicator lights when output level reaches or exceeds 3dB below the 20dB clip level \$379.00



NS10MS Near-Field Studio Monitor

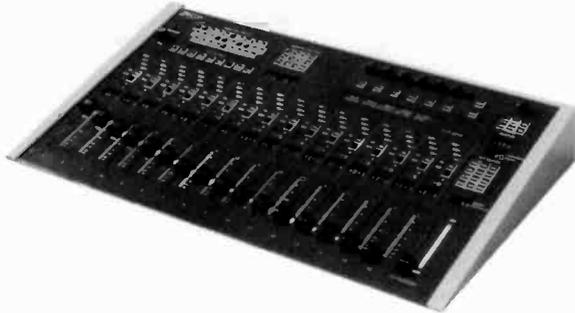
▪ Full, flat response from 60Hz-20kHz ▪ Crisp high-end response for optimum balance in the studio control room ▪ Unique sheet-formed white cone 18cm woofer and a 3.5cm soft-dome tweeter ▪ Optimum woofer/tweeter matching and careful crossover design ensure smooth, natural transition between frequency ranges with minimum phase variation ▪ Superior transient response ▪ Attractive real wood, black finish cabinet ▪ Horizontal design for stable on-console placement ▪ Professional-style input screw terminals ▪ 60W into 8 ohms ▪ Sold in pairs only pr./\$478.00
NS10MC Same as NS10MS with grille cloth pr./\$38.00

S8M Close-Field Studio Monitor

▪ 8" 3-way bass reflex
 ▪ Economical, flat response, high SPL recording monitor
 ▪ Ideal for commercial foreground/background music systems ▪ Black oak vinyl cabinet ▪ 50W into 6 ohms pr./\$199.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DMX1000 Digital Audio Mixing Console

A compact, full-featured 20-bit digital audio mixer for video post-production. Standard features include timeline operation, internal RAM recorder, channel delay, comprehensive EQ, compressor limiter, audio gate, pan levels, internal monitor mixer, analog and digital outputs, cue track mute select, extended editor interface, floppy disc drive, 400-event memory and 6 output buses.

DMX1000	\$26,950.00
(Base board includes audio processor, meter module)	
Analog inputs/up to 10 stereo pair	3,000.00
	(300.00/pr.)
RAM recorder expansion memory	2,000.00
Router protocol	500.00
Monitor mixer remote	750.00

SDR400 Digital TBC D2 Remote Control

Digital remote for control of proc amp adjustments for D2 format VCRs and Ampex Zeus. Equivalent to SDR300 in form and function. Includes serial communications port for use with HUB1000 TBC control system. No additional options required.

SDR400	\$1,150.00
RM100 4-device rackmount	100.00
Interface cable, SDR400 to VCR	Note 1

SDR450 Digital D2 Remote

Same as SDR400, less front panel controls and displays. Intended for use as a cost-efficient remote in HUB1000-based systems. Must be controlled via HUB1000.

SDR450	\$875.00
RM100 4-device rackmount	100.00
Interface cable, SDR450 to VCR/HUB1000	Note 1

SDR300 Analog TBC Remote Control

Analog remote for control on 1 TBC. Includes serial communications port for use with HUB1000 TBC control system. May be ordered with optional "auto color framing" where applicable. No additional options required.

SDR300	\$1,150.00
Auto color framing	N/C
RM100 4-device rackmount	100.00
Interface cable SDR350 to TBC	Note 1

SDR350 Digital TBC Remote

Same as SDR300, less front panel controls and displays. Intended for use as a cost-efficient TBC remote in the HUB1000-based systems. Must be controlled via the HUB1000.

SDR350	\$875.00
RM100 4-device rackmount	100.00
Interface cable SDR350 to TBC/HUB1000	Note 1

MTBC1500 Multiple TBC/D2/D3 Controller

Provides control of 8 TBCs from up to 2 control panels. Basic system includes 1 HCP400 control panel. Comes with D2 or Zeus software.

MTBC1500	\$6,900.00
Additional HCP400	1,350.00
Interface cable, MTBC1500/HCP400 to TBC	Note 1

MTBC1400 TBC/D2/D3 Controller (Replaces ZX400)

Cost-efficient 4 TBC/D2-3 controller providing control of up to 4 TBC/D2 units. Basic units include 3 analog TBC protocols and EDL or GVG200 interface. Unit is expandable to MTBC1500.

MTBC1400	\$4,200.00
Additional HCP400	1,350.00
Interface cable, MTBC1400 to TBC	Note 1

HUB1000 TBC Control Router

Central arbitration router allowing up to 64 TBCs or D2 machines to be controlled from up to 8 edit rooms. Following options are required: HCP400 control panel (min. 1, max. 8), HUB100 cross point card, [each card provides interface to 8 TBC remotes, 1 remote required for each TBC to be controlled (min. 1, max. 64).]

HUB1000	\$5,550.00
HCP400W Non EDL	1,350.00
HCP400E With EDL	1,800.00
HUB100 Cross point card	1,100.00
SDR300/400	1,150.00
SDR350/450	875.00
Interface cable, HCP400 to HUB1000 to TBC to TBC	Note 1

HUB2000 TBC/Machine Control System

2 HUB2000 intelligent TBC/D2 systems allow control of 16 tape machines from 2 edit suites. HCP2000 control panel provides control of all TBC functions and audio controls on digital type VTRs. Reads values that are set from the local control panel of a digital VTR and directly interfaces with digital VTRs without a separate TBC control unit (via RS-422 control). Each HCP2000 control panel can control 10 machines at a time. System requires each TBC to have an SDR300 and SDR350 and that each edit room have an HCP2000.

HUB2000 TBC/D2 system	\$1,700.00
HCP2000 Control panel	3,500.00
SDR300/400	1,150.00
SDR350/450	875.00

APV100 Audio Preview

Allows monitor mixing of up to 5 channels of audio from Betacam D2 or D1 machines in an edit session. Basic unit consists of the control panel and main frame.

APV100	\$3,500.00
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GPI Pulsepath

8-input, 24-output cross point matrix for control of GPI pulses. No additional options required.

GPI	\$2,660.00
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Note 1

Zaxcom provides the required Interconnect cable diagrams with all products. Cable fabrication is available. Please specify cable length and type of equipment to which connection will be made. All cables are \$25.00 per cable, + .75 per foot. All cables are non-discountable, non-returnable.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

- Desktop Video/Editing
- Projection
- Computers
- Presentation
- Graphics
- Interfacing
- Electronic Imaging
- Control Systems

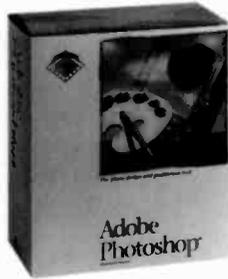


**MULTIMEDIA
PRODUCTS**



Photoshop™ Software Version 2.5 for Macintosh® and Windows™

- A complete paint, professional prepress and darkroom system in one
- Lets you create original artwork, correct and retouch color or black and white scanned images
- Prepare high-quality color separations and output right at your desk
- Paint in more than 16 million colors on-screen
- Use filters to generate special effects



Macintosh System Requirements

- Macintosh computer with a 68020 or greater processor
- Apple® System Software version 6.0.7 or greater, including version 7.0
- 32-bit QuickDraw™ extension
- 3M bytes of application RAM
- Hard disk

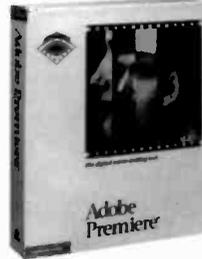
Windows System Requirements

- Intel® 80386, 80486 or greater PC
- DOS 5.0 or greater
- Microsoft® Windows 3.1 or greater
- 4M bytes of RAM
- Color VGA video board and compatible color monitor
- Mouse or other pointing device

Photoshop V. 2.5 \$895.00

Premiere™ Software Version 4.0 for Macintosh

- Comes standard with both Macintosh and Power Macintosh® versions of application software, as well as the deluxe CD-ROM edition, at no additional cost to users
- Features added to Version 4.0 include: a trimming window; auto insert edits and improved ripple and rolling edits; support for 29.97 frame rates (true NTSC frame rate); better previewing; custom filters and effects; unattended batch processing, and edit decision list enhancements
- Dynamic print to preview and print to video, allows users to preview basic edits without delay and without waiting for special effects to render
- Temporal filters
- Improved project window and file management
- Support for Adobe Illustrator™ 5.x program files
- Floating windows and palettes
- Ability to create custom transitions and filters
- Improved EDLs, including better audio mapping
- Improved support for 60-field processing
- Improved blue and green compositing
- Time-lapse capture



System Requirements

- Macintosh II family computer
- 4M bytes of application RAM
- High-capacity hard drive (80M bytes or more recommended)
- Apple System Software version 7.0 or greater
- QuickTime version 1.6.1 or greater (included)
- QuickTime capture card

Premiere V. 4.0 \$795.00

Premiere V 1.1 For Windows Package includes direct video capture software, expanded file format support, sample video, audio and still image files on CD-ROM POR*

Audition™ Version 1.0 for Macintosh

- Brings together in 1 package Adobe Premiere and Adobe Photoshop, plus a CD-ROM that contains the ready-to-use images and interactive instructions
- Contains all the power of its parent programs except certain high end output capabilities such as generating color separations, producing duotones and editing

decision lists for professional video production

- When ready to use those capabilities, you can upgrade to the full versions of Photoshop and Premiere
- Audition lets you begin without buying a scanner or a frame capture board—simply choose from the more than 700 stock photos and dozens of QuickTime movies—all from professional photographers and filmmakers

System Requirements

- Macintosh computer with a 68020 or greater processor
- 4M bytes of application RAM
- Apple System Software version 6.0.7 or greater, including Version 7
- QuickTime version 1.5 or greater (included)
- 32-bit QuickDraw extension (included)
- Hard disk

Illustrator™ Software Version 5.5 for Macintosh

- Plug-in architecture with a range of filters, including Pathfinder filters, that saves users time and allows them to more easily create special effects
- Also includes trapping, tabs and a range of new text capabilities
- Version 5.5 is also the first commercial product to provide simple editing capabilities for the Adobe Acrobat product line
- Adobe Illustrator includes Adobe Acrobat Exchange and Adobe Acrobat Distiller™ software and a plug-in filter that allows users to import and edit virtually any file produced on the computer using Adobe's Portable Document Format (PDF)
- Once a file is converted into PDF and imported into Adobe Illustrator, users can perform touch-up editing on it, print it and export it
- Version 5.5 runs in "native" mode on the Power Macintosh™ computers, enabling Adobe Illustrator users to take full advantage of the increased speed and processing power of Apple's new Macintosh systems
- Previewing artwork is between 2 and 4X faster than on other Macintosh computers

System Requirements

- 68020-based Macintosh computer or greater
- 3.1M bytes of RAM
- Apple System Software 6.0.7 or greater, including Version 7, hard drive

Illustrator V. 5.5 \$595.00

Illustrator Software Version 4.0 for Windows

- Complete design tool for graphic artists, technical illustrators and desktop publishers
- Lets you create, manipulate and refine artwork
- Sketch freehand, trace over scans or enter object dimensions with scientific precision
- Add and select points on curves, lines and objects, and snap to any point, not just preassigned points
- Place text on a line or on a curve, even within an object, then edit and transform it easily
- Position text in a defined text block of any shape, link it to other text blocks or wrap it around any object
- Supports both 16- and 24-bit color with 16.7 million colors
- Generate separations automatically and interactively using included Adobe Separator software

System Requirements

- IBM® or compatible 386- or 486-based personal computer
- 4M bytes of RAM
- Hard drive and 1 floppy disk drive (1.2M bytes 5.25" or 1.44M bytes 3.5")
- DOS 3.3 or greater with Windows 3.0 or greater
- VGA, Super VGA, 16-bit or 24-bit display adaptor supported by Windows 3.0
- Any PostScript printer or other Windows-compatible graphic output device

Illustrator V. 4.0 \$695.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

RASTERIZERS/ SCANNERS/DIGITAL FILM RECORDERS



Conductor Image Management Software

■ Fast, powerful and convenient ■ Shoot a group of slides and prints, select global defaults, even preview images ■ Complete control over your output device, including batch processing of images, number of copies for each file and much more ■ Supports all Agfa film recorders as well as the MaxiColor™ printer ■ With an AppleTalk® network, you can share your film recorder among many users using the built-in Conductor Remote feature ■ For the Mac. Images PICT, PICT II, 32-bit PICT and 24-bit TIFF images ■ Includes 35 Conductor fonts and cable ■ Requires Mac SE/30 or higher **\$500.00**

ChromaScript II Atlas 68030 Color PostScript Raster Image Processor

■ Output PostScript files to a high-resolution color film recorder in a variety of formats including 35mm slides, 4" x 5" prints/chromes, and 8" x 10" prints/chromes ■ For Agfa film recorders ■ Stand-alone unit with Adobe PostScript, 8M byte RAM, 1G byte hard disk, 35 PostScript fonts ■ For use with: ProColor Premier, PCR II, Forte and Alto (up to 8K) **\$15,500.00**
ChromaScript II/e Same as above with raster image processor and Ethernet interface **18,500.00**
ChromaScript II/j Same as ChromaScript II with Kanji, Chinese and Hangul interface **26,000.00**

Vision 35 Scanner

■ Features 12-bit sampling, positive and negative scanning capabilities, single slide or film strip ■ Optical resolution 5000 dpi, with 35mm scanning resolution of 3175 dpi ■ Includes software drivers, slide holders, SCSI cables, power cord **\$9,500.00**

StudioScan Color Scanner

■ Flatbed entry level CCD color scanner with optional transparency module for Mac and PC ■ 24-bit scanner (8 bits per pixel RGB), 300 x 600 dpi optical resolution with interpolation to 2400 dpi for line art, grayscale, continuous tone and color images ■ Image area 8.5" x 14" ■ Includes Agfa FotoSnap automated scanning software for first time scanner users, Agfa FotoLook scanning software for experienced scanner users, Agfa FotoTune LE color management software and Adobe Photoshop LE **\$1,100.00-1,200.00**
Transparency Module **500.00**

ARCUS PLUS Color Scanner

■ Mac Eddy award winner ■ High-performance, 8" x 11½", flatbed CCD scanner ■ Resolutions up to 1200 dpi ■ 2400 dpi line art ■ Descreen and unsharp masking "on the fly" ■ Universal power supply which automatically adjusts to both 110V, 60Hz and 220/240V, 50Hz power ■ 10-bit image sampling RGB: scans color images at 10 bits per pixel red, green, blue (RGB) or 30-bit color image sampling, grayscale is at 10 bits image sampling ■ Multiple scanning modes: black and white (line art), halftone, continuous tone and color ■ Professional imaging software for the Mac, PC and Sun Platforms **\$3,495.00**
Transparency Module **750.00**



Horizon Plus Professional Color Scanner

■ Professional-quality CCD color/black and white scanner ■ 15,000 pixel-per-line CCD scanning system yields true 1200 x 1200 optical resolution ■ 12-bit color sampling accuracy for images up to tabloid

size (11.7" x 16.5") reflective and 9" x 13" transmissive ■ High powered halogen lamps ■ High-speed scanning ■ Electronic zooming ■ Multiple scanning modes: black and white (line art, halftone, continuous tone and color) ■ Software drivers for Adobe Photoshop, QuarkXpress, Color Studio and Ragtime
Horizon Plus **\$19,995.00**

Alto Film Recorder

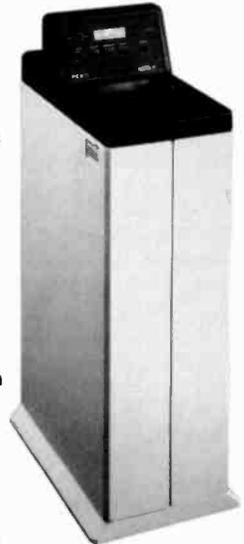
■ High performance professional film recorder for Mac, PC and UNIX based systems ■ 2K, 4K, 8K, 16K addressability, IEEE-488 (GPIB) and SCSI interfaces ■ 4M byte image buffer, 30 sec/slide (4K) . . **\$42,900.00**

Alto Camera Modules

Alto 35mm cassette load 36 exposure camera module **\$ 2,500.00**
Alto 35mm 100' bulk load 750 exposure pin registered camera module with double M transport **12,900.00**
Alto 4 x 5 premium sheet film camera module **6,000.00**

PCR II® Digital Film Recorder

■ Ideal solution for entry level photo retouching and imaging applications ■ Produces sharp, high-quality film output which rivals that produced on film recorders costing twice as much ■ Negative film support, 120 film and 4" x 5" film formats make the PCR II suitable for photographic work ■ Unique XCS-36 color technology ensures saturated colors and smooth gradations for both 35mm and larger formats ■ LCD front panel display simplifies setup and provides status during imaging ■ Output Speed: Records 35mm slides at 4K in 62 seconds. Rasterization is dependent on file and workstation ■ Output Formats: 35mm, 35mm bulk (750 exposure), 120/220 roll film (medium format), 4" x 5", 3¼" x 4¼" Polaroids (prints and transparencies) ■ Exposure: In 3 colors, red, green and blue, 24 bits/pixel (8 for each color) ■ Supported Film Types: AGFACHROME 100 RS Professional, AGFACOLOR Optima, Kodak Ektachrome Professional Daylight and Polaroid Polachrome ■ File formats: PC: SCODL, direct drivers; Macintosh: PICT, PICT II, 32-bit PICT, 24-bit TIFF, direct drivers; PostScript ■ IEEE-48 ■ SCSI ■ 2K or 4K **\$14,000.00**
120/220 Roll film camera modules **5,500.00**
4 x 5 Option/PCR II 4 x 5 sheet film back **3,500.00**

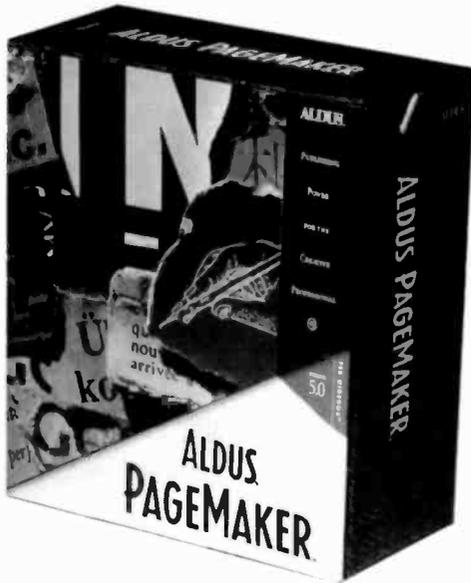


ProColor Premier Desktop Film Recorder

■ With the dual interface you can produce your IBM® PC® AT (or 100% compatible 286/386/486) or Macintosh® slides and prints in minutes ■ Comes with XCS-24 color control system that ensures smooth color gradations, so you can start producing slides like a pro ■ Uses the same file formats as other Agfa film recorders ■ File formats: PC: SCODL, direct drivers; Macintosh: PICT, PICT II, 32-bit PICT, 24-bit TIFF, direct drivers; PostScript ■ IEEE-48 ■ SCSI ■ 2K or 4K **\$5,900.00**



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PageMaker® 5.0 Software

PageMaker 5.0 gives you absolute power to produce professional-quality publications, enabling you to integrate text and graphics from many sources into a wide variety of printed documents. PageMaker offers professional publishing tools tailored for each person in the publishing cycle: graphic artists and designers; writers, editors and typesetters; production artists and prepress personnel. With it, you can gain complete control over every aspect of the process, saving significant time, effort and money over traditional methods. PageMaker is also available in a file-compatible version for Macintosh.

Features

- Incremental rotation of text and graphics
- Multiple open publications
- Control palette
- Story editor, a fully integrated word processor with spelling checker, search-and-replace
- Aldus Additions technology
- Import and export files
- Extensive typographic controls, like kerning, tracking, letter spacing, condensing/expanding
- Built-in color separation
- Table Editor utility, with hotlink from PageMaker
- Interruptible screen redraw
- Easily rotate, skew and mirror text and graphics—even edit rotated text directly
- Work quickly and efficiently among several PageMaker publications at once
- Control the placement and size of elements on the page with precision
- Write, edit and proof text without leaving PageMaker
- Customize PageMaker to suit your publishing needs and automate repetitive tasks
- Integrate text, data and graphics from a wide variety of software packages
- Control the look of your text for precise, professional results
- Generate high-quality spot- and process-color separations, directly from PageMaker
- Easily build a wide range of tables, then edit them from within PageMaker
- Choose tools and menus without having to wait for complex pages to appear completely

The following software lists are by no means exhaustive; contact your vendor for specific compatibility details.

Text Import

PageMaker can import text files in several formats, including ASCII, DCA/RFT and RTF.

In addition, the following applications produce file formats that PageMaker can use:
▪ Ami Pro (Lotus Development)
▪ DisplayWrite

(IBM)
▪ Microsoft Word for DOS
▪ PC-Write (Quicksoft)
▪ Wang word-processing files, including PC IWP and PC WP Plus
▪ Windows Write for Windows 3.1 (Microsoft)
▪ Word for Windows (Microsoft)
▪ WordPerfect for DOS
▪ WordPerfect for Windows
▪ WordStar (MicroPro International)
▪ XyWrite III Plus (XyQuest)
PageMaker's Story Importer can import text and style attributes from other PageMaker files.

Text Export

Any text typed or placed in PageMaker can be exported, with its style sheet tags and formatting intact, in the following formats:
▪ ASCII (text only)
▪ DCA/RFT
▪ Microsoft Word
▪ RTF
▪ Windows Clipboard
▪ Windows Write
▪ XyWrite

Graphics Import

Aldus PageMaker can import, display and print black-and-white, grayscale and color images and illustrations, including 24-bit color CMYK TIFF™ images, EPS graphics and Macintosh PICT files. Other formats accepted by PageMaker include BMP, CGM, DCS, DRW, DXF, GEM, HPGL, Kodak Photo CD, PCX, PIC, PNT, TIFF, WMF and WPG (WordPerfect graphics).

In addition, the following applications produce file formats compatible with PageMaker:
▪ Adobe Illustrator
▪ Aldus Digital Darkroom™
▪ Aldus FreeHand®
▪ Aldus Gallery Effects™
▪ Aldus IntelliDraw™
▪ Aldus Persuasion®
▪ Aldus PhotoStyler®
▪ Aldus SuperPaint®
▪ AutoCAD (Autodesk)
▪ Charisma (Micrografx)
▪ CorelDRAW (Corel Systems)
▪ Designer (Micrografx)
▪ DrawPerfect (WordPerfect)
▪ Draw Plus (Micrografx)
▪ Freelance Plus (Lotus Development)
▪ Harvard Graphics (Software Publishing)
▪ Lotus 1-2-3 in PIC
▪ MacPaint (Claris)
▪ Painter (Fractal Design)
▪ PC Paintbrush, PC Paintbrush Plus (Zsoft)
▪ Scrapbook+ (Central Point Software)
▪ Windows Paintbrush (Microsoft)

PageMaker can also print pages as EPS files to disk. These files conform to Adobe's Document Structuring Conventions (DSC 3.0).

Spreadsheet/Database Import

PageMaker directly reads and places the text and charts produced by the major spreadsheet and database programs.

In addition, the following applications produce file formats compatible with PageMaker:
▪ dBASE III, IV (Borland International)
▪ Lotus 1-2-3 for DOS and Windows
▪ Microsoft Access
▪ Microsoft Excel
▪ Symphony (Lotus Development)

Fonts

PageMaker is compatible with Windows 3.1-supported soft fonts, including Adobe Type 1 PostScript and TrueType. It is also compatible with Adobe Type Manager 2.0, Facelift 2.0 and similar programs.

Networks

PageMaker works with a variety of networks and file-transfer programs, including Novell Netware and others supported by Windows 3.1.

System Configuration

Requires Microsoft Windows 3.1 (or later) and Windows 3.1-compatible hardware.

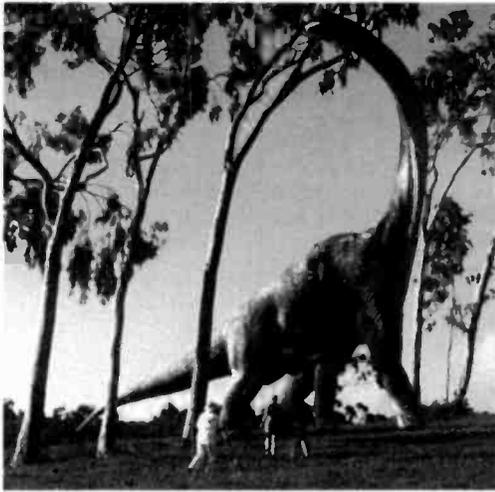
Recommended: A 486- or 386-based DOS-compatible computer, 4M bytes of RAM, an 80M byte hard drive, a high-resolution graphics adaptor card (such as Super VGA or XGA) and a mouse.

Minimum: A 286-based DOS-compatible computer, 4M bytes of RAM, a 40M byte hard drive, a VGA graphics adaptor card and a mouse or other pointing device.

For output: Windows 3.1-compatible PostScript language or PCL devices, including laser printers, imagesetters and color printers.

PageMaker 5.0 \$895.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Animator/Power Animator™ 3-D V5.0 Animation Software

Animator and Power Animator are high-end systems for professional animators. They are distinguished by their superior modeling technology, range of sophisticated animation features and open and highly-interactive rendering environment. A single user interface for all functions eliminates the need to exit modules when moving between modeling, animation and rendering, thus significantly improving workflow and enhancing the interactive creative process.

Common Features

Modeling

- **Basic Modeling:** Generate and edit surfaces by revolving, extruding, skinning, defining boundary curves and faces ▪ **QuickShade™:** Model and animate shaded objects in real time ▪ **Curve Tool Box:** Tools for creating lines, arcs, circles, freeform curves, and composite curves as well as construction aids such as perpendicular, tangent and parallel
- **AutoTrace:** Transform scanned 2-D images into wireframe geometry
- **TextPac:** Position and modify text in 3-D using spline-based typefaces
- **Polygonal Converter:** Convert a NURBS object to a user-specified number of triangles or quads ▪ **Hot Keys:** Define keyboard shortcuts for commonly used commands

Animation

- **Basic Animation:** Define animations interactively using key frames and motion paths ▪ **Action Editor:** Set and adjust actions using an interactive graphical display of parameter curves ▪ **Time View:** Adjust timing relationships (key frames) using a graphical user interface ▪ **Animation Preview:** Play back animations in wireframe or rendered flipbooks ▪ **Set Motion:** Set and adjust an object's or camera's orientation along a motion path ▪ **Randomizer:** Randomly animate multiple objects such as bubbles or flocks of birds ▪ **Interactive Shading & Light Animation:** Interactively animate shades, textures and light parameters

Rendering

- **Lights:** Choose from a variety of light types including ambient, point, spot, directional, linear and area ▪ **Camera Editor:** Create multiple cameras with variable field-of-view, depth of field, near/far clipping planes and stereo viewing ▪ **Shaders:** Modify surface textures and properties interactively ▪ **QuickRender™:** Quickly render on-screen for rapid feedback, including shadows and volume spotlights. Ability to re-render only portions of scenes that have been modified ▪ **MotionBlur:** Apply realistic blurring effects to individual objects or an entire scene
- **Render Stats:** Access complete rendering information rapidly using spreadsheet-like user interface ▪ **24-Bit Backdrop:** Display a 24-bit image as backdrop ▪ **Hidden Line Removal:** Generate smooth outlines for

cartoon-like renderings ▪ **"Light's Eye View":** View a scene from the perspective of a light source ▪ **Distributed Renderer:** Manage rendering projects over a network

Electronic Painting Tools

- **DesignPaint™:** Interactively paint and retouch textures and backgrounds

Open Digital Studio

- **OpenModel™:** Write your own programs to manipulate Alias models
- **OpenRender™:** Write your own shaders, textures and lights ▪ **SDL™ (Scene Description Language) Renderer:** Write custom scripts to control the renderer ▪ **Alias 3-DCD™:** A CD-ROM of 3-D models, environments, textures and lights ▪ **Sound Sync:** Synchronize audio tracks with animation previews ▪ **DXF Input/Output:** Exchange geometry with products such as 3-D Studio and AutoCad ▪ **StyleGuide! Input:** Import data directly from Alias Sketch!™ ▪ **CAD/CAM Data Input:** IGES, VDA/FS, VDA/IS ▪ **Output:** Apple QuickTime, Avid OMF, TIFF, Pixar Renderman (RIB), DXF ▪ **Wavefront:** OBJ format input/output
- **Video Device Support:** Abekas, Chyron, SGI, Digital 4:2:2 ▪ **Peripheral Support:** Scanners, film recorders, printers, plotters and StereoViewing

Animator 3-D Software

Includes common features plus:

Modeling

- **Bevel:** Automatically extrude and curve, face or text object

Optional Powertools

Modeling

- **Trimmed Surfaces:** Interactively cut areas in surfaces and seamlessly fit objects together, using intuitive sculpting tools ▪ **Circular Fillet:** Connect surfaces and curves together with a smooth seamless circular edge
- **Curve on Surface:** Draw and edit curves directly on a 3-D surface
- **Extend:** Extend an existing curve or surface automatically

Animation

- **Basic Metamorphosis:** Stretch, distort and transform objects
- **MetaMorph:** Animate metamorphosis automatically by setting shape-to-shape keyframes

Rendering

- **RayTracing:** Achieve realistic effects for glass, water or shadows
- **Natural Phenomena:** Create realistic natural effects for fire, smoke, fog, clouds, water, mountains, sunsets, natural and man-made materials (leather, marble, concrete, cloth, etc.)

Power Animator 3-D Software

Includes common features plus:

Modeling

- **Basic Modeling:** Trimming, filleting and defining bevels ▪ **Curve on Surface:** Draw and edit curves directly on a 3-D surface

Animation

- **Basic Metamorphosis:** Stretch, distort and transform objects ▪ **Digital OptiF/X™:** Interactively create camera and lighting effects, such as lens flare, fog, light beams, object and light glows, projector glows and explosive effects

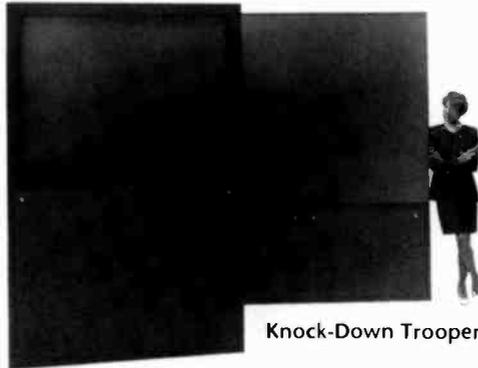
Rendering

- **Ray Tracing:** Achieve realistic effects for glass, water or shadows
- **Natural Phenomena:** Create realistic natural effects for fire, smoke, fog, clouds, water, mountains, sunsets, natural and man-made materials (leather, marble, concrete, cloth, etc.) water

Advanced Options

Advanced animation, PowerModeling, PowerTracer™ and PowerCaster™ are available—please inquire.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL



Knock-Down Trooper

Trooper™ Rear Screen Projection Enclosures and Thru-the-Wall Systems

- Allows large screen projection to be used in high ambient light conditions that wash images on flat screens, without the need to modify room lighting
- Use a high gain fresnel/lenticular screen for use with high resolution graphics
- Rear screen enclosures can fit through standard doors and assemble for easy movement
- Leveler feet are included on all rear screen enclosures and optional caster kits are available
- Ruggedly designed and constructed and utilize high quality first surface mirrors
- Designed for proper line of sight to the screen with no viewer obstruction
- Tilt screen option available where overhead lighting causes glare on screen

Troopers come in a variety of styles and sizes with screen sizes ranging from 50" diagonal to 120" diagonal. They come in 5 basic configurations and accept most major brands of projectors except where noted:

- Roll-A-Round**—67" diagonal screen size. Unit can be rolled from room to room. The back pulls out to establish the focal length to allow for the 67" picture
- Knock Down**—50" to 120" diagonal screen size. Easy assembly and disassembly. Optional wheels make it easy to move. Thin frame version allows units to be placed side by side for multiscreen applications
- Elevating**—50", 54", 60" and 72" diagonal screen size. Elevating models roll from room to room just like Roll-A-Round models. They extend upwards electrically for optimum viewing in a boardroom, classroom or trade show application. 54" model has black matrix screen and a mechanical lift

- Thru-the-Wall Systems**—Offer an "off the shelf" product that eliminates the task of engineering and fabricating hardware for permanent rear-screen projection installation. Provides screen (67"-125"), screen frame, first surface glass mirrors and installation instructions in a turn-key package. Accepts most major brands of projection systems

- RPM**—A projector mount and first surface mirror assembly for installations where screen is installed. Eliminates the task of engineering and fabricating a rear projection mount and accepts most major brands of projection systems



Thru-The-Wall System

Trooper Fresnel/Lenticular Screen—Standard

- Designed specifically for video projection
- 1-piece cast acrylic rear screen which features a precision fresnel/lenticular lens system offering precise distribution of projected light, resulting in brilliant images over an extremely broad viewing cone, even with standard, lower luminance video and data projectors
- Extremely bright image—gain 5.0
- Extremely broad viewing cone—80° to 120°
- Excellent resolution
- Good tolerance of ambient light without significant loss of contrast
- Built-in "color shift" correction
- Excellent corner-to-center brightness ratio eliminates dark corners and "hot spots"

AVC-KD50	50" Knock-Down Trooper	\$ 8,295.00
AVC-KD60	60" Knock-Down Trooper	8,595.00
AVC-T67 *	67" Roll-A-Round Trooper	7,500.00
AVC-KD67	67" Knock-Down Trooper	8,995.00
AVC-2067TF	67" Knock-Down thin frame Trooper	7,495.00
AVC-KD72	72" Knock-Down Trooper	10,995.00
AVC-KD72TF	72" Knock-Down thin frame Trooper	11,495.00
AVC-KD84	84" Knock-Down Trooper	16,995.00
AVC-KD90TF*	90" Knock-Down thin frame Trooper (24" base)	19,995.00
AVC-KD 100	100" Knock-Down Trooper	24,995.00
AVC-KD 100TF-1200	100" Knock-Down thin frame Trooper (Barco 1200)	26,995.00
AVC-KD120	120" Knock-Down Trooper (36 3/4" Base)	29,995.00
AVC-4054EL-MBM	54" Pop Up Trooper	9,995.00
Wheel Kit	Optional caster kit	395.00
AVC-RPM	Rear projection mount and mirror assembly	2,795.00
AVCRPM/L	Rear projection mount and mirror assembly (large mirror) for short throw installation	3,095.00

Thru-the-Wall Systems

AVC-TTW67S	67" with straight screen	\$ 5,695.00
AVC-TTW67T	67" with tilt screen	5,895.00
AVC-TTW72S	72" with straight screen	6,595.00
AVC-TTW72T	72" with tilt screen	6,895.00
AVC-TTW84S	84" with straight screen	9,595.00
AVC-TTW84T	84" with tilt screen	9,895.00
AVC-TTW100S	100" with straight screen	12,895.00
AVC-TTW100T	100" with tilt screen	13,595.00
AVC-TTW120S	120" with straight screen	16,495.00
AVC-TTW120T	120" with tilt screen	16,995.00
AVC-TTW125S	125" with straight screen	19,395.00
AVC-TTW125T	125" with tilt screen	19,995.00

Prices shown are without projectors.

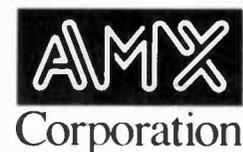
Special sizes available on quotation.

*The AVC Elevating Troopers, AVC-T67 and AVC-KD90TF are capable of accepting Electrohome ECP2100, EPC3100, ECP3101, ECP4100 and the ECP4101 models only.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



WIRED PANELS



UniMount Panels

"UniMount" is the simple solution for mounting control panels to fixed surfaces such as walls, lecterns or countertops. With UniMount, installation is a snap! You can quickly install or remove panels or change the magnetic faceplate by following a few easy steps. UniMount panels are listed with an AXU-prefix.



Wired Panels

TiltScreen Touch Panel

The TiltScreen Touch Panel combines elegant styling with a full range of powerful, menu-driven software features. Housed in a dramatic tabletop console, the TiltScreen features a super-bright 8" x 5" electroluminescent screen with a touch-sensitive overlay. The display screen is angle-adjustable for personal viewing convenience and to eliminate glare from overhead lights. The TiltScreen offers the same software, display and electrical specs as the AXU-EL.

AXP-T/S \$3840.00

Electroluminescent Touch Panel

The Electroluminescent (EL) Touch Panel offers powerful menu-driven software features, including an on-screen editor for creating custom symbols, an animated joystick and slider bar graphs. Up to 16 external buttons may be added to the panel. The standard EL Touch Panel is offered in a flush or lectern-mounted enclosure. An elegant wood console model and 19" rackmount are available options.

Specifications

■ Screen Size: 4.8"H x 7.75"W ■ Mount Size: 6.5"H x 11.4"W x 2.94"D ■ Enclosure Size: 6.88"H x 12.60"W x 2.26"D ■ Display: amber electroluminescent pixels ■ Resolution: 600(H) x 400(V) ■ Memory Size: 64K (expands to 256K) RAM ■ Operating Voltage: 12VDC, 1.5A maximum ■ Wiring: 4-wire bus, including power

AXU-EL+ UniMount touch panel \$4175.00
 AXU-EL+/PB UniMount touch panel with external buttons 4340.00
 AXE-EL+ Wood enclosure for touch panel* 335.00
 AXK-EL+ Rackmount kit for touch panel. 210.00



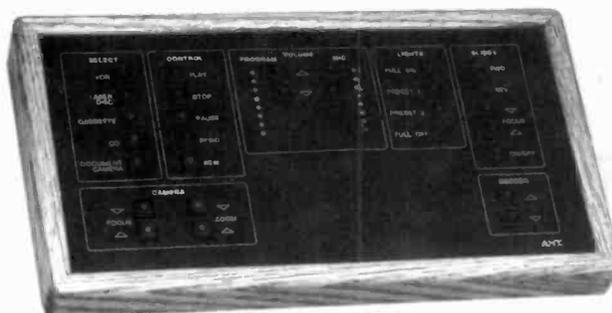
Liquid Crystal Touch Panel

The Liquid Crystal (LC) Touch Panel features a clear, black-and-white liquid crystal display, ideal for use in high and low ambient light conditions. The backlit 640 x 480 pixel VGA resolution display provides excellent viewing. It includes the same built-in software features as all AMX Touch Panels. Up to 16 external buttons may be added to the panel. The LC Touch Panel is available in a standard flushmounted enclosure. A sloped, portable wood console and 19" rackmount are available options.

Specifications

■ Display: 7.7" x 5.8", 640 x 480 pixels VGA resolution ■ Flushmount enclosure: 7.85"H x 12.1"W x 1.9"D ■ Optional wood console: 8.82" x 12.65"W x 0.8" (D front) x 2.8" (D rear); oak, walnut and satin black finishes; other finishes available on special request
 ■ Rackmount: 5 rack spaces ■ 4-pin AMX AXlink data/power bus (mini-XLR on wood console) connector ■ 9-pin D RS-232 mouse/programming/master system port

AXP-LC Liquid crystal touch panel \$3505.00
 AXP-LC/PB Liquid crystal touch panel, external buttons .. 3675.00
 AXE-LC Wood enclosure for AXP-LC touch panel 335.00
 AXK-LC Rackmount kit for AXP-LC touch panel 210.00



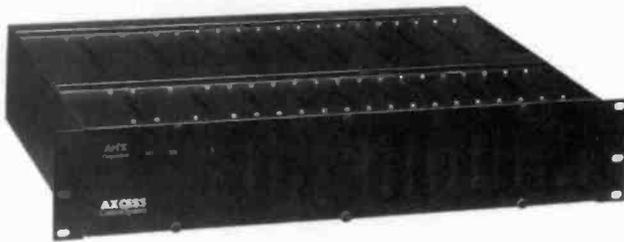
Software Panel

The standard Software Panel operates on the 4-wire ACCESS AXlink data/power bus, offering up to 64 buttons with LED feedback and three 8-segment bar graphs. The ultra-thin, 1" deep flushmounted enclosure is ideal for lecterns, tabletops and drawers. An optional sloped wood console is also available.

AXP-SP+ Software panel, up to 64 buttons, 3 bar graphs \$1000.00
 AXP-MRP32 Mini-Software, 32 buttons, 3 bar graphs, rackmount, 2H 670.00
 AXE-SP+ Wood enclosure for Software panel* 335.00
 AXK-SP Rackmount kit for Software panel 210.00

*Available in oak, walnut or satin black. Others available upon special request.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AXCESS CardFrame

The original central processor, the AXCESS CardFrame, allows the highest degree of expandability within the AXCESS system. With its modular architecture, AXCESS fits your unique application with hand-in-glove precision. No control application is too large or complex for the CardFrame and no degree of expansion is beyond its reach.

Elegantly simple in design—a slotted, open-face frame accommodating AXCESS control cards—the CardFrame allows you to expand your system simply by adding cards or, as the capacity of the CardFrame is reached, by adding multiple frames. Moreover, unlike the inconvenient design of most control systems, the cards are accessible from the front panel; equipment changes, expansion and troubleshooting can be made with maximum ease and efficiency. Cards may even be inserted or removed with power still supplied to the CardFrame.

Occupying only 3½" of a standard 19" rack, the space-saving CardFrame has slots for 1 or 2 Master Cards, 1 Server Card and 16 AXC control cards. By linking multiple CardFrames, you can expand your system to add as many functions as you require.

Specifications

- Size: 3.5"H x 19"W x 14"D
- Card Wiring: Phoenix captive-wire
- Power: 12VDC

AXF-M/S CardFrame with AXC-M and AXC-S cards

\$1420.00

AXF-S CardFrame with AXC-S card only

1085.00



AXCENT² Integrated Control System

AXCENT² is the integrated controller that incorporates the most popular features of the full-sized AXCESS system. It is designed for those who want the full power of AXCESS programming in a packaged, low-cost system for small to mid-sized remote control applications. This compact processor delivers complete control of audiovisual and environmental devices in boardrooms, training centers, sophisticated homes and a host of other applications.

Offering all the power, programmability and reliability of the AXCESS system within a single-height rack frame, AXCENT² features

a compact, integrated design ideal for applications where only limited expansion is required. Yet the range of equipment control is extensive, providing greater control capability, processing and expansion options. Built-in control includes 8 IR/serial ports, 2 RS-232 ports, 2 RS-232/422 ports, 12 relays and 6 solid-state input/output ports.

Specifications

- Size: 1.75"H x 17"W x 5.35"D

AXCENT² Integrated AXCESS System **\$1835.00**



AXCESS Mini CardFrame

The AXCESS Mini CardFrame is the economical solution to the need for a small amount of control. It is designed with a built-in Server Card and slots for a Master Card and up to 3 AXC control cards. The Mini CardFrame is the ideal solution, whether you're adding to an existing AXCESS or AXCENT² system or simply need a compact control system for a limited number of functions.

If all you need is a small, self-contained control system, simply install a Master Card and up to 3 device cards in the AXCESS Mini CardFrame and enjoy the power and reliability of AXCESS in a low-cost application. With the Mini CardFrame, you can add a highly specialized control function (such as MIDI or voltage control) to your existing AXCENT² system, a solution that effectively combines the expandability of AXCESS with the economy of AXCENT².

The AXCESS Mini CardFrame can also be added to an AXCESS or AXCENT² system to provide on-site control of a remote location such as a meeting room. While linked to the main AXCESS processor, the Mini CardFrame can be mounted at the remote location, allowing users on-site to control such functions as audiovisual equipment, pan/tilt cameras and other devices.

Specifications

- Size: 1.75"H x 17"W x 13.64"D

AXF-MINI Mini CardFrame **\$670.00**

AXP-MLCD Mini-LCD Panel

The AXP-MLCD Mini-LCD Panel features a yellow backlit 16-character x 2-line LCD that can be programmed to indicate various devices on-line. The AXCESS control system is capable of sending to the AXP-MLCD various status messages and device/function conditions.

Specifications

- Size: 5.75"H x 3.5"W x 0.75"D
- Keyboard: 4 column x 5 row sub-surface buttons
- Power: 12VDC via AXlink cable

AXP-MLCD **\$710.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ACCESS Control Cards

All AXC control cards can be installed in the CardFrame without disturbing existing wiring or removing power from the system. All cards include operational status LEDs that are visible from the front, even when the cover is in place.

AXC-232	RS-232/422 interface	\$335.00
AXC-366	RS-366 interface	335.00
AXC-422	PA-422 interface	335.00
AXC-DMX8	DMX 512 controller (8 channels)	335.00
AXC-EM	Enhanced System Master	335.00
AXC-EXTN	Extender	85.00
AXC-INP8	8 switch/opto-logic voltage inputs	335.00
AXC-IR/S	IR or wired serial (includes 1 IRE/SER cable)	335.00
AXC-MIDI	MIDI in, out, thru	335.00
AXC-OXM	Oxmoor interface	335.00
AXC-PRN	Printer card (Centronics parallel)	335.00
AXC-PTC	Precision time clock	670.00
AXC-PTI	Pan/tilt interface (requires pan/tilt power supply)	335.00
AXC-PTSM	Pan/tilt and lens interface (TSM RS-422 format)	335.00
AXC-RCVI	IR Receiver (includes 1 IRX-UM)	335.00
AXC-REL8	8 relays (universal)	335.00
AXC-REL14	14 relays single common or 2 groups of 7 relays	335.00
AXC-S	CardFrame server	335.00
AXC-SAV	Slide projector SAV Series	335.00
AXC-SLD	Slide projector US Kodak Series	335.00
AXC-SMP	SMPTE time code receiver or generator	335.00
AXC-SPE	Enhanced speech synthesizer	670.00
AXC-TEMP	Temperature control (accepts up to 4 RTS1 sensors)	335.00
AXC-VAI2	2 voltage outputs and 2 analog inputs	335.00
AXC-VG24	4 voltage outputs (0/+24VDC)	335.00
AXC-VOL	Stereo/dual mono volume	335.00
AXC-VRG4	4 voltage outputs (-12/+12VDC)	335.00
AXC-X10	X-10 power line device interface	335.00

ACCESS/AXCENT² Bus Controllers

AXB-FD	Floppy disk drive	\$1170.00
AXB-MPE	Master port expander (includes AXC-EM card)	1420.00
AXB-REL8	Relay controller, 8 relays	420.00
AXB-SPE	Server port expander (requires AXB-MPE)	1085.00
AXB-TM	Television manager	500.00
AXB-VOL3	3-channel volume control	585.00



PRO-2400 PRODIGY Light Dimming System

The PRODIGY provides control of up to 16 enclosures and 96 channels of high-performance architectural lighting control. Each wall-mounted enclosure holds up to six 2400W dimming modules. Modules are available for incandescent and fluorescent dimming applications with 277VAC options for specific models. Circuit breakers are included with each 120VAC module, allowing operation from single-phase or 3-phase

120VAC power. LED status indicators for system and channel operation are visible through the front cover. UL and CSA listed. Cooling fan included. Allows up to 255 presets each with a fade rate. Presets may include all channels, or may exclude channels for zoned operation in combined room applications. An RS-232/422 input provides a wide range of channel levels, curve and raise/lower commands, as well as preset record and playback. Up to 10 customer-programmable presets may be triggered via contact closure inputs. PROlink data bus connects multiple dimmers.

PRM-FDB	110VAC fluorescent dimmer module, Lutron® FDB ballast, 0-10VDC	\$ 335.00
PRM-FLE1	110VAC fluorescent dimmer module, electronic ballast, 0-10VDC	335.00
PRM-FLE2	277VAC fluorescent dimmer module, electronic ballast, 0-10VDC	335.00
PRM-FPC1	110VAC on/off switch module	335.00
PRM-FPC2	277VAC on/off switch module	335.00
PRM-INC	Incandescent dimmer module	335.00
PRO-2400	PRODIGY light dimmer with 2 modules	2340.00
PRO-SP8	PRODIGY PROlink wall panel, single gang	420.00

Receivers

AXR-IRSM	IR swivel-mount receiver, AXlink operation	\$375.00
AXR-RF	Radio frequency receiver, AXlink operation	335.00
AXU-IR	IR receiver, AXlink operation, UniMount	335.00
IRX-SM	IR swivel mount sensor, requires AXC-RCVI	125.00
IRX-UM	IR sensor, UniMount, requires AXC-RCVI	85.00

Control System Accessories

Cables

CC-232	RS-232/422, 9-pin and 25-pin D (device/model specific)	\$125.00
CC-IRE	Infrared emitter	40.00
CC-REL	Relay (device/model specific)	125.00
CC-SER	IR serial controller	40.00

Peripherals

ALF	ACCESS/AXCENT ² field programming unit	\$335.00
IRIS	IR/Serial data capture device, IRLIB software	835.00
PC1	Power controller (10A, 110VAC)	185.00
PC2	Dual power controller (10A total, 110VAC)	250.00
PCS	Power current sensor	160.00
RTS-1	Room temperature sensor (requires AXC-TEMP card)	125.00
UPC20	Universal power/motor controller (20A, 110/220VAC, UL approved)	335.00

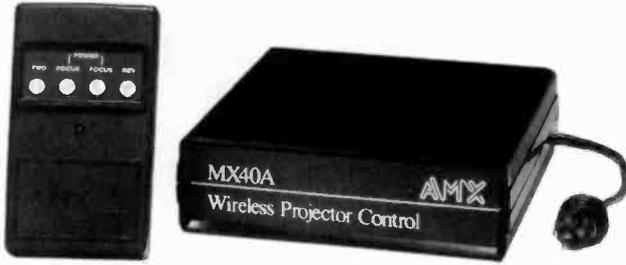
Power Supplies

PS2.8	Power supply (12VDC regulated, 2.8A, 110/220VAC in)	\$150.00
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PS4.2	Power supply (12VDC regulated, 4.2A), rackmountable	\$385.00
PS-PT2	Power supply (24VDC regulated, 1.6A, 110/220VAC in)	235.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



KC/2	Keyboard Commander, PS/2 style, expanded memory.	\$335.00
KC-SER	RS-232 serial port (factory option)	40.00
MX40TX	4-button wireless transmitter	90.00
MX-ENG	Engraving for MX40TX transmitter	55.00
TXC16	16-button transmitter, engraving included	265.00
TXC32	32-button transmitter, engraving included	500.00

MX Series Wireless Projector Controls

Each MX system consists of a wireless transmitter and receiver. The receiver plugs into the back of a slide projector, and the transmitter is handheld. Using radio frequencies of 303.5MHz, the MX Series provides remote control of up to 12 functions on 1 or 2 projectors, with 9 different MX models to choose from. Since the control signal is a radio frequency, it carries through glass, walls, screens or drapes, providing an omnidirectional range of up to 150'. As a result, the controlled equipment does not even have to be positioned in the same room.

Wireless Single Projector Control

MX20	Forward and reverse	\$184.00
MX30	Forward, reverse and on/off	239.00
MX40	Forward, reverse and focus in/out.	245.00
MX40A	Forward, reverse, focus in/out and on/off	299.00
MX40B	Forward, reverse, focus in/out, on/off and auxiliary on/off	399.00

Wireless Dual Projector Control

MX22	Forward and reverse, 2 projectors at the same time	\$219.00
MX22A	Projector 1: forward and reverse; 2: forward and reverse; 2 projectors independently	245.00
MX30A	Projector 1: forward, reverse and on/off; 2: forward, reverse and on/off; 2 projectors independently.	399.00
MX120	Projector 1: forward, reverse, focus in/out and on/off; both forward and reverse	598.00

All MX systems include a transmitter, receiver, instructions and plastic carrying case except the MX120, which does not include a plastic carrying case.

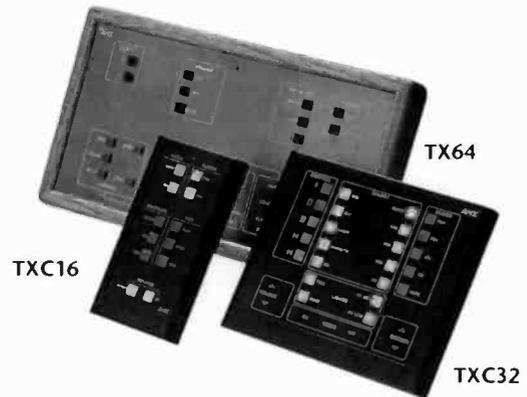
Transmitters Only

MX20TX	2 buttons, 2 functions	\$ 90.00
MX22TX	2 buttons, 2 functions	90.00
MX22ATX	4 buttons, 4 functions	90.00
MX30TX	4 buttons, 3 functions	90.00
MX30ATX	4 buttons, 6 functions	90.00
MX40TX	4 buttons, 4 functions	90.00
MX40ATX	4 buttons, 5 functions	90.00
MX40BTX	4 buttons, 6 functions	90.00
MX120TX	12 buttons, 12 functions	210.00

KC Keyboard Commander

The KC Keyboard Commander adds the convenience of RF wireless control to your IBM-compatible personal computer. Simply connect one end of the KC to your keyboard and the other to the computer. No other adaptors or serial cards are required, and the keyboard remains fully functional. Any AMX transmitter may be used with the KC, allowing an omnidirectional range of up to 150'. The KC will learn and repeat any sequence of keystrokes, assigning each sequence to a desired control button. An RS-232 serial version is available for control integration with wired SX and AXCESS systems.

KC	Keyboard Commander, AT/XT style, expanded memory	\$335.00
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TX Series Wireless Remote Control Panels

The TX Series of wireless remote control panels feature slim-line design, offering comfort and flexibility to the presenter. TX Control Panels come in 3 formats: TXC16, TXC32 and TX64. Button locations may be deleted to create custom layouts. A wide range of engraving options are included, and customer logos may be added at extra cost. Wood enclosures are standard for TX32 and TX64. RF Carrier: 303.875MHz standard. Power Supply: 9V battery

TXC16	Compact 16-button, molded enclosure, RF/IR	\$ 265.00
TXC32	Compact 32-button, molded enclosure, RF/IR	500.00
TX32*	Up to 32 buttons in wood enclosure, RF	750.00
TX64*	Up to 64 buttons in wood enclosure, RF	1085.00

*Enclosure is available in oak, walnut or satin black. Other finishes on special request.

SoftKey Vertical Backlit Display, RF/IR

The SoftKey provides a unique solution in control design, offering menu-selected versatility in a handheld wireless control panel. A vertical LCD display is included, with 10 side function buttons and 1 menu selection button.

Specifications

- Size: 7.5"H x 4"W x 1.35"D
- Display: 8-character x 30-line LCD
- Power: NiCad battery pack, approx. 14 hours usage time

TX-SK+	\$1585.00
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Wireless Mini-LCD Panel

The TX-MLCD Wireless Mini-LCD Panel offers a wide range of control options in a portable handheld transmitter. The 2-line, 16-character LCD can be programmed to provide text information that changes as new functions are selected. A 20-button keypad is provided to select control functions. RF/IR.

Specifications

- Size: 5.75"H x 3.5"W x 1.25"D
- Enclosure: standard plastic; optional wood enclosure
- Power: 4 AAA batteries

TX-MLCD	\$920.00
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PERSONAL COMPUTERS



Power Macintosh 8100/7100/6100 Series Personal Computers

Common Features:

- Integrated floating point unit and 32K cache
- Comes with 8M bytes or 16M bytes of RAM
- 1 built-in Apple SuperDrive 1.4M byte floppy disk that uses high-density floppy disks and reads, writes and formats Macintosh, Windows, MS-DOS, OS/2 and ProDOS disks
- Accommodates one 5.25", half-height device such as AppleCD 300i plus CD-ROM drive
- DRAM display support
- 1 Apple Desktop Bus (ADB) port for a keyboard, mouse and other device
- AAUI-15 Ethernet connector
- 2 LocalTalk and GeoPort compatible DMA serial (RS-232/RS-422) ports
- High-speed asynchronous SCSI interface connects up to 6 SCSI external devices
- 16-bit stereo sound input and output ports
- Built-in Ethernet
- 2 serial ports for LocalTalk
- Supports ADB keyboards with numeric keypads
- ADB Mouse II included
- Clock/calendar (custom integrated circuit with long-life lithium battery)
- Easy access and visible beep included with system software (third party options provide alternative input and output devices for people with disabilities)

Note: All configurations include mouse, learning and reference documentation and system software version 7 consisting of: PC exchange for reading and writing MS-DOS and Windows disks, AppleScript for scripting in and between Macintosh applications, QuickTime for working with video and sound and TrueType fonts.



Power Macintosh 8100/80

Includes common features plus: ▪ PowerPC 601 RISC running at 80MHz ▪ Floating point processor and 32K cache ▪ 256K level-2 cache ▪ Can be expanded to 264M bytes of RAM ▪ 1 internal hard disk (250M byte, 500M byte and 1G byte option) ▪ Accommodates one 5.25" half-height device such as the AppleCD 300i Plus CD-ROM drive ▪ Displays all Apple displays and third-party displays including NTSC, PAL, VGA and SVGA monitors ▪ 2M bytes of VRAM, expandable to 4M bytes ▪ High-density display port supports Apple Audio-Vision monitors directly and supports other displays with included Power Macintosh Display Adaptor ▪ Dual-channel, high-speed asynchronous SCSI interface: 1 supports 6 external SCSI devices, the other channel, running at double the clock speed, supports an internal hard disk array ▪ 9 built-in ports

Power Macintosh 8100/80AV

Same as 8100/80 except: ▪ Includes 2M bytes of VRAM ▪ S-Video in/out ports ▪ DAV connector ▪ 11 built-in ports

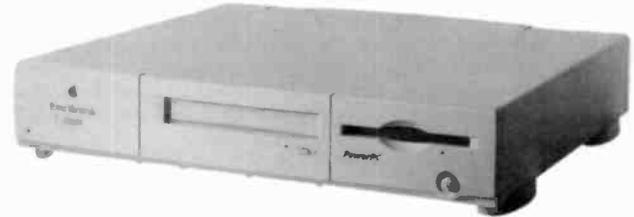


Power Macintosh 7100/66

Includes common features plus: ▪ Power PC 601 RISC running at 66MHz ▪ Can be expanded to 136M bytes of RAM (DRAM kits must be installed in pairs, dealer installation required) ▪ 1 internal hard disk (250M byte and 500M byte options) ▪ Displays all Apple displays and third-party displays including NTSC, PAL, VGA and SVGA monitors ▪ 1M byte of VRAM, expandable to 2M bytes ▪ 9 built-in ports

Power Macintosh 7100/66AV

Same as 7100/66 except: ▪ Includes 2M bytes of VRAM ▪ S-Video in/out ports ▪ Digital audio video connector (DAV) ▪ 11 built-in ports



Power Macintosh 6100/60

Includes common features plus: ▪ PowerPC 601 RISC running at 60MHz ▪ Memory can be expanded to 72M bytes of RAM ▪ 1 internal hard disk (160M byte and 250M byte options) ▪ Displays most Apple displays and most third-party displays as well as NTSC, PAL, VGA and SVGA monitors ▪ High-density display port supports Apple Audio-Vision monitors directly and supports other displays with the included Power Macintosh Display Adaptor ▪ Internal expansion slot for processor of 7" NuBus expansion card (requires adaptor) ▪ 8 built-in ports

Power Macintosh 6100/60AV

Includes common features plus: ▪ Power PC 601 RISC running at 60MHz ▪ Can be expanded to 72M bytes of RAM ▪ 1 internal hard disk (160M byte and 250M byte options available) ▪ Displays most Apple displays and most third-party displays as well as NTSC, PAL, VGA and SVGA monitors ▪ 2M bytes of VRAM for second display support ▪ DB15 video port for display support ▪ S-Video in/out ports ▪ 11 built-in ports

Macintosh Quadra 950 Personal Computer

▪ 33MHz, 68040 processor ▪ Includes a math coprocessor, paged memory management unit and 8K memory cache ▪ 1.4M byte internal Apple SuperDrive disk storage ▪ Built-in Ethernet and LocalTalk connections ▪ AppleTalk networking software ▪ Built-in support for all Apple displays ▪ Supports up to 7 SCSI devices ▪ 040 processor-direct slot ▪ 2 serial (RS-232/RS-422) ports, Apple Desktop Bus port, video output port, SCSI port, Ethernet port ▪ Expandable to 256M byte RAM ▪ 8M bytes in SIMM slots (1M byte in each of 8 slots) ▪ 8 empty SIMM slots that support 1/4/8 or 16M byte 30-pin SIMMs (for 256M byte, install 16 noncomposite 16M byte DRAM SIMMs) ▪ Space for 3 half-height 5.25" storage devices ▪ Dual SCSI architecture ▪ Sound-input port, stereo sound-output port, 2-line input ports

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





RIO® Design and Illustration Software, Version 6.3

RIO is a PC-based 2-D illustration, image design and presentation software with a full complement of drawing and editing tools. It is the only software that successfully integrates object drawing (vector) and image enhancement (raster/bit-map) technology on a DOS platform. RIO also provides drivers for more than 50 input/output devices.

Easy-to-use interface ■ Access tools at your fingertips ■ Interactive true-color WYSIWYG display ■ Predefined formats for standard US and European layouts ■ User-defined custom page formats ■ Full-time click and drag editing tools ■ Undo is context specific ■ Zoom in or out to any viewing level ■ Ruler units are tailored to page format

Special performance enhancements ■ Render Window or Object quickly renders a section of the image to preview work instantly ■ Illustration components can be assigned to any of several layers ■ Queue to file or queue to device for unattended image rendering and output ■ Extensive hot keys ■ Crosshair alignment guides ■ View and edit images larger than screen size ■ Quick-start style sheets supplied ■ Control image quality—fine, medium or coarse

Extensive draw features ■ Include bezier splines, freehand, squares, rectangles, circles, lines, regular and freeform polygons, and ellipses ■ Create original artwork or manipulate scanned images ■ Definable snap-to grids ■ Unlimited grouping ■ Automatically frame images in any width or color

Text ■ Supports PostScript™ Type 1 fonts ■ Outline fonts ■ Starter set of 250 popular PostScript fonts ■ Scalable font system allows you to draw, stretch, rotate and manipulate text ■ Cast multiple shadows at any light angle, softness, transparency, drop, distance and position ■ Wrap text around graphics or inside shapes or along a path ■ Full kerning, tracking, leading and character height and width control ■ Interactive or numeric proportional and non-proportional scaling ■ Automatically align text center, flush left, flush right or justified

Color features ■ CMYK, RGB, HSV and HLS color models ■ Customizable color palettes ■ Preview and edit images up to 32-bit true-color on-screen ■ Create multi-color linear or radial gradients at any angle
Transform ■ Rotate objects or text in any direction ■ Enveloping allows objects to be transformed to fill the shape of a user-defined enclosed space

Charts and graphs ■ Charting tools automate building 2-D and 3-D bar graphs and pie charts ■ Use color, gradients or images for graphic fill effects

Rendering ■ Anti-aliased text and graphics ■ Create customized shadows ■ Cellophane shadows

Supported file formats ■ Scene, object and image support for the following formats: TGA, EPS, TIF, BPX, BMP, PCX, PIX, VST, CGM, DXF and WIN

Special effects ■ Text and graphics can be mapped with images, color or multi-color gradients ■ Image file processing effects: emboss, pixelize, posterize, soften, negative, B&W and live video can be applied to screen or high resolution image ■ Overlay images with live video

Image resolution ■ Create image files up to 8192 lines in 16-, 24- or 32-bit color

Input devices ■ Support for 15+ scanners including Sharp, Howtek, Hewlett-Packard and Nikon ■ Allows NTSC, PAL, RGB and S-Video input based on the capabilities of the display card

Output ■ Supports over 40 output devices ■ Print to any color or black and white PostScript printer ■ Support for most popular film cameras including Agfa/Matrix, Management Graphics and Polaroid ■ Thermal, inkjet and dye sublimation printers supported including Mitsubishi, Kodak, CalComp, Shinko, Tektronix and Nikon

RIO includes ■ RIO software ■ Complete user guide ■ Style sheets ■ Type 1 fonts ■ Technical support



Recommended System Requirements ■ IBM or compatible 386 or 486 personal computer ■ 4M bytes of RAM ■ 20M byte hard drive and floppy drive (5.25" or 3.5") ■ DOS 3.1 or greater ■ Color monitor ■ Microsoft® compatible mouse and/or digitizing tablet ■ Graphics display card: TARGA, TARGA+, ATVista or high color VGA ■ Math co-processor (386 PC only)

RIO Version 6.3 includes display drivers for Truevision's TARGA, TARGA+ and ATVista, Matrox Illuminator Pro, high color VGA (16- and 24-bit), VESA compatible VGA and standard 4-bit VGA boards **Call for Prices**

RIO Animator 2-D Animation Software, Version 5.02

RIO Animator is an add-on module for RIO 5.0. It is the first low-cost, vector-based 2-D keyframe animation software for the Truevision TARGA and ATVista environment. It now includes the ability to generate .FLI and .FLC files, enhanced rendering, speed, timeline and scenetime editors, load and save flipbooks and an NTSC color legalization function. The "Animate" menu has the following sub-menus: create key, edit key, final frame, flipbook and record. The Animator takes advantage of all of RIO's current features and supports anti-aliased objects and text, gradients and transparency **Call For Prices**



Panorama™ 3.15 Interactive Multimedia Authoring Software

Panorama is an interactive, computer-based presentation software with audio support. Great for interactive training, point-of-purchase displays, self-running or manual demonstrations/presentations, and low cost video production on your DOS machine.

Panorama 3.15 allows presenters to incorporate live video into their presentations by laying computer-generated text over live video; users can also achieve true professional-level chroma keying by placing live video over graphics. By using a matte blue screen and studio lighting, they can achieve the same effect as the TV weather news, where the announcer is superimposed over still or animated graphics.

Panorama supports SoundBlaster Pro and Pro Audio spectrum boards and standard digitized audio formats such as .WAV and .VOC. This ability to mix visuals and sound captures the essence of true multimedia presentations. It allows users to animate multiple objects around the screen—up to 20 simultaneous animations can take place on the screen at once. Interactive presentations can be operated by interactive kiosk displays, so users can start different presentations at the click of a button.

Panorama offers touchscreen compatibility, flexible support for a variety of input options, including live video and standard .TGA, .WIN or .VST image files. It also offers PlayPano, a playback utility that can be used to display Panorama-generated shows. With PlayPano, others can see and hear your show on their computer, even if they don't own Panorama.

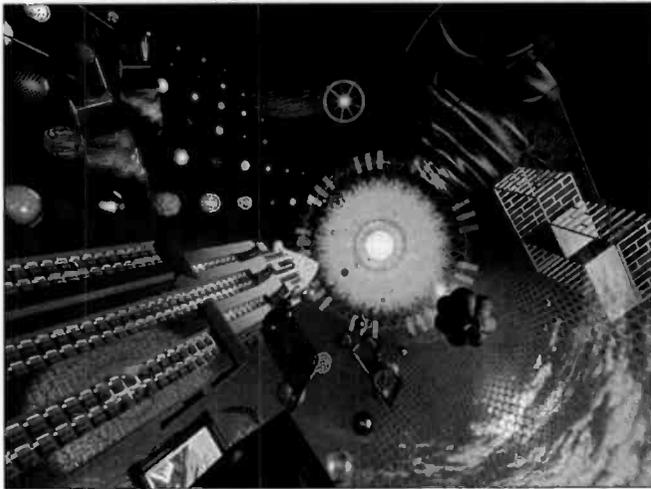
Panorama already offers users 28 sophisticated transition effects, including clock, corner, crush and roll up. Version 3.15 offers an additional 22 transition effects to turn any PC into a video-effects generator.

Minimum Requirements

■ IBM PC or AT compatible, or plug-compatible personal computer with at least 640K bytes of RAM and a 1.2M byte disk drive (ATVista requires an IBM AT or compatible) ■ 1M byte, 2M byte or 4M byte ATVista ■ Hard disk drive system of 10M bytes or greater ■ (Optional, but recommended) Expandable memory board with at least 1M byte of memory. Panorama requires memory cards that are compatible with the Lotus-Intel-Microsoft expanded memory standard ■ Analog RGB monitor ■ DOS Version 3.0 or later . . . **Call For Prices**

RIO is a trademark of AT&T®. Truevision and TARGA are registered trademarks and ATVista is a trademark of Truevision, Inc.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Autodesk 3D Studio Release 3 Software

Autodesk 3D Studio Release 3 software creates high-resolution 3D models, renderings and animations on 386/486/Pentium-based PCs.

3D Studio is compatible with Animator Pro, AutoCAD, AutoVision, Cyberspace Developer Kit and Visual Link software and comes with extensive documentation, sample files and device drivers for a wide range of graphics cards. 3D Studio can read and write Adobe® Illustrator™ files. Based on a highly extensible open architecture, 3D Studio is supported by a rapidly expanding community of independent developers and can be exactly tailored to individual needs.

- Render across networked PCs for greater productivity
- Create workstation-quality renderings for a fraction of workstation costs
- Apply or create a variety of materials for realism and impact
- Sculpt 3D models or import 3D geometry from AutoCAD software
- Employ flexible lighting effects for subtlety and drama
- Compose convincing animations for complex, life-like or fantastic effects

System Requirements ■ IBM, COMPAQ or compatible 386/486/Pentium-based computers or 100% compatibles ■ MS-DOS 3.3 or later ■ 8M byte RAM ■ 20M bytes of hard disk space ■ Intel® math coprocessor ■ Super VGA display device (at least 640 x 480 x 256 colors) ■ Pointing device (Microsoft compatible mouse, SummaSketch® compatible digitizing tablet, or ADI pointing device)

3D Studio \$2995.00

AutoVision™ Photorealistic Rendering Software

AutoVision was designed specifically for AutoCAD Release 12 for Windows. AutoVision software turns your AutoCAD Release 12 drawings into high-impact photorealistic renderings for use as conceptual models and presentations.

- Rendering** ■ Fast, realistic renderer that works inside AutoCAD Release 12
- Ray-tracing effects include shadowing, reflection and refraction
 - Renders to screen or file at any resolution
 - Renders 8-, 16-, 24- or 32-bit photorealistic still images
 - Has scalable anti-aliasing controls
 - Scene control for setting up multiple views with different lighting effects
 - Saves rendering information in the .DWG file
 - Saves images in .TGA, .TIF and .GIF formats and more
 - Renders selection set or entire scene

- Loads .GIF, .TIF, .TGA or .RND image files, using the AutoCAD RPLAY command for rendering with a background image
- Supports printing devices through ADI
- Includes a CD-ROM with hundreds of texture images for creating photorealistic renderings

Materials and Materials Editing ■ Extensive library of prebuilt materials for quickly developing realistic renderings

- Interactive editor for modifying and creating materials for customized surfaces
- Procedural textures for producing customized, seamless granite, wood and marble surfaces
- Control of different material properties, including RGB color, ambient color, reflectivity and transparency, for creating surfaces that range from plastic to chrome
- Texture, bump, opacity and reflection mapping to achieve complex surfaces with depth and mirrored effects
- Compatibility with nonprocedural 3D Studio materials for easy material exchange and animating AutoVision files
- Material assignment by entity and AutoCAD Color Index (ACI)
- Planar, spherical, solid and cylindrical mapping for easy alignment of maps with AutoCAD entities

Lighting ■ Ambient light and point, spot and distant lights

- Sun Locator, with control over latitude, longitude and time of day, intensity and color, for simulating sun-shadow lighting effects
- Control of light intensity, attenuation, color and shadowing to achieve desired lighting effects
- Precise control over spotlights, including hotspot, falloff and color

Compatibility with 3D Studio and Other Autodesk Software ■ Reads and writes .3DS files

- Compatible with 3D Studio materials and material libraries
- Reads AutoCAD AVE Render information for rendering with AutoVision software's high-quality renderer
- Translates Visual Link information for use with AutoVision
- Compatible with Autodesk 3D modeling programs, including AME and AutoSurf Release 2 software

System Requirements ■ AutoCAD Release 12 for Windows ■ IBM or compatible 386/486 PC ■ Intel 80387 or 80487 math coprocessor

- Windows-supported VGA or higher video display, SVGA or Truecolor frame buffer recommended
- 8M bytes of RAM, additional memory will improve performance
- MS-DOS 3.31 or later, MS-DOS 5.0 or later recommended
- Microsoft Windows 3.1 ■ 1.2M byte, 3.5" floppy-disk drive
- Permanent swap file of 4X RAM
- Windows-supported mouse, digitizer or other pointing device
- AutoVision works with the rendering and display drivers that are included with AutoCAD Release 12 for Windows

AutoVision \$795.00

Animator Pro™ Software

Animator Pro is a high-resolution, 2D paint and animation software program for 386/486-based PCs that lets you communicate complex ideas with drama and accuracy. Present animations on-screen in Microsoft® DOS® or Windows™, or record them to video in real time or frame by frame.

- 8-bit, 256-color 2D paint and animation
- Screen-resolution independent
- Built-in, C-based programming language for extensibility (POCO)
- DPMI compliant: runs as DOS application under Windows
- GUI with customizable colors and keyboard shortcuts
- F1 help for keyboard commands
- Compatible with Autodesk 3D Studio and AutoCAD®

System Requirements ■ IBM® COMPAQ® 386/486-based PC or 100% compatibles, MS-DOS 3.3 or later, 4M byte RAM and a hard disk with 11M bytes to 20M bytes free space

- Pointing devices
- Support displays: VGA, SuperVGA, Video 7 VRAM, VESA standard and COMPAQ advanced video
- Optional equipment: Autodesk Device Interface™ (ADI) compatible printers and frame controllers, VGA to NTSC (or PAL) conversion devices

Animator Pro \$795.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





DIGITAL NON-LINEAR EDITING SYSTEMS



Media Composers™ Digital Non-Linear Editing Systems

Common Features

Digitizing and Logging

- NTSC video at 30, 15 and 10 fps or PAL video at 25, 12.5 and 5 fps
- Inputs composite and component video
- Supports time coded and non-time coded input
- Drop frame or NDF time code
- Log material for batch digitizing
- Continuous time code display
- VITC reader for decoding user bits
- Autosync™ of video and audio
- Serial deck control
- Internal waveform monitor and vectorscope

Bins and Project Management

- Multi-level sift and sort functions
- Frame and text view
- Unlimited number of bins
- Media consolidate feature
- Save bin views
- Unlimited clip annotation length
- Pop-up monitors

Editing Features

- Full-screen editing and playback
- Interactive timeline editing
- Trim mode and transition mode editing
- Storyboarding
- Go to time code using keypads
- 4-track video editing
- Slip sync and sync locking
- Splice, overwrite, extract, lift and split edits
- Customizable interface settings
- Dissolves, cuts, fade-to-black and key anti-aliased graphics
- Source and record monitors
- 32 levels of undo and redo
- Match frame
- Variable speed forward/reverse shuttle control

Audio Features

- 16-bit draft
- 4-track editing
- Scrubbing with pitch change
- Track/global pan settings
- Level settings with gain
- 2 channels for input, monitoring and output
- Waveform display in timeline
- Crossfades and mixdowns

Output, Import and Export

- Digital cut to tape
- EDLs for all major formats
- Import standard format EDLs
- Import/export anti-aliased PICT and PICS; QuickTime™ and OMF™ files

MC 8000/4000/1000 Digital Non-Linear On-Line Editing Systems

MC 8000

- Includes common features plus:
 - 60- or 50-field AVR24e
 - 60- or 50-field AVR26e
 - AVR1e-AVR6e video resolutions
 - Avid's advanced video image enhancement
 - 16-bit linear digital audio at 44.1kHz or 48kHz sample rates
 - 4 audio channels for input, monitoring and output
 - 24-track audio editing
 - 24-track video editing
 - Dissolves (real time Q4-1993)
 - 34 industry standard wipes with borders and soft edges
 - Motion effects including slow, fast, freeze, reverse and fit-to-fill

- Visual effects: resize, reposition, flip, flop, chroma key and luma key
- Transition visual effects: peels, conceals, centered zoom, reveals, pushes and predefined effects
- Programmable visual effects: key-framing, picture-in-picture and effects manipulation
- Real time visual effects
- Internal anti-aliased titling tool
- Grouping for multi-camera editing

MC 8000 Hardware

- Same as MC 4000 plus:
 - 3G byte magnetic hard drive
 - Effects module
 - Videomedia VLX™ deck control (for 2 decks)

MC 4000

- Includes common features plus:
 - AVR1e-AVR6e video resolutions
 - Avid's advanced video image enhancement
 - 16-bit linear digital audio at 44.1kHz or 48kHz sample rates
 - 4 audio channels for input, monitoring and output
 - 24-track audio editing
 - 8-track video editing
 - Dissolves

- (real time in Q4-1993)
- 34 industry standard wipes with borders and soft edges
- Motion effects: slow, fast, freeze-frame, reverse motion and fit-to-fill
- Visual effects: resize, reposition, flip, flop, chroma key and luma key
- Transition visual effects: peels, conceals, centered zoom, reveals, pushes and pre-defined effects
- Internal anti-aliased titling tool
- Grouping for multi-camera editing

MC 4000 Hardware

- Macintosh Quadra 950 (with 16M byte RAM, 2M byte video RAM)
- 230M byte internal hard drive
- Two 20" MultiSync color monitors
- 2G byte magnetic hard drive
- Video coprocessor board
- Advanced JPEG compression hardware
- Avid enhancement board
- Audio coprocessor board
- Audio A/D-D/A converter
- SCSI-II accelerator board
- Video slave driver
- Dual amplified speakers
- Machine control for Sony serial VTRs
- 9600 baud modem
- Avid MUI™ (Manual User Interface)
- Colored key caps
- Blackburst generator
- Single deck digitize/digital-cut switchbox

MC 1000

- Includes common features plus:
 - 2 field resolutions: AVR 25 and AVR 26
 - NTSC video at 60 fields or PAL video at 50 fields
 - Optional off-line resolution
 - Sub-clip during digitize
 - MediaLog™ logging software
 - Real time dissolves, superimpositions, industry standard wipes with borders and soft edges: horizontal, vertical, box; visual effects: resize, flips, flops; transition effects: conceals, L-conceals, squeezes; key effects: chroma, luma, matte, picture-in-picture and color effects
 - Integrated anti-aliased titling tool
 - Unlimited keyframing
 - 8-track video editing for layering and compositing
 - Motion effects including slow, fast, strobe, freeze-frame, reverse and fit-to-fill
 - Instant preview effects: peels, pushes, spins, matrix wipes, shape wipes, sawtooth wipes and diagonal wipes
 - 24-track audio editing
 - 2 channels for input, monitoring and output
 - Direct digital input or output

MC 1000 Hardware

- Macintosh® Quadra® 950 (with 28M byte RAM, 2M byte video RAM)
- 230M byte internal hard drive
- Two 14" color MultiSync monitors
- 3G byte magnetic hard drive
- Video coprocessor board
- Advanced JPEG compression hardware
- Avid effects module
- Audio coprocessor board
- SCSI-II accelerator board
- Dual amplified speakers
- 9600 baud modem
- Colored key caps
- Documentation, self-paced tutorial and training tools

MC 800/400S Digital Non-Linear Off-Line Editing Systems

MC 800

- Includes common features plus:
 - AVR1e to AVR3e video resolutions
 - Avid's advanced video image enhancement
 - 16-bit linear digital audio at 44.1kHz
 - 24-track audio editing
 - 34 industry standard wipes with borders and soft edges
 - Grouping for multi-camera editing
 - Motion effects including slow, fast, freeze-frame, reverse and fit-to-fill

MC 800 Hardware

- Macintosh Quadra 950 (with 16M byte RAM, 2M byte video RAM)
- 230M byte internal hard drive
- Two 14" color MultiSync monitors
- 2G byte magnetic hard drive
- Video coprocessor board
- JPEG-III compression hardware
- Avid enhancement board
- Audio coprocessor board
- Dual amplified speakers
- Machine control for Sony serial VTRs
- Single deck digitize/digital-cut switchbox
- 9600 baud modem
- Colored key caps

MC400S

- Includes common features plus:
 - AVR1 image quality for maximum storage

MC 400S Hardware and System Requirements

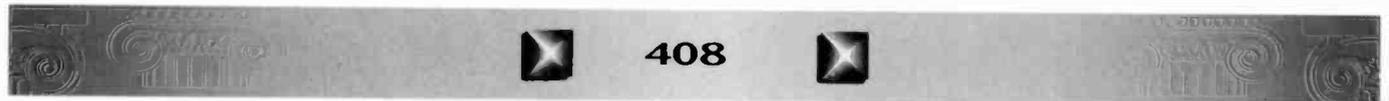
Kit Includes:

- JPEG-III compression hardware
- Video coprocessor board
- Audio coprocessor board
- Cable set
- Serial VTR machine control
- Software and documentation
- Tutorial training tape

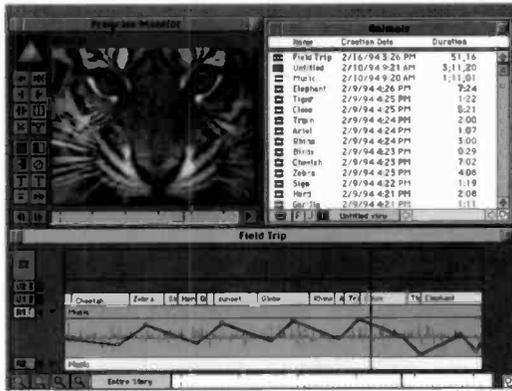
Other Requirements:

- Macintosh IIci, IIx, Centris 650, Quadra 900 or 950 with internal hard drive
- 16M byte RAM
- MultiSync color monitor
- Macintosh high-resolution RGB monitor
- High capacity SCSI hard disk, phase-change optical drive or removable magnetic drive
- Avid-recommended powered speakers

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DESKTOP VIDEO PRODUCTION SYSTEM



Media Suite™ Pro 3.0 Professional Desktop Video Production System

Video ■ 30fps NTSC, 25fps PAL ■ Record onto computer disk and play back in real time ■ Real time JPEG compression and decompression: data format 4:2:2 YUV ■ User-defined picture-in-picture effect ■ Compression ratios: 14 to 1 ■ Compressed video data rate: 1.5M byte/sec. sustained ■ Supports camcorders, VCRs, professional tape decks ■ NTSC/PAL, S-Video and RGB input and output ■ Supports Sony serial protocol/SMPTÉ time code ■ Customized countdown

Audio ■ 4 tracks of 44kHz, 16-bit CD-quality sound ■ Volume, pan control with point, clip or track adjustments ■ Full mixdown capabilities ■ Audio waveform ■ 3 bands of equalization

Complete All-Digital Nonlinear Editing ■ Edit digital video and audio segments ■ Play in source or program windows or full-screen ■ Drag and drop editing ■ Instant trim-editing mode ■ Timeline editing ■ Dissolves, wipes and special effects transitions ■ Plug-in effects ■ Freeze frame ■ Motion control effects ■ Timeline zoom ■ 32 levels of undo/redo

Integrated Title Generator ■ Overlay titles and descriptions on video ■ Uses standard PostScript™ and TrueType™ fonts ■ Drop shadows, transparency, color blends, text kerning, shapes, grouping and alignment ■ NTSC/PAL safe color palette ■ Fully anti-aliased

Import QuickTime™ Codec ■ Graphics, scanned images (PICT and other formats) ■ Animations (PICS or sequential PICT) ■ QuickTime movies ■ AIFF audio ■ Electronic photos (Kodak PhotoCD™) ■ TIFF ■ OMFI

Export ■ PICT images of still frames ■ PICS animations of video segments ■ AIFF audio files ■ QuickTime movies (choice of frame rate, frame size and compressor) ■ Quick Time compatible ■ OMFI

System Requirements ■ Macintosh Quadra™ 900, 950, IIfx or 800, 650 with NuBus chassis ■ 16M byte RAM ■ 1 Avid-approved external disk (5400 RPM) ■ 1 MultiSync color monitor or Macintosh and video monitor ■ Pair of external speakers ■ Additional monitor and disk drives can be used but are not required

Product Includes ■ Software ■ Video, JPEG compression and audio boards ■ SCSI-2 disk controller ■ Molded cable harness with S-VHS, composite inputs and outputs ■ User documentation ■ Video tutorial and installation guide

Options Include ■ Enhanced image option ■ EDL output

Media Suite Pro: Technology That Works

■ Video stored on disk provides random access to footage—no tape shuttling ■ Macintosh user interface means you don't need video editing experience ■ Digital editing lets you cut and paste video—just like text in word processing ■ Instant full-screen playback allows you to see edits without waiting ■ Highest quality video images let you complete your project on your desktop ■ 16-bit CD-quality (44kHz) audio ■ 4 audio tracks allow you to combine music, voice-over and sound effects with easy mixdown ■ Integrated, anti-aliased titling tool (using PostScript and TrueType fonts) lets you create professional-quality titles ■ Import other Macintosh files including PICT, PICS and QuickTime for seamless integration of logos, charts and animation files ■ Export QuickTime files for CD-ROM or network distribution

There are lots of reasons why Media Suite Pro is the best way to make video programs. Media Suite Pro is the first all-digital desktop video system that produces finished videotapes with professional quality images. Media Suite Pro allows you to digitize video and audio from any format and store it on your hard drive. And, unlike traditional video editing systems, you'll have complete instant random access to your footage.

Creating programs is quick and effortless. Media Suite Pro's interface merges the simplicity of the Macintosh with the tools of video post production. Edits, along with last minute changes and updates, can be made instantly, giving you time to experiment and make sure things are right.

It's the first desktop system that lets you instantly play back your edits full screen with 30 frames-per-second accuracy and perfect lip sync. You'll be able to create programs with 4 tracks of true CD-quality audio, transition effects, digital video effects, motion effects, and built-in titling.

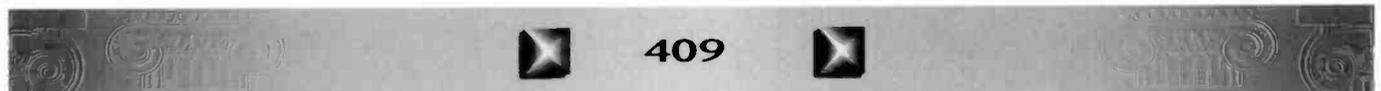
When you've finished editing your program, a simple click of the mouse lets you output directly from disk to tape in real time. No waiting, no rendering, no excuses. Media Suite Pro gives you the tools you need to create high-quality video every time.

Media Suite Pro 3.0 is even more powerful. With editing interface features such as true timeline editing volume and pan control with point, clip or track adjustments. A Quick Time Codec for fast integration of QuickTime graphics and animation. Plug-in effects to easily incorporate effects from VideoShop™ and other Macintosh programs. Enhanced Image Option provides the best image quality available on a desktop system.

Video gives your message impact, excitement and consistency. And Media Suite Pro gives you the speed, flexibility and creative freedom to make better videos for industrial training programs, sales tools, professional presentations or health care instruction videos.

More people use Media Suite Pro than any other desktop video system, for all types of video programs that require reliability, high performance and unparalleled image output.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





DIGITALLY CONTROLLED DATA PROJECTORS

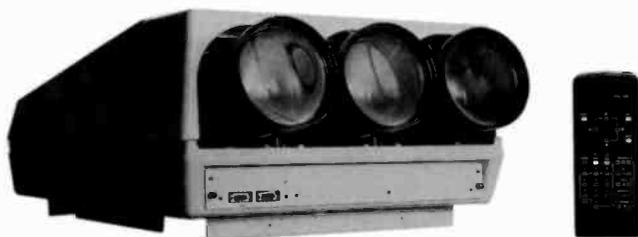
Common Features

- 37-140Hz vertical frequency
- Linear digital interpolation (LDI)
- Effective on-screen display: installation screens, help screens, IR remote control unit for source switching, user settings per source (brightness, contrast, hue, color, sharpness), geometry per source, convergence per source, barscale display of user settings, on-screen display of source frequencies
- Automatic storage of all adjustments
- Ability to set parameters to midposition
- Text generators for other languages
- IRIS 800 ready
- Optional RCVDS and RCVDS05 800 remote controlled video and data source selectors
- Optional Control 800 software packages
- Optional executive remote control unit available for control of source switching and user settings per source
- Color temperature adjustment

BarcoData 1101 Data Projector

- Includes common features plus:
- Lens type: HD-10 ML
 - 9" CRT
 - 15-61.5kHz horizontal frequency
 - >1000 lumens
 - 10 lp/mm
 - 75MHz -3dB RGB bandwidth
 - 30' maximum screen width
 - 38 frequency-related memory banks

90-00879 \$21,995.00



BarcoData 801s Remote Controlled Large Screen Projector

- Includes common features plus:
- Lens type: HD-8 B
 - f/1.06 color corrected hybrid lenses
 - 8" CRT
 - 15-61.5kHz horizontal frequency
 - 800 lumens
 - 10 lp/mm
 - 75MHz -3dB bandwidth
 - 20' maximum screen width
 - RCU 800 IR remote control
 - Inputs: RGB analog (BNC connectors), sync on green or separate sync; RGB TTL/EGA (D9-subconnector); video (BNC), loopthrough with 75-ohm termination switch; 4-pin S-Video input, loopthrough with 75-ohm termination switch
 - Can be upgraded to a BarcoGraphics 801
 - 38 frequency-related memory banks

90-00838 \$14,995.00



BarcoData 701 Large Screen Projector

- Includes common features plus:
- Autolock frequency range of 15-50kHz
 - Wideband 45MHz RGB amplifiers
 - Compatible with most graphics boards up to a resolution of 1024 x 768/60Hz
 - Displays video, S-VHS, Component Video and HDTV signals in 4:3 and 16:9 aspect ratio
 - Compact and lightweight
 - Advanced digital

- architecture
- True-color projection on screens up to 20"W
- 725 lumens at 10% peak white
- 7" CRTs
- High definition f/1.03 lenses
- Optional hybrid lenses with short throwing distance for projection cube applications
- 10 lp/mm
- Ideal for medium-sized audiences such as boardroom meetings, training sessions and trade shows
- Inputs: Dual function input RGB analog or R-Y, B-Y, Y on BNC connectors, sync on green or separate sync, standard sync or trilevel sync; Video loopthrough (2xBNC); S-Video (4-pin mini DIN); RS-232
- 32 frequency-related memory banks
- External auto-diagnosis LEDs
- Adjustable Scheimpflug correction in 3 discrete steps
- Superb color reproduction through color transient improvement, automatic black level, gamma-tracking and CRT phosphors

90-00719 \$11,995.00

RetroData 801s Large Rear-Screen Projector

- Includes common features plus:
- Self-contained
 - Built-in 67" diagonal high-resolution fresnel-type projection screen
 - Sophisticated memory management system
 - Displays all worldwide video standards as well as S-VHS signals
 - Compatible with a wide range of PC graphics boards from 15-61.5kHz with resolutions up to 1180 x 900 pixels/60Hz
 - Single front surface-coated mirror for ultra-sharp images with an extremely high light output
 - 8" square CRTs with stabilized pressure chambers
 - f/1.1 color corrected hybrid lenses
 - 10 lp/mm
 - Optical coupling between CRTs and lenses
 - Guided adjustment program
 - Internal pattern generators
 - 225 foot lamberts at 10% peak white
 - 75MHz RGB bandwidth
 - All controls accessible through a soft-touch front panel or a user-friendly IR remote
 - Ideal for a variety of presentations and training applications
 - Inputs: RGB analog (BNC-connectors), sync on green or separate sync; RGB analog on D9-connector; Video loopthrough (2xBNC); 4-pin S-Video
 - 38 frequency-related memory banks
 - RGB sharpness control
 - Easily transportable cabinet
 - Extremely thin borders around the screen

90-00858 \$22,995.00



RetroData 801s50 Compact Rear-Screen Projector

- Includes common features plus:
- Compatible with all PC-based presentation software
 - Easily moves from room to room
 - Input signal flexibility
 - Digital chassis with compact, self-contained projection cabinet
 - Thin screen borders allow the unit to be combined into a 2xN matrix "Retro Wall"
 - Ideal for boardrooms, teleconferencing centers and command and control environments
 - High definition, liquid-cooled f/1.1 hybrid lenses
 - 10 lp/mm
 - High resolution 52" fresnel-type rear screen with black stripe lenticulations
 - Autolock scan range of 15-61.5kHz
 - 75MHz RGB bandwidth
 - Inputs: RGB analog (5xBNC-connectors), sync on green or separate sync; RGB analog on D9-connector; Video loop-through (2xBNC); S-Video (4-pin mini DIN)
 - Built-in stereo audio amplifier (2x15W) continuous sine wave
 - Stereo audio input on Cinch connector
 - 2 audio DIN-connectors for external loudspeakers

90-00789 \$19,995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DIGITALLY CONTROLLED GRAPHICS PROJECTORS

Common Features

- 37-140Hz vertical frequency
- Linear digital interpolation (LDI)
- Effective on-screen display: installation screens, help screens, IR remote control unit for source switching, user settings per source (brightness, contrast, hue, color, sharpness), geometry per source, convergence per source, bar scale display of user settings, on-screen display of source frequencies
- Automatic storage of all adjustments
- Ability to set parameters to midposition
- Text generators for other languages
- IRIS 800 ready
- Optional RCVDS 800 and RCVDS 05 remote controlled video and data source selectors
- Optional Control 800 software package
- Optional executive remote control unit available for control of source switching and user settings per source
- Color temperature adjustment

BarcoGraphics 1209 Ultra-High Resolution Graphics Projector

Includes common features plus: ▪ 9" electromagnetic focus CRTs

- Ultra precise optics
- Large screen images on screens from 4-20"W
- 15-135kHz scan frequency
- 120MHz RGB bandwidth
- Compatible with all existing graphics platforms up to resolutions of 2500 x 2000 pixels
- Extremely low RFI/EMI radiation emissions
- Ideal for large screen applications such as: CAD/CAM/CAE imaging, graphics animation, industrial design and military command and control
- 1000 lumens at 10% peak white
- Super high definition, fully color corrected lenses optimized for particular screen widths
- 12 lp/mm standard (10 lp/mm optional)
- Inputs: RGB analog (5x BNC connectors), sync on green or separate sync; RGB analog on D9 connector; video loopthrough (2xBNC); S-Video (4-pin mini DIN)
- 32 frequency-related memory banks
- RGB sharpness control

90-00979 \$34,995.00

BarcoGraphics 1208 Ultra-High Resolution Projector

Includes common features plus: ▪ 32 frequency-related memory banks

- Display compatibility from VHS up to 2500 x 2000 pixels
- 8" EMF CRT
- f/1.06 high definition, fully color corrected hybrid lenses
- 10 lp/mm
- Flexible installation possibilities, even under difficult projection angles, on screens up to 20"
- Extremely low RFI/EMI emissions
- RGB sharpness control
- Built-in Scheimpflug optical correction
- RCVDS 05 remote controlled switcher optional
- 15-135kHz horizontal frequency
- 1000 lumens
- 120MHz RGB bandwidth
- Inputs: RGB analog input on BNC connectors, sync on green or separate sync; RGB analog input on D9 connector; 4-pin S-Video loopthrough; video loopthrough (2xBNC)

90-00898 \$25,995.00



BarcoGraphics 808 Projector

Includes common features plus: ▪ 8" EMF CRTs

- 15-105kHz horizontal scan rates
- 75MHz RGB bandwidth
- 210 lumens ANSI light output (more than 1000 lumens at 10% peak white)
- 1600 x 1200 pixels/78Hz resolution
- f/1.06 color corrected hybrid lenses with center +edge focus
- 10 lp/mm
- Projection on screen up to 20"W
- Digital Dynamic Astigmatism circuits
- Adjustable Scheimpflug optical correction
- Inputs: RGB analog (5x BNC connectors), sync on green or separate sync; RGB analog on D9 connector; video

loopthrough (2xBNC); S-Video (4-pin mini DIN) ▪ Flexible design

- Ideal for large screen presentations for CAD/CAM/CAE imaging, training centers, simulation and traffic management centers
- 32 frequency-related memory banks
- RGB sharpness control

90-00909 \$21,995.00

BarcoGraphics 801s Large Screen Projector

Includes common features plus: ▪ 8" CRT

- HD-8 B lens
- f/1.06 color corrected hybrid lens
- 900 lumens
- 10 lp/mm
- 75MHz, 3dB RGB bandwidth
- 20" maximum screen width
- Inputs: RGB analog (BNC connectors), sync on green or separate sync; RGB TTL/EGA (D9 connector); Video loopthrough (BNC); 4-pin S-Video loopthrough
- 38 frequency-related memory banks
- 15-94kHz horizontal frequency
- Ideal for large screen process control/monitoring and CAD/CAM/CAE applications
- Built-in Scheimpflug optical correction with stepless adjustments for both horizontal and vertical axis guaranteeing optimal optical focus from left to right and top to bottom for projection under non-standard angles

90-00798 \$20,995.00

BarcoGraphics 500-R Upgrade Projector

▪ Upgrade projector for the BarcoGraphics 400

- 7" CRT
- 15-75kHz horizontal frequency
- 650 lumens
- 50MHz RGB bandwidth
- Identical to the BG500 but supplied with no lenses and no video decoder (RGB only)
- Video signals connected through an RCVDS 400S-Quad source selector
- Special RCU 500 adaptor included in order to make the RCVDS 400S-Quad compatible with the BG 500-R

90-00658 With BG 400 trade-in \$11,995.00

Retro Graphics 801s Large Rear-Screen Projector

Includes common features plus: ▪ Self-contained

- Built-in 67" diagonal high-resolution fresnel-type projection screen
- Sophisticated memory management system
- Displays all worldwide video standards as well as S-VHS signals
- Autolock scan range of 15-94kHz
- Single front surface-coated mirror for ultra-sharp images with an extremely high light output
- 8" square CRTs with stabilized pressure chambers
- f/1.1 color corrected hybrid lenses
- 10 lp/mm
- Optical coupling between CRTs and lenses
- Guided adjustment program
- Internal pattern generators
- 274fL at 10% peak white
- 75MHz RGB bandwidth
- All controls accessible through soft-touch front panel or user-friendly IR remote
- Ideal for high-resolution applications such as CAD/CAM, process control, surveillance and simulation
- Inputs: RGB analog (BNC connectors), sync on green or separate sync; RGB analog on D9 connector; video loopthrough (2xBNC); 4-pin S-Video
- 38 frequency-related memory banks
- RGB sharpness control
- Easily transportable cabinet
- Extremely thin borders around screen

90-00868 \$28,995.00



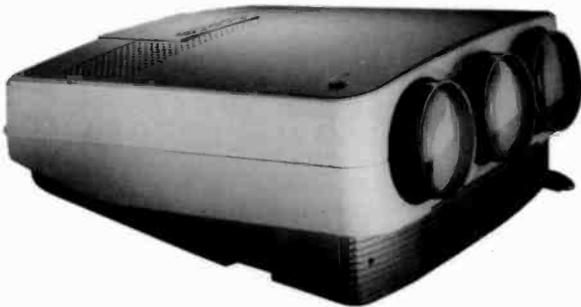
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DIGITALLY CONTROLLED VIDEO PROJECTORS

Common Features

- 37-140Hz vertical frequency
- Linear digital interpolation (LDI)
- Effective on-screen display: installation screens, help screens, barscale display of user settings, on-screen display of source frequencies
- Automatic storage of all adjustments
- Ability to set parameters to midposition
- Color temperature adjustment
- Text generators for other languages
- IRIS 800 ready
- Optional RCVDS 800 and RCVDS 05 remote controlled video and data source selectors
- Optional Control 800 software package



BarcoVision 701 Video Projector

Includes common features plus: ▪ Multimedia projector ▪ Compatible with all existing video standards and all HDTV extended or improved TV standards ▪ RGB inputs are capable of accepting a limited range of computer sources, including most modes of VGA, XGA and Mac 11 running 640 x 480 pixels ▪ High brightness 7" CRTs ▪ Full digital control ▪ Compact ▪ 725 lumens (at 10% peak white) and 486 lumens (at 20% peak white) ▪ f/1.03 lenses ▪ 20' x 15' max. screen size (4:3); 20' x 11' max (16:9) ▪ 15-16kHz and 30-36kHz horizontal frequency ▪ RGB bandwidth 20MHz -3dB ▪ Easy switching between 4:3 and 16:9 ▪ 8 frequency related memory banks ▪ External auto-diagnosis LEDs ▪ Hand grips ▪ Discrete adjustable Scheimpflug correction

90-00707 \$8,995.00

BarcoVision 1600 HDTV Video Projector

Includes common features plus: ▪ Very high light output video projector ▪ f/1.06 color corrected hybrid lenses ▪ Lens type: TOC 7 ▪ 9" CRT ▪ 15-16kHz, 30-36kHz horizontal frequency ▪ 1550 lumens ▪ 5 lp/mm ▪ 50MHz-3dB RGB bandwidth ▪ 21' maximum screen width ▪ IR/RS-232 remote control ▪ 38 frequency-related memory banks

90-00679 \$18,995.00

BarcoVision 1200 HD Video Projector

Includes common features plus: ▪ Universal HDTV projector ▪ Lens types: HD-120; HD-300; HD180 MI ▪ f/1.15 color corrected lens ▪ 9" EMF CRT ▪ 15-16kHz, 30-36kHz and 58-66kHz horizontal frequencies ▪ 1000 lumens ▪ 12 lp/mm ▪ 80MHz -3dB RGB bandwidth ▪ 30' maximum screen width ▪ Easy switching between 4:3 and 16:9 aspect ratio ▪ Special RGB sharpness control ▪ 38 frequency-related memory banks

90-00668 \$32,995.00

ACCESSORIES FOR DIGITALLY CONTROLLED PROJECTORS

RCVDS 800 Remote Controlled Video and Data Source Selector

▪ Connects up to 10 different video, S-Video and data sources to a projector ▪ IR remote control of picture settings ▪ 100MHz RGB

bandwidth ▪ Optional expansion module makes it possible to set up to 10 source switchers in a series, allowing up to 90 different sources to be connected to the projector ▪ All display settings can be individually set per source ▪ 3 input modules available

98-27458 (Must be purchased with projector) \$2,295.00
 98-27459 Same as above except no input modules included (may be purchased separately) 2,395.00

Input Modules for RCVDS 800

98-27490 Video /S -Video/audio input board \$215.00
 98-27460 RGB analog/audio input board 260.00
 98-27470 RGB TTL/EGA input board 335.00
 98-27500 Expansion module 550.00

RCVDS 05 Digitally Controlled Source Switcher

▪ Connects a wide range of video, data and graphics sources to 1 or more projectors or monitors ▪ Modular input design (can be equipped with up to 10 input modules) ▪ 4 input modules available ▪ 200MHz RGB bandwidth ▪ Can be used as high bandwidth signal splitter ▪ Additional output modules can be added making it possible to connect up to 4 displays ▪ All functions can be controlled through the front panel or the IR remote control

98-27888 \$2,995.00
 98-27889 Same as above except no input modules included 2,695.00

Input Modules for RCVDS 05

98-27900 Video/S-VHS \$275.00
 98-27910 RGB analog 320.00
 98-27920 RGB analog/tri-level sync 320.00
 98-27930 Component video 275.00
 98-28000 Expansion module 495.00
 98-28010 Communications module 320.00
 98-28020 Output module 495.00
 98-28030 Quad decoder module 320.00

Switcher Accessories

98-27515 Remote IR receiver \$350.00
 98-27970 RCU 800-U executive IR remote control 195.00
 98-27680 Retro mounting kit 250.00
 98-27890 VS 05 video switcher 850.00

IRIS 800 Automatic Convergence System

▪ Using the projector's IR remote control, convergence process starts by selecting an option displayed by on-screen menu ▪ Scans all 25 zones on screen and aligns red, green and blue in only a few minutes ▪ Based on an advanced optical system utilizing high-resolution CCD camera and ultra-light front surface mirror which moves in the horizontal and vertical axis ▪ Table or ceiling mount

98-27695 \$3,495.00

Control 800 Software Package

▪ Controls up to 256 projectors from one central point ▪ Brightness, hue, color, sharpness, contrast, geometry and convergence settings can be adjusted for each individual projector or all connected projectors ▪ Store image settings on hard disk or diskette ▪ User-friendly concept, with mouse-driven pull-down menus and dialogue boxes ▪ Image settings can be easily viewed, compared or printed

98-27530 PC/DOS (5.25" and 3.5") \$135.00
 98-27540 Macintosh 135.00
 98-27580 INTERGRAPH Clipper 135.00
 98-27710 X-Windows 135.00
 98-27711 DEC VAX Station 135.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

COPY STANDS



BENCHER, INC.

M2 Tabletop, Wall, Column and Carriage Copy Stands

Practical and affordable, the M2 copy stand is specifically designed for smaller video and medium format cameras as well as for 35mm cameras. This stand's outstanding combination of strong structure and flexible design makes it an exceptionally versatile copy stand system. An extensive line of copying accessories further extends this system's capabilities.

The M2's 4' heavy walled aluminum column with a unique fluted shape assures maximum rigidity and camera stability. An international column scale allows accurate carriage placement. Both column and carriage are black finished to prevent stray reflections from degrading image quality.

M2 copy stands are available in several basic models—tabletop, wall mounted or column and carriage only—allowing users to custom design their own stands. The wide range of M2 options—including quartz halogen lights and copylight controls—assures the opportunity to develop copy stand systems that precisely meet the most particular needs.

M2 Copy Stand

- 26" x 23" grid baseboard
 - 48" precision extruded aluminum column
 - Can be counterbalanced for a wide variety of photographic and video cameras up to 15 lbs.
 - 6" dual rail front to back movement
- | | | |
|--------|-------------------------------------|----------|
| 132-80 | M2 column and carriage only | \$330.00 |
| 132-05 | M2 wall mounted column and carriage | 400.00 |
| 132-01 | M2 tabletop copy stand | 480.00 |

M2 Copy Replicator—Quartz

- Suitable for most opaque copying and small object photography, plus backlighting for transparencies and special effects
 - Comes with swivel light arms and two 300W, 3200K quartz halogen lights
 - For use with cameras weighing up to 15 lbs.
- | | | |
|--------|----------|-----------|
| 132-14 | Tabletop | \$1100.00 |
|--------|----------|-----------|



M2 Quartz Illuma

- Reliable and easy to use
 - Features a forced-air cooled base illuminator with even illumination over the entire 14" x 17" area and 600W quartz halogen (3200K) light source
 - Dual function copylight control adjusts "high" or "low" output levels for base and side lighting
- | | | |
|--------|---------|-----------|
| 132-32 | LoBase* | \$1975.00 |
| 132-33 | HiBase* | 2125.00 |



M2 RCM System With HiBase

- Quartz Illuma system with a camera shutter actuator built into the carriage assembly and controlled by an electronic 60-second adjustable timer located in the light control housing
 - Ideal for Kodak RPC and Kodalith materials, as well as all conventional films
 - Copy mask set included
- | | | |
|---------|--|-----------|
| 132-51* | | \$3190.00 |
|---------|--|-----------|
- *132-32/33/51 Includes 4 compact flicker-free, 300W-3200K quartz halogen lamps

M2 Producer

- Compact, flicker-free quartz halogen lights
- 26" x 23" grid baseboard illuminated with 4 300W quartz halogen lamps
- 3200K lighting for video and type B films
- 48" precision extruded aluminum column
- Can be counterbalanced for a wide variety of photographic and video cameras up to 15 lbs.
- 6" dual rail front to back movement



- | | | |
|--------|-------------------------------------|-----------|
| 132-60 | M2 quartz halogen tabletop producer | \$1450.00 |
| 132-62 | M2 quartz halogen LoBase producer | 1650.00 |
| 132-64 | M2 quartz halogen HiBase producer | 1800.00 |

M2 Camera Accessories

- | | | |
|--------|-------------------------------------|----------|
| 136-10 | Precision camera leveling plate | \$ 48.00 |
| 060-10 | Fine focusing and centering device | 240.00 |
| 060-20 | Camera quick release | 35.00 |
| 060-30 | Shutter cable release | 29.00 |
| 060-49 | Camera reflection shield—49mm | 25.00 |
| 060-52 | Camera reflection shield—52mm | 25.00 |
| 060-55 | Camera reflection shield—55mm | 25.00 |
| 060-58 | Camera reflection shield—58mm | 25.00 |
| 060-62 | Camera reflection shield—62mm | 27.00 |
| 060-90 | Camera reflection shield—Hasselblad | 58.00 |

M2 Copy Stand Accessories

- | | | |
|--------|---|----------|
| 137-10 | Copy stand riser | \$ 80.00 |
| 137-12 | Copy stand LoBase | 310.00 |
| 137-14 | Copy stand HiBase | 490.00 |
| 137-16 | Wall mounting brackets | 76.00 |
| 137-20 | Movable copy stage | 340.00 |
| 137-25 | Copy mask set | 130.00 |
| 137-27 | Copy holddown | 110.00 |
| 137-28 | Book holder | 160.00 |
| 137-40 | Slide duplicator | 98.00 |
| 137-60 | Motor drive assembly (offers a carriage mounted switch controlled drive for the camera carriage or movable copy stage, and is field installed on any M2 stand. This drive cannot be front panel or remote controlled) | 290.00 |

M2 Lighting Accessories

- | | | |
|--------|--|----------|
| 138-20 | Sidelight arms, pair | \$ 96.00 |
| 138-22 | Sidelight arm braces, pair | 66.00 |
| 138-25 | Swivel light arms, pair | 42.00 |
| 080-10 | Master quartz copylights, pair, 2 lights (1 each side) | 280.00 |
| 080-12 | Auxiliary quartz copylights, pair, 2 lights, plug into master quartz lights | 260.00 |
| 080-14 | Quad quartz lights, pair, 4 lights (2 each side) | 540.00 |
| 138-50 | Copylight control | 250.00 |
| 580-85 | Quad polarizing light filter kit | 190.00 |
| 138-80 | Quartz base illuminator—LoBase, includes: baseboard with 14" x 17" aperture, quartz base illuminator assembly, 14" x 17" opal plexiglass, 14" x 17" clear glass, dual function copylight control, 137-12 camera stand LoBase | 1080.00 |
| 138-81 | Quartz base illuminator—HiBase, same as 138-80 except includes 137-14 camera stand pedestal | 1260.00 |
| 080-80 | Quartz halogen copylight safety glass. Set of 2 | 62.00 |
| 080-82 | Quartz halogen copylight safety glass. Set of 4 | 124.00 |

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



RC-570 Still Video Camera Kit

- 450-line TV resolution (410,000-pixel CCD chip) with NTSC and S-Video recording and output
- 3X power zoom lens with special 28mm (optional) wide-angle adaptor
- Automatic features include focus (1.8' to infinity), exposure, flash, white balance and ID recording
- Multi-image playback, image index and image memory buffer for easy dubbing and editing
- Auto edit function fills blank tracks with subsequent images to optimize VF disk space
- ID recording (Y/M/D, hour/minute track ID), interval recording (1-99 minute) and interval playback

Kit Includes:

- RC-570 still video camera
- AK-C57 accessory kit consisting of A/C coupler, remote control, S-cable and RCA cable
- BP-4P battery pack
- KE-PIN NTSC pin cable
- FB-C57 flash bracket
- SB-C57 system bag
- RF-301 RF unit
- FA-C57 film adaptor
- BA-24P battery charger
- KE-M2P miniplug-pin cable
- PP-A8 power pack
- WC-C5728 wide converter

\$3956.00

RC-570 Still Video Camera Basic Kit

- Includes camera, battery, charger, disk, soft-case and pin cable

\$3493.00

RC-570 NuBus Computer Imaging Kit for Macintosh

- Integrated design allows direct interface and remote control
- Supports system 7.0 JPEG compression (in software), QuickTime and AppleEvents standards
- Capture and processing of 24-bit color and 8-bit monochrome images for any application
- Full editing capability of captured image files for enhancement and special effects
- Includes: RC-570 Still Video Camera Kit, dedicated NuBus digitizing card, software and interface cables

RC-570 Computer Imaging Kit for PC **4688.00**

RC-570 NuBus Electronic Still Presentation Kit for Macintosh

- Add-on upgrade board allows 2-way image transfer between the RC-570 and the Macintosh
- 1.5M byte image buffer memory stores full-frame 24-bit "chunky" RGB color picture files
- High quality color difference image output (525-line NTSC format) recording to video floppy
- Includes: RC-570 SV camera kit, SV Mac digitizer and rec. module for Mac

\$5054.00

RC-570 Electronic Still Presentation Kit for PC

- Includes RC-570 SV camera kit, SV-PC digitizer and recording module for PC

\$5054.00

RC-360 Still Video Camera Basic Kit

- 400 lines horizontal resolution
- 1/2" CCD (1026 pixels)
- Fixed, single-focus 9.5mm, f/2.4 lens
- Auto exposure and programmed AE systems
- Easy to operate system for capturing images with a personal computer
- Built-in flash, auto/manual
- Backlight compensation button
- 4 shooting modes: single, 10-sec. self-timer, continuous at 3 images per second and interval (permits time-lapsed photography)
- Compact, slips in pocket
- Stores up to 50 full-color pictures on 1 video floppy disk
- Outputs: Video 1 Vp-p, 75 ohms unbalanced;

- S-Video (when used with AC coupler AR-260)
- Uses a TV monitor, VCR or video projector to view images
- Camera integrates recording, playback and erasure functions; no additional equipment is necessary
- Intelligent auto white balance and high band circuitry
- Automatic recording of track number, day, month, year, hour and minute
- Shooting distance: 3.3'-infinity; macro 10.6"

Kit Includes:

- RC-360 still video camera
- VF-50 video floppy disk
- BP-4P battery pack
- BA-24P battery charger
- NS-30 neckstrap
- SC-C26 soft case
- KE-M2P miniplug-pin cable

\$1665.00

RC-360 Still Video Camera Kit

- Includes RC-360 still video camera basic kit and AK-C36 accessory kit consisting of A/C coupler, remote control, tripod adaptor and RGA-pin cable

\$1887.00

RC-360 NuBus Computer Imaging Kit for Macintosh

- Includes RC-360 still video camera basic kit; AK-C36 accessory kit; AR-260 AC coupler; WL-C6 wireless controller; TA-C26 tripod adaptor; KE-PIN RCA pin cable
- NuBus board and software

\$2600.00

RC-360 Computer Imaging Kit for PC

- Includes still video camera kit and SV-PC digitizer

\$2600.00

VC-C1 1/2" CCD Communication Camera

- 410,000 pixels
- 450 lines horizontal resolution
- Internal synchronization
- 1/60, 1/100 shutter speed
- TTL white balance (auto or lock)
- 1.5 step backlight correction
- Fade to white or black
- 6-48mm focal length
- 8x1 zoom range
- Normal or high zoom speed
- Auto and manual focus
- Motorized pan, tilt, zoom
- Pan/tilt base: Pan angle: ±50°; Tilt angle: ±20°; Preset locations: 6 presets available;
- Driving motor: 3 stepping motors for pan/tilt/zoom
- 3.5mm mic jack
- RCA jack
- Optional RS-232C cable allows for function control from a desktop computer
- NTSC composite and S-Video outputs
- Optional WD-37 wide-angle lens
- Includes an L/R wireless remote controller which enables you to control all pan, tilt and zoom functions

\$1998.00



RE-650 Video Visualizer

- High quality 450-line (H) resolution (S-Video or NTSC) output from the 410,000-pixel CCD chip
- Automatic focus, white balance, exposure and negative/positive conversion
- 8X power zoom lens (8.7-70mm f/1.4-1.8 equivalent) to image either flat art or 3-D objects
- Includes: RE-650 Video Visualizer, built-in light stands, power cord, KE-AVI pin cable and cover

\$3925.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO PROJECTOR STANDS/CEILING MOUNTS



ADAPT-A-SYSTEM™

LV-400 Series Video Projector Stands/Large TV Carts

- Oversize footprint design and welded steel tubing provide stability, adaptability and adjustability ▪ All units include safety straps and can be broken down into bases, shelves and posts
- LV-401 1-tier stand with LSS video projector levels, 48"H x 28"W x 35"L \$ 849.00
- LV-402 2-tier stand with LSS video projector levels, 54"H x 28"W x 35"L 1269.00
- LV-403 One 24" x 36" LSA shelf, designed for monitors up to 30", 54"H x 28"W x 35"L 429.00
- LV-404 One 28" x 40" LSC shelf, designed for monitors up to 33" and weighing up to 300 lbs., 42"H x 28"W x 40"L 466.00
- LV-405 2-tier stand, 8" pneumatic tires, 28" x 40" LSE top shelf for monitors up to 38" and 400 lbs., and 24" x 32" LSF middle shelf, 41"H x 28"W x 40"L . . . 667.00
- LV-406 31½" X 30" LSS-LP shelf for large video projectors, 48" H x 28" W x 40½" L 955.00
- LV-407 One 33½" x 30" video projector shelf, 48"H x 28"W x 40"L 1095.00
- LV-410 2 shelves, 8" pneumatic tires, 41"H x 28"W x 42½"L 919.00
- LV-420 2 shelves, for rear screen projection installations, 54"H x 28"W x 40"L 1095.00

Bases

- Heavy gauge welded 1" x 2" tubular steel construction ▪ Stop collar and set screws on base secure posts to base ▪ Support up to 600 lbs.
- LVB1 4" swivel casters, 2 with brakes, 35" x 28" \$196.00
- LVB2 4" swivel casters, 2 with total lock brakes, 35" x 28" . . . 339.00
- LVB3 8" swivel pneumatic tires, 2 with brakes, 40" x 28" . . . 462.00
- LVB4 4" swivel casters, 2 with total lock brakes, 40" x 28" . . . 378.00
- LVB5 4" swivel casters, 2 with total lock brakes, 42½" x 28" . . . 395.00
- LVB6 8" swivel pneumatic tires, 2 with brakes, 42½" x 28" . . . 538.00

Shelves

- Adjustable with pitch adjustment ¼" up or down
- LSA Top shelf for LVB1 and LVB2, 24" x 36" \$158.00
- LSC Top shelf for LVB1 and LVB2, 28" x 40" 190.00
- LSE Top shelf for LVB3 and LVB4, 28" x 40" 211.00
- LSG Middle shelf for LVB1 and LVB2, 24" x 27" 143.00
- LSS Video projector level for LVB2, 26¼" x 30" 466.00
- LSS-LP Video projector level for LVB3 and LVB4, 31¼" x 30" 499.00
- LSS-LPX Video projector level for LVB5, 33½" x 30" 545.00
- LSS-LPA 45° video projector level for LVB4 625.00
- LSI Inverted video projector level for LVB2, hold-down kit required 424.00
- LSF Middle shelf for LVB3 and LVB4, 24" x 32" 158.00
- LSR Middle shelf for LVB5, 24" x 34¼" 217.00
- LSH Top shelf for LVB5, 28" x 40" 240.00

Posts

- Add 6" to post length to calculate assembled height of system (add 11" when using the LVB3 base) ▪ Heavy gauge 2" diameter steel tube with nickel chrome finish ▪ Posts are plugged on each end to prevent damage from dropping ▪ 4 posts required for each base
- Non-standard post lengths also available
- P30 (4) 30" posts \$ 84.00
- P36 (4) 36" posts 88.00
- P42 (4) 42" posts 96.00
- P48 (4) 48" posts 112.00

VCM-10/15 Series Ceiling Mounts

- Makes installations quicker and easier through simple attachment to standard 1½" pipe columns and fast "fine tune" position adjustments ▪ Hard, low-luster black epoxy ▪ Roll, 4.6°, pitch ±10°-30° depending on model, yaw 360° ▪ Horizontal adjustments ± 1" in any direction ▪ Vertically adjustable POR*

VCM-2C (2-Tier)/VCM-3C (3-Tier) Video Projectors Ceiling Mount System

- Roll ±5°, pitch ±45° depending on projector, yaw 360°
- Horizontal adjustments ± 1½" in any direction ▪ Positive registration lock; projector may be removed without losing projector mount registration ▪ Adjustable lens center spacing of 16" to 24", depending upon projector model ▪ Heavy-duty dual ceiling support
- 12-gauge CRS brackets ▪ Black finish ▪ Accommodates up to 32" W projectors ▪ Multiple projector stacking provides greater illumination and backup ▪ Versatile ceiling mounting—unit may be attached to 2-CMA-100 for incremental vertical adjustment or to (2) CMA-110 for desired drop height, or mounted with NPT 1½" pipe columns. POR*

VCM 20/30/40/50/60/70 Series Deluxe Video Ceiling Mounts

- Roll ±5°, pitch ±45° depending on projector, yaw 360°
- Horizontal adjustments ± 1½" in any direction ▪ Positive registration lock; projector may be removed without losing registration ▪ Heavy-duty support ▪ Unit may be attached to CM-100 for incremental vertical adjustment ▪ 4-point threaded rod mount or mounted with NPT 1½" pipe column ▪ Black finish POR*



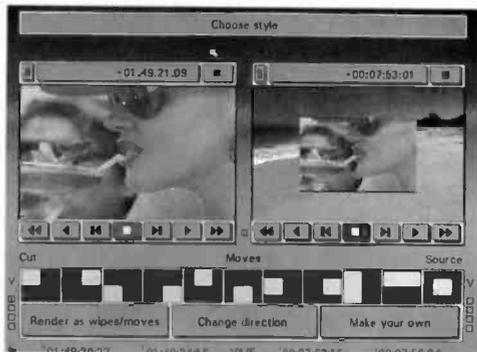
MAGNA-LIFT™ Electric Ceiling Mount

- Combines 3 distinct applications in a single unit ▪ Permanently mounts a video projector to the ceiling ▪ Electrically raises a video projector to the ceiling for easy installation ▪ Lowers projectors to floor level for servicing or removal, then raises projector back to the ceiling for re-installation without heavy lifting, dangerous equipment/scaffolding or costly personnel ▪ Only 1 person needed for a video projector ceiling installation ▪ After installation it electrically lowers to floor level for installation of video projector, using the appropriate HB hanging bracket ▪ 250 lb. lift capacity
- 20' drop ▪ 1600 lb. test aircraft cable ▪ Power inlet accepts appropriate cord for country of use
- EVCM-100D Electric ceiling mount, 115V, 60Hz \$995.00
- EVCM-100I Electric ceiling mount, 230V, 50Hz. 995.00
- LPK-1 Low profile mounting kit 79.00

Appropriate HB Hanging Bracket is required to attach a video projector to the EVCM-100 series.

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



After Effects™ 2.0 Professional Version for Macintosh

A digital post-production tool for compositing, motion graphics and special effects.

Powerful Compositing

Unlimited layering and compositing ■ Create collages and composites of movies and stills with unparalleled ease and accuracy
 ■ Manipulate layers independently and apply motion and effects selectively

Support for frame sizes up to 4,000 x 4,000 pixels ■ Combine all sizes of movies and stills in your final production without resizing images ■ Work in and output final movies in the frame size of your choice, at up to 3X the resolution of film

Composition nesting (re-entry) ■ Put layers within layers or group layers together to apply global effects ■ Not permanently combined, so you can experiment without penalty

Professional-Quality Output

Subpixel positioning ■ Take advantage of pixel positioning that's accurate to thousandths of a pixel to produce smooth motion graphics

Field rendering ■ Render video and broadcast productions at 60 fields per second (50 fields for PAL) ■ Jitter-free playback

Anti-aliasing ■ Design crisp, clear titles and composited images
 ■ Work will be completely free of jaggies

Full alpha channel support and masking capabilities ■ Easily create sophisticated traveling mattes, draw masks on images, and control image transparency ■ Gain unparalleled flexibility for compositing

True motion blur ■ Simulate shutter duration for realistic motion in film or video productions ■ Digital sampling will look just like film

Frame blending ■ Effortlessly achieve smooth slow motion and frame-rate conversions ■ After Effects creates all the intermediate frames for you

NTSC and PAL support ■ Designate the size, frame rate and colors of your productions according to domestic and foreign standards

Sophisticated Motion Control

Key-frame animation ■ Create changes over time for all attributes of layers simply by setting key-frame values ■ After Effects automatically does all the "in-betweening"

Key-frame sequence replication ■ Recreate the same motion, effects, and transitions easily with a simple cut-copy-paste action ■ Save time and money by eliminating the drudgery of redos

Motion-path and key-frame editing ■ Interactively manipulate an image's motion path and reposition key frames to easily fine-tune work

Ability to connect to motion-control systems ■ Set up each layer's motion in After Effects through a simple spreadsheet interface

Fine-tuned "tweening" capabilities ■ Designate with pinpoint precision the interpolation method and velocity in and out of every key frame to achieve exactly the effect you want

Versatility, Flexibility and Expandability

User-defined resolution and output quality ■ Set the resolution and output quality for professional results (e.g., Betacam SP, DI or film), or adjust them to a lower quality for faster proofs and pre-visualizations

Comprehensive timeline view ■ Keep track of all layers, movement, transitions, and effects in 1 manageable window ■ Easily review your production's every element

Design templates ■ Create design templates for entire productions and then import new footage into an existing framework ■ Instantly produce similar motion graphics

Special (not canned) effects ■ Choose from a wide variety of key-frame-based, plug-in effects to distort and stylize images, create transitions, and color corrections ■ Precise control over every detail of effects

Plug-in support for hardware acceleration ■ Add plug-in modules from After Effects for hardware acceleration ■ Churn out sophisticated productions faster than ever

File-format support ■ Exchange files among your favorite programs by importing QuickTime movies and sequences of PICT, Adobe Photoshop, Electric Image and other file formats ■ You can also use image format modules written to the Adobe Photoshop specification

Large-image proxies ■ Work with low-resolution or smaller-size images during the editing process to reduce memory usage and conserve disk space ■ Images easily adjust to their full size for the output medium you're using

After Effects 2.0 \$1995.00

After Effects 2.0.1 for The Power Macintosh

The application, identical in functionality to its 680 x 0 counterpart, has been recompiled to achieve stunning performance on Power Macintosh computers. To upgrade to After Effects 2.0.1 for the Macintosh only, a patch may be downloaded for free from CoSA areas on America On-line or Applelink. We recommend that you subscribe to one of these on-line services. Otherwise, you must purchase the upgrade described above \$1995.00

After Effects Rendering Engine™ 2.0.1

Maximize your time by putting the power of After Effects to work for you on that idle machine, or on every Macintosh or Power Macintosh computer in your shop. While you continue working in After Effects, the After Effects Rendering Engine renders compositions you've already created. \$495.00

Effects Pack, Vol. 1™

Available for Macintosh and Power Macintosh. This package of 16 plug-in special effects instantly expands your creative potential. Included are effects for stylizing and distorting video images, a set of anti-aliased transitions, and image filters for color correction. Effects include Scatter, Wave Warp, Radial Wipe and Leave Color. . . \$199.00

Effects Pack, Vol. 2: Keying Effects™

These 11 plug-in effects add professional quality bluescreen removal and color keying effects to your After Effects. Now you can create mattes with fine detail, even with difficult subject matter such as hair, transparency and smoke. Powerful keyers including difference matte, linear keys, and color difference keys let you choose the tool best suited to the task at hand. A goal-oriented interface helps you through each stage of the keying process. Essential keying functions include: multiple key colors, matte level adjustment, matte choke and spread and spill suppression. All control settings can be animated over time. Effects Pack, Vol. 2: Keying Effects contains effects of varying complexity — from simple keys for beginners all the way to multi-pass keys with dozens of controls for the pickiest pro. \$695.00

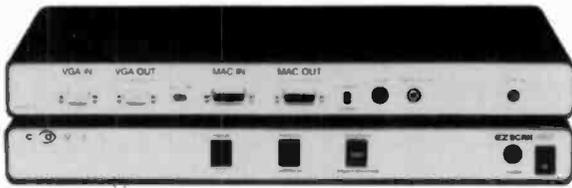
Note: All products include both Macintosh and Power Macintosh versions.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

COMPUTER INTERFACES/ DISTRIBUTION SYSTEMS



C V I D



EZscan PRO VGA/MAC to NTSC Scan Converter

- Converts VGA (up to 1024 x 768) or MAC to NTSC/TV standard
 - Record computer presentations onto videotape
 - Windows compatible
 - PAL compatible
 - Flicker-free images
 - Use local monitor
 - Easy setup
 - No software required
- \$1595.00**

EZscan PRO VGA to NTSC Scan Converter

- Converts standard 640 x 480 VGA to NTSC/TV
 - Record computer presentations onto videotape
 - Windows compatible
 - Lightweight and portable
 - Flicker-free images
 - Use local monitor
 - Easy setup
- \$475.00**



EZgrafix Workstation Computer-Video Interface

- Links workstations to multiscan monitors and projectors
 - Individual RGB gain controls
 - H and V centering controls
 - 13W3 to 13W3 input cable included
 - Internal universal power supply
 - Sturdy, aircraft aluminum cabinet
 - 200+ MHz bandwidth
- \$950.00**



EZPIXpc 150MHz Digital/Analog Interface

- Connects multiscan monitors and projectors to over 90% of all PCs and video cards including PS/1s, PS/2s, EGA, CGA, MCGA, MDA, VGA, Super VGA, XGA, 8514A, M-Motion, Mac II, Expanded VGA, Image Adaptor and Illuminator 16
- Memorizes up to 80 centering and scan rate combinations, accommodating any software selected video modes of the PC
- Scan rates: 15-95kHz H, 30-140Hz V
- Large, easy-to-read LCD displays exact scan rates of the computer-video source
- Automatic: computer video termination, sync green, cable length compensation
- Exclusive 3-headed input cable with a 15-pin HD, 9-pin D and 15-pin D connector included
- 150MHz video bandwidth

Model 85	With all above features	\$595.00
Model 84	With all above features except LCD readout	529.00
Model 83	VGA version only with 15 HD cable only, no LCD	499.00
Model 82	VGA version only with 15 HD cable only, no LCD, no pos. memory	479.00

150MHz RGB Distribution Systems

- 950A Series switchers route signals from any combination of RGB or composite video sources to 1 projector or monitor
- 900A Series distribution amplifiers connect 1 RGB/computer video source to any number of monitors/projectors
- 150MHz switches and DAs have 3 identical analog channels for R, G, B video and 1 analog/digital sync channel
- Switch options include auto sync polarity, 2 RS-232 applications and range of remote controls including wired, infrared and a buffered terminal remote for external control systems
- DA options include long cable equalization
- Rackmounts available

900A-04	1 in 4 out DA	\$ 969.00
900A-08	1 in 8 out DA	1249.00
950A-04	4 in 1 out switch	1325.00
950A-08	8 in 1 out switch	1850.00
950A-12	12 in 1 out switch	2375.00
950A-16	16 in 1 out switch	2895.00
950A-20	20 in 1 out switch	3425.00
950A-24	24 in 1 out switch	3950.00

950 Series:

Option 1	Auto sync polarity (1 required for each 8 inputs)	\$125.00
Option 2	RS-232 "Listen" for remote control by computer	395.00
Option 3	RS-232 "Talk and Listen" for remote control by computer	475.00

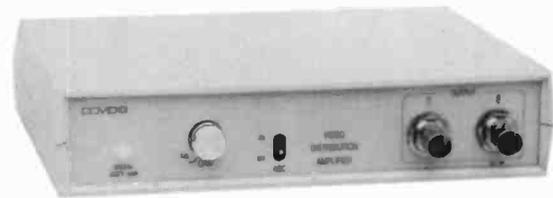
650 Series Video Switchers

- Roll-free, automatic vertical interval switching
- 8 inputs (2 on front panel, 6 on rear), 1 output
- Controlled by an electronic wired remote control

Option 1	LED indicates selected channel and flashes when an input without video has been selected	
650-08	30MHz S-Video switch for S-VHS, Hi8, ED-Beta and other video applications which use 4-pin mini-DIN connectors; 8 input x 1 output	\$495.00
650-08	With Option 1	564.00
651-08	30MHz composite video switch with BNC connectors; 8 input x 1 output	429.00
651-08	With Option 1	495.00

Full line of composite and S-Video cables available for 650/600 Series video switchers and distribution amplifiers (XX denotes length)

10-01-XX	Composite video cables	POR*
10-02-XX	S-Video cables	POR*



600 Series Video Distribution Amplifiers

- 8 outputs (2 on front, 6 on rear), 1 input
 - DC restoration
 - Fixed, manual or automatic gain controls
- | | | |
|--------|--|----------|
| 600-08 | 30MHz VDA for S-VHS, Hi8, ED-Beta and other video applications which use 4-pin mini-DIN connectors; 1 input x 8 output | \$495.00 |
| 601-08 | 30MHz composite VDA with BNC connectors; 1 input x 8 output | 429.00 |

*Price on Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Cresnet II Mini System (MS) Integrated System (CNMS)

- Built-in 50W/110/220VAC, 50/60Hz power supply; UL, CSA, TUV and FCC Class B approvals
- 6 IR/serial/RS-232 ports
- 8 switch/contact inputs or solid-state outputs
- 16 isolated relay closures
- 2 bidirectional RS-232 or RS-422 communication ports with hardware hand shaking
- 2 expansion slots accept Cresnet II control cards for added flexibility
- Optional 50-button local control front panel
- Supports all Crestron network panels and devices
- Dimensions: 3 1/2" x 19" x 9 1/2"
- Weight: Approximately 14 lbs. with 2 optional control cards
- System software included

CNMS Complete control system with 2 bidirectional RS-232/RS-422 ports, 6 IR/serial/RS-232 ports, 16 relays, 8 switch/contact inputs or solid-state outputs, 50W power supply, 2 open slots to accept additional control cards **\$1950.00**

CNMSI Same as CNMS with international 50W power supply .. **2100.00**

CNMS-100 Same as CNMS with 100W power supply **2175.00**

CNMSI-100 Same as CNMS with international 100W power supply **2325.00**

Card Frame

CNNETX Network expander, increases the total number of devices supported on the Cresnet II network; lengthens the maximum distance a device can be located from the control system **\$1125.00**

Local Control Panel

CNPLCP-50 50-function local control panel, installs on front of CNMS, CNMSI, CNMS-100 and CNMSI-100 only, includes colored caps, feedback LEDs, dual bargraph and custom engraving **\$750.00**

Optional 3.5" 1.4M Byte Disk Storage Module



CNIR-8 Infrared and Serial Output



Control Cards

CNAC Audio control interface; specify protocol (i.e., PA-422 Crown IQ, etc.) **\$375.00**

CNAI-8 8 analog outputs: 0V to +10V voltage range. May be used with 4mA-20mA current loop devices. **\$25.00**

CNAO-8 8 analog outputs: maximum output +20V features programmable ramp rates, presets and limits; adjustable voltage range from 1V to 20V. Factory set to +10V **375.00**

CNCOMH-2 2 bidirectional RS-232/RS-422 ports **375.00**

CNFZ-2 Camera lens interface for control of focus, zoom and presets of 1 or 2 lenses simultaneously; supports Fujinon MD, BMD and SD series, JVC HZ-713MD, Canon KTS/KTS-A series, Vicon M and MS series, Panasonic WV-LZ81/10, Cosmicar H6ZAHE-2P and C6Z1218H2ESP-2 lenses, and many other teleconferencing and security lenses **375.00**

CNIN-16 16 feedback inputs: accepts closures to ground or TTL and CMOS logic levels. **375.00**

CNIR-8 8 serial ports which can be used for infrared, ASCII, RS-232 or other serial communication and control; requires appropriate CNSP adaptor **\$25.00**

CNIMIDI MIDI in, out and thru interface or RS-232 bidirectional communication port. **375.00**

CNOUT-16 16 solid-state closures to ground, rated at 0.1A, 24VDC **\$375.00**

CNRS-366 RS-366 ACE (Automatic Calling Equipment) interface **\$25.00**

CNRY-8 8 isolated 1A, 24V normally open relay closures **375.00**

CNTELI-1 Complete telephone interface: includes DTMF detection and generation, ring detector, dial tone and busy detection; 2-line bridging, audio in, audio out, 2 relay outputs and 2 inputs **\$25.00**

CNSTD-8 8 independent, 16-function DTMF (touch tone) decoders; accepts line level audio input; may require external phone line transformer **\$25.00**

CNVCP-2 Stereo or 2 independent mono channels; Hi or Lo-Z (600 ohm), balanced or unbalanced; features programmable ramp rates, presets, limits, mute and mute override; frequency response: 8Hz-40kHz; S/N ratio: +80dB; supports all bargraph modules **375.00**

CNVCP-3 Stereo or 3 independent mono channels; Hi or Lo-Z (600 ohm), balanced or unbalanced; features programmable ramp rates, presets, limits, mute and mute override; frequency response: 8Hz-40kHz; S/N ratio: +80dB; supports all bargraph modules **\$25.00**

Cresnet II Modular Media Control Systems

- Very friendly software
- Centralized software
- Symbolic graphic programming
- Symbolic editor
- Software utilities
- Software drivers
- Field programmable
- Copilot mode
- Plug-in card system
- Modular
- International power supply
- High function density
- Expansion rack
- Local area network
- Disk storage
- RF 2-way wireless
- Infrared wireless
- Ease of installation

Card Frames

CNRACK Holds 10 control modules; supplied with CNMU master computer, CNPMM power management module **\$1950.00**

CNRACK-D Rack with 3.5" disk drive; holds 9 modules; supplied with CNMU-D master computer, CNPMM power management module. **2678.00**

CNIORACK Expansion rack for use with CNRY, CNIN and CNOUT modules; holds 10 modules; accepts CNLCP and CNLBG panels; up to 15 CNIORACKs may be used with a CNRACK or CNRACK-D; includes CNIOMU expansion computer **1088.00**

Local Control Panels

CNLCP-32 32-function pushbutton control panel; installs on front of Cresnet II card rack; includes colored caps and custom engraving. **\$488.00**

CNLBG-2 2-channel bargraph panel and volume control panel. Requires 1 CNLCP-32 **225.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Cresnet II Modular Media Control Systems (Cont'd)

System Power Supplies

- CNPWS-50 System power supply, 50W output, operates on 85VAC to 132VAC, 50/60Hz; UL, CSA and FCC Class B approved; used with Cresnet II card frames; mounts external to system. **\$263.00**
- CNPWSI-50 System power supply, 50W output, operates on 180VAC to 260VAC, 50/60Hz; UL, CSA and FCC Class B VDE approved; used with Cresnet II card frames; mounts external to system; supplied with international line cord only **338.00**
- CNPWS-100 System power supply, 100W output, operates on 85VAC to 132VAC, 50/60Hz; UL, CSA and FCC Class B approved; used with Cresnet II card frames; mounts external to system **525.00**
- CNPWSI-100 System power supply, 100W output, operates on 180VAC to 260VAC, 50/60Hz; UL, CSA and FCC Class B VDE approved; used with Cresnet II card frames; mounts external to system; supplied with international line cord only **600.00**
- CNRMAK Rackmount kit for power supplies and other accessory equipment **113.00**
- System control modules as required **POR***
- Wired or wireless control panels as required **POR***
- Peripherals and interfaces as required **POR***

Wired Control Panels

- All wired panels below operate on a 4-conductor network and have LED feedback indicators
 - Consolette panels are premounted in elegantly styled enclosures of high impact molded plastic with black lacquer trim
 - All panels include custom engraving, colored switch caps, choice of button configurations and panel finishes ▪ Control panels may be positioned up to 1000' from the control rack ▪ Wall mounted panels also available
- CNWP-32 32-function lectern **\$ 488.00**
 - CNWP-64 64-function lectern **975.00**
 - CNWPBG2-32 32-function lectern; 2 bargraphs **713.00**
 - CNWPBG2-64 64-function lectern; 2 bargraphs **1200.00**
 - CNWP-32B 32-function consolette **488.00**
 - CNWPBG2-32B 32-function consolette; 2 bargraphs **713.00**
 - CNWM-10 10-function wall mount panel; mounts in a 1-gang electrical box **525.00**
 - CNWM-29 29-function wall mount panel; mounts in a 2-gang electrical box **675.00**
 - CNWMBG2-34 34-function wall mount panel; 2 bargraphs mounts in a 4-gang electrical box. **750.00**
 - CNPI-48I Custom panel interface; up to 48 buttons; incandescent **878.00**
 - CNPI-48L Custom panel interface; up to 48 buttons; LED **878.00**
- Special configurations, panel sizes and finishes are available on request. Custom wood enclosure is available for lectern mount panels. Please call for availability and price.



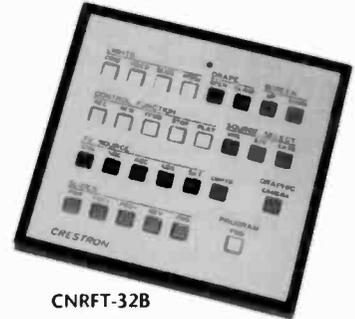
CNWPBG2-32B

Wireless Receivers

- Required for all wireless panels.
- CNRFGW 1-way remote RF receiver **\$375.00**
- CNIRGW 1-way remote IR receiver **375.00**

Wireless Panels

- 250' range from receiver
 - Panels available with 32 to 91 functions
 - Multiple control locations
 - Simple screwdriver adjustments of carrier frequency
 - Rotary switch for digital identity code selection
 - Power consumed only during button depression
 - Long-life 9V alkaline battery included
 - LED indicates battery strength
 - Premounted in elegantly styled consolettes of high impact molded plastic with black lacquer trim
- CNRF-32B 32-function; RF **\$ 600.00**
 - CNRF-48B 48-function; RF **750.00**
 - CNRF-91B 91-function; RF **1200.00**
 - CNIRT-32B 32-function; IR **600.00**
 - CNIRT-48B 48-function; IR **750.00**
 - CNIRT-91B 91-function; IR **1200.00**



CNRF-32B

Handheld LCD Wireless Transmitters

- Units are housed in high impact, black plastic enclosure
 - CNLCDIRHT and CNLCDRFHT transmitters have a high contrast backlit horizontal LCD display
 - Multiple function capability using 4 "soft" keys and up to 28 function keys
 - CNLCD series dimensions: 5.7"H x 3.6"W x 1.3"D
 - EasyKey Transmitters have a vertical LCD display which permits the viewing of up to 10 user-defined function keys simultaneously
 - Utilize up to 64 "pages" of programmable menus and function buttons
 - EasyKey dimensions: 7.5"H x 4.5"W x 1.3"D
 - Requires appropriate wireless receiver
- CNLCDIRHT Wireless transmitter with horizontal LCD display; IR **\$ 900.00**
 - CNLCDRFHT Wireless transmitter with horizontal LCD display; RF **900.00**
 - CNLCDP Programming unit; for use with CNLCDIRHT or CNLCDRFHT. Required only for initial purchase of either unit above **300.00**
 - CNEK-IR EasyKey wireless transmitter with vertical LCD display; IR **1350.00**
 - CNEK-RF EasyKey wireless transmitter with vertical LCD display; RF **1350.00**
 - CNEKI-IR Same as CNEK-IR; for international use. **1485.00**
 - CNEKI-RF Same as CNEK-RF; for international use. **1485.00**



CNLCDRFHT

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Handheld Wireless Transmitters

- Wireless transmitters are housed in high impact, black plastic enclosure
 - All panels include custom engraving, colored switch caps, choice of button configurations and panel finishes
 - Requires appropriate wireless receiver
 - Dimensions: 15- and 30-function, 6.5"H x 2.75"W x 0.8"D; 56-function, 5.7"H x 3.6"W x 1.3"D
- | | |
|---------------------------------|----------|
| CNIRHT-15 15-function; IR | \$263.00 |
| CNIRHT-30 30-function; IR | 450.00 |
| CNIRHT-56 56-function; IR | 525.00 |
| CHRFHT-15 15-function; RF | 263.00 |
| CNRFHT-30 30-function; RF | 450.00 |
| CHRFHT-56 56-function; RF | 525.00 |

CTP-3000DST/ 1500DST Wired Touch Panels

- Crestron offers a complete line of touch panels to match most any control application
 - The CTP-3000 series features a 10" diagonal screen
 - The CTP-1500 series features a smaller 6" diagonal screen
 - Black-on-white 640 x 400 high resolution DST LCD display
 - High contrast display, ideal in high ambient lighting conditions
 - 5 text fonts, 12 button styles, 16 line widths
 - Button graphic and icon software
 - File and screen management software
 - Optional side buttons (CTP-3000 series only)
 - Drawings and logos may be imported from AutoCAD files
 - Computer keyboard and mouse support
 - Stand-alone mouse used as drawing and editing aid
 - Posi-Touch software for joystick and slider-type control
 - Advanced menu system
 - Password entrance to screen building menu
 - Foreign language text
 - Up to 999 functions and 96 screens
 - RS-232 port
 - Printout of screen designs on standard printer
 - Backlit by 2 ultra-extended life, cold cathode fluorescent tubes
 - Resistive membrane touch system
 - Communication Ports: Cresnet II 4-wire screw terminal type connector; RS-232 DB-9 female connector; requires null modem cable when used with mouse
- | | |
|---|-----------|
| CTP-3000DST LCD double super-twist cold cathode fluorescent backlight; black-on-white graphics; performs best under broad range of ambient light; 10" diagonal screen | \$3300.00 |
| CTP-3000DSTB Same as CTP-3000DST; includes 14 independent pushbuttons | 3675.00 |
| CTP-3000EL Electroluminescent display; amber-on-black graphics; provides widest viewing angle; 10" diagonal screen | 3600.00 |
| CTP-3000ELB Same as CTP-3000EL; includes 14 independent pushbuttons | 3975.00 |
| CTP-1500DST Wired, LCD display, black-on-white graphics; 6" diagonal screen | 1500.00 |
| PC-1500DST Same as CTP-1500DST with black molded enclosure and adjustable tilt base | 2025.00 |

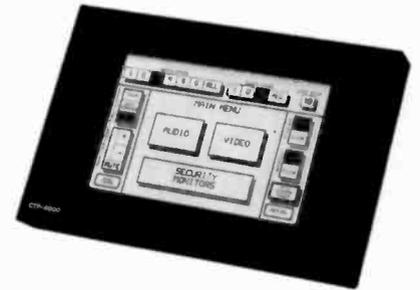
Accessories

- | | |
|---|----------|
| RMK-3000DST Rackmount kit; requires 10.5" rack space; for use with CTP-3000DST | \$293.00 |
| RMK-3000EL Rackmount kit; requires 10.5" rack space; for use with CTP-3000EL | 293.00 |
| TSK-3000DST Table stand kit; for use with CTP-3000DST; 2 smoke-gray acrylic side panels | 113.00 |

- | | |
|--|----------|
| TSK-3000EL Table stand kit; for use with CTP-3000EL; 2 smoke-gray acrylic side panels | \$113.00 |
| WE-3000DST Tabletop wood enclosure; for use with CTP-3000DST or CTP-3000DSTB; available in black | 525.00 |
| WE-3000EL Tabletop wood enclosure; for use with CTP-1000EL2 or CTP-3000ELB; available in black | 525.00 |
| PC-3000EL Black molded enclosure; for use with CTP-3000EL | 525.00 |
| PC-3000DST Black molded enclosure; for use with CTP-3000DST | 525.00 |
| WMK-1500DST Wall mount kit, for use with CTP-1500DST | 263.00 |

CTP-4000 Wire- less Touch Panel

- 1-way wireless operation
 - Available in IR and RF models
 - High resolution 640 x 400 pixel DST LCD display
 - Comprehensive graphics design package
 - 5 text fonts, 12 button styles, 16-line widths
 - File and screen management software
 - Computer keyboard and mouse support
 - Accepts imported CAD drawings
 - Foreign language text
 - Up to 999 functions and 96 screens
 - RS-232 port
 - Battery pack and charger
 - Printout of screen designs on standard printer
- | | |
|---|-----------|
| CTP-4000RF Wireless, LCD display, black-on-white graphics, elegant black enclosure, requires RF receiver CNRFGW, includes NiCad batteries, charger and AC adaptor | \$4800.00 |
| CTP-4000IR Same as CTP-4000RF except: Requires IR receiver CNIRGW | 4800.00 |



Video Touch Remote Control System User Interface

- Real time video; NTSC or PAL
 - Full color touch panel
 - Presentation versatility: full screen video, color touch panel, full screen video with control button overlay, video window with control buttons
 - Adjustable tilt screen
 - Customized control screens are created on a PC using Crestron Graphic Design Software including ICON generation and graphic file import capabilities
 - Sleek, high impact molded black plastic enclosure
 - Available as lectern or wall mount
- | | |
|---|-----------|
| VT-3000N 6" diagonal screen, supports NTSC | \$5100.00 |
| VT-3000P 6" diagonal screen supports PAL | 5100.00 |
| VT-4000N Wired, combines real time video and control touch screen control, supports VGA graphics, NTSC video; 10" diagonal screen | POR* |
| VT-4000P Wired, combines real time video and control touch screen control, supports VGA graphics, PAL video; 10" diagonal screen | POR* |



*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

WIRELESS CONTROL SYSTEM/DISTANCE LEARNING



CRESTRON

SmarTouch ST-3000 Self-Contained Wireless Touch Panel Control System

- High resolution display ▪ Infrared learner
- Graphic computer
- NiCad battery pack
- Touch panel system
- High power infrared emitters ▪ Control computer ▪ Battery charge
- 12 button styles
- 5 text fonts ▪ Icons for special functions ▪ Button shadowing and shading
- 16 line widths ▪ Import room drawings and graphics \$4200.00



- VHF radio operation ▪ Frequency of 260-320MHz ▪ Sophisticated digital coding ▪ Exceptionally long battery life ▪ Low battery indicator
- Operates through walls and screens ▪ Simple plug-in connection ▪ 250' range ▪ Multiple units may be used in 1 location ▪ UL listed
- W-4A Wireless control of power, forward, reverse and single-button focus of any 35mm slide projector \$375.00
- W-6/8 Independent control of 2 slide projectors; includes CTM-8 transmitter 656.00

SmarTouch Interface Modules

- STRY-16 16 low voltage relays for interface to drapes, screens and other devices. May be used for speaker switching \$450.00
- ST2PC 2 channels AC power control; 1.2kW per channel, 1.2kW total. May be used to sequence power on start-up of audio amplifiers and preamps. Requires STRY-16 350.00
- STRM Rackmount adaptor 19" x 1.75", holds 2 modules 150.00
- STHF High frequency upgrade for ST-3000. Supports Bang & Olufsen (455kHz) and Electrohome (355kHz) projectors. Must be ordered at time of ST-3000 purchase POR*



EIRI Infrared Interface

- Interfaces A/V control systems with infrared remote controlled devices such as VTRs ▪ Interfaces many serially remote controlled devices with A/V control systems ▪ Factory programmed interface, provides up to 44 control functions ▪ May be factory updated as equipment being controlled changes ▪ Several EIRI units may be paralleled and selectively activated ▪ No modifications or rewiring of A/V equipment ▪ UL listed 12VDC power supply included ▪ All functions operated with dry momentary switch closures ▪ IR probe included \$675.00



EFD-2 Fade Dissolve

- Permits single/tandem or dual projector dissolve operation ▪ Forward and reverse fade rates adjustable from cut to 10 seconds ▪ Operates as a stand-alone dissolve or may be interfaced with AV control systems ▪ Permits remote control of forward and reverse dissolve plus projector power and focus ▪ EBY input permits operation via Kodak projector remote control or sync tape deck ▪ Maintains proper slide order if projector power is turned off during a dissolve presentation \$595.00



SchoolNet Media Retrieval and Distance Learning System

- Extensive choice of classroom user controls ▪ Supports laserdisc, CD-interactive, CD-ROM and Level 3 interactive control ▪ Supports classroom use with the Pioneer LaserDisc barcode wand ▪ Lesson manager software and multimedia authoring ▪ Supports video teleconferencing and interactive distance learning ▪ Coursework database software is provided so that sources may be scheduled based on media titles ▪ Software permits system-wide monitoring of any broadcast from any classroom through view room and view channel function key ▪ Viewing of any source via the view channel or view room functions may be inhibited by using the source lockout feature within the scheduling software ▪ Usage logs track use by media courseware, instructor and equipment ▪ Single function key allows system-wide powering on or off of all classroom TV/monitors ▪ Master clock synchronizes all rooms and schedules with a period bell available as an option ▪ Messages and E-mail ▪ All call and zone paging (as many as 26 overlapping zones) ▪ Lesson manager software and multimedia authoring ▪ System on-screen display ▪ Local input source and local course origination ▪ PC equipped with a video card and modem card may be used in lieu of the classroom media terminal and TV/monitor; computer keyboard is used to execute all control functions. POR*

*Price On Request

Econo Series Wireless Control System

The Econo Series is a line of RF wireless systems. A wide variety of projection, video, audio and environmental can be controlled with these systems.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEO FORMAT SCREENS

VIDEO FORMAT PROJECTION SCREENS

Various models available with glass beaded, matte white, Spectra and Super Wonder-Lite surface, flame retardant and mildew resistant.

TRIPOD MODEL SCREENS

Picture King® With Keystone Eliminator Video Format

▪ Extra heavy-duty screen ▪ Camlok metal roller system ▪ Automatic fabric lock and leg lock ▪ Plunger locks for positive stops ▪ Built-in keystone eliminator

Viewing Area H x W	Nominal Diagonal Size	Glass Beaded	Matte White	Spectra III	Price
43" x 57"	72"	40115	40118	—	\$204.00
		—	—	74274	230.00
		—	—	—	224.00
50" x 67"	84"	76025	76026	—	250.00
		—	—	73633	250.00
60" x 80"	100"	40134	40138	—	350.00
		—	—	73634	464.00
69" x 92"	120"	40147	40149	—	380.00
		—	—	73635	496.00

MANUAL WALL/CEILING SCREENS

Model B™ Video Format

▪ Large, ruggedly constructed screen ▪ No rub, flat back case ▪ Grooved metal rollers on larger sizes ▪ May be hung from wall, ceiling of map rail hooks

Viewing Area H x W	Nominal Diagonal Size	Glass Beaded	Matte White	Spectra III	Price
43" x 57"	72"	74643	74644	—	\$134.00
		—	—	74645	162.00
		74646	74647	—	158.00
50" x 67"	84"	—	—	74648	202.00
		74649	74650	—	200.00
60" x 80"	100"	—	—	74651	262.00
		40192	40194	—	212.00
		—	—	73637	280.00
69" x 92"	120"	74652	74653	—	244.00
		—	—	74654	300.00

Deluxe Model B® Video Format

▪ Self storing ▪ Automatic Tensionizer™ ▪ Choice of flame retardant and mildew resistant, matte white or Spectra picture surface ▪ Use with extension type wall brackets

Viewing Area H x W	Nominal Diagonal Size	Matte White	Spectra III	Price
43" x 57"	72"	74696	—	\$180.00
		—	74219	208.00
		74697	—	202.00
50" x 67"	84"	—	73639	246.00
		74698	—	256.00
60" x 80"	100"	—	73640	324.00
		—	—	—

Model C™ Video Format

▪ Wall/ceiling installation ▪ Slat saddle distributes pull on heavy fabric for easier operation and longer life ▪ Floor stand to fit sizes 72" x 96", optional at extra cost

Viewing Area H x W	Nominal Diagonal Size	Glass Beaded	Matte White	Price
60" x 80"	100"	40236	40237	\$318.00
69" x 92"	120"	40238	40239	348.00

ELECTRIC WALL/CEILING SCREENS

Cosmopolitan Electrol® Video Format

▪ Custom crafted for visual presentations ▪ Embossed white steel case

Viewing Area H x W	Nominal Diagonal Size	Glass Beaded	Matte White	Spectra III	Price
43" x 57"	72"	74655	74656	74657	\$747.00
50" x 67"	84"	74658	74659	74660	764.00
57" x 77"	96"	74661	74662	74663	781.00
60" x 80"	100"	40781	40782	73650	815.00
69" x 92"	120"	40788	40789	73651	849.00
87" x 116"	150"	76739	76738	—	906.00
105" x 140"	180"	76741	76740	—	967.00

Boardroom Electrol® Video Format

▪ Sturdy wood case ▪ Comes assembled ready for in-ceiling installation

Viewing Area H x W	Nominal Diagonal Size	Glass Beaded	Matte White	Spectra III	Price
43" x 57"	72"	74667	74668	74669	\$1546.00
50" x 67"	84"	74670	74671	74672	1561.00
57" x 77"	96"	74673	74674	74675	1577.00
60" x 80"	100"	40724	40725	73647	1589.00
69" x 92"	120"	74676	74677	74678	1635.00
87" x 116"	150"	76735	76734	—	1681.00
105" x 140"	180"	76737	76736	—	1743.00



Senior Electrol® Video Format

▪ Strong wood case with metal for either wall or ceiling installation ▪ 3-position control switch

Viewing Area H x W	Nominal Diagonal Size	Glass Beaded	Matte White	Spectra III	Price
50" x 67"	84"	—	—	73643	\$1320.00
60" x 80"	100"	40586	40587	73644	1332.00
69" x 92"	120"	40591	40592	73645	1355.00

PORTABLE SCREENS

Fast-Fold® Video Format

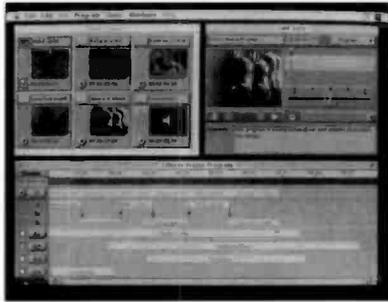
▪ Snap-button surface snaps onto frame ▪ Frame height adjustable on legs in 6" increments ▪ Folding frame can be tilted for keystone

Fast-Fold Screens – Standard Sizes, With Frame, Regular T-Legs and Standard Luggage Type Case

Standard Screens Overall Size H x W	Net Picture Area	Front Projection				Rear Projection Da-Tex	
		Da-Mat		Pearlescent		Complete	Replacement Surface Only
		Complete	Replacement Surface Only	Complete	Replacement Surface Only		
54" x 74"	50" x 70"	\$375.00	\$131.00	\$445.00	\$167.00	\$ 460.00	\$216.00
63" x 84"	59" x 80"	484.00	123.00	563.00	194.00	617.00	257.00
6' x 8'	68" x 92"	525.00	200.00	647.00	245.00	668.00	346.00
7'6" x 10'	90" x 116"	615.00	303.00	754.00	369.00	795.00	487.00
9' x 12'	104" x 140"	687.00	415.00	843.00	522.00	1000.00	733.00
10'6" x 14'	122" x 164"	795.00	508.00	994.00	624.00	1056.00	776.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





**Media 100™ Version 1.1
On-Line, Nonlinear Video System**

Media 100 delivers on-line quality programs with images that rival high-end broadcast video. You get full motion, full resolution, full frame video. A patented audio-lock perfectly synchronizes video with 4 tracks of CD-quality audio.

Media 100 captures complete source video (both fields) and CD-quality audio and stores them digitally on standard SCSI disk drives connected to your Macintosh. Editing is easy because all control is from the Media 10 graphical user interface.

The nonlinear performance of Media 100 gives you the power to access any scene or sound instantly. You can quickly position any digitized clip anywhere in the program. Change and rearrange scenes instantly. You can even add more than 50 effects, including titles, using the Media 100 FX option. Once you've composed your program with Media 100, simply output your video directly to videotape, display or to air. It happens in real time.

Designed as an open system, Media 100 enables you to use standard SCSI disk drives and Macintosh monitors. Installation is just 2 cards and the Media 100 software is Macintosh standard. Plus, the system uses only a single VTR, making setup and cabling easy too.

Fully backward compatible with Media 100 Version 1.0, and available free to all Version 1.0 users, Media 100 1.1 includes a variety of performance enhancements and new capabilities.

PAL support lets you select either the PAL or NTSC mode within a single system. Add static titles and graphics using the free titling feature of the Media 100 FX Option. Audio scrubbing lets you hear audio tracks accelerated or slowed down to match video speed. For flexibility, you can export entire Media 100 programs as QuickTime movies. To save time, the Auto Insert feature allows you to insert and overlay clips directly in the timeline. And you can run Media 100 on the highest-performance Macintosh multimedia machine—the Quadra 840av.

Video

- All digital, on-line video quality ▪ Full resolution, full frame rate (both fields) ▪ Use different quality settings, even in a single program ▪ Set overall picture quality up or adjust it down to save disk space ▪ Preview or record 32-bit animations out to videotape in real time ▪ Input and output S-Video (Y/C) or composite video
- Genlockable output ▪ Single product fully supports NTSC or PAL operation

Audio

- CD-quality audio with 4 tracks that mix in real time to a stereo pair
- Control audio input levels ▪ Control volume or pan between channels by clip or track ▪ Display audio waveforms and scrub audio
- Perfect audio-video synchronization at all times ▪ Balanced input/output with noise-immune XLR connectors ▪ Files stored in industry-standard Sound Designer II™ format

Effects (FX Option)

- Add Adobe Premiere™ effects architecture to Media 100 with FX option ▪ Over 50 effect types included with FX option, all controlled from Media 100 ▪ Preview effects in real time ▪ Create titles with Static Title Plug in

Titles (Static Title Plug In)

- Adds titling capabilities to the FX option ▪ Easily key titles and graphics over any clip ▪ Choose from either alpha channel or chroma keying ▪ Imports any PICT title or graphic ▪ Instant position previewing ▪ Compatible with popular graphics packages

Editing

- Fast, powerful, on-line, nonlinear editing for total creative freedom
- On-line video display at all times in addition to Macintosh RGB display ▪ Quickly and directly trim clips, perform program editing and create effects in the timeline ▪ Macintosh standard and Macintosh familiar for easy operation ▪ User interface minimizes mouse clicks and screen clutter ▪ Keyboard equivalents provided for most functions ▪ Supports Macintosh features for incorporating graphics, effects, animations and QuickTime movies into video programs ▪ Control VTRs, editing using SMPTE time code or output EDLs with EDL option

Import/Export

- Formats Imported/Used—Digidesign, Sound Designer II (single channel, 44.1kHz, 16-bit samples) to create audio clips, PICT and PICT 2 (to create still frame video clips), QuickTime (to create video and animation clips) ▪ Formats Exported—QuickTime, PICT and PICT 2

Storage

- Operate with hours of source video and audio using standard, high performance Macintosh SCSI disk drives ▪ Use new drives as soon as they come onto the market ▪ Set compression settings for off-line, nonlinear editing, then reset them to recapture source video at high quality for final program assembly

System Requirements

- Macintosh Quadra 800, 840av or 950 ▪ 32M byte memory (RAM)
- 13", 16" (recommended) or larger RGB monitor ▪ 24-bit graphics card—either separate NuBus card or motherboard graphics, as required by your system and monitor. For motherboard graphics, 2M bytes of VRAM required ▪ Up to 6 external SCSI hard disk drives with at least 3.5M bytes per second sustained data rate and at least 1G byte capacity ▪ Apple system 7.1 or higher ▪ QuickTime 1.6 or higher ▪ Single VTR for playing video into Media 100 and recording video from Media 100 ▪ NTSC or PAL video monitor (optional, but recommended) ▪ Amplified speakers (or high impedance headphones)

Video Requirements

- Single VTR (or other video source) ▪ NTSC or PAL video monitor (optional but recommended) ▪ Amplified speakers (or high impedance headphones)

Media 100

On-line, nonlinear video post-production system for creating professional videos on the Macintosh. Includes: 2 NuBus cards; 2 composite video cables; 2 S-Video cables; 2 Media 100 card interconnect cables; audio cable assembly; 4 XLR-to-RCA adaptors; 2 Media 100 software diskettes; Tour of Media 100 (tutorial); Media 100 Installation Guide; Media 100 User Manual \$11,995.00

Media 100 Options

FX Option enables Media 100 to create effect previews in real time and render, play, edit and output Adobe Premiere effects as high-quality video, all within the Media 100 environment. Includes free Static Title Plug In for titling capabilities \$995.00

EDL Option™ generates standard format edit decision lists (EDLs), reads SMPTE time code and allows you to remotely control your VTR from the Media 100 system. \$995.00

CG Option for creating top-quality, anti-aliased titles and credits over your video programs within the nonlinear Media 100 environment. Complete scrolling and moving effects are also available. \$1,495.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DSS-MWS/DSR-MWS Master "Wing Style" Workstation Consoles

- 1-piece top design ▪ 36"D x 118"W work area ▪ 2 adjustable shelf sections come with 4 22"W x 22"D shelves ▪ Metal surfaces have black satin and chrome finish ▪ Top surface and shelves are black nebula laminate with "T" molded edging ▪ 2 swivel casters (4 locking)
- DSS-MWS \$2150.00



- DSS-MWS/MB Same as the DSS-MWS with 1-piece, 18"D x 118"W, height-adjustable (10"-17") monitor bridge* \$2640.00
- DSR-MWS Same as the DSS-MWS, but includes a 2-shelf adjustable section and a 123-space 21"H x 26"D equipment rack with front and rear tapped angle mounting rails 1970.00
- DSR-MWS/MB Same as the DSR-MWS with 1-piece, 18"D x 118"W, height-adjustable (10"-17") monitor bridge* 2460.00
- *Note: 18"D and 24"D monitor bridges also available.

D-MWS/MB Master "Wing Style" Workstation Consoles

- 1-piece top design ▪ 36"D x 118"W top surface area ▪ E.I.A. rackmount cabinet base interior has 12 rack spaces (21"H x 26"D) ▪ Front and rear tapped mounting rails ▪ 2" swivel casters (2 locking) ▪ Black satin finish ▪ Black nebula laminate top surface with "T" molded edging
- D-MWS \$1790.00
- D-MWS/MB Same as the D-MWS with 1-piece, 18"D, height-adjustable (10"-17") monitor bridge. 2280.00

J-36 Series Reversible Angle Desktop Edit Workstation Systems

- 36"D x 90"W top surface area laminated on both sides in standard black nebula with "T" molded edging ▪ Multiple J-36 systems may be placed together to provide a variety of larger "Wing Style" work surface combinations ▪ Modesty panel also serves as a cable tray ▪ Metal surfaces finished in black satin ▪ Legs have chrome bases
- JL-36 Includes leg pairs adjustable from 29.5" to 38.5" in height and adjustable floor guides. \$1370.00
- JR-36 Includes E.I.A. 12-space (21"H x 26"D) rack cabinet with front and rear tapped mounting rails and 2" swivel casters. 1590.00
- JSL-36 Includes height adjustable shelf section with 2 ES-22 equipment shelves and 2" swivel casters (3 locking) 1775.00

RR-3684 Edit Workstation System

- 36"D x 84"W top work surface laminated in black nebula with "T" molded edging ▪ Includes 2 E.I.A. 12-space (21"H x 26"D) rack cabinets with front and rear tapped mounting rails ▪ Modesty panel serves as a cable tray ▪ Cabinets come with 2" swivel caster sets \$1470.00

LS-/RS-/SS-3684 Edit Workstation Systems

- 36"D x 84"W top work surface ▪ 2" swivel casters (some locking)
- Available in 72"W models (LS-3684 also available in 60"W model)

- LS-3684 1 leg and 1 adjustable shelf section with 2 ES-22 adjustable shelves left or right facing \$1310.00
- RS-3684 1 shelf section with 2 shelves and 12-space 21"H x 26"D rack cabinet with front and rear tapped mounting rails 1655.00
- SS-3684 2 adjustable shelf sections, each with 2 ES-22 22"D x 22"W height-adjustable shelves 1850.00

L36 Series Desktop Edit Workstation Consoles

- All work surfaces finished in black nebula laminate with "T" molded edging ▪ Metal frames finished in black satin paint and chrome ▪ 36"D work surface ▪ Surface height adjustable from 29.5"-38.5" ▪ Modesty panel serves as cable tray ▪ Adjustable floor guides
- LL-3648 48"W \$690.00
- LL-3660 60"W 760.00
- LL-3672 72"W 840.00
- LL-3684 84"W 930.00

L24/L18 Series Desktop Edit Workstation Consoles

- All work surfaces finished in black nebula laminate with black "T" molded edging ▪ Metal frames finished in black satin and chrome ▪ 18"D and 24"D top surfaces ▪ Modesty panel serves as a cable tray ▪ 22"W x 22"D ES-22 adjustable shelves ▪ Adjustable floor glides
- LL-18483 2 bays, 3 ES-22 shelves, 18"D x 48"W surface \$ 620.00
- LL-18603 2 bays, 3 ES-22 shelves, 18"D x 60"W surface 660.00
- LL-18725 3 bays, 5 ES-22 shelves, 18"D x 72"W surface 935.00
- LL-18845 3 bays, 5 ES-22 shelves, 18"D x 84"W surface 975.00
- LL-24483 2 bays, 3 ES-22 shelves, 24"D x 48"W surface 682.00
- LL-24603 2 bays, 3 ES-22 shelves, 24"D x 60"W surface 729.00
- LL-24725 3 bays, 5 ES-22 shelves, 24"D x 72"W surface 1028.00
- LL-24845 3 bays, 5 ES-22 shelves, 24"D x 84"W surface 1075.00

M/MN Series Moduline E.I.A. Equipment Consoles

- Includes standard pedestal(s), base/slope frame(s), side panels, top(s) and angled or flat work surfaces ▪ 26"D base cabinets ▪ 22 3/4" - 26" slope cabinets ▪ High quality steel ▪ Black satin finish ▪ 24 1/2" base
- M205 2 bays, 10 1/2" slope, 15 3/4" angled editor shelf \$1339.00
- M208 2 bays, 10 1/2" slope, 18" flat work surface 1339.00
- M105 1 bay, 10 1/2" slope, 15 3/4" angled editor shelf 747.00
- M405 4 bays, 10 1/2" slope, 15 3/4" angled editor shelf 2521.00
- MN250 2 bays, 10 1/2" vertical top module, 15 3/4" angled shelf 1452.00
- M305 3 bays, 10 1/2" slope, 15 3/4" angled editor shelf 1930.00
- Note: Additional models available. Please call.

MV Series Moduline E.I.A. Equipment Consoles

- Includes standard pedestal(s), base/slope frame(s), top module(s), side panels, tops and angled editor shelves or flat work surface(s) ▪ Base/slope cabinets are 26"D for the base and 22 3/4" - 26" in the slope portion ▪ Top modules are 22 3/4"D ▪ High quality steel ▪ Black satin finish ▪ 24 1/2" base, 10 1/2" slope, 15 3/4" angled shelf editor, 14" top module
- MV1054 1 bay \$ 972.00
- MV2054 2 bays 1717.00
- MV3054 3 bays 2461.00
- MV4054 4 bays 3205.00
- Note: To incorporate either the DW-12 (12") or DW-15 (15") wedge between the slope and top modules, add \$82.00 per wedge (1 per bay) to the total system price. Additional models available. Please call.

MC/MVC Series Moduline E.I.A. Equipment Consoles

- Includes standard pedestals, base/slope frames, top modules (MVC only), side panels, tops and angled editor shelves or flat work surface(s) ▪ Base/slope cabinets are 26"D for the base and 22 3/4" - 26" in the slope portion
 - Top modules are 22 3/4"D ▪ High quality steel ▪ Black satin finish ▪ 24 1/2" base, 10 1/2" slope, 15 3/4" angled shelf editor ▪ Corner kit
- MC405 4 bays \$2927.00
- MVC3050 3 bays, 10 1/2" top module, 2821.00
- Note: Additional models available. Please call.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEO ANIMATION CONTROLLERS



Special effects and rotoscoping can be produced using Action Animator software to trigger video capture cards to digitize sequences of video images for composition with computer graphics.

DQ-422 +/DQ-50P Video Animation Controllers for PC-Based Systems

- Frame accurate recording and digitizing
- Automated functionality
- Multiple software interfaces
- Rotoscoping and special effects
- Multiple VTR control
- NTSC or PAL standards
- Serial or parallel VTR control
- On-board sync generator
- SMPTE/EBU time code generator/reader
- Direct interfaces to popular animation software packages
- Control of videotape, laserdisc and digital disk recorders
- External sync input

DQ-422 +/Action Animator/Windows

- Controls professional and broadcast serial video recorders
- 2 RS-422 communication ports allow independent control of 2 VTRs
- Field detection circuitry, and RS-170A NTSC type sync generator and two 9-pin serial control interfaces
- Communicates with standard time code boards resident in the VTR or external time code devices
- Allows a user-defined park point to prevent tape damage
- Comes with software to control all serial video recorders supported by Diaquest

DQ-MAC232™ Software-Only Video Animation Controller with Digi-Comp

- Frame accurate recording and digitizing
- Multiple software interfaces
- Rotoscoping and special effects
- Full QuickTime support
- Plug-ins and XObjects™
- Alpha channel compositing
- NTSC or PAL
- RS-232 controlled recorders support: Sony EVO-9650, Sony LVR-3000/4000/5000/6000, Pioneer VDR-V1000
- Direct interface to popular software including: Adobe®, Byte by Byte™, CrystalGraphics™, Electric Image™, Linker System™ and Macromedia®
- Includes XObjects for Macromedia MacroMind Director® and Three D®
- Includes Video OnLine™ and cable

\$995.00

DQ-Animaq™ Macintosh® Animation Controller

- Frame accurate recording and digitizing solutions for both desktop video and broadcast television production
- Used with Macintosh paint, 2-D, 3-D, multimedia, editing and image processing programs to produce accurate video animations
- Single or multiple video frames and real time

digital transitions can be automatically recorded onto video

- Rotoscoping and special effects
- System 7 compatible
- Serial and parallel VTR control
- On-board sync generator (desktop only)
- Multiple software interfaces
- SMPTE/EBU time code generator
- Plug-ins and XObjects
- Occupies a single NuBus slot and controls a full range of professional and broadcast videotape, laser disc and digital disk recorders
- Mac II compatible
- Conforms with Apple NuBus® requirements
- On-board microprocessor frees the Macintosh CPU for graphics operations

DQ-Animaq Desktop

Single slot, 2-board set supports virtually all serial VTRs. The on-board professional RS-170A type sync generator and field detection circuitry provide the key features for professional desktop video

animation \$1995.00

DQ-Animaq Broadcast

Single-board configuration for broadcast and video post-production environments. Same software features as the desktop configuration but supports only the full range of serial VTRs. On-board field detection circuitry, but no sync generator or time code reader/generator. . .

\$1495.00

Editmaq Option 295.00

Pro Pac Option. 495.00

DQ-TimeCoder™ Software Plug-In For Adobe Premiere

- Frame accurate video capture
- SMPTE/EBU time code stamping of Adobe Premiere movies
- Real time video machine control
- Frame accurate clip logging
- Frame accuracy in single event or batch mode
- Frame accurate edit decision list (EDL) creation for post production
- Waveform monitor and vectorscope control for specific time code sequences. \$295.00

Animaq/VM™ Video Animation Controller

- For FAST Video Machines
- Frame accurate recording and digitizing
- QuickPass
- Animation sequencing
- Rotoscoping and special effects
- QuickTime support
- Video Machine PC interface
- Video Machine Macintosh interface. POR*

Animaq/UX™ Software Animation Controller

- For SGI Silicon Studio
- Frame accurate recording and digitizing
- Animation sequencing
- Rotoscoping and special effects
- NTSC or PAL
- Serial VTR control
- Automated functionality
- Network VideoServer™ (option). POR*

Series II Animation Controllers

- Interfaces with any computer to automatically control videotape, laserdisc and digital recorders to produce frame accurate animation
- Frame accurate recording and video capture
- Rotoscoping and special effects
- UNIX/PC/Macintosh/Amiga software interfaces
- RS-232 computer interface
- Multiple VTR control
- NTSC or PAL standards
- SMPTE/EBU time code generator/reader
- Master sync generator

Series II S

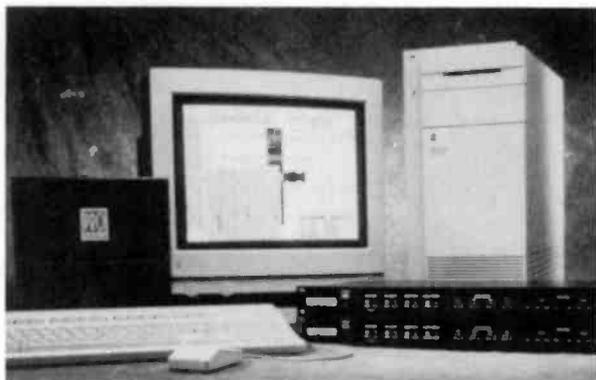
- Supports all listed serial video recorders and controls 2 independent VTRs through dual RS-422 ports
- Composite sync input
- Switched output to video recorder
- Encoded video input
- Timebase corrector advanced sync input
- Footswitch/contact closure input \$2995.00

Series II SP

- Supports both serial and parallel video recorders
- On-board SMPTE/EBU time code generator/reader and sync generator
- 1 parallel and 2 serial machines can be independently controlled
- Includes all Series II S inputs and outputs
- Parallel VTR control \$3995.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Pro Tools™ 2.0

Multitrack Digital Recording and Editing System

- 4- to 16-channel direct-to-disk digital recording ▪ 64 virtual audio tracks
- Multichannel digital mixing ▪ MIDI sequence recording, playback and automation
- Sequencer-style digital audio editing ▪ Graphic breakpoint-style automation editing for audio and MIDI events ▪ SMPTE synchronization
- Unlimited digital track bouncing with no generation loss ▪ Time stamping of regions ▪ 44.1 and 48kHz sample rates ▪ AES/EBU and S/PDIF digital I/O
- Balanced +4dBm I/Os ▪ Parametric digital EQs ▪ Basic, 4-channel system includes: Pro Tools 4-channel audio interface, Pro Tools Audio Card (DSP card) and Pro Tools 2.0 software \$5995.00
- Pro Tools System Accelerator card 2000.00
- Pro Tools 4-channel Expansion Kit 4000.00
- Sound Tools II to Pro Tools Upgrade 3495.00
- PostView™ ▪ Integrated digital video and VTR control 1495.00
- PostConform™ ▪ Provides EDL import and auto-conform TBA*
- Track-It™ ▪ Formats and prints recording logs 995.00

TDM™ Bus

- Expands Pro Tools to include advanced mixing, routing and effects processing as well as integration with other third party hardware and software plug-ins
- TDM Starter Kit Includes DSP Farm™ card, Pro Tools "piggyback" card, TDM software, 3 Digidesign Software DSP plug-ins \$2995.00
- TDM for SampleCell II (Mac) Provides 8 discrete, digital outputs directly to Pro Tools via TDM Bus. TBA*

Pro Tools 2.5

- Software update ▪ Edit window has access metering, sends, EQ, level and voice assignment in 1 window ▪ OMS support ▪ Scroll during playback for real time visual feedback TBA*

Sound Tools II™/Pro Master 20

Stereo Digital Recording and Editing System

Common Features

- Stereo direct-to-disk digital recording and playback ▪ Waveform editing at single-sample resolution ▪ Non-destructive playlist editing ▪ Real time dynamics compression/expansion/noise gate ▪ Stereo time compression/expansion ▪ Pitch shifting with time correction ▪ Real time parametric/graphic EQ ▪ Data compression options ▪ SMPTE synchronization
- Archiving to audio DAT ▪ Sound Accelerator II™ digital signal processing card ▪ Sound Designer II™ stereo waveform editing software ▪ AES/EBU digital I/O
- Sound Tools II Includes common features plus: 16-bit, 44.1kHz and 48kHz sample rates; Motorola 56001 DSP; 4 XLR-type, +4dBm balanced analog I/O; S/PDIF digital format; Superclock input for Video Slave Driver and SMPTE Slave Driver; compatible with digital audio sequencers; pro-quality audio interface \$3495.00
- Sound Tools ProMaster 20 Includes common features plus: 20-bit A/D converters and circuit design; 20-to-16-bit dithering; upgradable DSP plug-in module path including DINR; ProMaster 20 audio interface. \$995.00

Audiomedia II™/LC

CD-Quality Stereo Recording, Editing and Playback System

- Stereo direct-to-disk digital recording and playback ▪ 16 bit, 44.1kHz and 48kHz sample rates ▪ Digital signal processing ▪ Stereo analog and S/PDIF input/output ▪ Waveform editing at single-sample resolution
- Non-destructive playlist editing ▪ Real time dynamics compression/expansion/noise gate ▪ Stereo time compression/expansion ▪ Pitch shifting with time correction ▪ Real time parametric/graphic EQ ▪ Data compression options ▪ SMPTE synchronization ▪ QuickTime™ compatibility ▪ Archiving to audio DAT ▪ Recording backbone for MIDI sequencers: Studio Vision, Cubase Audio, Digital Performer, Notator Logic Audio and DECK multitrack recording software
- Audiomedia II For Mac II or Quadra \$1295.00
- Audiomedia LC For Mac LC, Performa 400 and Color Classic, same editing and processing power as Audiomedia II with stereo mini jacks for its analog inputs/outputs (no digital I/O) 995.00

MasterList CD

- No compromise, CD mastering software ▪ Compatible with a choice of CD recorders ▪ Creates "Red-Book" compatible glass master ready CDs with full PQ encoding \$995.00

Session 8™

Multitrack Digital Recording and Editing

- 8-channel direct-to-disk digital recording ▪ Multichannel digital mixing
- Sequencer-style digital audio editing ▪ 44.1 and 48kHz sample rates
- S/PDIF digital I/O ▪ Unlimited digital track bouncing with no generation loss ▪ Integration with popular MIDI sequencers ▪ Parametric digital EQs
- Archiving to audio DAT

- Session 8 with 882 Studio ▪ For Mac and PC ▪ Computer-controlled input patching ▪ 4 mic/instrument preamps ▪ 10 x 2 analog submixer for connecting synths, samplers and outboard gear ▪ 4 effects sends and up to 8 returns ▪ 4 tip-ring-sleeve type inserts ▪ 2 headphone outputs \$3990.00
- Session 8 with 882 I/O System For Mac and PC 2990.00
- Session 8 XL For PC only, same software and audio cards as Session 8, but provides 2 pro-quality audio interfaces. \$995.00
- R1 Remote Controller 995.00

SampleCell II™

16-Bit Stereo Sample Playback Card

- 32-voice ▪ 8 polyphonic outputs ▪ For Windows®/PC platform and Apple Macintosh® ▪ For music and audio post production ▪ Supports 32M bytes of standard Macintosh II 4M bytes SIMMS ▪ SampleCell Editor software
- 2 CD-ROM sound library discs with over 650M bytes (PC)/800M bytes (Mac) of ready-to-load instrument samples and sound effects ▪ SampleCell II NuBus card ▪ Sound Designer IISC sample editing software ▪ Supports Sound Designer and AIFF files
- SampleCell II PC version, RAM not included \$1495.00
- SampleCell II Mac version, with OM byte RAM 1995.00

Accessories

- Video Slave Driver ▪ For Pro Tools, Sound Tools II, ProMaster 20 and Session 8 \$995.00
- SMPTE Slave Driver ▪ For Pro Tools, Sound Tools II, ProMaster 20 and Session 8 1295.00
- 12-Slot NuBus Expansion Chassis ▪ For Digidesign cards only (does not support original Sound Tools system, Audiomedia or MacProteus and the Mac IIx does not support NuBus expansion) 2295.00
- DINR™ ▪ Digidesign Intelligent Noise Reduction system 995.00
- ADAT Interface™ ▪ Multichannel digital interface for transferring Alesis ADAT audio to and from Pro Tools or Session 8 995.00
- Turbosynth SC™ ▪ Combines the flexibility of modular synthesis with the power and convenience of modern digital synthesis, sampling and sound processing technology 349.00

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PROJECTION SCREENS



DRAPER

MOTORIZED PROJECTION SCREENS

Targa – Contemporary Electric Screen

Contemporary motor-in-roller electric screen. Smooth, silent operation with viewing surface centered in a steel case making for a trim, balanced look. Designed for either wall or suspended mounting. Choice of fiberglass matte white or glass beaded viewing surface. High-gain Reflex 4000 surface available.



Video Format

Size HxW	Price	Size HxW	Price
50" x 50"	\$733.00	7' x 9'	\$ 898.00
60" x 60"	744.00	9' x 9'	935.00
70" x 70"	760.00	8' x 10'	997.00
84" x 84"	827.00	10' x 10'	1025.00
6' x 8'	848.00	9' x 12'	1048.00
8' x 8'	884.00	12' x 12'	1121.00

Nominal Diagonal	Viewing Area	Price
6'	42" x 56 1/2"	\$ 744.00
7'	48 1/2" x 65 1/2"	760.00
8'	58" x 79"	827.00
10'	71" x 92"	848.00
150"	87" x 116"	997.00
15'	104" x 140"	1048.00

Rolleramic – Largest Electric Screen

The Rolleramic features all heavy-duty components and is built to withstand years of continuous use. Descends quickly and silently at the touch of a switch. Designed for either wall or suspended mounting. Choice of fiberglass matte white or glass beaded viewing surfaces.



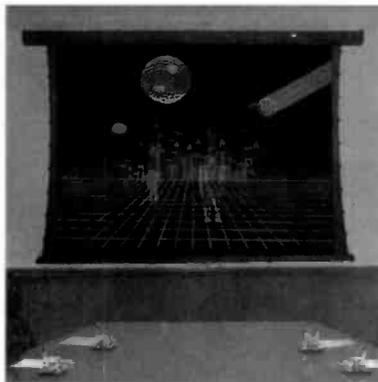
Size HxW	Price	Size HxW	Price
50" x 50"	\$1304.00	9' x 12'	\$1577.00
60" x 60"	1321.00	12' x 12'	1654.00
70" x 70"	1333.00	10'6" x 14'	1904.00
84" x 84"	1365.00	14' x 14'	1993.00
6' x 8'	1375.00	12' x 16'	2186.00
8' x 8'	1415.00	16' x 16'	2242.00
7' x 9'	1457.00	13'6" x 18'	2426.00
9' x 9'	1498.00	18' x 18'	2593.00
8' x 10'	1515.00	15' x 20'	2667.00
10' x 10'	1554.00	20' x 20'	2875.00

Video Format

Nominal Diagonal	Viewing Area	Price
6'	42" x 56 1/2"	\$1321.00
7'	48 1/2" x 65 1/2"	1333.00
8'	58" x 79"	1365.00
10'	71" x 92"	1375.00
150"	87" x 116"	1515.00
15'	104" x 140"	1577.00
25'	176" x 236"	2667.00

Premier – With Perfectly Flat Surface

Premier is designed to meet the exacting requirements of video and data projection. Tab Tensioning System holds M1300 or M2500 viewing surfaces flat and wrinkle-free. Projected image fully framed by black masking borders (standard). Designed for either wall or suspended mounting. Cineflex rear projection surface also available. Call for quotation.



Video Format

M1300 or M2500		M1300 or M2500	
Size HxW	Price	Size HxW	Price
50" x 50"	\$1477.00	7' x 9'	\$2306.00
60" x 60"	1624.00	9' x 9'	2496.00
70" x 70"	1807.00	8' x 10'	2551.00
84" x 84"	2021.00	10' x 10'	2607.00
6' x 8'	2075.00	9' x 12'	2813.00
8' x 8'	2242.00	12' x 12'	3137.00

Nominal Diagonal	Viewing Area	M1300 or M2500
6'	42" x 56 1/2"	\$1569.00
7'	48 1/2" x 65 1/2"	1724.00
8'	58" x 79"	1886.00
10'	72" x 96"	2075.00
150"	87" x 116"	2496.00
15'	104" x 140"	2813.00

Envoy – Concealed in the Ceiling

The Envoy features an automatic ceiling closure and is invisible when not in use. Ideal for meeting rooms, conference and training facilities. Quiet motor-in-roller design. Choice of fiberglass matte white or glass beaded viewing surfaces.



Video Format

Size HxW	Price	Size HxW	Price
50" x 50"	\$1533.00	7' x 9'	\$1712.00
60" x 60"	1553.00	9' x 9'	1743.00
70" x 70"	1569.00	8' x 10'	1772.00
84" x 84"	1627.00	10' x 10'	1821.00
6' x 8'	1640.00	9' x 12'	1869.00
8' x 8'	1663.00	12' x 12'	1918.00

Nominal Diagonal	Viewing Area	Price
6'	42" x 56 1/2"	\$1553.00
7'	48 1/2" x 65 1/2"	1569.00
8'	58" x 79"	1627.00
10'	71" x 92"	1640.00
150"	87" x 116"	1772.00
15'	104" x 140"	1869.00

Electric Screen Accessories

Please note – All electric screens are standardly furnished with 115V control switch.
 115V Multiple Station Controls 2 or more stations per station/\$ 79.00
 Low Voltage Control (24V) Control module, no switches 187.00
 Additional control stations 98.00
 Wireless transmitter/receiver 129.00
Note – You must purchase low voltage control module in order to use wireless transmitter/receiver. Receiver plugs into control module.
 Key Operated Switches Power supply switch (on/off) \$77.00
 3-position (up/off/down) key control switch 92.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

EIKI

Audio Visual/Video Products



VIDEO PROJECTORS



LC-5000 Portable Large-Screen Projector

- Projects computer data, graphics and full-motion video on any wall or screen up to 300" diagonal
- 640 x 480 scanning system
- 921,600 pixels
- Connects directly to an IBM VGA, EGA or Mac II PC
- Multi-channel, multi-voltage capability
- NTSC, PAL, SECAM or NTSC 4.43 and 100-240VAC
- Exclusive long-throw lens
- Remote control zoom and focus
- Built-in amplifier and speaker
- Automatic rear screen projection
- Electronic keystone adjustment
- S-Video resolution with 550 TV lines
- 19-function, backlit infrared remote
- Reverse picture scanning
- On-screen menu display
- 180W metal halide lamp
- Freeze frame capability
- Connects to almost any VCR, S-Video VCR, laserdisc player, TV tuner or camcorder . . . \$10,980.00

LC-3010 Portable Large-Screen Video Projector

- Projects a giant image up to 300" diagonally on any wall or screen
- 331,350 pixels
- Impressive audio reproduction
- Compact
- Built-in 3W monaural amplifier and speaker
- 4-color system (PAL, SECAM, NTSC and NTSC 4.43)
- Advanced LCD technology
- Uses 3 lightweight, high-resolution, 3.1" TFT type active matrix display panels
- Full-function, backlit infrared or wired remote controller lets you adjust the picture and sound from anywhere in the room
- f/4.2-4.5 with 135-270mm electronic zoom and focus
- 160W metal halide lamp delivers 1000 lux output
- Electronic keystone adjustment gives you full, square-cornered images from projection angles of up to 20°
- Image expand button gives you the ability to focus your audience's attention on important points by enlarging the center of the image a full 100% . . . \$5,495.00



LC-300 Portable Color Video Projector

- Adjustable 25"-300" diagonal screen size
- High brightness 550 lux with 40" screen
- 100:1 contrast ratio
- 7.6'-44" throw distance
- Three 3.1" TFT
- 331,350 pixels
- f/4.2-4.5 lens with 5.31"-10.08"
- 2.64" lens aperture
- 8W main amp (monaural); 5W stereo amp for external speakers
- High brightness metal halide lamp, 160W

- Compact and lightweight style
- 450 TV lines
- Motor drive zoom and focus adjustment
- Built-in audio amplifier and speaker
- Picture reverse scan function
- Keystone correction function
- Expand picture function
- Superimpose function
- Blue back display
- Standby on-screen display
- Backlight control panel and remote unit \$4,545.00

LC-200 Portable Large-Screen Video Projector

- Specially designed for shorter projection distances or rear-screen applications
- Short-throw lens system projects a 40" diagonal image at 5' or a 200" image at 18'; nearly 9X larger than ordinary LCD video projectors and 64X larger than typical 25" monitors
- High-definition convergence-free LCD active matrix drive system
- LCD 3.1" TFT system
- 331,350 pixels resolution
- S-Video input with over 450 TV lines of resolution
- Height-definition image filter
- Backlit operation controls
- On-screen menu display
- Electronic keystone adjustment
- Adjustable focus
- Built-in 3W monaural amplifier and speaker
- Lightweight, low-profile body
- Reverse picture scanning \$3,495.00



LC-120 Portable LCD Video Projector With Built-In Video Cassette Player

- Projects sharper, higher contrast images up to 100" diagonally
- 350 lines of horizontal resolution
- Single panel LCD technology with over 300,000 pixels
- Built-in video cassette player
- Built-in 5W amplifier and speaker
- Wireless remote control with backlit keys
- On-screen menu display
- Multiple audio and video inputs including S-Video input and external speaker output
- Extended-life metal halide lamp
- Reverse picture scanning button
- Compact, fully portable design
- Built-in, retractable carry handle
- Throw distance: 2.3'-10.8' \$2,999.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO/GRAPHICS PROJECTION SYSTEMS



ELECTROHOME *Projection Systems*

ECP 4100 Data/Graphics Projector

Microprocessor-based 3-lens data/graphics and video projection system ■ Simple to set up and operate ■ On-screen menus ■ Controlled by a wired remote backlit keypad

Scan Frequency: 15-85kHz (horizontal) autolock; 45-120Hz (vertical) autolock Retrace: 2.5ms Light Output: 650 lumens Resolution: 1280 x 1024 Bandwidth: 70MHz Inputs: RGB, TTL, NTSC 3.58, NTSC 4.43, PAL, SECAM Screen Size: 5'-25' diagonal Size: 17.25"H x 24"W x 25"D \$18,995.00

ECP 4101 Acon Data/Graphics Projector

Same as ECP 4100 except features Acon automatic convergence feature \$21,995.00

ECP 3100 Data/Graphics Projector

Microprocessor-based 3-lens data/graphics and video projection system ■ Simple to set up and operate ■ On-screen menus ■ Controlled by an infrared remote backlit keypad

Scan Frequency: 15-55kHz (horizontal) autolock; 45-120Hz (vertical) autolock Retrace: 3.6ms Light Output: 650 lumens Resolution: 1280 x 1024 Bandwidth: 60MHz Inputs: RGB, TTL, NTSC 3.58, NTSC 4.43, PAL, SECAM Screen Size: 5'-25' diagonal Size: 17.25"H x 24"W x 25"D \$12,995.00



ECP 3101 Acon® Data/Graphics Projector

Same as ECP 3100 except features Acon automatic convergence feature, a hardware/software system that automatically aligns the projected color image from an Electrohome 3-lens data/graphics projector when initiated by the user through a command from the projector's keyboard or remote. This function is performed by the Acon system in less than 3 minutes over 45 zones on the screen \$15,995.00

ECP Data/Graphics Projector Accessories

- Mobile cart \$ 499.00
- Ceiling mount 355.00
- ECP IR video/data switcher 1,595.00
- Quad standard decoder NTSC/PAL/SECAM 595.00
- Interface modules 255.00-295.00
- Marquee signal switcher 1,995.00

Marquee 9000

Liquid coupled, 9" electromagnetic focus CRTs and lenses with Scheimpflug adjustment ■ 1200 peak lumens, 225 lumens including green filter for improved sharpness and video color ■ 1500 x 1200 ANSI pixel resolution ■ 67"



to 25' diagonal screen size ■ Built-in RGB and RS-232 inputs ■ 120MHz (-3dB) bandwidth ■ 15-130kHz autolock horizontal scan frequency ■ 45-150Hz autolock vertical scan frequency ■ Retrace: 2.1-6.0ms horizontal, less than 300ms vertical ■ 650W maximum power ■ Full-function infrared backlit remote control including 45-zone digital convergence with on-screen help ■ 17"H x 28"W x 32"D \$34,995.00

Marquee™ 8000

8" electromagnetic focus CRTs with Scheimpflug adjustment ■ 900 peak lumens, 175 ANSI lumens ■ 1350 x 1100 ANSI pixel resolution ■ 67" to 25' diagonal screen size ■ Built-in RGB and RS-232 inputs ■ 100MHz (-3dB) bandwidth ■ 15-130kHz autolock horizontal scan frequency ■ 45-150Hz autolock vertical scan frequency ■ Retrace: 2.1-6.0ms horizontal, less than 300ms vertical ■ 650W maximum power ■ Full-function infrared backlit remote control including 45-zone digital convergence with on-screen help ■ 17" x 28" x 32" \$22,995.00

Retro III Self-Contained 67" Rear Screen Projector

2-piece design—top screen section can be removed and is shipped in separate carton ■ Projector can be easily removed through back access door to use as stand-alone projector or for service and maintenance ■ Front access door allows adjustment of optics from front of unit ■ Single mirror design provides superior image ■ Thin screen frame allows gang-ing and stacking of units for multi-screen images ■ Accepts ECP 3000 Series, ECP 4000 Series and Marquee 8000

data/graphics projection systems Size: 78"H x 54"W x 32"D (Pullout adds 14" to depth) Color: Gray tubular steel frame with gray corded polypropylene covered panels Screen: 67" diagonal high resolution wide angle screen. \$7,295.00

Optional black matrix screen unit 7,895.00



V3.1 Projector Software Upgrade

Offers enhanced features and performance without sacrificing well received features found on current projectors ■ Automatic source recall and interpolation ■ Auto power-up (after a power failure) ■ Setup memory lock ■ Variable blanking time ■ Enhanced Acon automatic convergence performance ■ Enhanced help menus for ECP projectors \$149.00

E-Link—Projector Remote Control Emulation Software for ECP Projectors

Full-featured software control system ■ Acts as a computerized replacement for the traditional handheld remote control keypad ■ Projector operators can interface with their projector functions using their computers ■ Password protection ■ Timed commands for power-up/power-down at a specified time ■ Multi-projector switching menus ■ On-line help ■ Runs under Microsoft Windows 3.0 or 3.1 ■ Fully Windows compliant ■ Tasks with other Windows applications. \$195.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TRV-16G—24fps

- Genlock circuit 24fps, 5-blade shutter and mag/opt playback
- Approx. 300,000 pixels color CCD pickup ▪ More than 370 TV lines horizontal

8913 \$4,710.00

TRV-16G—15fps

- Same as 8913 except modified for 15fps with silent speed and 4-blade shutter

8913-15 \$4,830.00



TRV-35G Slide to Video Converter With Genlock

- Genlock capability and resolution of >370 horizontal lines
- Accepts 2 or more video inputs and has dissolve and overlapping image capabilities ▪ Built-in zoom lens for close-ups, cropping and special effects ▪ 1-piece, self-contained professional heavy-duty slide mechanism in a die-cast metal housing ▪ Built-in 1/8" 300,000 pixels color CCD video pickup ▪ Converter uses standard circular 80-slide tray ▪ 6.5-16.25mm f/1.8 zoom lens manually adjustable or can be power zoomed using an optional remote control ▪ Focus and iris manually adjustable ▪ Color tone preset but can be manually manipulated using joystick control

8908 \$3,525.00

VMX-4 4-Channel Video Mixer

- 2 to 4 TRV-35Gs with a dissolve controller can be set up for a multi-image system ▪ Fade-in, fade-out and dissolve directly controlled by the VMX-4

8772 \$630.00

8598 RC-35G remote control 47.00

4191-2 T-3 timer, 2-30 second variable cycle 49.00

EV-700AF Visual Presenter

- 1/2" IT 3-CCD camera ▪ 410,000 x 3 pixels
- Captures 3-D objects and transparencies (miniature slides and/or large 14.3" x 10" OHP films) with the built-in baselight
- Negative/positive conversion possible
- 12X powered zoom lens with auto focus ▪ Built-in auxiliary lighting units ▪ True RGB/S-Video outlets ▪ RS-232C terminal for use through a computer ▪ Wired remote control ▪ 70W, 120VAC, 60Hz ▪ 58dB S/N ▪ 650 TV lines horizontal resolution
- 768(H) x 494(V) x 3
- f/2.5 f=8.5-68mm (Mode A); f/3.3 f=13-106mm (Mode B)



9308 \$14,500.00

EV-500AF Visual Presenter

- 1/2" IT CCD camera ▪ Clear image video of any material from 3-D objects to transparencies ▪ 410,000 pixels CCD pickup ▪ Advanced autofocus ▪ 10X zooming ▪ Front panel touch controls ▪ Rotating camera head ▪ Auxiliary lighting unit ▪ Built-in baselight for presentation of slides, OHP film and other transparent material
- Negative/positive conversion possible ▪ Auto white balance
- Color/B/W selection ▪ Iris control ▪ RGB output ▪ S-Video input
- AC outlet ▪ 48dB S/N ▪ f/1.8 ~ 2.3 f=8 ~ 80mm ▪ 811(H) x 508(V)

9312 \$5,250.00

9356 6W fluorescent lamp for top and baselights (2 in a box) box/56.50

EV-368 Visual Presenter

- Same as EV-308 plus 3 video outputs including S-Video, 360K pixels, 400 lines horizontal resolution, color-B/W change switch and baselight panel

9305 \$4,040.00

9350 LU-100 Twin Lighting Unit, supplied with two FL6W lamps 314.00

EV-308 Visual Presenter

- Can be fed into any size color video monitor, VCR, still video recorder or video printer ▪ Special audio output and input capabilities allow for microphone usage ▪ 8:1 motorized f/1.4-2.1, 8.5-68mm zoom lens ▪ Transmission lightsource built into its stage
- Provides crisp, sharp images of 35mm to 4" x 5" transparencies and will convert negative film into a positive image ▪ Utilizes CCD color camera which allows this to double as a location camera
- Camera head rotates 90° ▪ 46dB S/N ▪ 370 lines horizontal resolution ▪ 300K pixel CCD

8929 \$3,250.00

8898 LU-308 Twin Lighting Unit. Supplied with two 120V, 40W lamps 290.00

8788-1 BI-240 Baselight Panel for transparencies and X-rays, 11.6" x 8.3". Supplied with AC adaptor and two 8W lamps 415.00

EV-274 Visual Presenter

- Compact design ▪ Data can be presented via TV monitor, recorded on a VCR or transferred through a teleconferencing system ▪ 1/8" color CCD pickup and 4X manual zoom lens ▪ Built-in lighting unit
- f/2 f= 5.4-21.6mm max lens ▪ 538(H) x 505(V) ▪ 46dB S/N ▪ 320 lines horizontal resolution ▪ Power cord and video cable supplied
- Soft carrying case and baselight panel optional

9307 \$2,310.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



COMPUTER/VIDEO INTERFACES



Extron Electronics
INTERFACING. SWITCHING AND DISTRIBUTION



RGB 112 Universal DB 13W3 Computer Interface (Sun Sparc/NeXT)

- 300MHz video bandwidth
- Automatic horizontal picture centering
- LED power indicator
- Included with MBC cable and local monitor loop
- RGB and sync color BNC output
- Metal enclosure
- Local monitor loopthrough 13W3 connector
- Buffered monitor output for wide bandwidth
- Looped monitor ID bits
- Variable gain
- MBC cable included

The RGB 112 color is a dedicated computer video interface for the NeXT Color Computer and Sun Color Sparc station, and computers with the 13W3 video monitor output connector. The RGB 112 interface features a separate buffered workstation monitor output connector, computer cable (included) and a buffered RGB and sync output.
60-097-01 110V \$595.00

RGB 109 Plus Dedicated VGA, Super VGA and XGA Interface

- 300MHz video bandwidth
- LCD scan rate indicator of horizontal and vertical frequencies
- Computer 15-pin cable included
- Horizontal and vertical LCD scan-rate computer frequency read-out
- Variable gain and peaking
- Sync on green switch
- Metal enclosure
- Variable gain controls
- Horizontal centering control with on/off switch
- Separate buffered 15-pin output
- FCC Class A



The RGB 109 Plus is designed to provide high resolution performance for the anticipated yet to be announced high scan 48 to 90kHz graphics modes of Super VGA. A separate buffered workstation monitor output is the highest resolution method of interfacing for maintaining the original signal bandwidth. No input cable purchase required.
60-096-01 110V \$675.00

RGB 109 Dedicated IBM VGA Interface

- Auto power LED
- Vertical picture centering
- Horizontal picture centering
- Color RGB and sync output
- IBM VGA and 8514/A mode indication LED
- Auto-tracks all IBM VGA modes
- FCC Class A
- 4' MBC cable included

The RGB 109 is a dedicated IBM PS/2, VGA and VGA compatible computer video interface. The RGB 109 is designed to successfully display all modes of the IBM VGA and 8514/A display adaptor cards by tracking each mode and providing simultaneous local monitor viewing through an MBC.
60-007-01 110V \$325.00

RGB 108 Plus Universal Analog/ECL Interface

- Auto power LED
- Variable level control
- Variable (sharpness) control
- Variable level and boost control for cable runs to 1000'
- Vertical picture centering control
- Horizontal picture centering
- Horizontal and vertical frequency LCD scan-rate display
- Equalization pulse removal switch
- 2 switchable analog/ECL inputs
- Serration pulse removal switch
- Sync on green switch
- Vertical sync pulse width switch
- 75ohm termination switch (input 1)
- Horizontal frequency range: 15-125kHz
- Video bandwidth: 220MHz -3dB (sweep tested)
- Rise time: 1.6ns (pulse tested)
- External control knobs
- FCC Class A



The RGB 108 PLUS's compatibility includes IBM PS/2, VGA and Super VGA Cards, Macintosh II Series computers, SuperMac, Radius, RasterOps, Sun Sparc, Apollo, Silicon Graphics, CAD/CAM and all other analog or ECL computer video outputs.

60-114-01 110V plastic enclosure \$1095.00
60-114-03 110V metal enclosure 1195.00

RGB 105 VGA and Macintosh Interface

- 125MHz bandwidth
- 15-80kHz compatible
- Variable level control
- Local monitor loop
- Automatic sync stripping
- VGA and Mac compatible
- Easy to use
- MBC included
- Horizontal picture centering
- Separate local monitor outputs
- RGB and sync color outputs
- High impact plastic enclosure
- Power LED

The RGB 105 is a dedicated IBM VGA, VGA compatible and Mac computer-video interface. The user-friendly RGB 105 has an RGB bandwidth greater than 124MHz and will operate in a horizontal frequency range of 15-80kHz. A hard-wired monitor breakout cable is provided to allow connection between the interface and the computer output. The unique design of the RGB 105's MBC allows for connection of both VGA and Mac computers through the same cable without degrading the computer's image quality and without the use of additional cables or buffers.

60-142-01 110V \$495.00



RGB 103E Dedicated Macintosh II Interface

- Compatible with all Mac II computers with 15, 24 and 35kHz monitors as well as Apple IIgs computers
- Auto power
- Horizontal centering control
- Automatic horizontal centering
- Color RGB and sync output
- Color RGB with sync on green output
- Plastic enclosure

The RGB 103E computer-video interface allows the video output of the Mac II Series and Apple IIgs computers to be simultaneously displayed on the PC local monitor and a compatible large screen data projector or data monitor.

60-120-01 110V \$325.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**RGB 202 Plus Universal Analog/
ECL/TTL System Interface**

- Auto power LED with defeat switch
- Variable level control
- Variable peaking (sharpness) control
- Boost switch (long line driver)
- Vertical picture centering control
- Dual horizontal picture centering
- Horizontal frequency indication LEDs
- Variable TTL blue enhancement
- Front panel input select switch
- Rear panel input switch remote jack
- 75-ohm termination switch
- Automatic sync stripping from green
- Sync on green switch
- Serration pulse removal switch
- Equalization pulse removal switch
- Widen vertical sync pulse switch
- RGB video bandwidth: 220MHz -3dB
- Rise time: 1.6ns (pulse tested)
- Sony HDTV tri-level to bi-level sync conversion with variable peaking (sharpness) for HDTV video enhancement
- HDTV sync on green signals are automatically stripped from green and reformatted to separate standard composite sync
- Composite sync output
- Selectable separate H and V output

60-115-01 110V, plastic enclosure \$1095.00
60-115-03 110V, metal enclosure 1195.00



**RGB 202 Plus MXVS Computer
Interface With Videoshift™**

Includes all the features and compatibility of the RGB 202 Plus, but with an additional feature called VideoShift. VideoShift is a screen-saver product developed by Extron, designed to help prevent CRT "burn-in" by continuously moving the image around on the screen. Because a complete revolution takes 8 minutes, Video-Shift's movement is virtually unnoticeable and does not disturb the displayed picture.

60-115-05 110V \$1795.00

**RGB 202 Plus MX VS SL Computer Interface
With VideoShift And ShiftLock™ Features**

Includes the features and compatibility of the RGB 202 Plus MX VS, with an additional feature called ShiftLock. This feature allows images in a multiple monitor or projector wall setting to shift in sequence. ShiftLock enables multiple VideoShift interfaces to be timed in sequence so that all the units will be shifting at the same speed and direction.

60-115-07 110V \$1995.00

**RGB 120 Universal
Analog/ECL
Computer Interface**

- Power LED
 - Variable level control
 - Vertical picture centering with on/off override switch
 - Horizontal picture centering with on/off override switch
 - Serration pulse removal
 - Horizontal frequency range: 15-125kHz
 - Sync output polarity tracking
 - Universal Extron 9-pin input
 - 200MHz video bandwidth (2.3ns rise time)
 - Internal RGB gain controls
 - Flushmount metal control pots
 - High impact plastic enclosure
 - Automatic sync output detection
 - Automatic sync stripping from all RGB video channels
 - MBC power output
 - Built-in optional "No-Sync" processing
- The RGB 120 is a wide-bandwidth (200MHz) universal analog and ECL computer-video interface providing compatibility with all analog and ECL computers. 2 unique features of the RGB 120 are its ability to strip sync from red, green and blue video channels and its automatic sync output detection.

60-130-01 110V \$825.00



**RGB 118 Universal
Analog/ECL/TTL Interface**

- LED power indicator
 - Horizontal center control with on/off switch
 - 3 "peaking" control switch settings
 - Variable gain controls (R, G, B)
 - Serration pulse removal switch
 - Auto sync on green switch
 - Automatic sync stripping
 - Blue enhancement (TTL only)
 - MBC power output (MBC must be ordered separately)
 - External control knobs
 - Metal enclosure
- The RGB 118 is a computer video interface providing compatibility with any computer, mainframe terminal or PC on the market, including IBM CGA/EGA, MDA, Hercules, VGA, IBM PS/2, Mac II Series, Apple IIGS, IBM 3179/3192/3197, DEC 340, AT&T 6300, Super VGA and more. Providing a horizontal frequency range between 15-100kHz, the RGB 118 will allow any computer to be connected to a compatible large screen data projector or data monitor. 3 output configurations and special enhancement controls allow the RGB 118 to be one of the most versatile computer video interfaces on the market.

60-080-01 110V \$510.00



**RGB 118 Plus Universal
Analog/ECL/TTL Interface**

- Horizontal and vertical picture centering with on/off switches
- "Peaking" normal, boost and high frequency setting
- Variable gain controls (R, G, B)
- Sync on green switch
- Automatic sync stripping
- External control knobs
- LCD scan-rate display of horizontal and vertical frequencies
- Blue enhancement (TTL only)
- MBC power output
- 150MHz video bandwidth
- Serration pulse removal switch
- Input 75-ohm termination switch
- SRI—holding the interface up to the face of a computer's monitor will display the horizontal and vertical rate on the LCD readout without any attached input cables

The RGB 118 Plus is compatible with any computer mainframe terminal, PC or workstation on the market, including all those compatible with the standard RGB 118 interface. In addition, the RGB 118 Plus has 3 unique features. An LCD scan-rate display automatically detects the horizontal and vertical frequency of any input computer source through the connected cable and displays that frequency in Hertz. Also, the RGB 118 Plus includes vertical shift.

60-080-05 110V \$675.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

TEST EQUIPMENT/ MULTIMEDIA EQUIPMENT



Extron Electronics
INTERFACING. SWITCHING AND DISTRIBUTION



Andora™ Video to VGA Scan Doubler

- Multimedia interfacing ▪ VGA compatible ▪ NTSC, PAL, SECAM and RGB document compatible ▪ Auto-switch input selection ▪ Freeze frame ▪ Audio inputs/outputs ▪ Volume control ▪ S-VHS to VGA ▪ Video to VGA ▪ RGB to VGA ▪ Picture controls ▪ Horizontal shift ▪ 2 inputs ▪ Converts incoming video (15.7kHz composite, S-Video or RGB) to a standard VGA 640 x 480, 31.5kHz analog signal ▪ Digital noise filtering to eliminate noise in the display image, allowing an industry standard VGA or Super VGA display monitor, projector or LCD panel to provide full-motion, improved resolution video on demand ▪ S-VHS, Video (RCA) and VGA input cables included to make installation quick and easy

Andora \$1995.00



Emotia™ Scan Converter

- Compatible with 640 x 480 VGA (31.5kHz) and MAC (35kHz) video graphics ▪ Digital real time scan conversion from 31.5kHz and 35-15.7kHz NTSC/PAL ▪ Freeze frame switch ▪ Interlace/non-interlace switch ▪ Underscan/overscan switch ▪ Horizontal and vertical centering ▪ Horizontal picture width adjustment ▪ Output format: NTSC/PAL (switch activated), S-VHS and RGB sync ▪ Automatic 75-ohm termination for use with or without PC monitor (VGA only) ▪ Automatic anti-flicker filtering ▪ User friendly installation requires no special software or hardware configuration

60-129-01 \$1495.00
26-337-01 EMAC adaptor, allows connection to Mac 640 x 480 computers 175.00

TK 1 Kit Video Test Generator

- Provides all test and measurement devices and cables required to set up and align any large screen video or data projection system ▪ VTG-100 ▪ BNC 5-25' HR ▪ SRI-200 ▪ SY-VGA (VGA to 5 BNCs) ▪ SY-MAC (MAC to 4 BNCs) ▪ SU-13W3 (13W3 to 4 BNCs) ▪ High density polyethylene case ▪ Flashlight

42-001-01 110V \$2595.00

VTG 50 Video Test Generator

- High resolution and wide bandwidth scan format reproduction of computer signals ▪ Ideal for video/data projector alignment, system troubleshooting or anytime a computer signal must be accurately reproduced ▪ Over 25 pre-programmed 15-65Hz computer scan formats included ▪ >2ns rise/fall, 89.8MHz dot clock ▪ Provides user 16 video test patterns at 22+ popular scan frequencies for testing and evaluating monitors and projectors ▪ Menu-driven LCD readout ▪ Outputs: 15-pin HD VGA; 15-pin Mac; 9-pin TTL; 5 BNCs

6-117-01 110V \$1495.00
6-117-02 220V 1495.00



VTG 100 and VTG 100 RS-232 Video Test Generators

- High resolution and wide bandwidth scan format reproduction of computer signals ▪ Ideal for video/data projector alignment, system troubleshooting or any time a computer signal must be accurately reproduced ▪ Over 45 pre-programmed 15-65Hz computer scan formats ▪ >2ns rise/fall, 89.8MHz dot clock ▪ Provides user 16 video test patterns at 22+ popular scan frequencies for testing and evaluating monitors and projectors ▪ Menu-driven LCD readout ▪ Outputs: 15 pin HD VGA; 15-pin Mac; 9-pin TTL; 5 BNCs ▪ VTG 100 RS-232 combines all the features of the VTG 100 with a 9-pin standard RS-232 input ▪ May be externally controlled by a host PC, terminal or remote control system ▪ Baud rate selectable ▪ May be daisy-chained to control up to 16 VTGs from the host controller

60-118-01 VTG 100 110V \$2195.00
60-118-02 VTG 100 220V 2195.00
60-133-01 VTG RS-232 110V 2995.00
60-133-02 VTG RS-232 220V 2995.00

SRI 200 Handheld Horizontal and Vertical Scan Rate Reader

- LCD scan rate readout ▪ Hold the SRI 200 up to the face of computer's monitor to display horizontal and vertical frequencies ▪ Pocket size ▪ Lithium battery powered ▪ Auto power on/off ▪ Requires no input cables or wires

60-106-02 \$175.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**RGB and Video Switchers
Model 10 PLUS/
8 PLUS Switchers**

- 300MHz video bandwidth
- 75-ohm terminated inputs
- Inputs: RGB and sync, RGB with sync on green, monochrome composite video, NTSC/PAL or S-Video (S-VHS) with stereo audio follow
- Outputs: RGB and sync, composite video (NTSC/PAL) and S-Video
- Real panel select input LED indications
- 25-pin remote and tally control connector (contact closure)
- Power on/off switch with internal override
- Optional RS-232 2-4-6-8 controller, keypad remote and rack shelf

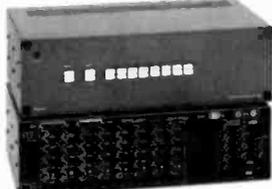
Model 10 PLUS Switcher 10 inputs 200MHz \$1995.00
With optional INTERNAL RS-232 2645.00
Model 8 PLUS Switcher 8 inputs 300MHz 1495.00
With optional INTERNAL RS-232 2145.00



**System 10/8 Universal
Projector Control Switchers**

- Built-in microprocessor for RS-232 and projector communications, allows digital control of all major manufacturers' graphics projectors
- 300MHz video bandwidth, inputs are 75-ohm terminated
- Inputs may be RGB with composite sync or separate horizontal and vertical sync, RGB with sync on green, monochrome composite video, NTSC/PAL or S-Video with balanced stereo audio follow
- Phoenix style audio connectors
- When connected to an RS-232 terminal, the System 10/8 will utilize bi-directional communications, making input changes when commanded by the terminal while informing the host terminal of input selections made by the front panel buttons or hardwired remote control. Switchers can be looped in a daisy-chain or star configuration
- Universal Projector Communications Port allows the System 10/8 to be configured in the field to complement any Barco, Electrohome, Esprit, GE, Hughes, NEC, Grayhawk or Sony digital projector. By utilizing bi-directional ("listen and talk") serial communications, these switchers emulate all the control functions offered by the projector manufacturers' switchers
- 3U high 19" wide metal enclosure
- Outputs include an RGB with composite sync or separate horizontal and vertical sync, composite video (NTSC/PAL) and an S-Video (S-VHS)
- Video loop-back allows integration of external decoders and line doublers for all composite video and S-Video sources
- Professional backlit pushbutton switches with removable lens for engraving
- Built-in contact closure hardwire remote control with tally
- Loopable up to 17 switchers

System 10 10-input switcher \$3995.00
System 8 8-input switcher 3495.00



Matrix Switchers

- 250MHz bandwidth
- Separate inputs and outputs
- Video genlock
- RGB delay switching
- Front panel controller
- LCD menu driven
- Video mute
- Audio mute
- Redundant power
- RS-232 control
- Complete breakaway audio and video
- Rackmountable
- Trouble status indicator
- Microprocessor controlled (SmartControl™)
- SmartControl includes event scheduling, status indicator and more
- Purchase with only the needed input/output modules and expand as needed
- Red, green, blue, sync (H&V), video and S-Video and audio modules available
- Matrix configurations expandable up to 48 x 48

Basic Module Enclosure \$2495.00
Front Panel Controller 1825.00
HRAM-High Resolution Analog Modules: (3 required for RGB)

8 x 8 \$1649.00	Video: 8 x 8 \$1125.00
8 x 4 1149.00	8 x 4 875.00
4 x 4 925.00	4 x 4 795.00

Sync:

8 x 8 \$995.00	Audio: 8 x 8 \$2149.00
8 x 4 749.00	
4 x 4 649.00	



Redundant Power \$ 750.00
Blank Front Panel 195.00
Internal Modem 1650.00

Analog Switchers

- 15-pin bi-directional input/output switchers
- Remote connector (contact closure)
- Compatible with IBM PS/2, VGA, Super VGA and XGA computers
- 75-ohm terminated
- Use male to male VGA cable for inputs to SW 2 VGA
- 2U metal enclosure
- External power supply
- Available options: auto-switching version; Extron switcher remote controllers; 19" 2U rack shelf

SW6 6 VGA 6 inputs \$795.00
SW4 4 VGA 4 inputs 550.00
SW2 VGA 2-input VGA/Super VGA analog switcher 360.00

SW 2 MAC 2-Input Mac II Quadra Analog Switcher

- 15-pin "D"
- ID bits are switched for bi-directional input/output switching
- Use male to male Mac cable for input to SW 2 MAC
- Remote connector (contact closure)
- 2U metal enclosure
- External power supply
- Compatible with Mac II, IIx, IIcx, IIci, IIsi, IIfx, Quadra, Performa and Apple IIGS
- Options: auto-switching version; Extron switcher remote controllers; and 19" 2U rack shelf

..... \$360.00

**RGB Analog Switchers With Internal Power Supply
SW 6 AR/SW 4 AR/SW2 AR Switchers**

- 75-ohm terminated inputs
- 200MHz video bandwidth
- Remote connector (contact closure) may be used with Extron's RS-232 2-4-6-8 controller, keypad remote controller and/or an infrared remote
- 2U metal enclosure
- External power supply
- BNC input, RGB with separate composite sync or sync on green
- Optional 2U rack shelf mounts 2 switchers
- Auto-switching version available

SW 6 AR 6 inputs \$795.00
With auto switch 875.00
SW 4 AR 4 inputs 550.00
With auto switch 625.00
SW 2 AR 2 inputs 360.00
With auto switch 410.00

SW 6 AR MX/SW 4 AR MX Switchers

- 300MHz bandwidth
- 75-ohm terminated inputs
- Built-in RS-232 or contact closure control for use with Extron's KP-10 keypad remote or any third-party remote system
- Accepts RGBS, RGB or composite video
- Built-in auto switching (dip switch activated)
- Use with NTSC/PAL and S-VHS
- 2U metal enclosure
- Internal power supply
- Options: memory backup; auto sequencing and blanking; and 2U rack shelf

SW 6 AR MX 6 inputs \$1195.00
SW 4 AR MX 4 inputs 995.00

**SW 6 AR MX HV Analog Switcher
With Internal Power Supply**

Same as SW 6 AR MX but accepts RGBS, RGB or RGBHV \$1595.00

Switcher Accessories

RS-232 2-4-6-8 Contact closure to RS-232 adaptor \$295.00
Model 10/8 plus communication port breakout (used when looping multiple Model 10/8 switchers via RS-232) 175.00
KP-10 keypad remote control 175.00
System 10 3U 19" rack panel 125.00
System 8 3U 19" rack panel 125.00
19" 2U high rack shelf 125.00
Projector communication extension cable—50' 115.00
Projector communication extension cable—100' 175.00
Projector communication adaptors 85.00
Memory backup, auto sequencing and video mute 450.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DESKTOP VIDEO SYSTEM



FAST™



Video Machine

■ Combines all classic functions of a video studio on a single board ■ Edit control unit for A/B roll operation ■ Video mixer with 6 inputs ■ Character and graphics generator ■ Digital video effects unit ■ 4-channel audio recording in stereo

Video Machine is a single card solution to complete desktop video editing. Designed as an option system, any Windows application can be used to generate input for importation into Video Machine. The Studio Control Box integrates with Video Machine to meet all the requirements of a professional video. 2 completely independent video channels support composite and S-Video signals (Y/C) in PAL, NTSC and SECAM (component signals/Betacam optional). Up to 6 inputs can be connected to the 2 video channels and video standards can be mixed. Video Machine digitizes the full PAL bandwidth (5.5MHz) with a sampling rate of 14.75MHz and full NTSC bandwidth (4.2MHz) with a sampling rate of 12.27MHz (2X oversampling). The system works internally in YUV studio format (4:2:2). The output signal is produced as a composite or Y/C signal by a digital encoder in PAL or NTSC (YUV optional). Video Machine can synchronize the output signal to an external signal using genlock. 2 effects modules are programmable and totally independent. Video effects can be generated in real time with both video sources simultaneously. The digital linear keyer provides soft transitions, dissolves and keying effects between both of the video and graphics layers.

Video Machine for PC

- VM-50100—Complete desktop video studio consisting of a full-size 16-bit AT-bus card and the VM-Studio software. Includes an A/B roll editing control unit for 3 VCRs, 2 frame synchronizers and a digital effects unit with over 400 different special effects (e.g. dissolves, fades, zooms, slides, curtain effects, shrinks, tumbles, strobe, posterizing, etc.), a video printer driver which functions as a fully PostScript and True Type compatible anti-aliased character and graphics generator, and a 4-channel stereo audio mixer. Reads and generates VITC and can write EDLs in Sony, CMX, etc. formats. The decks are controlled via LANC (Control-L) connections or 5-pin edit control. Accepts composite and S-Video NTSC, PAL and SECAM sources; output is NTSC and PAL. . . . \$3995.00
- VM-70100 Video Machine—The Corporate Studio—Includes Video Machine, Studio Control Box and Professional Filter . . . 6295.00
- VM-70101 Video Machine—The Professional Studio—Includes Video Machine, Studio Control Box and Component (YUV) Interface . . . 8495.00
- VM-50110 Video Machine SC (Studio Control)—Includes Video Machine and Studio Control Box. . . . 5950.00
- VM-50120 Video Machine with Multi I/O Professional—Includes Video Machine and Multi I/O Professional. . . . 4995.00

Video Machine Options

VM-50501 Studio Control Box—External 19" rackmountable unit for connection of professional VCRs. 3 RS-232 and RS-422 interfaces as well as LANC and genlock connections are provided. 1 LTC generator, 3 LTC readers and 8-channel audio mixer with balanced inputs and a downstream keyer output are built-in. . . . \$2500.00

- VM-50505 Component Option—2 YUV inputs and 1 YUV output in Betacam/MII quality. 16-bit AT-bus card and cable splitter \$ 2250.00
- VM-50507 YUV Interface—Professional I/O with 2 YUV connections with 1 YUV output. With this option video is processed internal processing at 4:4:4 and output in Betacam/MII video quality 2750.00
- VM-50503 Component Option YUV 19" Box—Upgrade from component cable splitter to 19" box. 600.00
- VM-50508 Jog/Shuttle—External module for fast, professional video editing. Functions include: switching between external sources, control of the drive functions and editing functions. Connects via PC's RS-232 or COM port. 1200.00
- VM-50504 Professional Filter—Plug-in board guarantees output signal quality, similar to CCIR 601 standard 530.00
- VM-50502 Multi I/O Consumer—Bracket with 3 high speed interfaces and drivers for controlling consumer decks via RS-232 (expandable to RS-422) 530.00
- VM-50506 Multi I/O Professional—Same as VM-50502, but with additional drivers for RS-422 (mixed mode with RS-232) 1320.00
- VM-50510 Panasonic Kit—Contains three 6' cables with 3.5mm jack plugs and 5-pin Panasonic plugs for edit control 86.00
- VM-50511 Sony Kit—Contains three 8" adaptor cables with 3.5mm jack for LAN-C control 47.00
- VM-50512 Studio Control Box Kit—15' connecting cable for Studio Control Box. Replaces standard 7.5' cable. 350.00
- VM-50513 RS-232 Kit—7.5' RS-232 cable with hardware handshake support with 9-pin connector to control the Mitsubishi E82 via the Multi I/O option. An adaptor (9-pin socket connector, 25-pin connector) for Panasonic equipment (AG-5700/7350//7150) is also included 55.00
- VM-50514 Application Programmer's Interface—DOS library in C 7.0 and Windows DLL's for creating applications 1200.00

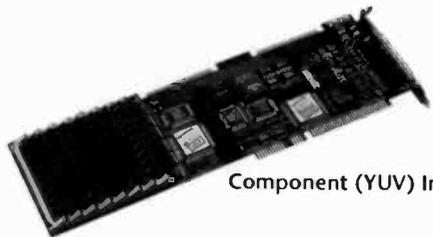
Video Machine for Macintosh

- VM-51100 Desktop Video Studio—Complete desktop video studio consisting of a Nu-Bus card for Quadra and the VM-Studio software. Includes an A/B roll editing control unit for 3 VCRs, 2 frame synchronizers and a digital effects unit with over 300 different special effects (e.g. dissolves, fades, zooms, slides, curtain effects, shrinks, tumbles, strobe, posterizing, etc.), a video printer driver which functions as a fully PostScript and TrueType compatible anti-aliased character and graphics generator and a 3-channel stereo audio mixer. Reads and generates VITC and can write EDLs in Sony, CMX, etc. formats. The decks are controlled via 5-pin edit control. Accepts composite and S-Video NTSC, PAL and SECAM sources; output is NTSC and PAL. \$4995.00
- VM-51110 Video Machine SC (Studio Control)—Same as above but includes the Studio Control Box 6950.00

Video Machine for Macintosh Options

- VM-51501 Studio Control Box—External 19" rackmountable unit for connection of professional VCRs. 3 RS-232 and RS-422 interfaces as well as genlock connections are provided. An 8-channel audio mixer with balanced inputs and a downstream keyer output are built-in . . . \$2500.00
- VM-51504 Professional Filter—Plug-in board guarantees output signal quality, similar to CCIR 601 standard 530.00
- VM-51507 YUV Interface—Professional I/O with 2 YUV connections and 1 YUV output in digital 4:2:2 video quality. With this option, editing, titling, etc. can be performed in Betacam/MII quality 2950.00
- VM-51508 Jog/Shuttle—External module for fast, professional video editing. Functions include: switching between external sources, control of the drive functions and editing functions. Connects via Mac RS-232 or COM port. 1200.00
- VM-51601 VM-Switcher—Software extension for real time switching between 6 composite or S-Video inputs 995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Component (YUV) Interface

Video Machine Digital Player/Recorder

- Real time processing of 400+ preprogrammed/customizable digital effects and alpha wipes (alpha wipes available in Video Machine only)
- 2 channels (A/B roll) digital video at 60 fields/second (single channel digital video configuration available for animation - 1 channel digital video with 4 channels digital audio)
- Adjustable video compression rates of 3:1 (Betacam/MII) to 100:1 (off line proofing)
- Digital, audio recording with 8-track live stereo mixing from hard disk in WAV or CD format
- 2 built-in SCSI controllers: SCSI II or Wide SCSI

The Digital Player/Recorder (DPR) is a 2-channel digital nonlinear editor available as a single board upgrade for Video Machine and Video Machine Lite. DPR is a complete on-line and off-line editing solution which integrates analog (linear) and digital (nonlinear) recording with adjustable quality ranging from proofing to Betacam/MII quality.

The DPR utilizes powerful Video Machine features including: a user-friendly timeline interface, frame accurate editing, control of more than 260 consumer to professional VTRs and an open architecture which means that graphics, titles and Photo CD images can be created in any Windows application and output to the Video Machine DPR.

- VM-50515 Digital Player/Recorder (2 digital channels) \$ 5,995.00
- VM-50509 Digital Player/Recorder (single digital channel) 4,750.00
- VM-70102 Nonlinear Studio - includes Video Machine, Digital Player/Recorder and Studio Control Box 11,495.00
- VM-70103 Professional Nonlinear Studio - includes Video Machine, Digital Player/Recorder, Studio Control Box and Component (YUV) Interface 14,295.00
- VM-50516 Digital Player/Recorder Upgrade (single to 2 digital channels) 2,500.00

Video Machine Lite

- Dual channel frame synchronizers
- Dual channel proc amp controls
- 4 stereo audio channels
- 200+ preprogrammed digital video effects (fully customizable)
- Graphical timeline interface for editing
- Open architecture means graphics, titles and images can be created in any Windows application and output to Video Machine Lite
- Video quality processed internally at 4:2:2
- Output composite or S-Video
- Modular design
- Easily upgradable with options such as the Component (YUV) Interface, Studio Control Box, Jog Shuttle option and Digital Player/Recorder

Video Machine Lite combines all the classic functions of a video studio on a single board, incorporating dozens of high-powered features normally found in products costing thousands more. Video Machine Lite is an on-line edit controller with A/B and A/X roll

capabilities and audio/video split editing. Hundreds of VCRs can be connected via LanC (Sony control-L), Edit Control (Panasonic 5-pin) or the optional RS-232/422 interfaces. Longitudinal Time Code (LTC) is supported through the optional Studio Control Box.

- VM-50130 Video Machine Lite \$2,500.00
- VM-50140 Video Machine Lite upgrade—Software and hardware upgrade to full Video Machine 1,995.00



Movie Machine Pro

Movie Line

- Includes Movie Machine Pro (MMP) which offers 2 channels of digital video and a TV tuner
- Video and TV inputs may be displayed on a computer screen, framegrabbed or edited to tape
- 18 preprogrammed real time digital video effects including flips, wipes, picture-in-picture, luma and chroma keying, strobe and mosaic
- Video and graphics can be imported and exported in TIF, DIB/BMP, PCX, GIF, LZW and JIF (JPEG compression) file formats
- Plays WAVE files and video output is composite (VHS, Video8)

The Movie Line offers the private to professional user a powerful tool to move to the next level of multimedia production. The Movie Line is modular, giving the user the flexibility to grow with production needs. Included are a host of powerful features normally found in editing suites costing thousands more. The Movie Line offers 2 channels of live video, mixing, framegrabbing, video overlay, video output, hard disk editing and the world's leading editing software.

The Motion-JPEG (MJPEG) option captures and digitizes video to hard disk in AVI file format. The MJPEG card is fully MCI compatible and output is high quality 30/fps—scalable from 320 x 240 up to 800 x 600.

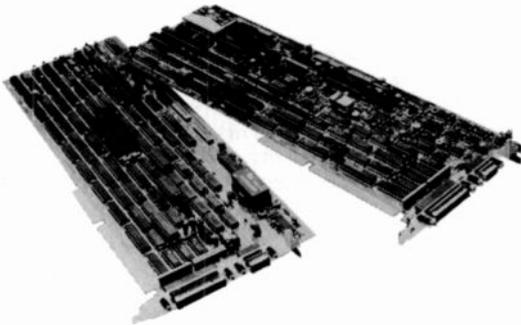


Adobe Premiere editing software with its user-friendly interface and special effects capabilities rounds out the Movie Line making it an all-in-one desktop solution for video editing, presentations and multimedia authoring.

- MM-70110 Movie Machine Pro with Motion-JPEG and Adobe Premiere \$999.00
- MM-50100 Movie Machine Pro 545.00
- MM-50500 Motion-JPEG option 395.00
- MM-50501 Motion-JPEG option with Adobe Premiere 495.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





**videoDesigner™ Desktop
Video Graphics System**

- Two 16-bit ISA bus full length boards
- Full-color, 4-field frame buffer
- Analog and digital (D2/D3) composite input/output
- Real time frame-grab from NTSC analog and digital composite video
- 12 high quality anti-aliased brush types in various shapes ranging from 1-64 pixels
- 6 anti-aliased scalable fonts
- Menu bars on the color monitor and appropriate, context sensitive help messages on the status monitor
- 1-level UNDO
- Stencil cut and paste
- Active mask for protecting image areas
- Full screen/partial screen effects including emboss, stucco, edge, etc.
- Rotate perspective capability of an entire image, cutout or spline
- Image processing: sharpen, blur, correct, contrast, color, gamma, magnify, etc.
- Color crawl and flicker elimination
- Image compression and still store archiving
- Imports/exports GIF, JPEG, TIFF and TARGA files
- Graphics system designed specifically for video production
- Use your PC to capture video from cameras, videotape recorders, digital tape recorders and laserdiscs, all with broadcast quality. No TBC required
- Manipulate images right on the video screen
- Graphic file import/export

The videoDesigner is a broadcast quality total video graphics system that lets you capture full color images and manipulate them with an extensive range of paint, draw and processing tools, including line and curve routines, painting with brush strokes with levels of transparency and applying adjustable light sourcing.

The system offers an integration of video processing tools with a hardware/software combination that runs on any 386 or better MS-DOS compatible PC.

With videoDesigner's software, frames and fields can be grabbed, even from non time base corrected sources; motion suppression of fast moving objects can be performed while maintaining maximum resolution; and flicker and crawl reduction filters let you eliminate noise without degrading image resolution.

You can easily become an immediate videoDesigner pro as each system comes with an in-depth videotape tutorial, manuals, on-line help and electronic bulletin board support.

With the ability to combine file images from other platforms such as TARGA, TIFF, BMP, Toaster and other graphic file standards, videoDesigner offers capabilities for print and video applications. Finished graphics can be used for brochures, ads and other printed materials.

Options Include

ImagePaint Software

Software can apply artistic filters such as watercolor, pen and ink or pencil. The software incorporates memory-management techniques to perform auto-saves of the work environment, enabling you to instantly reuse graphic elements and settings.

Specifications

Inputs: NTSC analog; Parallel composite digital; Color black (required only if output video must be timed to an external reference)

Outputs: NTSC analog (2); Parallel composite digital

Physical Size: 2 ISA bus full length cards

Power Requirements: 25W

PC-311 videoDesigner board set and software. \$4950.00

Accessories

PC-315 ImagePaint software for PC-311 \$850.00

PC-AF Single anti-aliased font for videoDesigner.
Specify font 50.00

PC-MAX1 Complete font library (200 fonts)
available with videoDesigner purchase 600.00

PC-MAX1SP Site license for multiple machines 600.00

PC-MAX2 Complete font library ordered after
purchase of videoDesigner 600.00

PC-MAX2SP Site license for multiple machines/
existing videoDesigners 600.00

V-LAN® Controller

- Allows you to automatically capture and record on videotape
- 178 anti-aliased fonts available

V-LAN POR*

Note: V-LAN is a trademark of Videomedia, Inc.

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



events, expressions, artifacts or subtle details, then print just the frame or sequence of frames you want. Full RS-232/422 control simplifies integration with optional third party systems and computers. HP's VidJet Pro is the first in a series of creative video communication tools. Tools that turn ideas into reality. Tools that turn video into paper. With plain-paper video hard copy, you can print images in almost any size—from mini-thumbnails that fill a page to giant posters that bring video stills to life. Write on it in pen or pencil. View it. Copy it. Edit it. Fold it. Hang it. Even FAX it to a client for immediate review. What's more, the HP VidJet Pro connects to a staggering range of HP LaserJet and inkjet printers. Plus, HP plain-paper printers give all the benefits of reliability, competitive prices and world-class engineering that millions of customers have come to value and trust.

HP VidJet Video Print Manager

- Plain paper video printing on most HP printers
- 525/625 autosensing, supports all major video formats
- 1RU form factor fits in tight spots, edit consoles
- Crisp, fluorescent, easy-to-read display
- Recall setups in a flash with factory presets such as Auto Log
- Menu keys give quick access to all setup parameters
- Page layout options control image size, position and format
- Predefined page formats let you print video images in storyboard, log sheet, tile, single or multi-image formats, even customized text can be printed on the page along with a time code below each image
- Grab in high, medium or low resolution
- Grab and print in color or monochrome
- Expandable VRAM simms for convenient additional frame memory in 2M byte increments
- Recommended LTC time code option
- Modular video cards for obsolescence protection
- Loophrough inputs, composite monitor output
- Print from live video or from frame memory
- Wide range of flexible triggering modes from a simple GPI trigger to auto scene detect to time triggering
- Powerful GPI trigger offers hassle-free remote triggering from edit controllers, contract closures, sensors or TTL line drivers
- Autosensing universal power supply
- Centronics parallel output connects to wide range of HP desktop and large format printers and plotters
- Applications include: Video and film production/post-production, broadcasting, videoconferencing, real estate, videography, engineering, security and many others

The HP VidJet Pro turns video into paper. With plain paper video hard copy, print images in almost any size — from mini thumbnails to video posters that bring video stills to life. Write on it, copy it, edit it, archive it, or even FAX it for immediate client review.

The plain paper advantage drops the cost of monochrome laser prints to less than a few cents apiece, or vibrant color for slightly more. Choice of video formats and standards, remote control, media, image size, text clarity and flexible page formatting set the industry standard.

From real time auto-logging to video images with time code, the HP VidJet Pro is an indispensable graphics and editing tool which quickly pays back in higher editing and productivity and better client communication. The VidJet Pro even lets you add new services to your rate card for an added source of revenue.

Flexible and expandable frame memory lets you store images while printing. Scroll through images frame by frame to analyze critical



HP E25315 VidJet Pro With 5M byte VRAM, composite/YC input card, LTC time code \$4575.00

HP E25335 VidJet Pro With 5M byte VRAM, component/RGB/composite inputs, LTC time code. 4880.00

HP E25345 VidJet Pro With 5M byte VRAM, 4:2:2 serial digital inputs, composite monitor output, LTC time code . . 5180.00

Note: VidJet components may also be ordered separately. Call for ordering information and other configuration options.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



COLOR VIDEO PRINTERS/ CD-ROM DRIVES



COLOR VIDEO PRINTERS

VY300AH Color Video Printer

- Photo size print (3.25" x 4.125" max) ▪ 58 second print time
- 256 gradations for each of 3 colors ▪ More than 16.7 million colors
- Double zoom print ▪ 4 frame (8 field) memory ▪ Multiple input capability: NTSC composite, S-input, RGB, Centronics/RS-232C interface ▪ Multi-screen capability (2, 4, 16 and 25 pictures) ▪ Black and white, negative or reverse printing ▪ Comment function. . . \$3995.00

VY170AH Color Video Printer

- 3 inputs/outputs ▪ NTSC composite ▪ S-input (separate Y/C) RGB analog/photo size print (3.25" x 4.125"/256 gradations for each of 3 colors) ▪ 16.7 million colors available ▪ 1 frame/2 field memory
- 58 seconds per print ▪ Mirror reverse ▪ Negative printing ▪ Multi-screen capability (4, 16 and 25 pictures) . . . \$2250.00



VY170V Color Video Printer

- 2 inputs/outputs ▪ NTSC composite ▪ S-input (separate Y/C) ▪ Photo size print (3.25" x 4.125"/256 gradations for each of 3 colors) ▪ 16.7 million colors available ▪ 1 frame/2 field memory ▪ 58 seconds per print ▪ Mirror reverse ▪ Negative printing ▪ Multi-screen capability (4, 16 and 25 pictures) . . . \$1995.00

CD-ROM DRIVE SYSTEMS

CDR1900SPC16 CD-ROM Drive System

- Double-speed ▪ Complete external package for ISA/EISA bus computers: 486 and above recommended ▪ Includes: CDR1900S, CDRIF16A, CDCBL25CS and CDREXT6 . . . \$782.00

CDR1900SPC8 CD-ROM Drive System

- Double-speed ▪ Complete external package for ISA (PC) bus computers: IBM PC, XT, AT PS/2 25-40, Valuepoint and compatibles
- Includes: CDR1900S, CDIF18S, CDCBL25CS, CDREXT5D . . . \$767.00

CDR1900SMC CD-ROM Drive System

- Double-speed ▪ Complete external package for micro channel bus computers: IBM PS/2 50-95 and compatibles ▪ Includes: CDR1900S, CDIF15A, CDCBL25CS, CDREXT5D . . . \$907.00

CDR1950SMAC CD-ROM Drive System

- Double-speed ▪ Complete external package for Macintosh computers
- Includes: CDR1950S, CDCBLSC3 and CDCMACDRV13 . . . \$752.00

CDR1950SS CD-ROM Drive System

- Double-speed ▪ Complete external package for Sparc systems and compatibles ▪ Includes: CDR1950S, CDCBLS2 . . . \$950.00

CDR6700PC16 CD-ROM Drive System

- Double-speed ▪ Complete internal half-height package for ISA/EISA bus computers: 486 and above recommended ▪ Includes: CDR6700, CDRIF16A, CDCBL35AS and CDREXT6 . . . \$601.00

CDR6700PC8 CD-ROM Drive System

- Double-speed ▪ Complete internal half-height package for ISA (PC) bus computers: IBM PC, XT, AT, PS/2 25-40, Valuepoint and compatibles ▪ Includes: CDR6700, CDIF18S, CDCBL35AS and CDREXT5D . . . \$586.00

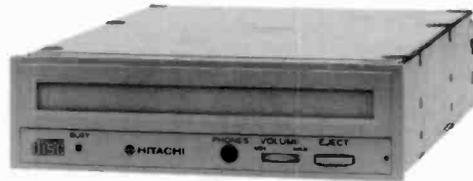
CDR1750SPT CD-ROM Drive System

- Complete external package for IBM compatible notebook and laptop computers ▪ Includes: CDR1750ST, SCSI/Parallel adaptor with MS-DOS® extensions and SCSI device driver, CDCBLS3 . . . \$842.00

CDR1750SMAC CD-ROM Drive System

- Complete external package for Macintosh computers ▪ Includes: CDR1750SSN, CDCBLS3, CDMACDRV13 . . . \$682.00

CD-ROM DRIVES



CDR1900S CD-ROM Drive

- Double-speed ▪ External CD-ROM drive ▪ 300K byte/sec. data transfer ▪ 260ms access time ▪ 128K buffer ▪ 40,000 hours MTBF
- MPC, XA, multi-session photo-CD, sound card compatible ▪ Audio capability ▪ Auto range power supply ▪ Hitachi interface ▪ Includes CD caddy . . . \$670.00

CDR1950S CD-ROM Drive

- Double-speed ▪ External CD-ROM drive ▪ 300K byte/sec. data transfer ▪ 235ms access time ▪ 256K buffer ▪ 40,000 hours MTBF
- MPC, XA, multi-session photo-CD, sound card compatible ▪ Audio capability ▪ Auto range power supply ▪ SCSI interface ▪ Includes CD caddy . . . \$670.00

CDR6700 CD-ROM Drive

- Double-speed ▪ Internal CD-ROM drive ▪ 300K byte/sec. data transfer ▪ 260ms access time ▪ 128K byte buffer ▪ 60,000 hours MTBF ▪ MPC, XA, multi-session photo-CD, sound card compatible
- Audio capability ▪ Hitachi interface ▪ Includes CD caddy . . \$515.00



CDR6750 CD-ROM Drive

- Double-speed ▪ Internal CD-ROM drive ▪ 300K byte/sec. data transfer ▪ 235ms access time ▪ 256K byte buffer ▪ 60,000 hours MTBF ▪ MPC, XA, multi-session photo-CD, sound card compatible
- Audio capability ▪ SCSI interface ▪ Includes CD caddy . . . \$515.00

CDR1750SSN CD-ROM Drive

- External CD-ROM drive ▪ 150K byte/sec. data transfer ▪ 300ms access time ▪ 64K byte buffer ▪ 25,000 hours MTBF ▪ MPC, XA, single-session photo-CD, sound card compatible ▪ Audio capability
- SCSI interface ▪ Includes CD caddy . . . \$610.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



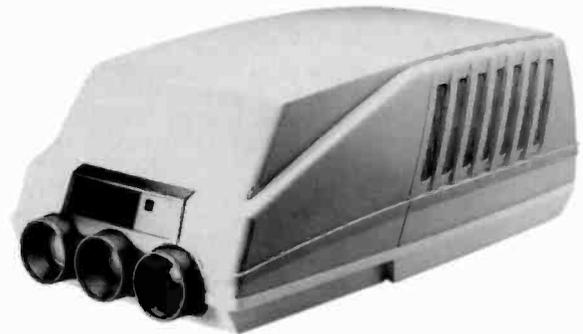
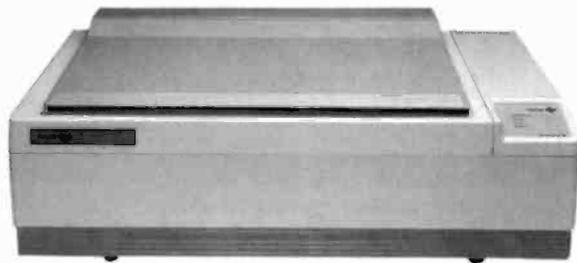
Howtek



Scanmaster D4000

- Capable of scanning reflective or transparent images up to 10.2" x 11"
- 4000 dpi ▪ Using 3 precision matched PMT sensors to collect the RGB data, the D4000 achieves a range of 3.8 and captures a full 12 bits of data per color in a single pass ▪ 4096 levels per color at scan time ▪ Auto or manual focus control ▪ Dichroic filters ▪ Calibrated automatically on each drum rotation for clean data stream ▪ Tungsten halogen lamp
- Convenient interchangeable drum ▪ GPIB or SCSI interface provided
- Equipped with an AT-bus slot for a personality card ▪ Designed as a stand-alone unit which easily integrates into your pre-press system

Scanmaster D4000	\$39,700.00
Scanmaster D4000 With CosMYK 860	44,695.00
Aurora Software for D4000	2,500.00
Spectre™ Multi-Scan 2.0	699.00
Quicksan D4000	249.00



Series 300 Liquid Crystal Light Valve Projectors

Series 300 projectors introduce liquid crystal light valve technology at an affordable price. They combine the brightness and long throw capabilities of oil-based light valve projectors with the high resolution and graphics capabilities of CRT projectors.

These projectors use 3 proprietary liquid crystal light valves which are 100% solid-state. The liquid crystal material is a solid film — there is no matrix and therefore no grid pattern or dead pixels.

Features

- **Brightness:** 2000-3500 "ANSI" lumens. ANSI lumens are measured at near 100% (not 10%) full white screen illumination. Typical full brightness (in lumens) for CRT projectors is from 1/4 to 1/2 the "peak" brightness specifications we are accustomed to seeing
- **Light Source:** A 1500W or 2500W xenon lamp. Unlike LCD projectors, the light is reflected off the liquid crystal light valve (not projected through it). This results in high resolution with high brightness
- **Horizontal Frequency:** 15-90kHz, which is higher than current display requirements. The liquid crystal light valve is capable of much higher resolution when there is demand for higher resolution displays
- **Variable Throw:** Up to 7 times the screen width. For example, a 10' wide picture can be projected from 15', 30', 50' or 70'
- **Remote Control:** A full-function digital remote control with on-screen menu is included. The projector can also be controlled through 2 RS-232 ports by a terminal/PC, an AMX/Creston type system or a multi-input switcher
- **Decoder:** The projector includes a high quality PAL/SECAM/NTSC decoder
- **Convergence Memories:** 29
- **Serviceability:** Most of the electronics are located in a card cage. Cards (boards) only have edge connectors (like most PC boards) and can be changed in minutes. This cage is part of a 75 lb. electronics system assembly which includes all the electronics plus the CRTs. If service is required, this electronics assembly (not the whole projector) can easily be removed, powered up and bench tested
- **Upgrades:** All projectors are upgradable to higher performance models.

Model	ANSI Lumens	Price
310E	2000	\$59,500.00
320	2300	70,000.00
335	3500	115,000.00

Scanmaster 3+ Color Scanner

- 11.7" x 17" ▪ Scans continuous tone, halftone, line art and text
- 75 to 1200 dpi ▪ Full 8-bit A/D conversion per color ▪ 256 levels per color
- Single fluorescent bulb and RGB filters ▪ Standard 8-bit GPIB
- CCD array ▪ Full B-size (A3-size) reflective and transparent copy format
- Upwardly compatible with existing Scanmaster series ▪ Transparency option standard ▪ No operator controls required ▪ Enhanced scan accuracy and stability ▪ Improved color discrimination

Scanmaster 3+	\$7,200.00
Scanmaster 3+ With transparency option	7,995.00
Scanmaster 3+ GPIB interface card, cable, choice of 1 Mac or PC software driver*	7,995.00
Scanmaster 3+ With transparency option, GPIB interface card, cable, choice of 1 Mac or PC software driver*	8,790.00
Scanmaster 3+ With transparency option, GPIB interface card, cable and Tempra Pro™ for DOS	8,995.00
Transparency option	795.00
TWAIN driver for PC	159.00

*TWAIN for PC or Photoshop™ plug-in module for Macintosh

Personal Color Scanner

- 300-600 dpi resolution ▪ 8.5" x 14" scanning area ▪ Flatbed color scanner scans 24-bit color ▪ 256 levels of grayscale and black and white
- Bidirectional parallel interface ▪ Continuous tone, halftone, line art and text ▪ 8-bit A/D conversion ▪ With a PC the user can choose Windows (with Color Lab® or Picture Publisher®) or DOS (with TEMPRA™). Mac users receive Photoshop™ LE

Personal Color Scanner With Parallel interface card and cable for IBM or Macintosh and choice of 1 software** \$1,295.00

PCS Options

Additional interface kit with choice of software**	300.00
Calera WordScan® OCR for the Mac only	199.00

**Adobe Photoshop LE for the Mac, Tempra Pro for DOS users or Picture Publisher® LE for Windows

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SOFTWARE/CHARACTER GENERATION SYSTEM



ACE Cooking Gizmo
only \$19.95 !
 To order please call:
1 (800) 555-1212
 Have your or ready
 Tell the operator you want the
 "hands-free" attachment at no extra
 cost.
Offer void where prohibited by law



Inscriber® Video Titling Software Version 3.11

- Anti-aliased text with dropshadow and edging displayed as you type
- Access to over 250 fonts
- Use the graphics and logo tools to highlight your text or load in any Truecolor image as a background
- Advanced page description language integrates Inscriber with remote data feeds for use in "on-air" applications
- Left, right and center alignment is easy with adjustable tab stops
- Automatic word wrap mode
- Apply text attributes like drop, offset or extruded shadows in 8 directions in any amount
- Color text with a solid color or with a gradation from top to bottom
- Transparency of text can also be controlled overall or varying from top to bottom
- Text can be arbitrarily sized, compressed or expanded
- Kerning can be set per line or individual per character
- Standard 12 fonts: Helvetica Bold, ITC Zapf Chancery, ITC Bookman Demi, Palatino Italic, or maybe ITC Avant Garde Gothic Book
- Supreme option has 50 fonts including Benguiat, Revue, Hobo, New Century Schoolbook and Stencil
- Import a special symbol or multi-colored graphic image and Inscriber will make it into a logo
- Dedicated support for video output gives you an adjustable safe title area, screen center markers, definition of video key areas, partial or full video "show-through" of text or graphics and integrated roll and crawl

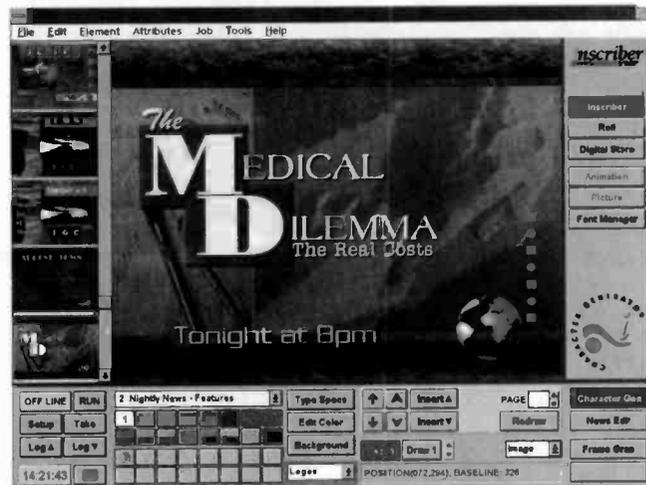
Inscriber VMAXX 10, 6M byte (12 font)	\$3995.00
Inscriber VMAXX 10, 6M byte (50 font)	4795.00
Inscriber ATVISTA, 4M byte (12 font)	3995.00
Inscriber ATVISTA, 4M byte (50 font)	4795.00
Inscriber ILLUMINATOR PRO, 4M byte with DVE (12 font)	2895.00
Inscriber ILLUMINATOR PRO, 4M byte with DVE (50 font)	3695.00
Inscriber TARGA+ 64/32P, 2M byte (12 font)	2895.00
Inscriber TARGA+ 64/32P, 2M byte (50 font)	3695.00
Inscriber TARGA+ 16, 1/2M byte, 1M byte, 2M byte (12 font)	1895.00
Inscriber TARGA+ 16, 1/2M byte, 1M byte, 2M byte (50 font)	2695.00
Inscriber ILLUMINATOR 16, 1/2M byte, 2M byte (12 font)	1895.00
Inscriber ILLUMINATOR 16, 1/2M byte, 2M byte (50 font)	2695.00
FONTPMAKER for INSCRIBER	495.00

Inscriber High-Color VGA Version

- Full text entry/edit with tab control, copy/paste and stylus
- Superb quality anti-aliased text
- Solid color, texture or ramp-shaded foreground, edge and shadow of text
- Complete control over attributes such as small caps, slant, spacing, alignment, positioning, etc.
- Full mouse support with pop-up menus
- Comes

- standard with 12 fonts
- Built-in drawing mode creates graphic shapes: bevelled bars, underlines, shaded areas, etc.
- Easy integration with high-color paint packages
- High-color support with 32,768 colors
- Solid, ramp-shaded, textured, patterned or image backgrounds
- Sprite animation along spline paths, arbitrary sprite paste/erase
- Images can be generated to line art or true color logos, which can be arbitrarily positioned, colored and manipulated
- Supports Truevision (TGA, VST) and Image North (VII) file formats
- Roll, crawl, full range of transition effects for presentation at varying speed
- Programmable waits, loops, conditionals, go tos
- Single step or automatic triggering, remote control via GPI or infrared remote
- Required ET4000 chipset, 1M byte memory and Sierra high-color RAMDAC

Inscriber High-Color \$895.00



Inscriber VMP Character Generation System

- Enhanced with multiple text and graphic layers, soft-edge shadow, text beveling, enhanced texture mapping options, automatic shadows on graphic shapes and full color keyed logos
- News Edit module simplifies repetitive text entry
- Object oriented "job" manager sequences pages created in the CG or from the store with any VMP transition effect
- Access pages randomly or time events with GPI remote triggers or timecode
- Save your work to a single packed file for archives or transport to remote sites
- Access all the images, logos and textures on the networked system
- Assign labels and descriptions to all the items in the store and retrieve them later using an intelligent search
- Compress data using lossy or lossless methods
- Create 32-bit anti-aliased custom logos, symbols or graphics from any grabbed or imported imagery of line art
- Logos can be used as though they were text—fully scalable with any amount of edge or shadow
- Convert any Windows True Type of Adobe type 1 font into Inscriber anti-aliased format
- Keyboard mapping is Windows ANSI or Arabic, with special right-to-left processing for Arabic and Hebrew
- Create everything from simple moves to custom transition effects on frame buffers with built-in DVE support
- Interpolate the movement of live video or the CG window within a virtual 3-D space from keyframe data

Inscriber VMP \$4995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEOWALL SYSTEMS



Classic Series

Instantly displays any standard NTSC video signal from any source: any format VCR, laserdisc, camera, computer or via tuner, any broadcast, cable or satellite signal. Special effects system gives you direct individual screen control, plus over 100 pre-programmed special effects. Special effects system board has serial, parallel and LAN connections for interfacing with other A/V equipment. Enhanced 8-bit digital encoding, separate R, G and B processing and unfiltered outputs for optimum picture contrast and maximum visual impact. Will accept any composite video, analog RGB or Y/C. Designed to run continuously and completely unattended and can be wired to turn on and off from a single switch. Requires no technical support or routine maintenance, with the exception of periodic head cleaning, if a VCR is used. Digital processor will connect to any off-the-shelf video monitors with analog RGB input. Viewable from any angle and under the brightest lighting conditions. Unparalleled ease of setup and use. No computers to program, no software to load and no installation or boot-up procedures to follow. A single digital processor will run 2 complete VideoWalls located as much as 250' apart. 5-year warranty.

Classic 4 VideoWall System

4x4 with fully automated special effects	\$13,850.00
4x4 with fully automated special effects, cables and 16 VideoWall monitors	38,970.00
4x4 with fully automated special effects, cables and 32 VideoWall monitors (double 4x4)	64,090.00

Classic 3 VideoWall System

3x3 with fully automated special effects	\$ 9,850.00
3x3 with fully automated special effects, cables and 9 VideoWall monitors	23,980.00
3x3 with fully automated special effects, cables and 18 VideoWall monitors (double 3x3)	38,110.00

Classic 2 VideoWall System

2x2 with fully automated special effects	\$ 6,850.00
2x2 with fully automated special effects, cables and 4 VideoWall monitors	13,130.00
2x2 with fully automated special effects, cables and 8 VideoWall monitors (double 2x2)	19,410.00

Ultra Series

Advanced VideoWall technology and super high resolution system. Maximum 756 lines active picture horizontal resolution (1512 active pixels). Patented signal processing algorithm provides a fully interlaced artifact-free image. Triple field signal interpolation (w/quad cards). Quantization at 30MHz/24-bit RGB. 4 simultaneous inputs. Inputs include: analog RGB; composite or Y/C, with supplied decoder(s); VGA, with interface card. Fully expandable to 8x8 with full addressability. 4 analog RGB outputs (per card). Control interface, RS-232/RS-422 (selectable). Full special effects capabilities. Individual frame stores (w/quad output cards), color washes and fully addressable. Any input can be assigned to any monitor, in any position at any magnification. Show Intelligence color graphics based PC software provides completely integrated show control, including VideoWalls, tape and laserdisc players, switchers and relays. Quad system provides full signal interpolation for optimum expanded image quality and has individual frame stores for maximum special effects capability. Each output card can drive up to 4 separate identical VideoWalls. Dual system uses 1 output card to drive 2 vertically adjacent monitors or projection cubes. This reduces the number of output cards required for a given matrix by up to 50%, while retaining full resolution. Dual output cards can also drive 2 separate identical VideoWalls. 5-year warranty.

Ultra VideoWall Processors—Sample size pricing*

3x3 Dual card	\$ 18,995.00
3x3 Quad card	24,950.00
4x4 Dual card	22,965.00
4x4 Quad card	38,845.00
5x5 Dual card	36,860.00
5x5 Quad card	62,850.00
6x6 Dual card	42,815.00
6x6 Quad card	84,685.00
8x8 Dual card	76,745.00
8x8 Quad card	151,995.00
Show Intelligence software	3,995.00
ImTouch Standard touch screen software	3,995.00

*Ultra prices are for 4 inputs with 1 digital decoder.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



COMPUTER/LCD/ VIDEO OVERHEAD PROJECTION SYSTEMS

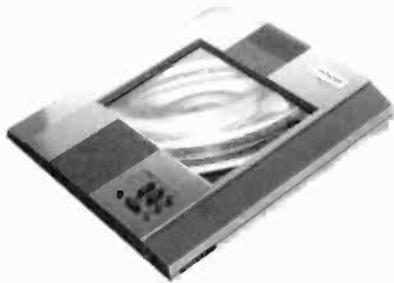


InFocus™
S Y S T E M S

7600WS Color LCD Projection Panel for Workstations

- Projects up to 24,389 colors simultaneously at 1024 x 768 resolution on workstations up to 1152 x 900
- 15:1 contrast ratio
- Compatible with high resolution displays for Macintosh computers, as well as XGA, Super VGA and VGA PC graphics
- On-screen setup menus
- Remote control
- Pushbutton rear projection mode
- Built-in loophrough allows you to view your monitor and projected image simultaneously
- Powerful, quiet fan for fade-free presentations on overhead projectors up to 650W

\$8995.00



1600LC Real Color LCD Projection Panel

- Projects 16 real colors
- 15:1 contrast ratio
- 640 x 480 resolution
- SaBRE™ (Subtractive Bi-Refringent Effect) LCD
- Powerful, quiet fan and heat filter for fade-free presentations on overhead projectors up to 650W
- Screen aspect ratio: 1.33:1

\$1999.00

1600GS High-Contrast Black and White LCD Projection Panel

- Projects 16 levels of gray scale
- Works with IBM compatibles and most Apple computers
- Quick mouse speed makes it an ideal companion for the Mac Plus, SE and Classic

\$1499.00

Required Adaptors for Macintosh Computers

- A20 Internal card/cable required for use on Macintosh SE and SE/30. Does not utilize the SE expansion bus **\$119.95**
- A21 Buffered Y-cable required for use on Macintosh Classic **119.95**
- A3 For use with the 1600LC, 1600GS and 5000FX when connected to a LiteShow II... **14.95**



LiteShow™ Portable Presentation Management System

- Captures computer generated presentations onto a standard 3 1/2" diskette, then lets you organize and enhance them
- Built-in special

- effects generator lets you add wipes, dissolves, fades and more
- Plugs into virtually any monitor, video/data projector or LCD projection panel
- Color palette of 256,000 colors, of which 256 can be displayed simultaneously
- Handheld remote control
- 640 x 480 resolution supports CGA, EGA, VGA, Apple Macintosh and Mac II

LiteShow **\$1695.00**

LiteTools II™ Software

- Allows users to create, edit and preview LiteShow presentation slides without LiteShow hardware connected to the user's computer
- Available in DOS, Windows and Mac versions; specify version

LiteTools II Software **\$165.00**



LitePro® 540/550 Portable Integrated LCD Projection Systems

- 16.7 million-color palette
- 640 x 480 resolution
- 8.4" TFT active matrix color LCD
- 25ms response supports full motion computer graphics
- 150 lumens (ANSI 9.0 standard measurement techniques)
- Distortion free 230mm to 275mm precision varifocal lens
- Bright user replaceable EVD halogen bulbs
- Built-in lamp changer
- Dimensions: 8.5"H x 11"W x 20.5"D
- Meets most airline requirements for carry-on luggage
- Soft carrying case provided
- 6' "Y" cables provided to support MCGA and VGA graphics
- Graphics cable adaptor to support Macintosh CPUs
- Multi-function remote with programmable key
- Power supply: IEC standard 100V-240V at 50-60Hz operations
- Compatible with LiteShow, VGA Macintosh CPU, PowerBooks and Macintosh Classic
- Horizontal scan rate: 14-39kHz
- Vertical scan rate: 50-72Hz

LitePro 540 Portable integrated computer graphics projection system **\$7499.00**

LitePro® 550

- Powerful portable multimedia projector
- Projects computer graphics, video
- Built-in stereo audio system
- NTSC, full PAL and SECAM video support
- Composite, S-Video, RGB computer audio and microphone inputs
- 4 data/video inputs
- 2 speakers for built-in stereo
- Stereo audio for each data/video input
- Microphone input for self-contained portable PA

LitePro 550 **\$8999.00**

Built-in LiteShow option for LitePro 500 series projectors... **1000.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

IN1222 Scan Doubler

- Full digital decoding and frame doubling
- NTSC/PAL/SECAM decoder
- Composite video, S-VHS, RGB H/V audio inputs
- Selectable gamma correction
- Full digital freeze frame \$1995.00



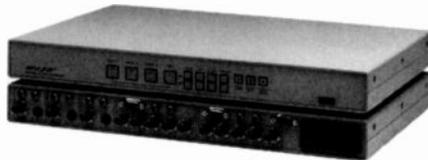
IN1240 Scan Doubler

- Full digital decoding and line doubling
- NTSC/PAL/SECAM compatible
- Inputs for composite video and S-Video
- Selectable gamma correction
- Hue, color and sharpness control \$1495.00



IN1422 Scan Doubler

- Full digital NTSC/PAL/SECAM decoding and line doubling
- Inputs for composite video, S-Video, RGB and audio
- Selectable gamma correction
- Full digital freeze frame
- Optional IR remote \$2495.00



IN1510 NTSC/PAL/SECAM Decoder

- Automatically decodes NTSC, PAL or SECAM
- 4-in 1-out audio follow video switcher
- Blanking \$1495.00

IN1540 Digital Decoder

- Near broadcast decoding for NTSC/PAL/SECAM
- Inputs for composite video and S-Video
- Selectable gamma correction
- Hue, color and sharpness control
- Small size \$995.00

IN1710 Digital Decoder

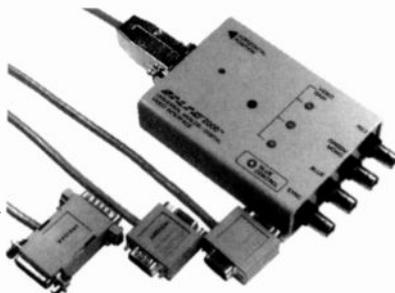
- Automatically decodes NTSC/PAL/SECAM
- 4-in 1-out audio follow video switcher
- Screen blanking
- Selectable gamma correction
- Near broadcast quality
- Optional remote \$1995.00

IN2000/2001 Universal Analog/TTL/ECL Interfaces for Computers and Projectors

- Works with analog and digital signals
- Horizontal picture centering control
- RGBS, mono or sync on green outputs
- 100MHz video bandwidth
- Gain controls

IN2000 \$465.00

IN2001 with internal power supply \$660.00



IN2005 Universal Analog/TTL/ECL Interface

- 5-BNC output connectors
- Flexible output format: RGBHV/RGBS/RGB/monochrome
- Gain control
- 230MHz video bandwidth
- Signal splitting
- Electronic/physical interfacing
- Gray scale tracking
- Horizontal position control
- Removable IN5100 series input cables. \$540.00

IN2025 Universal Analog/TTL/ECL Interface

- 2 outputs, each with 5-BNC connectors
- Flexible output format: RGBHV/RGBS/RGB/monochrome
- Gain and peaking controls
- 230MHz video bandwidth
- Signal splitting
- Electronic/physical interfacing
- Horizontal position control \$750.00

IN2020 VGA and Mac II Interface

- Dual head connector for VGA and Mac II
- 100MHz bandwidth
- No termination plug required
- Loophrough output for local monitor
- Horizontal picture centering control \$450.00

IN2055/2056 1-In 4-Out Composite Video Distribution Amplifier/Line Driver

- 200MHz video bandwidth
- Individual output gain controls (internal)
- Individual peaking controls (internal)
- BNC input/output connectors
- IN2055 High resolution video distribution amplifier. Individual gain and peaking controls for each output (internal) \$320.00
- IN2056 1-in 1-out video line driver for extending cable length to 1000'. The actual drive distance varies with cable used . . . 280.00



IN2060 IBM VGA, MCGA, XVGA, 8514A Distribution Amplifier

- For IBM PS/2 VGA, MCGA, Super-VGA, 8514A color/monochrome and compatible graphic cards
- Provides an additional output for LCD panel or VGA video monitor \$240.00

IN2061 Targa Board Distribution Amplifier

- For Targa type video graphic cards, provides an output for additional monitor
- Loophrough input cable allows easy connection of local monitor and additional display
- Input and outputs are pin compatible to Targa board format
- Will work with any video output compatible with Targa board \$320.00

IN2065 High Resolution Video Sync Separator

- For composite monochrome signals or RGB with sync on green
- Provides separate sync output and 3 video outputs
- BNC input and output connectors
- Internal video gain control \$280.00

IN2067/2069 High Resolution Video and Sync Combiners

- 120MHz video bandwidth
- Internal sync level control
- Combines sync with video
- Works with RGB and sync signals
- IN2067 RGB and sync input to RGB and sync on green output. Internal sync level control \$340.00
- IN2069 RGB and sync on green input to RGB and sync on all output. Internal sync level control. 360.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DA's/INTERFACES/ SWITCHERS



IN2075 CGA/EGA/MDA Distribution Amplifier

▪ Compatible with CGA/EGA/MDA type video cards ▪ 100MHz video band-width ▪ Loophrough output for local monitor \$240.00

IN2076 Mac II, Super Mac Distribution Amplifier

▪ Video buffer/amplifier for Apple Mac II or compatible computers ▪ Provides output for LCD panel or additional monitor ▪ Operates with any video card that has the same pin-out as Mac II. \$280.00

IN2080/81/VGA Mac II, EGA/CGA Dedicated Video Interfaces

IN2080 VGA type video interface. RGB and sync output. Works in all modes of IBM VGA card or compatibles \$300.00

IN2081 Mac II type video interface. RGB and sync output. Works with all Mac II and Super Mac type compatible video cards 300.00

IN2090 EGA/CGA type TTL video interface for IBM or compatible video cards. Automatically tracks EGA or CGA modes 280.00

IN2085 RGBS Line Driver/Equalizer 200MHz Bandwidth

▪ In-line BNC input and output connectors ▪ Individual peaking/gain controls for each channel \$420.00

IN3012 1-In 2-Out RGBs Distribution Amplifier

▪ Individually adjustable gain and peaking ▪ Compensates for signal attenuation occurring in long cable runs ▪ BNC connectors for input and output ▪ 330MHz video bandwidth \$410.00

IN3050/3055 1-In 4-Out EGA/CGA/VGA Distribution Amplifiers

▪ 100MHz video bandwidth ▪ Drives 75' of special cable

IN3050 1-in 4 -out CGA/EGA video distribution amplifier. Can be used with any TTL video signals \$320.00

IN3055 1-in 4-out PS/2 VGA video distribution amplifier 520.00

IN 3056/3058 1-In 4/8-Out S-VHS Analog Distribution Amplifiers

▪ 100MHz video bandwidth ▪ Up to 1.5V p-p input video range

IN3056 1-in 4-out S-VHS distribution amplifier. \$360.00

IN3058 1-in 8-out S-VHS distribution amplifier. 680.00

IN3252 1-In 2-Out RGBHV Distribution Amplifier

▪ Compatible with RGBHV analog video ▪ RGB gain controls ▪ Adjustable output sync level ▪ 375MHz video bandwidth. \$490.00

IN3204/3206 1-In 4-Out and 1-In 6-Out RGBs Distribution Amplifiers

▪ Fixed gain ▪ 375MHz video bandwidth ▪ Selectable output gain: 1.0/1.3 ▪ Sync level selector: low/high ▪ Internal power supply

IN3204. \$650.00

IN3206. 760.00

IN3304/3306 1-In 4-Out and 1-In 6-Out RGBs Distribution Amplifiers

▪ Fixed gain ▪ 675MHz video bandwidth ▪ Selectable output gain: 1.0/1.3 ▪ Peaking controls ▪ Sync level selector: low/high ▪ Internal power supply

IN3304 \$ 990.00

IN3306. 1210.00

IN3234/3236 1-In 4-Out and 1-In and 6-Out RGBs Distribution Amplifiers

▪ Adjustable gain ▪ 350MHz video bandwidth ▪ Individual gain controls ▪ Internal power supply

IN3234. \$1080.00

IN3236. 1200.00

IN3504/3506 4/6-In 1-Out Manual Analog RGB and Sync Video Switchers

▪ 200MHz RGBs video bandwidth ▪ Remote control for hardwire switching

IN3510 4-in 1-out switcher \$600.00

IN3520 6-in 1-out switcher 790.00

IN3590 Handheld remote control 6 channel selection buttons . . . 235.00

IN3505 2-In 1-Out 150MHz Analog RGB and Sync Video Switcher

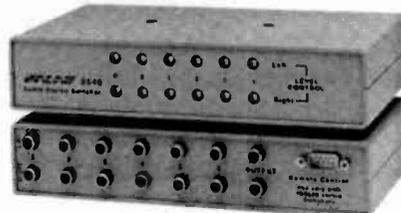
▪ 250MHz RGBs video bandwidth ▪ Remote control for hardwire switching ▪ 120V or 220V \$350.00

IN3584/3586 4/6-In 1-Out Analog RGB and Sync Auto Switchers

▪ 220MHz video bandwidth ▪ Automatic channel selection ▪ 120/220V

IN3511 4-in 1-out RGBs analog auto switcher. \$660.00

IN3521 6-in 1-out RGBs analog auto switcher. 900.00



IN3546 Audio Stereo Switcher

▪ Works with IN3510/3511/3521 switchers ▪ Provides audio follow video switching ▪ High crosstalk isolation \$300.00

IN3562/3564/3566 2/4/6-In 1-Out VGA/XVGA/8514A Video Switchers

▪ 200MHz video bandwidth ▪ Remote control for hardwire switching ▪ Handles all types of VGA signal formats

IN3562 2-in 1-out switcher \$420.00

IN3564 4-in 1-out switcher 660.00

IN3566 6-in 1-out switcher 900.00

IN3572/3574/3576 2/4/6-In 1-Out Mac II, Super Mac Video Switchers

▪ 200MHz video bandwidth ▪ Remote control for hardwire switching

IN3572 2-in 1-out manual II switcher \$420.00

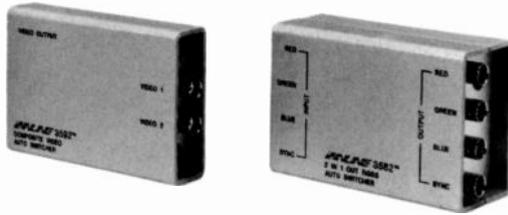
IN3574 4-in 1-out switcher 660.00

IN3576 6-in 1-out switcher 900.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.




IN3592/3582 2-In 1-Out Analog NTSC and RGB and Sync Video Auto Switchers

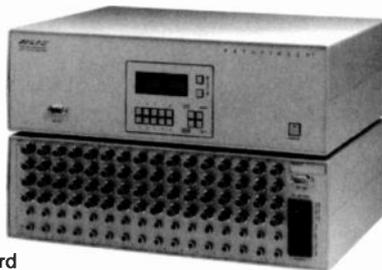
- 120MHz video bandwidth ▪ Automatic channel selection
- IN3592 2 inputs 1 output NTSC composite video/audio switcher \$260.00
- IN3582 2 inputs 1 output RGBS analog auto switcher 325.00

IN6900 RS-232 Computer Control to Relay Converter

- Full RS-232 compatible ▪ Can switch up to 48V, 1A power ▪ Can be controlled by any PC computer
- IN6901 RS-232 to 6 control relays adaptor. Used with IN3500 series switchers or any other switchers with remote control lines \$300.00
- IN6902 RS-232 to 18 control relays adaptor. General purpose converter for switching up to 18 on/off relays \$720.00

IN50000 Pathfinder™ Matrix Switcher

- Composite video plus stereo audio ▪ Available in fixed or reconfigurable versions ▪ Control via RS-232 or front panel controls ▪ Rackmountable in 2U space ▪ 50MHz video bandwidth ▪ Path mapping
- Assignable board groups
- RS-232 control enhancements ▪ Come standard with 3 boards: 1 video and 2 audio. An additional video board (IN50001) may be ordered to allow the unit to carry Y/C signals



The IN50000 PATHFINDER series switchers include 1 video board for composite video and 2 boards for stereo audio. The unit may also switch S-Video (Y/C) signals by adding an optional IN50001 video board. Fixed configuration PATHFINDERs are available in several sizes, ranging from 4-inputs x 4-inputs up to 8-inputs to 8-inputs or 12-inputs x 4-output. The IN50008 and IN50016 reconfigurable PATHFINDER units, with 8 ports and 16 ports respectively, can be changed to any configuration needed with just a few keystrokes or through RS-232 serial commands. The IN50016 reconfigurable matrix switcher can be set as a 15-input x 1-output switcher, a 1-input x 15-output switcher or any intermediate matrix configuration.

- IN50008 8 port reconfigurable, video + stereo audio \$4800.00
- IN50016 16 port reconfigurable, video + stereo audio 6000.00
- IN50404 4 x 4 fixed, video + stereo audio 3540.00
- IN50804 8 x 4 fixed, video + stereo audio 4100.00
- IN50808 8 x 8 fixed, video + stereo audio 4800.00
- IN51204 12 x 4 fixed, video + stereo audio 4800.00
- IN50001 Additional video board (any fixed configuration) POR*

IN60000 Pathfinder Matrix Switcher

- For RGBS and stereo audio ▪ Available in fixed or reconfigurable configurations ▪ Control via RS-232 or front panel controls ▪ Rackmountable in 3U space ▪ 120MHz video bandwidth ▪ Path mapping ▪ Assignable board groups available ▪ RS-232 control enhancements ▪ RGB delay ▪ IN60000 Series come standard with 4 boards and 2 audio boards. IN60000G Series come standard with 4 video boards. Extra audio boards (IN60002) may be ordered.

The IN60000 PATHFINDER series switchers include 4 video boards for RGBS video and 2 boards for stereo audio. The IN60000G series switchers feature 4 boards only ▪ Fixed configuration PATHFINDERs are available in several sizes, ranging from 4-inputs x 4-output up to 12-inputs x 4-output.

- The IN60008 and IN60016 reconfigurable PATHFINDER units, with 8 ports and 16 ports respectively can be changed to any configuration needed with just a few keystrokes or through RS-232 serial commands. The IN60016 reconfigurable matrix switcher can be set as a 15-input x 1-output switcher, a 1-input x 15-output switcher or any intermediate matrix configuration.
- IN60008 8 port reconfigurable, RGBS + stereo audio \$ 9,600.00
- IN60012 12 port reconfigurable, RGBS + stereo audio 13,200.00
- IN60016 16 port reconfigurable, video + stereo audio 16,500.00
- IN60404 4 x 4 fixed, RGBS + stereo audio 5,670.00
- IN60804 8 x 4 fixed, RGBS + stereo audio 8,600.00
- IN60808 8 x 8 fixed, RGBS + stereo audio 12,330.00
- IN61204 12 x 4 fixed, RGBS + stereo audio 12,660.00
- IN60404G 4 x 4 fixed, RGBS 4,995.00
- IN60804G 8 x 4 fixed, RGBS 6,995.00
- IN60808G 8 x 8 fixed, RGBS 9,695.00
- IN61204G 12 x 4 fixed, RGBS 9,995.00
- IN60002 Audio board (any fixed configuration) POR*

V-NET Series II

- Compatible with all analog video signals in a wide variety of formats ▪ Composite video and S-Video signals from VCRs, laserdisc players, visualizers, document cameras, and slide-to-video converters may be decoded/scan doubled and routed on the V-NET system ▪ Expandable up to 32 total nodes ▪ Looping cable design allows for quick system expansion ▪ Additional workstations, input video sources, and output devices may be added anywhere in the system, merely by adding additional V-NET bus cables and input/output nodes ▪ System utilizes 1 or 2 power supplies located at the end(s) of the bus cable which eliminates the need for an additional A/C power source at each workstation and the possibility of ground loop problems

V-NET Series II is a high resolution video network for computer based training (CBT) facilities. V-NET allows everyone in the training room to share video information: the teacher's video signal can be routed to selected students, the teacher can view the video signal from any student, and the signal from any student may be sent to any or all students on the video network.

V-NET Series II is available in 2 high-performance levels:

Standard Resolution—recommended for computer video resolutions of 1024 x 768 and lower. Utilizes a combined video/control bus cable.

High Resolution—recommended for video signals with resolution of 1152 x 900 and higher and also in systems where the bus cable length exceeds 150'. V-NET Series II High Resolution Nodes are rated at over 250MHz bandwidth. Utilizes separate video bus and control bus cables.

The IN45200 V-NET II Control Unit attaches to any node in the system and provides the teacher with comprehensive system control and feedback on the status of every node in the network. Using the control unit the teacher may: send the teacher's video signal to any or all students; view the video signal from any student; sequentially scan all nodes or a range of nodes; send a video signal from any student workstation to any other student or range of students; blank student monitors to get their attention; route video from VCRs, laserdisc players and other video sources to selected students; route video from any node in the network to an output device such as a large screen video/data projector, scan converter, or video printer.

The control unit also notifies the teacher when any student has requested attention. System functions are also controllable via third party control devices using RS-485 protocol. Student buttons allow students to request attention from the teacher or choose which signal they will view on their monitor. Unlike a local area network (LAN), V-NET Series II is designed specifically as a high resolution video network. V-NET requires no software drivers or internal computer modifications and is completely operating system independent. This results in several advantages over LAN type installations: instantaneous, real time sharing of high resolution video; cross platform compatible—multiple platforms may be included easily on the same V-NET system (multi-sync/multi-scan type monitors may be required); requires no additional computer resources—does not tie up memory or CPU; easily installed by A/V technicians—does not require specialized computer network training POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO ADAPTORS/ ENCODER BOX



JOVIAN
Pure Logic. by Jove!

QuickVIA-Motion Video Capture (Adaptor)

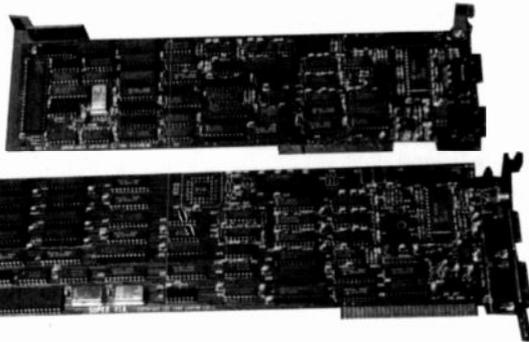
- Real time capture from composite of S-Video NTSC or PAL video signal
- Quick-motion capture for Microsoft Video for Windows and Autodesk Animator
- Complete video editing and video compression for storage or playback from hard disk

QuickVIA—for IBM/AT and compatibles—is a true plug and play video capture adaptor and is fully compatible with Microsoft Video for Windows. It provides the perfect solution for capturing, displaying, manipulating and storing live video motion in Video for Windows AVI format. Video motion can play back on any VGA system without the QuickVIA card. QuickVIA is supplied with a stand-alone image capture program for DOS. Captured images can be saved in all major file formats including TIFF, GIF, BMP, PCS, FLI, FLIC, CUT, IMG and JPEG image compression. QuickVIA comes bundled with Microsoft Video for Windows software, Xing's Picture Prowler Photo database, Jovian digital TV software for Windows and DOS. Drivers for Windows Multimedia are also included.

Specifications:

- **Input:** Composite or S-Video Y/C NTSC or PAL video signal
- **24-bit VFW**
- **Color Resolution:** 15- or 16-bit RGB (65,536 colors) software selectable. Video window and capture size: 320 x 240, 160 x 120 and 80 x 60 pixels software selectable
- **Capture Rate:** Up to 30 frames per second for NTSC or 25 frames per second for PAL video signal
- **Compatibility:** Compatible with any VGA display adaptors. No feature connector required

QuickVIA \$299.00



SuperVIA Color Video Capture Adaptor

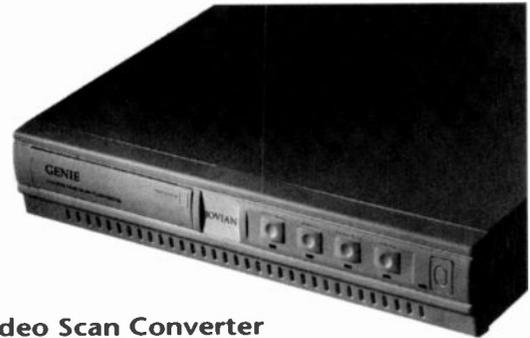
- Real time capture from composite, S-Video or RGB NTSC or PAL video signal
- True 16-bit RGB frame buffer with resolution up to 640 x 480 pixels for graphics rendering and image capture
- Compatible with Microsoft Video for Windows and Autodesk Animator or 3-D studio

SuperVIA's 65,536 color high resolution frame buffer, real time image capture capabilities provide the affordable solution for Video for Windows, Windows photo-databases, desktop publishing or multimedia presentations. Super VIA comes bundled with Z Soft Photo Finish Image Editing software.

Specifications:

- **Input:** Composite, S-Video or RGB NTSC or PAL video signal
- **Color Resolution:** 160 x 120, 320 x 240 and up to 640 x 480 pixels
- **Capture Rate:** Up to 30 frames per second for NTSC or 25 frames per second for PAL signal
- **Compatibility:** Compatible with any VGA display adaptors. No feature connector required
- **Output:** Analog RGB video signal output from the SuperVIA's 16-bit frame buffer

SuperVIA \$495.00



GENIE Video Scan Converter

- High quality computer signal conversion to RGB, S-Video and composite NTSC or PAL video signal
- Totally portable, true plug and play device
- No software driver required
- Underscan, genlock, freeze frame and flicker filter standard features
- Sold worldwide by major video manufacturers

GENIE—a portable scan converter for IBM or Macintosh computers. Requiring no software, it is completely transparent to the computer and will convert computer data or presentation to a flicker-free TV/video signal, whether for a VCR, television or video projector

Specifications:

- **Input Signal:** IBM RGB analog signal: VGA, SuperVGA, XGA or live motion video windows board capable of driving the VGA monitor. Maximum resolution supported: 640 x 480 unlimited color
- **Apple RGB analog signal:** Any graphics board or live motion video windows board capable of driving the Apple 640 x 480 monitor
- **Output Signal:** VGA and MAC loopthrough output
- **RGB, S-Video (Y/C), and composite NTSC or PAL video output signal**
- **Control Features:** Flicker filter on/off, underscan on/off, IBM/Apple selection, frame freeze on/off, genlock on/off, vertical and horizontal position adjustment and brightness control

GENIE \$1495.00

VINPlus VGA To Video Encoder Box

- High quality video encoder box with composite, S-Video (Y/C) and RGB NTSC or PAL video signal output
- Converts VGA and XGA up to 640 x 480 resolution to true NTSC or PAL video standard
- Low cost external encoder box
- Software driver supports most VGA adaptors

The VINPlus encoder box is the perfect VGA accessory. With the VINPlus software driver, it converts the signal from your VGA or XGA up to 640 x 480 resolution into a high quality video signal in real time as it appears on the computer monitor.

Specifications:

- **Input:** IBM RGB analog signal: VGA, SuperVGA or XGA up to 640 x 480 resolution
- The VINPlus software driver is required
- No software driver is required to convert analog RGB video signal to composite or S-Video
- **Output:** Composite, S-Video (Y/C) and RGB video signals for NTSC or PAL standard
- VGA monitor loopthrough for VGA/video multisync monitor

VINPlus \$245.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





KY-F55U 3-CCD Color Video Camera

▪ 3 $\frac{1}{3}$ " IT CCDs with micro lenses Weighs only 1.1 lbs. ▪ 750 lines of horizontal resolution ▪ 60dB S/N ▪ Accepts C-mount lens ▪ Full range of video outputs (RGB, Y/C, composite) ▪ Extensive automatics including full-time auto white and auto level control ▪ SMPTE-type color bar generator ▪ Electronic shutter and variable scan ▪ Full remote control with optional RM-LP55 or computer control via RS-232C ▪ Ideal for computer imaging, teleconferencing, surveillance and research applications \$4500.00



TK-1280U 1/2" CCD Color CCTV Camera

▪ 768 x 494 pixels ▪ Horizontal resolution of more than 470 TV lines ▪ Composite video and Y/C video outputs ▪ High sensitivity of 1.5 lux ▪ Electronic shutter system ▪ 50dB S/N ▪ Variable electronic iris eliminates need for more costly automatic iris lens ▪ Fixed iris lens can be used because the effective iris is electronically varied by changing the shutter speed from 1/60 to 1/20000 sec. ▪ C/CS mount lenses ▪ Backlight compensation on and off ▪ White balance adjustment \$1400.00

TK-1270U 1/2" CCD Color Video Camera

▪ 470 lines of horizontal resolutions ▪ 2 video outputs (RGB/composite video signals) ▪ 50dB S/N ▪ Through-the-lens auto tracking white balance ▪ Changeable C/CS lens mount allows selection from a wide range of lenses ▪ 3 lux low light sensitivity ▪ Ideal for computer imaging and microscope systems requiring precise image ▪ 768 x 494 pixels ▪ 525 lines, 2:1 interlaced \$1170.00



TK-1180U 1/2" CCD Color CCTV Camera

▪ 510 x 492 pixels ▪ Horizontal resolution of more than 330 TV lines ▪ High sensitivity of 2 lux ▪ Electronic shutter system ▪ 47dB

S/N ▪ Features similar to TK-1280U except without variable electronic iris and Y/C video output \$830.00



TK-1070U 2/3" CCD Color Camera Less Lens

▪ 768 x 493 elements with RGB filter ▪ 480 lines horizontal resolution ▪ RGB via D-sub 9-pin socket plus Y/C and composite video outputs ▪ Genlock ▪ C-mount lens capability ▪ Gain-up function (0dB/+6dB/+12dB/auto) ▪ Selectable gamma correction (0.45/1.0) ▪ Aperture switch ▪ Shutter speeds of 1/125, 1/250, 1/500, 1/1000, 1/4000 and 1/10000 second ▪ Auto white balance: auto/manual/preset (3200K) ▪ Compatible with VISTA, TARGA and other image capture boards. Standard accessory: DC cable \$1465.00

Computer Imaging Accessories

AC-C712P AC Adaptor

▪ For TK-1070U and KY-F55U ▪ Uses the DC cable supplied with the TK-1070U \$174.00

H6x12.5CL 6:1 Manual Lens

▪ For TK-1070U ▪ Close-up attachment ideal for copy stand included ▪ Focusing range 0.52m-1.1m (1m to infinity without attachment) ▪ Made by Fujinon \$464.00

HZ-C611AF C-Mount Autofocus Lens

▪ For TK-1070U ▪ 11-66mm power zoom lens with C-mount ▪ Autofocus ▪ Auto/manual iris ▪ Macro function ▪ Remote control \$801.00

VC-451-2U RGB Breakout Cable

▪ For TK-1070U ▪ 2-meter cable plugs into 9-pin D connector and provides RGB breakout (BNC) of R, G, B, video and sync signals \$108.00

VC-452-4U 9-Pin to 9-Pin RGB Cable (4-Meter)

▪ Used to connect the TK-1070U to TARGA and VISTA boards \$47.00

RM-LP55U Remote Control

▪ For KY-F55U ▪ Full control over title setting, white balance, gamma, master black, shutter and variable scan ▪ Controls zoom, focus and iris for optional HZ-610MDU \$700.00

HZ-610MDU Motorized Zoom Lens

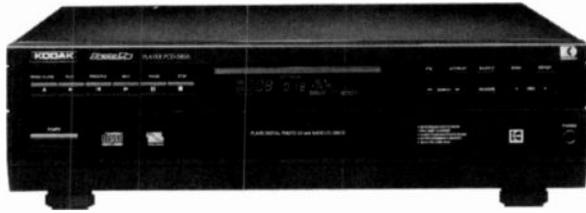
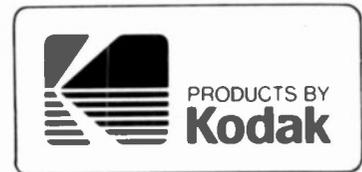
▪ For KY-F55U ▪ Motorized zoom, focus and iris \$1590.00

HZ-G6350U Wide-Angle Variable Focal Lens

▪ For KY-F55U ▪ 3.5 to 8mm ▪ Motorized iris ▪ Manual zoom and focus ▪ Requires re-focus whenever zoom angle is changed. \$700.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PHOTO CD PLAYERS



PCD 850/5850 Photo CD Players

▪ Rotate: turn images clockwise, a quarter turn at a time ▪ Insert: change the order in which your photographs are played or customize your presentation ▪ Skip: press this button when you don't want to view a particular photograph ▪ Keep: press this button to save changes such as Tele, Pan or Rotate ▪ Favorite Picture Selection: remember changes for future viewing sessions ▪ Press 1 button for hands-free viewing ▪ Turn on Auto-play and sit back and tell the story behind each picture as the player automatically shows a new photo every 2 seconds

With a Photo CD Player, picture-takers can share photo memories with family and friends in a whole new way. Now photographs captured on 35mm film and transferred to a photo CD disc can be viewed in bright, vivid color on any TV. And when they aren't being used to display pictures, you'll get great audio CD sound. Before long, it will be possible to add sound captions, text and graphics to photo CD discs. Photo CD Players have the ability to take advantage of these features which allow customers to customize their electronic photo albums. And interactive "branching" lets viewers choose their path through pre-recorded photo CDs. The PCD 5850 offers a multi-disc changer, which can load as many as 500 photographs or play CD audio for up to 6 hours.

The remote control offers random access to any photograph on the disc. Just enter the index number of the desired photograph by pressing the numeric buttons on the remote control.

Zoom in on the best part of a scene and let it fill the screen. It's easy to get high-quality enlargements with the TELE function.

To reposition any image on the TV screen, just use the Pan buttons. Press Normal at any time to return to the original, unedited view.

PHOTO CD PLAYER	PCD 5850	PCD 850
Autoplay	Yes	Yes
Full View	Yes	Yes
2X Tele Function	Yes	Yes
Insert	Yes	Yes
FPS (Favorite Picture Selection)	Yes (8K memory)	Yes (8K memory)
Multi-Disc Changer	Yes	No
On-Screen Display	Yes	No
Scan	Yes	Yes
Rotate	Yes	Yes
AUDIO PLAYER		
Scan	Yes	Yes
Shuffle Play	Yes	Yes
Time Edit	Yes	Yes
FTS (Favorite Track Selection)	Yes	Yes
OUTPUTS		
RF Output	Yes	Yes
Composite Video	Yes	Yes
S-Video	Yes	Yes
Audio Channels	Yes	Yes
Headphone Jack	Yes	Yes
805 2383 PCD 850		\$249.00
810 0745 PCD 5850		449.00

PCD M50 Photo CD Portable Player

▪ Includes all the capabilities of the full size models

Photo features include:

▪ 2X telephoto capability ▪ Favorite picture selection ▪ Programmable memory ▪ Auto picture play with interval ▪ Picture scan ▪ ADPCM (continuous sound) ▪ Audio/video outputs

Audio features include:

▪ 18-bit DAC with 8X oversampling ▪ Program ▪ Audio scan ▪ Shuffle play ▪ Repeat ▪ Time edit ▪ Headphone jack with volume control

The PCD M50 comes with:

▪ Portable, dual-function audio/photo CD player ▪ Remote control unit with 2 AA-size carbon zinc batteries ▪ Stereo headphones ▪ Composite video cable ▪ Stereo audio cables ▪ AC adaptor

All Photo CD Players offer a wealth of benefits, such as outstanding picture quality and clarity when viewed on a television monitor, the outstanding longevity and keeping characteristics associated with compact discs, dual-purpose audio/photo functionality, the ability to manipulate images, and the convenience and ease of use associated with the ability to store up to 100 images on each disc. The PCD M50 offers continuous sound capability for future photo CD discs that will be able to display a series of different images over a continuous audio track.

- 136 6251 PCD M50 \$449.00
- 869 4879 PCD 95 Pouch for the M50. Sturdy, padded construction of cordura nylon with leather trim. Accommodates the M50 and related accessories 24.99
- 883 4879 RF934 Photo CD RF Modulator Uses a standard cable and connects to the "antenna in" on the television 29.95

Photo CD Acquire Module

A user-selectable plug-in that allows commercial users to import photo CD images from a photo CD disc (or photo CD images previously copied to a hard disk) into Adobe Photoshop software.

The module enables you to open a photo CD image stored on a photo CD disc or hard drive and crop it, adjust its sharpness, resolution, color settings, brightness and more.

The Photo CD Acquire Module also provides 12 image conversion algorithm display options to help users identify an initial metric to use when importing photo CD images. Included with the product's documentation is a list of common monitors with suggested starting points for gamma and white values in each display device.

Photo CD Module \$59.95

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



ELECTRONIC IMAGING PRODUCTS

Professional RFS 2035 Plus Film Scanner

- Combines 3K x 2K resolution and improved dynamic range with high speed in an easy-to-operate desktop scanner
- Ideal for both color and B/W imaging
- You'll need just 11 seconds to scan a full-frame, 4.6M byte (1000 dpi) image, 40 seconds for a full-frame, 18M byte (2000 dpi) image
- Loads quickly and easily
- High quality on the first try
- Scan directly into your computer's image editing software
- User-selectable image sharpening
- Autofocus keeps scanning on target
- Custom-designed lens
- Image preview in 2 seconds
- Comes bundled with a driver for Mac-based Adobe Photoshop and drivers for IBM PC compatible Twain applications

828 1107 \$8,995.00

CCD 4000 RGB Flash-Sync Camera

- Electronic flash synchronization provides uniform results independent of ambient lighting
- High S/N ratios for excellent resolution, sharpness and color fidelity
- 768 horizontal x 493 vertical pixels
- Standard C-mount lens compatibility
- Video output NTSC composite video/RGB/sync
- Imaging device 1/3" interline transfer CCD
- Luminance S/N ratio >50dB (typically 53dB); chrominance S/N ratio >45dB (typically 48dB)
- Scanning system 525 lines (12:1 interlace)
- White balance preset and manual for video and flash-sync modes
- Ambient gain control selectable 0dB, +6dB, +12dB
- PC flash connector
- Camera head mounting 1/4-20 UNC mount (standard video mount)
- Power requirement 12VDC, 560mA
- 3" x 3.6" x 3.8"

128 1914 \$2,460.00

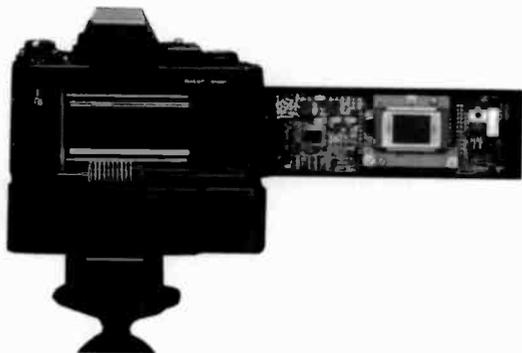
160 9452 Manual flash-sync iris zoom lens 475.00

187 6879 Auto-iris manual zoom lens 475.00

177 9354 120VAC adaptor 60.00

814 2101 Camera interface cable 90.00

118 7657 240VAC adaptor 90.00



DCS Professional Digital Camera System

- Handheld digital camera system captures and stores B/W or color digital images with quality and resolution approaching that of conventional photography
- Built-in monitor for immediate review
- 2.5 images/second; 6-24 image burst
- B/W or color
- SCSI connect to Mac/PC
- Dedicated digital camera
- Compression-transmission
- LCD image preview
- DSU menu and control panel
- Exposure index: B/W 200-1600; Color: 100-800
- CCD: M3:L 20.5mm x 16.4mm
- Transmission: from DSU with external modem, compatible

with industry standards

- Resolution: 1.3 megapixels, 3.9M byte file size
- Camera body: Nikon F3
- Storage: 200M byte hard drive in DSU; 156-699 images

DCS \$12,600.00

DCS 200 Professional Digital Camera

- Capture high resolution digital images directly into your computer
- View, store, analyze, manipulate and produce prepress materials
- LCD on rear of camera provides indicators such as battery charge level, frame count and storage count
- SCSI ID indicator and image-delete button
- 1 image/3 seconds
- B/W or color
- SCSI connect to Mac/PC
- Simple, user friendly
- Exposure index: B/W: 100-800; Color: 50-400
- CCD: M5: 14mm x 9.3mm
- Transmission: Computer or modem
- Resolution: 1.54 megapixels, 4.5M byte file size
- Camera body: Nikon N8008s
- Storage: 50-image internal storage in camera body; SCSI-compatible external hard drive

144 0510 DCS 200ci (color, 50-image internal storage) . . . \$9,995.00

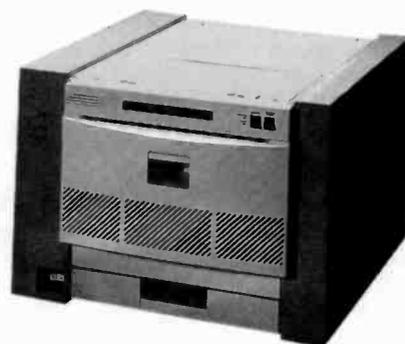
101 1725 DCS 200mi (B/W, 50-image internal storage) . . . 9,995.00

XLT 7720 Digital Continuous Tone Printer

- Advanced thermal dye transfer process
- High resolution prints and boardroom-quality transparencies
- Broad range of software available to simplify integration with DOS, Macintosh, UNIX and other computers
- Continuous-tone printing with more than 16.7 million colors and 256 levels of gray
- 3 output sizes: 8 1/2" x 11", 11" x 11" and A4
- Print times (8 1/2" x 11"): B/W prints 1.6 min.; B/W transparencies 2.2-3.2 min., depending on density selection; color prints 3.2 min.; color transparencies 3.2-12.0 min., depending on density and ribbon cartridge selections
- Uses KODAK EKTATHERM media products
- Side panel kit included

107 4913 XLT 7720-CI (IEEE 488) \$19,995.00

848 9551 XLT 7720-CS (SCSI) 19,995.00



450GL Digital Color Printer

- Ideal for any application requiring sharp color images in a convenient size
- A wide range of professional applications including advertising, multimedia and real estate
- Color resolution: 24-bit color, 16.7 million colors, 256 levels of gray
- Print resolution: 137 ppi (pixels/inch)
- Minimum system requirements: IBM PC or compatible, Macintosh II or greater
- Printer drivers supplied: Microsoft Windows and Macintosh

143 2236 PC version with Windows \$1,599.00

820 4679 Mac version 1,749.00

XLS 8300 Digital Color Printer

- Ideal for a wide range of professional applications including industrial design, medical imaging and advertising
- Create remarkable prints and transparencies with continuous-tone color and detail
- Flexibility in output sizes
- Low noise operation
- Print resolution: 300 ppi
- Minimum system requirements: IBM PC or compatible, Macintosh II or greater
- Printer drivers supplied: export modules for Aldus PhotoStyler, Microsoft Windows, Adobe Photoshop and Apple Macintosh

119 6138 \$10,995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

CAMERA BACK/ SCANNERS/NETWORK BOARD



Leaf Digital Camera Back

Electronic image capture system designed for professional photographers and graphic arts specialists. Designed for demanding applications such as catalogs, inserts, magazines and other studio work. This filmless camera provides grain-free enlargements and scene-accurate color. Provides professional photographers access to a wider variety of photographic subjects and professional applications including advertising, industrial and scientific inspection, digitizing film for special effects or for HDTV programming and more.



The camera features a 4-megapixel, filmless still camera back using conventional lighting and lenses for grain-free enlargements and scene-accurate color. The entirely electronic image capture system attaches to the back of a Hasselblad EL 500 and 553ELX series, Mamiya RZ67, Fuji GX680 or Cambo and Sinar large format view camera and connects, via SCSI 2 cable, to a Macintosh™ computer. Images sent to the Macintosh result in 12-megapixel images containing 14 bits per pixel of data per color (16,384 gray levels). The photographer can then select the 8 bits (256 gray levels) per separation to save on the Macintosh, plus retain the 14-bit file as well.

The camera allows users to capture high-quality images and feed them into a computer. Users then develop the picture, performing color manipulations, enlargements and enhancements by using off-the-shelf software, such as Adobe Photoshop, and standard hardware platforms such as the Macintosh.

Leaf Digital Camera Back \$35,500.00

Leafscan 45/Leafscan 35 Desktop Scanners

35mm resolution CCD-based scanner. Broad dynamic range comparable to drum scanner (to 3.7D max). 16-bit per color per pixel sampling for maximum detail capture. Full-color and tonal range adjustments, selective per picture content. Color and B/W positive or negative film. Industry standard interfaces and software compatibility (GPIB/SCSI2). High-speed prescan and final scan. Cost-effective scanning for a wide variety of prepress production applications. Provides quality and color fidelity of a drum scanner at a desktop price. 6000 element linear CCD image sensing. Triband phosphor fluorescent lamp illumination. 75mm flat field lens. RGB and neutral density filters color separation. 5000:1 or 3.7D max. dynamic range. 16-bit per color per pixel depth. User defined LUTs convert 48- to 24-bit. Creates custom LUT for each image. 16ms per scan line; 2000 x 3000 scan in under 4 min. Full frame, 48-bit preview. User adjustable cropping. Highlight, mid-tone and shadow adjustment independent for each color. Auto-ranging calculation excludes unwanted highlights/shadows. Output format: RGB files; format is platform and application dependent. Software is Mac Photo-Shop



acquire plug-in module. Intel 80188 internal command processor. Motorola 56000 DSP for data correction and averaging. Macintosh (24-bit color systems, 8M byte RAM) host compatibility. GPIB or SCSI2, switch selectable ID switch for daisy-chaining SCSI2 host interfaces. Both scanners support Leaf 16-bit file formats.

Leafscan 45 = High-resolution multi-format negative or positive transparency scanner. Handles most common film formats (35mm, 2 1/4", 6cm x 9cm and 4" x 5") = User selectable resolution, to 5080 dpi (for 35mm portrait format only) = Automatic focus adjustment = Footprint: 17" x 18" x 27" = 85 lbs. = Factory set power to 100-240VAC, 50/60Hz = FCC Class A approved UL, CSA, VDE, TUV = Standard film mounting holders (Beseler), film strips, slides (with optional slide carrier), 2 1/4" x 2 1/4" unmounted strips, 4" x 5" unmounted* \$17,000.00

Leafscan 35 = User selectable resolution, up to 4000 dpi = 35mm resolution CCD-based scanner available = Footprint: 14" x 10" x 19" = 30 lbs. = Autoswitching 110-240VAC, 50/60Hz power = FCC Class A approved UL, VDE = 2 film carriers \$8,500.00

LeafNet Network Board

Fiber-optic token ring local area network for the Macintosh. Rapidly transfers large blocks of data and images. View folders or files that reside on the network; multiple users can simultaneously transmit files. Enables users of color prepress products to retrieve images from the file server with Leaf's software and copy them to a local drive for editing. Improve data transfer speeds up to 10X over Ethernet. The average transfer of a 30M byte image file is under 1 minute. Allows simultaneous transmission of large color files—even folders of large color files—by multiple users with 5M byte bandwidth.

LeafNet \$1,800.00

Fiber optic cable per ft./3.00



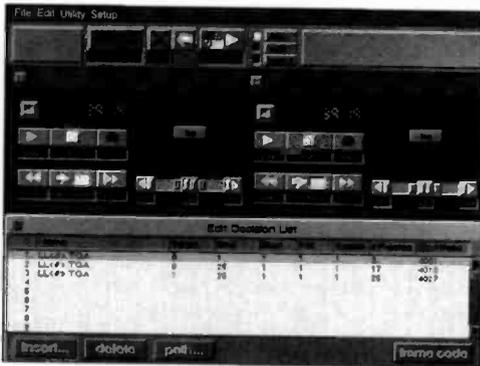
Lumina Scanner

Mounts to copy stands or tripods allowing image capture of any size subject while scanning reflective, transmissive or 3-D objects. 12-bit color depth captures more shadow definition and provides a higher dynamic range than similarly priced flatbed and transparency scanners. 2700 element tri-color (RGB) CCD allows for fast single-pass color scanning with no additional filters. Slide illuminator mounting allows fast scanning of 35mm slides. Accepts lenses with standard Nikon mounts allowing for maximum creativity and flexibility. Utilizes a standard SCSI-2 interface for fast transmission of data. Able to use a wide variety of lighting for flexibility in setup and cost.

Lumina \$7,500.00

*Leaf rotating film holder supports 35mm strip, 35mm mounted, 2 1/4", 4" x 5", 6cm x 4.5cm, 6cm x 6cm, 6cm x 7cm, 9cm x 12cm.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PC-VAS™ Animation Controller for the PC

- Installs into standard 16-bit AT-bus on PC
- VASMagic interface software with supplied graphical user interface allows full control of VTR and programming of all PC-VAS functions
- User-friendly graphical interface allows operators to control all recorder functions from the PC, including recording, grabbing, searching and time code
- Performs precise single frame recording and frame grabbing (frame capture) operations from PC to standard editing VTRs and disk recorders
- Supported by all major animation software packages running on the PC, fully compatible with interface software for the Lyon Lamb MiniVAS family of controllers
- Can be used as a stand-alone SMPTE time code generator and reader
- Supplied with cables to control 1 VTR with RS-422 control
- Built-in SMPTE time code generator and 2 readers
- Assures field accuracy by the use of Lyon Lamb's proprietary Vertical Interval Frame Code (VIFC™)
- SMPTE time code is used interchangeably with VIFC for VTRs with SMPTE control
- Accurate search to any frame on any VTR interface
- Separate sync input for video edit timing
- Audio editing capability
- Interfaces automatically to a wide range of VTR formats including S-VHS, Hi8, U-Matic, Betacam, M-II, 1" Type C, D1, D2 and HDTV, as well as laserdisc recorders
- Supports audio and video devices with RS-422, RS-232, control L/S
- All supported recorder interfaces reside in PC-VAS software so user may select or change recorders at any time with no hardware modification. PC-VAS can be easily updated at any time for newly developed recording devices
- All recorder control functions including jog and shuttle supported
- Automates recording of image files
- Automates grabbing of images from tape or video disc for rotoscoping
- Full remote VTR control
- Interfaces to Truevision board products (Vista, Targa and Targa Plus)
- Compatible with .TGA image file format
- Fully compatible with Lyon Lamb MiniVAS series controllers
- Rotoscoping capability with 2-VTR control with optional breakout box
- Programmable operations for 1 or more frames
- Frame grabbing with programmable offsets
- Programmable event triggers
- Software selectable preroll and time-out
- Programmable scene playback and sequencing

PC-VAS \$1,295.00

I-VAS Animation Controller

- Plug-in circuit board specifically designed to control a broad range of video devices for animation and multimedia applications
- Precise single-frame recording and frame grabbing operations from Iris Indigo to standard editing VTRs
- Controls all recording, grabbing, search and VTR functions from the Indigo
- Built-in SMPTE time code generator and 2 readers
- Assures field accuracy by using VIFC
- Interfaces automatically with a wide range of VTR formats
- Supports audio and video devices with RS-422, RS-232 or Control L/S
- All supported recorder interfaces reside in I-VAS software so user may select or change recorders at any time with no hardware

modification

- Supported by all major animation software packages running on the Iris Indigo
- Rotoscoping capabilities with 2-VTR control (optional breakout box required)
- Programmable event triggers
- Audio editing capability
- Separate sync input for video edit timing
- NTSC or PAL standards

I-VAS \$1,295.00
Breakout Box Optional 295.00



RTC Real Time Scan Converter

- High resolution scan conversion in real time
- Automatic conversion of RGB signals scanning at rates from 20-89kHz (standard NTSC version), 14-60kHz (LF version), 20-73kHz (standard PAL version)
- Proprietary VLSI digital filtering with selectable sharp, medium and soft focus on both the input horizontal and vertical axis allows for high text resolution, removes unpleasant flickering and adds hardware anti-aliasing
- Zoom, pan and scroll capability for precise image composition
- 3 source input channels with built-in selector and memories for storage of 40 sets of input and output settings
- Adjustable for various input aspect ratios
- Digital encoder with menu-driven settings and memory
- Selectable encoder filters
- Outputs include composite video, component Betacam or M-II, S-VHS and 15kHz RGB
- Internal sync generator allows genlock of external devices or will genlock system to external input (NTSC or PAL), sync and subcarrier
- Built-in black and color bars
- Easy-to-use menu operation with front panel 2-line x 40-character backlit LCD display and controls
- All features may also be controlled through a serial communications port
- Easy connection to graphics computers via looping BNC connectors; typically the computer's monitor outputs are looped through the RTC
- NTSC and PAL versions available
- Accepts RGB signals from virtually any computer and converts the RGB output to a broadcast-quality NTSC or PAL video signal
- Allows computer images to be recorded on videotape recorders, displayed on standard video monitors or projection systems and broadcast
- Combines individual pixels where other processes discard some pixels and lose resolution
- Pushbuttons allow text to be sharpened and shaded images to be softened, and built-in digital encoder and sync generator assures the highest quality for all video formats

RTC \$24,950.00

RTC/LF Low frequency scanning version of RTC.
Automatic conversion of RGB signals scanning
at rates from 14-69kHz 24,950.00

RTC/HD Version of RTC specifically designed for
input of HDTV signals 24,950.00

RTC/PAL PAL version of RTC 30,950.00

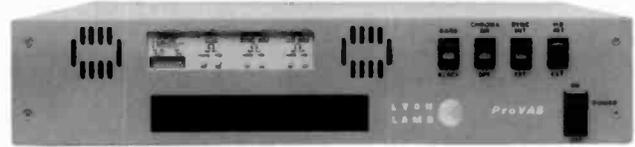
RTC/PAL/LF PAL version of RTC/LF 30,950.00

RTC/PAL/HD Version of RTC/PAL specifically designed
for input of HDTV signals 30,950.00

RTC Rack Slides Rackmounting slides for RTC 250.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

ANIMATION CONTROLLERS/ENCODER/SYNC GENERATOR



MiniVAS-2 Animation Controller

- Performs single frame recording and frame grabbing (frame capture) operations from computer graphics systems to standard editing VTRs
- Operators control all recording, grabbing, search and VTR functions from the host terminal
- Remote RS-232 interface at 9600 baud
- No modification required to VTR
- Assures field accuracy by the use of Lyon Lamb's proprietary Vertical Interval Frame Code. Additionally, SMPTE time code is used interchangeably with VIFC for VTRs with time code output available. An LED display on the ProVAS displays the VIFC or SMPTE time code for positioning and locational status
- Interfaces automatically to a wide range of VTR formats including S-VHS U-Matic, Betacam, M-II, 1" Type C, D1, D2 and HDTV, as well as laserdisc recorders
- All supported recorder interfaces reside in MiniVAS-2 firmware so the user may select or change recorders at any time with no hardware or software modification. MiniVAS-2 can be easily updated at any time for newly developed recording devices
- Supported by all major animation software packages running on every level of computer platform
- Programmable operations for 1 or more frames
- Frame grabbing with programmable offsets
- Rotoscoping capability with 2 VTR control
- 2 RS-422 9-pin D connectors for control of 2 serial machines
- Programmable event triggers
- Software selectable preroll and timeout
- Accurate search to any frame on any VTR interface
- Programmable scene playback and sequencing
- Status information available over RS-232 interface
- All recorder control functions including jog and shuttle supported
- Separate sync input for video edit timing
- Audio editing capability
- Desktop use or rackmountable; rackmounting brackets included

MiniVAS-2 Includes video recorder cable, does not include S-VHS to BNC cable set. \$2980.00
 Additional VTR Cables RS-422, AG-7500 or VO-5850 75.00
 S-VHS Cable Set S-VHS to BNC cable set for S-VHS MiniVAS-2 or S-VHS ENC-7 operation 160.00

ENC-7 Encoder/Sync Generator

- Broadcast quality encoder/sync generator designed specifically to be the comprehensive solution for computer graphics applications
- Meets the special requirements of RGB image-makers for RS-170A encoding
- Full bandwidth encoding. Outputs include composite video (2), component video Betacam or M-II, S-VHS and separate Y and C
- Internal sync generator allows for genlock of NTSC or PAL RGB devices, or the ENC-7 will slave to incoming sync from the RGB source or house sync
- Accepts continuous subcarrier input for phase locked color framing
- Adjustments are included for sync advance and delay, selectability of calibrated or adjustable RGB input levels, selectable color bars and blackburst, also Superblack video output for keying
- Sync generator outputs include: composite sync, blanking, burst flag, subcarrier, horizontal and vertical drive, also PAL ID pulse in PAL version
- Sync input accepts composite sync, composite video, sync on green
- Internal color bar generator: NTSC-SMPTE, EIA standard or full color; PAL-BBC, EBU or full color; blackburst
- Accepts RGB with setup, can add setup to video or adjust for Superblack video output
- Switchable loopthrough or terminated RGB and sync inputs
- 360° SCH phase adjustment
- Adjustments and switches available from front panel

ENC-7 \$3980.00
 ENC-7/PAL PAL version 3980.00
 S-VHS Cable Set S-VHS to BNC set for S-VHS ENC-7 operation 160.00

ProVAS Animation Controller and Encoder/Sync Generator

Controller Section

- Performs single frame recording and frame grabbing (frame capture) operations from computer graphics systems to standard editing VTRs
- Operators control all recording, grabbing, search and VTR functions from the host terminal
- RS-232 interface at 9600 baud
- No modification required to VTR
- Assures field accuracy by the use of Lyon Lamb's proprietary Vertical Interval Frame Code. Additionally, SMPTE time code is used interchangeably with VIFC for VTRs with time code output available. An LED display on the ProVAS displays the VIFC or SMPTE time code for positioning and locational status
- Interfaces automatically to a wide range of VTR formats
- All supported recorder interfaces reside in ProVAS firmware so the user may select or change recorders at any time with no hardware or software modification
- Supported by all major animation software packages running on every level of computer platform
- Programmable operations for 1 or more frames
- Rotoscoping capability with 2 VTR control
- 2 RS-422 9-pin D connectors for control of 2 serial machines
- Programmable event triggers
- Software selectable preroll and timeout
- Accurate search to any frame on any VTR interface
- Programmable scene playback and sequencing
- Status information available over RS-232 interface
- All recorder control functions including jog and shuttle supported
- Separate sync input for video edit timing
- Audio editing capability

Encoder/Sync Generator Section

- Full bandwidth encoding. Outputs include composite video (2), component video Betacam or M-II, S-VHS and separate Y and C
- Internal sync generator allows for genlock of NTSC or PAL RGB devices, or the ProVAS will slave to incoming sync from the RGB source or house sync
- Accepts continuous subcarrier input for phase locked color framing
- Adjustments are included for sync advance and delay, selectability of calibrated or adjustable RGB input levels, selectable color bars and blackburst, also Superblack video output for keying
- Sync generator outputs include: composite sync, blanking, burst flag, subcarrier, horizontal and vertical drive, also PAL ID pulse in PAL version
- Sync input accepts composite sync, composite video, sync on green
- Internal color bar generator: NTSC-SMPTE, EIA standard or full color, PAL-BBC, EBU or full color, blackburst
- Adjustment for sync advance and delay
- Accepts RGB with setup, can add setup to video or adjust for Superblack video output
- Switchable loopthrough or terminated RGB and sync inputs
- 360° SCH phase adjustment
- Adjustments and switches available from front panel
- Desktop or rackmountable; front and rear rackmounting brackets included

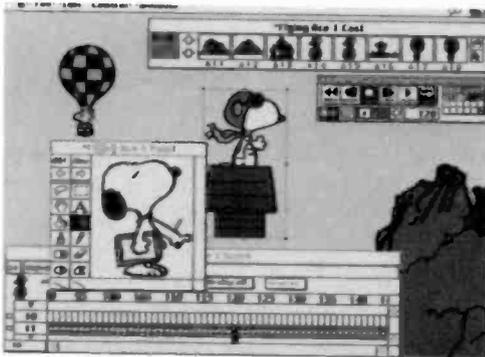
ProVAS \$5980.00
 ProVAS/PAL PAL version 5980.00

MicroVAS Animation Controller

- Less expensive version of MiniVAS-2
- Has only 2 ports instead of 4 (1 RS-422, 1 RS-232)
- Does not support parallel controlled VTRs
- Does not have LED front panel display
- Ideal for use with animation programs for PC, Macintosh and Amiga based systems

MicroVAS Does not include S-VHS to BNC cable set \$2480.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

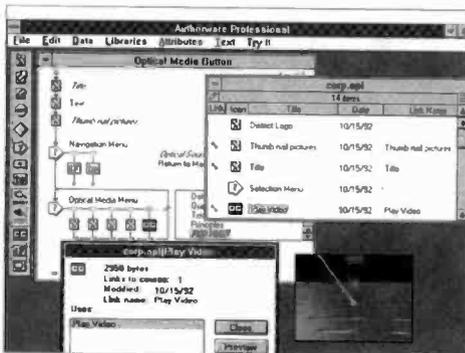


**Macromedia Director 4.0
for Macintosh/Windows**

The Premier Authoring Tool for Multimedia Production

- Gives you the power to communicate more effectively with the impact of animation, high-fidelity sound, QuickTime and video for Windows, movies, video, text, graphics and interactivity
- Editing features combine several movies into one
- Macromedia Accelerator, now included with Director, compiles movies and accelerates them so animations appear smoother and run faster
- Enhanced overall performance includes expanded help, enhancements to Lingo for better memory management and added functionality in the Score
- Import sounds and graphics from nearly any source
- Powerful auto-animate capabilities provide fast and easy animation creation
- Full-featured 24-bit paint and animation tools, 16-bit and 256-color VGA palettes
- Lingo's HyperTalk-like language adds a wide range of interactivity
- Control such external devices as videotape recorders, laserdisc players, video-in-a-window cards and audio compact discs
- Visual timeline allows precise control over animation and sound
- Overview module quickly creates multimedia slide shows
- 2 sound channels in the Score window allow voice-over with soundtrack
- Sound plays automatically while the next movie is loading
- Includes commands for controlling CD audio, file sounds and cast member sounds, including fade in and out
- Macintosh/Windows Player (included) allows you to turn your presentations into stand-alone applications (projectors) that include a royalty-free distribution license
- Includes step-by-step tutorials and numerous sample files

Director 4.0 \$1195.00
Upgrades from 3.1 to 4.0 299.00



**Authorware Professional 2.0
for Macintosh/Windows**

The Premier Authoring Tool for Interactive Learning
Authorware Professional's object-oriented interface gives non-programmers the power to create, deliver and maintain

applications on both the Macintosh and Windows platforms. Authorware's built-in interactivity, data measurement functions, and media-integration controls bring powerful functionality to its easy-to-use interface. Media Manager stores graphics, sounds, animations and other digital media in libraries separate from applications.

Consistent Cross-Platform User Interface

- Makes Authorware Professional the only authoring package for interactive learning that runs on both the Windows and Macintosh platforms
- Applications can be created on Windows for delivery on Windows
- Files created on a Macintosh can be opened and edited under either Macintosh or Windows
- All logic and content—including graphics, path animations, sounds and variables are automatically converted with nearly 100% compatibility

10 Different Interaction Types Built-In

- Text entry
- Screen buttons
- Click/touch areas
- Movable objects
- Pull-down menus
- Key presses
- Clickable objects
- Conditional limit
- Time limit and tries limit

More Than 200 System Variables and Functions

- Provide extensive capabilities for capturing, manipulating and displaying data, and for controlling how your application operates
- Automatically tracks student performance and stores results in separate files or folders in any designated location

Authorware Professional Includes

- Authoring software
- Delivery software
- Utilities for controlling media devices, including sound and video
- Ability to import standard graphics, sound and animation files
- Productivity library of examples and reusable models and clip media collection with graphics, sound and animation

Authorware Professional 2.0 \$4995.00

**Macromedia Director/Authorware
System Requirements**

Windows System Requirements

- IBM PS/2 and Ultimedia machines and 80286, 386, and 486 with DOS 3.3/Windows 3.0 or 3.1
- Authoring min.: 20MHz 386 with 4M byte RAM 16-color VGA, 40M byte hard disk and a mouse.
- Rec.: 33+MHz 386 with 8M byte RAM, and a 16-color VGA (256 with VGA + card)
- Delivery min.: 20MHz 386 with 4M byte RAM, 16-color VGA 20M byte hard disk and a mouse.
- Rec.: 33+MHz 386 with 8M byte RAM, 16-color VGA (VGA + card for 256 colors)

Macintosh System Requirements

- Classic/Classic II, SE, SE/30. PowerBook family and all color Macintosh computers
- Monochrome authoring and delivery, min.: Mac Plus with 1M byte RAM, System 6.07, 2M byte with System 7.x
- Rec.: SE with 4M byte RAM
- Color authoring and delivery min.: Mac II with 2M byte RAM, System 6.0.7, 4M byte with System 7.x.
- Rec.: 4M byte RAM

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PROFESSIONAL DESKTOP VIDEO PRODUCTION SYSTEM



PROFESSIONAL DESKTOP VIDEO EDITING SUITE

Matrox Studio System

The Matrox Studio is a powerful video post-production system that combines the productivity boost of nonlinear editing with the quality and versatility of linear, tape-based on-line production. Completely integrated into a turnkey system, the Matrox Studio offers the most powerful, versatile and expandable desktop video editing solution on the market.

The nonlinear option provides editors with the choice of how to edit and master their productions. Analog video and 2 channels of audio are captured and transferred to hard disk. Entire reels can be captured or only those clips in a current log or previously built storyboard. 9 user-selectable video quality levels, from repeat-field preview quality to 60-field near-Betacam quality, offer video production versatility unmatched in the industry. Printing to tape can be performed from the compressed source on hard disk or from the on-line, linear Matrox Personal Producer application using the original source tapes to maximize quality.

Up to 5 layers of video/graphics mix effects, all-digital 4:2:2 processing, hundreds of transitions and enhanced DVEs provide the tools needed to create spectacular video productions. Editing features like single key dissolves, easy splits and cutaways, R-mark support and the Matrox color-coded editing keyboard make the Matrox Studio more powerful than ever.

The Matrox Studio is available in 3 factory-integrated models (in NTSC and PAL formats) that span the full spectrum of professional video production. From the low-cost Matrox Studio 200, offering an affordable, yet comprehensive and powerful solution for broadcast-quality on-line productions to the Matrox Studio Series 2000—with A/B or A/B/C roll, digital audio processing and analog component support integrated into a rackmounted EISA-bus PC. The Series 2000 systems are fully expandable through hardware and software upgrades like the nonlinear editing option and Titania™ 3-D DVE add-on board.

Matrox Studio Standard Features

- Turnkey System
- Broadcast-quality on-line
- All digital 4:2:2 processing
- 4 or 5 layers of video/graphics mix effects
- 2 multi-layer compositors
- Full digital proc amp control
- Time base correctors
- 32-bit graphics subsystem
- Linear/graphics keyer
- 2-D Digital Video Effects (DVE)
- Rackmountable breakout boxes
- High-resolution, high-performance editing interface through the MGA
- Windows accelerator
- Luminance and chroma keyers
- Hundreds of transitions
- Digital still store
- 10-track audio mixer
- Full audio pan control
- VTR control
- EDL import/export
- Fast cuts editing
- Single key dissolves
- R-mark support

Matrox Studio Standard Software

- Personal producer video editing software
- Inscrber/CG titling software
- EDL import/export utility

Matrox Studio Series 2000

The top of the line Matrox Studio 2000 has a host of benefits, including analog component signal support, digital audio processing, high resolution user-interface with a video-view window and integration into rackmounted 486DX2/66 EISA-bus PCs. Choose between the Studio 2200 A/B roll system or the Studio 2300 A/B/C roll system. Both these models are expandable to nonlinear editing and Titania 3-D digital video effects and are networkable.



- Matrox Studio 2200 A/B roll system includes 16M byte of RAM, a 120M byte tape backup and a 340M byte hard disk . . . \$22,995.00
- Matrox Studio 2200P PAL format 25,995.00
- Matrox Studio 2300 A/B/C roll system includes 16M byte of RAM, a 120M byte tape backup and a 1G byte hard disk 25,995.00
- Matrox Studio 2300P PAL format 28,995.00

Matrox Studio 200

The entry-level Studio 200, with true A/B roll, 8 composite (or 4 Y/C) inputs, a 2-channel video bus switcher and an independent graphics layer, has all the power of a traditional on-line production studio at a fraction of the price. Integrated into a 486DX2/66 ISA-bus PC, the system includes 8M byte of RAM and a 200M byte hard disk \$12,995.00

- Matrox Studio 200P PAL format with analog component support 14,995.00



Nonlinear Editing Option

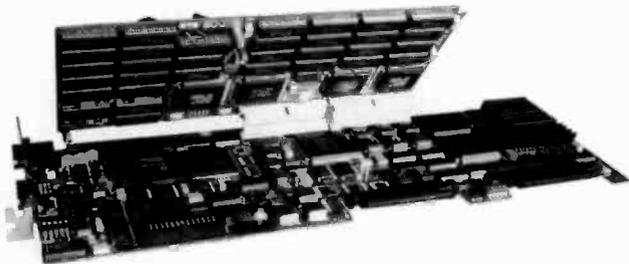
Includes Personal Producer XPress nonlinear editing software, Studio-Xpress motion—JPEG compression board and a dedicated 2.1G byte hard disk \$8,995.00

Titania 3-D DVE Option

Provides a channel of 3-D warps, perspective, skew, rotation and more. 2 Titanias can be added to the Studio 2200, 3 to the Studio 2300.

- 1 channel \$ 4,495.00
- 2 channels 8,785.00
- 3 channels 13,075.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Illuminator-PRO Professional Videographics Board

- All-digital 4:2:2 encoder ensures broadcast quality (NTSC, PAL) ▪ Analog linear key output with software adjustable output timing drives the linear key input of conventional switchers ▪ An on-board digital blender provides soft downstream keying if no switcher is used ▪ Software adjustable video output timing including SC/H phase and horizontal positioning ▪ Full resolution 32-bit/pixel capture and display (720 x 486 NTSC and 720 x 576 PAL) ▪ Dual 24-bit frame buffers allow full resolution graphics over graphic keys, dissolves and transitions ▪ A DVE option genlocks to the house sync (blackburst) or its own reference sync and includes an infinite window TBC that maintains stable output even with unstable inputs ▪ Video-in-a-window capability with a 24-bit Windows driver for full support of Windows applications like Adobe Photoshop, Aldus Pagemaker, Fractal Design Painter and CorelDRAW ▪ 3 channels Y/C or composite input and 1 channel analog component input ▪ Simultaneous RGB, Y/C, composite and linear key outputs

The Matrox Illuminator-PRO establishes a standard for functionality and video quality in videographics controllers. Designed using the latest digital video technology and Matrox-designed VLSI ASICs, this breakthrough product is a cost-effective, highly integrated, single-slot solution that provides all the features you need to create high-impact graphics, titles and animations using your favorite videographics applications, then incorporate them into broadcast-quality video productions.

A VGA-compatible RGB output is provided. Illuminator-PRO's versatility is further enhanced by the analog linear key output with software adjustable output timing that drives the key input of conventional video switchers.

Whatever videographics software you want to run, Illuminator-PRO offers a higher quality platform at a lower overall system price. The Illuminator-PRO's features make it a powerful, stand-alone graphics workstation.

ILMPRO/CN/2M/A	Videographics and paint applications.	\$2595.00
ILMPRO/CND/2M/A	Videographics, paint and Windows applications.	3295.00
ILMPRO/CND/4M/A	Videographics, paint, Windows and Inscribe.	3695.00
ILMPRO/CAV/OUT	Provides analog component support.	395.00

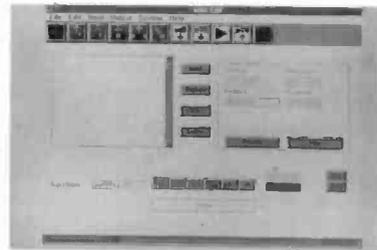
Note: Cables priced separately

Matrox Animation Xpress (MAX™) Professional Digital Animation Recorder

- Mechanical glitches, skipped frames and tape dropouts are eliminated ▪ Broadcast quality is ensured by visually lossless compression ▪ Video output quality is user selectable—pre-view to Betacam® SP ▪ Digital component 4:2:2 format ▪ Full CCIR 601 resolution at 30 frames (60 fields) per second ▪ NTSC and PAL—composite and Y/C output, optional analog component (Y,R-Y,B-Y) ▪ Display your animations as they will



- appear on tape ▪ 24-bit encoded output with Illuminator-PRO ▪ Direct connection to Autodesk 3D Studio, Animator PRO and Crystal Graphics TOPAS ▪ Real time frame capture to disk simplifies rotoscoping on live video ▪ Powerful digital editing feature includes insert, extract, trim, combine, slow-motion, etc. ▪ Runs all leading PC videographics software with Illuminator-PRO



Intuitive User Interface

The Matrox Animation Xpress (MAX) is a real time digital animation recorder that records and plays back 3-D animations directly from the hard disk in full CCIR 601 resolution at 30 frames (60 fields) per second and true 24-bit color. A combination of the Matrox Illuminator-PRO® videographics board and the Studio Xpress™ motion-JPEG compression engine, MAX eliminates the need for time-consuming, tape- and VCR-destroying frame-by-frame recording. The features provided are extensive—simplified rotoscoping on live video, a full range of editing capabilities including frame insertions and extractions, and broadcast-quality video output (NTSC or PAL).

As part of the MAX system, Illuminator-PRO provides all-digital video decoding and encoding and displays animations as they will appear on tape. Over its digital movie expansion bus, Illuminator-PRO provides a high-speed connection to the Studio Xpress compression card.

Studio Xpress is an EISA-bus motion-JPEG compression/decompression card that provides record and playback of animations at full CCIR-601 resolution, 60 fields per second in 24-bit true color.

Hardware Requirements

Included in the MAX bundle: Matrox Illuminator-PRO CN/2M/A videographics adaptor (ILMPRO/CP/4M/A for PAL), Rapid Technology Studio Xpress JPEG compression card, Matrox MS-BUS/2 connector, Matrox Illuminator-PRO input and output cables (ILMPRO-IN-YUV and ILMPRO-OUT-CBL).

Not included in the MAX bundle: EISA FAST SCSI-2 controller card (please call for a current list of compatible controller cards), dedicated FAST SCSI-2 hard drive (please call for a current list of compatible disk drives), EISA-bus 486DX/33MHz or faster PC, 8M byte RAM (16M byte or more recommended), VGA card, monitor and system hard drive.

Optional

Analog component output requires ILMPRO/CAV/OUT board and ILMPRO-OUT-YUV cable.

Software Requirements

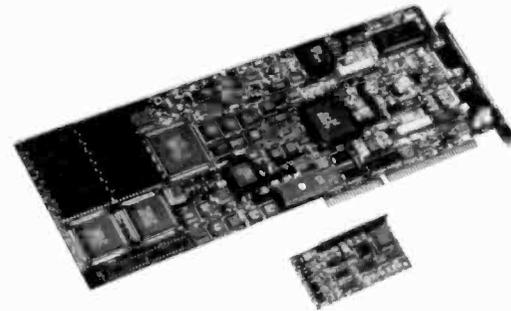
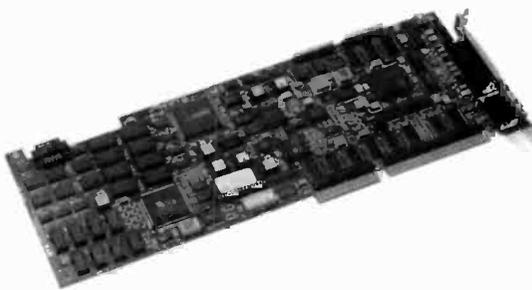
MAX software and utilities (included in MAX bundle), MS DOS 5.0 or higher, MS HIMEM.SYS driver plus EMM386.EXE (or QEMM), supported graphics or animation software (i.e. 3D Studio, Crystal TOPAS, etc.), Hard drive defragmentation software recommended (Norton Utilities, MS Defrag, etc.).

MAX	.....	\$5995.00
ILMPRO/CAV/OUT	Provides analog component support	395.00
ILMPRO-OUT-YUV	Cable	POR*

*Price on Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DESKTOP VIDEO EQUIPMENT



Marvel™ Multimedia Controller

The Marvel multimedia controller brings clearly superior picture quality to video window VGA applications. Designed using advanced 4:2:2 YUV digital video decoders and a video scaling ASIC designed by Matrox®, the Marvel reduces the annoying aliasing distortion commonly seen in scaled video, and produces sharper full-screen video using pixel interpolation instead of pixel replication. The Marvel incorporates a wide range of video special effects and complete audio support for dynamic multimedia presentations. In addition, the Marvel is an economical color or B/W frame grabber. The combination of all these features in 1 board makes the Marvel ideal for many applications including:

- Video windows for multimedia PCs
- Interactive training, education and self-study courses
- Business and sales presentations
- Financial and corporate information networks
- Merchandising and point-of-sale displays and kiosks
- PC-to-PC video conferencing
- Color frame capture
- Medical imaging
- Desktop publishing
- Color illustration and image retouching
- Picture databases
- Remote monitoring and security

Marvel Feature Summary

- 4:2:2 YUV digital video decoding provides 24-bits/pixel accuracy
- Video window can be scaled and positioned on a pixel boundary
- Horizontal and vertical low pass filters reduce aliasing artifacts
- Full-screen square pixel displays are available in PAL or NTSC
- Vertical interpolation provides sharp, clear, full-screen video
- Wide range of digital video effects (DVE) include: programmable trajectory or scale; image flips and spins with image invert or reverse; slides, squeeze, compress and split; video trail; solarization, mosaic and multi-pictures; color borders with drop shadows and more
- On-board VGA, with resolution up to 1024 x 768, is optional
- Third party VGA boards supported
- On-board audio amplifier with tone and volume adjustment is software controlled
- Expansion buses for future add-ons available
- Cascade feature provides multiple video windows
- JPEG board for video from a hard disk supported

Configurations

The Marvel is available in several standard, cost-effective configurations for the AT®bus, all featuring superior picture quality and advanced digital video effects. Customized configurations are available for OEMs.

Model	S-Video Input	Audio Support	1M VGA On-Board	512K VGA On-Board	Expansion Bus	Price
MM-VGA32K	X	X	X		X	\$1495.00
MM-LC	X	X				995.00

Illuminator-16/AT/A Videographics/Multimedia Controller

- PC AT compatible
 - Real time frame capture
 - 32,768 simultaneously displayable colors
 - 1024 x 1024 x 16-bit frame buffer option
 - Live video windows
 - RGB, NTSC, PAL and S-Video input and output
 - 2 software selectable composite or Y/C inputs
 - Versatile, precision genlock
 - Integer zoom (1X, 2X, 3X, 4X, 8X), X and Y independent
 - Smooth pan and scroll in all zoom factors
 - Video scaling (÷1, ÷2, ÷3, ÷4, ÷8, X and Y independent)
 - Full capability in non-interlaced mode
 - Single-screen system
 - Real time special effects
 - Register compatible with Targa 16
 - HOTKEYs provide access to Illuminator-16's advanced features when running Targa software
- ILM16/AT/A/V NTSC/RGB/YC in and out, 512 resolution, AT-bus. \$1595.00
- ILM16/AT/2MA/V NTSC/RGB/YC in and out, 512/640/1024 resolution, AT-bus 2495.00
- ILM16/AT/2MPA/V PAL/RGB/YC in and out, 512/640/768/1024 resolution, AT-bus 2495.00
- ILM16-VS Video stabilizer, AT-bus only 195.00
- ILLUM-16/MC NTSC/RGB/YC in and out, 512 resolution, MicroChannel 1795.00
- ILLUM-16/MC/2M NTSC/RGB/YC in and out, 512/640/1024 resolution, MicroChannel. 2695.00
- ILLUM-16/MC/2MP PAL/RGB in and out, 512/640/768/1024 resolution, MicroChannel 2695.00

Video Stabilizer Module

An optional video stabilizer module, ensures a rock-solid display even with still cameras and VCRs in FF, Rew and Pause modes. Other videographics boards like the Targa+ and Vista can produce highly unstable displays when used with VCRs. \$195.00

Extensive Software Support

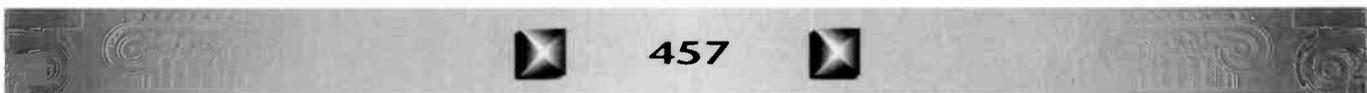
Windows 3.X Driver

The Windows 3.X driver allows the Illuminator to function as a display adaptor for Windows so you can choose from an ever-expanding list of powerful Windows applications. The driver offers full DIB support with dithering (24-bit images are displayed in 16 bits with near 24-bit quality). 4 different resolutions are supported: 512 x 480, 640 x 480 (NTSC), 768 x 576 (PAL) and 1024 x 768 (interlaced only). The driver runs in real mode and protected mode. Windows applications can use over 32,000 colors.

Autodesk ADI Rendering Driver

The rendering driver works with Autodesk 3D Studio and AutoShade with RenderMan. The driver offers high resolution display, 16-bit dithered images that are virtually indistinguishable from the true color 24-bit images and single screen support. 1.0 version. ILLUM-3DS/D3 or D5 . . . Please Specify If Required—No Charge

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Composium™ II-Four Layer Real Time Compositor And Video Graphic Workstation

The Composium II significantly shortens the post-production process for graphics and effects editing projects by combining many of the traditionally separate functions into a single, integrated system. It not only combines the digital keying and mixing of 4 live sources, keyframe editing with 6 VTRs, real time digital effects, paint, video typography and a central digital library, but it documents the whole process in order to minimize the difficulty of modifying intricate edit passes.

Compositing

- Real time 4-layer digital keyer ▪ 4:4:4:4 real time effects channel with perspective and curves ▪ All layers can be live or still ▪ External linear or matte key ▪ Chroma key and luma key ▪ Soft edged keys at any capacity ▪ Keyframed dissolves ▪ Automatic drop shadow ▪ Second X-Y effects channel ▪ Trails ▪ Full resolution, fully linear stencil ▪ FX wipe (external key) ▪ Freeze alpha (digital matte) ▪ Live mask channel ▪ Integrated control of 6 VTRs ▪ Integrated digital effects ▪ Immediate access to stills in central digital library

Keyframe Editing

- Keyframe edit control of 6 VTRs ▪ Master decision list displays: key/mix transitions, edit decisions, digital effects keyframes ▪ Trackball interlock jogging: 6 VTRs, digital effects, keys/mixes ▪ Forward, reverse and loop of selected keyframes ▪ Cut and paste of keyframes ▪ Color coded keys for edit functions ▪ Swap record and play device ▪ Joystick VTR jog, shuttle and play ▪ Save MDL to digital library ▪ RS-422 communication protocol ▪ Audio insert editing

With the Composium II suite, editors and artists no longer have to work separately with different dedicated machines to synchronize source material, key and mix video sources, retouch or mask portions of live footage, access stills, paint, paste-up or generate titles.

CII-Four Layer \$175,000.00

Composium II-Dual Layer Digital Graphics Workstation

Paint

- Fast, hardware assisted airbrush ▪ Pressure sensitive pen ▪ Wireless pen available ▪ Real time cutout manipulation: size, rotation, defocus, perspective, curved surfaces ▪ Cutout enhancements: emboss, soft shadow, extrusion, outline, glow, real time opacity adjust ▪ Cutout brush ▪ Simultaneous alpha output ▪ Rotoscope menu: buy and sell clips, stencil buy clip, second video buy clip, 3:2 compress and expand, time stretch, sandwich mode, roto to VTRs or DDRs ▪ Sandwich-paint over frame ▪ Curve edit ▪ Smudge and

- custom brush ▪ Erase and reveal brush ▪ Variable chalkiness and opacity ▪ Wash and shade modes ▪ Alpha/stencil tools: draw/show Alpha, show/use stencil ▪ Additional mask ▪ 16.7 million colors ▪ Pick color from picture ▪ Color selection sliders ▪ Sketchpad color mixing ▪ Frame/field grab ▪ Adaptive grab ▪ Gradients: horizontal, vertical, 4-way, radial ▪ Instant magnify ▪ Undo function ▪ Snapshot canvas ▪ Colormapping: contrast enhance, gamma correct

Compositing

- Real time 2-layer digital keyer ▪ Both layers can be live or still ▪ External linear or matte key ▪ Luma key ▪ Soft edged keys at any capacity ▪ Keyframed dissolves ▪ Full resolution, fully linear stencil ▪ Freeze alpha (digital matte) ▪ Integrated digital effects ▪ Immediate access to stills in central digital library

The CII-Dual Layer system is a powerful, flexible video paint system that combines the most sophisticated paint, typography and library tools with real time digital effects and digital keying. CII-Dual Layer extends the realm of the artist beyond simply creating still images. The CII-Dual Layer system can be easily upgraded to the Composium CII-Four Layer digital production suite. This increases the artist's realm to 4 live or still layers and frame accurate edit control of up to 6 VTRs.

CII-Dual Layer \$143,000.00

DM Series 10-Bit Digital Video Function Modules (Preliminary)

- Modular video building blocks in a flexible packaging format ▪ 10-bit plug-in circuit cards for video synchronization, format conversion, color correction and other digital video related applications ▪ Adapts to video interfacing needs as they develop ▪ Accommodates a variety of related or unrelated video applications ▪ As part of the DM Series, the 4-field DM-100 Frame Synchronizer offers capabilities for synchronizing external video signals such as microwave, satellite and other remote feeds ▪ Precision 10-bit sampling at 8X subcarrier results in ultra-transparent signal quality and wide, flat frequency response ▪ Handles very noisy input signals without losing lock

DM-100 \$5,900.00

Accessories

NMI-201	Additional 11" x 17" TDS tablet (with 2 pens)	\$4,500.00
NMI-204	Additional 11" x 17" Wacom tablet (with 2 wireless pens)	4,500.00
NMI-211	40M byte removable cartridge disk drive (includes 1 starter disk)	1,350.00
NMI-212	Package of 10 removable disk cartridges (formatted)	1,200.00
NMI-214	Additional 400M byte hard disk drive (½ height)	4,000.00
NMI-215	Removable 600M byte MO drive field upgrade includes installation	5,500.00
NMI-215S	Software for internal removable 600M byte MO drive.	1,500.00
NMI-215N	Removable 600M byte MO drive option (at time of system purchase)	4,500.00
NMI-216	Optical cartridges package (5 formatted cartridges)	2,500.00
NMI-217	Filecon picture file conversion software (PC-based)	250.00
NMI-217M	F/X change conversion software to/from Macintosh (Mac-based)	150.00
NMI-218	Ethernet TCP/IP utility option (includes NMI-217)	2,200.00
NMI-218N	NFS Ethernet utility (includes NMI-217)	3,000.00
NMI-219	PANTONE broadcast color system	995.00

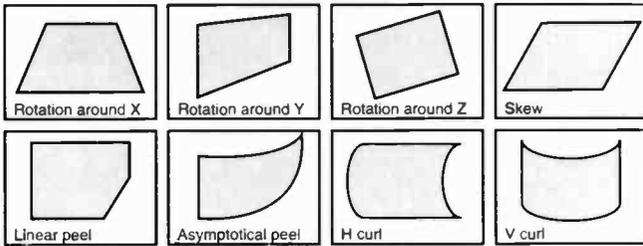
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



3-D DIGITAL EFFECTS SOFTWARE/INTERFACE



A Multitude of Effects



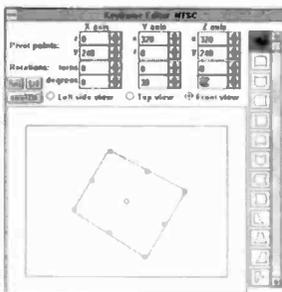
The Titania user interface is simple, intuitive and user friendly. All effects are programmable through Matrox Personal Producer. Dialogue boxes provide full control of 3-D effects, using the familiar click and drag mouse interface.

Titania 3DVE Real Time 3-D Digital Effects Software for Matrox Studio™

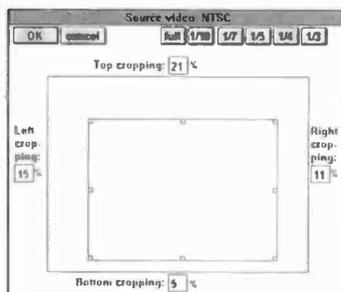
- 4:2:2 digital component processing
- 525- and 625-line formats
- CCIR 601 and NTSC square pixel compatible
- Bilinear interpolation to 1/2 of a pixel
- Subpixel positioning
- Reverse address mapping for cleaner images
- Occupies a single 16-bit ISA slot
- Can accommodate single, dual or triple channel operation
- Performs the Personal Producer 2-D slides on its video line
- Simple wireframe user interface
- Smooth motion and path control
- Rotations
- Skew
- Curls and other nonlinear effects

Titania software adds dialogue boxes to both the keyframe editor and mix effects transitions. 3-D keyframe and transitions are saved, recalled and manipulated in the storyboard in exactly the same way as Matrox 2-D effects. The installation utility program automatically installs Titania drivers and dialogue boxes and configures Personal Producer™ to switch between 2-D and 3-D operation.

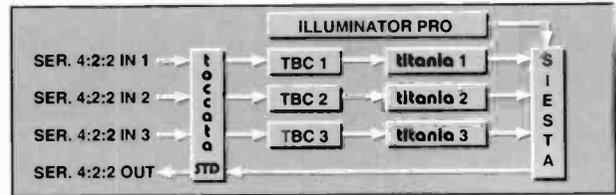
Titania 3DVE \$4495.00



Keyframe Editor User Interface



Source Video User Interface

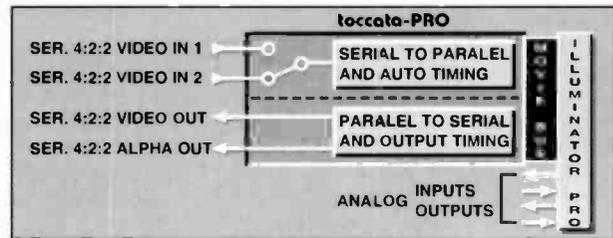


Toccata-STD Serial Digital Video Interface for Matrox Studio

- Serial component digital video interface for Matrox Studio
- Three 4:2:2 serial digital inputs (SMPTE 259M)
- One 4:2:2 serial digital output (SMPTE 259M)
- 10-bit signal path
- 525- and 625-line formats
- 984' cable equalization

The Toccata-STD is a daughterboard to the Matrox MS-ACOM card and replaces its analog input section. All inputs and outputs meet the SMPTE 259M specification. Interfacing analog equipment to the Matrox Studio™ with a Toccata-STD can be done with the Serial Digital Modules of Miranda.

Toccata-STD \$2495.00



Toccata-Pro Serial Digital Video Interface for Matrox Illuminator Pro™

- 2 multiplexed serial 4:2:2 digital inputs
- 1 serial 4:2:2 digital video output
- 1 serial 4:2:2 digital alpha out
- 8-bit signal path
- 525- and 625-line formats
- 984' cable equalization
- ±20µsec. auto timing inputs

The Toccata-Pro allows the direct input of 4:2:2 signals into the Matrox Illuminator-Pro. All of its inputs and outputs meet the SMPTE 259M specification. All analog inputs of the Illuminator remain active even while the Toccata-Pro is connected to the Illuminator via the Movie bus.

Toccata-Pro \$1995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

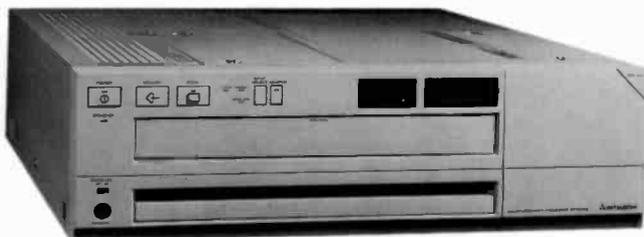


CP-2500U Color Printer

▪ Dye sublimation thermal printer ▪ 256 shades of gray ▪ 16.7 million colors ▪ 162 dpi print head ▪ 3 paper sizes available from 8" x 8½" to 8½" x 14" ▪ 85-second print speed ▪ 1280 x 1024 pixels ▪ Accepts composite and S-Video sources with separate Y and C signals ▪ Accepts RGB sources of 15.75kHz ▪ 6M byte memory ▪ RS-232C serial interface ▪ Wired remote control ▪ 3 user selectable gamma curves ▪ Prints 4 or 6 full-frame images or 16 or 24 field-frame images on a single sheet ▪ Selectable AGC, tracking, V-mask correction and trap filter ▪ Signal-strength selector for RGB and composite video ▪ 9-sheet continuous printing ▪ 40-character comment line ▪ Selectable high and low impedance for loophrough operation **\$7395.00**

CP-2000U Color Printer

▪ Dye sublimation thermal printer ▪ Combines autoscanning RGB, Centronics and SCSI interfaces ▪ 256 shades of gray ▪ 16.7 million colors ▪ 325 dpi print head ▪ 3 paper sizes available from 8" x 8½" to 8½" x 14" ▪ 85-second print speed ▪ 2560 x 2970 pixels ▪ Scans and locks to RGB horizontal scanning frequencies of 15-85kHz ▪ Compatible with graphics standards through SVGA ▪ Produces up to 1280 dots by 1024 lines from an analog RGB source ▪ 6M byte memory (can be upgraded to 24M bytes) ▪ Wired remote ▪ 3 user selectable gamma curves ▪ Prints 4 or 6 full frame images or 16 or 24 field-frame images on a single sheet ▪ Selectable AGC and tracking ▪ 9-sheet continuous printing ▪ 40-character comment line ▪ Selectable high and low impedance for loophrough operation. **\$9950.00**



CP-1000U Digital Analog Color Printer

▪ 8.5" x 11" or 6" x 8" paper sizes ▪ Autoscanning (15-38kHz) color dye sublimation printer ▪ 1485 dots x 1425 max lines resolution ▪ 160 dpi resolution ▪ 145-second print speed RGB ▪ S-Video ▪ RS-232 serial ▪ Centronics parallel ▪ Composite ▪ Full frame multi-format capability ▪ 256 gradations (true 8-bit) ▪ User adjustable picture characteristics ▪ Software drivers available **\$7695.00**



CP-110U Color Printer

▪ Sublimation-type thermal transfer color video copy processor ▪ Digital analog ▪ High resolution (640 x 614 dots) ▪ Autoscan from 15-35½kHz ▪ 8 bits (256 gradations) and 16.7 million colors per dot ▪ Print image size 4" x 3" in approximately 70 seconds ▪ Separate R and B level adjustments for RGB ▪ Shipped with paper and ink cartridge for 20 images ▪ Composite video S-VHS, TTL, RGB analog and parallel input **\$3395.00**

CP-54U Digital Analog Color Printer

▪ 3" x 4" image ▪ 70-second print speed ▪ 800 x 480 dot resolution ▪ Composite video (NTSC), S-VHS, RGB analog and Centronics input/outputs ▪ 256 gradations ▪ 16.7 million colors ▪ 4-frame memory buffer ▪ Mirror image ▪ Gamma curve selection ▪ Wired remote control ▪ Multi-print images ▪ Shipped with paper and ink cartridges for 12 images **\$3495.00**



CP-50U/CP-52U Color Printers

▪ 3" x 4" image ▪ 70-second print speed ▪ 800 x 480 resolution ▪ Composite video (NTSC), S-VHS and RGB analog input/outputs ▪ 256 gradations (16.7 million colors) ▪ 1 RGB frame memory ▪ Wired remote control ▪ Multi-print images (2, 4, 6, 16, 24, 25) ▪ Shipped with paper and ink cartridges for 12 images ▪ Use with CK-10S, CK-10P, CK-10C or CK-10T paper ▪ Centronics port on CP-50U only ▪ RS-232 serial port on CP-52U only ▪ 24-character print ID ▪ Gamma curve selection ▪ CP-50U is a digital analog printer. **\$2995.00**

CP-15U Color Printer

▪ 3" x 4" image ▪ 73-second print speed ▪ 800 x 480 resolution ▪ Composite and S-Video (NTSC) input ▪ 256 gradations ▪ 16.7 million colors ▪ Auto contrast correction ▪ Multi-strobe printing ▪ Picture-in-picture ▪ Wired remote control ▪ Shipped with paper and ink cartridges for 12 images. **\$1495.00**

CP-10U Color Printer

▪ Sublimation-type thermal transfer color video printer ▪ High resolution (6 dots/mm-640 x 464) ▪ Print image size 4" (H) x 3" (V) approx. 70 seconds ▪ Composite input ▪ 128 gradations (2.1 million colors) ▪ Wireless remote ▪ Auto contrast correction ▪ Multi/strobe printing ▪ Picture-in-picture ▪ Shipped with paper and ink cartridge for 12 images **\$1195.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



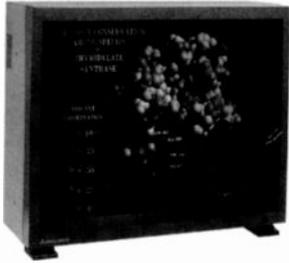
COLOR MONITORS



Diamond Pro 37 37" Autoscanning Color Monitor

- 35" viewable microprocessor-based autoscanning
- Auto scan range horizontal 24-64kHz, vertical 40-120Hz
- Compatible with systems up to 1280 x 1024, non-interlaced maximum resolution
- Converts standard NTSC, PAL, SECAM or S-VHS video up to 31.5kHz
- Dynamic Beam-Forming circuit
- Precision in-line gun design
- Stripe pitch 0.85mm center/1.1mm corner
- Worldwide power compatibility
- Wireless remote control included
- High contrast CRT
- For CAD/CAM/CAE applications
- Compatible with most PC, PC/2 and Macintosh II graphic cards as well as Unix-based workstations

XC3725C \$9,999.00
 XB3715-1 Base 995.00
 AG37 Anti-glare screen 565.00



Diamond Scan 37 37" Direct View Color Monitor

- 35" viewable microprocessor-based autoscanning
- Auto scan range horizontal 15-36kHz, vertical 40-120Hz
- Resolution up to 800 pixels x 600 lines maximum, non-interlaced
- Dynamic Beam-Forming circuit
- World regulatory standards
- World power compatibility
- Wireless remote control included
- High contrast CRT
- Compatible with Macintosh II, IBM CGA, EGA and VGA

XC-3715C \$6,999.00
 XB3715-1 Base 995.00
 AG37 Anti-glare screen 565.00

Diamond Scan 33 33" Direct View Color Monitor

- 31" viewable microprocessor-based autoscanning
- Auto scan range horizontal 15-38kHz, vertical 40-120Hz
- Resolution up to 800 pixels x 600 lines maximum, non-interlaced
- High contrast CRT
- Dynamic Beam-Forming circuit
- World regulatory standards
- World power compatibility
- Wireless remote control included
- Compatible with IBM CGA, EGA, VGA and Macintosh II

XC-3315C \$4,999.00
 XB3300-1 Base 899.00
 AG33 Anti-glare screen ... 505.00



Diamond Pro 29 29" Color Monitor

- 27" viewable microprocessor-based autoscanning
- Auto scan rate horizontal 15-82kHz, vertical 40-120Hz
- Compatible with systems up to 76Hz high refresh
- 1280 x 1024 maximum resolution
- High-contrast CRT
- Compatible with all world video standards and power
- Wireless remote control included

XC2930C \$4,699.00

Diamond Pro 26M 26" Color Monitor

- 25" viewable microprocessor-based autoscanning
- Auto scan range horizontal 15-38kHz, vertical 45-90Hz
- 0.31mm dot pitch
- Dynamic Beam-Forming circuit
- Compatible with VGA, SVGA, XGA, 8514/A, Macintosh II, CGA and EGA
- 800 x 600 non-interlaced to 1024 x 768 interlaced resolution

HC3505SK \$7,550.00

Diamond Pro 26H 26" Color Monitor

- 25" viewable microprocessor-based autoscanning
- Auto scan range horizontal 45-72kHz, vertical 45-90Hz
- 0.31mm dot pitch
- Dynamic Beam-Forming circuit
- For CAD/CAM/CAE applications
- 1024 x 768 through 1280 x 1024 non-interlaced

HJ6505SK \$10,000.00

Diamond Pro 21T 21" Color Monitor

- 640 x 480 to 66Hz high refresh
- 1600 x 1200 non-interlaced compatible
- 20" viewable microprocessor-based, high speed switching autoscanning
- Auto scan rate horizontal 30-85kHz, vertical 50-130Hz
- 150MHz video bandwidth
- 0.31mm aperture grille pitch
- Vertically flat square DiamondTron CRT with optical quality, high contrast, anti-static/anti-reflective CRT coating
- Diamond Match Color Calibration System
- Dynamic Beam-Forming circuit
- Compact, ergonomic enclosure
- Easy-to-use front panel icon-based digital display setup controls
- Meets MRR II low emission standards
- Integrated tilt/swivel base
- Detachable VGA/XGA-2 compatible signal cable
- Includes Diamond control software in separate carton

THZ8155SKTK \$2,525.00

Diamond Pro 21FS 21" Color Monitor

- 19" viewable microprocessor-based autoscanning, flat square monitor
- For CAD/CAM/CAE and DTP applications
- Invar mask
- Compatible with VGA, SVGA, XGA-2, VESA and Apple Macintosh LC, Macintosh II and Quadragraphic standards as well as all UNIX workstations
- Dynamic Beam-Forming circuit
- Optical quality, high-contrast, anti-static, anti-glare CRT
- Low magnetic emission
- Compact
- Integrated tilt/swivel base
- 640 x 480 to 1600 x 1200 non-interlaced compatible
- High-speed switching
- Autoscanning horizontal 30-78kHz, vertical 50-130Hz
- 130MHz video bandwidth
- 0.28mm dot pitch
- VGA/XGA-2 compatible signal cable included

FFL7165SKTK \$2,335.00

Diamond Scan 20 Plus 20" Color Monitor

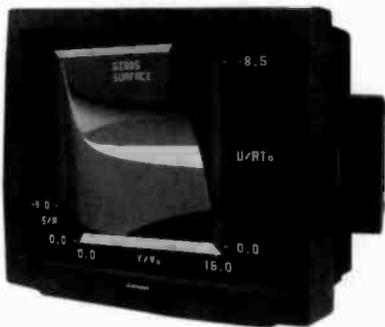
- 19" viewable microprocessor-based autoscanning
- For CAD/CAM/CAE applications
- Compatible with VGA, SVGA, XGA-2, VESA and Apple Macintosh LC, Macintosh II and Quadragraphic standards as well as UNIX workstations
- Optical quality, high-contrast, anti-static, anti-glare CRT
- Dynamic Beam-Forming circuit
- Low magnetic emission
- Compact
- Integrated tilt/swivel base
- Ultra high 1280 x 1024 non-interlaced maximum resolution including all high vertical refresh standards up to 74Hz and VGA-pass-through capabilities
- Stores both preset parameters as well as up to 18 different custom operating modes
- Autoscanning range horizontal 30-78kHz, vertical 50-130Hz
- High-speed VGA to high-resolution switching (0.6 seconds)
- 0.31mm dot pitch
- VGA/XGA-2 compatible signal cable included
- Front panel icon-based digital display setup controls

HL7955SKTK \$2,075.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

AM4201R 42" Multiscan Color Monitor

- 40" viewable
- Horizontal scanning rates of 15.7/20-64kHz
- HDTV compatible
- Inputs include: NTSC, PAL and SECAM
- Composite video
- S-VHS ▪ RGB analog
- RS-232 interface
- 0.96 stripe pitch
- Wireless remote control
- Attachable speakers ▪ Dynamic Beam-Forming circuit ▪ Switchable AFC ▪ Notch filter ▪ Noise reduction circuits ▪ Resolution with video inputs more than 600 TV lines and 800 lines x 768 dots with RGB sources ▪ TTL compatible interface ▪ Selectable 300/75 ohm impedance ▪ 3 composite video and 3 S-Video inputs. . . . \$13,000.00

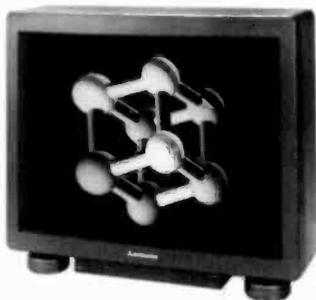


AM3501R 37" Multiscan Color Monitor

- 35" viewable, high-resolution monitor with automatic variable scanning from 15.5-35kHz ▪ Compatible with IBM PC, PGC, EGA and CGA ▪ Inputs: 3 NTSC composite video, 2 RGB analog, digital RGB, 8-pin VTR and S-Video ▪ High resolution graphic display ▪ 2-channel audio amplifier and speakers ▪ Monochrome TTL ▪ 640 x 480 pixel resolution ▪ Dynamic Beam-Forming circuit ▪ 33 function wireless remote \$6,900.00
- GP-35 Glare protection screen. 530.00
- 1540500 30" 2-shelf metal cart 370.00

AM3151A 33" Multiscan Color Monitor

- 31" viewable scanning automatically senses and locks onto computer and video horizontal frequencies ranging from 15.6-36kHz and vertical frequencies from 45-90 Hz
- For computer graphics, video and imaging applications
- Accepts IBM PC, PGA, VGA, EGA, CGA and Macintosh II graphics standards. Also accepts NTSC and PAL television standards ▪ Inputs for S-VHS and RGB TTL sources with 2 inputs each for composite and RGB analog sources
- Output jacks for RGB analog and composite are also provided
- 640 x 480 pixel resolution, RGB ▪ Dynamic Beam-Forming circuit
- 600 lines horizontal resolution, video sources ▪ Color select switch accommodates 8-, 16- and 64-color standards from RGB TTL
- Microprocessor control system provides automatic vertical raster height adjustment \$4,689.00



AM2752A 29" Multiscan Color Monitor

- 27" viewable frequency scanning automatically senses and locks onto horizontal scanning from 15.6-39kHz and vertical scanning from 45-90Hz ▪ Designed specifically for computer graphics, video and imaging applications ▪ Compatible with IBM® PC, PGA, VGA, EGA, CGA and Macintosh® II graphics standards ▪ Wide range of input signals: NTSC/PAL/SECAM, 2 composite video; S-Video

- terminal (separate Y/C); 2 RGB analog; digital RGB; 1 pair detachable speakers; 5W per channel audio amplifier; wired remote control of power on and input switching ▪ Color select switch accommodates both 8-color and 64-color standards from RGB TTL
- 640 x 480 pixel resolution, RGB ▪ 600 lines horizontal resolution, video ▪ Invar shadow mask and Dynamic Beam-Forming circuit
- Microprocessor control system provides automatic vertical raster height adjustment ▪ High-fidelity stereo audio outputs . . . \$3,500.00

SMR2601R 28" Multiscan Color Monitor/Receiver

- 26" viewable screen ▪ Automatically locks onto horizontal scanning frequencies of 15.75kHz and 30kHz-36kHz and vertical scanning frequencies of 50Hz-90Hz ▪ High contrast, 90° deflection CRT ▪ Accepts composite video, separate Y/C, analog RGB and personal computer graphics cards ▪ 181-channel CATV-compatible tuner ▪ VGA compatible signal ▪ MTS stereo decoder ▪ Wireless remote control \$2,500.00

Diamond Scan 20M/20LP 20" Color Monitors

- Common Features
- 19" viewable microprocessor-based autoscanning ▪ 0.31mm dot pitch
- Tinted, diamond matte anti-glare coating CRT ▪ Up to 800 x 600 non-interlaced resolution; up to 1024 x 768 interlaced ▪ Autoscan range horizontal 15-38kHz, vertical 45-90Hz
- Integrated tilt/swivel base ▪ Easy-to-use, icon-based front panel display setup controls ▪ FA-5 VGA compatible signal cable ▪ Low magnetic emission ▪ Available in a metal cabinet for rackmounting



- Diamond Scan 20M**
- Includes common features plus: ▪ Optical quality, high contrast, anti-static/anti-glare CRT ▪ Provides a large, bright, true color display over a wide range of frequencies—VGA™, SVGA, XGA™, 8514/A™, Macintosh™ LC and Macintosh II \$1,775.00

- Diamond Scan 20LP**
- Includes common features plus: ▪ Utilizes long-persistence phosphors—eliminate any trace of flicker in interlaced images ▪ Use with Truevision TARGA®, ATVista® and NuVista® boards ▪ Provides flicker free image for XGA and 8514/A, 1024 x 768 interlaced modes and non-interlaced SVGA cards \$1,825.00

Diamond Scan 16 16" Color Monitor

- 15½" viewable microprocessor-based autoscanning, 30-64kHz horizontal, 50-130Hz vertical ▪ 0.28mm dot pitch ▪ High contrast, anti-glare CRT ▪ Easy-to-use, icon-based digital display setup controls ▪ Low magnetic emission ▪ Diamond Match Color Calibration System ▪ VGA/XGA-2 compatible (FA-5) signal cable
- Integrated tilt/swivel base \$939.00

Diamond Pro™ SVGA 14" Color Monitor

- 13¾" viewable ▪ 0.28mm fine dot pitch ▪ Compatible with VGA, SVGA, XGA and Mac LC family graphics standards ▪ Low magnetic emission ▪ High contrast, diamond matte anti-glare coated CRT
- High performance 30MHz video amplifier ▪ Attached signal cable
- Integrated tilt/swivel base ▪ Autoscanning 30-38.5kHz horizontal, 45-90Hz vertical ▪ 640 x 480 non-interlaced to 1024 x 768 interlaced compatibility \$360.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEO/DATA PROJECTORS



VS-1250R Video/DiamondScan Computer Projector

■ 70"-120" screen size projector ■ 675 peak lumen light output ■ Handles horizontal frequencies of 15-36kHz ■ VC-1250 interface controller/switcher is standard accessory ■ Optical coupling of lenses and CRTs ■ Liquid cooled ■ 9-element all-glass lenses ■ Dichroic coating on green lens for purer colors ■ RGB analog input \$10,900.00



VS-1250 Data Projector

■ 70"-120" screen size projector ■ 675 peak lumen light output ■ Handles horizontal frequencies of 15.6-15.8kHz (RGB analog only) and 30-32kHz ■ Optical coupling of lenses and CRTs ■ Liquid cooled ■ 9-element all-glass lenses ■ Dichroic coating on green lens for purer colors ■ RGB analog input \$7,900.00



VS-1202/2022 Video/RGB Projectors

■ 9-element all-glass lenses ■ 4-corner independent convergence ■ 4-side blanking control ■ Provide ultra bright, high resolution color images ■ 700 peak lumen output ■ Variable screen sizes: from 70" to 120" (diagonal) VS-1202; 120" to 200" (diagonal) VS-2022 ■ Horizontal resolution: 1000 lines (RGB analog); 800 lines (composite video) ■ 9000°K color temperature provides pure whites previously thought unattainable for video projectors ■ Composite, S-VHS, RGB analog inputs; RGB TTL with optional remote ■ 3 times greater than normal contrast through the use of an electromagnetic focus system and optical coupling of lenses and CRTs ■ Dynamic focus circuitry keeps focus sharp right to the edges ■ Compatible with a wide variety of video sources ■ Composite video input connectors are provided to accommodate television tuners, VTRs, VCRs, video discs, video cameras and other AV equipment ■ S-VHS (separate Y/C) input terminals are included for high resolution displays ■ RGB analog signal terminals are provided for professional equipment, broadcasting and personal computers ■ A TTL input is available on the optional remote

VS-1202	70"-120" adjustable (flat screen)	\$7,200.00
VS-2022	120"-200" adjustable (flat screen) >	7,200.00
VC-1200U	Remote control/switcher. Composite, RGB analog and RGB TTL inputs. Control of static convergence, contrast, tint, brightness, color, etc. Audio follows video when inputs are switched	615.00
CA-003	Cable for remote, 49'	240.00
CA-002	Cable for remote, 98'	345.00
CA-001	Cable for remote, 164'	545.00

Accessories for VS-1250R/1202/2022

BR-004	Standard ceiling mount bracket	\$200.00
BR-005	Ceiling mount bracket arm	600.00
BR-006	Ceiling mount bracket for installations with low ceiling heights	185.00
BR-007	Ceiling mount for VS-1202	260.00
BR-008	Ceiling mount bracket and extension arm for VS-1202	700.00
CA-053	Cable for remote, 49'	260.00
CA-052	Cable for remote, 98'	430.00
CA-051	Cable for remote, 164'	750.00

VS-1000R RGB/Video Projectors

■ 70"-100" screen size projector ■ 360 peak lumen light output ■ All-glass, 8-element single lens system ■ Liquid cooled ■ Dichroic coating ■ Composite, S-VHS inputs only ■ Wireless remote control ■ Available in either floor mount or ceiling mount

VS-1000RF	Floor mount	\$4,999.00
VS-1000RC	Ceiling mount	4,999.00

VC-1250 Interface/Controller

■ Power on/off ■ Vertical synchronization input switching ■ Static convergence, color, tint, contrast and brightness ■ Service Controls: dynamic convergence, vertical width, vertical linearity, horizontal width, correction of keystone distortion, adjustment of lens focus and horizontal position ■ Hours Meter: 5000 hours, analog indication ■ Allows for automatic scanning from 15-36kHz \$3,000.00

Interface Cables

C-VGA25	IBM PS2 to VC-1250/DiamondScan monitors	\$65.00
C-MAC25	Mac II to VC-1250/DiamondScan monitors	65.00
C-25BNC	Interface to VC-1250/DiamondScan monitors	95.00

VS-10000/VS-12000 Self-Contained Portable Rear Projection Systems

■ Display size: 100" (VS-10000), 120" (VS-12000) ■ Rugged free-standing module is easy to erect ■ System includes VS-1202RW or VS-1250R projector and mount, screen and frame, mirror and knock-down walls ■ Tilt screen, height extender and casters available as options ■ Requires 8' x 7' of floor space ■ Image height from ground level of 26" ■ 94"H x 94"W x 79"D (VS-10000), 94"H x 102"W x 78"D (VS-12000) POR*

VS10001/VS-12001 Through-the-Wall Rear Projection Systems

■ Display size: 100" (VS-10001), 120" (VS-12001) ■ System includes VS-1202RW or VS-1250R projector and mount, screen and frame and mirror ■ Optional tilt screen = 91"H x 86"W x 69"D (VS-10001), 94"H x 102"W x 78"D (VS-12001) POR*

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

Comet/CG Video Titling Software

- High quality 10ns effective resolution
- World font capable
- Any PostScript or TrueType™ font
- Full kerning control
- Exact character placement
- Full leading control
- Font scaling in 1% increments
- Left, right, center and credit justification
- Full shadow control
- Multiple tab stops
- Unlimited overlap
- 16.7 million color selection
- NTSC and PAL legalization
- Aspect preservation from 1:1 to 16:9
- 16 pre-define palettes
- Full transparency control
- Automatic color ramping
- 10 crawl speeds
- Background color ramps
- Multiple color stops
- Automatic video ramping
- SMPTE safe title and action area
- 30,000 pages per document
- 30,000 characters per object
- Unlimited documents open
- Search capability
- Full multi-application integration
- 10 roll speeds
- 10,000 roll line on every page
- 99 dissolve speeds
- 10 multi-page crawl speeds
- Animation path description
- Subtitling capability
- Integral or downstream keying
- Auto playback sequencing
- Blended borders and blended backgrounds
- Macintosh provides time tested interface for fast creation of CG screens
- Seamless integration with video paint applications
- Economical and expandable with thousands of fonts available from multiple sources
- Multiple bars, rules and boxes provided or allows user to create any video paint package for use in Comet/CG
- Variable shadowing with either 3-D or drop shadows with any level of transparency
- Integration with word processors so user can create rolls in a word processor with a spelling checker and publish for immediate use in Comet/CG
- Integration with databases or spread sheets for maintaining calculated or dynamic information for immediate display
- Texture mapping onto fonts (12 textures provided including popular wood grain, chrome, brick, stone and marble)
- Sophisticated gradient editor

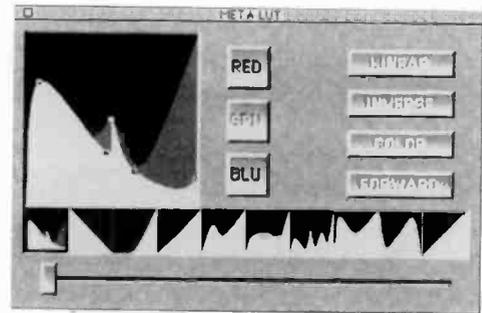


System Requirements

- Minimum of 8M bytes system memory
- 16M bytes or higher recommended when rendering complex pages, rendering at quality levels greater than 3, or creating motion paths
- System software version 7.1
- TrueType or PostScript Type 1 fonts
- Hard disk with at least 10M bytes of free disk space
- Math co-processor or 68040
- Video card with alpha channel preferred

More than just a character generator, Comet/CG is an innovative video publishing solution displaying top-quality, anti-aliased fonts and graphics suitable for the professional video and broadcast environments. Comet/CG provides the sophisticated capabilities previously found only with expensive, dedicated character generators. It allows control over every aspect of text including manual kerning and individual line leading. It also provides font scaling, 3-D shadows with video transparency. The flexible gradient editor creates multicolor gradients and video transparency gradients. Creating video titles has never been easier using these options combined with video-oriented screen formats like dual column credits. But Comet/CG does more than just overlay text over live video. It creates QuickTime™ movies of motion paths for high quality anti-aliased animation of titles. Send events to Comet/CG from any application to obtain anti-aliased titles output over video. Plus for frame animators, it provides field rendering only found on the most expensive rendering software. Comet/CG offers advanced features needed to create automatic alignment and scrolling of broadcast quality credits. Choose smooth scrolling or dissolves interactively or sequence to run automatically. Comet/CG provides maximum flexibility and total control for the perfect environment for the cost-and quality-conscious video professional.

Comet/CG \$995.00



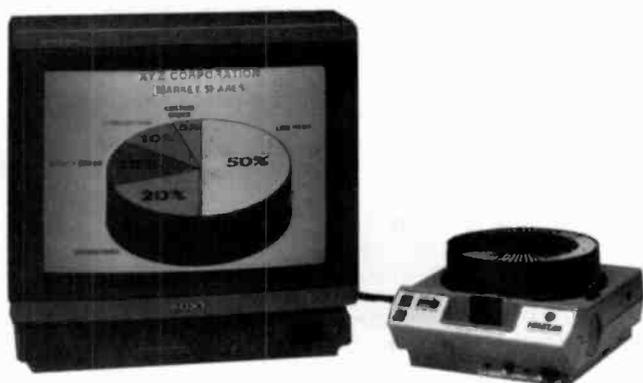
Luna™ Professional Video Post Production Software

- Provides powerful yet affordable video quality control while adding a unique set of color and video effects
- 32-bit color
- Real time
- 100% interactive
- Videotape tutorial included
- Video gamma
- Meta Lut has stunning 32-bit color lookup tables for real time tinting or painting of video with 10 settings that can be metamorphosed seamlessly
- 15 programmable soft-edged wipes for any 32-bit PICT over video
- White and black color correction for light temperature
- Accurate matching of source material or for color effects
- Video noise generation for extensive control over separate RGB channels and luminance threshold
- Video posterization in 32-bit color
- Video input and output inverting for eye-catching effect
- Invert video or graphics at a preset frame rate
- Variable rate strobing by field or frame
- Variable rate uses drop frames to strobe at 24fps for the "film" look
- Preset frame rates and auto stops at any point
- Capture either field or frame at any time with 2 inter-field smoothing methods
- Capture and dissolve in 1 easy control panel for 32-bit A/X edits
- Multiple documents can be opened with favorite setting for use at any time
- Convenient storage and retrieval of Luna color and Meta Lut settings as well as up to 8 PICTS for the alpha wipes
- AppleScript™ ready for programming video events from any application
- Additional real time effects possible from other AppleScript applications or from the Finder™

Luna Video Post Production Software creates a unique set of features in a convenient program providing a variety of true color 32-bit effects, video events and enhancements—all in real time. Luna provides the highest quality video correction tools that could previously only be found in expensive dedicated video equipment. With Luna the user has complete control over the video source material. Using input and output gamma compensation with color correction, the video can have a broadcast quality look. Luna real time effects will give video-through production unique effects never before available on a computer. The unique 32-bit color cycling effects, posterization, video noise threshold and strobe will give video work an immediate visible boost in quality. For control, Luna is 100% interactive with real time monitoring. For NuVista users, Luna does more than real time color effects. Using the alpha keyer, Luna can provide completely programmable interactive soft-edged wipes. Wipe any 32-bit picture softly and seamlessly into video and back out. A perfect companion for Comet/CG rendered files or other alpha channel graphics.

Luna \$295.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VideoMate 2100 Slide-to-Video System

- Uses a Kodak Ektagraphic III slide projector with a built-in high resolution 768H x 494V pixel, 1/2" Hyper HAD CCD color camera and Navitar precision optics ▪ 470 TVL ▪ 2000 lux f/5 ▪ 48dB S/N ratio
- 25% higher resolution than others comparably priced ▪ S-Video and composite video outputs ▪ Genlock and RGB adaptor box available ▪ Built-in fade/dissolve with timer for smooth transitions between slides and a more professional presentation ▪ Slides remain aligned and focused through the entire tray once the iris and focus are set ▪ Compatible with all video projectors and monitors
- Interfaces with standard control systems and wired or wireless handheld remotes \$4797.00
- Genlock and RGB adaptor box with connector cable. 1487.00
- RGB cable (9-pin to separate BNC). 185.00
- S-VHS cable 30.00
- Composite cable 30.00
- Replacement bulb 28.00

VideoMate 2150 Slide-to-Video System

- Kodak Ektapro based slide-to-video unit with the same 470-line resolution and options as the VideoMate 2100, with the addition of Random Access, RS-232 control and multi-voltage \$5934.00

VideoMate 290 Slide-to-Video Transfer

- Rugged zoom transfer lens with zoom iris and x-y axis positioning controls ▪ Special even-illumination lamp module ▪ Compatible with today's high resolution 3-chip ENG or 1/2" bayonet cameras: any format (NTSC or PAL) and with any video output (composite, S-VHS, RGB and genlock)
- VM-290-EK For Kodak Ektagraphic carousel type projectors. Includes transfer lens and lamp module \$2280.00
- VM-290-EPRO For Kodak Ektapro type projectors. Includes transfer lens and optics for lamp module 2423.00
- Note: Camera, TV monitor and projector not included.

Video Microscope Workstation

- Clearly view small objects on TV monitor or video projector ▪ Designed for viewing objects from 23mm down to a few microns ▪ Built-in high resolution color CCD camera, 3-way fiber optic illumination system, stand, stage and precision optics ▪ Magnification range is 14X to 371X in macro mode or 70X to 4377X in micro mode using a 13" monitor ▪ Continuous (parfocal) zoom



Camera Specifications

- Pickup Device: 1/2" interline transfer Hyper HAD™ CCD ▪ Pixel Count: 768(H) x 494(V) ▪ 470 lines horizontal resolution ▪ S/N Ratio: >48dB

Video Microscope Specifications

- Power consumption: 350W ▪ Power: 120V/60Hz ▪ Connectors: BNC (composite), 4-pin Mini Din (S-Video), Multi 12-pin/Sync/Video (RGB) ▪ Built-in 150W halogen 3-way light source (oblique illumination or backlighting)
- Dimensions: 18"H x 11"W x 17"D ▪ Video cable (optional): 18' RGB cable (9-pin RGB to BNC), 12' S-Video cable, 12' composite video cable ▪ Genlock and RGB camera adaptor box (optional) POR*

FX Single Slide Projector With Dissolve

- Begins with the standard Kodak Ektagraphic III AMT slide projector
- Then Navitar adds a fade/dissolve mechanism and autofocus and replaces the standard Kodak lamp module with a Navitar BrightLight lamp module, so your slides will look 50% brighter on screen than with other projectors ▪ You can adjust the fade/dissolve rate to match the mood or pace of your presentation by simply moving the dissolve control dial. Change the length of time from full brightness to black (fadeout) and back up to full brightness (and a new slide) anywhere from 1 to 12 seconds ▪ The FX also features remote control forward and reverse controls, and a built-in automatic timer that can advance your slides at intervals from 1 to 10 seconds \$1565.00

BrightLight Projector Brightness Booster Modules

A complete optical system designed to increase the brightness and whiteness (color temperature) of a slide on the screen 50-70%, while maintaining a stable film gate temperature.

To add the BrightLight to your Kodak Ektagraphic III slide projector, simply remove your old lamp module and plug in BrightLight. Unlike some projector units, with BrightLight you can use any slide mount—cardboard, plastic or glass—without worry about slide burnout.

Models are also available for Kodak Ektapro and SAV-2050 type projectors.

EXW-J Lamp Module

Designed to provide maximum slide brightness and contrast for front or rear screen projection. Especially helpful when your projection distance or image size is too great for your current projector to handle. Module includes high-brightness EXW-300W, 82V lamp, 70% brighter than standard \$450.00

EXW-SJF Lamp Module

For those applications where lower film gate temperature is of prime importance. The Navitar thermal heat filter is included in the system to protect against slide damage resulting from prolonged exposure of a single slide in the film gate. The EXW-SJF has all of the enhanced image benefits of the EXW-J but the slide gate temperature has been reduced with only a slight sacrifice in total image brightness. Module includes high-brightness EXW-300W, 82V lamp, 50% brighter than standard \$466.00

BL-82 Replacement Bulb

High-brightness 300W EXW lamp (82V), 15-hour life, custom designed for BrightLight EXW-J and EXW-SJF modules. \$26.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



10PG™ MultiSync Projector

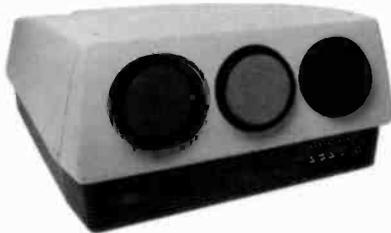
- 15-92kHz horizontal scan and 38-150Hz vertical
- 1000 lumens peak light output
- AccuPoint™ convergence circuitry
- Multiple frequency high resolution graphics projector using 9" CRTs capable of reproducing and projecting extremely high resolution images on screens ranging from 100" to 200" diagonally
- RGB resolution is 1600 x 1200 pixels
- Digital convergence including AccuPoint convergence function is controlled by a backlit wired/wireless remote control
- PC control via RS-232/422 port
- Inputs: 1 RGB/HV BNC RGB input, 1 NTSC input, 1 S-Video input and 1 RS-232/422 communication port. \$29,995.00

9PG™ MultiSync Projector

- 15-90kHz horizontal scan and 38-150Hz vertical scan
- 800 lumens peak light output
- 1280 x 1024 RGB resolution/1000 TV lines video
- Multiple frequency high resolution graphics projector capable of reproducing and projecting extremely high resolution images on screens ranging from 60" to 300" diagonally
- Sophisticated digital convergence including NEC's exclusive AccuPoint convergence option. \$20,500.00

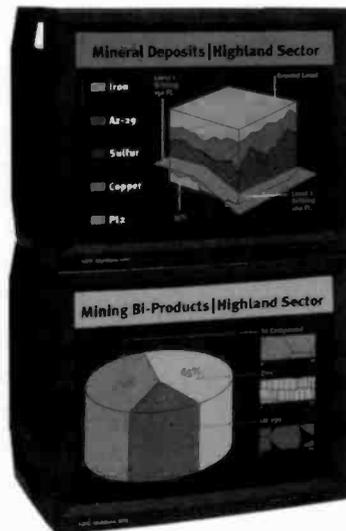
6PG™ MultiSync Projector

- 15-61.1kHz horizontal scan and 38-150Hz vertical scan
- 1280 x 1024 RGB resolution/1000 TV lines video
- Digital wave convergence circuitry
- 800 lumens peak light output
- Capable of reproducing and projecting very high resolution images on screens ranging from 60" to 300" diagonally
- Sophisticated digital convergence is controlled by a backlit wired/wireless remote control. \$13,500.00



4PG™ MultiSync 27" Multimedia Monitor

- 800 x 600 RGB resolution
- MultiSync frequency coverage from 15.5-50kHz
- One 15-pin high density VGA connector for analog RGB sources with loop-out provision
- 1 set of full functional RGB/HV BNC RGB input with loop-out provision
- 2 combination composite (NTSC, M-NTSC and PAL) and S-Video inputs with stereo audio
- RGB input section shares 1 stereo audio input
- Compatible with IBM VGA, Super VGA, XGA, XGA-2, Apple, Macintosh and many others \$3,695.00



MultiSync HiVid Projector

- Turnkey solution for applications requiring the highest quality projected images
- Complete system includes the following: HiVid Projection Monitor, IDC-2000 Improved Definition Converter, ISS-6010 Video/RGB Switcher, High Definition Input Module, 6010RGB RGB Input Module, 6010VID Video Input Module, CTL6010 Projector Data Cable. \$34,995.00

AccuPoint Convergence Option

- Provides an enhancement to NEC's digital convergence technology which permits accurate point convergence control for the 6PG MultiSync projection monitor
- 99.8% convergence accuracy over 150 screen zones
- Included as a standard feature on the 9PG MultiSync projection monitor. \$3,495.00

PGCTL Projector Control Software

- Full computer control of MultiSync 6PG or 9PG projectors by way of an RS-232 interface
- Operates on 286/DOS 3.X or higher computers with VGA display
- Graphical user interface with mouse compatibility for full control of convergence, source selection, file archive and database management. \$500.00

MultiSync ISS-6010 Video/RGB Switcher

- Combination video/RGB switcher and high bandpass RGB distribution amplifier with 11 module slots
- Up to 4 RGB output modules may be installed
- Can be daisy-chained for up to 100 inputs
- Minimum 100MHz bandpass. \$2,250.00

Quad Video Decoder Board

- Provides compatibility with NTSC, M-NTSC, PAL and SECAM video sources when installed inside the ISS-6010 (the Quad-VDB does not occupy an input module slot)
- Furnished with the 6PG and 9PG MultiSync projection monitors
- Removed from the projector and installed into the ISS-6010 switcher when the projector and the switcher are used together as a system. \$325.00

Video Input Module \$195.00

RGB Input Module \$195.00

VGA/XGA Input Module \$325.00

RGB Output Module \$325.00

High Definition Input Module

- For HDTV applications
- Video inputs include Y, Pb, Pr and standard RGB H/V
- Peak aperture adjustment for high frequency detail enhancement
- Multiple synchronization compatibility including Tri-Level Sync. \$2,495.00

50' Projector Control Cable

- Permits digital communication between the ISS-6010 switcher and the 6PG or 9PG MultiSync projection monitor
- Required for system (bundled) operation. \$195.00

MultiSync IDC-2000 Converter

- Laserdisc, VTR, live camera, off air sources, NTSC or RGB
- Converts 15.75kHz, 30Hz interlaced video signal to digitized 31.50kHz, 60Hz non-interlaced RGB signal
- 2 composite, 1 S-Video and 1 RGB analog input
- Digital dynamic noise reduction, adaptive motion detection, image equalization circuitry. \$3,795.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



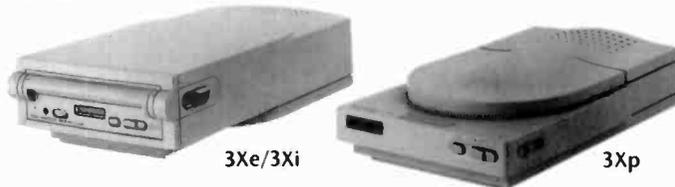
CD-ROM READERS/ MONITORS



NEC

MultiSpin® Series CD-ROM Readers

- Common Features**
- Music Sensor™ technology enables users to play audio CDs from a MultiSpin reader with or without a computer
 - LCD panel display
 - Data transfer rate: 450K bytes/sec. ▪ Burst transfer: 2.5M bytes/sec. (async); 4.0M bytes/sec. (sync)
 - Cache memory: 256K bytes
 - Reliability: 50,000 hours MTBF
 - Capability: ISO 9660, High Sierra Group, Macintosh® HFS, Multisession Kodak Photo CD™, XA Ready
 - Interface: SCSI 1/SCSI 2 switch selectable
 - Internal switch selectable



MultiSpin 3Xe Includes common features plus: ▪ External model
 ▪ Access time: 195ms ▪ Power requirements: 120/220VAC ▪ Weight: 6.4 lbs. ▪ Dimensions: 6.9" x 3" x 13" ▪ Accessories included: SCSI data cable, disc cartridge, user manual and power cable **\$499.00**

MultiSpin 3Xi Includes common features plus: ▪ Internal model
 ▪ Access time: 195ms ▪ Power requirements: 125VDC, 21W
 ▪ Weight: 3.1 lbs. ▪ Dimensions: 5.9" x 1.7" x 8.6" ▪ Accessories included: 50-pin ribbon cable, DC power Y cable, disc cartridge, mounting rail kit, user manual and jumpers **\$465.00**

MultiSpin 3Xp Includes common features plus: ▪ Personal model ▪ Classic Color or Granite Gray ▪ Access time: 250ms ▪ Power requirements: 120VAC/60Hz; 12VDC, 1.0A (battery pack optional) ▪ Weight: 2.4 lbs. (without battery) ▪ Dimensions: 6.1" x 2.2" x 10.1" ▪ Accessories included: SCSI cable, AC adaptor and user manual. **\$415.00**

Accessories

- AT 16-bit interface kit **\$125.00**
- Macintosh interface kit **35.00**
- PS/2 16-bit interface kit **150.00**
- Enhanced parallel port kit **160.00**

MultiSpin 4X Pro Quad Speed External CD-ROM Reader

- Provides a sub-200ms access time and 600K bytes/sec. data transfer rate
 - Self-installing tutorial software
 - Sleek, ergonomic cabinet with up-front controls for easy operation
 - Audio controls on front panel for easy access
 - Can be used as a stand-alone audio CD player
- MultiSpin 4X Pro** **\$995.00**

MultiSync® Monitor Series

MultiSync monitors feature flat square technology CRTs with a reduced curvature compared to conventional screens. These screens deliver a more consistent overall image with less distortion, particularly at the edges. Multiple frequency display technology gives these monitors the flexibility to work with virtually every current major video standard. Each monitor includes a microprocessor-based memory that automates display configuration by automatically sizing and centering screen images for preset and custom graphics modes. MultiSync monitors also offer compatibility with computer hardware platforms including Macintosh, IBM PC compatibles and most workstations. Their display performance is ideally suited to demanding computer environments from Windows™ or OS/2® to Apple's System 7®.

VALUE/ENTRY LEVEL SERIES SVGA

- 14" conventional anti-glare screen
 - Ideal for: entry level business, home office, home entertainment and text-based applications
 - Maximum resolution: 1024 x 768 at 60Hz ▪ 65MHz bandwidth
- JC-1431VMA** **\$330.00**

MultiSync 3V

- 15" flat, square screen with thin silica coating and anti-static protection
 - Ideal for: entry level business, home office, home entertainment and text-based applications
 - Maximum resolution: 1024 x 768 at 60Hz ▪ 65MHz bandwidth
- JC-1535VMA** **\$495.00**

BUSINESS SERIES

MultiSync 5FGe

- 17" flat square high contrast screen with anti-static protection
 - Ideal for: general business, Windows applications and multimedia
 - Maximum resolution: 1024 x 768 at 76Hz ▪ 80MHz bandwidth
 - Digital controls
- JC-1731VMA-3** **\$1045.00**

MultiSync 4FGe

- 15" flat square high contrast screen with anti-static protection
 - Ideal for: general business, Windows applications, color intensive business graphics and multimedia
 - Maximum resolution: 1024 x 768 at 76Hz ▪ 80MHz bandwidth
 - Digital controls
 - AccuColor™
- JC-1531VMA-3** **\$655.00**

MultiSync 3FGe

- 15" flat square high contrast screen with anti-static protection
 - Ideal for: general business and Windows applications
 - Maximum resolution: 1024 x 768 at 60Hz ▪ 65MHz bandwidth
- JC-1532VMA-2** **\$595.00**

PROFESSIONAL SERIES

MultiSync 6FGp

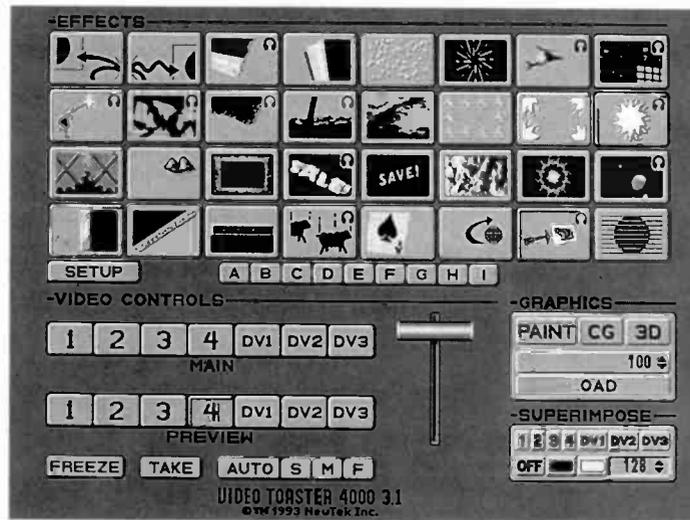
- 21" flat square high contrast screen with anti-static protection and OptiClear Surface
 - Ideal for: professional CAD/CAM/CAE, professional graphic design and color desktop publishing, large screen business applications, imaging, document imaging and multimedia
 - Maximum resolution: 1280 x 1024 at 74Hz ▪ 135MHz bandwidth
 - Digital controls
 - AccuColor
- JC-2141UMA-3** **\$2125.00**

MultiSync 5FGp

- 17" flat square high contrast screen with anti-static protection and OptiClear Surface™
 - Ideal for: entry level CAD, color desktop publishing, large screen business/Windows applications, imaging, document imaging and multimedia
 - Maximum resolution: 1280 x 1024 at 74Hz ▪ 135MHz bandwidth
 - Digital controls
 - AccuColor
- JC-1741UMA-3** **\$1175.00**



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Video Toaster 4000

- Includes switcher with 4 video inputs and 3 internal digital sources
- Close to 300 video effects, from dissolves and wipes with user adjustable durations, to complex digital effects and animated transitions
- Many effects feature drop shadows, glints and smooth, full color animation
- Includes integrated graphics loader, which allows users to load and display video frames, still stores and animations
- Still graphics and animations can be displayed with variable transparency
- Adjustable drop shadows which can be keyed over video sources
- System includes a 24-bit, 35ns resolution character generator
- Toaster CG features full support for PostScript fonts, including automatic kerning and text sizes up to 400 lines tall
- Users can change font, color, shadow and outline options on a character-by-character basis
- Toaster CG can also load brushes from ToasterPaint, the Toaster 4000's 24-bit video paint system

The Video Toaster 4000 is designed to take advantage of the increased capabilities of the Commodore Amiga 4000 computer. This powerful combination of technologies has resulted in hundreds of features in the Toaster 4000, many of which have never been available before on any video system.

Significant attention has been focused on the development of LightWave 3-D, the Toaster's 3-D modeling, rendering and animation system. Among LightWave's abilities are its significantly enhanced rendering options. Users can now have LightWave automatically create lens flares, motion blur effects and even adjust the depth of field to create images with realistic focusing. The Bones feature allows users to create skeletal systems for an object and is ideal for character animation. Image quality has been improved with color dithering and anti-aliasing routines, and at the same time render times have also been speeded up by 100% to 800%.

LightWave's Modeler includes support for PostScript fonts, which makes 3-D logo and text creation automatic. Modeler also features powerful Boolean functions, which allow users to combine or cut holes in objects. The program also allows users to draw objects with spline curves, which provide for simplified creation of rounded, organic objects.

Video Toaster 4000 Requires Amiga 4000 with 10M bytes RAM..... \$2395.00

Also available for Amiga 2000 and 3000 models.

Video Toaster Flyer

- Tapeless nonlinear editing system
- Integrates seamlessly with the Video Toaster
- Users able to experiment with effects, try out different titles or add animations with ease
- Designed as a component of the Video Toaster system
- Seamlessly integrates with your Toaster-based studio
- Use recorded video clips as easily as video still frames
- Insert video clips into LightWave animations. This feature, called rotoscoping, allows you to place live video segments inside your LightWave animations
- Audio capabilities allow you to use it as a sophisticated sound mixer featuring multiple tracks of CD-quality digital audio
- Add background music, perform audio sweetening, or just bring up the volume of a quiet passage to match that of other clips

Start by recording clips into the flyer. Each clip is represented by a color picture taken from one of its video frames called a crouton. You fine-tune each crouton—select in and out points, and adjust audio characteristics until the clips are just the way you want them. The next step is to drag a video crouton into position, place an effect crouton after it, then drop another video crouton after the effect. This creates a transition from one video clip to another. To add a graphic or overlay CG text, drag and drop a graphic crouton. With the Flyer, it's easy to build a storyboard in which every scene, sound, graphic and animation appears in the order you want.

Finally, press the "play" button. Watch the entire production roll as each of your clips, effects and graphics play back in real time. Record your finished production directly to another Flyer-controlled hard drive (for maximum image quality) or to any video format.

The Video Toaster Flyer, a couple of hard drives and the Video Toaster 4000 form a complete audio and video production suite that fits on your desk.

Video Toaster Flyer \$3995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

FILM/SLIDE SCANNERS/ COLOR PRINTER



Nikon

ELECTRONIC IMAGING

LS-3510AF Film Scanner

The LS-3510AF has the improved dynamic range to take advantage of 12-bit correction tables, so tone range is reproduced with much greater accuracy and flexibility. 12-bit scanning produces a color palette of virtually billions of colors from which the final output is derived.



The Ease of Autofocus

The Autofocus feature automatically provides the sharpest image for each scan regardless of the type of slide mount used.

Film Flexibility

The scanner adapts to a wide range of film processing variables and "learns" about each film brand and type as it's first scanned. Then it automatically corrects for gamma and color balance and stores all that information in its non-volatile memory.

Cuts Scanning Time

Complete an 8M byte (2048 x 1365 pixels) scan suitable for full-page, 133-line screen reproduction, including Autofocus, corrections for film processing situations and film types in under 110 seconds.

Extra-Large Scanning Area

The LS-3510AF reads positive or negative color and monochrome film up to 40mm x 40mm "superslide format" with amazing accuracy, making it ideal for slide or strip film use.

Free Rotation Slide Mount

The scanner gives you full 360° rotation of film at scan time so you don't have to perform minor rotation corrections in software—a real time saver for high resolution scans.

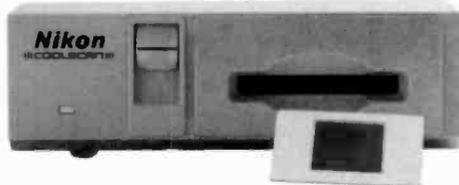
High Resolution

The LS-3510AF scans film in 5000 x 5000 pixels over a 40mm x 40mm area. Reproduced images have perfect color registration and ultra-high definition.

SCSI Interface

The LS-3510AF is available with your choice of a GPIB (IEEE-4888) interface or SCSI interface for direct connection to a variety of desktop computers and workstations.

LS-3510AF 8-bit \$8,214.00
LS-3510AF 12-bit 9,995.00



Coolscan™ Slide Scanner

- Scans color or monochrome, positive or negative 35mm film
- Patented, solid-state illumination technology makes it exceptionally compact and quiet with low power consumption
- Will achieve high resolution scans up to 2700 dpi
- Simple to operate—little or no formal training needed
- Coolscan enables you to keep outside production costs down and assure security by producing presentations, catalogs, newsletters and manual in-house
- Build your own presentations and teaching aids easily and quickly
- Render or "comp" images and scan for final offset printing reproduction

Coolscan Internal Unit Mounts into available half height disk slot; zero footprint \$2,300.00

Coolscan External Unit Lightweight, portable unit; compatible with PCs, Macs or any computer with an SCSI interface 2,600.00

NT-3000 Telephoto Transmitter

- High quality color, B/W, positive or negative scanning and transmissions
- Full field editing capabilities
- Unattended operation for up to 36 spooled images
- Simultaneous caption/text transmissions

The NT-3000 transmits high quality color images directly from 35mm color or B/W, positives or negatives. Compact and lightweight, it was designed for in-field use and features quick and easy unattended transmission. The built-in 4" color LCD monitor allows for field editing and cropping, while the available keyboard and/or caption scan/reader enables simultaneous transmission of text information. Scanning on the NT-3000 is accomplished by single linear CCD, color separating by 3 rotating filters and the RGB transmission may be either digital or analog.

NT-3000 \$12,995.00



CP-3000 Full Color Printer

Density of 8 dots/mm with resolution of 1024 x 1280 pixels makes it possible to print high-quality full-color (16.7 million colors) pictures. In addition, using the γ (gamma) and color adjustment functions you can adjust the contrast and tint as you like.

Compact and Lightweight

The CP-3000 is compact and light enough to configure a system on any desktop (15.4" x 7.6" x 19.0", weighs 39.6 lbs.)

Standard Interfaces

The digital model (CP-3000D) is equipped with GPIB, SCSI and Centronics interfaces to meet various needs. The analog model (CP-3000A) can be directly connected via analog RGB to most computers, including engineering workstations, to reproduce CRT images quickly without software.

1-Touch Scanner Mode

When used with the LS-3510AF Film Scanner, simply choose the scanner mode to get high quality print.

Built-in Window Function

You can designate the print area using the 4M byte memory of the CP-3000. Even overlays and divided images can be printed however you like.

High-Fidelity Printing on OHP Sheets

You can print not only on standard paper but also directly onto OHP (transparency) sheets for impressive presentations.

Clear Sleeve for Storing Pictures

Allows for greatly extended storage life of thermal sublimation dye transfer image systems. Not only can you store pictures in this clear sleeve, but it also keeps print surfaces free from dust or discoloration and maintains the quality of the image over long periods.

9300 CP-3000D (digital model) \$ 7,625.00
9310 CP-3000A (analog model) 12,699.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



nVIEW



COMPUTER/OVERHEAD PROJECTION SYSTEMS

Luminator™ LCD Projector

- Built-in keystone correction
- Does not require an overhead projector
- Does not require a technician to install or operate
- Does not depend on the availability or quality of an overhead projector
- Multisyncs to computers and video sources and automatically tell which sources are connected
- Projects true 640 x 480 VGA and Mac II resolution
- Compatible with video standards (NTSC, PAL and SECAM) without any external boxes, adaptors or scan doublers
- Over 70% lighter than conventional 3-beam CRT projectors and can be readily moved or transported
- 16.7 million colors
- 400W metal halide changeable lamp
- Proprietary optical design optimized for LCD projection maximizes light and output image clarity
- Built-in keypad, friendly pull-down menu and access to on-line help messages
- Remote control included
- Allows real time interaction with the computer during meetings and incorporation of moving titles and animation into presentations
- Connect up to 4 video and computer sources simultaneously
- Compatible with buildings already wired with RGB coaxial cables for in-house video distribution
- Built-in speaker with volume and mute controls



LU31 \$995.00

Accessories for Luminator

CA10 VGA cable set	\$ 65.00
CA11 Mac II cable set	65.00
CA12 EGA cable set	65.00
OP02 Spare metal halide lamp	250.00
LG02 Luminator custom logo	400.00
RC08 Luminator remote control	30.00
CC07 Luminator hard carrying case	595.00

nSight™ Monochrome LCD Projector

- Built-in light source, ideal for projecting computer images for education, training and computer presentations in 16 shades of gray
- High contrast ratio and 640 x 480 pixel resolution
- Built-in monitor redrive capability
- Compatible with most existing IBM, Apple and Mac computers for flexibility
- K-12 education pricing program available

NS11 \$1995.00

Accessories for nSight

CC05 Hard shell carrying case	\$130.00
CA07 EGA/CGA/Mac/Hercules cable set	75.00
OP01 Spare bulb	20.00
CC06 Soft carrying case	130.00

Z Series LCD Projection Panels

- On-board audio connections and built-in speaker
- Thinnest, most lightweight projection panel in its class at 4.3 to 5.0 lbs.
- Upgradable models available to add full-motion video
- Durable aluminum construction
- Single, reversible cable used with both PC and Mac



- computers
 - Simultaneous connection of up to 4 sources
 - Accurate video source reproduction and smooth color transitions
 - User-cleanable filter and airtight LCD seal
 - Includes lightweight, soft leather-like carrying case
 - Compatible with most computers, worldwide power sources and standard overhead projectors
 - Ultra-thin remote control
 - 2 standard computer input ports
 - Patented single cable system allows 1 cable to connect the panel to nearly any computer
 - 2 stereo input ports
 - Both Z100 and Z200 models offer computer-only and computer and video models
 - Z115 and Z215 display full-motion video from either of the 2 standard output ports
- | | |
|---|-----------|
| Z110 No Video, 8.4" active LCD display, 1.4 million colors, 4.3 lbs. | \$4995.00 |
| Z115 Standard with video, 8.4" active LCD display, 1.4 million colors, 4.3 lbs. | 5495.00 |
| Z210 No video, 10.4" active LCD display, 16.7 million colors, 5.0 lbs. | 6495.00 |
| Z215 Standard with video, 10.4" active LCD display, 16.7 million colors, 5.0 lbs. | 6995.00 |

ViewFrame SpectraMini Passive-Matrix Color LCD Projection Panel

- Perfect for introducing the true color of software in group presentations
- Accurately reproduces all types of computer images, including still images from video-capture boards and CD-ROM files
- Allows live interaction with analysis tools, databases and computer graphics
- 640 x 480 pixel resolution produces 512 colors
- Compatible with most computers including the Mac LC and Mac 12" RGB display
- Includes remote control, VGA cable, Mac II cable set, operator's guide, international power supply and carrying case
- K-12 education pricing program available



Accessories for SpectraMini

CA08 Apple 12" RGB monitor cable set	\$ 75.00
CA12 EGA/CGA/Mac/Hercules cable set	65.00
CC03 Soft carrying case	130.00

ViewFrame II + 2 Gray Scale LCD Projection Panel

- High-resolution LCD panel connects to video port of computer allowing crisp, clear projection of computer output onto a large viewing screen
- Allows real time changes during presentations
- 640 x 480 pixel resolution
- Perfect for presentations on or off site
- "Y" cables for simultaneous monitor and display viewing
- Front and rear screen projection
- Compatible with: Mac II, Mac 512, Plus, SE or SE/30 (with optional adaptor), Portable (with adaptor), Classic (with adaptor), LC; all IBM PCs — all other IBM compatibles; Compaq; Atari ST; DEC VT 220/340; Zenith; Apple IIs; AT&T 6300
- Includes LCD, Mac II, PS/2 (VGA), EGA/CGA cables, carrying case and power supply
- K-12 education pricing program available

VF51 \$1395.00

Accessories for ViewFrame II + 2

CA04 Mac LC cable	\$40.00
RC01 Remote control	30.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





MediaMogul

■ Add multimedia features such as animation and motion video windows to titles by overlaying these windows onto any still image ■ Create or edit 256-color CLUT8 images directly on a CD-I development player using a number of functions such as drawing, filling, shading, scaling, transforming, move area, CLUT manipulation, image merging, mosaic and smudge

■ Unconditional or conditional branching based on 26 built-in variables

sequence the color table to add memory-efficient color-cycled animation-like effects

■ Customize the graphic cursor to suit individual applications including changing its look and placement within hotspots, during sequences and while branching; confine the cursor to move within a specified area of the screen

■ Work with a thorough manual in a looseleaf format containing tutorial user, and reference sections with in-depth examples including how to use custom sub-routines

■ Virtually define hotspots over previewed images via pull-down menus with automatic on-line help and on-screen display of current cursor position

■ View, copy, move, compare and delete files; browse to preview assets

■ Define interactive areas of the screen (hotspots) for application branching, pause and continue, audio volume control, and audio channel selection

■ Playback full-screen run-length cartoon animation and partial-screen "natural" DYUV images at 5, 10, or 15 frames per second

■ Include up to 8 separate audio tracks with real time switching between them

■ Define a transparent color that enables the image in the background to show through the pixels of that color; place text over a background including easy display of an ASCII text file

■ Synchronize video/transitions to an audio track by simply clicking the mouse

■ Define movement between hotspots via a highlight rather than using a cursor pointer

■ Display high-quality dual-plane images (PAL 768 x 560, NTSC 768 x 480) that have been converted from Photo CD, Macintosh, or PC source assets

■ Check individual scripts and the entire application before moving on to the disc building phase of production; script time is displayed for easy editing

■ Design a title using the tool's spreadsheet layout and pop-up menus or keyboard shortcuts for ease of use

■ Edit SMPTE-based time-coded columns with commands such as cut, copy, paste and global replace

■ Use several 2-screen transition effects including fades, wipes, dissolves, and curtains; update parts of the background or foreground plane of the screen or the CLUT with new image or text data

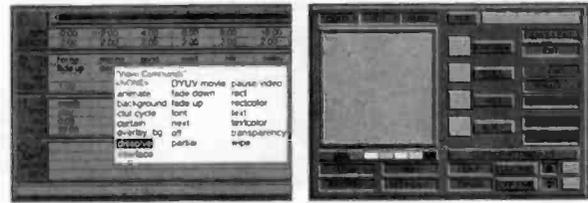
■ Specify a time when the screen will dim if there is no activity; customize how the video planes combine with the background plane using mattes and/or color cycling

■ Support for MicroTouch™ compatible touch screen and Unmouse for applications such as interactive information kiosks; select "point" mode or "stream" mode with optional calibration sequence

■ Position DYUV movies, partials, rectangles and text directly on the screen in which they will appear

■ Add your own subroutines or purchase optional plug-ins to create additional MediaMogul effects and features

MediaMogul Version 2.0 \$5000.00



applications often require that text be entered, stored, written or manipulated

■ Digital Video plug-in utilizes full screen, full motion MPEG-encoded Digital Video sequences in your CD-I application

■ Horizontal Image Scroller has the ability to define a scrolling image which is used as a menu or for other types of user selections

■ Talking Menu attaches sound files to hotspots on a menu

■ Pointerless Menu creates a menu without a cursor on the screen

Kiosk Plug-in package for MediaMogul \$1500.00

QHY Plug-in package for MediaMogul 1500.00

Run-Length Plug-in package 1500.00

Pop-Up Menu Plug-in package 1500.00

Horizontal Scrolling Image Plug-in for MediaMogul 1000.00

Talking Menu Plug-in for MediaMogul 500.00

Digital Video Plug-in for MediaMogul 1000.00

Delta Vx

■ Integrated solution: video in—disc out

■ Easy to use Macintosh interface

■ Easily and extensively configurable

■ Expandable

■ Professional quality real time MPEG compression

■ Multiple source formats

■ Playback on multiple platforms

■ Networkable

■ Compatible with common third party video production tools

■ Side-by-side preview

■ White Book compliant

Delta Vx TBA*

Macintosh Imagination Pak

■ Proven CD-I development software now on the Mac platform

■ Create, convert, author and build on 1 platform

■ Easy to use, perfect for designers and non-programmers

■ Point-and-click interfaces

■ Verify and test as you go with analysis and preview

■ Project backup and archiving now easier than ever

Macintosh Imagination Pak TBA*

CD-IT!

■ Double speed recording (300KB/second) means fast turnaround

■ Modular CD-ROM, CD-DA and CD-I software provides the most cost effective solution for specific needs

■ Mixed mode support of CD-ROM and Red Book audio data

■ ISO 9660, Apple HFS, AUX, digital audio in CD-IT! ALL

■ CD-ROM XA, Mac HFS/ISO hybrid for disks that need to be read by both Mac and PC computers

■ CD-IT! will create a DOS based CD-ROM by connecting a PC formatted hard drive into the Macintosh SCSI chain and selecting the "Raw SCSI" option

■ CD-IT!ALL will create an ISO 9660 disc image from your data

■ 600+ MB of data can be written to disc, making maximum use of space

■ Multi-volume/multi-session capable (multi-session included with CD-IT!ALL only)

■ Easy-to-use Macintosh software interface

■ CD-IT!ALL contains a System 7 extension that allows the Philips CDD 521 to be used as a CD-ROM player

■ CD-IT! for CD-DA directly reads Digidesign® Sound Designer™ file formats and enables you to select the order of the audio tracks before writing the disc

CD-IT! For CD-I \$1295.00

CD-IT! For CD-DA 1295.00

CD-IT! For CD-ROM 1295.00

CD-IT!ALL 2995.00

*To Be Announced

MediaMogul Plug-Ins

■ Pop-up menu provides users the opportunity to display a menu that scrolls up from the bottom of the screen at the touch of a button

■ QHY images, converted from Photo CD™, add near-photographic image quality to your CD-I application

■ Run-length encoded still images are easier and faster to create than standard animation

■ Kiosk

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



EDDi/Clio Desktop Video Production Centers

Common Features

- Slow motion control for DT-capable VTRS
- Time code, control track, or VITC (VTR time code readers required) NTSC drop frame, non drop frame or mixed; PAL tape timing
- 4 GPI triggers
- 999-line Edit Decision List with list management: insert, delete and replace; EDL ripple
- Block move, copy, delete and renumber; drag and drop edit point and marks transfer; cut-to-dissolve off-line EDL modification; EDL duration display
- Internal or external RS-232/422 switcher control (switcher optional): supports Echolab PC-3 and PC-A DTV peripherals and NewTek Video Toaster and Pinnacle Alladin (pending)

EDDi Pro A/B Roll Desktop Video Editor for Windows

Includes common features plus: 3 RS-422 VTRs (2 source, 1 record), Hi8, S-VHS, BetaSP, MII, 1/4" U/SP, 1" Type-C

- ListTrac™ EDL scroll utility
- Includes software, interface hardware and control cables \$995.00

EDDi Pro Vision™/VB Picture Based A/B Roll Desktop Video Editor With Video Board

Same as EDDi Pro plus: Video overlay card for on-screen video display

- EDDiView pictorial editor
- SceneLog video image database
- Includes software, interface hardware, video overlay board and control cables \$2495.00

EDDi Pro Vision Picture Based A/B Roll Desktop Video Editor for Video Blaster

Includes common features plus: EDDiView pictorial editor

- SceneLog video image database
- Controls most RS-422 VTRs (2 source, 1 record)
- ListTrac, LiveLog™ and FastEDL™ EDL utilities
- Includes software, interface hardware and control cables . . . \$1695.00

EDDi Minimum Requirements (PC not included)

Common Features

- 3.5" 1.44M byte floppy disk drive
- 640 x 480 VGA resolution (or better) display
- Windows 3.1 installed and a mouse
- 1 free serial port for interface hardware
- 2nd parallel port for GPUs; COM3 for NewTek control

EDDi Pro requires common features plus: 80286/16 or greater CPU

- At least 2M bytes RAM (4 recommended)
- 40M byte or larger hard disk drive; 2.5M bytes free

EDDi Pro Vision/VB requires common features plus: 80386 or greater CPU

- At least 4M bytes RAM
- 120M byte or larger hard disk drive; 2.5M bytes free
- 1 free full-size AT expansion slot

EDDi Pro Vision requires common features plus: 80386 or greater CPU

- At least 4M bytes RAM
- 120M byte or larger hard disk drive; 2.5M bytes free
- Video Blaster installed and operating to manufacturer's specifications

Clio™ A/B/C Roll Desktop Video Editor for Windows™

Includes common features plus: Controls for 4 RS-422 VTRs (3 source, 1 record)

- Control ports for Pinnacle DVE and ESAM compatible audio mixers
- Supports 4 audio channels
- ListTrac EDL scroll utility
- Includes software, interface hardware and control cables \$1995.00

Clio Vision™ Picture Based A/B/C Roll Desktop Video Editor for Video Blaster

Same as Clio plus: EDDiView pictorial editor

- SceneLog video image database
- ListTrac, LiveLog and FastEDL EDL utilities
- Includes software, interface hardware and control cables . . . \$2695.00

Clio Vision/VB™ Picture Based A/B/C Roll Video Editor With Video Board

Includes common features plus: Video overlay card for on-screen video display

- EDDiView pictorial editor
- SceneLog video image database
- ListTrac, LiveLog and FastEDL EDL utilities
- Includes software, interface hardware, video overlay board and control cables \$3495.00

Clio Minimum Requirements (PC not included)

Common Features

- 80386 or greater CPU
- At least 4M bytes RAM
- 3.5" 1.44M byte floppy disk drive
- 640 x 480 VGA resolution (or better) display
- Windows 3.1 installed and a mouse
- 2 free serial ports (COM 3,4) for interface hardware
- 2nd parallel port for GPUs, COM2 for NewTek control

Clio requires common features plus: 40M byte or larger hard disk drive; 2.5M bytes free

Clio Vision/VB requires common features plus: 120M byte or larger hard disk drive; 2.5M bytes free

- VGA card with standard feature adaptor
- 1 free full size AT expansion slot

Clio Vision requires common features plus: 120M byte or larger hard disk drive; 2.5M bytes free

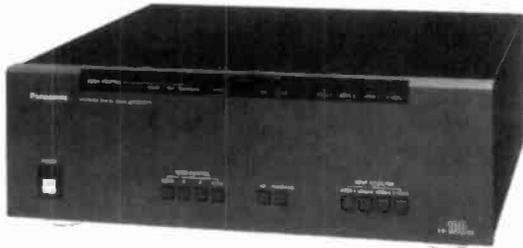
- Video Blaster installed and operating to manufacturer's specifications

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DIGITAL SCAN CONVERTER/VIDEO PROJECTION SYSTEMS



Panasonic
Broadcast & Television Systems Company



ET-100DS Advanced Digital Scan Converter

- Used for monitors or projectors
- Converts NTSC input signals, including S-Video signals into analog RGB output, resulting in video images of extraordinary high quality, featuring a flicker-free picture with no dot crawl or cross-color interference
- Doubles the horizontal scanning frequency from 15.75-31.5kHz
- Resolution 560 lines horizontal, 450 lines vertical
- 3 video/audio terminals, 1 S-Video input terminal
- RGB, HD, VD, HD/VD, S-Video and audio output terminals
- 3-D motion adaptive circuitry
- Digital noise reduction
- Terminal for remote control input selector
- Color, tint and sharpness controls

ET-100DS..... \$4,800.00



PT-101Y Color Video/Data Projector

- 650 lumens
- 1000 lines RGB resolution
- NTSC video resolution 650 lines
- S-Video input
- 4-system capability: PAL/SECAM/NTSC 3.58/M-NTSC 4.43
- Line/video/RGB (TTL/linear) selectable
- 2000 character display
- Blue mode selector
- Built-in crosshatch generator
- Sync inversion switch broadens computer signal compatibility
- 4-corner independent dynamic convergence controls for fast calibration
- Pulse switching power supply for reduced weight and size
- Ideal for teleconferencing, business, entertainment and education
- Can easily be moved from 1 location to another using the PC-101 carrying case or the ET-CR101A custom adjustable cart
- Both upright and ceiling mount are possible, and you can use front or rear projection
- Lightweight, compact chassis and special mounting plate simplify ceiling installation

Standard Accessories

- Lens spacers for 85"-120" ceiling/cart mounting kit
- AC cord

PT-101Y/120 Preset for 120" diagonal; ceiling mount . . . \$5,660.00
PT-101Y/120F Preset for 120" diagonal; floor mount \$,660.00

PT-200 Advanced Digital Video/Data Projector

- Dual focus 6-element color corrected lens
- Direct lens/CRT optical coupling system for high contrast
- Advanced digital scan compatible
- Auto scanning from 15-37kHz horizontally; 50-100Hz vertically
- S-VHS compatible
- Bright 550 lumens light output
- High resolution 1100 lines (RGB), 650 lines (video)
- Multiple inputs Line/S-Video/RGB (analog)/RGB2 (TTL) selectable
- Multi-standard capability (NTSC, PAL, SECAM, M-NTSC)
- Built-in audio AMP/speaker; test pattern generator



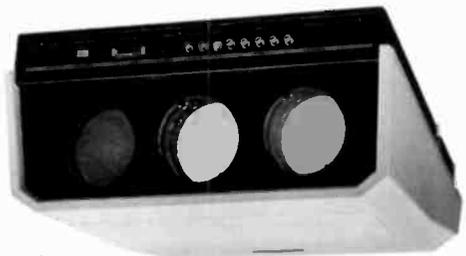
Standard Accessories

- AC cord
- Mounting kit

PT-200/72F Preset for 72" diagonal floor mount. Adjustable from 70"-79" only \$8,030.00
PT-200/120F Preset for 120" floor mount. Adjustable from 80"-120" only 8,030.00

PT-B1010U/ PT-B2010U Color Video/Data Projector

- 3-source input capability; S-Video, Line and RGB
- Unit automatically selects PAL, SECAM, NTSC 3.58 or NTSC 4.43
- Manual system selector buttons on unit and wireless remote
- Elevated resolution with IDTV (31.5kHz) and HDTV (33.75kHz) compatibility
- With optional ET-100DS advanced digital scan converter, a standard NTSC video signal can be converted to the IDTV format for crisper pictures
- 700 lumens
- 1100 lines RGB, 800 lines video horizontal resolution
- 7" high brightness electro-magnetic focusing projection tubes
- Dual focus 6-element lens allows separate adjustment for the full screen and the screen edges
- Direct optical coupling system for cool operation and elimination of reflections
- On-screen display
- Digital convergence adjustment function
- Fine adjustments with independent memory
- Independently selectable color temperature for each signal input source
- Notch on/off
- RGB horizontal position adjustment
- Built-in 1.5W audio amplifier with speaker
- Fail-safe operation on/off switch



Standard Accessories

- Wireless remote control: 3VDC power supply
- 3 AA batteries
- Remote sensor cable (16.4')
- S-Video/BNC conversion adaptors
- Holding plate kit
- Power cord

PT-B1010U Preset for ceiling mount 80"-120" projected diagonal screen size. \$ 9,350.00
PT-B1010UF Preset for floor mount 80"-120" projected diagonal screen size. 9,350.00
PT-B2010U Preset for ceiling mount 150"-300" projected diagonal screen size. 10,300.00
PT-B2010UF Preset for floor mount 150"-300" projected diagonal screen size. 10,300.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AG-ES100 Video Floppy Player

- 50 pictures per disk (field mode) ▪ High-band/normal playback
 - Jog dial (up to 15 images/sec.) ▪ Auto advance for automatic sequential playback of all pictures on the disk, adjustable from 1/20 to 60 seconds
 - Field/frame address (OSD) ▪ 1-shot/full erase ▪ Auto power off ▪ Auto tracking ▪ Wireless remote controller ▪ Skew correction ▪ 3600 rpm ▪ External sync input ▪ Forced field playback
 - Selectable date, time or ID# playback (OSD) ▪ 47mm Ø still video floppy disk ▪ Modulation systems—Y signal: frequency modulation; C signal: color difference line, sequential frequency, modulation recording ▪ Output: video BNC, S-Video, dub 5-pin ▪ Horizontal resolution HB: >500 lines; NOR: >350 lines ▪ S/N ratio: Y: >46dB; C: >45dB ▪ Y/C cable
- AG-ES100 \$1450.00

AG-810W Still Image Recorder/Player

- Designed with white exterior ▪ Stores up to 50 color pictures on a single 2" floppy disk and uses any TV set or monitor to present high resolution stills
 - Switchable frame/field recording ▪ Automatic frame/field playback ▪ Automatic recording verification ▪ Automatic playback/automatic advance ▪ Automatic repeat playback ▪ Control port has been modified for an advanced foot pedal/I.R. operation
 - FPR-810W foot pedal was designed exclusively for the AG-810W to be used in conjunction with the optional AG-A80 infrared remote for hands-free operation ▪ AG-A80 also allows you to set the pause time from 1-8 seconds ▪ Forward/reverse ▪ On-screen display ▪ Front loading ▪ 1 Y/C, 2 composite video outputs ▪ Y/C, composite video inputs ▪ Recording bandwidth of 6-7.5MHz ▪ Frame or field recording ▪ 350 lines of horizontal resolution ▪ 6-pin serial control port for the KS-10, IFP-232SVP and FPR-250 S-IV control systems
- AG-810W \$1700.00

AG-EP60W Color Video Printer

- Designed with white exterior ▪ Multiple printing in 4, 9, 16 or 25 squares in 3 modes: (1) up to 25 of the same image, (2) up to 25 different images, (3) 3-second strobe for automatic capture of up to 25 different images ▪ 80 sec./sheet ▪ Provides outstanding color quality, using 256 gradations of yellow, magenta and cyan to print nearly 16,780,000 different tones ▪ Split Print for cropped, wallet size, "portrait formatted" pictures ▪ Zoom Print for enlargements of any quarter of the video image ▪ Parallel control port (compatible with IFP-232SVP or FPR-250 control systems) ▪ Wireless remote also controls AG-1970/2530 VCRs ▪ RGB, Y/C, composite input memory ▪ Y/C, composite outputs ▪ Memory or E-to-E printing (for the highest possible quality) ▪ Character generator port
- AG-EP60W \$1500.00



AG-EP60W Color Video Printer/ CT-1383YW 13" Diagonal Color Monitor

- Designed with white cabinets for a variety of medical and computer based video applications ▪ AG-EP60W (see detailed description on this page) ▪ CT-1383YW features: ▪ 90° deflection screen ▪ Video in/out: BNC ▪ Automatic 75 ohm termination
 - S-Video in/out (4-pin) ▪ RCA phono input/output ▪ 1.5W 2.5" speaker, front panel ▪ Auto on ▪ Line 1/2/3/S-Video, switchable ▪ 420 lines horizontal resolution ▪ Comb filter ▪ Headphone jack ▪ On-screen display for adjustment of sharpness, brightness, picture, color and tint
- AG-EP60W Color video printer \$1500.00
CT-1383YW 13" diagonal color monitor 390.00



AG-EP80 Color Video Printer

- Ideal for medical, dental, educational and public facility operations
 - 256 gradations of yellow, magenta and cyan to print nearly 16,700,000 different tones ▪ 14-point fuzzy field interpolation ▪ 70-step gradation compensation ▪ Twin DSP processor reduces color noise with CNR circuitry ▪ High-precision thermal head helps minimize irregular image density ▪ Wide range of print modes: multi-picture print divides into 4, 9, 16 or 25 squares with a different image in each square; divided print also divides prints of the same image with 4, 9, 16 or 25 squares; strobe print with 4, 9, 16 or 25 squares with switching between set strobe speed and variable strobe speed in the swing mode; card-sized print divides print down the center for 2 card-sized prints of different images ▪ Size specification prints can be selected between 40 x 30, 30 x 24 and 50 x 50mm; dual print; negative/positive reverse print; zoom print 2X enlargement vertically and horizontally; 8-color choice title input
 - 60 sec. print time ▪ Wireless remote control for all operations
 - Remote also controls AG-1970/2530 ▪ System expandability through plentiful video input and output terminals, for composite and S-Video, and one input for RGB
- AG-EP80 \$2100.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEO DISC RECORDERS



Panasonic
Office Automation **OA**



LQ-4000/4002 Rewritable VideoDisc Recorder/Players

- Rewritable 1 million times or more
- Stereo/2-channel audio recording/playback capability
- Fast 0.7 second access time
- Automatic recording power setting function sets recording power level at the beginning of a recording session, then automatically makes adjustments using a heat sensor and microcomputer to maintain optimal power for the disc's thermal characteristics
- Load/eject position is fixed to control cartridge movement for robot auto changer applications
- Ext/int video switching function enables "through" output of composite video and audio input during playback
- On-screen setup menus
- 400 lines horizontal resolution
- On-line resume function returns the unit automatically to the on-line mode when the power is turned on
- Switching between disc address display and time format display is possible
- Built-in cleaning function automatically cleans the optical head's objective lens during disc loading
- Genlock switch lets you select your sync source to match the actual hookup
- Disc ID number write/read capability simplifies disc management
- Deck ID number assignment for multi-deck installations

Multiple Source Handling and High Quality Dubbing

- Wide range of input/output facilities provided. These cover all major signal formats, including composite video, analog RGB, S-Video and Y/R-Y/B-Y component video
- Besides unbalanced RCA phono inputs/outputs for audio, balanced audio XLR 3-pin jacks provided to minimize degradation in sound quality
- To maintain optimum signal quality during disc duplication there are special dubbing in/out terminals which separately transfer the video in its component format. LQ-4000 also outputs all signal formats simultaneously, regardless of the recording mode

Choice of 2 Recording Modes

- 2 recording modes available
- Protective mode detects unrecorded space on a disc and prevents erasure of recorded areas
- Another mode allows erasure of a specified section on a disc before returning to a record-ready condition

LM-A400 Rewritable Single-Sided Disc Cartridge (Included With LQ-4000)

- Maximum motion capacity of 30 minutes or 54,000 still picture recording capacity in the normal mode
- Any combination of still images and motion can be mixed on a disc
- Polycarbonate disc substrate helps assure both durability and high image quality

LQ-RC400 Full-Function Wired Remote Control (Included With LQ-4000)

- For extra convenience, this wired remote control gives you fingertip control over a total of 34 functions including on-screen setup, recording and playback

LQ-4000 Recorder/player

LQ-4002 Player only version of LQ-4000

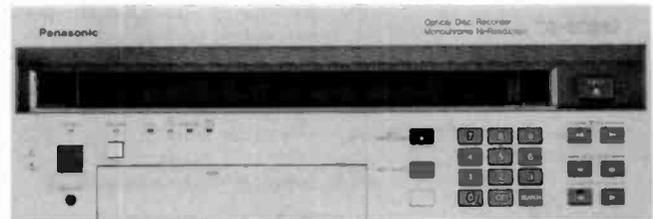
LQ-3031T/3032T VideoDisc Recorder/Players (WORM)

- Digital Y/C separation
- Analog RGB/video (NTSC composite)/S-Video input/output
- Either normal or high resolution record/playback in any record/playback mode
- 450 lines horizontal resolution in high resolution mode
- 400 lines horizontal resolution (maximum value) in normal mode
- 45dB chroma S/N
- 12" disc allows up to 54,000 frames per side (normal mode) and 36,000 frames per side (high resolution mode)
- Equipped with enhanced version of the RS-232 interface card (LV-R0011T)
- Interface card has 3 additional I/O port pins which control freeze frame and single field advance capability of time base correctors (Hotronics: AP41-SP-PAN; Feral Systems: 422-PAN)
- Remote control (option) and on-line control over multiple functions: replacement picture management, disc ID, self-booting, default setting, deck number assignment, user area partitioning, interface card slot and ROM application support

LQ-3031T Recorder/player
LQ-3032T Player only version of LQ-3031T

Upgrades for LQ-3031F/3032F

- Existing LQ-3031F and LQ-3032F units can be upgraded to the "T" version by purchasing an LV-R0011T interface card and changing the deck controller EPROM in the recorder/player or player only unit



TQ-3038F/3039F High Resolution Monochrome VideoDisc Recorder/Players

- 12" disc
- Playback and recording of 36,000 still pictures or 20 minutes of motion
- Record any type of black and white image data on an optical disk from a standard video camera or VCR
- Over 600 lines resolution
- High band 9.7MHz
- 1-piece lens
- Tilt/servo system for accurate tracking
- Genlock
- 0.7 second data access time
- High-speed scan (50X normal), variable fast forward (1-10X normal), variable automatic frame (1-256 second intervals) and variable slow motion (1/2-1/56 normal), all modes either direction
- On-screen display
- External computer control capability
- External control I/O port
- Dubbing function
- On-screen setup menus
- Disc ID number writing
- Deck ID numbers
- Alternate picture management (required optional remote control unit or computer control)
- Free recording area detection and allocation
- Automatic recording mode switch off
- 8K byte RAM to memorize programs created by an external computer
- User area partitioning
- Captioning
- Interval recording

TQ-3038F Recorder/player

TQ-3039F Player only version of TQ-3038F

Blank Media/Accessories for Optical Video Drives

TQ-FH224 8" single-sided disc

TQ-RC330 Multi-Function Wired Remote Control Unit

31 functions, 3VDC (2 AAA batteries)

TQ-FH331 Single-Sided Disc Cartridge

54,000 still frames, or 30 minutes of motion

TQ-FH332 Double-Sided Disc Cartridge

108,000 still frames, or 1 hour of motion

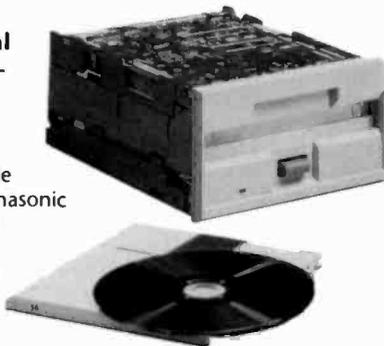
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





**LF-5010/LF-5014
5¼" WORM Optical
Disk Drives Single-
Sided 470M Byte,
Double-Sided
940M Byte**



- On a compact removable double-sided 5¼" disk, Panasonic WORM optical disk drives can contain up to 940M bytes
- Average seek time 90ms
- Maximum sustained data transfer rate 655K byte/sec.
- between device and host
- Each medium (470M byte/940M byte) has a rated life of more than 10 years for data storage integrity
- Drive designed and manufactured to precisely meet media characteristics, and has MTBF of 20,000 hours
- Read/write compatibility with 470M byte and 940M byte medium
- Optical disk drive easily integrated as a computer peripheral because the SCSI-2 controller is embedded within 5¼" drive form factor

LF-5010 External LF-5014 Internal

LF-5300A 5¼" WORM Optical Disk Drive

- The LF-5300A is the answer when you require data reliability as well as data storage capacity on a write once, read many optical disk media
- Ideal for backup/archival, CAD/CAM and image storage
- Average seek time: 0.045 sec.
- User data transfer rate: 1.4M byte/sec. (avg.) (between device/host)
- Large capacity: 1.4G byte
- High reliability and data security using phase change media
- SCSI interface
- MS-DOS, OS/2, Macintosh, Novell, Unix compatible
- Uses LM-W1400A/D501/D501W media cartridges
- Auto lens cleaning mechanism

LF-7010/LF-7014A 5¼" Direct Overwrite Multi-Function Optical Disk Drives



- Single drive offering both WORM and rewrite
- 1G byte capacity per disc
- Compatible with LF-5010, making it suitable for archival storage
- 90ms average seek time
- SCSI-2 interface
- 20,000 hours MTBF
- MS-DOS, Macintosh, OS/2, UNIX compatible

LF-7010 External LF-7014A Internal

LF-7300A/LF-7304A 5¼" Multi-Function Optical Disk Drives

- A single drive solution for both rewritable and WORM applications
- Panasonic's phase change technology provides low cost storage for many data, imaging and CAD/CAM applications
- Average seek time: 0.045 sec.
- User data transfer rate: 1.52M byte/sec. (between device/host)
- Large capacity: up to 1.5G byte
- High reliability and

- data security using phase change media
- MS-DOS, OS/2, Macintosh, Novell, Unix compatible
- Single drive offering both WORM and rewritable applications
- Users LM-500/W1400/D501/D501W/D702/D702W media cartridges
- SCSI interface
- Auto lens cleaning mechanism

LF-7300A External LF-7304A Internal

LF-J7350A 5¼" Multi-Function Optical Disk Autochanger

- Panasonic has taken the same multi-function capability (phase change technology) used in the LF-7300A and incorporated it into the LF-J7350A
- Unlimited storage and the ability to meet the needs of both rewritable and WORM applications
- Satisfies the demands of many mass storage requirements
- Random access
- SCSI interface (up to 2 autochangers per interface)
- Capacity: 75G byte (50 disks)
- Number of drives: 2
- Average disk exchange time: 4 seconds (1 way)
- SCSI ID: 3 targets (Drive A, Drive B, Robot)

LF-J7324A/LF-J7328A 5¼" Multi-Function Optical Disk Autochangers

Common Features

- 1.5G byte multi-function drive
- Low profile with high capacity
- Multi-function capability (phase change technology)
- Compatible with WORM and rewritable media
- SCSI-2
- Average disk exchange time: (LF-J7324A) 3 seconds (1 way); (LF-J7328A) 3 seconds (1 way)

LF-J7324A Includes common features plus:

- 36G bytes (24 disks)
- 2 drives
- SCSI ID: 3 targets (Drive A, B and Robot)

LF-J7328A Includes common features plus:

- 42G bytes (28 disks)
- 1 drive
- SCSI ID: 2 targets (Drive A, Robot)

Interface Kits for Optical Disk Drives

LF-S008AT 8 bit PC/AT Bus Interface Kit with DOS, OS/2, Windows support for LF-5000/5300A/7000/7300A series

LF-S008MC 16-bit Micro Channel Interface Kit with DOS, OS/2, Windows support for all LF-5000/5300A/7300A series

LF-S016AT 16-bit PC/AT Bus Master Interface Kit with Novell Netware 386, DOS, OS/2, Windows support for all LF-5000/5300A/7300A series

LF-S-MAC Apple Macintosh Interface Kit with System 7 support for all LF-5010/5300A/7010/7300A

Blank Media for Optical Disk Drives—WORM

LM-D500 200M bytes single-sided, for LF-5010/5014

LM-D500W 400M bytes double-sided, for LF-5010/5014

LM-D501 470M bytes single-sided, for LF-5010/5014/7010/7014A

LM-D501W 940M bytes double-sided, for LF-5010/5014/7010/7014A

LM-W1400 1.4G bytes double-sided, for LF-5300A/7300A/7304A/J7350A/J7328A/J7324A

Blank Media for Optical Disk Drives—Rewritable

LM-D702 500M bytes single-sided cartridge for LF-7010/7014

LM-D702W 1G byte double-sided cartridge for LF-7010/7014A

LM-R1500 1.5G byte double-sided cartridge for LF-7300A/7304A/J7350A/J7328A/J7324A

Cleaning Kit for Optical Disk Drives and Media

LF-K006 Media cleaning cartridge for LM-D500, LM-W1400 and LM-R1500 series disks

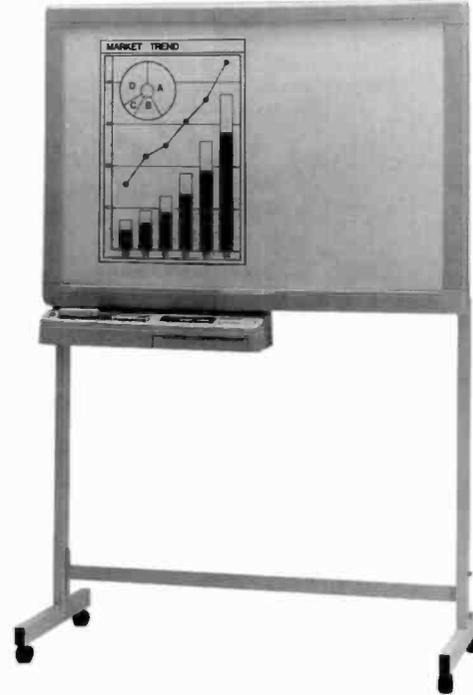
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ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

ELECTRONIC COPY BOARDS



Panasonic
Office Automation **OA**



Panaboard KX-B520 Electronic Print Board

- Easy to use
- Wall mount
- Simple operation
- Transportable
- Touch of a button control—you get a copy by simply touching a button

Configuration: Wall mount
Panel Size: 36"H x 55"W
Copying Area: 33"H x 52"W
Number of Panels: 2
Copy System: CCD image sensor, thermal printhead
Copy Size: Letter
Copy Speed: Approximately 16 seconds per copy
Optional Accessory: Stand
Dimensions: 49"H x 61"W x 6"D
 74"H x 61"W x 6"D with stand
Weight: 51 lbs. (73 lbs. with stand)

The KX-B520 makes a letter size copy of anything written or taped on it. It enhances communications and saves valuable "people time." The KX-B520 fits into any office environment, can be mounted on a conference room wall or rolled from room to room on an optional stand equipped with casters.

Panaboard KX-B410 Electronic Print Board

- Simple operation
- Wall mount or optional stand
- 2 writing surfaces
- Lightweight
- Easy to transport

Configuration: Wall mount
Panel Size: 32.2"H x 46"W
Copying Area: 27.6"H x 41.3"W
Writing Surfaces: 2
Copy System: CCD image sensor, thermal printhead
Copy Size: Letter
Copy Speed: Approximately 18 seconds per copy
Dimensions: 68.9"H x 46.1"W x 5.9"D with stand;
 36.4"H x 46.1"W x 5.9"D wall mounted
Weight: 54.5 lbs. with stand, 37.5 lbs. without stand

The Panaboard KX-B410 is smaller and lighter weight in design, but certainly not in versatility. With only the touch of a button, the Panaboard KX-B410 can copy anything that is written, drawn or even taped to it. It can be wall mounted or used with its optional stand, so it's ideal for any office environment.

Panaboard Accessories/Supplies

FM-30 Thermal paper for KX-B410—8½" x 98' roll
FM-100 Thermal paper for KX-B520—8½" x 328' roll
KX-B06C-A Mobile stand with locking casters

Call For Pricing

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





CD INTERACTIVE PLAYERS/MONITOR/RECEIVER

CDI200BK Consumer CD-i Player

- Infrared remote ▪ Video and RF output ▪ 2 I/O ports ▪ Upgradable to digital video ▪ Operates with remote control, mouse, trackerball or roller controller ▪ Plays CD-i, photo CD and CD-audio . . . \$499.00



CDI220BK Consumer CD-i Interactive Player

- Multi-standard TV/RGB, Y/C, CVBS or PAL/NTSC ▪ Digital video and audio processing ▪ Includes infrared joystick remote ▪ Compatible with: CD-i discs; CD audio discs; CD+Graphics (DC+G) discs; photo CD discs ▪ Full motion, full screen video (FMV) ready (easy upgradable by a plug-in module) ▪ Over 100 software developers ▪ (1-bit 256X oversampling D/A conversion \$599.00



CDI602NK Professional CD-i Player

- Built-in 3½" floppy disk drive ▪ Digital video and audio processing ▪ Multi-standard TV/RGB, Y/C, CVBS or PAL/NTSC ▪ 4 serial ports ▪ Expansion slots ▪ Includes mouse ▪ Caddy loading ▪ 1M byte RAM, 8K bytes nonvolatile RAM ▪ Will play CD-i, CD photo, CD-DA and CD ROM XA discs \$995.00

CDI310BK/CDI310DV Portable CD-i Players

- 3.5" floppy disk drive for auxiliary software support in professional applications ▪ Plays all CD-i, CD-DA and Photo CD ▪ Ideal stand-alone system for individual, person-to-person and small group activities ▪ Connects to any TV set or monitor to form a high performance CD-i system for presentations ▪ Interfaces to remote controller, pointing devices and Hi-Fi stereo systems ▪ On-screen display ▪ AC power or optional battery \$1695.00

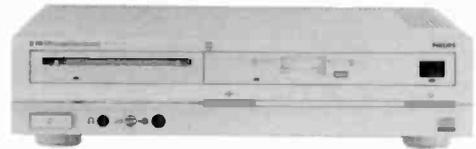
CDI310DV CDI310BK pre-configured with docking station and digital video cartridge. Includes Worlds of Opportunity FMV disc 2195.00

CDI350BK/CDI350DV Professional Portable CD-i Players

- 6" color LCD screen ▪ Digital video and audio processing ▪ Built-in stereo speakers ▪ Serial I/O port ▪ Multi-standard TV/RGB, Y/C, CVBS or PAL/NTSC ▪ Upgradable to full motion video ▪ Built-in pointing device ▪ Will play CD-i, CD photo, CD-DA and CD ROM XA discs . . . \$2195.00



CDI350DV CDI350BK pre-configured with docking station and digital video cartridge. Includes Worlds of Opportunity FMV disc 2750.00



CDI605TK Professional CD-i Development Player

- 3½" floppy disk drive ▪ 5M byte RAM dynamically adjustable ▪ 2 RS-232 ports, 2 I/O ports, SCSI, Ethernet, parallel ports ▪ Upgradable to DV ▪ Tray loading system \$3750.00



PA3520TS 20" Professional Touch Screen Color Monitor/Receiver

- Programmable to automatically tune to up to 5 events per day ▪ Programmable min./max. volume range ▪ Programmable power lock by event ▪ Locked and unlocked event modes ▪ Full access control mode ▪ MTS stereo decoder and dbx noise reduction ▪ Non-volatile clock ▪ FS tuning with 178-channel capability ▪ Audio/video patch panel includes: audio input/output (loop), composite video input/output (BNC/loop), S-Video input/output (loop), RF input ▪ 10', 3-prong AC plug ▪ Simple hook-up to front or rear I/O connector of a CD-i player TBA*

*To Be Announced

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MEDIA PRINTER



PINNACLE

SYSTEMS
Desktop Products Group



Alladin Media Printer

Alladin is Pinnacle's first entry into the professional desktop video market. It is an open architecture system integrating a 7-input digital switcher (4 primary inputs, 2 full bandwidth frame buffers and black), a fully programmable 3-D DVE. Alladin bundles a graphics software package for Paint, Character Generation, 3-D Modeling and Animation.

The open architecture of Alladin lets users customize the product to meet their specific needs. Alladin is windows based and works beside virtually any 486 based PC. A GVG110 serial interface enables Alladin to work with almost any editing system—both linear and nonlinear. Alladin uses a BMP format for locally created graphics and is compatible with the windows clipboard format. Alladin will also read TGA, TIFF, BMP, JPEG and many more files.

Alladin produces uncompromised video performance by using 4:2:2:4 internal processing and sub-pixel motion for perfectly smooth transitions and DVE effects. It is compatible with NTSC Y/C and analog component inputs and outputs. Alladin also processes a full bandwidth (8-bit) key channel allowing users to manipulate key signals and apply variable levels of transparency to video elements.

- Complete videographics production tool
- Operates with any IBM compatible 486DX PC

3-D Digital Effects

- Rotation and perspective, size and place
- Real time curvilinear effects including page turn and splash
- Dynamic highlights and shading
- Over 100 pre-created effects
- Variable borders with complex textures
- Variable drop shadow with independent position and opacity
- Montage paste buffer
- Trail and sparkle effects
- Image defocus

Production Switcher

- 7 input mixer
- Composite or Y/C I/O
- 2 background buses plus 2 DVE buses
- Luminance and chrominance keying

Component Digital Still Store

- Uses PC hard drive to store field or frame images
- Also stores full bandwidth key (alpha) information
- Uses unique PICONs to display stored images

Electronic Paint

- Wide range of brushes
- Geometric shape creation with automatic fill capability
- Contrast, negative, mosaic, deflicker and noise reduction
- Hardware assisted zoom
- Size, position and rotation of cut outs
- Variable key opacity

Bundled Inscribe CG Character Generator

- Includes 12 fonts
- Reads TrueType and Adobe PostScript type faces
- Positionable borders and drop shadows
- Variable text, border and shadow opacity
- Size and position text
- Sub-pixel rolls

Bundled Crystal Graphics Topas Professional

- 3-D modeling and animation package
- Wide range of 2-D and 3-D polygon and spline modeling tools
- Bump, reflection, transparency, mask, shininess and environment mapping tools
- Positionable light sources
- Omni, spot, distance and ambient lights
- Variable dynamic camera positions

Alladin Media Printer (Composite/Y/C) \$9,990.00

Alladin Media Printer (Component/RGB Version)

Same as Alladin Media Printer except: Component in lieu of composite Y/C input/output module \$11,480.00

Analog Component Input and Output Module (Field Upgrade)

- Provides 4 analog component inputs
- Selectable RGB and Y, R-Y, B-Y input formats
- Provides RGB and Y, R-Y, B-Y output formats. \$2,490.00

SCSI Card and Cable

- Used to connect between the PC and Alladin chassis
- Includes interconnect SCSI cable (6') \$290.00

Alladin PC

- Fully configured to work alongside Alladin
- 486/66MHz processor
- 300M byte hard drive
- 24M bytes RAM
- VGA card
- 14" VGA monitor
- Microsoft mouse
- Microsoft Windows 3.1 \$3,990.00

Note: Includes SCSI card and cable option above

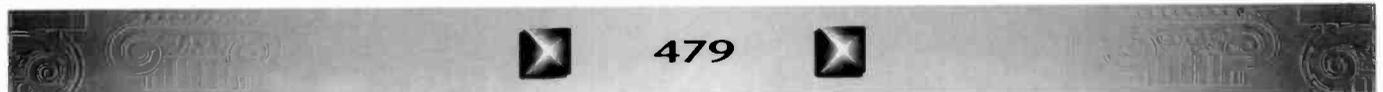
Cordless Pressure Sensitive Pen and Tablet

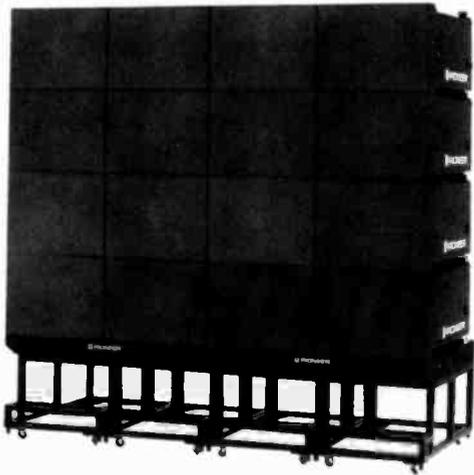
- Used in conjunction with paint package
- Includes interconnect cables \$390.00

Crystal Graphics Topas Professional Network Renderer Software

- Provides network rendering capability for animations created on Alladin. \$990.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





**RM-V2000A 40"
Multi-Projection CUBE System**

- Flat, non-reflective screens
- Units can be stacked vertically to any height to create a near-seamless image
- Wider viewing angles: 150° horizontal and 60° vertical
- 800 lines horizontal resolution
- 600 fL
- Auto white balance
- Dynamic black level correction circuit
- Liquid-cooled optical coupling
- Adjustments can be made by remote control from in front of the CUBEs as well as by personal computer when connected through the RS-232C interface terminal
- On-screen display makes adjustments easy and precise
- When the CUBE system is used in a TV studio, the camera broadcast switch enables the operator to select a color temperature setting that matches the lighting level
- Y/C and composite NTSC inputs as well as PAL format signals through the RGB terminal
- Cabinet design made of extruded aluminum
- Easy installation—stack up the units and plug in the cables
- Optional RMD-2040 Multi-Video Processor offers a wide range of effects \$9,995.00

**RM-V8000 80"
Multi-Projection
CUBE System**

- A mirror reflection type projection system containing 4 projectors
- Self-contained 2 x 2 projection CUBE system
- Compact and easy to install and operate
- Built-in video processing electronics and an audio system
- 800 lines horizontal resolution
- 600 fL
- 30W Amp
- 30W speaker
- RCA input
- The system can be controlled through a personal computer with RS-232C, D-sub 25-pin or with a wireless remote control
- 4-screen multi-display capability: simultaneously you can output all 4 video input systems on adjoining single screens, or any 2 inputs by displaying 1 title on one of the screens and the second on the remaining 3 screens. \$49,995.00



RMD-2040 Multi-Video Processor

- Basic function is to accept a signal from a video source and enlarge the image for projection on as many as 16 screens
- It is also capable of accepting 4 different signals and projecting them on 16 screens in any desired configuration
- No degradation of picture quality
- Matrix expansion ratio is variable from 1 to 8X in both vertical and horizontal directions
- All 4 image sources can be enlarged simultaneously
- Still picture/strobe effect can be projected on both single and multiple screens
- 8 color wash signals
- Automatic Program Mode
- Authoring system
- RS-232C terminal
- 8 signals for adjustment purposes
- 1 processor can handle 16 screens
- A number of processors can be connected together to expand up to 64 CUBEs or to manipulate displays as large as 12 x 12 screens POR*

**CAC-V180M 18
Disc CD
Autochanger**

- Commercial quality
- Suitable for wide range of applications from background music to post production studios to retail locations
- Built-in RS-232C interface connector
- Program to automatically locate, load and play up to 18 CDs
- Convenient 6-pack magazines let you categorize your CD library
- 3 sec. or less (1-16 track) access time
- 5 sec. or less loading time
- 90dB or more dynamic range
- 4-20kHz frequency response
- 100dB or less S/N
- Standard 5" CD \$780.00



CAC-V3200 300 Disc CD Autochanger

- Holds 300 CDs with capabilities of connecting up to 49 units together, giving you instant access to 14,700 CDs
- Dual players for non-stop play
- Dimensions: 23 1/4"H x 14 3/8"W x 14 3/8"D
- RS-232C and RS-422A interfaces
- RCA and XLR jacks for independent analog stereo signals
- Digital outputs are available from each CD player on RCA pin-jack, unbalanced connectors
- With digital attenuation you can adjust the analog output from 0-84dB, maintaining the same signal level regardless of CD recording levels
- You can fade in and out between songs for smooth transitions
- ± 10% pitch control
- Discs are arranged in 2 vertical racks (left and right) having 150 slots each
- At the bottom are 2 CD players
- The disc elevator operates up and down in front of the 2 racks of discs
- 4 vertically arranged pushbuttons are used to select and enter disc address numbers for disc loading
- Dip switch is provided for installing and exchanging discs
- 3-digital LED indicator shows the presently selected disc number—can also be keyed to indicate cumulative plays
- All connector terminals are located at the rear of the unit, while the disc elevator and circuitry are fully accessible from the front
- Standard 5" CDs
- 16-bit linear
- 44.1kHz sampling frequency
- 1 bit DAC
- 19 sec. or less disc change time
- 3 sec. or less access time
- 4800/9600 bps \$6,000.00

*Price On Request

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

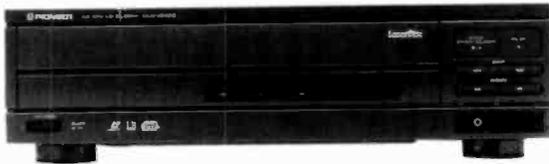
LASERDISC PLAYERS/ BARCODE READERS



CLD-V2600 Level I, II, III CAV/CLV LaserDisc Player

- Capable of playing 5 kinds of discs: 8" and 12" laserdiscs, 3" and 5" CD discs, 5" CDV disc
- RS-232C interface for computer control
- Built-in LaserBarcode, LaserBarcode2 and CD Barcode capability
- Built-in RF modulator
- Front panel shuttle dial for scanning at 9X or 32X speeds (forward and reverse)
- Headphone jack with volume control
- Bright fluoro-luminescent front panel display
- Text overlay up to 12 lines, 20 characters (upper and lower case)
- Auto start and auto repeat allow "Set and Forget" operation
- 4 audio channels: 2 digital, 2 analog for multiple language applications
- Multi-speed playback
- Grounded 3-prong cord
- Automatic lock-down
- Clear Scan™ capability on CLV discs
- 4 1/15"H x 16 7/16"W x 15 7/16"D
- Weight: 17 lbs.

Supplied Accessories: CU-V113 Wireless remote control with enlarged keypad, video cable, audio cable (stereo), RF antenna cable \$995.00



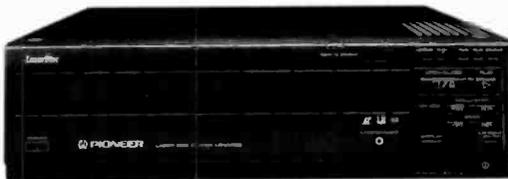
CLD-V2400 Level I, III CAV/CLV LaserDisc Player

- Plays a variety of formats, including: Videodiscs, CD audio discs (3" and 5") and CD-Video discs
- Built-in LaserBarcode and CD Barcode capability
- RS-232C port for Level III computer control of videodiscs and CD audio discs
- 4 audio channels: 2 digital or 2 analog
- Auto start and auto repeat allow "set and forget" operation
- Text display: 10 lines x 20 characters
- Multi-speed playback
- Supplied RF modulator or separate audio and video output allows for connection with any television set or video monitor
- Responds to same command language as the LD-V2200 and LD-V4400
- Grounded 3-prong power cord
- Automatic lock-down

Supplied Accessories: CU-V113 Wireless remote control with enlarged keypad; RF Modulator \$975.00

LD-V8000 Level I, II, III, CAV/CLV LaserDisc Player

- Digital video memory for seamless search without image loss
- Ultra-rapid search speed, 0.5 sec. maximum
- 4 audio channels including 2 digital audio channels
- Still picture with random access audio
- LaserBarcode compatible
- Program dump capability for level II operation in CAV and CLV
- Text overlay: 12-line, 20-character (upper and lower case)
- RS-232C interface to enable computer control
- External sync capability
- Automatic power on start/disc load start/repeat play
- Automatic lock-down
- Multi-speed playback, 255 increments
- E-Z mnemonic computer control \$2595.00



LD-V4400 Level I, III, CAV/CLV LaserDisc Player

- Rapid search speed, 1.0 sec. average (CAV)
- Fully compatible with LD-V4200
- E-Z mnemonic computer control
- 4-channel audio (2 digital, 2 analog)
- External sync capability with loopthrough
- Built-in LaserBarcode compatibility
- Fully automatic disc loading
- Automatic lock-down
- Text overlay: 12-line, 20-character (upper and lower case)
- Wireless/wired remote control capability
- LD-ROM decoding capability (optional Pioneer circuit board required)
- RS-232C interface to enable computer control \$1495.00

LC-V330 Level III AutoChanger System

- 72-disc capability/plays both sides of a disc
- Sturdy metal cabinet with easy front panel access
- 25 sec. maximum access time, 3 sec. within the same disc
- Blinkless search within 100 frames
- Text overlay: 8-line, 20-character (upper case), can display information while discs are changing
- RS-232C interface to enable computer control
- E-Z mnemonic computer control
- Automatic lock-down

Supplied Accessory: LDA-V105 1 set of six 12" trays \$9995.00

DA-V1000 LD-ROM Adaptor

- Combines the advantages of LaserDisc and CD-ROM technologies on 1 disc
- Installs between a host computer and a Pioneer LD-V4200, LD-V6000A, LD-V6010A or LD-V8000 LaserDisc player with EFM output
- Built-in RS-232C and SCSI interfaces
- Conforms to both LaserDisc specifications and CD-ROM formats (such as ISO-9660)
- LD-ROM format includes separate tracks for analog video, analog audio and digital data
- Data area may be used to store computer programs, text, graphics, PCM compressed audio, CD-DA audio, etc.
- Works with Apple Macintosh, IBM and compatible personal computers \$495.00

Remote Control Units

RU-V101 Wired remote control for LD-V4200 \$75.00

RU-V103 Wireless remote control with membrane-style, enlarged keypad for LD-V2000, LD-V2200, LD-V4400 and LD-V8000 80.00

RU-V6000T Wired and wireless remote control for LD-V6000A, LD-V6010A and LD-V8000 80.00

UC-V109BC Barcode Reader

- Handheld, pen-shaped barcode reader
- Improved scanability for easier use
- Built-in remote commands: play, pause, scan forward and reverse, step forward and reverse, chapter/track skip forward and reverse
- Wired or wireless operation (up to 25')
- Works with CLD-V2400, LD-V2200, LD-V4400 and LD-V8000 \$160.00

UC-V108BC Automatic Scanning Barcode Reader

- Unique automatic barcode scanning feature ensures a successful scan every time
- Built-in remote control features: play, pause, still, frame advance and reverse, chapter skip/track skip, audio selection and display
- Wired or wireless operation (25' radius)
- Reads LaserBarcodes and CD Barcodes
- Works with CLD-V2400, LD-V2200, LD-V4400 and LD-V8000 \$295.00

LBC-DOS3 LaserDisc Controller Version 3.0

MS-DOS Barcode Preparation Software

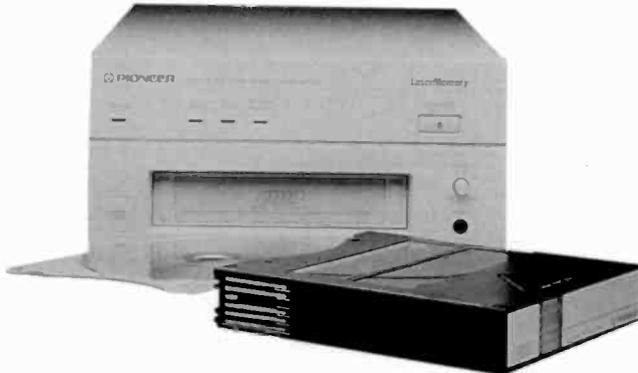
- Barcode generating software for MS-DOS compatible computers
- Requires MS-DOS version 3.1 or higher
- Prints on any Epson, IBM or Hewlett-Packard compatible printers
- Easy-to-use Point 'n' Shoot style menus
- Includes LaserBarcode 2 and CD Barcode commands . . . \$125.00
- LBC-WINI Barcode making software for Windows 125.00

LBC-NC3 Bar 'n' Coder Version 3.0

Macintosh Hypercard Barcode Preparation Software

- Creates LaserBarcodes and CD Barcodes
- Extremely versatile—barcodes can easily be imported to other documents and files
- Separate Hypercard "file stacks" can be created for specific CDs and videodiscs
- Can be used with any printer capable of producing computer graphics, such as Imagewriter or LaserWriter \$95.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DRM-602X CD-ROM Minichanger

- **6-Disc Capacity:** Load up to 4G bytes of data, providing access to a wide combination of applications, databases and virtual drives
- **Block Size Selection:** The DRM-602X allows the workstation user to select a block size of either 2048 or 512K bytes to meet the demands of the application
- **Fast Data Access:** The drive's 300ms access time and 307K bytes/sec. sustained transfer rate are assisted by a generous 256K byte data buffer; 4M bytes/sec. burst
- **Standard Disc Formats:** Supports CD-ROM standards including ISO 9660, High Sierra, CD-ROM XA (Mode 2, Form 1 and 2) and Multisession Photo CD. Also supports CD audio discs
- **SCSI:** The Minichanger supports the SCSI-2 command set. Once mounted, each disc appears as a virtual drive
- **Full Multimedia Support:** Fully supports audio and Multisession Photo CD
- **Media Type:** CD-ROM, CD-Audio
- **MTBF:** 20,000 hours
- **Platforms:** DOS, Macintosh, OS/2, MS Windows, DEC VMS and Sun UNIX
- **Applications:** Interactive multimedia software and data, Multisession Photo CD and graphics and large multidisc databases

DRM-602X \$1095.00

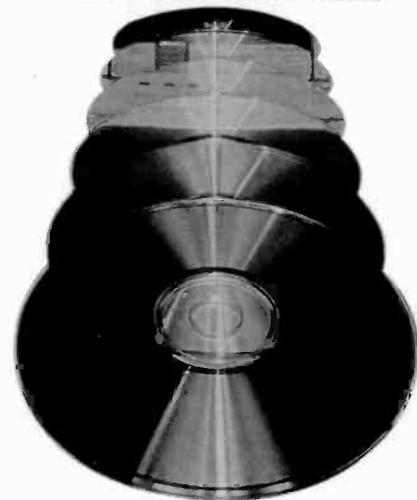


DRM-1804X 18-Disc CD-ROM Minichanger

- Simultaneously accommodates 3 separate 6-disc magazines to enable high-speed changing between as many as 18 discs
- Features Pioneer's QUADRASPIN™ technology to achieve the world's highest sustained data transfer rate—614K bytes/sec.
- **Media Type:** CD-

- ROM, CD-Audio XA (Mode 2, Form 1 and 2)
- **Media Diameter:** 120mm
- **Interface:** SCSI, SCSI-2
- **Block Size:** 2048/512 byte (selectable)
- **Data Transfer Rate:** 614/153.4K bytes/sec.; 4.2M bytes/sec. (burst)
- **Access Time:** 300ms
- **Frequency Response:** 4-20,000Hz ±2dB
- **Total Harmonic Distortion:** 0.1% (max.)
- **Output Voltage:** 1.7 RMS (line out) ±0.5V (10K ohms)

DRM-1804X \$2495.00



**DRM-604X High Speed
CD-ROM Minichanger**

- **Media type:** CD-ROM disk/CD audio disk
- **Disk rotates 4X normal speed for 600K bytes/sec. data transfer rate**
- **300ms access time**
- **128K byte buffer for demanding multimedia applications**
- **2.4M bytes/sec. transfer speed for high performance workstations**
- **Disks switch automatically**
- **Conforms to wide variety of CD-ROM standards**
- **Highly efficient dust protection**
- **6-disc changer**
- **100V-240V power supply**
- **Multisession applicable**
- **MPC applicable**
- **SCSI interface with terminator included in drive**
- **Features for audio:** RCA jack, headphone jack and volume control

DRM-604X \$1495.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SCANNER/FILM RECORDERS/LCD PANEL



Polaroid



CS-500i Digital Photo Scanner

- Captures and digitizes 24-bit color photographic images up to 500 dpi in as little as 3 seconds
- CCD sensor technology
- Accepts almost any print image up to 4" x 6"
- High-level onboard image processing algorithms enhance on-the-fly, generating an image of equal or superior quality to the original
- Supports many popular image file formats, allowing user to scan and manipulate images in a range of applications
- Captures either 24-bit color images (up to 16.7 million colors) or 8-bit gray scale (256 shades) at 500, 250 or 125 dpi
- Delivers true 24-bit color at up to 500 dpi
- Capability to sharpen image and adjust colors and tone scales to match original image
- Automatic and end user-adjustable settings provided for most common photographic prints used in business
- SprintScan image manipulation software
- Automatic calibration at 300X per second for uniformity and precision of colors
- Scan times at 4" x 6": 12 seconds at 500 dpi, 6 seconds at 250 dpi, 3 seconds at 125 dpi
- 5"H x 10"W x 18"L ■ 15 lbs.

616906 \$4095.00
 Mac interface kit 200.00
 Windows interface kit with SCSI 400.00
 Mac interface with photoshop 700.00

Digital Palette CI-3000S Desktop Film Recorder

- Turn color graphics from your IBM PC AT, PS/2 or compatible into high-resolution, full-color 35mm slides or prints, simply and inexpensively
- Images will have the look of an expensive, professionally produced presentation—in a fraction of the time and cost
- 35mm slides created have an image resolution of 2048 pixels by 1366 addressable pixels
- Advanced color recording capability provides exceptional color rendition and continuous-tone, shaded backgrounds
- Works with a wide range of graphic formats to give you needed flexibility
- Polaroid's ImagePrint™ software provides compatibility with a variety of popular software packages including Harvard Graphics and Lotus Freelance Graphics
- Virtually any software generating CGM, TIFF or TARGA file formats is compatible. Or, you can use direct drivers in Polaroid's Presentation Express, 35mm Express or Freelance Plus to generate high-quality slides, prints or overheads
- Just plug the CI-3000S into the parallel port of your computer and you're ready to go. No special boards required
- Gives you all the hard copy formats you'll ever need and allows you to image on 18 different types of film, including Polaroid's instant 35mm films and conventionally-processed Polaroid Presentation Chrome
- Optional graphics accessory kit and 3 1/4" x 4 1/4" pack film back
- Includes: CI-3000S color film recorder, 35mm camera unit, parallel cable, power cord, ImagePrint software, 35mm Express driver, Presentation Express driver, Freelance Plus driver and Harvard Graphics 3.0 driver

617864 \$3995.00



Digital Palette CI-5000S Desktop Film Recorder

Same as CI-3000S except:

- For both IBM and Macintosh computers
- Image resolution up to 4000 lines
- Includes: same as CI-3000S components

617866 \$5495.00



DP-2000 Color LCD Projection Panel

- Projects high-quality images generated from PCs, Apple Macintosh computers or video or TV sources directly onto a viewing screen
- Rests on top of virtually any transmissive overhead projector
- Uses active-matrix TFT (thin film transistor) technology to display up to 16.7 million colors
- The system can be operated by handheld remote control or through the computer keyboard
- A "bundled" system including sound capability and other accessories that might otherwise need to be purchased separately
- Advanced cooling system
- Automatic image positioning, highly stable text characters. It is highly responsive with a rapid screen refresh rate, and can easily follow even the most rapid mouse movements
- The number of colors to be displayed is switch-selectable: 512 for maximum sharpness and clarity of basic text and charts; 32,000 for scanned images; and 16.7 million for brilliant, true-to-life color images using Macintosh computers
- The smallest "footprint" of any LCD panel
- Weighs 4.8 lbs. and takes up about the same amount of space as a notebook computer
- Includes carrying case

618131 \$5995.00
 618132 Video adaptor 1195.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





DESKTOP PROJECTORS

Desktop Projector™ 2800

- High-performance
- Multimedia active-matrix LCD projector
- IBM/Macintosh/NTSC/PAL/SECAM compatible
- 2 million brilliant colors
- 640 x 480 resolution
- Integrated video and stereo audio
- Compatible with the Proxima Cyclops 2060

Includes: Projector, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac video terminator, S-Video cable, RCA adaptor, composite audio/video cable, computer audio cable, programmable remote control, dust cover and power cord

DP2800 \$8,995.00



Desktop Projector 2700

- High-performance
- Active-matrix LCD projector
- IBM/Macintosh compatible
- 2 million brilliant colors
- 640 x 480 resolution
- Optional video adaptor (A195) for NTSC/PAL/SECAM video sources
- Compatible with the Proxima Cyclops 2060

Includes: Projector, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac video terminator, programmable remote control, dust cover and power cord

DP2700 \$7,995.00

Desktop Projector 2300

- High quality
- Color-stripe STN LCD projector
- IBM/Macintosh compatible
- 24,389 colors
- 640 x 480 resolution
- Compatible with the Proxima Cyclops 2060

Includes: Projector, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac video terminator, programmable remote control, dust cover and power cord

DP2300 \$4,995.00



Proxima 8300

- Premier
- Active-matrix multi-media LCD projector
- IBM/Macintosh/NTSC/PAL/SECAM compatible
- 16.7 million brilliant colors
- 640 x 480 resolution
- Zoom lens
- Compatible with the Proxima Cyclops 2080

Includes: Projector, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac video terminator, programmable remote control, dust cover and power cord

8300 \$11,495.00

INTERACTIVE POINTER SYSTEMS

Laser Pointer

- Small
- Dual intensity handheld device that controls Cyclops from up to 25' away

A90 \$295.00



Cyclops® 2080

- Provides cordless control of your software and computer
- Easily installed into the Proxima 8300 projector

Includes: Camera eye and wand, DIN 8 to DB9 IBM serial cable, DB9 to DB25 serial cable adaptor, Macintosh ADB interface cable, driver software for Windows 3.0/3.1, OS/2 2.1, Macintosh systems and selected DOS applications

A2080 \$1,195.00

Cyclops 2060

- Provides cordless control of your software and computer
- Easily installed directly into your Desktop projector
- Compatible with all Desktop projectors

Includes: Camera eye and wand, DIN 8 to DB9 IBM serial cable, DB9 to DB25 serial cable adaptor, Macintosh ADB interface cable, driver software for Windows 3.0/3.1, OS/2 2.1, Macintosh systems and selected DOS applications

A2060 \$495.00

Cyclops 2030

- Provides cordless control of your software and computer
- Compatible with all Proxima LCD projection panels

Includes: Camera eye and wand, DIN 8 to DB9 IBM serial cable, DB9 to DB25 serial cable adaptor, Macintosh ADB interface cable, driver software for Windows 3.0/3.1, OS/2 2.1, Macintosh systems and selected DOS applications

A2030 \$495.00

CARRYING CASES

A295 Desktop Projector Hard Case

Accommodates all Desktop Projectors and Cyclops 2060. Can check in as baggage on airplane. Rugged construction ensures optimum protection.

..... \$399.95



A294 Desktop Projector Soft Case

Accommodates all Desktop Projectors and Cyclops 2060. Fits in overhead compartment on airplanes. Premium quality padded inserts and construction.

..... \$189.95

A290 LCD Projection Panel Soft Case

Accommodates all LCD panels and Cyclops. Fits in overhead compartment on airplanes. Premium quality padded inserts and construction

..... \$129.95

A289H LCD Projection Panel Hard Case

Accommodates all LCD panels and Cyclops 2030. Fits in overhead compartment on airplanes. Can also be checked in as baggage

..... \$299.95

A280 Proxima 8300 Projector Hard Case

Accommodates Proxima 8300 and Cyclops 2080. Key lock steel latches ensure protection from opening while in transit. Can be checked in as baggage

..... \$429.95

A279S LCD Projection Panel Deluxe Soft Case

Accommodates all LCD panels and Cyclops 2030. Fits in overhead compartment on airplanes. Premium quality padded inserts and construction

..... \$189.95

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



COMPUTER/OVERHEAD PROJECTION SYSTEMS



PROXIMA



Ovation™ 822

- Premier ▪ 10.4" diagonal screen ▪ Multimedia active-matrix LCD projection panel ▪ IBM/Macintosh/NTSC/PAL/SECAM compatible
- 2 million true colors ▪ 640 x 480 resolution ▪ Integrated video and audio ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac II video terminator, RCA cable, programmable remote control, power supply, power cord and slip cover

A822C \$6995.00

PROJECTION PANELS

MultiMode® II

- Affordable monochrome LCD projection panel ▪ IBM/Macintosh/Apple II/DEC VT220 compatible ▪ Projects up to 16 shades of magenta ▪ 720 x 480 resolution, compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, VGA video terminator, remote control and power supply

A482LT \$1595.00

- Premier monochrome LCD projection panel ▪ Universally compatible with programmable remote control ▪ IBM/Macintosh/Apple II/DEC VT220 compatible ▪ Projects up to 16 shades of magenta ▪ 720 x 480 resolution ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac video Y-cable, VGA video terminator, Mac II video terminator, programmable remote control and power supply

A482SC \$1895.00



Ovation 814

- High performance ▪ 10.4" diagonal screen ▪ Active-matrix LCD projection panel ▪ IBM/Macintosh compatible ▪ 2 million true colors ▪ 640 x 480 resolution ▪ Optional video adaptor (A194) for NTSC/PAL/SECAM video sources ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac II video terminator, programmable remote control, power supply, power cord and slip cover

A814C \$6395.00



Ovation 820

- High performance ▪ 8.4" diagonal screen ▪ Multimedia active-matrix LCD projection panel ▪ IBM/Macintosh/NTSC/PAL/SECAM compatible ▪ 2 million true colors ▪ 640 x 480 resolution
- Integrated video and audio ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac II video terminator, RCA cable, programmable remote control, power supply, power cord and slip cover

A820C \$5695.00

Ovation 810

- Entry level ▪ 8.4" diagonal screen ▪ Active-matrix LCD projection panel ▪ IBM/Macintosh compatible ▪ 2 million true colors ▪ 640 x 480 resolution ▪ Optional video adaptor (A194) for NTSC/PAL/SECAM video sources ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac II video terminator, programmable remote control, power supply, power cord and slip cover

A810C \$4995.00

ColorWorks™ SX

- Entry level ▪ 8.4" diagonal screen ▪ High quality true-color LCD projection panel ▪ IBM/Macintosh compatible ▪ 24,389 true colors ▪ 640 x 480 resolution ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac II video terminator, programmable remote control, power supply and power cord

A502C \$2995.00

ColorWorks

- High quality ▪ 10.4" diagonal screen ▪ True-color LCD projection panel ▪ IBM/Macintosh compatible ▪ 24,389 true colors ▪ 640 x 480 resolution ▪ Compatible with the Proxima Cyclops 2030

Includes: LCD projection panel, VGA video Y-cable, Mac II video Y-cable, VGA video terminator, Mac II video terminator, programmable remote control, power supply and power cord

A522C \$3495.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



COLOR DISPLAYS

PrecisionColor Display/17

- 17" Trinitron® vertically flat, anti-glare, dark glass CRT
- 0.26mm dot-pitch
- 12" x 9" image size
- 29-82kHz horizontal frequency
- 50-150Hz vertical frequency
- Color temperature settings: 9300K, 6500K, 5000K
- Built-in video compatibility eliminates the need for an additional interface card when you connect the PrecisionColor Display/17 to Quadra, Centris and select LC and PowerBook models to achieve 16-bit color at 832 x 624 and 640 x 480 resolution and 1024 x 768 or 1152 x 870 resolution in 8-bit mode
- 2-page resolution
- Dynamic Desktop® software allows you to instantly change display resolution and bit depth without having to reboot or relaunch applications
- PowerSaver software feature that powers display down to less than 30W during inactivity
- Front control panel and tilt-swivel base **\$1499.00**

IntelliColor Display/20

- 20" Trinitron vertically flat, anti-glare, dark glass CRT
- 0.3mm dot pitch
- 15.2" x 11.5" image size
- 9300K and 6500K color temperature control on the display
- IntelliColor software provides 9300K, 6500K and 5000K color temperature control to reflect the lighting in which finished work is viewed
- Automatic synchronization from 30-85kHz horizontal frequencies and from 50-160Hz vertical frequencies
- Built-in video compatibility eliminates the need for an additional interface card with most Quadra and Centris models to achieve 16-bit color at 832 x 624 resolution in 8-bit mode
- For fast 24-bit performance, use PrecisionColor interface to switch resolutions in a matter of seconds
- Multi-user interface makes it easy to change languages (English, Japanese, German, French, Spanish and Italian) quickly
- IntelliColor automatically detects system language and displays user interface in that language
- Bi-directional serial interface allows control of display adjustments through the Mac
- Optional serial cable provides control for other third-party interface cards
- Front control panel and tilt-swivel base **\$3199.00**

PrecisionColor Display/20V

- 20" dynamic-focus anti-glare CRT
- Multi-frequency display supports video timings from 30-68kHz
- Works with Macintosh and PC systems
- Delivers large-screen color in resolutions from 640 x 480 up to 1152 x 870 (for Mac) and 1280 x 1024 (for PC)
- Precision-Color interface card on the Mac allows switching resolutions on the fly without closing applications or rebooting
- Includes Dynamic Desktop™ resolution control for Quadra and Centris computers
- Compatible with most graphics interface cards
- Presents 2 full pages for design, video, spreadsheet and desktop publishing applications
- Plays back multimedia presentations in 8-bit color at 640 x 480 resolutions
- 0.31mm dot pitch
- 15.25 x 11.5 maximum viewing area
- 30-68kHz horizontal scan frequency; 50-90kHz vertical frequency **\$2199.00**

PrecisionColor Pivot

- 15" diagonal, flat square CRT
- 10.63" x 7.87" image size
- SFC anti-glare and anti-static coating
- From 640 x 480 to 1024 x 768 resolution
- 0.28mm dot-trio pitch
- 47-63Hz frequency response
- Generates word processing output such as letters, contracts and memos in the portrait position
- Create spreadsheets, charts, graphs and presentations in the landscape position
- Built-in video compatibility eliminates the need for an additional interface when connecting to Centris, Quadra and certain LC and Performa systems
- Variety of resolutions for full-page views
- Tilt-swivel base . . . **\$999.00**
- NuBus Interface **\$99.00**

PrecisionColor Calibrator

- Displays PANTONE color simulations with unprecedented accuracy when used with applications utilizing the PANTONE Color Toolkit
- User-definable gamma preference and color temperature settings
- Gray scale functionality
- Compatible with a variety of displays including Radius color and gray scale displays, Color Pivot, AppleColor RGB Monitor and selected RasterOps, SuperMac, Sony Trinitron and Hitachi displays **\$599.00**

MONOCHROME DISPLAYS

Pivot Display

- 15" diagonal CRT
- Anti-reflective etch with anti-static treatment
- 8.2" x 11.0" image size
- Portrait and landscape positions
- 78 dpi
- 640 x 870 pixels (portrait), 870 x 640 pixels (landscape)
- Full page resolution
- Compatible with built-in video for Centris, Quadra, LC III, IIsi, IIsx and some PowerBook models, eliminating the need for an interface card
- Color pivot interfaces allow monochrome Pivot to display 256 levels of gray
- Dynamic Desktop software automatically reorganizes desktop after a change in orientation **\$699.00**
- NuBus Interface **\$99.00**

2-Page Displays 20gs/21gs

- 20" or 21" diagonal CRTs
- 1152 x 870 pixels resolution
- 68kHz horizontal frequency
- 75Hz vertical frequency
- 20" ideal for business tasks such as 2-page layouts, sophisticated spreadsheets, word processing or electronic mail
- 21" ideal for desktop publishing applications like graphic design and illustrations
- Compatible with Mac II, Centris and Quadra products
- Expansive screen area
- Arrange several windows simultaneously for fast, easy and flexible access to ongoing tasks
- Deliver up to 256 levels of gray when used with Centris, Quadra or Mac II (NuBus) systems
- 2-Page Display/20gs 20", 82 dpi, 14.1" x 10.8" image size. . . **\$ 999.00**
- 2-Page Display/21gs 21", 74 dpi, 15.5" x 11.7" image size . . **1199.00**

Full Page Display/gs

- 15" portrait CRT
- PC 104 phosphor type
- 8.15" x 11" image size
- 640 x 870 pixel resolution in 8-bit mode
- 78 dpi pixel density
- 68.85kHz horizontal frequency
- 75Hz vertical frequency
- Built-in video compatibility eliminates the need for an additional interface when connecting to Quadra, Centris and select LC and PowerBook models
- PowerSaver software allows display to power down to 15W at specified time periods
- Receive 256 shades of gray on NuBus systems without built-in video when linked with PrecisionColor 8XJ interface module
- Maintains outstanding contrast, brightness and focus
- Tilt-swivel base **\$599.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DISPLAY ADAPTORS



RasterOps®

Horizon 24 Display Adaptor

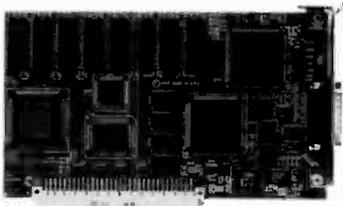
- QuickDraw acceleration
- 24-bit true color display
- Drives all monitors up to 21" at resolutions up to 1152 x 870
- 9-bit digital-to-analog converter
- Extended desktop feature for working on large, full scale documents
- 2-page WYSIWYG
- Hardware-based pan and zoom provides instant magnification up to 16X
- Expandable with optional daughtercard
- System requirements: Macintosh CPUs with full size (14") NuBus expansion slot and System 7 or later
- 60 or 75Hz flicker free refresh rate
- 4000 x 3000 pixels
- 4M byte RAM
- 13" to 21" display support

2678 Horizon 24 \$2799.00
 2717 Horizon 24 with DSPro accelerator daughtercard 3599.00

PaintBoard Professional Display Adaptor

- Designed with important productivity features for the professional designer
- Photorealistic, 24-bit true-color
- Drives all monitors up to 21" at resolutions up to 1152 x 870
- 2-page WYSIWYG
- Integrated QuickDraw acceleration
- 9-bit digital to analog converter
- Extended desktop feature for working on large, full scale documents
- Hardware-based pan and zoom provides instant magnification up to 16X
- Expandable with optional DSP daughtercard
- System requirements: Macintosh CPUs with full size (14"), NuBus expansion slot and System 7 or later
- 60 or 75Hz flicker free refresh rate
- 4000 x 3000 pixels
- 4M byte RAM

2715 PaintBoard Professional \$2199.00
 2716 PaintBoard Professional with DSPro daughtercard 2999.00



PaintBoard Turbo™ XL Display Adaptor

- 24-bit display acceleration
- Supports 21" monitors
- Up to 1152 x 870 resolution
- QuickDraw acceleration
- 9-bit DAC
- For applications requiring WYSIWYG display at 72 dpi
- Extended desktop models available for working with documents up to 4X larger than the screen (3200 x 2400 maximum extended desktop)
- 1X-16X zoom for instant magnification
- Pan feature allows you to scroll smoothly across your extended workspace without waiting for screen redraws
- 4M byte VRAM

2695 \$1399.00

PaintBoard Turbo Display Adaptor

- Up to 1600% QuickDraw acceleration
- 1024 x 768 resolution
- Supports 20" displays
- 24-bit color 9-bit DAC
- Hardware pan and zoom up to 16X in increments of 1
- Conforms to Apple's 7" standard
- Can be installed in any NuBus Macintosh including the Centris 610 and 660AV
- 84M byte VRAM
- 4096 x 1024 maximum extended desktop

2677 \$1199.00

PaintBoard 8Li Display Adaptor

- 8-bit color
- QuickDraw acceleration
- Supports RasterOps 16" and 20" displays, Apple 14" and 16" displays, and some third party displays
- Supports resolutions up to 1024 x 768 on 20" displays
- 2-page display
- 1M byte DRAM
- Ideal for creating spreadsheets, working with page layouts or designing professional presentations

2641 \$399.00



ProColor 32 Display Adaptor

- 32-bit display adaptor
- Includes QuickDraw acceleration, RAM disk support, expansion bus support, as well as CMYK-to-RGB conversion process all in 1 NuBus slot
- Supports multiple resolutions from 640 x 480 to 1152 x 870
- Hardware zoom from 1-16X supported
- Accurate rate gamma correction supported with 9-bit DAC output
- Capable of reading and accelerating the display of CMYK image from applications which support it
- Expansion bus supports the ImagePro accelerator
- Manual, Graphic System Software, Acceleration Software included

2568 \$1999.00

24XLi Display Adaptor

- Accelerated 24-bit display adaptor for a 2-page monitor
- Designed for users requiring maximum display performance and photorealistic color
- QuickDraw acceleration standard
- SIMM sockets allow either 4M bytes or 16M bytes to be added for RAM disk and GWorld support to provide superior display performance
- NuBus block mode transfer supported to accelerate other display boards in the Macintosh
- Supports multiple monitor resolutions: 640 x 480, 832 x 624, 1024 x 768 (60Hz), 1024 x 768 (75Hz) and 1152 x 870
- Extended desktop and pan/zoom of 2X, 4X and 8X standard
- Manual, Graphic System Software, Acceleration Software included

2544 \$1999.00

PaintBoard Li Display Adaptor

- Entry level 24-bit display adaptor
- Designed for users interested in high performance and photorealistic color on a budget
- QuickDraw acceleration without GWorld or RAM disk support
- NuBus block mode transfer supported to accelerate other display boards in the Macintosh
- Multiple monitor sizes supported (13", 16", 19", 20")
- Extended desktop and pan/zoom of 2X, 4X and 8X standard
- Manual, Graphic System Software and Acceleration Software included

2618 \$999.00

PaintBoard PC Display Adaptor

- For Microsoft Windows applications
- Supports large screen monitors
- Supports resolutions up to 1024 x 768
- Designed for desktop professionals who require photorealistic display capabilities on the PC
- Triple processor design enables fast screen redraws
- 24-bit images
- 2-page display
- Doesn't require additional graphics boards for compatibility nor does it require VGA pass-through
- Uses ISA bus architecture
- Supports all PC/AT compatibles and EISA-compliant computers
- Compatible with CGA, VGA and SVGA
- 3M byte VRAM

6509 \$399.00

CorrectColor Calibrator

- Includes optical sensor, color-processor base unit and CorrectColor software
- Works with any RasterOps or compatible (resolution, frequency and sync channel) color display system for the Macintosh computer
- Measures color, white point and gamma from monitor; density and percent dot from transparencies and reflective material (densitometer functions); and tri stimulus color values from transparencies and reflective material (colorimeter functions)
- Performs flat field screen luminance correction for entire screen
- Works with CorrectColor Management System by characterizing screen and as densitometer to measure output linearity

2625 \$1149.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DISPLAY SYSTEM BUNDLES

Turbo XL 20" System

▪ Specially configured 20" 20T color monitor and PaintBoard Turbo XL \$3649.00

20/20Li System

▪ Specially configured 20/20 multimode color display and PaintBoard Li \$2868.00

Custom Color 20" System

▪ Specially configured 20" RasterOps/20T and 24XLi \$4199.00

Big Deal Color 21" System

▪ Specially configured 21" color monitor and 24XLi \$4548.00

Big Deal Gray Scale 21" System

▪ Specially configured 21" gray scale monitor and ClearVue/GSXL display adaptor \$1648.00

COLOR MONITORS

21" Color Display Monitor

▪ 1152 x 870 resolution at 75Hz refresh rate ▪ Anti-glare screen coating ▪ Tilt and swivel base ▪ Power cable ▪ Auto/manual degaussing \$2749.00

20T Multiscan Trinitron 20" Color Display Monitor

▪ Trinitron technology ▪ Supports resolutions from 640 x 480 through 1280 x 1024 at 75Hz refresh rate which includes Sun and IBM VGA adaptor timings ▪ Automatically switches to the appropriate frequency to match the resolution output of the color display adaptor ▪ 9 factory presets automatically sync to all RasterOps display adaptors on all platforms. Also has 15 additional user-definable presets ▪ Anti-glare screen coating ▪ Auto degaussing ▪ Rotation controls ▪ Horizontal and vertical convergence controls ▪ 13W3 connector ▪ Tilt and swivel base ▪ Macintosh video cable and power cable (with display adaptors other than RasterOps, the 20T may require a different cable) \$2349.00

20/20™ Multimode 20" Color Display Monitor

▪ Supports resolutions from 640 x 480 through 1152 x 870 at 75Hz refresh rate ▪ Works with all RasterOps color display adaptors ▪ Supports standard IBM VGA adaptors ▪ Automatically switches to the appropriate frequency to match the resolution output of the display adaptor ▪ Anti-glare screen coating ▪ Horizontal and vertical positioning and digital controls ▪ Tilt and swivel base ▪ Macintosh video cable ▪ Monitor sense adaptor for Quadra on-board video support ▪ Power cable \$1869.00

ClearVueColor 17 17" Color Display Monitor

▪ Multisync color display ▪ Macintosh (cable and adaptor included) and PC (requires optional VGA cable) compatible ▪ Built-in video ▪ Variety of graphics cards ▪ Programmable microcontroller memory ▪ 14 pre-programmed settings and the option of 8 user-defined settings ▪ Up to 1024 x 768 resolution ▪ Uses a Flat Square Technology CRT ▪ Invar shadow mask ▪ EPA Energy Star compliant ▪ Anti-glare, anti-static screen ▪ Tilt and swivel base ▪ Low magnetic emissions ▪ Universal auto-switching power supply ▪ 50-100Hz vertical refresh rate \$1049.00
2891 VGA cable 24.00

Sweet 16 16"

Color Display Monitor

▪ 832 x 624 resolution at 75Hz refresh rate ▪ 2 Apple Desktop Bus (ADB) ports ▪ Anti-glare screen coating ▪ Auto and manual degaussing ▪ Tilt and swivel base ▪ Power cable and display adaptor cable \$1099.00
For built-in Apple video only... 1149.00



MONOCHROME/GRAY SCALE MONITORS

21" Mono/Gray Scale Monitor

▪ 1152 x 870 resolution at 75Hz refresh rate ▪ Features include: anti-glare screen coating, degaussing, brightness, contrast and power on/off switch ▪ Tilt and swivel base ▪ Power cable \$1299.00



15" Mono/Gray Scale Portrait Monitor

▪ Provides 640 x 870 resolution at 80 dpi ▪ 75Hz refresh rate ▪ Vertical/horizontal centering ▪ Vertical size ▪ Tilt and swivel base and cable \$489.00

DSPro Daughtercard

▪ Twin 66MHz DSPs ▪ 32-bit DSPs ▪ Connects to the Horizon 24 and PaintBoard Professional as a daughtercard; therefore, it does not require a NuBus slot or PDS slot ▪ ARTA (Apple Real Time Architecture) Level-1 compliant ▪ 3-D modeling, animation and QuickTime authoring software written for the extra processing capabilities of the Macintosh AV computer can be used on the DSPro in any Mac (does not provide speech recognition or real time video/processing capabilities) ▪ Photoshop 2.5 bottleneck plug-in accelerates the filters and functions inside Adobe Photoshop ▪ DSPro acceleration is transparent to the designer—it looks the same, just works faster. \$1099.00

PhotoPro + Acceleration Adaptor

▪ RISC-based card ▪ Brings the performance of high-end Quadra systems to the Macintosh II family ▪ Computer-intensive tasks such as image processing and scaling of large image files realize a significant performance boost with PhotoPro ▪ 4M bytes RAM ▪ Block-mode transfer
PhotoPro NuBus \$399.00
PhotoPro ProColor Daughter card 499.00
PhotoPro Standard Daughter card 499.00

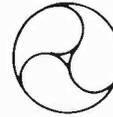
24STV Acceleration Expansion Board

▪ QuickDraw accelerator compatible with RasterOps 8XL/ClearVue/GSXL 8L/24L and 85/245 boards and all Macintosh II computers ▪ 4M byte DRAM expansion kit and a 16M byte DRAM expansion kit available for onboard memory upgrades ▪ Manual and accelerator software included. \$149.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



EDITING CONTROL SYSTEMS



RGB COMPUTER & VIDEO
AMILINK



AmiLink™ Editing Control System

- Advanced machine control from an intuitive graphic user interface (GUI)
- Industry standard keyboard layout (GVG/CMX)
- Both parallel and serial VTRs are managed in a multi-tasking, interformat environment
- 16 source VTRs can be mixed and matched; the editor is never tied to 1 tape format or VTR manufacturer
- Allows 31 video devices to be connected in a serial/parallel network
- Electronic patch bay (EPB) permits on-line and off-line VTRs to be rearranged with a few keystrokes
- Runs concurrently with NewTek's Video Toaster™ from the same Amiga
- Complete list management provided for, with features such as Ripple, AutoRenumber, list sorting on any field, list cleaning based on a previous sort operation, cut and paste list editing and ability to write multiple disk formats
- Single frame animation recording and time lapse
- All systems can be configured to include the POD (jog/shuttle wheel)
- Jog/Shuttle Keyboard provides 2 wheels in 1 and has a complete set of editing function keys for efficient operation

AmiLink/VT Editing Control System

- AmiLink/VT is everything described above under AmiLink 2.0 plus the added control of NewTek's Video Toaster
- Integrated post-production from a single computer video workstation
- 1 keyboard and mouse control all phases of the creative process
- A/B roll editing, transactions and 32-bit 3-D animation can all be performed from a single Amiga computer
- Panasonic MII or S-VHS can be controlled along with Sony Hi8 or Betacam
- Older parallel remote control decks can be hooked up with the newer serial control equipment and used as part of an integrated, multiformat production suite

A/B-Roll System Includes:

AmiLink Software—Controls up to 16 sources and 4 record VTRs on-line, Edit List Management (ELM), AmiLink manual. Video Toaster control if purchasing AmiLink VT.

Network—Master controller and 3 receivers (3-VTR control). Hardware can be purchased Out Board machine control or In Board.

Cable Kit—Network connections, GPI, time code and serial/parallel cables, software protector and keyboard sticker set (with system registration).

Cuts-Only System Includes:

AmiLink Software—Controls 1 player and 1 recorder and easily expands to A/B roll, controlling up to 16 sources and 4 record VTRs on-line. AmiLink Cuts-Only is capable of all standard features listed under AmiLink 2.0 with the limitation on the amount of decks to be connected on-line.

AmiLink CIP Editing Control System

- Computer-based edit controller
- AmiLink's intuitive, graphical software interface
- Multi-tasks with desktop video software applications
- Full control of VideoToaster digital effects
- Automatically preloads Video Toaster character generator pages for automatic assembly
- Insert or assemble editing
- Auto assembly from a list
- Park and perform or open-ended editing
- Edit point trimming
- Complete 999-event edit decision list management and multiple list saves to disk
- Direct link to AmiLink 2.0 or VT

AmiLink CIP System Includes:

AmiLink CIP Software—Controls up to 4 sources and 1 record VCR on-line with expansion controllers, Edit List Management (ELM), AmiLink CIP manual.

Network—Master controller for 2-machine control (cuts-only). 1 daisy-chain controller added for A/B roll.

Cable Kit—All network cables for cuts-only or A/B roll editing included.

A/B Roll

Industrial	
CIP3	3 machines, consumer industrial . . . \$1795.00
CIP3-POD	3 machines, consumer industrial, POD . . 2995.00
Professional	
AL3N-i	3 machines \$4495.00
AL3N-POD	3 machines with jog shuttle control . . . 5995.00
AL3P-i	3 machines, all parallel, external/ internal transmitter 7674.00
AL3/1N2CX	3 machines, 1 internal, 2 CX external . . 4424.00
AL3/1N2605	3 machines, 1 internal, 2 605 external . . 4074.00
AL3/2N1CX	3 machines, 2 internal, 1 CX external . . 4620.00
AL3/2N1CX/POD	3 machines, 2 internal, 1 CX, POD . . . 5740.00
AL3/1N2P	3 machines, 1 internal, 2 parallel 6464.00
AL3/2N1P	3 machines, 2 internal, 1 parallel 5515.00
AL3/2N1P/POD	3 machines, 2 internal, 1 parallel, POD . . 6795.00
AL4N-i	4 machines, all internal 5625.00
AL4N/POD	4 machines, all internal, POD 6490.00
AL5N-i	5 machines, all internal 6000.00
AL5N/POD	5 machines, all internal, POD 7620.00

Cuts

Professional	
AL2N-i	2 machines, all internal \$3630.00
AL2N-POD	2 machines with jog shuttle control . . . 4290.00
AL2-CX	2 machines, external CX boxes 3124.00
AL2/1N1CX	2 machines, 1 internal, 1 CX external . . 3725.00

System Options/Upgrades

POD	Jog/shuttle wheel editing keyboard . . \$1995.00
VT2	Video toaster control 2.0 250.00
VT3	Video toaster control 3.0/4000 399.00
CIP/PRO	Upgrade from CIP A/B Roll to Pro A/B Roll software only 1195.00
CIPUP	Upgrade from CIP cuts to CIP A/B roll . . 695.00
AL3UP	Upgrade from Pro Cuts to Pro A/B roll software only 695.00
AL-CX/TC	LTC/VITC option for CX 250.00
AL-CX	OMC control for CX 795.00
VM-S	Serial OMC 1115.00
VM-P	Parallel OMC 1815.00
RGB-1R	1 internal receiver card 795.00
RGB-2R	2 internal receiver cards 1300.00
RGB-3R	3 internal receiver cards 2000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



SPECTRUM



SCAN CONVERTERS



RGB/Videolink® 1600U Scan Converter

- All workstations, PCs and Mac IIs supported
- 20-90kHz horizontal scan rate
- Interlaced and non-interlaced inputs
- Adjustment-free auto lock
- Real time conversion
- Pan, scroll and zoom
- Anti-aliasing
- Keyer for video overlays
- Full 24-bit color
- Flicker elimination
- Genlock
- Complete overscan/underscan correction
- Independent picture height and width adjustments
- Comprehensive test signal generator
- Simple external connection to the computer
- Broadcast quality NTSC RS-170A or PAL composite video
- S-Video, Y, R-Y, B-Y (Betacam/MII), RGB RS-170 or EBU and RGB 31.5kHz for projection

The RGB/Videolink 1600U transforms high resolution computer graphics to television format in real time. This allows recording on any videotape recorder and connection to video projectors, teleconferencing systems and composite monitors. Synchronization and setup are completely automatic. The 1600U measures the horizontal and vertical frequencies of the input signal and sets up the parameters for the sharpest picture, correct aspect ratio and size of the output image. Third generation digital signal processing (DSP) circuitry eliminates interlace flicker so even thin horizontal lines and menu boxes appear stable in the output image. 3 levels of filtering ensure the best choice between image sharpness and flicker elimination. The 1600U can map any number of input lines to any number of output lines, allowing all images to be mapped to their ideal screen resolution.

A unique feature of the 1600U is a direct interface to video projectors and other display equipment which accept signals up to 32kHz. The 1600U offers a 32kHz output simultaneously with broadcast video outputs, allowing both high quality projection and videotaping. It is the only scan converter capable of performing both functions.

- 1600U \$15,995.00
- 920 2420 Rackmount kit for 1600U 245.00



RGB/Videolink 1500M Medical Scan Converter

- Scan conversion occurs in real time—full motion video rates
- Automatically senses and synchronizes to the output signals of different imagers
- User selectable option eliminates interlace flicker when videotaping
- Simple external connections using video cables
- May be used as a shared resource and moved between imagers as required
- Grayscale processing
- Freeze frame

The RGB/Videolink 1500M converts medical images to composite video format (NTSC or PAL scanning standards) in real time. This conversion

prepares the signal for video transmission over television lines (teleradiology) and for recording on videotape. The 1500M automatically locks to any signal from 15-90kHz, including both interlaced and non-interlaced images from 480-1049 lines.

When the 1500M is used as an interface to a teleradiology system, diagnostic images can be acquired directly from the analog output of the imager. This direct video interface has significant advantages over a video copystand. When using a copystand, images must first be filmed and then converted to video format. The direct video interface offers a better representation of the console screen because image quality is not dependent on focusing, exposure settings or film processing variables. In addition, images are acquired as soon as they appear on the imager console.

The 1500M measures the horizontal and vertical frequencies of the input signal and sets up the parameters for the sharpest picture, correct aspect ratio and size of the output image. It is easily installed with external video cables and may be moved between imagers as required. It can map any number of input lines to any number of output lines, allowing all images to be mapped to their ideal screen resolution. An image of any resolution can be converted to exactly fit NTSC (or PAL) specifications.

- 1500M \$8,995.00



RGB/Videolink 1500 Series Video Scan Converters

- Transform the output from any computer (or imaging device) to video format for video transmission, videotaping and video projection
- Anti-aliasing
- Full 24-bit color processing
- Real time operation
- Flicker elimination
- Video outputs include NTSC (or PAL) composite video, RGB (RS-170A or CCIR) and S-Video (Y/C)
- RGB/Videolink 1500 AX automatically synchronizes to any interlaced or non-interlaced 15-90kHz RGB source
- Includes RS-232 control and a graphics overlay capability

The 1500AX features a direct interface to video projectors and other display equipment accepting signals up to 32kHz. It is the only scan converter in its price range able to perform both high quality projection and videotaping.

RGB/Videolink 1500A is a low cost video scan converter offering the quality and features previously available only on the highest priced systems on the market. The 1500A automatically synchronizes to any interlaced or non-interlaced 15-90kHz RGB source.

RGB/Videolink 1500P is a low cost unit dedicated to a single workstation or imager. It is factory preset to work with any interlaced or non-interlaced 20-90kHz RGB source.

- RGB/Videolink 1500AX \$12,995.00
- RGB/Videolink 1500A 11,995.00
- RGB/Videolink 1500P 9,495.00
- 920 2315 Cable set for SUN Sparc with 13W3 connector (2 cables) 235.00
- 520 2242 Cable for Lo-Res RGB output: 9-pin D-connector to BNC (1 cable) for 1500AX 100.00
- EGA 600 Interface adaptor for EGA connection 495.00
- 920 2312 VGA cable set (2 cables) 135.00
- 920 2314 Macintosh cable set (2 cables) 135.00
- 920 2419 Rackmount kit for 1500AX 125.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEO WINDOWING SYSTEM/VIDEOWALL



SPECTRUM



Watchdog® 150/250 Multiple Video Windowing System

- Displays multiple video radar or FLIR signals on a computer screen or high resolution monitor up to 1280 x 1024 pixels
- With the OmniView™ multiplexer/demultiplexer option, the system will also record multiple video sources on a standard VCR or send them over a single video channel
- Video inputs appear in monochrome video windows
- Each window can be positioned anywhere on the monitor, smoothly scaled from 1/4 to full screen and overlapped with other windows
- Each window can be labeled with up to 64 alphanumeric characters for time, date and source information
- Accepts up to 15 NTSC (RS-170) camera signals
- The system can be configured to accept infrared, radar and other non-broadcast standard video formats
- Disparate signals are displayed on the same screen
- Accepts asynchronous video sources; no genlock is required
- 2 video windows are displayed in real time at the full NTSC update rate
- For additional inputs, the video is time-multiplexed, with a total available update rate of 60 frames/sec.
- The update rate of each signal can be set by the user, under computer control or by an event trigger such as a motion detector
- Offers computer control over an RS-232 port
- Shares a color or grayscale monitor with a computer system to integrate video, graphics and text on a single screen
- For recording and playback, supports the maximum 30 frames/sec. specified by the NTSC standard
- On replay, images are demultiplexed and displayed in windows on the high resolution monitor
- Each window's position, size and priority can be maintained as originally recorded or reconfigured to facilitate analysis

Watchdog 150 \$5,995.00
 Watchdog 250 With front panel controller 6,995.00

Optional Features

ILI 0200 Infrared (875-line) or other non-standard input . . . \$1,595.00
 TVT 0200 TV tuner 895.00
 ALI 0200 Trigger/alarm option 695.00
 VMO 0200 Video multiplexed output (videotaping option) . . . 2,995.00
 920 2419 Rackmount kit 125.00

ComputerWall™/ComputerWall Plus

- Multi-screen display controller designed for real time, large format graphical presentations
- Outputs bright, high resolution imagery suitable for viewing even under high ambient light conditions
- Displays data, graphics and video on single screens or seamlessly across multiple screens
- Data assessment and decision making are enhanced by ComputerWall's display of information from multiple

sources, with critical information selected, positioned and resized

- The system meets the growing need for real time command and control in telecommunications, utilities, and transportation applications, as well as in distribution, emergency, police and military operations
- Extremely versatile and modular system
- Ideal for both new installations and upgrades of existing facilities
- Provides maximum flexibility to the end user or systems integrator
- Supports variable size display configurations, video and computer inputs up to 1280 x 1024 pixels, and a wide variety of projection devices
- Can be used directly with any software or SCADA system
- Easily connects to the RGB analog outputs of workstations
- "Plug and play" autosync front end ensures the input computer image is exactly duplicated (at identical resolution) on the display wall
- 2 models available:
 - The basic ComputerWall accepts 2 computer inputs and can display either as a split image
 - ComputerWall Plus features a built-in matrix routing switcher with 6 inputs



ComputerWall

- Accepts high-resolution analog computer signals
- Connects directly to RGB monitor port
- Simple hardware installation
- Compatible with all software
- Automatically synchronizes to input signals from workstations or PCs up to 1280 x 1024 pixels
- Extremely high image quality
- Splits all computer imagery, including text, graphics, animation and digitized video
- Full 24-bit internal image processing
- Advanced linear interpolation smooths magnified images
- Accepts NTSC (or PAL) analog video via optional line doubler
- 2 output modes: non-interlaced-output scan rate identical to that of the computer source, yielding highest image quality; interlaced-output scan rate half that of the computer source, allowing use of less expensive display devices
- Expandable to many possible configurations
- ComputerWall processors can be combined to provide 16-way splits on a 4 x 4 display array
- Mullion control: inter-screen spacing (bezel) compensation
- Freeze frame
- Remote control of all functions via RS-232 serial port

ComputerWall 4-way analog splitter 15-18kHz \$16,995.00

ComputerWall Plus

- All features of the basic ComputerWall system
- Built-in, 6-input routing switcher-select from among 6 sources (up to 1280 x 1024 pixels each); displays 4 quadrants of a split image or non-split, pass-through images or a combination
- Output signals can be blanked during switching to eliminate undesirable transition effects
- Choice of remote or manual control via front panel pushbuttons

ComputerWall Plus With switcher. \$18,495.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



The InfoChannel text editor provides professional, flexible and easy control of your information.



The Shuffler: Simply click and drag the minipictures around and change your presentation. The Wipes menu: The large selection of smooth transitions adds impact to professional information.

InfoChannel IC400 Multimedia Software

InfoChannel IC400 provides great visual attraction, with high quality graphics, photorealistic pictures, motion, sound and interactivity.

From a single control center you can control and coordinate distribution of full multimedia events (electronic billboards and interactive kiosks) to any number of remote display stations.

Information is transferred to remote receivers: By wire (closed circuit) including Ethernet, by standard telephone lines and modems and by satellite communication.

InfoChannel is ideal for: Public information, internal information, commercial use, cable TV and hotels.

InfoChannel IC400 includes:

- 15 different typeface families, all designed specifically for on-screen display
- Many advanced text features, such as 3-D, outline and drop shadow
- Choose the size of shadows, the slant of italics, the depth of underlining, etc.
- 60 professionally designed backgrounds, for instant professional-looking presentations
- 40 predefined palettes included to make color composition easier. You can also create your own palettes
- Art library consisting of 80 ready-made symbols included in program
- Customized logos and pictures can easily be directly imported
- More than 80 wipes, for 1 or several text lines, text blocks, images and pages
- Contains several demo-scripts, giving examples of how features and functions can be utilized
- Comprehensive manual, packed with useful information and tips, available in 8 languages

Resolutions: Supports all Amiga resolutions, including AGA.

Formats: Supports IFF, ANIM, 8SVX, SMUS and Sound Tracker formats. Solutions for converting other formats are available.

Requirements: Master workstation/player station: Hardware: Commodore Amiga with 3M byte RAM (minimum 1M byte chip memory) and a hard drive. ECS or AGA chip set. More memory and an accelerator are recommended.

An RGB-to-composite converter (built into many Amigas) is needed for input to TV networks. Software: Workbench 2.04 or higher.

Benefits:

- The EX system makes it easy to configure and expand your own system. For instance, to make the Player nullmodem controllable, drag the NullModem EX into the start-up drawer
- Thanks to the modem EX it is easy to control an InfoChannel IC400 Player over a long distance. Any number of information contributors may access the Player from different sites with individual privileges
- Local Area Networks (LANs) can be used for InfoChannel, which is a fast and reliable way of providing input
- Easy to import data from other systems in real time. In a manufacturing environment this could be production information. In a bank it could be stock or currency information. In a betting office it could be odds and results. The text can come from any source, such as PCs, Macs or mainframes, via serial cable or modem
- 1 master workstation can be used to control a large number of Player stations
- Intelligent File Transfer (IFT) drastically reduces transfer time when updating text on existing backgrounds. Minor modifications to a large script with many backgrounds, animations, sound, etc., can be sent quickly
- Transfers can be carried out automatically at specific times of the day, completely unattended, with full error logging

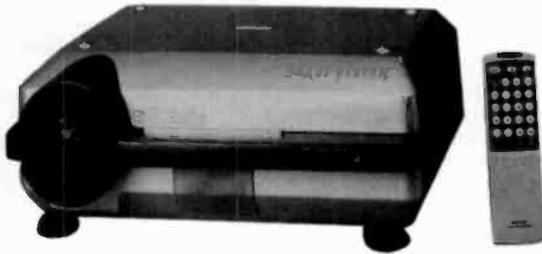
IC400 Master Software \$2500.00
 IC400 Player Software per player/800.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

LCD VIDEO PROJECTORS



SHARP
FROM SHARP MINDS
COME SHARP PRODUCTS™



XG-E850U Full Color LCD Video/Data Projector

- 3 high resolution TFT active matrix LCDs produce spectacular multimedia images up to 300" diagonal
- 309,120 pixels
- 500 TV lines resolution
- Audio/video and VGA/Mac II (640 x 480) inputs and outputs
- Unique lens shift function minimizes "key-stone" type effects
- Built-in carrying handle
- 60 lux brightness
- Backlit wireless remote control with power zoom focus
- Ceiling, tabletop and rear projection capabilities
- In-line stripe configuration TFT LCDs for superior computer projection
- Computer monitor loopthrough allows direct connection of a local monitor or a second projector for simultaneous viewing

XG-E850U \$9995.00



XG-H400U Portable LCD Audio/Video Projection System

- High brightness (800 lux)
- Built-in stereo amplifier and speakers
- Multiple video inputs including industrial type BNC composite video, S-Video and RGB
- Video and line audio outputs
- Long-life metal halide lamp
- Superior picture quality

The XG-H400U incorporates 3 TFT LCD panels, each with 112,300 pixels. A SW per channel stereo amplifier and a pair of 3" x 5" full-range speakers are built into the XG-H400U, creating a complete portable presentation package. The internal audio system reproduces high quality sound without the need for external audio components.

Improved optics and a 1:1.6 close focus zoom lens lets the XG-H400U project image sizes from 25" (at 4.6') to 150" (at 18').

Portable, lightweight (23.5 lbs.) and convergence-free, the XG-H400U makes LCD video presentations more versatile than you could ever imagine. A wide range of input terminals are provided, including 2 BNC type composite video connectors, 1 S-Video (Y/C) terminal, as well as analog (15.75kHz) RGB. This allows you to change instantly among a broad range of sources including VCRs, videodisc players, camcorders and TV tuners. A BNC type composite video output connector is provided to easily loop the output of 1 projector into the input of a second projector or monitor.

XG-H400U \$4495.00



XG-H440U High Luminance Convertible LCD Video Projector

- Tabletop/ceiling mountable
- Flexible image size from 25" to 300"
- Incorporates 3 advanced active matrix TFT LCD panels, a series of dichroic mirrors and a special design long-life metal halide lamp
- 112,320 pixels on each panel produce the brightest, clearest, most improved color contrast ever
- Backlit motorized zoom/focus remote control
- Built-in 3W amplifier and speaker
- 400 lines horizontal resolution
- 2 BNC type composite video inputs, 1 S-Video (Y/C) terminal, an analog (15.75kHz) RGB connector, plus 3 sets of audio inputs
- Hooks up easily to a VCR, laserdisc or other A/V source quickly and easily
- Luminance: 800 lux at 40" screen size
- Variable masking

XG-H440U \$4695.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

SHARP
FROM SHARP MINDS
COME SHARP PRODUCTS™



**LCD VIDEO PROJECTORS/
MONITORS/SCANNER**

**QD-100MM LCD
Color Monitor**

- 16 million colors ▪ 10.4" active matrix TFT (Thin Film Transistor) LCD
- Built-in composite and S-Video inputs ▪ Built-in audio (mono) input
- Built-in speaker ▪ External control input (power on/off, mute, PC/video)
- Automatic signal recognition ▪ Full 640 x 480 VGA/Mac II resolution
- Less than 3" thick ▪ No scan line flicker, image "burn-in" and is not susceptible to electromagnetic interference



QD-100MM \$8895.00

**XV-P10UP 60" Ultra-Compact LCD
Video Projector**

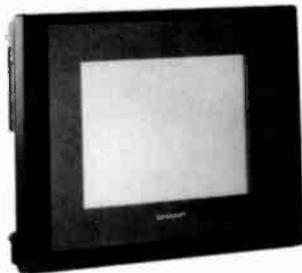
- Weighs less than 9 lbs. and stands just 5.3" tall
- Projects a 60" picture of impressive resolution
- Built-in audio makes it a complete A/V projection system ▪ Multiple video inputs including composite and S-Video ▪ Long-life metal halide lamp
- Single solid-state active matrix LCD panel for superior picture quality ▪ Convenient reverse image switch for rear projection ▪ Incorporates single 3.6" LCD panel with 100,464 pixels for each of the primary colors (RGB) to create crisp, clear images with 320+ horizontal TV lines of resolution ▪ All that is necessary for rear projection is to simply press the "Reverse Image" switch ▪ No special mirror attachment or internal modification is required ▪ Blue screen function automatically mutes annoying noise and produces clear blue image when no incoming video signal is received



XV-P10UP \$1995.00

9M-60U Flat Panel TFT LCD Color Monitor

- LCD color video monitor ▪ TFT active matrix drive system ensures clear, crisp video display without distortion or image smearing
- Clear, true color reproduction
- High contrast ▪ Wide viewing angle ▪ 8.6" diagonal screen ▪ Low power consumption ▪ Fast response time ▪ Thin, lightweight design
- 60:1 contrast ratio ▪ 12VDC operation ▪ High resolution (400+ TV lines) ▪ AC adaptor, AC cord, wall bracket and set bracket included



9M-60U \$5200.00

6M-40U Flat Panel TFT LCD Color Monitor

- LCD color video monitor ▪ TFT active matrix drive system ensures clear, crisp video display without distortion or image smearing ▪ High contrast ▪ Wide viewing angle ▪ 5.6" diagonal screen ▪ Low power consumption ▪ Fast response time ▪ Thin, lightweight design ▪ Built-in speaker ▪ 60:1 contrast ratio ▪ 12VDC operation ▪ 300+ lines resolution ▪ AC adaptor, AC cord, wall bracket and set bracket included



6M-40U \$1200.00

**4M-T30UP 4" TFT Active Matrix
Color LCD TV/Monitor**

- Weighs a little over 1 lb. and fits in the palm of your hand ▪ Built-in VHF/UHF 68-channel tuner, loudspeaker and direct audio/video inputs
- Channel select memory, volume control and 12-channel auto preset modes ▪ Standard 1/4-20 socket on base of unit provided for simplified mounting ▪ Number of pixels: RGB trio 37,440 (117V x 320H, 37,440 x 3 pixel elements) ▪ 190 lines horizontal resolution

4M-T30UP \$650.00

Optional Accessories for LCD Monitors

- BF-42EP Sun shroud for 4M-T30UP \$30.00
- CC-42EP 12V car adaptor for 4M-T30UP 63.00
- BT-10EP Rechargeable NiCad battery for 4M-T30UP 75.00



XG-50 Video Scanner Presentation System

- Easily connects to video projectors and TV monitors, and allows documents and full-color photographs to be presented to a large audience ▪ 400 TV lines resolution ▪ 1/2" CCD with 750,000 pixels (250,000 x RGB) reproduces clear and bright images ▪ 8X power zoom and focus lens enlarges small and hard to read print ▪ Built-in video frame image memory ▪ Wide size capacity, handles everything from 35mm film to B4 paper ▪ Unique positive/negative reverse function
- Composite, S-Video (Y/C) and analog RGB outputs ▪ Flicker-less fluorescent lamp included ▪ Dimensions: set up 26 1/2"H x 26 1/4"W x 23 1/8"D; folded 7 1/2"H x 16 1/2"W x 23 1/8"D ▪ 22 lbs. ▪ AC cord, video cable (2m RCA-RCA), audio cable (2m RCA-RCA), dust cover included

XG-50 \$3995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

COMPUTER/OVERHEAD PROJECTION SYSTEMS



SHARP
FROM SHARP MINDS
COME SHARP PRODUCTS™

QA-1650 16 Million Color Active Matrix LCD Multimedia TFT Computer/Video Projection Panel

The 10.4" panel displays full color computer and full motion video images with crisp detail and high brightness. An on-screen menu allows quick and easy adjustment of all controls and the internal EEPROM memory saves the adjustments, even when the power is turned off. The QA-1650 offers outstanding compatibility for use with virtually all IBM PC, PS/2, Mac II, Quadra and PowerBook computers, plus built-in composite and S-Video inputs for VCR, laserdisc or camcorder playback. A wireless remote control with backlit buttons is included. The backlit buttons and on-screen confirmation provide user-friendly control even in low light environments. \$6795.00

QA-1150 TFT VGA/Mac II LCD Computer/Video Projection Panel

185,000 color TFT active matrix LCD for full-motion multimedia applications. 640 x 480 pixel format with auto-setup offers almost universal computer compatibility including IBM PS/2 (VGA, MCGA), IBM PC/XT/AT (EGA, CGA, MDA and Hercules+/In-color), Apple Quadra, Apple Macintosh (Mac II, Mac+/SE/Classic), Apple II family and AT&T (PC6300WGS, PC6386WGS, PC6312WGS, PC6286WGS). Monitor loophrough; built-in composite video input; rear projection mode; 720/640 image compression; solid-state EEPROM memory; double scan CGA. Includes wireless remote with backlit LCD status display, image enlarge, image clear and PC control. Also includes VGA and Mac II interface cables, 6' loophrough cable for Mac II and UL approved AC power adaptor. \$5295.00



QA-350 512 Color Dual Scan Passive Matrix LCD Projection Panel

The QA-350 projects up to 512 colors, for use with educational and business application software. "User-friendly" operation is facilitated by an on-screen menu and automatic setup for a wide range of computers. There is also a built-in memory for saving panel adjustments and a monitor loophrough connection to simultaneously view your computer monitor and the QA-350. Compatibility: IBM PS/2, AT/XT/PC (VGA, MCGA, EGA, CGA, MDA), Mac II, IIsi, IIfx, IIfx, IIfx and Quadra (8-bit or 24-bit); Mac LC (12" and 13" monitors); Apple PowerBook 180, 170, 160, 165C, 145, 140, 100; Apple DUO 210; Macintosh Classic, SE/30, SE, Plus, 512; Apple II family; Apple applications may require third party interfaces. Cables for VGA and Mac II and an AC adaptor included. \$2495.00
QA-350LC12 Mac 12" monitor loophrough cable 40.00
QA-350LOOP Mac II monitor loophrough cable 40.00

QA-75A High-Brightness/High-Contrast VGA/Mac II Projection Panel

640 x 480 TSTN (Triple Super Twist Nematic) LCD offers bright, high contrast (approx. 17:1) images with 16 true shades of gray. Auto-setup for IBM PS/2 (VGA, MCGA), IBM PC/XT/AT (EGA, CGA, MDA and Her-

cules+/In-Color), Apple Macintosh (Mac II, Mac +/SE/Classic), Apple II family and AT&T (PC6300WGS, PC6386WGS, PC6312WGS, PC6286WGS). 2 on-screen menus; 23-key wireless remote with PC control; built-in cooling fan; solid-state EEPROM memory. Includes 9-pin and 15-pin d-Sub signal cables and UL approved AC adaptor; 1-year warranty. (Note: Mac II and AT&T computers require an optional cable; Apple II and Mac +/SE/Classic computers require an optional interface.) . . \$1595.00

QA-BL1 Backlight Unit

The QA-BL1 converts the QA-1150 and QA-1650 into a portable flat screen computer/video monitor. Use it for small group direct viewing, desktop or field use and to prepare and preview your presentations. \$895.00

Optional Accessories

QA-BAG Padded water resistant soft cover carrying bag (constructed of high quality Cordura® fabric) (all models) \$ 65.00
QA-CASE Heavy-duty carrying case (high density polyethylene) with foam padded interior. (Fits under most airline seats.) 110.00
QA-75MACII Mac II interface cable for the QA-75A 45.00
QA-MBC-PC EGA/CGA/MDA cable for QA-1650/1150/75A/350 59.00

Power-R/Extron/Telemac Apple II Interfaces for QA-75A/50

These interface boxes take the standard composite video monitor output from most 15.75kHz horizontal scan rate computers and converts it to the necessary signals required by the Sharp QA-75A. Compatible with all Apple II computers. (Provides monochrome display.) \$149.00

Power-R/Extron Video Adaptors for Mac+/SE/Classic Computers

These video adaptors install inside the Apple Macintosh, Mac +, Mac 512, Mac SE, Mac SE/30 and Mac Classic and enable the computer to be used with a Sharp QA-1150A/75A \$129.00-\$155.00

Extron MBC-IBM-PCC 9-pin CGA/EGA Monitor Breakout Cable

This 6' CGA/EGA "Y" type splitter cable enables both the local monitor and a Sharp "QA" panel to be viewed simultaneously. Compatible with all model Sharp "QA" LCD panels. \$65.00

Extron MBC-QA-6300 Work Group Station Interface Cable

Enables compatible AT&T PC-6300WGS computers to be used with the QA-1150 and QA-75A \$85.00

Extron/Power-R/Telemac IBM PS/2 VGA 1-in/2-out Distribution Amplifiers

For use with the QA-1150/75A. \$179.00-\$250.00

Extron/Telemac Mac II 1-in/2-out Distribution Amplifiers

For use with the QA-1150/75A. \$219.00-\$250.00

Power-R PS-10 PS/2 Model 25 Adaptor

Enables IBM PS/2 Model 25 computers to be used with the QA-1150/75A. \$129.00

Presentation Electronics Silent Partner QA/QA-75

Includes everything to remotely control a PC-XT-AT-PS/2 from the QA-75A or QA-1150 remote control. Includes software, serial cable and templates for most popular presentation software. Specify Silent Partner QA-75A for the QA-75A or Silent Partner QA for the QA-1150 . . . \$99.00

Power-R VT-10 DEC Terminal Emulator

Enables DEC VT-100/200/220/240/320/330/340 models to be used with QA-1150/75A. \$695.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



**Indy™
Desktop
Workstation**

- Upgradable CPU module
- High capacity memory subsystem
- Built-in video subsystem ▪ Built-in digital audio subsystem
- Expandability
- Stereo interface
- Monitor connector
- GIO expansion
- AUI and 10BaseT Ethernet connections ▪ RS-422 and RS-232 as well as MIDI timing at transfer rates up to 38.4 Kbits/sec.



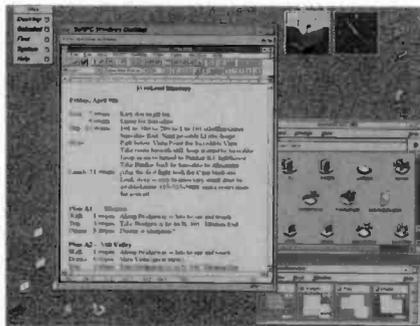
Indy gives you a digital color camera (IndyCam™), an engaging user environment and a host of digital tools. Indy is based on the MIPS RISC R4000® processor and an extremely fast system architecture. Over 1300 applications are supported, which makes Indy ideal for many markets such as CAD/CAM, media authoring, software development, technical publications, chemistry, imaging and geographical information systems. This 64-bit system has been designed to crunch through large data sets, and Indy can be configured and upgraded to meet your requirements. You can add up to 256M byte of memory, 7 fast SCSI-2 devices and 2G byte of internal disk storage as your needs grow.

Indigo² XZ™ Workstation

Indigo² integrates powerful desktop graphics, leading microprocessor technology, the highest bandwidth architecture and industry-leading digital media tools, bringing unrivaled performance and expansion capabilities. The system bus supports a 266M byte/sec sustained transfer rate. Indigo² XZ systems come with the choice of 2 balanced processors—the R4400™/150MHz or the R4000/100MHz processor. Both processors provide leading integer and floating point performance, fast on-chip cache and a large 1M byte secondary cache. Finally, to feed the bus and processor, 2 fast SCSI-2 I/O have been designed with a host of custom VLSI chips to efficiently manage and utilize the system's bandwidth and performance. Industry standard EISA with high performance GIO provides for the highest level of expandability.

**Indy Video™
and Indigo²
Video™
Video Option
Cards**

- Quickly create video presentations for customer visits, reports and lectures
- Videotape simulations and models as they appear on screen in real time ▪ Perform real time scan conversion of nearly full screen graphics to video resolution ▪ Frame animate compute-intensive models or simulations



- Use the video input of Indigo² Video with the Indigo² to: create video mail, desktop video conference, compose digital media presentations, capture video images for texture mapping, background scenery or portrait or capture video to disk with JPEG compression (with the Cosmo Express option)

Indy Video and Indigo² Video bring the power of high quality video communication to your desktop workstation. Indy Video and Indigo² Video are video option cards which combine with the Indy or Indigo² workstations to open up exciting new video-based communications in several forms. The Indy Video and Indigo² Video option cards let you print-to-tape to share your high resolution graphics.

IRIS Indigo²™ Extreme "The Power Desktop"

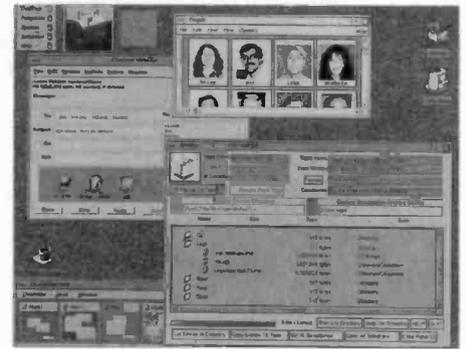
- System bus supports a 266M byte/sec sustained transfer rate
- Choice of 2 balanced high performance processors—the R4400/140MHz or the R000/100MHz; both provide leading floating point performance, fast on chip cache and a large 1M byte secondary cache ▪ Industry standard EISA with high performance GIO to provide the highest level of expandability ▪ 2 independent fast SCSI-2 channels for flexible disk and peripheral configuration

Extreme Graphics is a revolution in 3-D interactive graphics, allowing users to handle complexity with ease. Extreme has over 2X the performance than the previous desktop graphics leader IRIS Indigo² Elan™. With this new level of desktop realism, you will be launched into the world of interactive and complex solids modeling, animation, molecular modeling and image processing.

**Indigo
Magic™ User
Environment**

Indigo Magic is a new generation user environment that combines a unique desktop management system with powerful digital media tools in one user interface.

Indigo Magic is included with every Silicon Graphics system. Indigo Magic has a consistent iconic interface that lets you organize your desktop environment to suit the way you work. Files, applications, peripherals, remote computers and even people are represented iconically. Using the Indigo Magic Desk Manager, you can create multiple, iconic desktops each having all the applications, files and tools you'll need to work on specific projects. For instance, you can organize your desktops for software development or for product design. Indigo Magic gives audio cues and responds to your verbal commands. It adapts itself to another language on demand. Indigo Magic provides an endless supply of on-line help and documentation that's always available, whenever you need it.



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



AUDIO/VIDEO GRAPHICS SOFTWARE



SiliconGraphics
Computer Systems

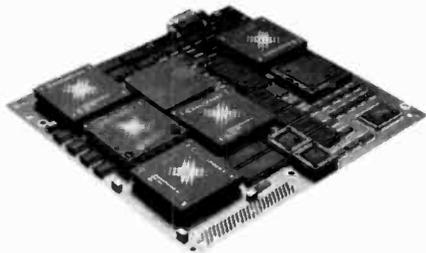
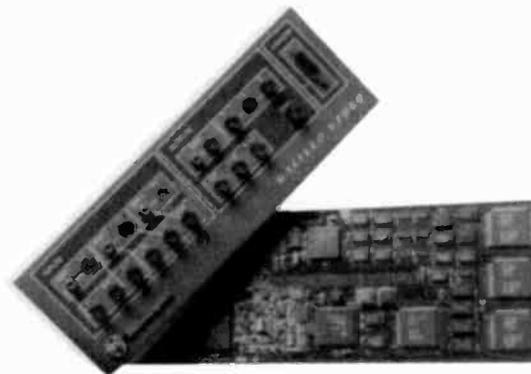


Cosmo adjusts to your needs with a wide range of compression ratios under complete software control.

- Minimum compression ratio of 2:1
- Maximum compression ratio of 100:1
- Pass-through mode for real time capture, playback and output of uncompressed images
- Choose the size of the images you want to compress
- Anti-aliased decimation of images to be compressed
- Zoom of decompressed images
- Data formats for maximum flexibility
- 8-bit per component 4:2:2 YUV
- 24-bit RGB
- 12-bit RGB

Indigo Audio™

The audio hardware is designed to maintain the real time flow of audio data to and from system memory with minimal impact on the host CPU. The hardware subsystem has analog and digital inputs and outputs with A/D and D/A converters. It has a built-in headphone/speaker with software-controllable volume. The stereo analog output provides a standard line-level audio signal that can feed almost any audio device. The serial digital output allows connections to consumer and professional digital audio machines. The audio subsystem communicates with the system through the High-Performance Peripheral Controller (HPC). The HPC allows audio data to be placed in and retrieved from main memory via Direct Memory Access (DMA). This data may be used by the CPU for processing with the results used to drive a graphics display, or saved on the disk or processed and transmitted back to the audio subsystem.



Cosmo Compress™

Cosmo is an integral part of the Silicon Studio™ solution for film and video production from Silicon Graphics. Silicon Studio integrates world-class 2-D and 3-D graphics, image processing, digital audio and high-quality video in a single environment. With Cosmo, you can tap the power of Silicon Studio without sacrificing image size, frame rate or storage capacity.

Real Time

Cosmo takes the waiting out of digital video. Now you can capture, play back and output full motion video to and from memory or disk in real time.

- 60 fields/30 fps compression/decompression of full-resolution NTSC video
- 50 fields/25 fps compression/decompression of full resolution PAL video
- Single-frame compression/decompression

Freedom to Choose

Sometimes maximum image quality is your priority. Other times you must minimize storage and transmission bandwidth requirements.

Galileo Video™

Galileo Video provides video input, output and effects for the Indigo family of desktop workstations. Galileo Video is an integral part of the Silicon Studio solution for film and video production from Silicon Graphics. Together with Indigo and powerful Silicon Studio applications, Galileo Video opens up a new frontier in production.

Never before have world-class 2-D and 3-D graphics, image processing, digital audio and RISC-based computing teamed with high-quality digital video in a desktop package. This fusion unleashes a galaxy of new videographic capabilities, and transforms Indigo into a personal post-production suite.

High-Quality Digital Video

- Professional quality Y/R-Y/B-Y and RGB formats
- Capture of video clips and frames to RAM or disk
- Genlock to video input or external blackburst
- Output of video sync
- SMPTE vertical interval time code support
- 8-bit per component 4:2:2 YUV color space with no conversions

Real Time Effects

Real time processing is designed into Galileo's basic architecture. Galileo's alpha blender and key generator enable on-line editing of many fundamental video effects.

- Overlays
- Dissolves
- Fades
- Wipes
- Chroma keying
- Luma keying

Artifact-Free Output

Galileo helps combine computer graphics and video without tell-tale artifacts. Galileo's system software drives Indigo's graphics at your choice of NTSC or PAL field rates, film frame rates or graphics refresh rates. This eliminates motion artifacts caused by dropped or duplicated frames when outputting graphics to video.

Galileo also offers selectable filters that improve the quality of productions. The deinterlace input filter brightens the computer display of interlaced video streams. Similarly, the anti-flicker output filter eliminates distracting interlacing artifacts in graphics recorded to video.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



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VIDEO WORKSTATION



DES-500 Destiny™ Video Workstation Bundles

The DES-500 integrated desktop video workstation incorporates a DFS-500 for switcher and DME effects, a 3-VTR edit controller and a 2-channel audio processor. The DES-500 operates using a supplied 486/66 PC. Destiny performs all effects right before your eyes, in real time. The secret is an entirely separate CPU, the DFS-500 DME switcher. The DFS-500 is a video switcher with full mix, wipe and key capability. It has over 300 2-D and 3-D linear and nonlinear effects. In the Destiny system, on-screen animated icons, ANIMICONS, give you a visual preview of each effect. To add an effect, you simply choose an icon and drop it into your editing timeline.

486/66 Personal Computer

The master control center of the DES-500 boasts the landmark Intel 80486DX microprocessor, complete with math coprocessor, running at a full-out 66MHz. Speed and power are further enhanced by 8M bytes of RAM plus a 340M byte hard drive for loading software. Included with the computer are keyboard and mouse. Because you'll want to choose the size of your monitor, the required S-VGA color monitor is not included.

Edit Control

An Edit Control Center provides frame-accurate control for up to 4 VTRs with the optional ability to expand to 6. Machine interface is via 9-pin RS-422 serial remote control. Editing capabilities include audio/video split edits, access to 200 separate video clips and storage for up to 999 events in the EDL.

DME Switcher

An essential component of the DES-500 is the DFS-500MF Mainframe, which handles video switching and digital effects. This is the same processor used in Sony's highly-regarded DFS-500 DME Switcher, with the same digital component 4:1:1 internal processing. Switching functions include cut, mix, wipe and title key. The video generator produces color bars, background colors and beautiful embossed background patterns. You get an amazing range of over 300 2-D and 3-D digital effects.

The DFS-500MF is ideal for interformat editing because it handles and transcodes any combination of composite, S-Video and component R/R-Y/B-Y inputs and outputs. Program and source video monitors are optional.

3 Configurations

Computer control of the DFS-500MF is provided as standard on the basic Destiny System: the DES-510. Manual control is also possible on the DES-520 System, which adds the DFS-500 Control Panel. The Destiny System to use with a DFS-500 you already own is the DES-530. (Needless to say, the DES-530 will not function without a DFS-500.)

Video Controller

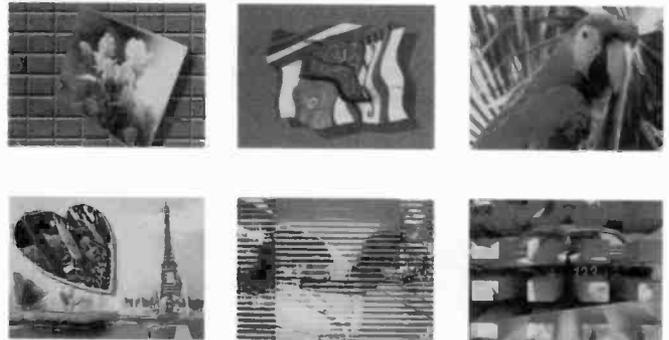
A simple mouse can't match the feel of mechanical controls. So the standard video controller has a jog/shuttle control and a mix/effects fader bar.

Audio Mixer

2-channel audio connections and mixing are performed by an audio processor mainframe, included as standard. Audio level controls can be set on the computer screen or via manual faders, with the optional audio mixer controller.

Optional VTRs

The DES-500 accommodates the full array of Sony videotape players and recorders with the 9-pin interface. Recommended models include the SVO-9600 S-VHS recorder and SVP-9000 S-VHS player, the EVO-9850 Hi8 recorder, Type IX and BVU Series U-Matic SP recorders and players, and Betacam SP 2000 Pro™ recorders and players.



Effects

The workstation is capable of over 300 different 2-D and 3-D effects. Each effect has the usual modifiers for border softness, width and color. And the DES-500 gives you additional control over effect parameters such as mosaic, posterization, solarization, strobe and soft luminance.

- DES-510 Includes 486/66 PC, DES-500, BZDE-500 software, EDLEXPRESS software, DFS-500 mainframe only, audio speakers and SVGA board for PC \$28,500.00
- DES-520 Same as DES-510 with DFS-500 control panel 32,500.00
- DES-530 Same as DES-510 except does not include DES-500 mainframe or control panel 15,500.00

Note: DES-500 bundles are not sold as separate components and an SVGA monitor such as CPD-1304S, CPD-1604S or GDM-1936 and a video monitor are required.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





VPH-1272Q SuperData EX MultiScan Graphics/Data Video Projector

- MultiScan capability: horizontal 15-93kHz, vertical 38-150Hz
- Incorporates a CRT assuring a small spot size and color purity
- Remarkable light output of 700 lumens (peak white), 200 lumens (all white) ▪ High resolution of 1500 x 1200 pixels (RGB in, at fH: 74kHz, fV: 60Hz) ▪ Wide RGB bandwidth of 70MHz ▪ Registration adjustment at 21 points on the screen for accurate registration
- HACC lens for superior and stable picture performance ▪ Video decoder circuit for enhanced video picture quality ▪ Responds to both analog/digital RGB signals ▪ Supplied wired/wireless remote control unit RM-1271 controls all the projector functions such as setup adjustments and operational functions ▪ Desktop mounted projection, ceiling mounted projection, floor mounted projection and rear projection capabilities ▪ Can be used with screens from 70" to 300" in size with simple adjustments \$22,040.00

VPH-1252Q SuperData MultiScan Data/Video Projector

- MultiScan capability: horizontal 15-61.5kHz, vertical 38-150Hz
- Incorporates a new CRT assuring small spot size and color purity
- Remarkable light output of 700 lumens (peak white), 200 lumens (all white) ▪ High resolution of 1500 x 1200 pixels (RGB in, at fH: 47kHz, fV: 38Hz) ▪ HACC lens for superior and stable picture performance ▪ Video decoder circuit for enhanced video picture quality ▪ Responds to both analog/digital RGB signals ▪ Supplied wired/wireless remote control unit RM-1271 ▪ Desktop mounted projection, ceiling mounted projection, floor mounted projection and rear projection capabilities ▪ Can be used with screens from 70" to 300" with simple adjustments \$14,910.00

VPH-1044Q Super Bright Video Projector

- Factory adjusted for 100" flat screen, 67"-250" adjustable ▪ High resolution of 700 TV lines (composite video) ▪ High output of 140 lumens (all white)/700 lumens (peak white) ▪ HACC lens ensures a high contrast, sharp display with minimum thermal drift
- Component (Y/R-Y/B-Y) and RGB input terminals ▪ Compatible with NTSC, PAL and SECAM; NTSC 4.43 can also be reproduced
- Supplied with wireless/wired remote control unit \$7,875.00

VPH-1001Q Super Bright Video Projector

- Factory adjusted for 100" flat screen 67"-250" adjustable ▪ High resolution (Video 650 TVL) ▪ High brightness of 700 lumens
- Displays 2000 characters ▪ PAL/SECAM/NTSC/NTSC 4.43, auto sense ▪ Y/C input ▪ Built-in speaker ▪ Delta TAC II lens . . . \$6,195.00

RVP-4010Q MultiScan Rear Projector

- 40" screen size ▪ 3 tubes, 3 lenses, horizontal in-line rear ▪ 6.2" tube CRT ▪ High performance multi-coated HACC lens ▪ Resolution: 800 x 600 pixels (RGB in)/600 TV lines (video in) ▪ Scanning frequency: horizontal 15-75kHz; vertical 38-150Hz. \$12,990.00

VPL-350Q LCD Data/Video Projector

- High power metal halide lamp and 3 LCD panels, each with 345,600 pixels ▪ 28"-200" projected picture size ▪ Precisely made gamma correction ▪ Picture shift and zoom functions allow easy adjustment for various installation conditions ▪ Double scan capability incorporated to minimize visibility of scanning lines and line flicker ▪ S-Video (Y/C), RGB (D-sub 9-pin) and video (BNC) input terminals ▪ Can be installed on desks, floors, hung from ceilings or rear projected ▪ Built-in monaural 2W speaker ▪ Supplied remote control \$11,990.00

Projector Accessories

PSS-722	Suspension support for VPH-1044Q/1001Q . . .	\$ 360.00
PSS-1270	Suspension support for VPH-1272Q/1252Q . . .	810.00
PSS-350	Suspension support for VPL-350Q	700.00
SU-722	Pedestal for VPH-1044Q/1001Q	685.00
VPR-722S	Remote control for VPH-1044Q/1001Q	670.00
VLC-1040	Carrying case for VPH-1044Q/1001Q	1,050.00
VPS-72HG1	72" curved screen	1,220.00
VPS-100HG1	100" curved screen	4,465.00
VPS-701R1	Fine pitch 70" rear screen	15,025.00
VPS-700R2	70" rear screen	6,800.00
VPF-701R	Screen frame for VPS-701R/700R2	390.00

Peripheral Accessories for

VPH-1272Q/1252Q, RVP-4010Q/VPL-350Q

PC-1271	Signal interface switcher for VPH-1272Q/1252Q RVP-4010Q/VPL-350Q	\$2,625.00
IFU-1271	Interface unit for VPH-1272Q/1252Q, RVP-4010Q/VPL-350Q, PC-1271; one IFB slot unit when 2 outputs (5 BNC x 2), converts digital signal level to analog signal level; separate/composite sync selectable.	1,155.00
IFB-11	Interface board for analog RGB input (BNC x 5) and audio input	355.00
IFB-20	Interface board for analog RGB input (D sub 9-pin, male) and audio input	445.00
IFB-30	Interface board for digital RGB input (D sub 9-pin, male) and audio input	485.00
IFB-101	Interface board for index no. selection for max. 100 projectors and AC power on/delayed AC power on function	505.00
IFB-1000	Interface board for composite video input/output, Y/C input/output and audio input	355.00
IFB-1200	Interface board for component (Y/R-Y/B-Y) input and audio input	745.00
IFB-3000	Interface board for double scanning, composite video input (x3), Y/C input (x3), component input (Y/R-Y/B-Y) (x3), and audio input	3,310.00
RM-PJ10	Remote control receiver for VPH-1272Q/1252Q, VPL-350Q	131.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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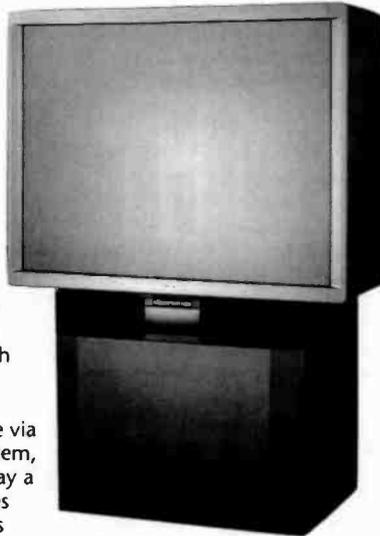
VIDEO PROJECTION SYSTEM/MULTISCAN MONITORS

RVP-6010Q MultiScan Rear Screen Video Projection System

▪ 60" rear projected screen size ▪ Especially suitable for business presentations and information displays which require sophisticated multimedia capabilities ▪ Contains projection head, rear projection screen, reflective mirror and audio system in compact, 1-piece unit which facilitates convenient, transportable installation

▪ Easy to set up and operate via infrared remote control system, projection system can display a wide variety of input sources including high end graphics computers ▪ Optical coupling system links projection system's lenses and cathode ray tubes (CRTs) to help reduce light refraction and ensure display of high contrast pictures ▪ Images displayed on the RVP-6010Q system are virtually unaffected by ambient light due to the design of the system's rear projection screen ▪ Only 1 mirror used to reflect images, minimizing loss of light intensity ▪ Super Fine Pitch™ screen contains a combination of fresnel and lenticular lenses, helping widen both vertical and horizontal viewing angles ▪ 0.6mm pitch lenticular screen provides precise display of computer images ▪ Black stripes coated on screen's lenticular front surface absorb ambient light and enhance contrast to prevent image "washout" under typical room lighting conditions ▪ Combination of CRT and lens design maximizes projector's light output, generating a bright display of up to 150fL at peak white and 40fL all white ▪ Resolution 1280 x 1024 pixels (RGB input) ▪ Accepts and automatically adjusts for a wide variety of computer sync signals ▪ Compatible with new high quality video formats including HDTV (High Definition Television) and IDTV (Improved Definition Television) ▪ Provides Y/C and Video inputs, plus input ports for optional IFB-series interface boards ▪ Can be configured for wired or wireless operation to provide easy control of all projection functions including convergence, RGB size and shift, centering, input selection, picture control and volume ▪ Memory function stores adjusted picture settings, retaining this memory even after power has been turned off until further adjustments are made

▪ Adjustment status and information about input signals can be displayed on system's screen for reference \$28,990.00



and earphone jacks for audio monitoring ▪ Horizontal and vertical size/shift controls in RGB mode ▪ Slot type RGB input for future I/F board ▪ 8/16/64-color and monochrome display capability ▪ Sub picture control for RGB mode ▪ Shielded especially to prevent the leakage of VLF (Very Low Frequency)/ELF (Extreme Low Frequency) magnetic fields \$1,515.00

GVM-1316TSQ 13" MultiScan Touch Screen Color Monitor

▪ Surface acoustic wave touch screen for high transparency and reliability ▪ MultiScan capability: horizontal 15-36kHz, vertical 50-100Hz ▪ High resolution of 1024 x 768 pixels (RGB)/600 TV lines (composite video) ▪ VGA auto size function in RGB A mode ▪ Multiple inputs with audio inputs; composite video, Y/C and analog/digital RGB inputs ▪ Can be used with IBM PC with CGA/EGA card, IBM PS/2 and Apple Macintosh II color mode ▪ Built-in speaker and earphone jacks for audio monitoring ▪ Horizontal and vertical size/shift controls in RGB mode ▪ Slot type RGB input for future I/F board ▪ 8/16/64-color and monochrome display capability ▪ Sub picture control for RGB mode ▪ Shielded especially to prevent the leakage of VLF/ELF magnetic fields \$3,010.00



GVM-2020 20" MultiScan Color Monitor

▪ MultiScan capability: horizontal 15-36kHz, vertical 50-100Hz ▪ High resolution of 720 x 480 pixels (RGB)/560 TV lines (composite video) ▪ Multiple inputs with audio inputs; composite video, Y/C and analog/digital RGB inputs ▪ Can be used with IBM PC with CGA/EGA card, IBM PS/2 and Apple Macintosh II color mode ▪ Beam current feedback circuit for stable color reproduction ▪ 8/16/64-color and monochrome display capability ▪ Slot type RGB input modules for future I/F board ▪ Horizontal shift and horizontal/vertical size controls in RGB mode ▪ Sub picture control for RGB mode \$1,870.00



GVM-1311Q 13" MultiScan Color Monitor

▪ MultiScan capability: horizontal 15-36kHz, vertical 50-100Hz ▪ High resolution of 1024 x 768 pixels (RGB)/600 TV lines (composite video) ▪ VGA auto size function in RGB A mode ▪ Multiple inputs with audio inputs; composite video, Y/C and analog/digital RGB inputs ▪ Can be used with IBM PC with CGA/EGA card, IBM PS/2 and Apple Macintosh II color mode ▪ Built-in speaker

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



500



LASER VIDEODISC RECORDER/PLAYERS



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LVR-3000AN CRV Disc Recorder

- Features time-lapse recording functions that are precise and easy to use
- Stores individual frames of video at programmable intervals to provide still, real time full motion video or time-lapse recording with sequential playback
- The most recently recorded frame sequences — up to 330 frames back — can be played back at variable speeds to evaluate the change in growth or mutation of the cells being studied so optimum recording intervals can be determined
- Employs the same component video recording (YUV) employed in Sony Betacam video recorders
- The disc system records up to 48 minutes of motion video or 87,000 still images onto a 12" write-once optical disc
- The CRV disc media holds 128K bytes for text-based information such as user ID and indexes

LVR-3000AN \$18,800.00



LVA-7000 Laser Videodisc Player

- Component time division multiplex recording format
- Can play back 24 minutes of moving pictures or 43,500 frames of still pictures from each side of the disc
- Slow mode: Since a disc is played back frame by frame due to its recording format, fast moving objects may sometimes blur, especially in slow motion mode. The LVA-7000 provides field-by-field slow motion playback capability by using frame memory to minimize picture blurring
- User memory mode: Any 2 fields can be stored in the memory for instantaneous reference at any time
- Equipped with component video output

- (Y/R-Y/B-Y)/analog RGB output, Y/C separate video output (DIN 4-pin) and composite video output
- External computer control capability via the built-in RS-232C port (compatible with LVR/LVS and LDP series protocol)
- Equipped with a 9-pin remote interface (RS-422 serial) to be controlled by BVE Series editing control units
- High resolution black and white mode
- A 64K byte area for user data on each side of the disc
- Noiseless pictures can be played at still and slow motion speeds
- Multi-connection capability using video input connectors
- Genlock capability
- System sync phase adjustment for connection to an SEG or switcher

LVA-7000 \$10,860.00

LVA-3500 Laser Videodisc Player

- Provides playback of high quality images recorded on the LVM-3AA0 optical disc, of which each side can store up to 24 minutes of moving video or 43,500 still frames
- Can be set to either color or B/W. In the B/W mode, a 6.7MHz bandwidth provides high resolution black and white picture reproduction
- Noiseless pictures can be played back at still and slow motion from 1/25 normal speed or fast motion at 3 times normal speed in either forward or reverse
- Equipped with an RS-232C interface
- Software protocol is compatible with that of both the LVR Series Laser Videodisc Recorder and LDP Series Videodisc Players
- Component video output (Y/R-Y/B-Y), analog RGB output, Y/C separate video output and composite/B/W video output for flexible connection to other equipment
- In the search operation mode, the current frame number or input frame number can be superimposed on a picture

LVA-3500 \$7,450.00

LVR-5000A Laser Videodisc Recorder/ LVS-5000A Laser Videodisc Processor

- The Laser Videodisc Recording System can be set to record and play back only black and white images
- Elimination of color components allows an increase in resolution with the bandwidth of 6.7MHz
- The LVS-5000A can accommodate multiple types of video inputs and outputs. Its component inputs/outputs (RGB or Y/R-Y/B-Y) can be used for the highest quality recording and playback
- System is equipped with a composite input/output to enable interfacing with numerous video sources including VTRs and cameras
- In addition to its ability to record and play back 24 minutes of continuous video and audio, the Laser Videodisc Recording System allows frame picture recording
- Maximum of 43,500 frames in NTSC and 36,250 frames in PAL can be recorded on one side of the disc
- System can be controlled from an external computer via the built-in RS-232C port
- Audio signals are encoded into a digital form by the PCM (Pulse Code Modulation) circuit
- 64K byte area is reserved on each side of the optical disc for user data
- Noiseless pictures can be played back at still and 1/25 to 3 times normal speed in forward and reverse
- When a reference video signal (VBS or sync) is input, the playback signal will be synchronized with the reference signal

LVR-5000A Recorder \$10,321.00
LVS-5000A Processor 10,321.00

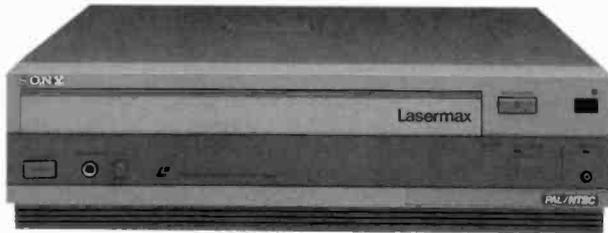
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

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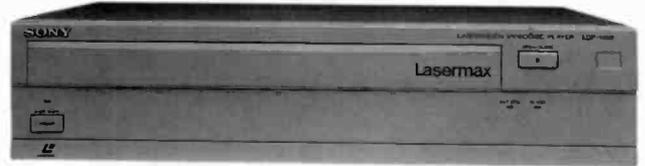
VIDEODISC PLAYERS



LDP-3600D Dual Standard Videodisc Player

- PAL and NTSC playback capability
- CAV frame search is 3 seconds or less
- Built-in character generator with video overlay
- Computer access to different character sizes offers easy updating of messages and enhancement of video images
- Blackburst video out signal permits internally generated characters or externally overlaid computer graphics to remain on screen and stable even when the player is in the search mode
- Intelligent RS-232C serial communications port receives commands from virtually any computer and returns status information to the CPU
- User code recognition

LDP-3600D \$2775.00



LDP-1450 Videodisc Player

- CAV frame search is 2 seconds or less
- Built-in character generator with video overlay—messages and titles can be superimposed over videodisc motion and still images without using an external graphics/overlay system
- Computer access to different character sizes offers easy updating of messages and enhancement of video images
- Blackburst video out signal permits internally generated characters or externally overlaid computer graphics to remain on screen and stable even when player is in search mode
- Extensive software control including audio muting control, video on/off, videodisc tray eject with enable/disable, memory search, picture stop code enable/disable, etc.
- Intelligent RS-232C serial communications port receives commands from virtually any computer and returns status information to CPU

LDP-1450 \$1195.00



LDP-1550 Videodisc Player

- May be configured for stand-alone Level I applications and fully integrated Level III systems which connect the videodisc player to virtually any external computer
- Reduced access time and track jump capability allow highly interactive programs to respond instantly to viewer input
- External sync lock and generator
- Automatic optical block locking mechanism

LDP-1550 \$1950.00



MDP-1150/2 Videodisc Player

- LaserBarcode 2 compatibility, giving user access to a greater number of player functions on CAV discs, as well as precise control of CLV discs
- Barcode CD compatibility, allowing user to directly access music or talking books to any track or segment with accuracy of up to 1/4 sec.
- Front panel "remote/local" switch enables user to switch between computer control and remote or optional barcode scanner control without disconnecting the computer
- Universal playback of 12" and 8" videodiscs, 5" CDV discs, 5" and 3" digital CD audio discs
- Computer connection (RS-232) compatible with the Sony LDP-Series offers control of both videodisc and CD audio disc functions
- Bar code control compatible with existing videodisc software
- Playback of either digital or analog videodisc audio tracks
- Simple Level 1 control with the included infrared remote control
- 8X oversampling digital filter
- S-Video output terminal
- Unique clear scan on CLV laserdiscs
- Dual scan mode shuttle control
- Wireless Remote Commander® with shuttle control
- 11-mode fast/slow play, still-frame, frame-by-frame on CAV discs
- Programmable playback of up to 20 chapters or tracks

MDP-1150/2 \$995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



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MVC-7000 3-CCD Still Video Camera Recorder

▪ 380,000 pixels (768H x 494V) ▪ Bayonet lens mount ▪ More than 500 lines horizontal resolution (high band, recorded on floppy disk) ▪ By connecting the camera to a video monitor, images can be reviewed to check the results instantly ▪ Video images can also be transferred to computer systems for image archival, desktop publishing and creation of presentation graphics ▪ Telephoto power of a lens on the MVC-7000 is 5.3X higher than that of the same focal length lens mounted on a 35mm camera ▪ AC/DC operation ▪ ID mode \$8270.00



- MCL-806H 8-48mm f/1.8 1-touch zoom lens for MVC-7000 \$1470.00
- MCL-05H 5mm wide-angle lens for MVC-7000 2420.00
- MCL-710H 7.8-78mm f/1.8 1-touch zoom lens with macro for MVC-7000 4390.00
- MCL-806H 8-48mm f/1.8 1-touch zoom lens for MVC-7000 1470.00
- MCL-807TA 8-56mm f/2.8 zoom lens for MVC-7000 1400.00

OFF Mode: There is no functional relation between the ProMavica deck and the MPU-F100A.

TIMER STOP Mode: The ProMavica deck goes into the stop mode after continuously playing back the same picture for 10 minutes without track change. After the deck is in the stop mode, the frozen picture remains.

The MPU-F100A is equipped with an external genlock input connector for composite video or blackburst input. It can control hue and color level of the composite and Y/C separate video signals, and video level and setup level of the input signals. Noise reduction circuit for still pictures provides 4 steps of noise reduction levels. An RS-232C interface is employed for external computer control \$5275.00



MPU-F100A Frame Memory/Frame Synchronizer

▪ Accepts asynchronous video signals, locks them with the house sync and outputs synchronous video signals ▪ Provides time base error correction to eliminate skew errors and jitter ▪ These functions enable video playback sources including ProMavica recorders/players to be used in various video systems such as in computer graphics, CATV, POP and POI operations

ProMavica recorders/players show video signal muting during the transition of the head movement from one picture to another. The MPU-F100A eliminates this phenomenon by storing a picture in the frame memory. When using the Lap Dissolve function, 1 picture can switch over to another with 1.2 seconds of transition time. The MPU-F100A and a ProMavica recorder/player should be connected via an optional interface cable, IFC-100 (2m).

In combination with a ProMavica recorder/player, 3 kinds of still video control modes are available:

ON Mode: The MPU-F100A freezes a picture automatically when the ProMavica deck goes into playback mode. When the deck plays back a different track, the MPU-F100A freezes a new picture.

MVR-5300 Hi-Band Still Video Recorder/Player

▪ 500 TVL ▪ Selectable hi-band or normal band modes ▪ Auto play feature for sequential playback ▪ On-screen display ▪ Multiple inputs/outputs: composite video, Y/C (S type) and RGB with sync ▪ External control, RS-232C, TC-sync and foot switch \$4765.00



MVR-5400 Hi-Band Still Video Recorder/Player

▪ Audio Rec/PB ▪ 500 TVL ▪ Selectable hi-band or normal band modes ▪ Auto play feature built in for sequential playback ▪ On-screen display ▪ Multiple inputs/outputs: composite video, Y/C (S type) and RGB with sync, audio (phono) and 15-pin dubbing connector (for dubbing video and audio) ▪ Up to 5 MVR-5400s may be connected for multiple duplications using VDC-54 cable ▪ External control, TC-sync and foot switch \$5335.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



UP-7000 MultiScan Color Video Printer

- 500 lines horizontal resolution
- 8 bits (256 gradations) and 16.7 million colors
- Accepts standard NTSC video, as well as hi-scan video signals from IBM PS/2 and Macintosh
- Hard copy prints in approximately 140 seconds
- RS-232C interface
- 8½" x 11" page size
- Monitor not included



UP-7000 \$9920.00

UP-5100/UP-5150 Color Video Printers

- Capable of printing over 16.7 million colors per dot
- Hard copy comparable to photographic methods
- Produces full size and split images
- Capable of producing OHP color transparencies
- Accept almost any video signal, including composite, RGB analog, ProMavica and Betacam color differential signals, and separate Y/C signals
- Can print an image in under 60 seconds
- Can be controlled via RS-232C cable by external computer
- Monitor not included

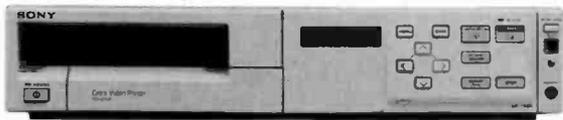


UP-5100 \$8140.00
 UP-5150 With 2-frame memory 9078.00

UP-2200R Color Video Printer

- Reproduces near-photographic quality prints
- Ideally suited for producing a variety of novelty goods including "Buttons," "Photo-Calendars," "Photo Name Tags," "Jigsaw Puzzles," "Mugs and Cups," "Photo Key Chains" and "Photo Baseball Caps"
- Using RGB full frame memory, the UP-2200R realizes a resolution of up to 330,000 pixels and an image of 708(H) x 448(V) dots
- 16.7 million colors per pixel
- Up to 30 consecutive prints of the same picture is possible
- 24-bit one frame memory

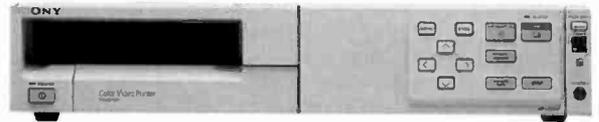
UP-2200R \$2100.00



UP-1800 Color Video Printer

- High quality A6 size color prints from almost any standard video source, including RGB, S-Video (Y/C), composite video and RS-232C control interface
- Single frame memory
- 4 or 16 strobe images print
- Genlock prints
- Near photographic prints
- Selectable scan and image size
- 4 or 16 split memory print
- LCD display
- 2, 4 or 16 pickup print
- Caption setting
- Last mode recall
- Loophrough out

UP-1800 \$2650.00



UP-1200 Color Video Printer

- Fast 60-second printing
- Print capability of 100
- Caption: 60 characters
- Color adjust (load, save)
- Last mode recall
- Menu operation with monitor
- Loophrough out
- Split memory (1, 4, 16)
- Duplicate image (2, 4, 16)
- Remote control
- Mirror mode

UP-1200 \$1850.00



UP-930 B/W MultiScan Video Graphics Printer

- Hi-line: 525 to 1125 vertical scan lines
- 7-bit (128 gray gradations)
- Hard copy prints in approximately 19 seconds
- Full page print
- 1, 2, 4 or 8 prints per page
- Scanning rate of approximately 15-50kHz

UP-930 \$6263.00

UP-910 B/W Video Graphics Printer

- Large print size: 6" x 8" (wide mode)
- 128 shades of gray
- High resolution, high density 768 x 508 dot pattern
- Hard copy prints in approximately 25 seconds
- Automatic selection of EIA (525 lines) or CCIR (625 lines) standards
- 3:4 or 1:1 selectable aspect ratios
- Selectable normal or wide scan modes
- Loophrough BNC video input and output with 75-ohm termination

UP-910 \$2495.00

UP-860 B/W Video Graphics Printer

- 896 dots of picture elements with 256 steps of gradation on paper
- Hardcopy in less than 4 seconds
- Frame/field memory selectable
- Normal/wide scan function
- Economy print mode
- 4:3/1:1 aspect ratio selectable
- Positive/negative printing selectable
- Normal/reverse direction selectable
- EIA/CCIR automatic selection
- Alarm buzzer
- Multiple copy
- Thermal head protection

UP-860 \$1629.00

Accessories

- UPC-5010A Color print pack \$650.00
- UPC-5020A Monochrome print pack 650.00
- UPC-5030 Transparency print pack 125.00
- UPC-7011 Color print pack for UP-7000 275.00
- UPC-7021/A Monochrome print pack for UP-7000 265.00
- UPC-7031 Transparency print pack for UP-7000 405.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



CCD CAMERAS/VIDEO PRESENTATION STAND

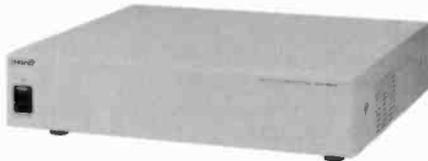


SONY®

Business and Professional Group



DKC-5000



UP-D7000

DKC-5000 Catseye™ Digital Camera System

- 1/2" CCD with 440,000 pixels for each red, green and blue CCD capturing over 800 x 800TVL of resolution
- 10-bit A/D conversion for increased tonal expression
- SCSI-2 interface for fast transmission
- Use of 1/2" FB 38mm bayonet-type lens for easy compatibility
- Lens adaptor allows use of 3/8" lenses
- Expands from 2 to 10 frame memory storage capability with the DKB-5008 Expansion Board
- Connects directly to a UP-D7000 Digital Color Printer to print without a computer
- Programmable dynamic range (gamma and knee)
- Flash photography possible with X contact output
- Film camera can be synchronized for photoproofing applications
- Connect the system to a personal computer for storage and retrieval of digital images
- Very versatile, cost-effective professional digital photo imaging solution meets the requirements of a wide range of imaging applications, including prepress and publishing, scientific imaging analysis, industrial imaging, computer graphics, photo proofing and instant portraiture \$14,850.00



DXC-930 3-CCD Color Video Camera

- 3 1/2" IT Hyper HAD CCDs, each with 380,000 effective picture elements
- Sensitivity of f/5.6 at 2000 lux
- 720 TV lines horizontal resolution
- S/N ratio of 58dB
- Variable speed electronic shutter
- CCD iris function automatically controls exposure by electronically adjusting for incoming light levels
- Auto white and black balance
- Multiple RGB, Y/C and composite signal outputs
- Genlock capability \$5,890.00



DXC-151A Single Chip CCD Color Video Camera

- Color video camera with mosaic type CCD with primary color filter
- Horizontal resolution of 460 TV lines
- Minimum illumination

- 25 lux (f/1.4)
- Electronic shutter (1/60-1/10000 sec.)
- Genlock VBS, BS
- White balance ATW, AWB, preset (3200K/5600K)
- RGB, Y/C output, composite VBS, connector for computer image capture cards (9-pin D-sub) \$1,790.00

DXC-107A Single Chip CCD Color Video Camera

- IT (Interline Transfer) HAD (Hole Accumulated Diode) sensor CCD chip with 380,000 effective picture elements
- Horizontal resolution of 470 TV lines
- High sensitivity is provided through the CCD imager's complementary color mosaic filter
- HAD sensor technology considerably reduces dark current, ensuring an excellent signal-to-noise ratio of 48dB
- 4 alternate white balance control modes can be selected to meet a wide range of operational conditions
- 2 automatic control modes, AWB (auto white balance) or ATW (auto tracing white), or 2 preset modes, indoor (3200K) or outdoor (5600K)
- CCD iris function automatically controls the exposure by electronically adjusting the shutter speed, instead of using the mechanical auto iris function, which is incorporated in the lens
- Variable speed electronic shutter (1/100 NTSC, 1/50, 1/1000, 1/2000, 1/4000, 1/10000 sec.)
- 4-digit ID number can be generated and superimposed on the picture
- Only 5 1/4" long and 12.7 oz. \$1,475.00

AVC-D7 Single Chip CCD Monochrome Video Camera

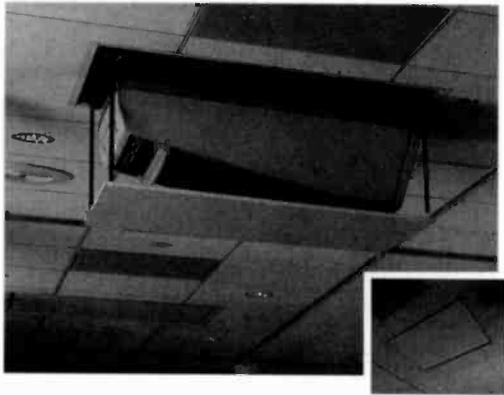
- 380,000 effective picture elements on sensing area of 8.8 x 6.6mm
- Horizontal resolution of 570 TV lines
- Signal-to-noise ratio of 50dB
- Minimum illumination is only 3 lux (f/1.4)
- Automatic Gain Control (AGC) function allows the AVC-D7 to shoot under various light levels
- External genlock capability and built-in camera ID generator are useful in multiple camera operations
- Accepts various genlock signals of VBS, VS, sync or HD/VD
- Only 5" in length and 11.6 oz. in weight
- 8-step variable speed electronic shutter ranging from 1/60 to 1/1000
- second offers blur-free picture and improves dynamic resolution when shooting fast-moving objects
- Designed to accept C-mount lenses for 3/8" image size cameras with iris control capability \$1,145.00

VID-P11 Video Presentation Stand

- Integral DXC-101 camera chassis, lens, portable copy stand with lights
- 6X macro zoom lens fills screen with 2.4" x 1.75" to 13.5" x 9.9" object
- 510 x 392 CCD for clear, burn-free pictures
- Mic and phono inputs with volume control; line level output
- RF output with optional RFU-89K
- Switched AC outlet (300W)
- Built-in microphone amplifier
- The pictures from the VID-P11 can also be recorded by VTRs and Sony still video recorders
- Can display books, catalogs, even 3-D objects and flat objects. Also, the VID-P11 can display them on TV monitors and projectors \$4,095.00



ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



(Example: a 6'H x 8'W video image size requires the projector to be mounted 12' back from the screen.)

- Electrical requirements – 120V, 60Hz, 1.8A continuous up to 9A surge; 220V, 50/cycle units available for overseas use

Unit Control Systems

- Switched and unswitched A/C convenience outlet supplied with every unit
- Low voltage up/down wall switch (24V self-contained power supply included)
- Video tuner interface control (lift platform automatically goes up and down by switching outboard video tuner on and off)
- Wireless remote command (R.F. type)

Shipping and Assembly

Shipped in wood crate by truck or air with blueprints for installation. (Shipping weight: 220 lbs.)

- VPL-16 Standard for floor or ceiling mount. \$3690.00
- VPL-20 Standard for floor or ceiling mount. 3690.00
- Jumbo
- VPL-20 For large oversize projectors 4995.00

Low Voltage Control



Video Projector Lift

The Video Projector Lift has a precision lifting design far superior to standard methods of video projector mounting. Remote controlled operation allows you to lower equipment into the exact, optimum projection position and raises to completely conceal equipment.

With the VPL, you can maintain the high profile architectural ambience of your viewing room. In the raised position, only the bottom of the lift shows. It may be finished to match your ceiling decor.

The VPL is an unequalled hidden system for maintaining your viewing environment and safeguarding your equipment.

- For all popular video projectors – Can accommodate projectors with a footprint size up to 26½"W by 37"D
- Multiple uses – Projector lift may be used to raise/lower audio speakers, television monitors and video cameras
- Concealment and equipment security – Uniquely designed to operate by lifting projector parallel with the ceiling plane, so it is totally concealed and safeguarded
- Precision operation – Maximum lowering distance is 20" (VPL-20) or 16" (VPL-16); custom travels available on special order
- Quiet and fast cycling – When raising and lowering lift
- Out of light-path – Lift retracts the projector unit out of the light-path of conventional film projectors
- Long-lasting – Sturdy, all metal construction with heavy-duty rack-and-pinion operating mechanisms, wheels and tracks
- Matches room decor – Bottom of lift can be finished by a contractor to conform with room decor
- Convenience outlet – Switched and unswitched A/C outlet for projector
- Ceiling opening – Platform designed to fit in ceiling opening 24"H x 30"W x 39½"D (for VP-20) or 20"H (for VP-16)
- Distance from screen – All major brand video projectors mount a distance of 2X screen height from projection screen. Design placement of ceiling opening in accordance with this formula.

Videomatte 2000 Screen With Fixed Snap Frame

- Choice of standard wall mount or optional freestanding models
- Snaps concealed behind frame
- 1½" black border for video overscan
- Aluminum frame with flat black finish
- Custom sizes also available



Picture Model #	Picture Diagonal	Height	Width	Price
VM72SN	72"	43"	57"	\$ 595.00
VM78SN	78"	47"	63"	675.00
VM84SN	84"	50"	67"	725.00
VM90SN	90"	54"	72"	795.00
VM100SN	100"	60"	80"	925.00
VM120SN	120"	72"	96"	1195.00
VM150SN	150"	90"	120"	1675.00
VM180SN	180"	108"	144"	2180.00

Videomatte 2000 Electricscreen

- Wall-mounted or ceiling-mounted models
- Sturdy electric roll-up system
- Tab-guy system prevents edge curl
- 3" black border for video overscan
- Up/down wall switch standard
- Custom sizes and rear screen project models available

Model #	Diagonal	Picture Height	Picture Width	Price	Optional 12" Black Screen Drop	Price
VM60A	60"	36"	48"	\$1595.00	VM60A12B	\$1595.00
VM72A	72"	43"	57"	1750.00	VM72A12B	1750.00
VM78A	78"	47"	63"	1850.00	VM78A12B	1850.00
VM84A	84"	50"	67"	1895.00	VM84A12B	1895.00
VM90A	90"	54"	72"	1995.00	VM90A12B	1995.00
VM100A	100"	60"	80"	2150.00	VM100A12B	2150.00
VM120A	120"	72"	96"	2450.00	VM120A12B	2450.00
VM150A	150"	90"	120"	2995.00	VM150A12B	2995.00
VM180A	180"	108"	144"	3595.00	VM180A12B	3595.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

AUDIO RECORDING/ EDITING SOFTWARE



Studio 16™ Audio Recording/Editing Software

Studio 16 is a multitrack studio with integrated digital signal processing. Bundled with a high fidelity audio card, this software gives you advanced hard disk recording, extensive editing features and comprehensive SMPTE support. Studio 16 is a complete 16-bit audio editing environment with SMPTE time code support. You can record complete video sound tracks, vocal tracks or music tracks to hard disk. You can then play back your audio synchronized with SMPTE.

Direct to Disk Sampling and Editing Studio 16 records, edits and plays directly off hard disk. In fact, Studio 16 can play up to 8 simultaneous tracks off 1 or multiple hard disks in real time. Plus the length of your audio is no longer limited by the amount of system RAM you have. At a "CD" sampling rate (44.1kHz) you will use about 5M byte of hard disk space per minute per channel. Lower sampling rates will use less.

Video Production Studio 16 includes many features that make it ideal for use in video production. These include:

- LTC SMPTE time code reader built in
- Optional LTC SMPTE output module
- VITC compatible with VITC to LTC converter
- SMPTE cue list triggers audio on any frame
- SMPTE chase capabilities
- Internal SMPTE preview generator triggers cue list without external time code
- Fade in, fade out or cross fades
- Individual control of 8 tracks
- Video Toaster workstation compatibility

Music Production Studio 16 integrates with the Bars & Pipes Professional sequencer from the Blue Ribbon SoundWorks. This integration allows Bars & Pipes to synchronize to Studio 16's SMPTE time code. You can also trigger sounds from hard disk on a MIDI note. Or synchronize long tracks of hard disk recorded guitar, vocals, etc. with your Bars & Pipes MIDI sequences.

Cue List Cue list lets you coordinate and synchronize hundreds of sounds to either internal or external SMPTE time code simply by using your mouse to activate any editing function. Fully integrated with all Studio 16 modules, cue list lets you assign volume levels, generate time code, create simultaneous fades and cross fades and

generate any number of digital sounds, all triggered with frame-by-frame accuracy. You can even record the output to a new track for perfect digital mixdown. Plus, you can use the built-in AREXX Track to control all types of AREXX compatible software, including Video Toaster, from the cue list, using SMPTE time code triggers. Since cue list can trigger from both internal and external time code, you can easily set up mixes for applications that don't usually use SMPTE, such as radio or music production.

SMPTE Generator This SMPTE preview generator can be used to trigger the cue list. This is great for things like radio commercials where you want to build long lists of audio events that are synchronized to each other.

Mixer Using mixer, you can adjust the volume and pan of each channel in real time as you would with a "real" mixer. It even interfaces with external MIDI controllers such as the FaderMaster from JL Cooper. The automated mixing facility memorizes the adjustments you make while recording, and can re-enact them during subsequent playbacks and records.

SMPTE Monitor Using the built-in SMPTE time code reader, you can display time code on your screen. Using a genlock, you can dub this time code onto a tape to make a window dub.

Meters Studio 16 has 3 different types of meters. There's the traditional analog VU and bar graph meters with peak hold. Also available is a real time scrolling view of the digital waveform.

Waveform Editor With Studio 16's editor, you can edit multiple waveforms simultaneously. Cut and paste from one digital sound into another. "Draw" on the waveform with your mouse. Fade in, fade out, invert and flip sound. The Editor also performs echo, normalize, loop, FFT, resample and many other operations. The Studio 16 editor saves and loads standard audio files. 16-bit formats include AIFF, Raw and Studio 16 (which allows non-destructive edits and regions). 8-bit formats include AIFF and IFF8SVX.

AREXX Studio 16 supports playing 16-bit sounds from AREXX. You can also adjust mixer levels and other internal parameters via AREXX. This makes it possible to control Studio 16 from other software, like CanDo.

Studio 16/AD516 Studio 16 and the AD516 board is complete, nonlinear, 16-bit audio recording and editing environment with SMPTE time code support. Record and play back voice, music and video audio tracks to and from a hard disk in real time. The AD516 is an 8-track, CD quality stereo board **\$1495.00**

Studio 16/AD1012 Studio 16 and the AD1012 board is a complete, nonlinear, 12-bit audio recording and editing environment with SMPTE time code support. Record and play back voice, music and video audio tracks to and from a hard disk in real time. The AD1012 is a 4-track, FM radio quality mono board **\$595.00**

DD524 Digital audio I/O board that allows direct import and export of digital audio between the hard drive in the Amiga and digital audio tape (DAT) without a generation of loss. Uses industry standard AES/EBU and S/PDIF connectors. The DD524 can also be used for hard disk backup to a DAT player/recorder. **\$749.00**

Toaster Handler Additional Studio 16 software driver which allows 1 or 2 tracks of audio to be played back while simultaneously performing a Toaster transition. Available for both the AD1012 and the AD516, these drivers configure the Studio 16 cards to buffer more data in the on-board memory. The AD1012 Toaster Handler includes two 128K RAM chips **\$249.00**

SMPTE Output Software that generates and sends SMPTE time code out of the Amiga's audio out jack. Used to strip time code onto audio and videotape, SMPTE output enables the Amiga to act as the timing master **\$249.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



24-BIT GRAPHICS ACCELERATORS

G3230 Thunder II GX • 1600

- Provides support for professional paint system resolution of 1600 x 1200 ▪ Viewing area of 92% more than 1152 x 870 and 38% more than 1360 x 1024 ▪ Provides CMYK acceleration and QuickDraw acceleration plus highest resolution for the Macintosh® ▪ Installs in a single NuBus slot
- Power Macintosh compatible™

G3230 \$3999.00



G3130 Thunder GX • 1360

- Provides CMYK acceleration, image processing acceleration and QuickDraw acceleration ▪ Delivers high-resolution color up to 1360 x 1024 with 39% more pixels than 1152 x 870 ▪ Installs in a single NuBus slot ▪ Power Macintosh compatible

G3130 \$3299.00

G3730 Thunder II GX • 1152

- 1152 x 870 resolution ▪ All the power of CMYK acceleration, image processing acceleration and QuickDraw acceleration ▪ Installs in a single NuBus slot ▪ Power Macintosh compatible

G3730 \$2599.00

G1130 Thunder/24™

- Provides high performance QuickDraw acceleration on 12-21" displays at resolutions from 512 x 384 to 1152 x 870 pixels ▪ Includes hardware pan and zoom, OpenSlot™ expansion connector for image processing accelerator and support for up to 8M bytes of on-board GWorld display memory ▪ Installs in a single NuBus slot ▪ Power Macintosh compatible

G1130 \$1999.00

G3430 Spectrum™ Power • 1152

- Delivers workstation-class, 24-bit graphics performance, executing QuickDraw functions up to 31X faster than unaccelerated video
- Delivers high-resolution color up to 1152 x 870 on screens up to 21"
- 7" form factor enables it to fit into any NuBus Macintosh ▪ Power Macintosh compatible ▪ On-board OpenSlot connector allows for a DSP upgrade for enhanced image-processing acceleration

G3430 \$1399.00

G3930 Spectrum/24 Series V

- Performance boost of 31X native QuickDraw graphics and resolutions from 512 x 384 to 1024 x 768 pixels on large-screen displays up to 20"
- Ideal for desktop publishing or business productivity needs ▪ Installs in a single NuBus slot ▪ Power Macintosh compatible

G3930 \$999.00

G2930 ThunderStorm® for Adobe Photoshop

- Compatible with Adobe Photoshop 2.5 ▪ First "Adobe-charged" accelerator ▪ Delivers significant performance boost for Image Size, Blur, Blur More, Gaussian Blur, Sharpen More, Sharpen Edges, Unsharp Mask, Find Edges, Emboss, High Pass, Custom, Skew, Perspective and Rotate
- Includes filters for Adobe Photoshop versions 2.0.1 and 2.5 ▪ Plug-ins for Storm Technology's PicturePress® Adobe Photoshop plug-in ▪ Installs in a single NuBus slot ▪ Power Macintosh compatible ▪ Offers Cinepak™ Compression Accelerator Software-only Upgrade for ThunderStorm
- Single ThunderStorm card with Cinepak Compression accelerator Software-only Upgrade provides an average of 40% time savings

G2930 \$499.00

DSP UPGRADE CARDS

G3830 Thunder II GX Upgrade

- Add the power of the fastest CMYK display, fastest image processing acceleration and fastest QuickDraw acceleration to Thunder/24 or Thunder II ▪ Installs in OpenSlot connector on Thunder/24 or Thunder II cards ▪ Power Macintosh compatible

G3830 \$999.00

G3630 SuperMac™ Power DSP Upgrade

- Adds more power to G3430, E-Machines®, Futura II and E-Machines Ultra™ LX graphics cards for extra processing needs of photorealistic operations ▪ Easy-to-install daughtercard delivers DSP-based image-processing acceleration to eliminate the performance bottlenecks slowing acquisition and transformation of photorealistic images in Adobe Photoshop and other applications ▪ Power Macintosh compatible

G3630 \$599.00

LARGE-SCREEN DISPLAYS

PV2101 PressView™ 21 Display System

- Designed to help graphics arts professionals streamline digital imaging from display to output ▪ Calibrated 5000°K white point delivers on-screen colors that more accurately match those printed on paper
- Software controls allow you to customize, save, restore and password protect display settings ▪ High-resolution viewing shows 92% more work than other 21" displays ▪ Includes ColorShield display hood to minimize glare and subtle color shifts from ambient lighting and SuperMatch Calibrator Pro tristimulus colorimeter for highly accurate display calibration that supports the following color management systems: Agfa FotoFlow™, Kodak Precision™, EfiColor™ and Apple ColorSync™
- Power Macintosh compatible

PV2101 \$3999.00

STD2102 SuperMatch 21 • T XL Super-Res Color Display

- Aperture-grille CRT technology similar to Sony's Trinitron®-brand displays ▪ Largest, high-performance aperture-grille display available ▪ Designed for on-screen performance at higher resolutions—including 1360 x 1024 and 1600 x 1200
- WYSIWYG viewing at 1152 x 870 meets all resolution needs of Power Macintosh, Macintosh and IBM PC-compatible users alike ▪ EBU phosphors deliver the most accurate, lifelike color while digital micro-processor controls make it easy to customize display settings
- Choice of 3 preset white points (5000°, 6500° and 9300°K)

STD2102 \$2599.00



STD9785 SuperMatch 20 Plus Color Display

- Delivers 1024 x 768 resolution for WYSIWYG design and layout, plus 1152 x 870 for working with 2-page spreads ▪ 6500°K natural white point, 20" form factor and precision circuitry for tight corner focus and color purity ▪ Power Macintosh compatible with VRAM only

STD9785 \$1949.00

STD9735 SuperMatch 17 • T Trinitron Color Display

- 17" color display includes multiple resolutions with support for 1024 x 768 full-page-plus mode, the workspace of a 20" display, 832 x 624 WYSIWYG and 640 x 480 magnified view resolutions
- Microprocessor-based controls for customizing display ▪ Antidistortion technology ▪ Accurate 6500°K white point ▪ Plug and play compatibility with motherboard graphics of the Power Macintosh and Macintosh Quadra

STD9735 \$1249.00

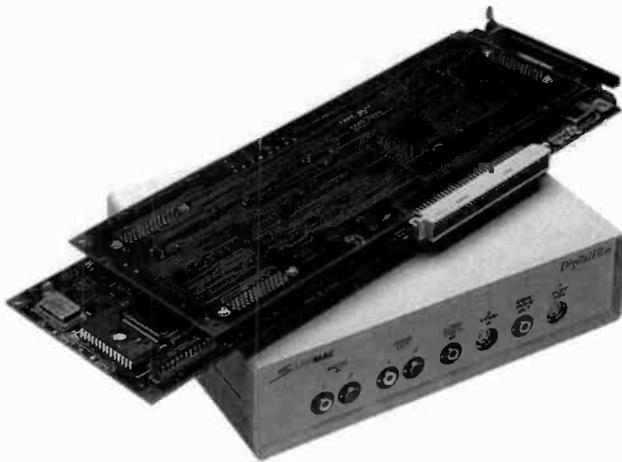
STD1701 SuperMatch 17 XL

- 17" display supports resolutions up to 1024 x 768 for full-page viewing, delivering the viewable work area of standard 20" displays ▪ Automatically syncs to all popular Macintosh and PC (VGA, SVGA and UVGA) timings and includes easy-to-use digital controls for customizing display ▪ Accurate 6500°K white point ▪ Anti-glare and anti-static screen coatings
- Compatible with most graphics cards as well as Power Macintosh and Macintosh built-in graphics interfaces

STD1701 \$1999.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DESKTOP VIDEO EQUIPMENT



DV2050 DigitalFilm™

- Delivers desktop video editing and multimedia production in a single slot
- Provides real time capture of 60 fields per second, full-motion video and audio to disk
- Supports 30 frames per second for NTSC compatibility, with video capture up to 640 x 240 pixels
- Integrated hardware-accelerated JPEG compression makes it possible to record to disk at compression ratios up to 50:1
- Includes on-board audio capability
- Integrated Thunder technology delivers 24-bit accelerated graphics on displays up to 832 x 624 resolution
- Supports NTSC/PAL, composite, S-Video, stereo audio input and output, and prints to tape at 640 x 480 pixels NTSC with integrated video encoder
- Installs in a single NuBus slot

Note: To achieve specified performance, DigitalFilm requires the following equipment: Apple Macintosh Quadra 800, 840AV, 950 or equivalent; 100M byte hard drive for system and application storage; 32M bytes of RAM minimum; 2G byte disk drive array for video storage; requires disk arrays with spindle speed of at least 5,400 rpm; normal quality, 42M byte/min: requires 4M bytes/sec. transfer rate: low quality, 35M byte/min: requires 3M byte/sec. transfer rate.

DV2050 \$3799.00

DV2010 DigitalFilm Player

- Single-slot card with integrated hardware-accelerated JPEG decompression makes it possible to play QuickTime™ movies up to 640 x 480 resolution at 30 fps for NTSC
- Includes compression functionality for editing your QuickTime movies
- Integrated Thunder technology delivers 24-bit-accelerated graphics on displays up to 832 x 624 resolution
- Installs in a single NuBus slot

Note: The DigitalFilm Player is easily upgradable to the full DigitalFilm product (DV2050) through SuperMac's ongoing trade-up program

DV2010 \$1999.00

DV3230 Cinepak Compression Accelerator Kit

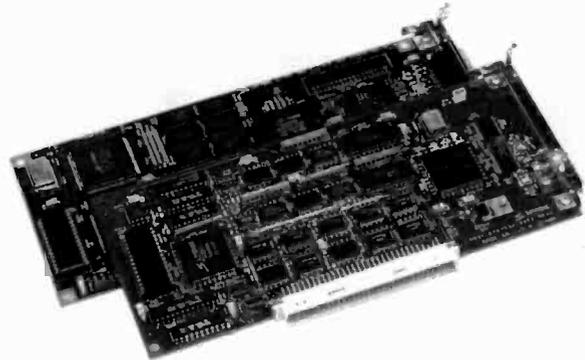
- Industry standard for high-quality, cross-platform video playback from CD-ROM
- Cinepak Compression Accelerator Kit is a "must have" for every QuickTime developer producing CD-ROM titles
- Kit consists of 2 ThunderStorm cards, the Cinepak Compression Accelerator Software and the software for acceleration of image-processing filters used in Adobe Photoshop and other applications
- For ThunderStorm owners, SuperMac offers the Cinepak Compression Accelerator Software-Only Upgrade for their cards
- A single ThunderStorm card with the Cinepak Compression Accelerator Software-Only Upgrade will provide an average of 40% time savings

DV3230 \$1499.00

DV1530 Spigot II Tape™

- Built-in encoder enables output of QuickTime movies to videotape or NTSC monitors for display to large audiences
- Ideal for training, affordable desktop video and CD-ROM production
- SpigotZoom™, the interpolated zoom feature, allows 320 x 240 movies to be increased in size to full screen for display on NTSC monitors or output to tape
- ScreenPlay™ II application included for basic video manipulation such as capture, cropping, trimming, playback and loop playback
- Interfaces with popular editing applications such as Macromedia Director, Adobe Premiere, AVID VideoShop and CoSA After Effects for more elaborate productions
- Installs in a full-length single NuBus
- Power Macintosh compatible

DV1530 \$999.00



DV1030 VideoSpigot™

- Easiest way to get full-motion video on your Macintosh
- Single-slot, digital-video frame grabber enables you to make QuickTime movies with Macintosh LC or NuBus systems
- Works with all popular graphics cards and displays for the Macintosh, including Macintosh on-board graphics
- Capture video and store it as fully digital data on an ordinary hard disk or optical cartridge for use with QuickTime-compatible versions of applications such as Adobe Premiere, Aldus Persuasion, Macromedia Director or WordPerfect
- Installs in a single NuBus slot

DV1030 NuBus \$429.00
 DV1050 Macintosh LC 279.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



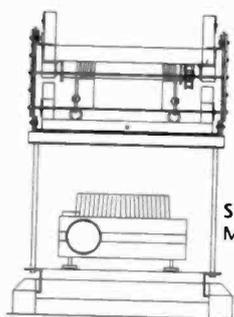
SVS Mini 4 Projector Lift Series

- Small footprint ■ 3 positions: storage, show, service ■ Projector/equipment mounts below lift ■ Key-switch control box (includes 75' of cable)

Specifications

- Lift Capacity (approximate): 300 lbs.
- Standard Lowering Distance: 3'6"
- Optional Lowering Distance: 6'8"
- Voltage (6' power cord supplied): 110AC ■ Materials: Steel

SVS Mini 4-3 3'6" maximum lowering distance	\$3315.00
SVS Mini 4-5 5'2" maximum lowering distance	3678.00
SVS Mini 4-6 6'8" maximum lowering distance	4041.00

SVS
Mini 4-3

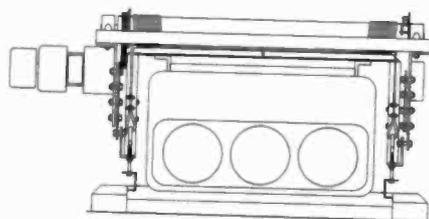
SVS 4 Projector Lift Series

- 3 positions: storage, show, service ■ Projector/equipment mounts below lift ■ Comes with key-switch control box (includes 75' of cable)

Specifications

- Lift Capacity (approximate): 300 lbs. ■ Standard Lowering Distance: 5'6" ■ Optional Lowering Distance: 10' ■ Voltage (6' power cord supplied): 110AC ■ Materials: Steel

SVS 4-5 5'6" maximum lowering distance	\$3623.00
SVS 4-7 7' maximum lowering distance	3986.00
SVS 4-8 8'6" maximum lowering distance	4349.00
SVS 4-10 10' maximum lowering distance	4712.00



SVS Mini 7-4

SVS 7 Mini Projector Lift Series

- Provides lowest ceiling clearance (projector/equipment mounts between scissors with lift needing only 3-4" of space above projector mount) ■ 3 positions: storage, show, service ■ Comes with key-switch control box (includes 75' of cable)

Specifications

- Lift Capacity (approximate): 300 lbs. ■ Standard Lowering Distance: 4'9" ■ Optional Lowering Distance: 7' ■ Voltage (6' power cord supplied): 110AC ■ Materials: Steel

SVS Mini 7-4 4'9" maximum lowering distance	\$5145.00
SVS Mini 7-6 6' maximum lowering distance	5508.00
SVS Mini 7-7 7' maximum lowering distance	5871.00

SVS 7 Projector Lift Series

- Provides longer lowering distance ■ Provides low ceiling clearance (projector/equipment mounts between scissors with lift needing only 5.5" of space above projector mount) ■ 3 positions: storage, show, service ■ Comes with key-switch control box (includes 75' of cable)

Specifications

- Lift Capacity (approximate): 300 lbs./600 lbs. ■ Standard Lowering Distance: 9' ■ Optional Lowering Distance: 29'3" ■ Voltage (6' power cord supplied): 110AC ■ Materials: Steel

SVS 7-9 9' maximum lowering distance	\$5145.00
SVS 7-11 11'3" maximum lowering distance	5508.00
SVS 7-13 13'6" maximum lowering distance	5871.00

SVS 7-15 15'9" maximum lowering distance	\$6718.00*
SVS 7-18 18' maximum lowering distance	7565.00*
SVS 7-20 20'3" maximum lowering distance	7928.00*
SVS 7-22 22'6" maximum lowering distance	8291.00*
SVS 7-24 24'9" maximum lowering distance	8654.00*
SVS 7-27 27' maximum lowering distance	9017.00*
SVS 7-29 29'3" maximum lowering distance	9380.00*

* Heavy duty motor included in price

SVS 7EX Projector Lift Series

- Provides longer lowering distance ■ Provides low ceiling clearance (projector/equipment mounts between scissors with lift needing only 5.5" of space above projector mount) ■ 3 positions: storage, show, service ■ Comes with key-switch control box (includes 75' of cable)

Specifications

- Lift Capacity (approximate): 300 lbs./600 lbs. ■ Standard Lowering Distance: 9' ■ Optional Lowering Distance: 29'3" ■ Voltage (6' power cord supplied): 110AC ■ Materials: Steel

SVS 7EX-9 9' maximum lowering distance	\$5145.00
SVS 7EX-11 11'3" maximum lowering distance	5508.00
SVS 7EX-13 13'6" maximum lowering distance	5871.00
SVS 7EX-15 15'9" maximum lowering distance	6718.00*
SVS 7EX-18 18' maximum lowering distance	7565.00*
SVS 7EX-20 20'3" maximum lowering distance	7928.00*
SVS 7EX-22 22'6" maximum lowering distance	8291.00*
SVS 7EX-24 24'9" maximum lowering distance	8654.00*
SVS 7EX-27 27' maximum lowering distance	9017.00*
SVS 7EX-29 29'3" maximum lowering distance	9380.00*

* Heavy duty motor included in price

SVS 9 Projector Lift Series

- Provides low ceiling clearance for LCD, slide projectors, etc. (projector/equipment mounts between scissors) ■ Shelf for LCD, slide projectors, etc. included ■ 3 positions: storage, show, service ■ Comes complete with key-switch control box (includes 75' of cable)

Specifications

- Lift Capacity (approximate): 300 lbs. ■ Standard Lowering Distance: 5' ■ Optional Lowering Distance: 9'6" ■ Voltage (6' power cord supplied): 110AC ■ Materials: Steel

SVS 9-5 5' maximum lowering distance	\$3623.00
SVS 9-6 6'6" maximum lowering distance	3986.00
SVS 9-8 8' maximum lowering distance	4349.00
SVS 9-9 9'6" maximum lowering distance	4712.00

#1 Ceiling Closure

For SVS 4, Mini 4, SVS 9 Series	\$ 708.00
For SVS 7, 7EX, Mini 7 Series	735.00
#2 Plenum Shroud	807.00
#3 Heavy Duty Motor	484.00
#4 Power Sensor	303.00
#5 Power Sensor With Screen Control	328.00
#6 Remote Projector Power	303.00
#7 Cable Retractor	385.00
#8 Low-Profile Mount Adaptor	156.00
#9 Low-Profile Mount	393.00
#10 Dual Stack Mount	1089.00
#11 Extra Show Position	156.00
#12 Decorative Cover	
For SVS 4, Mini 4, SVS 9 Series	847.00
For SVS 7, 7EX, Mini 7 Series	1006.00
#13 Platform (Metal)	
For SVS 4, Mini 4, SVS 9 Series	235.00
For SVS 7, 7EX, Mini 7 Series	471.00

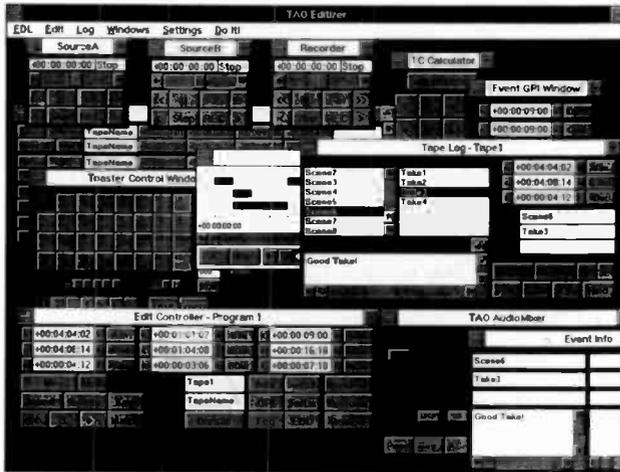
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



VIDEO EDITOR



TAO Technical Aesthetics Operations, Inc.



Editizer 2.1™ Video Editor for Macintosh and Windows

The Editizer is designed for the innovative editor. Only the Editizer offers you the widest range of video and audio recorder, switcher, mixer and digital equipment interfaces. With an easy to learn, easy to use Graphical User Interface (GUI), you'll be editing in minutes.

The Editizer speaks the widest range of control commands and protocols—from VISCA to RS-422, along with 7 GPIs. We even talk Toaster. With TAO's Editizer you'll be able to mix consumer, professional and broadcast equipment all in the same system. Only the Editizer offers you freedom to use the equipment you require for your specific application. With the Editizer you can create edit decision lists compatible with most major manufacturer's EDL formats.

Hardware

- 3 VCR control ports for true A/B roll support
- 3 multi-speed SMPTE longitudinal time code readers
- SMPTE time code generator with external and internal video sync
- 7-channel General Purpose Interface (GPI)
- RS-232 interface for connection to the host computer
- Auxiliary serial port for Video Toaster or GVG 100 switcher control
- 8-bit digital to analog converter

Software

VCR Control

- Up to 3 VCR controllers on-screen simultaneously
- Mouse, keyboard and joystick interface
- Jog/shuttle control

Tape Logging

- Multi-event search
- Copy directly into edit list

Edit Controller

- Multi-event (up to 16,000)
- Cut/copy/paste events
- Preview, perform, review
- Auto/manual ripple
- Mark in and out points on the fly or manually
- Trim edit points with on-screen buttons
- Auto-assembly of EDL

EDL Window

- Simultaneous display and editing of multiple events
- Specify start and stop times as well as drop/non-drop

Time Code Calculator

- Add and subtract time code values
- Instantly accessible

Configuration Window

- Enter and store information on VCR type, preroll, etc.

Switcher Control

- Direct serial interface to Video Toaster and GVG 100 protocol switchers

Animation Control

- Optional support for AutoDesk 3-D studio and NewTek Lightwave 3-D

More Editing Power

- Interactive, graphical "Time Line" window
- Split audio editing
- Automatic BackTime calculation
- EDL block move and delete
- Checkerboard (B-mode) auto assemble
- Printing of range of EDL events
- Text description copy and paste
- Alternate CMX compatible keyboard arrangement
- Free list cleaning module
- Macro recording capabilities

More Device Control

- MPC audio and MIDI support for embedding sounds and MIDI sequences in your EDL
- VGA graphic recording capability
- DPS TBC II, III and IV support—2 TBCs and a V-Scope may be controlled from a PC serial port
- Switcher serial support

More Tape Logging Flexibility

- Multiple log windows may be opened simultaneously
- Log events may be copied between log windows
- Log events may be re-ordered
- Log files or selected events may be printed to a window
- Text descriptions may be expanded into a full screen text editor
- Text descriptions may be copied and pasted to and from a word processor

0101 Editizer 2.1 for Windows	\$2495.00
0102 Editizer 2.1 for Macintosh	2495.00
0104 Editizer/Cuts 2.1 for Windows	1495.00
0105 Editizer/Cuts 2.1 for Macintosh	1495.00

Cables

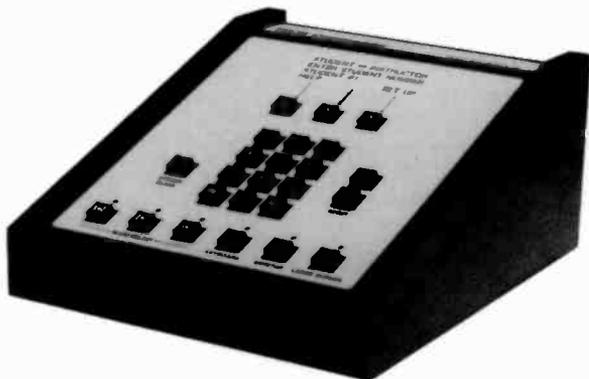
0002 6' RS-422 (9-pin)	\$30.00
0004 1' GPI cyclops	45.00
0005 6' Video Toaster GPI adaptor	15.00
0006 6' Panasonic (5-pin)	45.00
0007 6' control-L (5-pin)	30.00
0008 6' control-L (2.5mm)	30.00
0009 3' Sony (33-pin)	75.00
0010 3' JVC (45-pin)	75.00
0011 3' Panasonic (34-pin)	75.00
0012 6' Panasonic WJMX-50/30	30.00
0013 6' Video Toaster serial	30.00
0021 RS-232 (25-pin) Panasonic AG-5700	30.00
0022 RS-232 (9-pin) JVC BRS-605UB	30.00
0024 RS-232 (8-pin Mini DIN) Sony VISCA	30.00
Additional length available on most cables	ft./3.00

Editizer Accessories

0014 Video Toaster animator	\$295.00
0017 Command Center*	795.00
0018 Follow Mix*	795.00
0003 Parallel interface	495.00
0030 Targa Animate	295.00
0025 PC MIDI kit	119.00
0031 Macintosh MIDI kit	119.00

*These items require a MIDI driver card on the user's PC.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TECH COMMANDERS RGB-200 and RGB-70

TECH Commanders are sophisticated control and display routing systems designed to empower instructors by providing the tools needed to effectively communicate concepts and ideas. The enhanced communication and control provided by the TECH Commanders create an environment that facilitates group learning and interaction.

In a classroom setting, the single user aspect of the personal computer is an obstacle to constructive interaction between student and instructor. Student to student interaction is virtually impossible. Even though the computers may be networked, every student is insulated from everyone else in the sense that no one can actually see what anyone else is doing. This prevents the kind of spontaneous interaction that leads to group synthesis of concepts and ideas. The use of data projection helps, but provides only 1-way communication, not interaction.

TECH Commanders solve this problem by placing all the computers and monitors under the control of the instructor. This is accomplished by installing an interface between the monitor and the CPU of each computer. Once it is connected to other interface devices with a video cable and a control line, the student's monitor and keyboard can be controlled by the instructor.

A single keystroke sends the instructor's screen to every student monitor, instantly providing each student with a clear view of what the instructor is doing. At the press of a button any student's work may be observed at the instructor's desk. If needed, the instructor's keyboard or mouse may be directed to the student's computer, with both student and instructor observing the results. Since TECH Commanders provide a connection point for a projector or large screen monitor, images from any computer in the class can be displayed.

TECH Commanders are software independent, so they require no memory and no disk space. They can be installed parallel to an existing LAN, or may be used in stand-alone classrooms that have no other network installed. Either way, the systems are designed to provide maximum benefits without sacrificing performance or speed of the computers or data networks.

The TECH Commander Control Console is as functional as it is attractive. Its internal microcomputer monitors all system functions and performs system diagnostics. A backlit liquid crystal display shows system status, prompts the instructor for the correct input and offers on-screen help for all system features. An audible tone and message in the display alerts the instructor to a student's request for help.

Because of their advanced design, new features that become available later can be added to your system by updating the Console's internal software. A special carrier for the EEPROM makes upgrades easy and foolproof.

Designed for simplicity and ease of use, the Control Console gives instructors complete control of the computer classroom.

Expandable Systems—Call for Quote



CVI-1

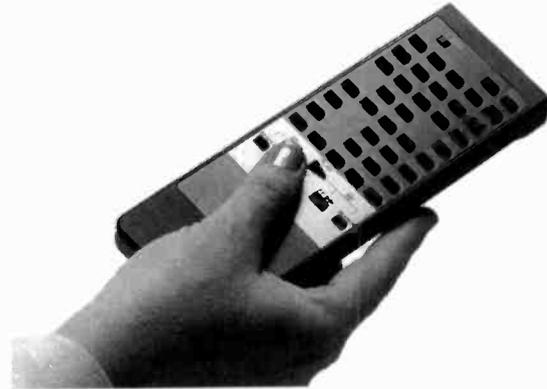
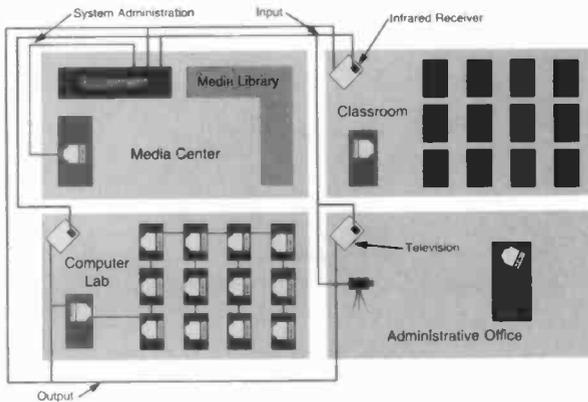
The CVI-1 is an addressable RS-232 interface that allows for the control of VCR functions. Standard (CC) control cables are required for interfacing VCRs. DOS Software (POP-VCR) is available to provide a TSR pop-up control window. \$125.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

MEDIA RETRIEVAL SYSTEM

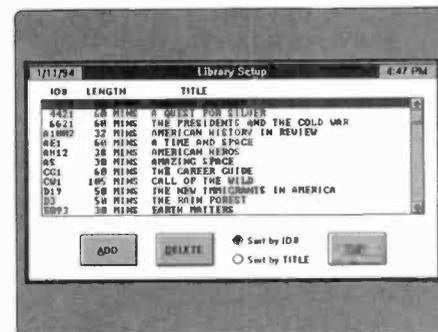
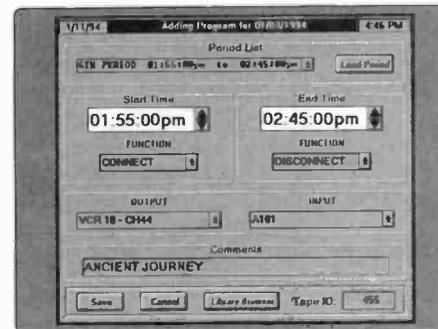
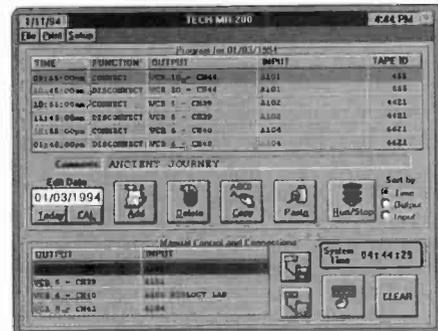


TECH
ELECTRONICS



Educator Media Retrieval System

- Designed to provide an instructor in a learning environment with functional control of various designated media devices from a central location
- Driven by Windows-based software allowing automated control of selected curriculum information with a handheld remote control
- Choice of media devices including VCRs, laserdiscs and video stills stored in a media center that can be fed to each room via regular televisions
- Ability to receive cable and off-air TV programs, satellite fed distance learning and remote video broadcasts
- Media database published and updated on a regular basis, accessed by title, ID number and/or key word
- Programming may be done daily, weekly or monthly
- Program for unattended playback or distance learning applications
- Adding library curriculum simple
- Flexible software
- Scheduling as easy as selecting classrooms (input) with media devices (output) for a specific period (time)
- System automatically determines scheduling conflicts
- Control panel provides current status of system at a glance
- Icons make programming and usage intuitive, requiring little user training



In a world where information is available at the touch of a finger, classrooms are often deprived of that instant access by the awkward movement of equipment from class to class. And further by the need to share resources.

The Educator is an advanced media retrieval system for the classroom that makes the scheduling and dispersal of electronic information to multiple sites cost-effective and easy.

The system is a media-management package designed to ensure the proper allocation and utilization of a learning institution's curriculum, programming and media library. Scheduling, tracking and report information are easily accessed. The screens are graphic and easy to follow. In addition, with all the media and media equipment in one secure location, theft and damage are kept to a minimum.

The Educator is simple to use and increases the efficient use of all available media resources.

Students have now become part of today's Visual Information Society. The Educator employs a known learning tool — the television — and by utilizing a school's RF distribution system, creates a unique, private cable network. The Educator converts today's classroom into tomorrow's information center.

As a result, the Educator can deliver the required media, unique to the subject being studied, across the entire facility.

The Educator is powerful, flexible, efficient and extremely easy to use. It delivers the visual world at the touch of a finger.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



Phaser™ 480 Color Printer

Ideal for applications that require fast, photographic-quality color printing of large-format images, the Phaser 480 prints color accurate enough for pre-film proofing. TekColor Dynamic Correction software offers reliable desktop color matching. \$14,995.00

Phaser II_{SDX} Color Printer

The Phaser II_{SDX} prints photographic-quality color images on letter- and legal-sized media. Now you can print overhead transparencies with all the quality of 35mm slides. Stream-line production with in-house, pre-film proofing. Crisp, continuous-tone color or gray scale printing for image analysis and complex data interpretation \$9,995.00

Phaser 300i Color Printer

With the Phaser 300i, you can print full-color comps on any paper, in any size from post-card to double-page spreads with full bleeds. Ethernet is available in Novell, Ethertalk and TCP/IP protocols \$9,995.00

Phaser III PXi Color Printer

For large-format color printing on plain papers at moderate speed \$6,995.00

Phaser 220i Color Printer

The Phaser 220i includes all of the features of the 220e model plus a 24MHz Risc processor, optional Ethernet in Novell, Ethertalk and TCP/IP protocols and a SCSI port for an external font disk. The 220i also has a SCSI for external font disk. The 220i is ideal for Ethernet networks \$5,995.00

Phaser 220e Color Printer

Affordable and fast, the Phaser 220e prints high-quality color transparencies and reports at 2 pages per minute. TekColor SuperCell 600 technology provides 600 x 300 dpi for remarkably crisp color printing. Order the optional dual input tray and print on transparencies or paper without leaving your computer \$3,995.00

Phaser 200e Color Printer

For work groups on a budget, the Phaser 200e offers 300 dpi color printing and more basic networking capabilities \$2,995.00

4511A Network Interface

The 4511A brings color printing to Ethernet and DECnet networks and requires no host software. Connection cable can be thick, thin or twisted pair. It is configured to identify internet addresses and queue names. Other features: 90K bytes per second; automatically switches the printer among PostScript, HPGL and text modes and a RS-232 serial port. \$1,495.00

Phaser Media Laminator

Lamination optimizes phase-change color printing on Phaser 300i and Phaser III PXi transparencies to provide brighter colors and sharper images. It's easy to use and laminates a print in less than a minute. The lamination also provides greater durability for paper prints and transparencies \$995.00



Phaser 300i



Phaser 480

Features and Options

	Phaser 200e	Phaser 220e	Phaser 220i	Phaser III PXi	Phaser 300i	Phaser II _{SDX}	Phaser 480
Color Technology							
Thermal-transfer	•	•	•				
Dye sublimation							
Phase-change ink-jet				•	•	•	•
Page Size							
8.5" x 11" (A)	•	•	•	•	•	•	•
210 x 297mm (A4)	•	•	•	•	•	•	•
8.5" x 14" (Legal)				•	•	•	•
210 x 356mm (A4 Special)				•	•	•	•
11" x 17" (B)				•	•	•	•
297 x 420mm (A3)				•	•	•	•
12" x 18"				•	•	•	•
305 x 457mm				•	•	•	•
12.6" x 18.3"				•	•	•	•
320 x 465mm							•
Standard RAM (M byte)	4	8	10	10	10	16	32
Maximum RAM (M byte)	8	8	14	22	22	64	64
24MHz RISC Processor							
16MHz RISC Processor	•	•	•	•	•	•	•
Adobe™ PostScript™ Level 2	•	•	•	•	•	•	•
HP-GL Emulation	•	•	•	•	•	•	•
PCL5 (Monochrome)†	•	•	•	•	•	•	•
PANTONE‡-approved	•	•	•	•	•	•	•
TekColor™ Rendering							
Dynamic correction		•	•	•	•	•	•
PS color adjust	•	•	•	•	•	•	•
Finepoint™				•	•	•	•
Photofine™				•	•	•	•
SuperCell 600™ (600 x 300 dpi)		•	•	•	•	•	•
300 dpi		•	•	•	•	•	•
Tektronix Paper & Transparency Film							
Transparency film	•	•	•	•	•	•	•
Thermal-transfer paper	•	•	•	•	•	•	•
Laser paper	•	•	•	•	•	•	•
Any paper	•	•	•	•	•	•	•
Tektronix dye sub paper	•	•	•	•	•	•	•
Resident fonts	17	17	39	39	39	39	39
SCSI for external font disk			•	•	•	•	•
Network Connections for Workgroups							
Parallel	•	•	•	•	•	•	•
RS-232 Serial	•	•	•	•	•	•	•
AppleTalk™	•	•	•	•	•	•	•

† PCL5 requires 14M bytes RAM for Phaser 220i

‡ Pantone, Inc.'s check-standard trademark for color reproduction and color reproduction materials

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

PROJECTION PANELS/ VIDEO PROJECTORS



TELEX®

TELEX COMMUNICATIONS, INC.

5090-120 MagnaByte® Gray Scale Computer/Overhead Projection System

To bring your computer data presentations to life on a large wall screen with color, all you need is a personal computer, a standard overhead projector and the MagnaByte electronic imaging system. MagnaByte provides an effective, user-friendly method of projecting colorful computer images onto a large wall or screen at a minimal cost. It consists of a translucent LCD display "palette" that fits on the top of any standard transmissive type overhead along with necessary cabling. A wireless remote control is available as an accessory.

5090-120 120V/60Hz 640 x 480 LCD display panel with power supply. Compatible with IBM PC/XT/AT, monochrome, Hercules, CGA, EGA, PS/2, MCGA, VGA, Macintosh 512/SE/Plus and Mac II. Requires appropriate MagnaByte cable or monitor interface cable assemblies **\$1535.00**

Full Color Multimedia MagnaByte LCD Projection Systems

M2xi IBM/Windows Complete System—High performance LCD projection panel includes 5W amplifier and speaker, installed MVA video and MSA digital sound MediaCards and remote control. 640 x 480 resolution with up to 614,000 colors available. Also includes microphone, parallel port interface cable for sound card, Windows Driver disk for MSA card, 2 video cables (RCA-RCA and VGA), 2 audio input cables (RCA to 1/8" and 1/8" to 1/8"), 110-240V, 50/60Hz power supply and cable, soft side carrying case and Macromedia® ACTION!™ SE 2.5 Presentation software for Microsoft Windows



300082-001 **\$6485.00**

M2xv IBM/Windows Video System—High performance LCD projection panel includes 5W amplifier and speaker, installed MVA video MediaCard and remote control. 640 x 480 resolution with up to 614,000 colors available. Also includes 2 video cables (RCA-RCA and VGA), 2 audio input cables (RCA to 1/8" and 1/8" to 1/8"), 110-240V 50/60Hz power supply and cable, soft side carrying case and Macromedia ACTION! SE Presentation software for Microsoft Windows

300082-012 **\$6090.00**

M2xa Macintosh Complete System—High performance LCD projection panel includes 5W amplifier and speaker, installed MVA video MediaCard and remote control. 640 x 480 resolution with up to 614,000 colors available. Also includes 2 video cables (RCA-RCA and Mac), Mac monitor cable, 2 audio input cables (RCA to 1/8" and 1/8" to 1/8"), 110-240V, 50/60Hz power supply and cable, soft side carrying case and Macromedia ACTION! SE 1.03 Presentation software for Apple Macintosh

300082-005 **\$6090.00**

M2xbi IBM/Windows Base System—High performance LCD projection panel includes 5W amplifier and speaker. 640 x 480 resolution with up to 614,000 colors available. Also includes VGA video cable, 2 audio input cables (RCA to 1/8" and 1/8" to 1/8"), 110-240V, 50/60Hz power supply and cable, soft side carrying case and Macromedia ACTION! SE 2.5 Presentation software for Microsoft Windows

300082-000 **\$5195.00**

M2xba Macintosh Base System—Same as M2xbi except for Macintosh and includes Mac video and monitor cables instead of VGA video cable. Utilizes Macromedia ACTION! SE 1.03 Presentation software for Apple Macintosh instead of 2.5 Presentation

300082-004 **\$5195.00**

M1xi IBM/Windows LCD Projection Panel—High performance LCD projection panel includes 640 x 480 resolution with up to 614,000 colors available. Also includes VGA video cable, 110-240V, 50/60Hz power supply and cable, deluxe soft side carrying case and Macromedia ACTION! SE Presentation software for Microsoft Windows

300260-000 **\$4595.00**

M1xa Macintosh LCD Projection Panel—Same as M1xi except for Macintosh, and includes Mac video and audio cables instead of VGA video cables and Macromedia ACTION! SE Presentation software for Apple Macintosh instead of Microsoft Windows

300260-001 **\$4595.00**

MagnaByte MediaCard Expansion Options

MVA Video MediaCard option includes video card, RCA to RCA video cable and installation guide

300081-001 **\$895.00**

MSA Digital sound MediaCard option includes parallel port interface, microphone with 20' cable, Windows 3.1 driver disk and installation guide

300081-000 **\$395.00**

RPC-1 Remote Program Controller

The RPC-1 is an interactive presentation control system designed for use with the MagnaByte line of LCD panels. IBM and Macintosh compatible. Comes complete with driver software, connecting cables, base station and remote unit.

RPC-1 **\$695.00**

3000/3000V MagnaByte Full Color Video Projectors

- Advanced TFT LCD technology
- Built-in amplifier and speaker
- Common, user-replaceable lamp
- Full audio and video control panels
- Custom glass lens with anti-reflective coating
- Externally fused
- Built-in carrying handle
- Rugged, lightweight construction
- Adjustable foot
- Convenient cord storage



3000 120V/60Hz MagnaByte video projector for NTSC signals. **\$3295.00**

3000V 120V/60Hz MagnaByte video projector for NTSC signals including built-in VHS player. **3795.00**

E3 110VAC VGA Video Encoder. Designed for use with MagnaByte 3000 series video projectors, to allow PC data projection. Compatible with a wide variety of VGA and S-VGA. Supplied accessories include S-VHS cable, RCA video cable, VGA monitor cable, VGA computer cable, power supply and 3.5" (89mm) driver software diskette. **499.00**

MagnaByte Components and Accessories

5302 IR remote control (for use with 5090 series) **\$150.00**
RC-2 IR remote control (for use with M2x series) **150.00**
RC-3 IR remote control **150.00**
5397 MagnaByte carrying case **150.00**
CC-1 Soft side carrying case **150.00**
6312 Light shielding mask for 5090 **54.00**
MPC MagnaByte cleaning kit **17.00**

MagnaByte 5090 Monitor Interface Assemblies

5328 *Universal interface for IBM systems and Mac II ... **\$429.00**
5323 *Mac II monitor interface **290.00**
5324 *VGA monitor/RS-232 interface **290.00**
5325 *EGA/CGA/mono/Hercules monitor/RS-232 interface **290.00**
5326 Macintosh 512/SE/Plus cable assembly and interface card **220.00**
5319 AT&T cable adaptor, allows MagnaByte to operate with AT&T 6300. Requires 5316 cable assembly **87.00**

*Interface enables user to view program on both computer monitor and MagnaByte display. Without interface, program will be seen only on MagnaByte display.

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



P4100U Videowall Projection Unit

- 2.5mm per unit screen width
- More than 800 TV lines horizontal definition
- Auto white balance adjustment
- Auto coupling brightness
- Multimode
- Wide visual horizontal angle of 150° or more and vertical angle of 60° or more
- Insert CRT in screen unit when necessary and remove easily for maintenance
- Adjust convergence, color tone, contrast, etc. via remote control
- Stereo mini-jack used for controlling cable
- Slim 1.110mm depth
- Control via PC to choose visual sources and to create images

P4100U is a projector for a videowall that reflects an ultrareal image by combining several units. It has a 2.5mm screen frame width and the depth of the unit is a slim 1.100mm. It is also characterized by the high image quality of 800 TV lines or more horizontal definition.

More beautiful images on a super-wide screen. In commercial buildings, public grounds and stadia, airports and stations, the P4100U is a new style in multivision creating more attractive effects.

Specifications

Model	Type-41 back projection unit
TV system	NTSC
Projection control	Type-7 CRT x 3
Resolution	800 TV lines (horizontal) 350 TV lines (vertical)
Practical visual angle	150° min. (horizontal) 60° min. (vertical)
Operable temperature range	5-35°C
Combination input/output	Input terminals (DIN) 5-pin connectors x 2
Screen white balance switch	Selectable for 2 screen white balances
Power supply voltage	120VAC, 60Hz
Power consumption	260W (370VA)
External dimensions	682"H x 846"W x 1.110"D Excluding protruding parts
Weight	85 kg
Accessories	Control cables (DIN 5-pin cables)

Input/Output Signals

Video input	Input terminal: BNC terminal x 1 Input level: 1V(pp) (75 ohms termination)
Video through output	Output terminal: BNC terminal x 1
Y/C input	Input terminal: Y input BNC terminal x 1 C input BNC terminal x 1 Input level: Y signal 1V(pp) (75 ohms termination) C signal 0.286(pp) (75 ohms termination)
Control input	Input terminal: BNC terminal x 1 Input method: Open: Video signal Short: Y/C signal
RGB input	Input terminal: D-sub 9-pin terminal x 1 Input level: Analog RGB signal 0.7V(pp) (75 ohms termination) SYNC signal 0.3V(pp) (75 ohms termination)
Remote control input	Input terminal: 3.5mm dia. stereo mini-jack x 1 Signal types: Remote control signal, power supply (+3V) GND
RS-232C Port	Input/output terminal: D-sub 25-pin terminal x 1 Speed switch: 1,200, 2,400, 4,800, 9,600 baud Transmission mode: No parity, bit length: 8 bits, stop bits: 1 bit

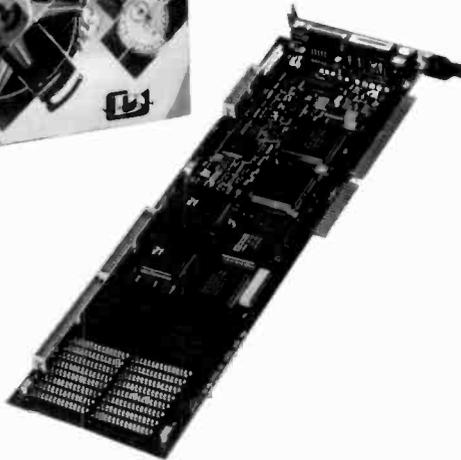
P4100U Videowall projector	\$ 9,795.00
Electronic engine (karbox)	6,770.00
PSL4100 Lenticular screen replacement	290.00
PSF4100 Fresnel screen replacement	450.00
CT9720 Remote control unit	400.00
TMP209 3x3 processor (2 input, 9 output)	28,365.00
TMP216 4x4 processor (2 input, 16 output)	39,926.00
2 input board for Toshiba processors	4,500.00
2 output board for Toshiba processors	2,850.00
No "x-cues" processor control software	2,500.00
Video projector setup software	1,000.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DIGITAL VIDEO EDITOR



TOUCHVISION SYSTEMS, INC.



AM2 Capture Module (80356)

Add on daughterboard to AM2 video/audio accelerator. Real time digitizing and compression of video and audio direct to hard disk. Uses same board and i750B compression chip as Intel's Smart Video Recorder. **\$580.00**

SMPTE Reader Card (400611)

Reads SMPTE time code during capture for SuperRTV/2nd pass capture, EDL on-line disk. AT-bus compatible only. **\$595.00**

Software/Hardware Kits

D/Vision Cineworks Kit I (9021)

D/Vision Cineworks, AM2 accelerator board and an installation videotape all in 1 easy to install kit. **\$1795.00**

D/Vision Cineworks Kit II (9022)

All features in Kit I plus: AM2 capture module. **\$2395.00**

Specifications

Hardware Supported:

*Note: AM2 Accelerator Board/Required

Input Connectors (if Capture option is installed): ■ Composite video (BNC) ■ S-Video (5-pin DIN via supplied Y/C component adaptor cable) ■ Stereo audio (2 RCA jacks) ■ RGB video (3 BNCs)

Output Connectors: ■ S-Video (5-pin DIN) ■ Stereo audio (2 RCA jacks) ■ RGB video (3 BNCs)

Virtually any NTSC/PAL VCR supported for capture without time code.

Time Code Supported: Hi8/RC (via Visca only). SMPTE (via Sony Serial port only) up to 21 physical SCSI drives supported.

System Requirements

Computer: IBM personal computer or compatible, Intel 386, 33MHz or faster, Intel 486, 33MHz or faster with 2M byte/sec. bus data rate for SuperRTV or high resolution, DOS 5.0 Windows Launch

Memory: 8M bytes RAM, 12M bytes RAM if also running Crystal Flying Fonts! Plus, 550K bytes of free conventional memory

Graphics Card: VGA with feature connector (or feature connector on motherboard)

Hard Disk: IDE for low or med resolution, 12ms average access time or faster SCSI required for high resolution and SuperRTV, 9msec. average access time or faster

Video Board: AM2 accelerator board required, AM2 capture module optional for editing, but required for capture

CD-ROM Drive: Recommended (required to load Crystal Flying Fonts! Plus and sample video/audio)

Digital Video/Audio Data Rates

Resolution Setting	Data Rate (K bytes/sec.)	Storage for 1-Minute (M bytes)	Storage for 1-Hour (M bytes)
Low	150	9	540
Medium	300	18	1080
High	1000	60	3600
SuperRTV ¹	1000	60	3600

¹Available in Pro and CineWorks only

Product Includes:

■ 3.5" Floppy disks ■ User's manual ■ Installation guide ■ CD-ROM with sample video/audio files and Crystal Flying Fonts! Plus software (CineWorks and Pro only) ■ Royalty-free SuperRTV "Player" (Cine Works and Pro only) ■ D/Vision CD-ROM Sound Library (shipped separately upon return of registration card — CineWorks and Pro only) ■ Requires AM2 video/audio accelerator board. **\$495.00**

D/Vision™ Digital Video Editor

Editing Software

D/Vision Basic (9000)

Digital video editor. Capture and compress video in real time with AM2 capture module. True nonlinear digital video/audio editing, create special video effects, CD-rate (44.1kHz, 16-bit) multitrack audio mixing, "print" full screen to NTSC/PAL videotape (via S-Video). Export video for Windows/Indeo movies, Indeo/AVS (2.x) digital video files and WAV digital audio files. Supports 100 events per sequence. Requires AM2 video/audio accelerator board. **\$495.00**

D/Vision Cineworks (9020)

Complete digital video studio with 5 layers of compositing. All features from D/Vision Basic plus: Edit/mix up to 4 CD-rate audio tracks, import and overlay Targa/PCX/Indeo files and animation over video, capture/edit/recapture SuperRTV™, import and edit video for Windows/Indeo movies, export Quicktime movies **\$995.00**

D/Vision Pro (9001)

Professional nonlinear digital video editor. All features from D/Vision Basic plus: Edit/mix up to 6 CD-rate audio tracks, import and overlay Targa/PCX/Indeo files over video, capture SMPTE or Hi8/RC time code, output professional EDL (Edit Decision List), capture/edit/recapture SuperRTV, single or dual monitor configuration, 1000 events/EDL, support Maxtor Tahiti-II optical disks, export Quicktime movies. **\$3950.00**

Hardware

AM2 Video/Audio Accelerator Board AT-BUS (80353)

Single slot, motion video accelerator and output card. Also, a 16-bit, 4-channel sound card. Outputs ("prints") full screen, 30 fps NTSC/PAL video via S-Video connector. Includes board, feature connector cables and installation manual. Contains 2M byte V-RAM. **\$1000.00**

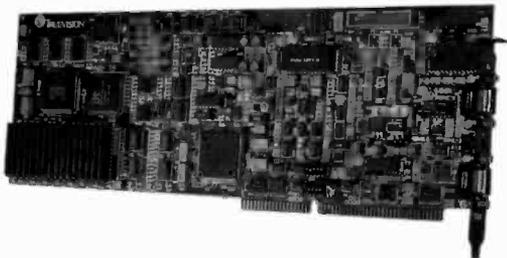
ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



TARGA 2000-EISA Video Graphics Engine

- Single slot EISA card
- Record to disk full-screen, full-motion video at 30 fps NTSC, 25 fps PAL (2 fields/frame) at 640 x 480 NTSC, 768 x 576 PAL resolution
- Dynamic quantization factor (Q-Factor) to obtain highest quality compressed video
- Print to tape full video resolution in NTSC (30 fps) and PAL (25 fps) format
- Non-interlaced desktop from 640 x 480 x 24 up to 1152 x 870 x 24 bits/pixel
- Synchronized stereo audio input and output up to 44.1kHz (CD quality) or 48kHz
- Genlock using separate sync input
- Video-in-a-Window and Video-out-a-Window capability
- Microsoft® Video for Windows™ compatible

TARGA 2000E 4M kit	\$4995.00
TARGA 2000E 20M kit	5995.00



TARGA+® Video Graphics Engine

- Digital chroma keying superimposes live video images over computer generated graphics for special effects and other uses
- Chroma Key Capture digitizes the composited image
- Digital linear keying offers 256 levels of blending
- Fades to any color and has smooth crossfading of images for transitions
- TARGA+ is available for AT buses
- Existing TARGA software runs on PS/2 machines operating

under MS-DOS

- Three 8-bit lookup tables provide color/gamma correction or 8-bit/pixel color cycle effects
- Larger memory options allow off-screen buffering and "hidden" capture of images
- Can be segmented in many different configurations
- Third generation genlock is more robust, and syncs to virtually any external video source flawlessly
- Composite and S-Video decoding is on board
- Simultaneous output of RGB, composite and S-Video provides for maximum flexibility
- VGA pass-through and overlay capabilities on board, so you can overlay VGA animations with TARGA files (non-interlaced modes only)
- Allows for a single monitor solution, where you boot up in VGA mode and then switch to TARGA mode using a single keystroke

TARGA+ 16	\$1395.00
TARGA+ 16/32	1595.00
TARGA+ 64	1995.00
Post Sale Upgrade Policy*	
16 to 16/32	\$300.00
16/32 to 64	600.00
16 to 64	900.00

*Requires return of original memory board.

TrueVista Pro EISA Video Graphics Engine

- Support for highest quality analog video—Betacam™, Y/Pb/Pr (SMPTE EBU), GBR, Y/C (S-Video) or composite video—all supported on the video input channel and both output channels
- Video outputs programmable as Program/Preview or Program/Key for flexible downstream use
- Worldwide video standard support—NTSC and PAL formats at full CCIR 601 sampling/24 bits/pixel color resolution
- Genlock support for simple, flexible timing with house sync
- Input timing can be independent of output timing
- Memory expansion sockets allow up to 64M byte of additional low-cost RAM
- Signal level and timing adjustments allow for easy integration into the existing studio environment
- Custom video/memory control ASIC with integrated video re-sizer allows re-sizing of video by arbitrary amounts in real time
- Integrated 256-level line blender facilitates smooth dissolves between video and graphics or multiple graphics
- BLiT engine with mask moves images at faster than screen refresh rates
- Windows 3.1 support means TrueVista Pro EISA can be used with standard Windows application software
- Available mini-application source code lets developers start on custom applications immediately
- Autodesk® 3-D Studio™ support provides professional video animation for the highest quality analog equipment
- Optional version offers square pixel NTSC and PAL input resolutions
- Modular design for easy conversion to future interface modules

TrueVista Pro E1 (CCIR 601 Input Version)

TrueVista PRO E1 4M NTSC kit	\$4195.00
TrueVista PRO E1 8M NTSC kit	4595.00
TrueVista PRO E1 4M PAL kit	4195.00
TrueVista PRO E1 8M PAL kit	4595.00

TrueVista PRO E2 (Square Pixel Input Version)

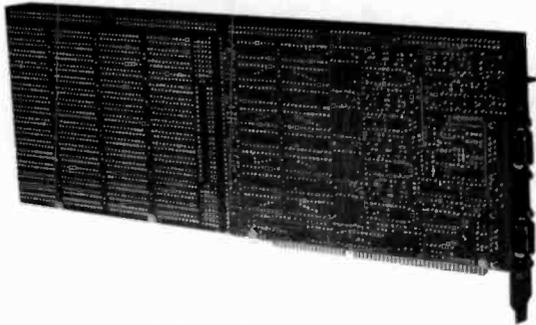
TrueVista PRO E2 4M NTSC kit	\$4195.00
TrueVista PRO E2 8M NTSC kit	4595.00
TrueVista PRO E2 4M PAL kit	4195.00
TrueVista PRO E2 8M PAL kit	4595.00

DVR Memory Expansion

DVR 4M byte SIMM kit	\$ 400.00
DVR 16M byte SIMM kit	1110.00
DVR 64M byte SIMM kit	7110.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

VIDEO GRAPHICS BOARDS



- Cascade feature allows multiple video windows on single monitor
- Includes expansion capabilities for powerful multimedia production

Bravado 8 8-bit	\$ 750.00
Bravado 16 16-bit	1100.00
Bravado 16 Encoder	775.00
Bravado 16 Compression module	1100.00

ATVista Graphics Engine

- PC host: IBM PC/AT ▪ Data bus width: 8 or 16 ▪ On-board T134010
- Row table ▪ NTSC and PAL compatible ▪ Genlock ▪ Programmable zoom ▪ Pan ▪ VMX-expansion: 2-10M bytes

Maximum Addressable Resolution

	1M byte	2M byte	4M byte
32 bit pixels	1024 x 256	1024 x 512	1024 x 1024
	512 x 512	512 x 1024	512 x 2048
	256 x 1024	256 x 2048	256 x 4096
16 bit pixels	2048 x 256	2048 x 512	2048 x 1024
	1024 x 512	1024 x 1024	1024 x 2048
	512 x 1024	512 x 2048	512 x 4096
8 bit pixels	4096 x 256	4096 x 512	4096 x 1024
	2048 x 512	2048 x 1024	2048 x 2048
	1024 x 1024	1024 x 2048	1024 x 4096

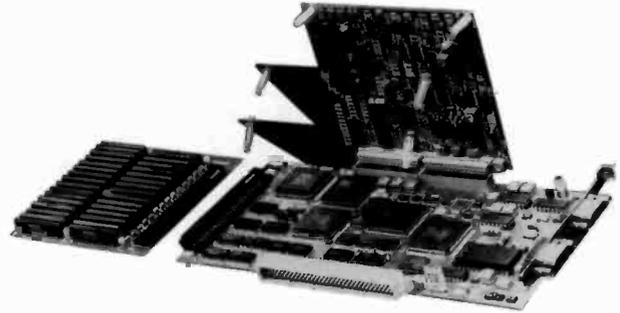
ATVista 1M Byte Look-up tables: 3 x 2K bytes, without alpha channel or video memory upgrade \$2495.00

ATVista 2M Byte Look-up tables: 4 x 2K bytes, video memory upgrade: 2M bytes 2995.00

ATVista 4M Byte Look-up tables: 4 x 2K bytes, without video memory upgrade 3795.00
2M byte VRAM upgrade (2M byte to 4M byte) 900.00

Upgradable DRAM as follows:

ATVMX 0M byte	\$ 300.00
ATVMX 2M byte	600.00
ATVMX 4M byte	900.00
ATVMX 6M byte	1300.00
ATVMX 8M byte	1600.00
ATVMX 10M byte	1900.00
ATVMX 2M byte memory upgrade	375.00



NuVista+® Graphics Engine

Now fully compatible with Apple's QuickTime. By integrating its powerful video features with the Macintosh® II, the NuVista+ video card makes it easy for you to create professional animations, to overlay graphics and text onto a live video source, or to videotape presentations. Simple connect the NuVista+ to your VCR and record. Plus, with features like digital linear and chroma keying, it's simple to achieve professional results.

Making the right connections simplifies most projects. So the NuVista+ offers composite and S-Video encoding and decoding on-board, making it easy for you to connect to any video source. No external peripherals are needed; no extra costs are incurred. And the results are broadcast-quality, thanks to our proprietary third-generation encoder/decoder technology.

The encoder and decoder adjustments are accessible from any application through the control panel. Controls for signal source selection, tint, color, brightness and contrast are all easy to use. Simultaneous output of composite, S-Video and analog RGB allow you to monitor your video project while it's taping.

The linear keying functions are accessible from the control panel and let you fade to any color or blend live video with computer generated text and images. You can specify transparency level and duration for professional transitions. You can choose any color, even in 32-bit/pixel mode, to overlay a computer-generated image or animation onto live video.

The chroma key function lets you dynamically merge live video with computer-generated graphics for special effects. For example, television weather reports use chroma keying by placing the meteorologist in front of a blue screen and then merging the weather maps wherever the blue color appears on camera.

NuVista+ 1M byte	\$2495.00
NuVista+ 2M byte	2995.00
NuVista+ 4M byte	3795.00

NuVista+ Memory Upgrade

Upgrade policy requires return of original memory board.

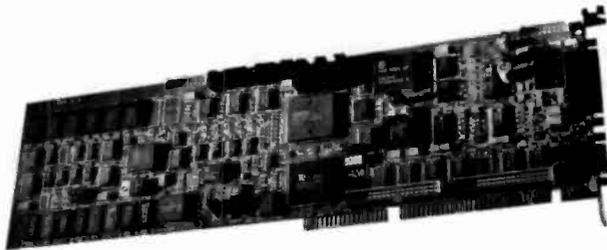
1M byte to 2M byte	\$ 595.00
2M byte to 4M byte	1195.00
1M byte to 4M byte	1795.00

NuVista Classic

2M byte	\$2995.00
4M byte	3795.00

NuVista Classic Memory Upgrade

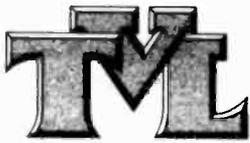
2M byte to 4M byte	\$1195.00
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Bravado Multimedia Engine

- 8-bit or 16-bit/pixel SuperVGA ▪ NTSC or PAL video-in-a-window
- Single-slot configuration ▪ Supports Windows 3.0 or DOS ▪ Audio pass-through with amplification ▪ Audio and video controlled via software

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



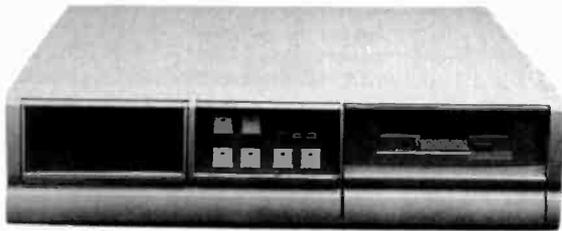
ELECTRONIC PRESENTATION SYSTEMS

Director Turbo and Director

The Director Turbo and Director are fully integrated systems consisting of custom hardware and software designed to display high quality video images on an RGB monitor, video projector or videotape. The ShowStar software consists of Word, Draw, Pictures, Show and Print. The system is designed for the professional business meeting producer and creates and presents live and "canned" electronic presentations. Hundreds of special effects and transitions keep the speaker support from becoming boring. Any of the visuals, effects and/or transitions can be quickly changed or edited for unanticipated program changes.

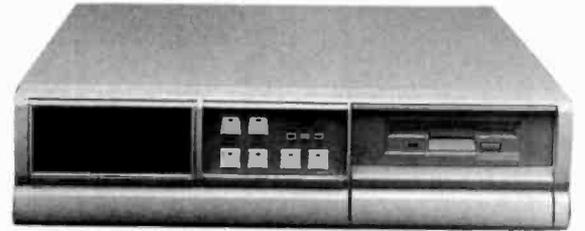
Common Specifications

Processor: INTEL 80486 at 100MHz ■ RAM: 8M bytes ■ Hard Disk: 500M byte IDE ■ Floppy Disk: 3.5", 1.44M byte ■ I/O: 1 parallel port, 25 pin "D" connector, 2 serial ports, 9 pin "D" connector ■ Resolution: 1024 x 484 pixels, anti-aliased ■ Outputs: RGB analog, 75 ohms/0.7V p-p, NTSC composite video ■ Sync: Composite sync, 75 ohms/2.0V p-p, 15.75kHz, 59.94Hz interlaced ■ Input: RGB analog, 75 ohms/0.7V p-p, 15.75kHz, 59.94Hz interlaced ■ Genlock: Locks to external sync ■ Colors: 16.7 million ■ Image Capture: Continuous, real time, 30 frames/sec. ■ Display Board: VGA up to 1024 x 768 ■ Mouse: 2-button serial mouse, Microsoft compatible (included) ■ Keyboard: 101 keys, detachable IBM AT compatible ■ Additional equipment required for creation of visuals and programming a show: VGA monitor, RGB monitor



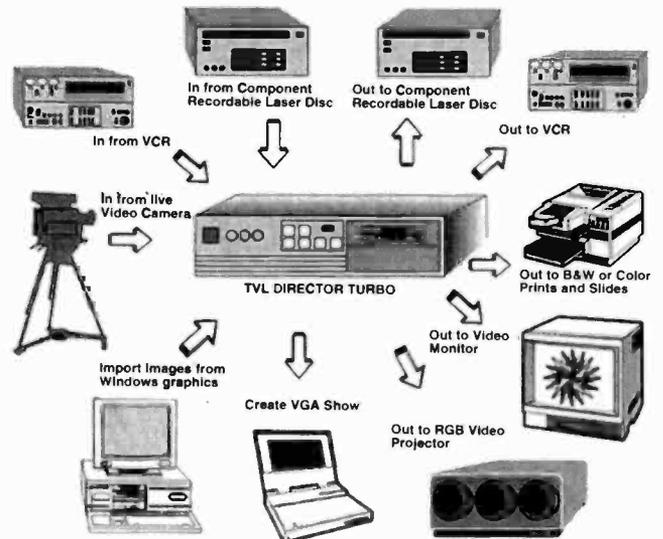
Director Turbo

The Director Turbo is capable of machine control for Sony compatible laserdiscs, including the recordable LVR Series of CRV disc recorder/players. Because the TVL and CRV systems are component video based, an extraordinary high resolution and artifact-free blend of animated stills and full motion can be seamlessly created, mixed and controlled by the Director Turbo. The Director Turbo can even cause the CRV to eject for prompting disc changes. Load JPEG picture in under 1/2 second. 32-bit true color display. 3 frame buffers. Video output boosted to 1024 lines (vertical). Microsoft Windows 3.1 included. Video image capture. Image cropping. Cut and paste of images. Video in a frame or full screen. Graphics over video. 600 built-in screen effects. Imports Targa files (TGA). Imports Windows files (BMP and WMF). Sync to sound with SMPTE read and write. Panic button features. Stores up to 2000 images. \$19,799.00



Director

Same as Director Turbo except Load picture in 1-5 seconds. No JPEG compression. No SMPTE time code \$ 11,995.00



Options

(New Sales and Upgrades Only)

UPG400 Turbo Upgrade

Upgrades Director to Director Turbo, includes Turbo board, 200M byte hard disk, SMPTE time code, ShowStar software, 90-day hardware warranty \$6,500.00

OPT001 14" VGA Monitor

1024 x 768, 0.28 dot pitch 600.00

OPT004 250 M byte Tape Cartridge System

Streaming tape backup system. Includes 2 tape cartridges . . . 650.00

OPT005

Soft carry bag 125.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

LECTERNS



VanSan Corporation

Floor Model LECTERNS Encore Series 300

Versatility is the key feature of the Encore Series lectern. A unique 2-part construction allows the top section to be removed for tabletop use.

Clean architectural lines are accented with brown laminate reveal, base and work surface. Brass reveal and base are available as special order.

Recessed wheels offer ready mobility. Encore options include self-contained sound system and "Lectrajst" height control.

300-25	Width 25"	\$1945.00
300G-25	With sound system	2645.00
300L-25	With "Lectrajst" height control	2765.00
300LG-25	With "Lectrajst" and sound system	3465.00
1300-32	Width 32"	2360.00
1300G-32	With sound system	3060.00
1300L-32	With "Lectrajst" height control	3125.00
1300LG-32	With "Lectrajst" and sound system	3825.00
1300-40	Width 40"	2535.00
1300G-40	With sound system	3235.00
1300L-40	With "Lectrajst" height control	3295.00
1300LG-40	With "Lectrajst" and sound system	3995.00

Executive Series 400

Features gently radiused edges, creating a solidity of both form and function. Equipped with work light and timer/clock. Mobility is assured with recessed locking casters. Standard finishes are natural oak and walnut. Other finishes are optional. Available with "Lectrajst" height control and AC sound system.

400-25	Width 25"	\$2050.00
400G-25	With sound system	2750.00
400L-25	With "Lectrajst" height control	3145.00
400LG-25	With "Lectrajst" and sound system	3845.00
1400-32	Width 32"	2450.00
1400G-32	With sound system	3145.00
1400L-32	With "Lectrajst" height control	3635.00
1400LG-32	With "Lectrajst" and sound system	4335.00
1400-40	Width 40"	2740.00
1400G-40	With sound system	3440.00
1400L-40	With "Lectrajst" height control	3980.00
1400LG-40	With "Lectrajst" and sound system	4680.00



Conference Series 500

This is the basic unit designed to function on a day-to-day schedule. Equipped with light and digital clock, plus recessed wheels for easy mobility. Available with self contained sound system.

500-25	Width 25"	\$1455.00
500G-25	With sound system	2155.00
1500-32	Width 32"	1810.00
1500G-32	With sound system	2510.00
1500-40	Width 40"	1965.00
1500G-40	With sound system	2665.00

Classic Series 600

The smooth wrap-around curved edges expose the book-matched veneer. Includes recessed wheels, light and digital clock. Available with "Lectrajst" height control and self-contained sound system.

600-25	Width 25"	\$2280.00
600G-25	With sound system	2980.00
600L-25	With "Lectrajst" height control	3230.00
600LG-25	With "Lectrajst" and sound system	3930.00
1600-32	Width 32"	2615.00
1600G-32	With sound system	3315.00
1600L-32	With "Lectrajst" height control	3945.00
1600LG-32	With "Lectrajst" and sound system	4645.00
1600-40	Width 40"	2800.00
1600G-40	With sound system	3500.00
1600L-40	With "Lectrajst" height control	4050.00
1600LG-40	With "Lectrajst" and sound system	4750.00

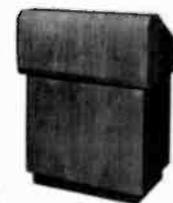
President Series 700

With its deep reveal, a perfect accent to a modern wood decor. Available with "Lectrajst" height control and/or self-contained sound system. Includes light and digital clock plus recessed wheels for easy mobility.

700-25	Width 25"	\$1860.00
700G-25	With sound system	2560.00
700L-25	With "Lectrajst" height control	2640.00
700LG-25	With "Lectrajst" and sound system	3340.00
1700-32	Width 32"	2335.00
1700G-32	With sound system	3035.00
1700L-32	With "Lectrajst" height control	2960.00
1700LG-32	With "Lectrajst" and sound system	3660.00
1700-40	Width 40"	2500.00
1700G-40	With sound system	3200.00
1700L-40	With "Lectrajst" height control	3185.00
1700LG-40	With "Lectrajst" and sound system	3885.00

Direction Series 2700

This lectern expresses a clean architectural concept. Overhang design creates a large work surface. Includes light and digital clock. Available with "Lectrajst" height control and/or self-contained



2700-25	Top width 28"	\$2955.00
2700G-25	With sound system	3655.00
2700L-25	With "Lectrajst" height control	3910.00
2700LG-25	With "Lectrajst" and sound system	4610.00
2700-32	Top width 35 1/2"	3270.00
2700G-32	With sound system	3970.00
2700L-32	With "Lectrajst" height control	4055.00
2700LG-32	With "Lectrajst" and sound system	4755.00
2700-40	Top width 46"	3415.00
2700G-40	With sound system	4115.00
2700L-40	With "Lectrajst" height control	4320.00
2700LG-40	With "Lectrajst" and sound system	5020.00

Diplomat Series 200

If your interior design uses carpet for more than the floor...this is it. Features chamfered corners and a plinth base to reflect the surface it stands on. Includes work-surface light and recessed wheels for easy mobility. Available with self-contained sound system.

200-25	Width 25" carpeted	\$1130.00
200G-25	With sound system	1830.00

Omni

By virtue of "Lectrajst" height control, this lectern moves quietly and smoothly from wheelchair to full standing use. Standard finish is bookmatched natural oak or walnut veneer. Work light and timer/clock are available options

3200L-40	Width 40"	\$4670.00
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Table Model LECTERNS

LE-22	Width 25" carpeted with light	\$ 695.00
LE-22G	With sound system	1395.00
LE-30	Width 25" with light	1070.00
LE-30G	With sound system	1770.00
LE-33	Width 19" portable	330.00
LE-40	Width 25" with light, clock	1330.00
LE-40G	With sound system	2030.00
LE-44	Width 24" with light	495.00
LE-44G	With sound system	1195.00
LE-66	Width 25" with light, clock	1210.00
LE-66G	With sound system	1910.00
LE-77	Width 25" with light, clock	1025.00
LE-77G	With sound system	1725.00
LE-88	Width 28" with light, clock	1620.00
LE-88G	With sound system	2320.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



PRESENTATION/ COMMUNICATION SYSTEMS

VIDEOFAX®

Visual Communications Systems

VIDEOFAX, the visual communication solution for video messaging and presentations, allows you to create, sequence, schedule and network "shows" composed of still video slides and full motion video segments. VIDEOfAX is easy to use and contains everything you need to create video information channels for corporate communications, cable advertising public access channels, point of sale displays, campus messaging and A/V presentations.

Slide Creation Features (Models 3500, 3400, 3100)

Image Capture from any RGB, S-VHS and composite video source, Image Import of .TGA files at 640 x 480 or 512 x 486, move photo, attach live video segments from laser disc and videotape player or loop a live camera or cable TV signal as a background, a window or behind text. 1-touch control of Paint programs. Add airbrushed backgrounds, easy borders and overlay text from 111 font styles and sizes including date, time, international characters and bullets. Digital audio can be recorded to the hard drive and attached to a slide from any audio source. JPEG compression hardware for images can be used to reduce file sizes. Clients can be attached to each slide (Model 3100 only) and billing rates set for advertising management with client invoicing.

Video Control Features (All Models)

Video segments are attached to a slide using SMPTE time code or frame code. Edit lists can be manually input or loaded from an ASCII file. Pioneer or Panasonic laserdisc players are controlled via RS-232 cable and Videomedia V-LAN® control is available for up to 19 videotape players. A/V switcher, video wall processor and boardroom control systems can be integrated via ASCII command and computer control. Automatic play, fast forward, rewind and switch can be set in the sequence.

Sequencing and Scheduling (Models 3500, 3400, 3100)

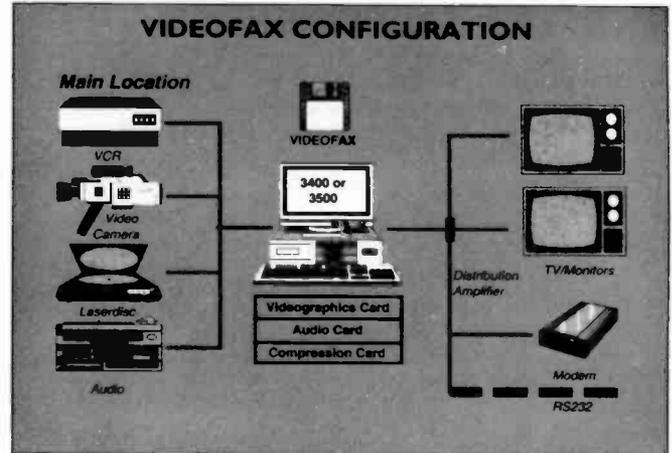
Each slide can be individually timed and sequenced. Transition effects, wipes and dissolves are set between slides and A/V switcher commands added between video devices. After sequencing is complete "shows" may be scheduled for time of day display up to 2 months in advance or scheduled for an indefinite loop. Custom schedules may be created for each day and for each VIDEOfAX player system on the network.

Presentation Features (All Models)

Easy A/V Presentation control with next, back, jump, tag slide and select from any "Show" sequence. Live camera for video overheads and automatic or manual playback/present. Video control is integrated. AMX or Crestron systems can automate control for boardroom environments.

Multi-Site Communication Features (Models 3100, 3400)

VIDEOFAX slides containing images, graphics, text, backgrounds, audio, video control commands, sequence information, schedule information and client data can be sent to remote VIDEOfAX Players via RS-232 connection on data networks (300 BPS-115K BPS) or via modem on dial up telephone lines. 1 time setup allows nontechnical operators to manage communications. Incremental communications updates allow fast, cost effective changes when VIDEOfAX sends only what is new or what has changed in each show. Automatic update time of day can be pre-selected for the network. All VIDEOfAX systems are able to receive shows. Remote diagnostic information is retrieved from remote sites. With the Advertiser System (Model 3100), affidavits of slide run times are retrieved and billing files are updated.



Operations Functions (All Models)

Import and export shows to disk or tape backup, duplicate show and decompress show. System message log automatically records all error messages, software customization for video device control, printers and communications.

Minimum Hardware Requirements

IBM compatible 486 PC 33MHz or faster matched on all VIDEOfAX systems, 4M byte of RAM, 170M byte hard drive or larger, 3.5" floppy, mouse, keyboard, power supply rated over 200W and well ventilated, VGA monitor, video display monitor, Truevision Targa+ or Visionetics VIGA+ Videographics card, video input/output cables, 2 serial ports, 14.4 modem, MS DOS 6.0 or higher, Windows 3.11.

V3600 VIDEOfAX Player

For unattended reception and playback of scheduled shows at the same or remote locations.

V3600 Player software \$1995.00

V3500 VIDEOfAX Messenger

For single site messaging and presentation applications.

V3500 Messenger software \$2995.00

V3400 VIDEOfAX Producer

For multi-site messaging, communication and presentation applications.

V3400 Producer software \$3995.00

V3100 VIDEOfAX Advertiser

For advertising management of multi-site network applications.

V3100 Advertiser software \$4995.00

V50 VIDEOfAX Desktop System (Hardware Only)

486 DX hardware systems with audio and video for VIDEOfAX software.

V50 Desktop hardware (only) \$5895.00

V90 VIDEOfAX Portable System (Hardware Only)

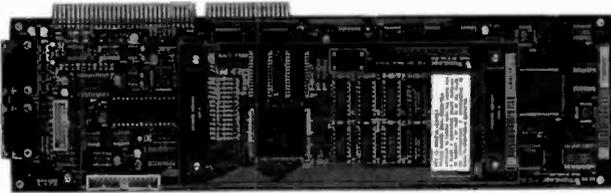
486 DX portable system with video and audio for VIDEOfAX software.

V90 Portable hardware (only) \$9995.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



DESKTOP VIDEO EQUIPMENT



DVA-4000 Series Full Motion Digital Video Adaptors

- Based on Digital Video Architecture (DVA) Full-screen VGA overlay in all modes
- Full-motion digital video at 30 frames/second (NTSC) or 25 frames/second (PAL)
- Software controllable picture content, hue, saturation, contrast and brightness
- Video, audio and graphics mixing
- Software controllable color attributes—opaque, translucent and transparent available simultaneously
- Software controllable treble and bass
- 2 switchable input sources from NTSC, PAL, composite video, RGB, S-VHS
- Software selectable field or frame mode
- Identical aspect ratios between NTSC and PAL, providing a standards-independent publishing platform
- Image capture onto conventional magnetic media
- Video windowing, scaling, positioning
- Picture in picture
- Multiple live video windows
- Privileged screen areas
- Multiple stills per frame, e.g., quad splits
- Designed for hypermedia applications
- Over 1000 existing off-the-shelf generic applications to choose from
- QuickTime support for Macintosh platform

VL-62439	DVA-4000 for PS/2, DOS	\$1395.00
VL-62440	DVA-4000 for PS/2, Windows	1395.00
VL-62433	DVA-4000 for Mac II and Quadra 8-bit	1495.00
VL-62434	DVA-4000 for Mac IIsi 8-bit	1495.00
VL-62447	DVA-4000 for Mac II and Quadra 24-bit	2195.00
VL-62448	DVA-4000 for Mac II and Quadra 24-bit upgrade	999.00
VL-62435	DVA-4000 for PC/XT/AT, S-VGA, DOS	1995.00
VL-62436	DVA-4000 for PC/XT/AT, S-VGA, Windows	1995.00
VL-62437	DVA-4000 for PC/XT/AT, DOS	1895.00
VL-62438	DVA-4000 for PC/XT/AT, Windows	1895.00

*Note: All kits include DVA-4000, software drivers, cables and documentation.

Mediator™ Graphics-to-Video Converter

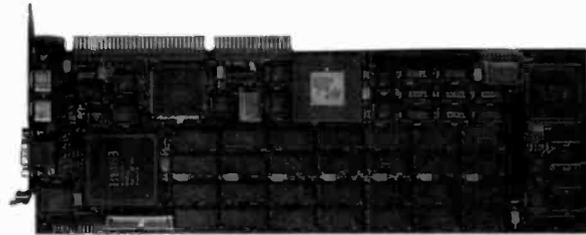
- Converts standard analog RGB Macintosh or VGA graphics from your computer to a composite or S-Video signal in either NTSC or PAL, allowing you to record the output onto a wide range of videotape formats, including S-VHS, Hi8, VHS and Video 8
- If you don't want to make recordings, you can simply display the video output on a color video projector, LCD video projector, standard video monitor or domestic TV
- Requires no special hardware or software to be installed in your computer and allows you to view the output simultaneously on your computer screen and video monitor
- Automatically detects whether you have connected an Apple Macintosh or an IBM PC XT/AT™ or PS/2™ (or compatible) VGA computer, thus eliminating any complicated setup procedure
- Anti-flicker filtering
- Genlock facility
- Freeze frame

VL-62424 Mediator for VGA or Mac to NTSC or PAL \$1995.00

Mediator LC™ PC Graphics-to-Video Converter

- Convert 640 x 480 60Hz VGA, S-VGA or XGA computer graphic images to video
- PC graphics to NTSC conversion
- Minimizes video flicker on the TV screen
- Picture quality and positioning controls
- Monitor loopthrough
- Advanced RGB processing
- Portable
- Automatic termination

VL-62476 Mediator LC for VGA to NTSC \$599.00



Rapier 24™ 2-Page Graphics Processor

- Brings true color graphics to Windows, AutoCAD and TIGA applications
- Optimum resolution for all monitor sizes from 12" to 21"
- Application independent gamma correction once only at setup
- Graphics and video conversion in 1 slot—via external encoder
- Built-in expansion path into multimedia
- Provides all popular resolutions from 640 x 480 to 1152 x 882 and allows users to select from a wide range of third party multi-sync, VGA and Apple monitors
- Interlaced NTSC and PAL video output allows users to connect Rapier 24 directly to a wide variety of video equipment including video projectors and encoders

VL-62450	Rapier 24	\$2195.00
VL-62456	Rapier XTV upgrade for Rapier 24	995.00
VL-62458	8M byte processor memory upgrade kit for Rapier 24	795.00
VL-62061	Rapier 24MX (Rapier 24 + 8M byte upgrade)	2795.00
VL-62063	Rapier 24XTV (Rapier 24 + XTV)	2995.00
VL-62062	Rapier 24MXTV (Rapier 24 + XTV + 8M byte)	3495.00

Rapier 8-24™ 2-Page Graphics Processor

- Brings 8-bit color and 24-bit true color performance to Windows, TIGA and Autodesk ADI applications on standard desktop EISA/ISA PC compatibles
- Provides resolutions from 640 x 480 to 1600 x 1200
- Allows users to select from a wide range of third-party multi-sync monitors
- Optimum resolution for monitor sizes from 12" to 21"

VL-62451	Rapier 8-24	\$1495.00
VL-62465	TMS34082 chip for Rapier 8-24	445.00

MediaSpace™ Digital Media Adaptor

- Full motion NTSC and PAL
- High quality audio -48kHz
- Mic II program interface
- Brings fully symmetrical, real time video and audio compression and decompression to standard desktop EISA/ISA PC compatible personal computers
- Provides flicker-free, full motion video at any window size up to full screen on a standard VGA or SVGA monitor
- Conforms to the JPEG and ADPCM and PCM international standards for video and audio, and can compress, store and play back video and audio sequences from a wide range of standard PC magnetic and optical storage devices

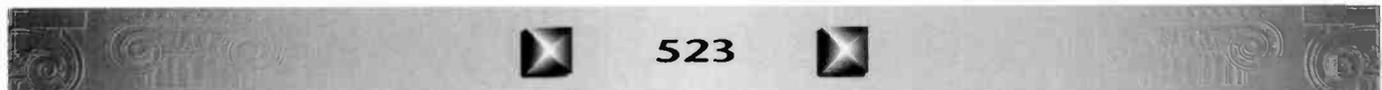
VL-62441	MediaSpace and Adobe Premiere for Windows	\$1995.00
VL-62442	MediaSpace, DVA-4000 and Adobe Premiere	2995.00
VL-62443	MediaSpace, DVA-4000, SVGA and Adobe Premiere	3095.00

MediaSpace Playback

- Single-slot, cost-effective solution for playback of MJPEG (Motion Joint Photographic Experts Group) video movies and multimedia applications in standard EISA/ISA bus PCs
- Fully supports Microsoft Video for Windows AVI (Audio Visual Interleaved) MJPEG industry standard file format, permitting the exchange of data files between third party applications and delivering full screen, full motion, full color MJPEG movies with CD-quality audio
- Playback of PCM (Pulse Coded Modulation) audio files is also fully supported
- Applications: training courseware, point-of-sale and point-of-information kiosks
- Ideal for the display of full motion video distributed to end users over a network

VL-62489 MediaSpace Playback \$1595.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





THE COMPLETE ANIMATION SUITE

- Provides complete market-specific 2-D and 3-D graphics solutions for entertainment, industry and electronic games
- A family of graphics software provides a comprehensive line of tools for modeling, animation, rendering, scene planning, illustration, composition and special effects

ADVANCED VISUALIZER™

- The industry's most productive and complete workstation-based 3-D animation system
- Offers comprehensive set of tools for 3-D modeling, animation and rendering
- Network licensing option permits these tools to be accessed separately and simultaneously across multiple workstations, allowing large animation projects to be addressed in parallel
- Provides overall project management and easy-to-use, consistent, point-and-click interface
- Dynamation, Kinemation, Composer, data translators, and output control products integrate directly with the Advanced Visualizer to create the most powerful 3-D animation software available

EXPLORE PROFESSIONAL™

- Provides power and creative control to deliver 3-D production
- Configurable user interface, industry-leading rendering capabilities and groundbreaking Interactive Photorealistic Rendering (IPR) technology
- Complemented by CineSuite for digital image production, Dynamation for physically based animation and Kinemation for advanced character animation

3DESIGN™

- NURBS based modeling package
- Combines both surface and solid modeling techniques, providing maximum creative freedom for animators to construct intricate and fluid 3-D shapes
- Undo/Redo capability
- Maintains detailed construction hierarchy so objects can be rebuilt automatically whenever any component is modified
- Full featured NURBS modeler designed to integrate curves, surfaces, and polygons
- Option for implicit surface (BLOBS) modeling available

COMPOSER™

- Provides advanced image production to enhance and record high-impact presentations quickly and easily
- Assemble animation clips, stills and layers, sequence them in time and add special effects, transitions, titles and annotations
- Results displayed at reduced resolution as on-screen movies with MultiFlip, or at full resolution for final inspections
- Supports all film and video formats and industry-standard video devices
- Supports data from many different sources including: Wavefront (.rla, .rlb and texture files), Alias, Explore (TDI), IFF/ILBM, Kodak Cineon, PICT 2, Pixar, PostScript, Quantel, SGI, Softimage, Targa, TIFF and Vista

VISUALIZER PAINT™

- Provides maximum freedom to manipulate paint, text and images in a 3-D environment
- Images can be combined and used as cut-outs to create multi-layered effects
- Special effects produced using brushes, gradations, shapes and fills
- Works as an ideal companion to the animation process to touch up and enhance images, create backgrounds and generate texture maps
- Full-featured paint system designed to integrate with popular 3-D animation systems



Columbia Image

This new Columbia Pictures logo is a 15 second animation created with Wavefront software. Wavefront's Composer was used to combine 66 layers of clouds, 7 layers of lighting effects, and a 3-D model created from a clay statue.

Designer/Director: Joel Hynek, First Light, Inc.

Animation: Kleiser-Walczak Construction

Company

© 1993 Columbia Pictures

DYNAMATION™

- 3-D animation tool for interactively creating and modifying realistic, natural images of dynamic events
- Resulting images come from seamless blending of behavioral data and user-specified information describing shape, color and motion
- Complete, user-controllable 3-D animation environment allowing users to apply the rules of physics to individual particles, object coordinates or raster images in a consistent manner
- Includes graphic user-interface, high-level command language and an easy-to-use library of effects called Clip F/X

KINEMATION™

- Simplifies the kinematics process with its unique Digital Doll method
- Represents the next generation of character animation software, allowing complete control of the skeleton by integrating forward and inverse kinematics
- Animators can bring static models to life by directly manipulating a user-defined skeleton like a marionette
- Incorporates a behavioral model into its Smart Skin™ that can be taught to behave according to skeletal position or time
- Provides new tools that incorporate state of the art techniques in 3-D kinematics motion, skeletal intelligence and skin behavior

GAMEWARE™

- High-end computer graphics software created specifically as an authoring tool for game development
- Allows developers to create games with realistic 3-D objects and terrain, synthetic actors with natural motion and stunning special effects
- First Silicon Graphics based software to provide a complete end-to-end solution for 2-D and 3-D asset creation in the games environment

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.





Pandemonium® 2.0 Image Processing and Effects Animation for Silicon Graphics Workstations

- Over 40 customizable effects and utilities
- Over 300 preset styles ▪ Hundreds of effect parameters — completely customizable ▪ Saves custom styles ▪ Real time preview playback
- Uses any type of source imagery ▪ Generates color-based synthetic imagery ▪ Generates traveling mattes from any channel of any image including Softimage tag channels ▪ Batch processes from the UNIX command line or shell scripts ▪ Outputs at D1 broadcast quality

Pandemonium is an unparalleled effects animation engine. Its uses are as rich and varied as the effects and utilities it contains. Post-production artists, 3-D animators, desktop video and multimedia producers, broadcast designers and corporate media specialists are now producing stunning high-end opens, bumpers, animations, commercials, video graphics and transition effects with Pandemonium software.



System Requirements: ▪ Silicon Graphics workstation ▪ 24-bit graphics recommended ▪ Minimum memory depends on OS version (16M bytes of memory is recommended, in addition to minimum OS requirement) ▪ 13M bytes free disk space for application installation ▪ Minimum of 300M bytes free disk space is recommended for product use (additional disk space may be required for installation of sample images and player files)

Pandemonium **\$5995.00**

PanFX 1™ Phenomenal Effects for Pandemonium

Used by post-production artists, 3-D animators, desktop video producers, broadcast designers and corporate media specialists, PanFX 1 provides feature-rich, customizable effects for Pandemonium. 4 new effects for Pandemonium include: turbulence dissolve, ripple dissolve, fur brush and glass mattes. Each effect is a separate module that can use any available source imagery and contains its own set of unique, customizable parameters and preset styles. Use PanFX 1's effects to create: video transitions, titles and opens, bumpers, animation sequences, video graphics and commercials. PanFX 1 requires an additional 1M byte of free disk space.

System Requirements: ▪ Silicon Graphics workstation ▪ 24-bit graphics recommended ▪ Minimum memory depends on OS version (16M bytes of memory is recommended, in addition to minimum OS requirement) ▪ 13M bytes of free disk space for application installation ▪ Minimum of 300M bytes free disk space is recommended for product use (additional disk space may be required for installation of sample images and player files)

PanFX 1 **\$1495.00**

nTitle® Animated Typography and Titling for Silicon Graphics Workstations

With gorgeous text effects, superior animation capabilities, and a simple visual interface, nTitle is ideal for animated typography and titling. Take nTitle's high quality fonts and add fills, shadows, bevels and other text effects such as color gradients, video clips, 3-D animations or your own scanned images. Then bring it to life using rolls, crawls or custom moves. While easy to use, nTitle opens new avenues for producers, designers, engineers, scientists, teachers or anyone who communicates with images and text.



System Requirements: ▪ Silicon Graphics workstation ▪ Irix 4.0 or later ▪ Minimum 16M bytes RAM (32M bytes recommended) ▪ 24-bit color recommended

nTitle **\$2495.00**

Fresco "Artist in Residence"

Fresco is a collection of 80 royalty-free textural images, rich with luminosity, subtle color and surface depth. Because the Fresco images are synthetically generated, they are extremely malleable. And because they are about surface and texture, their color, tone and contrast can be radically altered in popular image editing and photo manipulation applications such as Adobe Photoshop™. The Fresco collection contains 80 images, each in 2 resolutions.

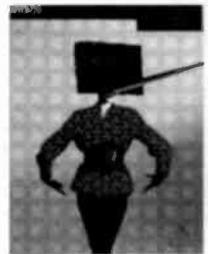


System Requirements: ▪ Apple Macintosh ▪ CD-ROM drive ▪ System 7.0 or later

Fresco **\$199.00**

Terrazzo™ "Boundless Playground for the Creative Mind"

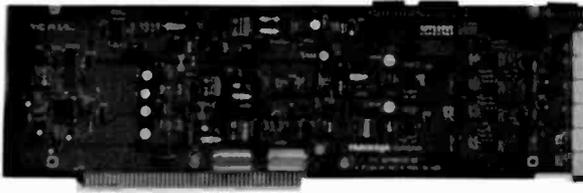
Terrazzo is a powerful interactive Adobe Photoshop plug-in for creating limitless tileable textures and patterns from any source imagery. Terrazzo creates geometrically complex patterns from a choice of 17 symmetries. Because Terrazzo uses the imagery supplied by the user as the source for its patterns, the results are a virtual kaleidoscope of color and pattern in harmony with the original images. By simply selecting a symmetry in Terrazzo and sliding it around on the selected source image, Terrazzo produces tiles of astounding beauty. You are able to see simultaneously your source image with the symmetry, the tiling pattern being created and the individual tile Terrazzo has created.



System Requirements: ▪ Color Apple Macintosh ▪ System 6.05 or higher ▪ Minimum 5M bytes of RAM ▪ 32-bit QuickDraw version 1.2 ▪ Adobe Photoshop version 2.0 or later, Fractal Design Painter® version 2.0 or later, or other "Adobe Standard" plug-in compatible applications

Terrazzo **\$199.00**

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



YCP-100 Y/C Adaptor For Video Toaster

Simply by adding the YCP-100 to one of the Amiga Zorro expansion slots you have 4 Y/C inputs and 2 Y/C program outputs. Combinations of Y/C and composite video can be used. When Y/C inputs are selected (factory preset), the composite inputs of the Video Toaster become composite outputs. These outputs can be used to monitor the incoming component signals. This is an excellent feature for "live camera switching" or A/B roll editing systems. The system uses 4-pin micro DIN connectors. We recommended high quality Y/C cables for an optimum connection. Composite preview output from the Video Toaster remains intact and is used like always. YCP-100 accepts S-VHS, Hi 8, S-Video and Y/C signals. Y/C is the industry standard for separate luminance and chrominance. The YCP-100 reduces dot crawl and cross luminance. This NTSC artifact appears on edges of color with complementary hues, such as blue and yellow. At these boundaries the color decoder misinterprets the abrupt shift in color phase as luminance signal and alternating dark and light dots form with color information. The cause of this problem is color crossing in the luminance signal. When the colors are in opposite phase the greater amount of "dot crawl" will appear. This is most visible in character generation. Consequently in the past the user has had to pick certain colors as background and certain foreground characters restricting the user to fewer color combinations. The YCP-100 gives the user a much greater, almost endless selection of color combinations. The most important component of the YCP-100 is the Faroudja Laboratories Two Dimensional digital Adaptive Comb Filter. This component was developed for the future Advance Television process (Digital HDTV). Faroudja's 2-D digital adaptive comb filter, color and luminance are sampled not only for the current pixel but for adjacent pixels on the same line as the pixel on the preceding line above the pixel. . . . \$799.00

YCP-688 Super 3/4" Adaptor

This easy to use board converts the 3/4" or 3/8" SP U-Matic to a Y/C system. The YCP-688 converts (7-pin dub) output to the highly used Y/C 3.58. The YCP-688 plugs directly into any PC (IBM) style slot. Special timing chips are used to match the luminance with the chrominance channel to eliminate ringing in the picture. In addition to the features of the YCP-688, there are also many advantages. For one, utilization of the 7-pin dub output will give less picture degradation. The luminance channel passes over 6.0MHz bandwidth or more than 480 lines of resolution. The YCP-688 comes with 2 Y/C outputs. One output will connect to switchers, time base correctors, and other devices. The other is for monitor connection. The YCP-688 will convert Y/C to Y-688 for high quality recording purposes. . . . \$549.00

YCP-BETA Y/C To Betacam Adaptor

The YCP-Beta is a plug-in board that converts any Y/C (S-VHS or Hi 8) video signal to the popular Betacam format. This card plugs into any PC (IBM) style slot. When placed in an Amiga 2000, 3000, or 4000 computer along with a Y/C Plus, a ribbon cable is supplied to hook internally for a neat connection. The YCP-Beta also has a 4-pin micro DIN input, so any Y/C source can be converted to Betacam. . . . \$299.00

YCP-MII Y/C To MII Adaptor

The YCP-MII plug-in card is an inexpensive way to convert Y/C (S-VHS or Hi 8) signals to MII. Plug into any PC (IBM) style slot, connect the cables to the VCR's and start recording. No adjustments or test equipment is required. If installed in an Amiga 2000, 3000, or 4000 along with a Y/C Plus, an internal ribbon cable is supplied for direct connection. Any Y/C signal can be converted to MII. . . . \$299.00

YCP-RGB Y/C To RGB Adaptor

With computers, laser recorders, and still recorders all having a requiring standard 15.75MHz RGB signal, the YCP-RGB can help by converting any Y/C (S-VHS or Hi 8) signal. This board plugs into any PC (IBM) style slot. When used with an Amiga 2000, 3000, or 4000 computer and a Y/C Plus, an internal ribbon cable supplies a neat connection. The system will except Y/C via a 4-pin micro DIN connector. . . . \$299.00

YCD-15 Dual Purpose Distribution Amp

The YCD-15 distribution amp can be configured in 2 different ways: 1 in and 5 out or in a dual 2 input with 2 outputs. This DA provides exceptional bandwidth, very low differential phase and gain, as well as high signal to noise ratio. The YCD-15 draws power from any XT/AT or PC (IBM) style slot. . . . \$299.00

CVD-15 Dual Purpose Distribution Amp

The CVD-15 can be configured in 5 different ways: 1 in with 5 out terminated input; 1 in with 5 out loopthrough input; dual 1 in with 2 output terminated input; dual 1 in with 2 output loopthrough input; and dual 1 in with 2 output 1—input terminated, 1 in loopthrough. The CVD-15 is designed using different inputs, eliminating ground loop or "hum" introduced at the inputs. No other desktop video distribution amp has this feature. . . . \$149.00

BVD-42 Output Distribution Amp

The BVD-4 provides exceptional bandwidth, very low differential phase and gain, as well as high signal to noise ratio. The BVD-42 draws power from any XT/AT or PC slot. The BVD-42 can only be used with the YCP-100. Either amplifier stage has separate gain controls, these are factory calibrated for unity gain. Either amp can be adjusted for -3 to +3dB of gain to compensate for signal lost or equipment output error. . . . \$229.00

VL-1A Low Pass Filter For Video Toaster

Eliminates interference from improper NTSC composite encoding from S-VHS camcorders. Interference appears as vertical light and dark lines when in the framestore mode. Unit supplied with BNC input and BNC output. Connecting cables not included. . . . \$54.95

VL-2 Y/C Low Pass Filter For Video Toaster

Eliminates unwanted highband "spurs" in the Y/C video signal. Interference appears as vertical light and dark lines. . . . \$99.95

KDP A-750 Interface For Video Toaster

The KDP-A750 is an adjustable trigger to interface with the Panasonic AG-A750 and the NV-A510. The KDP-A750 adjusts the trigger point from preroll start to edit point. Features quick on/off switch for easy control. Cables are included with the KDP-A750. . . . \$199.00

KDP-440 Interface For Video Toaster

The KDP-440 is a specially designed interface that triggers the effect at the edit point versus the preroll pint. Triggers a single effect and is adjustable for 5 second or 10 second preroll. Comes with an RCA input and a 9-pin output. Features on/off switch for quick effects/non-effects operation. Cables are included. The KDP-440 trigger works only for the Sony RM-440. . . . \$199.00

Power Supply

YCP-PS Power supply and housing (stand-alone) \$79.00

Y/C Cables

YC6	6' high grade Y/C cable (4-pin DIN).	\$12.00
YC12	12' high grade Y/C cable (4-pin DIN).	18.00
YC7M	10' high grade Y/C cable 7-pin male to 4-pin DIN JVC out	39.00
YC7F	10' high grade Y/C cable 7-pin female to 4-pin DIN JVC out	39.00
YCMF	10' high grade Y/C cable (7-pin M/F).	59.00
KDP-4B	Monitor cable 23-pin to 4 BNCs	65.00
YCBNC	Y/C to (2) BNC breakout adaptor (for separate long Y and C cable runs)	49.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



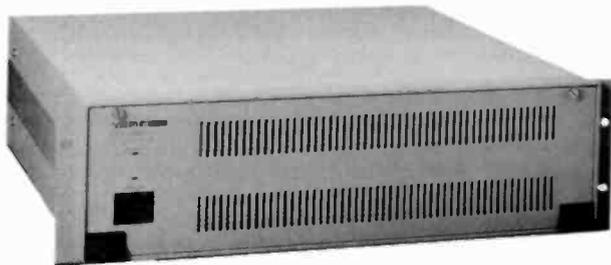
SCAN CONVERTERS/ DECODER/ENCODER/ SWITCHER/DA



CVS-980 Super Auto Scan Converter

The CVS-980 converts analog or TTL RGB of interlaced or non-interlaced computer output video and high vision HDTV RGB video to NTSC or PAL TV standard format signals. The CVS-980 is designed for multi-sync and multi-scan modes, automatically sensing and adjusting various formats of computer graphics video in the range from personal computer to high resolution engineering work station systems.

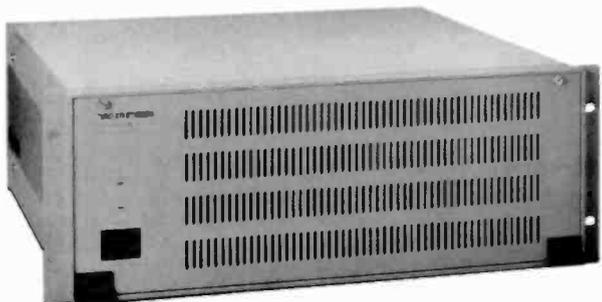
- CVS-980 \$16,995.00
- CVS-980 B/W Monochrome version of CVS-980 for medical and radar applications. 9,590.00



CVS-980H Super Auto Scan Converter

The CVS-980H is a real time processing wide-range multi-sync, multi-scan converter for professional use. The CVS-980H can convert computer graphics or CAD signals of personal computers or engineering work stations to high quality NTSC/PAL format TV picture signals, and can be used as live sources of broadcasting, for making animations, etc.

- CVS-980H \$23,500.00



CVS-970B High Resolution (HDTV) Automatic Down Converter

The CVS-970B converts high resolution computer graphics and CAD pictures of engineering work stations to high definition TV formats. The CVS-970B is designed for multi-sync and multi-scan modes and is automatically sensing and adjusting with various formats of EWS output video.

- CVS-970B \$23,200.00

HSC-1125 HDTV Up Converter

The HSC-1125 handles with standard NTSC video signals and non-standard video signals as LD home video replays, TV games or still video outputs to convert to the HDTV format of Y, PB, PR and RGB signals.

- HSC-1125 \$12,500.00



SW-950 Computer Graphics Video Switcher

The SW-950 is a compact low-crosstalk switcher, designed to meet or exceed the most demanding computer graphics super wide-band requirement. The SW-950 has 4 inputs and 1 output channel that consists of 5 signals (RGB video and HD, VD sync). 1 channel of 4 inputs can be selected by push switches on the front panel and a remote control terminal.

- SW-950 \$3,850.00



EDC-3000 Digital Line Doubler

The EDC-3000 can convert NTSC and PAL format interlaced video signal to 2X scan rate non-interlaced high quality RGB signals. The EDC-3000 can automatically handle not only the standard composite video signal but also the non-standard composite video signal as the laserdisc or VCR reproduced and TV game output. It accepts 2 composite video signals, 2 S (Y/C) signals, Y/R-Y/B-Y or RGB. The EDC-3000 provides high quality color correction performance on a built-in vertical and horizontal enhancer and also provides high vertical resolution and a no flicker picture by "motion adaptive line scanning interpolation" process. By introducing 3 lines Y/C separation technology, the EDC-3000 eliminates cross-color, dot and chroma-crawl disturbance. The EDC-3000 also has a built-in RS-232C port for remote control.

- EDC-3000 \$9,850.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.

DOS Compatible Products

Mirage V 5.23

A complete working environment for users who need top quality output for a wide variety of presentation graphics requirements.

Mirage V 5.23 \$1795.00

Import DOS V 4.0

Provides the facility to import images into Mirage from a variety of sources, including Harvard Graphics, Lotus Freelance, AutoCad, VideoShow and others. Batch processing, menu-driven interface, full-screen previews.

Import DOS V 4.0 \$149.00

Windows 3.1 Compatible Products

Import for Windows

Provides the facility to import images into Windows 3.0 from a variety of sources, including Harvard Graphics, Lotus Freelance, AutoCad, VideoShow and others. Batch processing, menu-driven interface, full-screen previews.

Import for Windows \$149.00

Speaker Support Library V 1.0

Ready-to-use images for your presentation and Desktop Publishing needs. Over 325 high quality images in 10 different categories (IMA format only).

Speaker Support Library V 1.0 \$149.00

ArtPack II

Designer graphics library of more than 1000 ready-to-use symbols, in over 30 categories. Available in either EPS, IMA or CGM formats.

ArtPack II \$99.00



SuperPrint 3.0

Fast Windows printing and imaging software that uses 32-bit memory management and program instructions, makes maximum use of all available system RAM, offers device specific options for a variety of output devices, sharp WYSIWYG screen fonts and fast background printing.

Standard Version

Includes drivers for most laser, ink jet and dot-matrix printers, plus fax and bitmap drivers. \$99.00

High-End Versions

- Agfa Procolor film recorders. \$ 595.00
- Agfa PCR/QCR film recorders. 995.00
- Agfa Forte film recorder. 1995.00
- CalComp color thermal printers. 195.00
- Canon color laser copiers. 2495.00
- MGI Solitaire film recorder. 1995.00
- Mitsubishi color thermal printers. 395.00
- Presentation Technologies Montage film recorders. 395.00
- Shinko thermal transfer printers. 195.00
- Tektronix ColorQuick printer. 195.00
- Tektronix color thermal printer. 195.00

(Other drivers available; call for information.)



SuperQueue

Fast background printing utility replaces Windows print manager. Allows faster return to application times, batch printing, full network compatibility and changing printing priorities on the fly.

SuperQueue \$69.95



Z Script

Fast 32-bit PostScript language interpreter for Windows. Allows user to print PostScript language files to any Windows supported output device, preview PostScript pages or EPS clip art on the screen, copy screen previews to clipboard and paste into other Windows-based applications. Includes SuperPrint 3.0 (standard version).

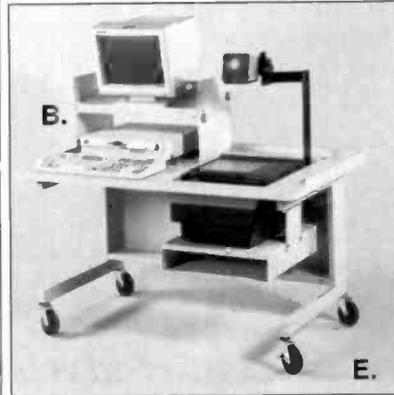
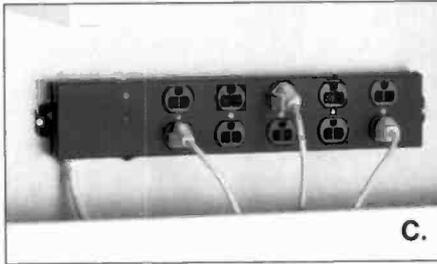
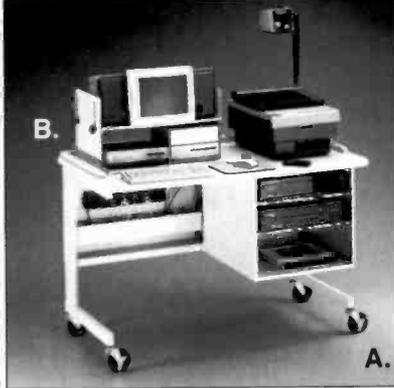
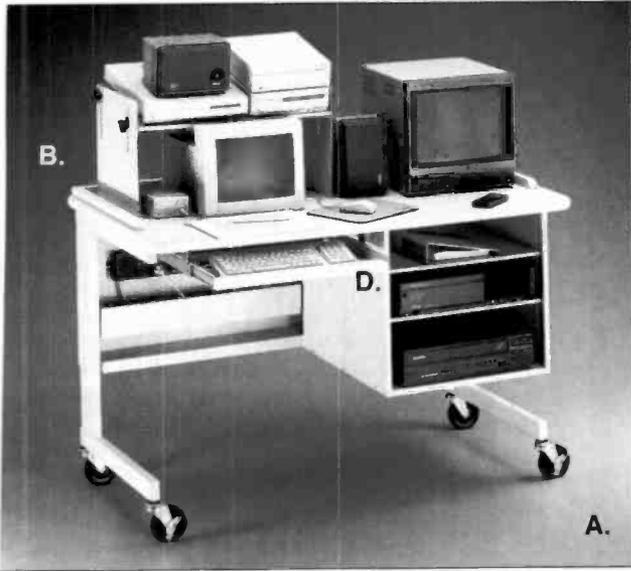


Z Script \$295.00

ADDITIONAL PRODUCTS AVAILABLE. PLEASE CALL.



MULTIMEDIA CARTS



**Now you can place
all your
multimedia
equipment
on one cart!**

These carts for multimedia and interactive learning systems (ILS) presentations:

- Provide space for all of your multimedia equipment
- Feature solid steel construction
- Roll easily on 4" casters (2 lock)

A. UCS800-GM Level 3 ILS Cart provides a large work surface and lower shelves to hold all of your multimedia equipment. Work surface is crafted from 1" thick laminate and includes a vinyl bumper along the edges, as well as a 1" retainer lip along the back and sides. Worksurface also includes cord control slots along the back edge. Lower cabinet includes three shelves--top two are height adjustable in 2 3/4" increments. Shelves measure 20 1/4"W x 21 1/4"D. Table is height adjustable from 26 1/2" to 33 3/4". Easy-rolling 4" casters, two locking. Attractive grey finish. Overall: 30"D x 51"W. Lower Cabinet: 19 1/2"W x 23"D x 18"H.

UCS800-GM 142 lbs. \$582.00

B. UCSAMS-GM Monitor Shelf for the UCS800 can hold your computer monitor, external drive, CD-ROM, speakers or any equipment you require. Adjustable knobs allow shelf to be positioned angled or flat. Grey finish. Measures 23 1/2"W x 13 7/8"D. Shelf adjusts 7" - 11 1/2"H.

UCSAMS-GM 15 lbs. UPS \$61.00

C. UCSE10 Electrical Unit includes 10 outlets, 20' cord, on-off switch and surge suppression. Mounts above the lower cord bin on the UCS800-GM which is pre-drilled. Mounting hardware included. Black. UL listed.

UCSE10 6 lbs. UPS \$119.00

D. UCCKD-GM Keyboard Drawer allows greater access to the worksurface. Grey finish. Overall: 20 3/4"W x 1 1/2"H x 12 1/2"D.

UCCKD-GM 7.5 lbs. UPS \$83.00

E. UCS700-GM Multimedia Cart is for presentations using computer/OH projector interaction. Grey finish. Height adjustable from 26 1/2"-33 3/4". Shown with optional UCSAMS-GM. Projector well: 17 1/2"W x 20 1/2"D. Overall: 48"W x 30"D.

UCS700-GM 102 lbs. \$554.00

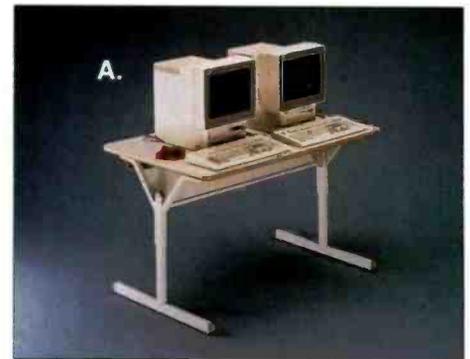
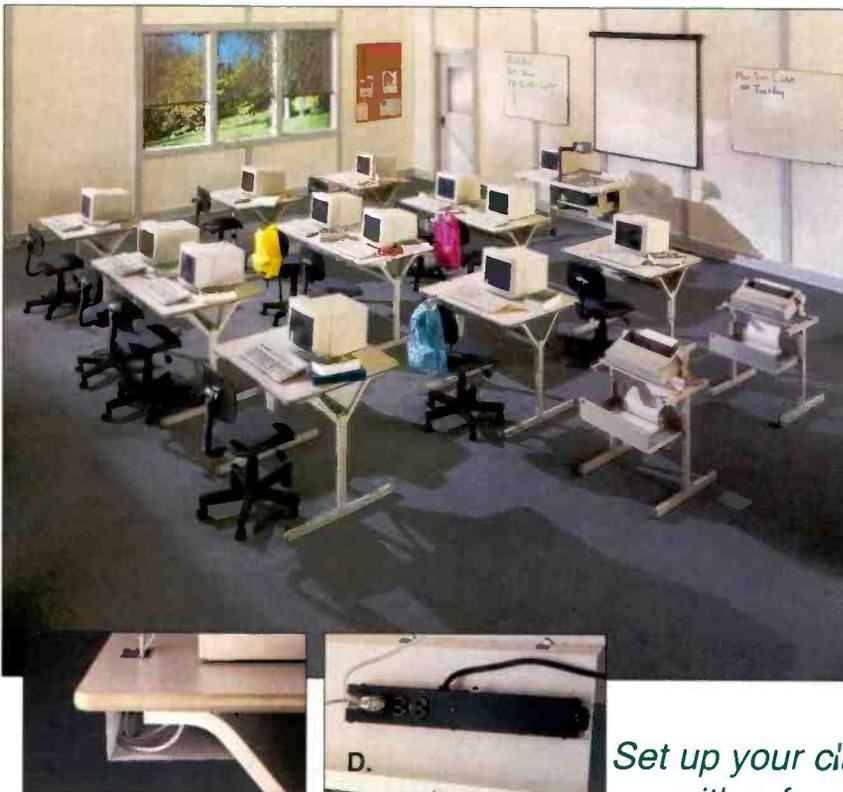
F. BBILS1-P4 Level 1 ILS Cart places your monitor at a 44" viewing height while laser disc player rests on middle shelf. Roll-out shelf places instructional materials at stand-up presentation height (39") -- pulls out to either side. **Recommended for use with up to 27" diagonal monitors.** 4" casters, two lock. Black. Optional two-outlet electrical unit. Overall: 44"H x 32"W x 27"D. Pull-out shelf: 19 1/2"W x 13 1/2"D. Top Shelf: 32"W x 22"D.

BBILS1-P4 71 lbs. UPS \$273.00
BBILS1-E4 w/e-unit 73.5 lbs. UPS \$314.00

Contact us for a full-line Bretford catalog.
Prices are subject to change without notice 11.93
▼Quick-ship items for immediate delivery.



COMPUTER FURNITURE



Set up your classroom or computer lab in minutes with a free room planning kit from Bretford!

Bretford's Connections Series of computer furniture allows you to construct the ideal lab set-up for your students. The interchangeable table styles in the Connections Series are designed specifically for group instruction. Connections Work Centers:

- Come in 36", 48" or 60" widths and are height adjustable
- Feature grommet holes and hinged cord management bins
- Include integrated modesty panels
- Are available with glides or casters

Each is crafted with a 1" thick laminated tabletop with an attractive light grey finish and a coordinating bullnose edgeband. Table bases are constructed from 14 gauge steel with a textured powder paint finish in matching grey.

The Connections Work Centers can be placed around a room's perimeter, in rows, in learning clusters or in any configuration that suits your needs. Room planning kits are available at no charge to make set-up a snap.

A. Adjustable Work Centers with glides are 30" deep to hold larger hard drives. Adjustable floor-saving glides for easy leveling. Height adjustable from 24-30" in 1" increments. Tables can be easily connected together with the accessory bracket connector (model 3557). Optional low-rise shelf available.

3521-GM	36"W x 30"D	68 lbs.	UPS	\$241.00
3523-GM	48"W x 30"D	80 lbs.		\$271.00
3524-GM	60"W x 30"D	98 lbs.		\$306.00
TCP	Caster Pak	3 lbs.	UPS	\$ 30.50

B. Connections Adjustable Work Centers with casters (not shown) are ideal for sharing equipment among classrooms. Complete with 4" casters, two lock. Height adjustable from 24-30" in 1" increments. Optional low-rise shelf available.

3520-GM	36"W x 24"D	67 lbs.	UPS	\$270.00
3522-GM	48"W x 24"D	74 lbs.		\$311.00

C. Connections Low-Rise Shelves attach to any of the adjustable Work Centers. Designed from a matching 1" thick laminate, the shelf rests 11" above the main worksurface.

3530-GM	36"W x 12"D x 11"H	19 lbs.	UPS	\$114.00
3531-GM	48"W x 12"D x 11"H	22 lbs.	UPS	\$159.00
3532-GM	60"W x 12"D x 11"H	30 lbs.	UPS	\$188.00

D. CFPS Computer Furniture Power Strip provides four outlets, 20' cord, on-off switch and surge suppression. Attaches to any Connections table. Black finish. UL listed.

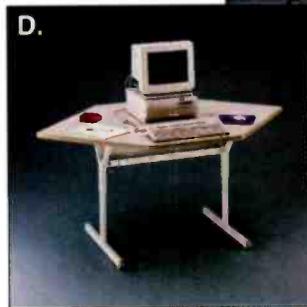
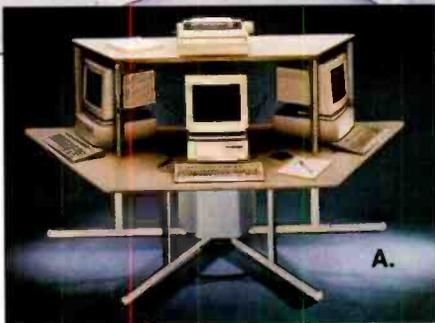
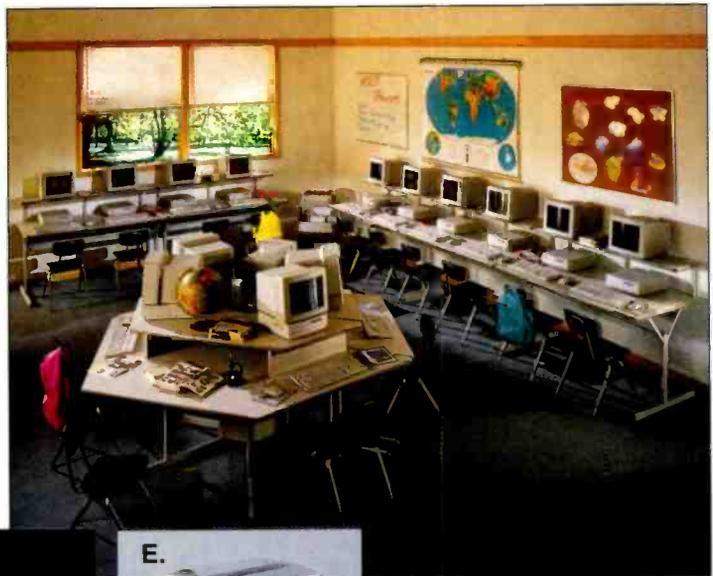
CFPS	4 lbs.	UPS	\$79.00
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E. Connections Flat Bracket Connectors (not shown) attach two Connections Work Centers together for placing tables in rows. Set of two. Mounting hardware included.

3557-GM	5.5 lbs.	UPS	\$23.50
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Contact us for a full-line Bretford catalog.
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COMPUTER FURNITURE



The Connections Series also features two specialty tables—the Instruction Center and the Corner Table. These styles allow you to customize your computer classroom--use them on their own or integrate the tables with a selection of Work Centers.

Each is crafted with a 1" thick laminated tabletop with an attractive light grey finish and a coordinating bullnose edgeband. Table bases are constructed from 14 gauge steel with a textured powder paint finish in matching grey.

A. 3508-GM Connections Instruction Center is 96" wide to hold up to three microcomputer systems. Or, place two tables back-to-back to create a six-station cluster. Spacious cord management bin at the back of the table. Can be equipped with up to three electrical units (model CFPS). Optional shelves. Overall: 96"W x 41 1/4"D x 26 1/2"H.

3508-GM	220 lbs.	\$579.00
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Connections Instruction Center Shelves elevate monitors or printers. 1" thick laminate tops feature cut-out for cord management.

B. 3534 Low Rise Instruction Center Shelf. Stands 7 1/2" above 3508 work surface. Overall: 70"W x 23"D x 7 1/2"H.

C. 3535 21"H Peripheral Shelf. Stands 21" above 3508 work surface. Overall: 70"W x 23"D x 21"H

3534-GM	7 1/2"H	50 lbs.	\$126.00
3535-GM	21"H	50 lbs.	\$143.00

D. Connections Corner Table is ideal for single-user situations or can be grouped for a cluster set up. Height adjustable from 24" to 30". Worksurface easily holds an entire micro-computer system. Overall: 65"W x 42"D. Integrated cord bin/modesty panel.

3511-GM	90 lbs.	\$459.00
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E. VALU1-GM Printer Stand holds continuous-form printers at a convenient desk height. Adjustable brackets hold feet of printer firmly in place (holds printers up to 21 1/4"W x 15 3/4"D). All steel construction. Shown with optional UNPF Paper Feed Tray.

VALU1-GM	25 lbs.	UPS	\$124.00
UNPF Paper Feed Tray	4 lbs.	UPS	\$ 47.00

F. UCSKD-GM Keyboard Drawer (not shown) can be added to any table. Grey. Overall: 20 3/4"W x 12 1/2"D x 1 1/2"H.

UCSKD-GM	7.5 lbs.	UPS	\$83.00
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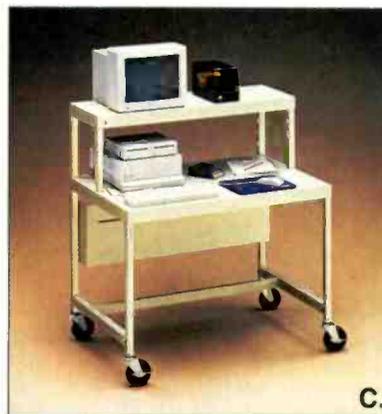
Set up your classroom or computer lab in minutes with a free room planning kit from Bretford!



COMPUTER FURNITURE



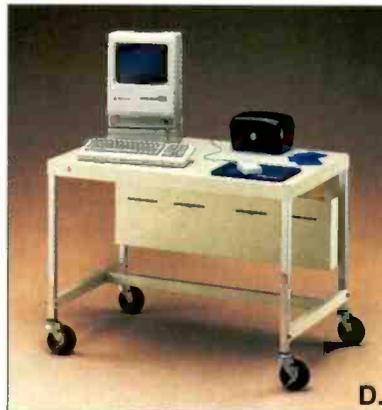
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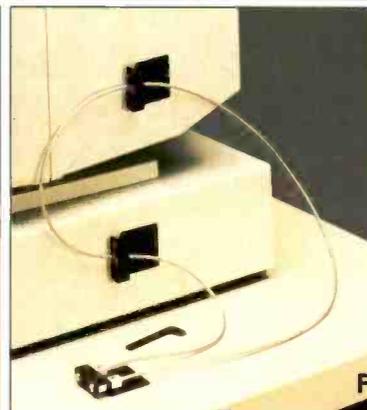
C.



E.



D.



F.

Each Bretford computer workstation features:

- Solid steel construction
- Die-pressed shelves and 4" casters (2 lock)
- Environmentally safe powder paint finish

A. EC1000-PB Computer Workstation has a cantilevered design that allows total access to the work surface. Shelf and tabletop adjust in 1" increments (24 1/2" - 41 1/2"). Laminated wood work surface 36"W x 24"D. Cord bin/modesty panel. Putty.

▼EC1000-PB	36"W x 42"H x 24"D	88 lbs.	UPS	\$384.00
EC1000-PBM	w/ 3-outlet e-unit	84 lbs.	UPS	\$438.00

B. EC15-PB Computer Workstation (not shown) features surge protection with a 4-outlet electrical assembly. Protected by a 10-amp circuit breaker. Identical features and dimensions as the model EC10-PB.

▼EC15-PB	36"W x 38"H x 24"D	69.5 lbs.	UPS	\$428.00
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C. EC10-PB Computer Workstation features an adjustable top shelf and work surface to accommodate any user. Top shelf can be lowered 3" from 38" maximum height. Work surface adjusts from 23"-27". Use 5" casters for wheelchair use. Work surface: 36"W x 24"D. Top shelf: 36"W x 12"D. Four-outlet electrical assembly does not have surge suppression. Putty.

▼EC10-PB	36"W x 38"H x 24"D	67 lbs.	UPS	\$375.00
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D. EC5-PB Computer Workstation is same as EC10-PB, with the exception of the top shelf. Work surface: 36"W x 24"D. Putty. **EC7-PB Computer Workstation** is same as EC5-PB with a four-outlet electrical assembly with surge protection (as on the EC15-PB). Putty.

▼EC5-PB	36"W x 24"D x 27"H	59 lbs.	UPS	\$332.00
▼EC7-PB	36"W x 24"D x 27"H	61.5 lbs.	UPS	\$378.00

E. EC823-GM Fixed height Computer Workstation (not shown) stands 23" high and features 4-outlet, surge protected electrical assembly. **EC827-GM Fixed Height Computer Workstation (shown above)** has same features as EC823-PB but is 27" high. For elementary classrooms. Grey.

EC827-GM	36"W x 24"D x 27"H	61.5 lbs.	UPS	\$359.00
EC823-GM	36"W x 24"D x 23"H	61.5 lbs.	UPS	\$359.00

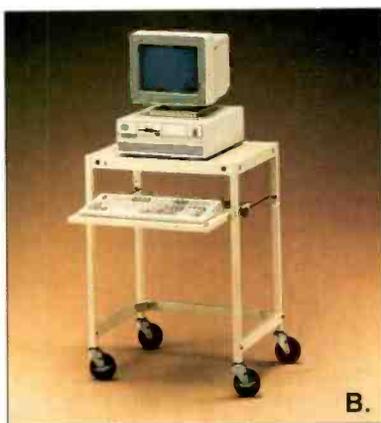
Accessories

F. CL5 Cable Lock Security Kit secures your computer equipment to the table. Two adhesive-backed mounting plates, 5' vinyl-coated steel cable, theft-proof screws and wrench key. **CLPA Accessory Kit** includes two extra mounting plates.

▼CL5	1lb.	UPS	\$32.50
▼CLPA	1lb.	UPS	\$17.00

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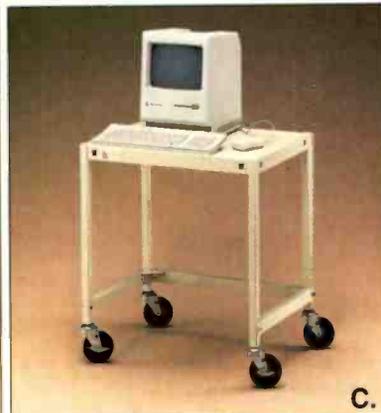
COMPUTER FURNITURE



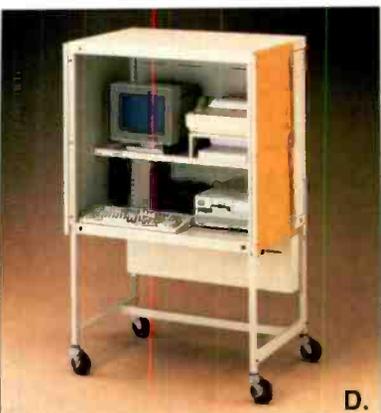
B.



A.



C.



D.

- All feature 1" square tubular steel legs and steel frame.
- Die-pressed shelves. 4" casters (2 lock)
- Durable putty beige powder paint finish
- "E" models include a UL listed, two-outlet electrical unit with 20-ft. grounded cord and built-in cord winder
- All items ship ready to assemble

A. EC4 Computer Workstation is an "all-in-one" unit with enough roomy shelves to house your entire system. Keyboard and printer rest on roll-out, lock-in-place shelves. Keyboard shelf adjusts from 25-27" height. Printer shelf adjusts from 14-18" height and includes slot for paper feed. Shown with optional EC4PCB Paper Catch.

EC4	24"W x 33"H x 18"D	48 lbs.	UPS	\$259.00
EC4E	w/ e-unit	51 lbs.	UPS	\$300.00

B. EC2 Computer Workstation is a two-shelf model featuring a height-adjustable locking keyboard shelf (25-27"). Sliding keyboard shelf provides plenty of leg room.

EC2	24"W x 33"H x 18"D	33 lbs.	UPS	\$185.00
EC2E	w/ e-unit	36 lbs.	UPS	\$226.00

C. EC1 Computer Workstation is a compact one-shelf model that rolls easily on 4" casters. Standard 27" typing height.

EC1	24"W x 27"H x 18"D	24 lbs.	UPS	\$125.00
EC1E	w/ e-unit	26 lbs.	UPS	\$165.00

D. EC20-PB Computer Workstation also acts as a security center for your equipment when not in use. Adjustable interior shelf. Ventilated back panel. Medium oak real wood veneer doors on piano hinges swing back against putty beige cabinet and are held in place by contact clips. Includes a 3-outlet electrical assembly, 20 ft. grounded cord and built-in cord winder. Cabinet interior: 36"W x 32"H x 24"D. Work surface is a 27" typing height. Top shelf measures 36"W x 15"D.

EC20-PB	36"W x 58"H x 25"D	146 lbs.		\$649.00
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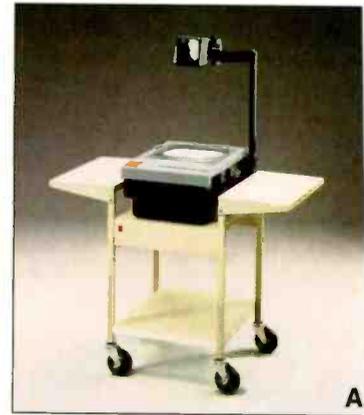
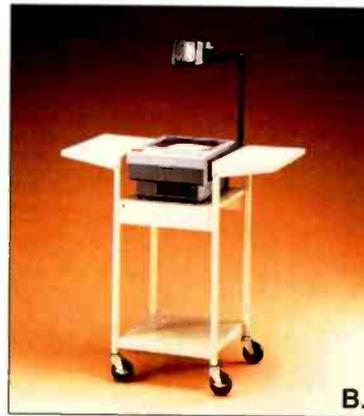
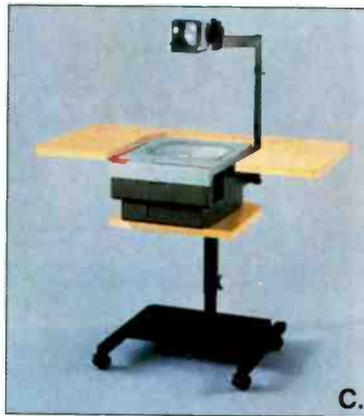
Accessories

E. EC4PCB Paper Catch Basket for the model EC4. Attaches easily to the back of the unit and neatly catches printer output.

EC4PCB	24"W x 7"H x 13"D	3.5 lbs.	UPS	\$39.00
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OVERHEAD PROJECTOR CARTS



- Each model features an adjustable projector platform.
- "E" models include a UL listed two outlet electrical unit
- All steel construction with powder paint finish

A. OH29 OH Table is desk height for easy access. Folding drop leaves (11"W x 20 1/4"D) on both sides of projector well. Putty finish. Projector shelf adjusts to 10" below top of unit. Projector platform: 17"W x 19 3/4"D.

OH29	39"W x 19 3/4"D x 29"H	34 lbs.	UPS	\$182.00
OH29E	w/ e-unit	36.5 lbs.	UPS	\$223.00

B. OH39 OH Table is 10" higher than the OH29. Designed for stand-up presentations.

OH39	39"W x 19 3/4"D x 39"H	34.5 lbs.	UPS	\$191.00
OH39E	w/ e-unit	37 lbs.	UPS	\$232.00

C. CR8526 Overhead Projector Cart is available oak or grey. Twin-wheel casters let you roll cart from room to room. Height adjustable from 27 1/2" - 40 1/2". Overall: 40 1/4"W x 21"D.

CR8526-GM	grey w/ black base	61 lbs.	UPS	\$362.00
CR8526-OK	oak w/ black base	61 lbs.	UPS	\$362.00

D. AOH2741-P4 Adjustable OH Table can be adapted to stand up or sit down presentations. Work surface adjusts from 27" to 41" high in 2" increments. Projector well adjusts from 5"-11" in 1/2" increments and measures 17 1/2"W x 20 1/2"D. Textured black finish. Overall: 37"W x 22 1/2"D x 27-41"H.

▼AOH2741-P4		57.5 lbs.	UPS	\$307.00
▼AOH2741-E4	w/ e-unit	60 lbs.	UPS	\$348.00

E. UCS700-GM OH Workstation is designed for OH/computer applications. Table easily adjusts from 26 1/2" - 33 3/4"H. Grey finish. Shown with optional UCSAMS (sold below). Projector well 17 1/2"W x 20 1/2"D. Overall: 48"W x 30"D x 26 1/2"-33 3/4"H

UCS700-GM	102 lbs.	\$554.00
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F. CR8525 Folding OH Console is available oak or grey. Folds flat for storage. Projector well: 18 3/8"W x 17"D. Overall: 53 1/4"W x 27"D x 29"H

CR8525-GM	grey w/ black base	104 lbs.	\$480.00
CR8525-OK	oak w/ black base	104 lbs.	\$480.00

Accessories

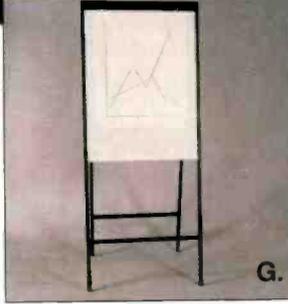
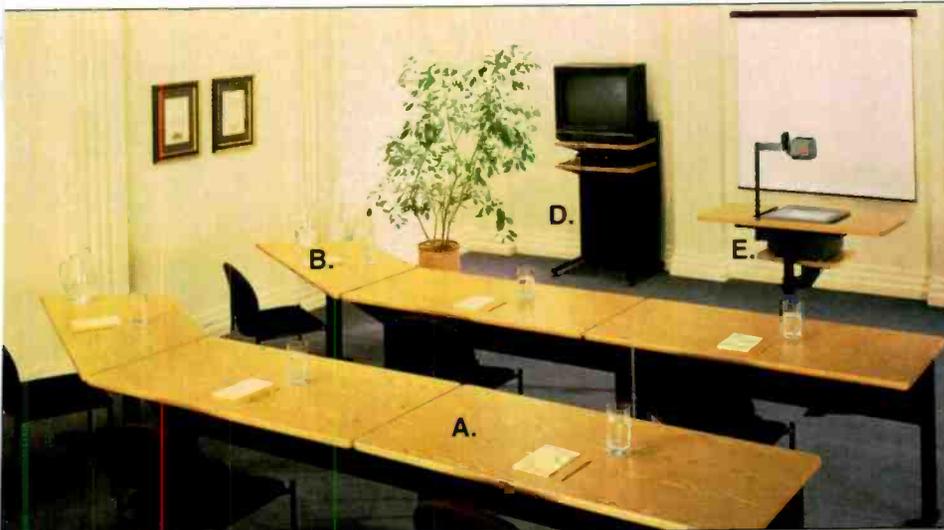
UCSAMS Adjustable Monitor Shelf for the model UCS700 holds monitor at an easy-viewing height. Tilts to allow monitor to be better positioned. Matching grey finish. Shown in photo "E". Overall: 23 1/2"W x 13 7/8"D x 13"H

UCSAMS-GM	15 lbs.	UPS	\$61.00
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CFPS Surge-Protected Power Strip for model UCS700 provides 4 grounded outlets, single on/off switch and 20-ft. cord. UL listed.

CFPS	4 lbs.	UPS	\$79.00
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TRAINING ROOM FURNITURE



A.
Carrying Handle

F.

G.

Bretford's CR8500 Series Training & Conference Room Furniture

- Quickly arrange your room into an efficient presentation facility
- Ideal for classrooms, training and conference rooms, and more.
- Your choice of traditional oak (-OK) or contemporary light grey (-GM).

A. CR8500 Folding Rectangle Table Use alone or group with other tables to create a "custom" grouping. Table folds flat to 41 1/2"D. Overall: 53 1/2"W x 27"D x 29"H. **Overall CR8502:** 72"W x 27"D x 29"H.

B. CR8501 Folding Trapezoid Table lets you create a U-shape or circular table grouping. Folds flat to 4 3/4". Overall: 57 1/2"W x 23 1/4"D x 29"H.

C. CR8505 Folding Half-Moon Table provides a variety of design possibilities. Seats two comfortably. Place two back-to-back to create a round table for four. Overall: 54"W x 28"D x 29"H.

CR8500-GM	53 1/2"W	Grey	95 lbs.	\$346.00
CR8500-OK	53 1/2"W	Oak	95 lbs.	\$346.00
CR8502-GM	72"W	Grey	108 lbs.	\$389.00
CR8502-OK	72"W	Oak	108 lbs.	\$389.00
CR8501-GM	Trapezoid	Grey	72 lbs.	\$346.00
CR8501-OK	Trapezoid	Oak	72 lbs.	\$346.00
CR8505-GM	Half Moon	Grey	75 lbs.	\$362.00
CR8505-OK	Half Moon	Oak	75 lbs.	\$362.00

D. CR8527 TV/AV Cart features two adjustable shelves to hold your TV and VCR or other video equipment. **Recommended for use with up to 27" diagonal monitors.** 2" casters, two lock. Shelves adjust in 11/2" increments. Overall dimensions: 28"W x 21 1/2"D x 48"H.

CR8527-GM	Grey	85 lbs.	\$330.00
CR8527-OK	Oak	85 lbs.	\$330.00

E. CR8526 OH Cart moves your OH projector from room to room. Large (11"W x 21"D) leaves on either side of well hold materials. Projector well: 17 7/8"W x 17 1/2"D. Height-adjustable to match screen height. Overall dimensions: 40 1/4"W x 21"D x 27 1/2-40 1/2"H.

CR8526-GM	Grey	61 lbs.	UPS	\$362.00
CR8526-OK	Oak	61 lbs.	UPS	\$362.00

F. CR8503 Lectern with a large platform top that rests at a 25° viewing angle for maximum comfort. Adjustable from 40"-51"H. Overall: 22"W x 20 1/4"D. Platform 18 1/4"W x 16 1/2"D.

CR8503-GM	Grey	30 lbs.	UPS	\$181.00
CR8503-OK	Oak	30 lbs.	UPS	\$181.00

G. CR8504-BK Folding Easel lets you display your presentation in writing. Features a dry erase surface and can also accommodate a standard two-hole flip chart. Overall: 29 1/4"W x 10 1/2"D x 70 1/4"H. Black frame with white dry erase surface.

CR8504-BK	Black	48 lbs.	\$284.00
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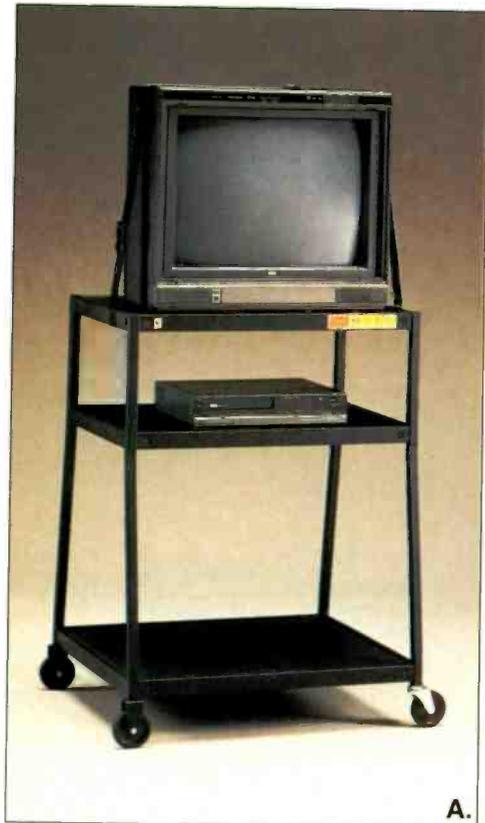
H. CR8525 Folding OH Console provides a handsome display area for your OH equipment and a large tabletop for presentation materials. Folds flat. Projector well is 18 3/8"W x 17"D and adjusts from 15 1/4"-30 1/4"H. Projector platform: 17 1/2"W x 16 3/4"D. Overall: 53 1/2"W x 27"D x 29"H.

CR8525-GM	Grey	104 lbs.	\$480.00
CR8525-OK	Oak	104 lbs.	\$480.00

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▼ Quick-ship items for immediate delivery.

TV CARTS



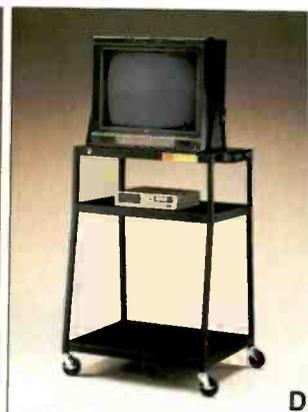
A.



B.



C.



D.



E.



F.



G.

Each cart on this page is recommended to carry your 27" monitor. Carts with 8" pneumatic wheels are appropriate for moving equipment between buildings. All are:

- Manufactured from rugged, heavy-duty steel
- Finished with black powder paint
- "E" models include a UL listed, two outlet electrical assembly

A. BBUL44 UL Listed AV Cart holds up to 27" diagonal televisions. Three shelves. Top shelves measure 32"W x 22"D (10 1/2" between shelves). Bottom shelf measures 32"W x 27 1/2"D (23" between shelves). Security belt included. 4" casters, 2 rigid, 2 swivel. Meets UL safety standards for institutional AV carts.

BBUL44	32"W x 44"H x 27 1/2"D	59 lbs.	UPS	\$249.00
BBUL44-C4	w/ e-unit	62 lbs.	UPS	\$295.00

B. BB44-P4 AV Cart has the same dimensions as the BBUL44 model above. 4" swivel casters, two lock. Three shelves.

▼BB44-P4	32"W x 44"H x 27 1/2"D	59 lbs.	UPS	\$238.00
▼BB44-E4	w/ e-unit	61.5 lbs.	UPS	\$279.00

C. BB54-P4 AV Cart adds 10" to the model BB44-P4. Top to middle - 12". Middle to bottom - 31 1/2".

▼BB54-P4	32"W x 54"H x 27 1/2"D	63 lbs.	UPS	\$244.00
▼BB54-E4	w/ e-unit	65.5 lbs.	UPS	\$285.00

D. BB48-P4 AV Cart has same features as BB44-P4 but is 48" high. Top to middle - 10". Middle to bottom - 26 1/2".

BB48-P4	32"W x 48"H x 27 1/2"D	61 lbs.	UPS	\$225.00
BB48-E4	w/ e-unit	63.5 lbs.	UPS	\$279.00
BB48-PW	w/ big wheel	71 lbs.	UPS	\$272.00
BB48-EW	w/ e-unit & big wheel	73 lbs.	UPS	\$326.00

E. BB54SX-P4 AV Cart has same features as the model BB54-P4 above with an additional adjustable shelf resting below the top shelf providing support for additional AV equipment.

BB54SX-P4	32"W x 54"H x 27 1/2"D	75.5 lbs.	UPS	\$264.00
BB54SX-E4	w/ e-unit	78 lbs.	UPS	\$308.00

F. VTRPN44-P8 AV Cart holds up to 35" diagonal screens. 8" pneumatic wheels (2 lock) are mar-resistant. Top shelves - 24"D x 37"W. Bottom shelf - 27 1/2"D x 37"W. 10 1/2" between top shelves. Overall: 37"W x 44"H x 27 1/2"D.

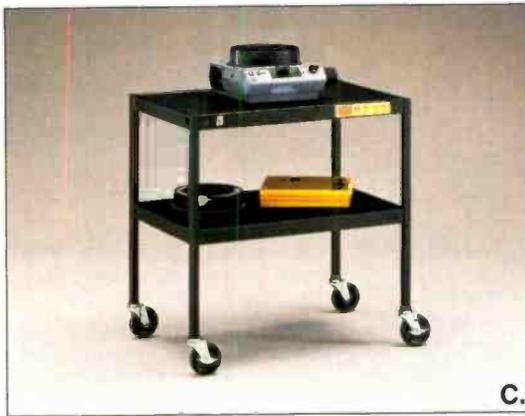
VTRPN44-P8	99 lbs.	UPS	\$564.00
VTRPN44-E8 w/ e-unit	101.5 lbs.	UPS	\$605.00

G. BBPN48-P8 AV Cart will hold up to 27" monitors. Also features mar-resistant 8" pneumatic wheels for easy transport. Three shelves. Top to middle shelf - 12". Middle to bottom shelf - 23". Overall: 32"W x 48"H x 27 1/2"D.

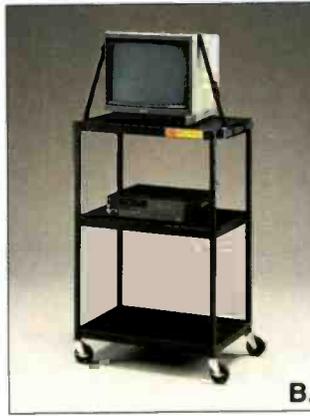
BBPN48-P8	83 lbs.	UPS	\$557.00
BBPN48-E8 w/ e-unit	86 lbs.	UPS	\$598.00

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TV CARTS



C.



B.



A.



F.



E.



D.

Select a 30", 48", or 54" high Bretford AV Cart. Each is recommended for use with up to 20" diagonal monitors.

- Durable, long-lasting steel construction
- Textured black powder paint finish
- "MP" Tables feature a straight-leg design
- "E" models include UL listed, 2-outlet electrical unit with 20 ft. extension cord and cord winder
- All models ship UPS, ready to assemble
- "PW" models include two 5" casters and two 8" rigid big wheels for extra mobility

A. MP54-P4 TV Cart is crafted with the same design features as the MP48-P4 listed below. 54" high. Three shelves. Top to middle shelf - 23". Middle to bottom shelf - 20".

MP54-P4	30"W x 54"H x 20"D	51 lbs.	UPS	\$216.00
MP54-E4	w/ e-unit	54 lbs.	UPS	\$257.00
MP54-PW	w/ big wheel	61 lbs.	UPS	\$263.00
MP54-EW	w/ e-unit & big wheel	64 lbs.	UPS	\$304.00

B. MP48-P4 TV Cart features a straight leg design with "square lock" assembly. Recommended for use with up to 20" diagonal monitors. Three shelves. Top to middle shelf - 17". Middle to bottom shelf - 20".

MP48-P4	30"W x 48"H x 20"D	50 lbs.	UPS	\$209.00
MP48-E4	w/ e-unit	52 lbs.	UPS	\$250.00
MP48-PW	w/ big wheel	53 lbs.	UPS	\$256.00
MP48-EW	w/ e-unit & big wheel	64 lbs.	UPS	\$297.00

C. MP30-P4 AV Cart has wider shelves to hold bigger loads. 14" between shelves. Convenient 30" height.

MP30-P4	30"W x 30"H x 20"D	35 lbs.	UPS	\$188.00
MP30-E4	w/ e-unit	37 lbs.	UPS	\$229.00

D. MP54DX-P4 TV Cart has five shelves for the ultimate mobile videotape editing or duplicating rack. 10" between shelves.

MP54DX-P4	30"W x 54"H x 20"D	75.5 lbs.	UPS	\$275.00
MP54DX-E4	w/ e-unit	79 lbs.	UPS	\$316.00
MP54DX-PW	w/ big wheel	83.5 lbs.	UPS	\$322.00
MP54DX-EW	w/ e-unit & big wheel	86 lbs.	UPS	\$363.00

Accessories

E. CL5 Cable Lock Security System secures your equipment. Includes two adhesive-backed plates, 5' vinyl-coated steel cable. **CLPA Accessory Kit** provides two additional mounting plates.

▼CL5	1 lb.	UPS	\$32.50
▼CLPA	1 lb.	UPS	\$17.00

SB Security Belt surrounds your monitor like a seat belt and bolts to table for extra support. 8' total length.

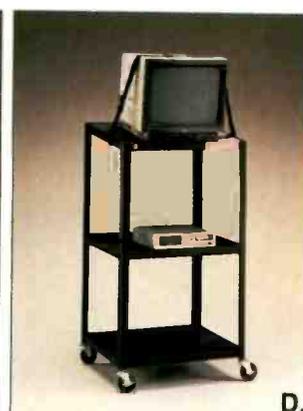
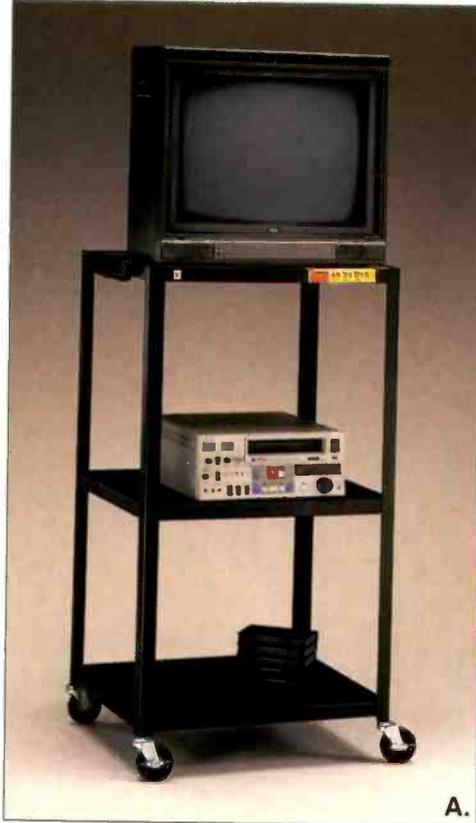
▼SB	1 lb.	UPS	\$35.50
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F. E-Unit can be attached to any Bretford cart. UL listed, two-outlet, 20 ft. cord and built-in cord winder.

▼E-unit	2.5 lbs.	UPS	\$41.00
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AV CARTS



All carts on this page are recommended for use with up to 20" diagonal monitors. Ship assembled.

- Steel construction with black powder paint finish
- "E" models include UL listed, 2-outlet electrical unit with 20 ft. extension cord and built-in cord winder
- "PW" models include two 5" casters and two 8" rigid big wheels

A. T54-P4 TV Cart - top to middle shelf - 23". Middle to bottom - 20".

▼T54-P4	28"W x 54"H x 24"D	59 lbs.	\$251.00
▼T54-E4	w/ e-unit	61.5 lbs.	\$292.00
T54-PW	w/ big wheel	67 lbs.	\$298.00
T54-EW	w/ e-unit & big wheel	68.5 lbs.	\$339.00

B. T48-P4 TV Cart is a 48" high model. Top to middle shelf - 17". Middle to bottom shelf - 20".

▼T48-P4	28"W x 48"H x 24"D	57 lbs.	\$239.00
▼T48-E4	w/ e-unit	59.5 lbs.	\$280.00
T48-PW	w/ big wheel	64 lbs.	\$286.00
T48-EW	w/ e-unit & big wheel	66.5 lbs.	\$327.00

C. T42-P4 TV Cart - top to middle shelf - 14". Middle to bottom - 17".

▼T42-P4	28"W x 42"H x 24"D	54 lbs.	\$234.00
▼T42-E4	w/ e-unit	56.5 lbs.	\$275.00
T42-PW	w/ big wheel	61 lbs.	\$281.00
T42-EW	w/ e-unit & big wheel	63.5 lbs.	\$322.00

D. TS54-P4 TV Cart features a glare-free top slant shelf with 8° tilt. 23" from top to middle shelf, 20" from middle to bottom shelf.

▼TS54-P4	28"W x 54"H x 24"D	59 lbs.	\$262.00
▼TS54-E4	w/ e-unit	61 lbs.	\$303.00
TS54-PW	w/ big wheel	69 lbs.	\$309.00
TS54-EW	w/ e-unit & big wheel	71 lbs.	\$350.00

Accessories

E. EPS Surge-Protected Power Strip with four outlets and plate. UL listed, four grounded outlets, 20' cord and cord winder. On/off switch.

EPS	6 lbs.	UPS	\$106.00
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F. Big Wheel Kit provides extra stability for maneuvering carts. Includes two 8" big wheels and two swivel-locking 5" casters.

Big Wheel Kit	12 lbs.	UPS	\$91.00
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G. ERU Retractable Electrical Unit features a 15' retractable cord. Two outlet unit attaches easily to any Bretford cart. Black.

ERU	4 lbs.	UPS	\$71.00
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H. AVB-BK Accessory Video Bracket (not shown) mounts below top shelf to hold video equipment, i.e., VCR, laser disc player, etc. Overall: 8-21"W x 10"D x 4 7/8-7 5/8"H.

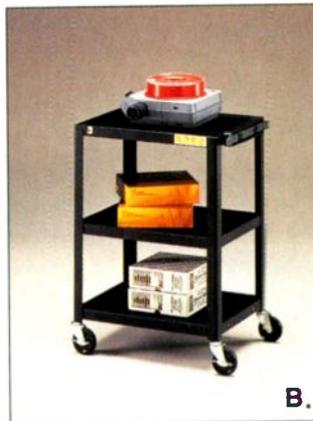
AVB-BK	10 lbs.	UPS	\$96.00
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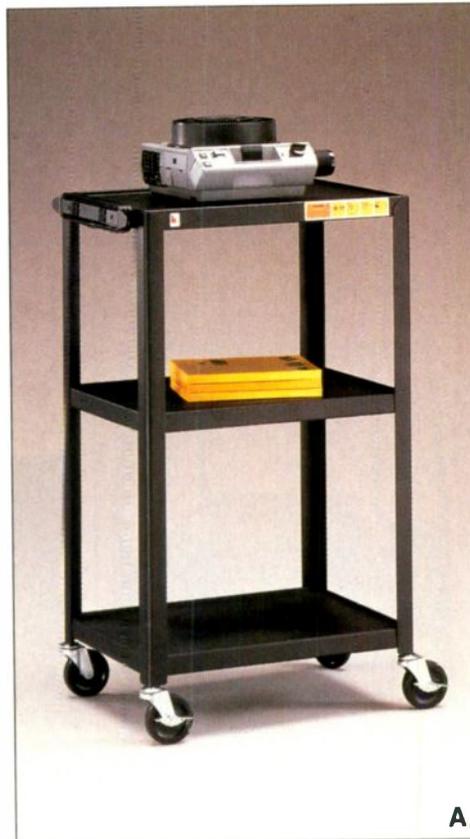
AV CARTS



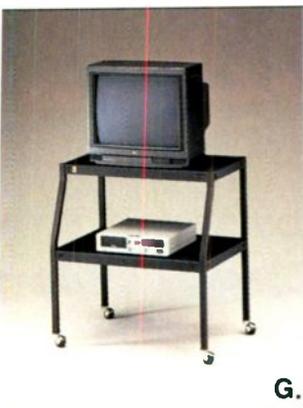
Transport your presentation equipment easily on an AV cart from Bretford!



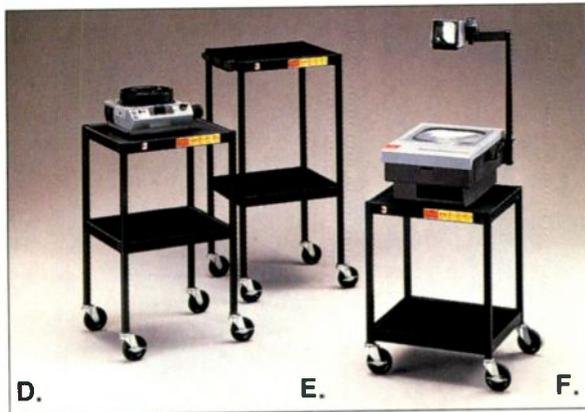
B.



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D.

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F.

Bretford's "square lock" design - featured on the MP26, MP34 and MP42 carts means easy assembly and lower shipping costs. Other models ship assembled. All carts feature:

- Textured black powder paint
- "E" models include UL listed, 2-outlet electrical unit with 20 ft. extension cord and built-in cord winder
- "PW" models include two 5" casters and two 8" rigid big wheels

C. 26-P4 AV Cart (not shown) features two shelves - 17" between shelves. Holds up to 20" monitors.

▼26-P4	24"W x 26"H x 18"D	31 lbs.	UPS	\$149.00
▼26-E4	w/ e-unit	34 lbs.	UPS	\$190.00
26-PW	w/ big wheel	38 lbs.	UPS	\$196.00
26-EW	w/ e-unit & big wheel	40.5 lbs.	UPS	\$237.00

D. E. & F. MP34-P4, MP42-P4, MP26-P4 AV Carts (pictured left to right) are all equipped with 20"W x 18"D shelves. Each of these "mini pak" tables has two shelves. Top to bottom shelf measures: MP26-P4: 17"; MP34-P4: 13"; MP42-P4: 21".

MP26-P4	20"W x 26"H x 18"D	26 lbs.	UPS	\$141.00
MP26-E4	w/ e-unit	28 lbs.	UPS	\$182.00
MP34-P4	20"W x 34"H x 18"D	28 lbs.	UPS	\$145.00
MP34-E4	w/ e-unit	30.5 lbs.	UPS	\$186.00
MP42-P4	20"W x 42"H x 18"D	30 lbs.	UPS	\$150.00
MP42-E4	w/ e-unit	32 lbs.	UPS	\$191.00

G. VTR20-P2 AV Cart with a recessed top shelf and wider bottom shelf. 2" ball casters. **Holds up to 20" monitors.**

VTR20-P2	30"W x 32"H x 20"D	34 lbs.	UPS	\$149.00
VTR20-E2	w/ e-unit	36.5 lbs.	UPS	\$190.00

A. 42-P4 AV Cart has three shelves. Top to middle shelf - 14 1/2". Middle to bottom shelf - 17 1/2". **Holds up to 20" monitors.**

▼42-P4	24"W x 42"H x 18"D	39 lbs.		\$170.00
▼42-E4	w/ e-unit	41.5 lbs.		\$211.00
42-PW	w/ big wheel	46 lbs.		\$217.00
42-EW	w/ e-unit & big wheel	48.5 lbs.		\$258.00

B. 34-P4 AV Cart also has three shelves. Top to middle shelf - 13". Middle to bottom shelf - 11". **Holds up to 20" monitors.**

▼34-P4	24"W x 34"H x 18"D	38 lbs.	UPS	\$164.00
▼34-E4	w/ e-unit	41 lbs.	UPS	\$205.00
34-PW	w/ big wheel	45 lbs.	UPS	\$211.00
34-EW	w/ e-unit & big wheel	48 lbs.	UPS	\$252.00

BRETFORD CABINET CARTS



A.



B.



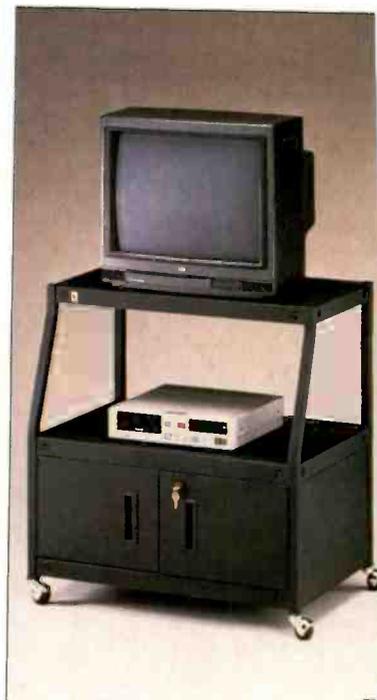
C.



D.



E.



F.

Bretford cabinet carts feature a lockable security cabinet with two keys. All "BB" models ship ready to assemble; all others ship assembled. Standard features include:

- Textured black powder paint and 4" casters (2 lock)
- Steel construction with smooth, rounded edges
- "E" models include UL listed, 2-outlet electrical unit with 20 ft. extension cord and built-in cord winder
- "PW" models include two 5" casters and two 8" rigid big wheels

A. BBULC48 UL Listed TV Video Cabinet holds up to 32" diagonal monitors. Two shelves - 32"W x 22"D (20" between shelves). Cabinet interior: 30"W x 16 3/4"H x 26"D. Safety belt included. Meets UL safety standards for institutional AV Carts.

BBULC48	32"W x 48"H x 27 1/2"D	92 lbs.	\$488.00
BBULC48-C4	w/ e-unit	94 lbs.	\$534.00

B. BBC54-E4 TV Video Cabinet features wide body stability to hold up to 27" diagonal monitors. 26 1/2" from top to middle shelf. Cabinet measures 30"W x 16 3/4"H x 25"D.

▼BBC54-E4	32"W x 54"H x 27 1/2"D	93 lbs.	\$507.00
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C. BBC48-E4 TV Video Cabinet has the same dimensions as the UL listed model. Includes electrical unit. Wide-body, pyramid design holds up to 27" monitors.

BBC48-E4	32"W x 48"H x 27 1/2"D	91.5 lbs.	\$499.00
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D. C42-P4 TV Video Cabinet (shown with big wheel) measures 14" between shelves. Cabinet interior: 23"W x 17"H x 17"D. Holds up to 20" diagonal monitors.

C42-P4	24"W x 42"H x 18"D	56 lbs.	\$296.00
C42-E4	w/ e-unit	58.5 lbs.	\$337.00
C42-PW	w/ big wheel	66 lbs.	\$343.00
C42-EW	w/ e-unit & big wheel	68 lbs.	\$384.00

Recessed top shelves on these carts provide easy access to the VCR on the shelf below. Plus, lower locking cabinets securely store video tapes and other materials. Textured black powder paint finish on durable steel construction. "E" models include a UL listed, two-outlet electrical assembly with 20-ft. grounded cord and built-in cord winder. Models MPVC40-E2 and VTRC30-E2 ship UPS disassembled. All are recommended for use with up to 20" diagonal monitors.

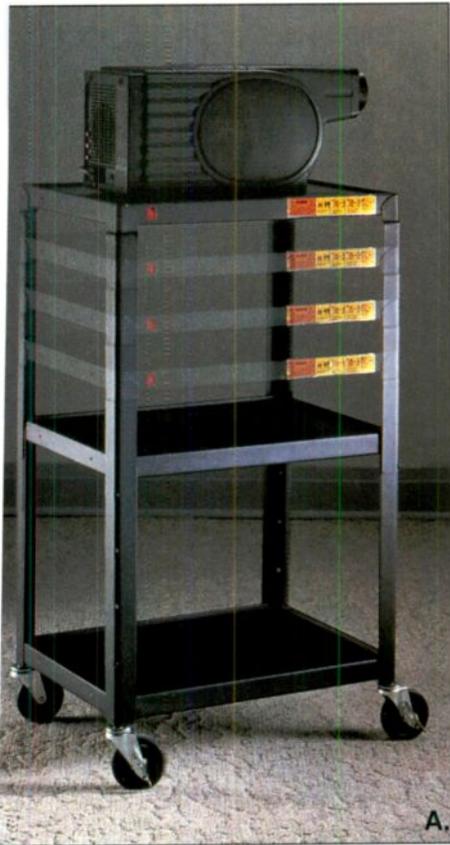
E. MPVC40-E2 TV Video Cabinet features 2" ball casters. Adjustable cabinet shelf. Top shelf: 30"W x 16"D (15" between shelves). Cabinet interior: 28"W x 17"H x 18"D.

MPVC40-E2	30"W x 40"H x 20"D	85 lbs.	\$478.00
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F. VTRC30E TV Video Cabinet is 32" high for desk-height use. 2" ball casters. Top shelf: 30"W x 16"D (13" between shelves). Cabinet interior: 28"W x 10"H x 18"D.

▼VTRC30E	30"W x 32"H x 20"D	65 lbs.	\$442.00
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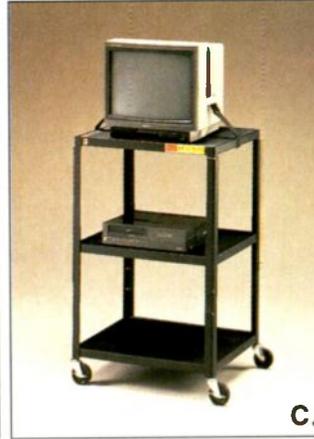
ADJUSTABLE CARTS



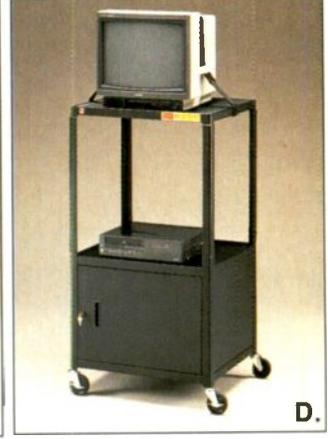
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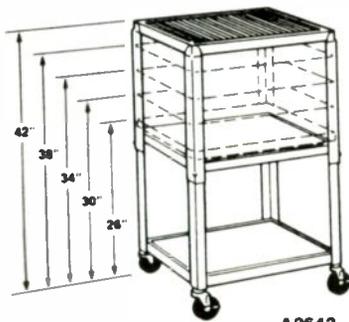
B.



C.



D.



A2642



CA2642

Bretford's highly functional Adjustable Carts save you money and valuable floorspace because each adjusts to multiple heights so you only need to buy one to meet all your needs! Adjusting to the height you want is as simple as resetting four leg bolts.

Rugged, all steel construction with black powder paint finish. Die-pressed shelves and Quiet-glide 4" casters (2 lock). "E" models include UL listed, 2-outlet electrical unit with 20 ft. extension cord and built-in cord winder. "PW" models include two 5" casters and two 8" rigid big wheels. **Recommended for use with up to 20" diagonal monitors**

A. A2642 Adjustable Cart features five-height capability: 26, 30, 34, 38 or 42". Middle to bottom shelf: 15 1/2". Overall dimensions: 24"W x 26-42"H x 18"D

▼A2642		42 lbs.	UPS	\$169.00
▼A2642E4	w/ e-unit	44.5 lbs.	UPS	\$210.00
A2642-PW	w/ big wheel	49 lbs.	UPS	\$216.00
A2642-EW	w/ e-unit & big wheel	51.5 lbs.	UPS	\$257.00

B. CA2642 Adjustable Cabinet Cart adds a lower locking cabinet to model A2642 above. Cabinet interior measures: 23 1/2"W x 15 1/2"H x 17 1/2"D.

▼CA2642		55 lbs.	UPS	\$302.00
▼CA2642E	w/ e-unit	57 lbs.	UPS	\$343.00
CA2642-PW	w/ big wheel	62 lbs.	UPS	\$349.00
CA2642-EW	w/ e-unit & big wheel	64.5 lbs.	UPS	\$390.00

C. TVA3654 Adjustable Cart has the same features as model TVCA3654-P4 listed below, without the locking cabinet.

▼TVA3654-P4		50 lbs.	UPS	\$265.00
▼TVA3654-E4	w/ e-unit	52.5 lbs.	UPS	\$306.00
TVA3654-PW	w/ big wheel	60 lbs.	UPS	\$312.00
TVA3654-EW	w/ e-unit & big wheel	63.5 lbs.	UPS	\$353.00

D. TVCA3654-P4 Adjustable Cabinet Cart has 10-height capability - from 36 to 54"H (in 2" increments). Middle to bottom shelf: 17 1/2". Cabinet interior: 25"W x 17 1/2"H x 21"D. Overall: 28"W x 36-54"H x 24"D.

▼TVCA3654-P4		66 lbs.	UPS	\$446.00
▼TVCA3654-E4	w/ e-unit	68.5 lbs.	UPS	\$487.00
TVCA3654-PW	w/ big wheel	76 lbs.	UPS	\$493.00
TVCA3654-EW	w/ e-unit & big wheel	75.5 lbs.	UPS	\$534.00

Accessories

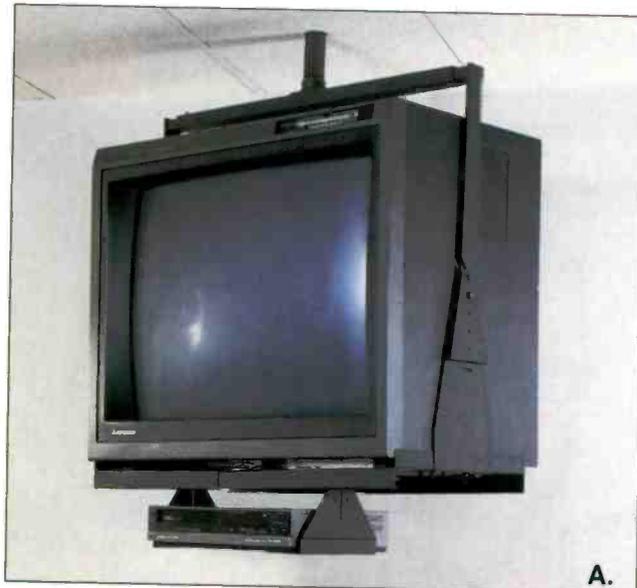
SB Security Belt surrounds your monitor like a seat belt and attaches to stand for extra support. 8' long belt.

▼SB		1 lb.	UPS	\$35.50
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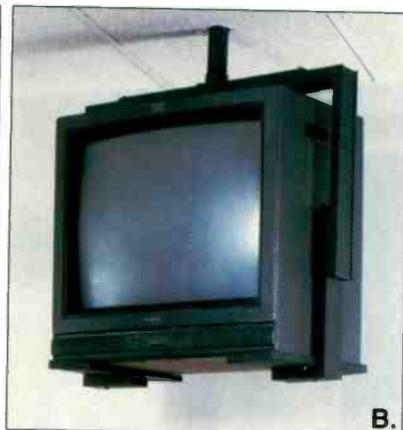
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TV MOUNTING SYSTEMS



A.



B.



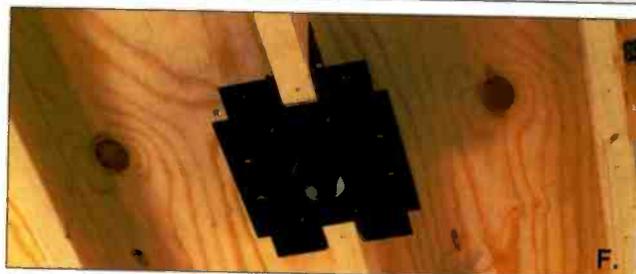
C.



D.



E.



F.

Match the dimensions of the TV with the dimensions of the mount to select the correct mounting system.

- Ceiling or wall yoke installations
- Solid steel with a black powder paint finish
- Safe support of equipment with 300 lb. load rating
- Optional mounting hardware
- Full 360° swivel and a minimum 10° tilt

A. TVCY35T-BK Ceiling/Yoke style mount will fit most 30-35" diagonal monitors. Large tray between yoke arms. 10° tilt. 30-40"W x 28 1/8-31 5/8"H. Shown with optional VCR shelf.

TVCY27-BK Ceiling/Yoke style mount will fit most 25-27" monitors. 24 3/8-30 1/2"W x 22 5/8-26 1/8"H. 10° tilt.

TVCY20-BK Ceiling/Yoke style mount will fit most 19-20" monitors. 18 3/8-24 1/2"W x 18 1/8-21 5/8"H. 10° tilt.

▼TVCY35T-BK w/ tray	44 lbs.	UPS	\$202.00
▼TVCY35TR-BK w/ VCR shelf	52 lbs.	UPS	\$274.00
▼TVCY27-BK	18 lbs.	UPS	\$134.00
▼TVCY27T-BK w/ tray	39 lbs.	UPS	\$191.00
▼TVCY27TR-BK w/ VCR shelf	47 lbs.	UPS	\$263.00
▼TVCY20-BK	15 lbs.	UPS	\$130.00
▼TVCY20T-BK w/ tray	30 lbs.	UPS	\$181.00
▼TVCY20TR-BK w/ VCR shelf	38 lbs.	UPS	\$253.00

B. TVM1 Ceiling/Yoke style mount will fit most 19-27" diagonal monitors. 19 3/4-34 1/2"W x 16 3/8-28 1/4"H. 12° tilt.

C. TVM3 Wall/Yoke style mount is identical to the model TVM1 and is designed for a wall installation. Fits most 19-27" monitors. 19 3/4-34 1/2"W x 16 3/8-28 1/4"H. 12° tilt.

▼TVM1	27 lbs.	UPS	\$249.00
▼TVM3	37 lbs.	UPS	\$325.00

D. TVWY27-BK Wall/Yoke style mount will fit most 25-27" diagonal monitors. 24 3/8-30 1/2"W x 22 5/8-26 1/8"H. 10° tilt.

TVWY20-BK Wall/Yoke (not shown) style mount will fit most 19-20" diagonal monitors. 18 3/8-24 1/2"W x 18 1/8-21 5/8"H. 10° tilt.

▼TVWY27-BK	35 lbs.	UPS	\$190.00
▼TVWY27T-BK w/ tray	56 lbs.	UPS	\$247.00
▼TVWY27TR-BK w/ VCR shelf	64 lbs.	UPS	\$319.00
▼TVWY20-BK	26 lbs.	UPS	\$186.00
▼TVWY20T-BK w/ tray	41 lbs.	UPS	\$237.00
▼TVWY20TR-BK w/ VCR shelf	49 lbs.	UPS	\$309.00

E. TV18-BK, TV10-BK and TV4-BK Pipes are for ceiling installations. **TVER Escutcheon Ring** surrounds pipe at ceiling. **TVCPLR Coupler** joins pipes together. 1 1/2" NPS.

F. TVCM Ceiling Flange shown with model TVUM Brackets has a welded pipe coupling for a ceiling-installed mount. Mounting hardware included. **TVSTBL Stabilizer Bracket (not shown)** attaches ceiling pipe to ceiling supports for extra stability.

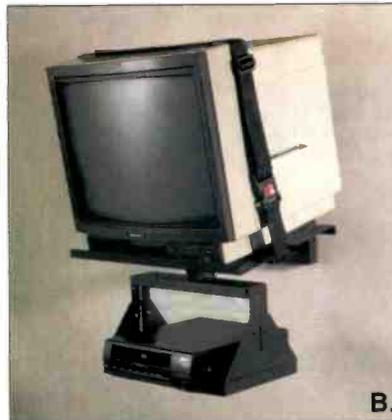
▼TV18-BK	18" long	4 lbs.	UPS	\$26.50
▼TV10-BK	10" long	2.5 lbs.	UPS	\$23.50
▼TV4-BK	4" long	1 lb.	UPS	\$19.00
▼TVCPLR-BK	Coupler	1 lb.	UPS	\$22.50
▼TVER-BK	Escutcheon Ring	1 lb.	UPS	\$10.50
▼TVCM	7 1/2" square	4 lbs.	UPS	\$35.00
▼TVSTBL	Stabilizing Bracket	1.5 lbs.	UPS	\$39.00

Contact us for a full-line Bretford catalog. Prices are subject to change without notice. 11.93
 ▼Quick-ship items for immediate delivery.

TV MOUNTING SYSTEMS



C.



B.



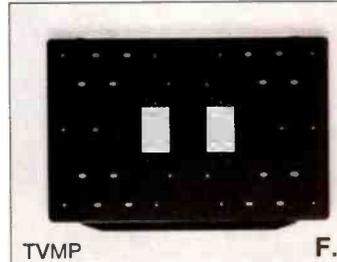
A.



D.

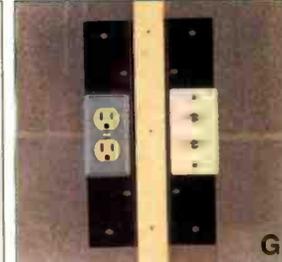


E.



TVMP

F.



G.

Match the dimensions of the TV with the dimensions of the mount to select the correct mounting system.

Platform-wall installations
Designed for safe support of your TV with 300 lb. load rating
Solid steel construction with a black powder paint finish
360° swivel and minimum 10° tilt

A. TVPW27-BK Wall/Platform style mount will fit most 25-27" diagonal monitors. Non-adjustable platform measure 26"W x 13 3/4"D. Includes a Bretford Security Belt.

▼TVPW27-BK	23 lbs.	UPS	\$140.00
▼TVPW27R-BK w/ VCR shelf	31 lbs.	UPS	\$212.00

B. TVPW20-BK Wall/Platform style mount will fit most 19-20" diagonal monitors. Non-adjustable platform is 20"W x 13 3/4"D. Includes a Bretford Security Belt. Shown with optional VCR shelf.

▼TVPW20-BK	21 lbs.	UPS	\$135.00
▼TVPW20R-BK w/ VCR shelf	29 lbs.	UPS	\$207.00

C. TVML20-BK Wall/Platform Locking mount will fit most 19-20" diagonal monitors. Models include locking mechanism to deter theft. **TVML27-BK** is for use with 25-27" monitors. 20"W x 13 1/2"D.

▼TVML27-BK	26 lbs.	UPS	\$115.00
▼TVML27R-BK w/ VCR shelf	34 lbs.	UPS	\$187.00
▼TVML20-BK	20 lbs.	UPS	\$105.00
▼TVML20R-BK w/ VCR shelf	28 lbs.	UPS	\$177.00

D. TVM4 Wall/Platform style mount will fit most 19-27" diagonal monitors. Adjustable platform expands from 16 3/4-27 1/4" wide. Also adjusts from 12-22 1/4" deep. Includes Bretford Security Belt.

▼TVM4	22 lbs.	UPS	\$234.00
▼TVM4VCR w/ VCR shelf	30 lbs.	UPS	\$306.00

E. VCR Shelf with anti-theft device places your VCR below the TV. Two brackets surround VCR and adjust from 8-21" wide. Also height adjustable from 4 7/8-7 5/8". Unit is 10" deep.

▼VCR4-BK	8 lbs.	UPS	\$72.00
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F. Ceiling/Wall Plates mount on studs to install your TV mount. Two cut-outs for junction boxes. Mounting hardware included. Use with a ceiling or wall installation. Internal or external plates.

▼TVMP	18"W x 11 5/8"H	8.5 lbs.	UPS	\$44.50
▼TVMP24	26"W x 11 5/8"H	13 lbs.	UPS	\$51.00
▼TVMPEX-BK	18"W x 11 5/8"H	8.5 lbs.	UPS	\$44.50
▼TVMP24EX-BK	26"W x 11 5/8"H	13 lbs.	UPS	\$51.00

G. TVUM Ceiling/Wall Mounting Brackets provide support and reinforcement for all installations. Cut-out for junction box in each bracket. Set of two. (Boxes not included).

▼TVUM	3.5 lbs.	UPS	\$40.50
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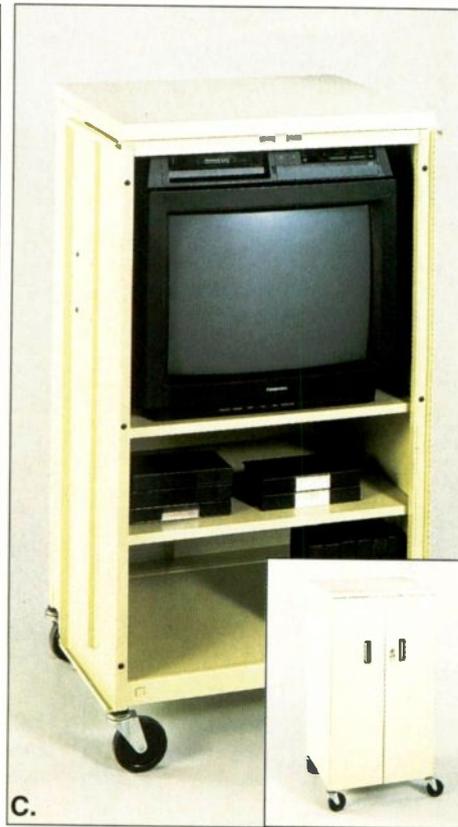
VIDEO SECURITY CABINETS



A.



B.



C.

Your expensive AV equipment can be locked up safe and secure with a Bretford security console. Then when you're ready to go to work, simply unlock and fold back the doors to reveal your AV and video equipment. Features include:

- Adjustable shelves, locking doors on piano hinges, and ventilated back panels
- Heavy-duty 4" ball bearing casters (2 lock)
- Durable steel construction
- 2-outlet electrical unit with 20 ft. grounded cord
- Ship ready to assemble

A. VTRC70E Video Security Console is our largest cabinet. Four locking dark oak real wood veneer doors divide the black metal cabinet - making it ideal for monitor storage on top with VCR and accessories below. Three adjustable shelves. **Recommended for use with up to 27" diagonal monitors.** Cabinet interior (top and bottom) each measures 31 3/16"W x 29 7/16"H x 24 1/2"D.

▼VTRC70E 33 1/4"W x 68"H x 25 3/16"D 212 lbs. \$1398.00

B. VTRC50E Video Security Console is our mid-size unit featuring three adjustable shelves and twin dark oak real wood veneer locking doors which run the full length of the black metal cabinet. **Recommended for use with up to 20" diagonal monitors.** Cabinet interior: 28 3/16"W x 45 1/4"H x 22 1/2"D.

▼VTRC50E 30 1/4"W x 54"H x 23"D 171 lbs. \$994.00

C. VTRC520E Video Security Console is a smaller unit that fits up to 20" diagonal monitors. Ivory finish on steel cabinet and twin full-length doors. Two adjustable shelves. Cabinet interior: 22 3/16"W x 38 1/2"H x 21 5/8"D.

VTRC520E 24 3/8"W x 48"H x 23"D 103 lbs. UPS \$572.00

Accessories

SB Security Belt surrounds your monitor like a seat belt and attaches for extra support. Belt adjusts up to 8' long.

▼SB 1 lb. UPS \$35.50

BRETFORD

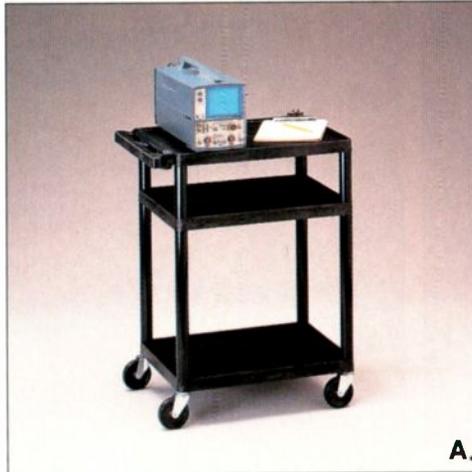
PLASTIC CARTS



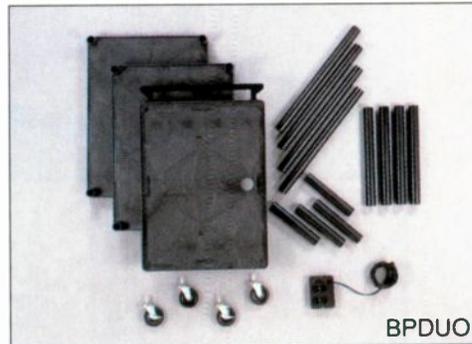
A.



C.



A.



BPDUO



B.

**All Plastic Carts
Ship UPS!**

P and BPTV plastic utility carts will provide years of service.

BP carts are ideal for mobilizing supplies and small equipment. BPTV cart shelves support monitors up to 25" diagonal

Crafted from tough polyethylene plastic

Black PVC pipe legs

Black textured finish on shelves

4" casters (2 lock)

"E" models include 4 outlet electrical assembly with 20 ft. cord.

"PW" Big Wheel models have two 5" casters/ two 8" rigid tires.

All plastic carts are ready to assemble.

A. BP42, BP34, BP26, BPDUO Plastic Utility Carts - shelves

measure 24"W x 18"D. All feature three shelves except BP26

with two. BPDUO includes parts to make any height BP cart.

▼BP42-P4	24"W x 18"D x 42"H	29 lbs.	\$ 124.00
▼BP42-E4	w/ e-unit	32 lbs.	\$ 159.00
3P42-PW	w/ big wheel	36 lbs.	\$ 171.00
3P42-EW	w/ e-unit & big wheel	38.5 lbs.	\$ 206.00
▼BP34-P4	24"W x 18"D x 34"H	28.5 lbs.	\$ 120.00
▼BP34-E4	w/ e-unit	31 lbs.	\$ 155.00
3P34-PW	w/ big wheel	35.5 lbs.	\$ 167.00
3P34-EW	w/ e-unit & big wheel	38 lbs.	\$ 202.00
▼BP26-P4	24"W x 18"D x 26"H	26 lbs.	\$ 103.00
▼BP26-E4	w/ e-unit	29 lbs.	\$ 138.00
3P26-PW	w/ big wheel	33 lbs.	\$ 150.00
3P26-EW	w/ e-unit & big wheel	36 lbs.	\$ 185.00
▼BPDUO-P4	24"W x 18"D x 26-42"H	30 lbs.	\$ 136.00
▼BPDUO-E4	w/ e-unit	32.5 lbs.	\$ 172.00
3PDUO-PW	w/ big wheel	36.5 lbs.	\$ 183.00
3PDUO-EW	w/ e-unit & big wheel	39 lbs.	\$ 219.00

B. BPTV54, BPTV48, BPTV42, BPTV27, BPTVDUO Plastic Utility Carts - All feature three shelves except (BPTV27 which features two shelves). BPTVDUO includes parts to make any height BPTV cart. Shelves measure 32"W x 24"D.

▼BPTV54-P4	32"W x 24"D x 54"H	47 lbs.	\$ 268.00
▼BPTV54-E4	w e-unit	49.5 lbs.	\$ 304.00
BPTV54-PW	w/ big wheel	57 lbs.	\$ 315.00
BPTV54-EW	w/ e-unit & big wheel	60 lbs.	\$ 351.00
▼BPTV48-P4	32"W x 24"D x 48"H	45.5 lbs.	\$ 267.00
▼BPTV48-E4	w/ e-unit	48 lbs.	\$ 303.00
BPTV48-PW	w/ big wheel	55 lbs.	\$ 314.00
BPTV48-EW	w/ e-unit & big wheel	58 lbs.	\$ 350.00
▼BPTV42-P4	32"W x 24"D x 42"H	44 lbs.	\$ 250.00
▼BPTV42-E4	w/ e-unit	47 lbs.	\$ 286.00
BPTV42-PW	w/ big wheel	54 lbs.	\$ 297.00
BPTV42-EW	w/ e-unit & big wheel	57 lbs.	\$ 333.00
▼BPTV27-P4	32"W x 24"D x 27"H	32 lbs.	\$ 205.00
▼BPTV27-E4	w/ e-unit	34.5 lbs.	\$ 241.00
BPTV27-PW	w/ big wheel	42 lbs.	\$ 252.00
BPTV27-EW	w/ e-unit & big wheel	45 lbs.	\$ 288.00
▼BPTVDUO-P4	32"W x 24"D x 27-54"H	48 lbs.	\$ 288.00
▼BPTVDUO-E4	w/ e-unit	51 lbs.	\$ 324.00
BPTVDUO-PW	w/ big wheel	58 lbs.	\$ 335.00
BPTVDUO-EW	w/ e-unit & big wheel	61 lbs.	\$ 371.00

C. BPE Plastic Utility Cart Electrical Unit - UL listed, four outlet electrical unit with 20 ft. grounded cord attaches under top shelf of any Bretford plastic cart.

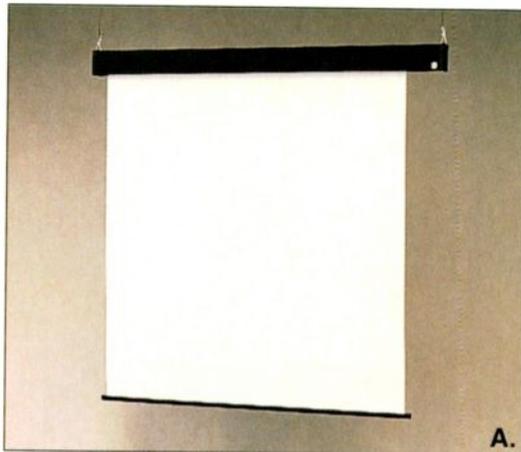
▼BPE	3 lbs.	\$ 36.00
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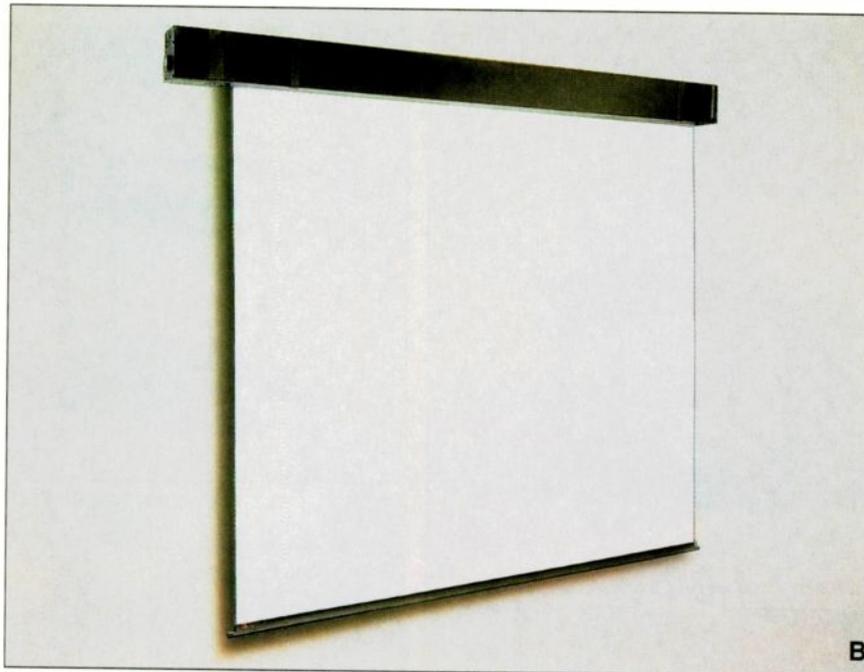
▼Quick-ship items for immediate delivery



ELECTRIC PROJECTION SCREENS



A.



B.



C.

Bretford Electric Projection Screens feature:

- UL and CSA listed motors
- Variety of screen surfaces: M- Matte White, B- Glass Beaded, SM- Seamless Matte White (for multimedia projection), or S- Silver Suede (for video view projection).

A. Series 400 Electric Projection Screen - low-voltage A/C plug transformer and three-position switch. Stops automatically when fully extended. Black steel case.

4070-M	70" x 70"	26 lbs.	UPS	\$ 518.00
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B. Series 900 Electric Multi-Media Projection Screens - feature a 120V AC 60Hz low-voltage motor with removable motor module, 3-position wall switch, and comes standard with adjustable down-limit. Black wooden case. Ideal for large auditoriums or conference centers.

9000-M or B	10' x 10'	174 lbs.	\$1508.00
9092-M or B	9' x 12'	191 lbs.	\$1551.00
9022-M or B	12' x 12'	201 lbs.	\$1687.00
9001-M or B	10' x 14'	275 lbs.	\$1975.00
9002-M or B	14' x 14'	290 lbs.	\$2110.00
9003-M or B	12' x 16'	307 lbs.	\$2299.00
9004-M or B	16' x 16'	322 lbs.	\$2502.00
9005-M or B	13' x 18'	343 lbs.	\$2543.00
9006-M or B	18' x 18'	362 lbs.	\$2786.00
9007-M or B	15' x 20'	387 lbs.	\$2785.00
9008-M or B	20' x 20'	400 lbs.	\$3075.00
9009-M or B	12' x 24'	460 lbs.	\$3975.00

The following Series 900 Projections Screens include a standard voltage motor with removable module, 3-position wall switch, adjustable down-limit, and a black wooden-case.

95000-M or B	10' x 10'	174 lbs.	\$ 1438.00
95092-M or B	9' x 12'	191 lbs.	\$ 1481.00
95022-M or B	12' x 12'	201 lbs.	\$ 1617.00
95001-M or B	10' x 14'	275 lbs.	\$ 1905.00
95002-M or B	14' x 14'	290 lbs.	\$ 2040.00
95003-M or B	12' x 16'	307 lbs.	\$ 2229.00
95004-M or B	16' x 16'	322 lbs.	\$ 2432.00
95005-M or B	13' x 18'	343 lbs.	\$ 2473.00
95006-M or B	18' x 18'	362 lbs.	\$ 2716.00
95007-M or B	15' x 20'	387 lbs.	\$ 2715.00
95008-M or B	20' x 20'	400 lbs.	\$ 3005.00
95009-M or B	12' x 24'	460 lbs.	\$ 3905.00

Accessories

C. Designer Slat Option - For Series 700 & 900. Aluminum extrusion attaches over roller. Rests flush with ceiling when fully retracted. Factory-installed. Can be painted to match ceiling.

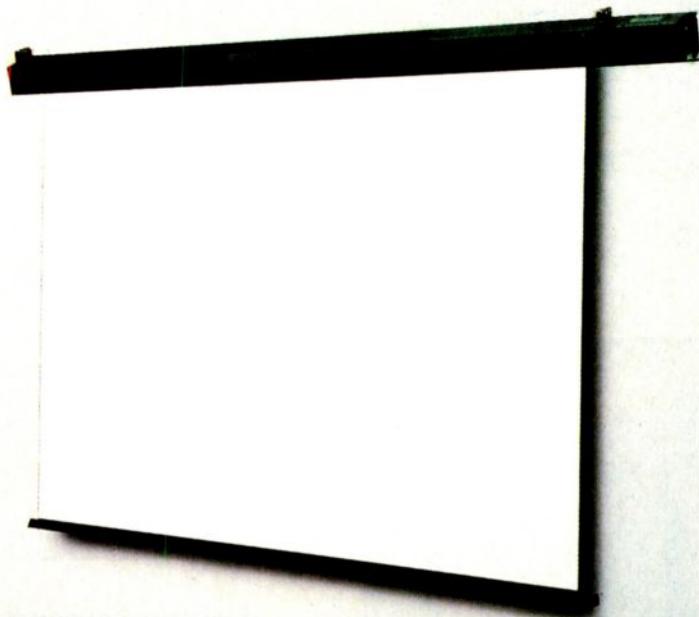
D. Mounting Brackets (not shown) for Series 700 and 900 screens.

Designer Slat Option	Per linear foot	\$13.00
70001 Ceiling Brackets	pair	UPS \$32.50
90001 Wall Brackets	pair	UPS \$47.00

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▼ Quick-ship items for immediate delivery.

ELECTRIC PROJECTION SCREENS



D.

Series 700 Electric Projection Screens -same features as the Series 900, plus 2" black borders, a steel case, and a choice of Multimedia or Video View formats.

The following Series 700 Projections Screens include a standard voltage motor in addition to all other features.

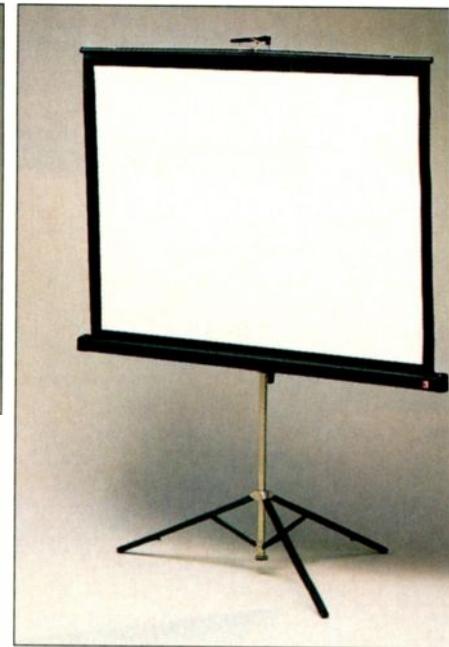
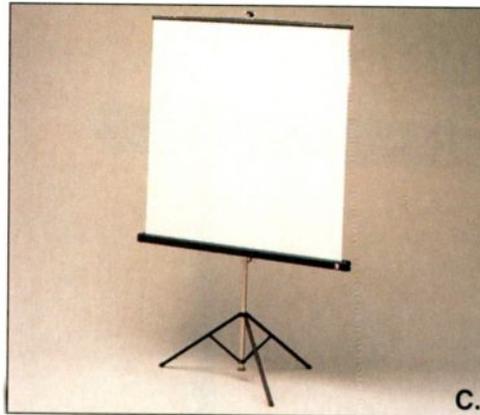
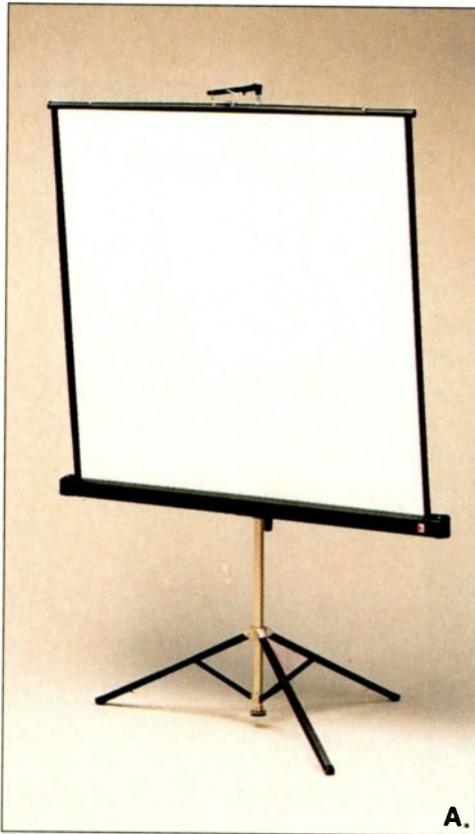
<i>Multi-Media</i>			
7045-M or B	4' x 5'	58 lbs.	\$ 889.00
7055-M or B	60"x 60"	62 lbs.	\$ 889.00
7066-M or B	70"x 70"	65 lbs.	\$ 897.00
7057-M or B	5' x 7'	70 lbs.	\$ 905.00
7077-M or B	7' x 7'	77 lbs.	\$ 941.00
7077-SM	7' x 7'	77 lbs.	\$ 983.00
7068-M or B	6' x 8'	80 lbs.	\$ 962.00
7088-M or B	8' x 8'	84 lbs.	\$ 1012.00
7088-SM	8' x 8'	84 lbs.	\$ 1066.00
7079-M or B	7' x 9'	91 lbs.	\$ 1016.00
7079-SM	7' x 9'	91 lbs.	\$ 1055.00
7099-M or B	9' x 9'	94 lbs.	\$ 1064.00
7080-M or B	8' x 10'	97 lbs.	\$ 1118.00
7000-M or B	10'x 10'	102lbs.	\$ 1174.00
7092-M or B	9' x 12'	119lbs.	\$ 1193.00
7022-M or B	12'x 12'	125 lbs.	\$ 1301.00
7HD092-M	92" diag.	70 lbs.	\$ 1030.00
7HD106-M	106" diag.	80 lbs.	\$ 1050.00
7HD133-M	133" diag.	94 lbs.	\$ 1135.00
7HD161-M	161" diag.	112 lbs.	\$ 1200.00
<i>Video-View</i>			
7V45-S	70" diag.	58 lbs.	\$ 908.00
7V57-S	100" diag.	70 lbs.	\$ 990.00
7V68-S	120" diag.	80 lbs.	\$1054.00

<i>Multi-Media</i>			
75045-M or B	4' x 5'	58 lbs.	\$ 824.00
75055-M or B	60"x 60"	62 lbs.	\$ 824.00
75066-M or B	70"x 70"	65 lbs.	\$ 832.00
75057-M or B	5' x 7'	70 lbs.	\$ 840.00
75077-M or B	7' x 7'	77 lbs.	\$ 876.00
75077-SM	7' x 7'	77 lbs.	\$ 918.00
75068-M or B	6' x 8'	80 lbs.	\$ 897.00
75088-M or B	8' x 8'	84 lbs.	\$ 947.00
75088-SM	8' x 8'	84 lbs.	\$ 1001.00
75079-M or B	7' x 9'	91 lbs.	\$ 951.00
75079-SM	7' x 9'	91 lbs.	\$ 990.00
75099-M or B	9' x 9'	94 lbs.	\$ 999.00
75080-M or B	8' x 10'	97 lbs.	\$ 1053.00
75000-M or B	10' x 10'	102 lbs.	\$ 1109.00
75092-M or B	9' x 12'	119 lbs.	\$ 1128.00
75022-M or B	12' x 12'	125 lbs.	\$ 1236.00
75HD092-M	92" diag.	70 lbs.	\$ 965.00
75HD106-M	106" diag.	80 lbs.	\$ 985.00
75HD133-M	133" diag.	94 lbs.	\$ 1070.00
75HD161-M	161" diag.	112lbs.	\$ 1135.00
<i>Video-View</i>			
75V45-S	70" diag.	58 lbs.	\$ 843.00
75V57-S	100" diag.	70 lbs.	\$ 925.00
75V68-S	120" diag.	80 lbs.	\$ 989.00

"HD" models feature HDTV formats (9'D x 16'W).
(-SM) indicates Seamless Material.



TRIPOD PROJECTION SCREENS



Electric Screens are also available from Bretford - call today for more information!

Bretford screens feature a black steel case and a choice of viewing surfaces:

- M-Matte White for general purpose viewing
- B-Glass Beaded for narrow rooms
- L-Silver Lenticular for high reflectivity
- S-Silver Suede for video viewing
- SM-Seamless screens with matte white surface

Video View screens come complete with black borders.

A. Series 300 Tripod Screen features a built-in keystone eliminator that allows the viewing surface to tilt forward to avoid distortion often found in OH projector presentations. High-low capability lets you match projector height. Die-cast handle and steel slat with tension bar. Black borders.

(A) Multi Media

3050-M▼ or -B	50" x 50"	25 lbs.	UPS	\$246.00
3060-M▼ or -B	60" x 60"	27 lbs.	UPS	\$271.00
3070-M▼ or -B	70" x 70"	30 lbs.	UPS	\$298.00
3050-L or -S	50" x 50"	25 lbs.	UPS	\$249.00
3060-L or -S	60" x 60"	27 lbs.	UPS	\$274.00
3070-L or -S	70" x 70"	30 lbs.	UPS	\$302.00
3045-M or -B	46" x 60"	26 lbs.	UPS	\$248.00
3057-M or -B	64" x 84"	32 lbs.	UPS	\$375.00
3077-M or -B	7' x 7'	33 lbs.		\$396.00
3077-SM	84" x 84", seamless	39 lbs.		\$437.00
3068-M or -B	6' x 8'	35 lbs.	UPS	\$458.00
3088-M or -B	8' x 8'	36 lbs.		\$479.00
3088-SM	96" x 96", seamless	41 lbs.		\$533.00

(B) Video View

3V45-S	70" diag.	26 lbs.	UPS	\$286.00
3V57-S	100" diag.	32 lbs.	UPS	\$427.00
3V68-S	120" diag.	35 lbs.	UPS	\$500.00

C. Series 375 Tripod Screen with similar features as the Series 300 without the keystone eliminator.

3750-M▼ or -B	50" x 50"	20 lbs.	UPS	\$163.00
3760-M▼ or -B	60" x 60"	23 lbs.	UPS	\$206.00
3770-M▼ or -B	70" x 70"	26 lbs.	UPS	\$231.00
3750-L	50" x 50"	18 lbs.	UPS	\$171.00
3760-L	60" x 60"	21 lbs.	UPS	\$211.00
3770-L	70" x 70"	24 lbs.	UPS	\$237.00

D. Series 10 Tripod Screens are Bretford's most economical choice. Three viewing sizes to select from. Matte white fabric only. Black steel case.

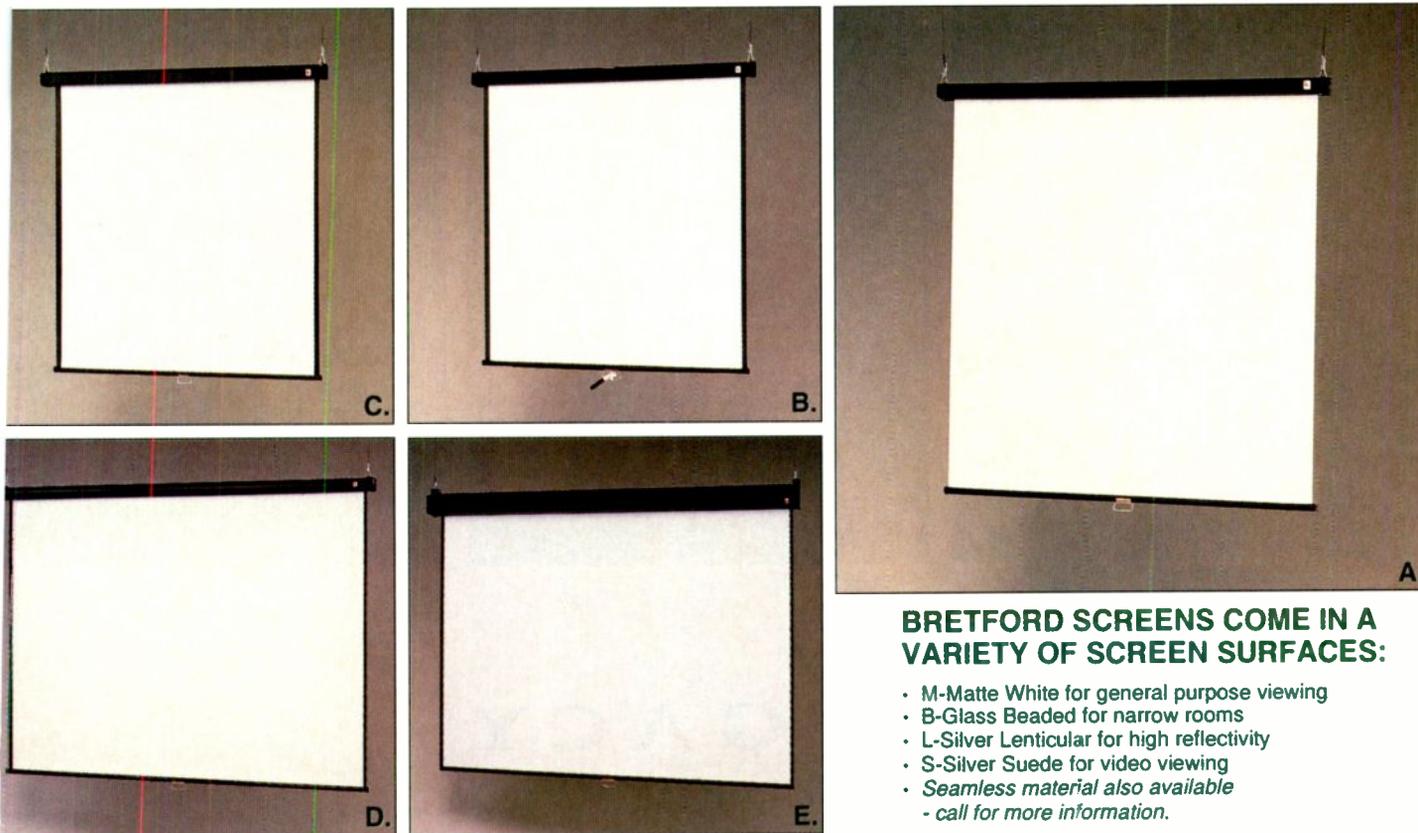
1005-M	50" x 50"	18 lbs.	UPS	\$128.00
1006-M	60" x 60"	20 lbs.	UPS	\$164.00
1007-M	70" x 70"	22 lbs.	UPS	\$182.00

Accessories

4002 Keystone Eliminator for Series 375 tilts the screen to eliminate distortion.

4002	1 lb.	UPS	\$ 17.50
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WALL PROJECTION SCREENS



BRETTFORD SCREENS COME IN A VARIETY OF SCREEN SURFACES:

- M-Matte White for general purpose viewing
- B-Glass Beaded for narrow rooms
- L-Silver Lenticular for high reflectivity
- S-Silver Suede for video viewing
- *Seamless material also available - call for more information.*

1. **Series 65 Wall Screen** is our most economical screen.

6550-M	50" x 50"	10 lbs.	UPS	\$ 65.00
6560-M	60" x 60"	13 lbs.	UPS	\$ 84.00
6570-M	70" x 70"	15 lbs.	UPS	\$103.00

3. **Series 100 Wall Screen** complete with screen tension adjustment. Flat projection surface eliminates waves. Includes black borders.

1050-L or -S	50" x 50"	16 lbs.	UPS	\$164.00
1060-L or -S	60" x 60"	19 lbs.	UPS	\$186.00
1070-L or -S	70" x 70"	22 lbs.	UPS	\$215.00

2. **Series 200 Wall Screen** features a matching slat that fits into the case opening to keep out dust and dirt. Strong, durable design provides years of lasting use. Black borders.

Multi Media				
2050-M▼ or -B	50" x 50"	13 lbs.	UPS	\$ 99.00
2060-M▼ or -B	60" x 60"	15 lbs.	UPS	\$126.00
2070-M▼ or -B	70" x 70"	18 lbs.	UPS	\$162.00
2045-M or -B	46" x 60"	14 lbs.	UPS	\$ 97.00
2057-M or -B	64" x 84"	21 lbs.	UPS	\$229.00
2077-M or -B	7' x 7'	22 lbs.	UPS	\$245.00
2068-M or -B	6' x 8'	25 lbs.	UPS	\$260.00
2088-M or -B	8' x 8'	26 lbs.	UPS	\$306.00

(D) Video View

2V45-S	70" diag.	14 lbs.	UPS	\$149.00
2V57-S	100" diag.	21 lbs.	UPS	\$269.00
2V68-S	120" diag.	25 lbs.	UPS	\$302.00

E. **Series 500 Auditorium Wall Screen** is our largest manually operated wall screen. Installs easily on mounting rings built right into the heavy gauge black steel case. Black borders.

Multi Media

5045-M or -B	4' x 5'	38 lbs.	UPS	\$344.00
5050-M or -B	50" x 50"	26 lbs.	UPS	\$312.00
5060-M or -B	60" x 60"	30 lbs.	UPS	\$328.00
5057-M or -B	5' x 7'	43 lbs.	UPS	\$371.00
5070-M or -B	70" x 70"	34 lbs.	UPS	\$344.00
5077-M or -B	7' x 7'	45 lbs.	UPS	\$402.00
5068-M or -B	6' x 8'	48 lbs.		\$407.00
5088-M▼ or -B	8' x 8'	50 lbs.		\$437.00
5079-M or -B	7' x 9'	60 lbs.		\$453.00
5099-M or -B	9' x 9'	70 lbs.		\$466.00
5080-M or -B	8' x 10'	75 lbs.		\$520.00
5000-M▼ or -B	10' x 10'	78 lbs.		\$594.00
5092-M or -B	9' x 12'	84 lbs.		\$690.00
5022-M▼ or -B	12' x 12'	91 lbs.		\$749.00

Video View

5V45-S	70" diag.	44 lbs.	UPS	\$372.00
5V57-S	100" diag.	43 lbs.		\$411.00
5V68-S	120" diag.	48 lbs.		\$448.00

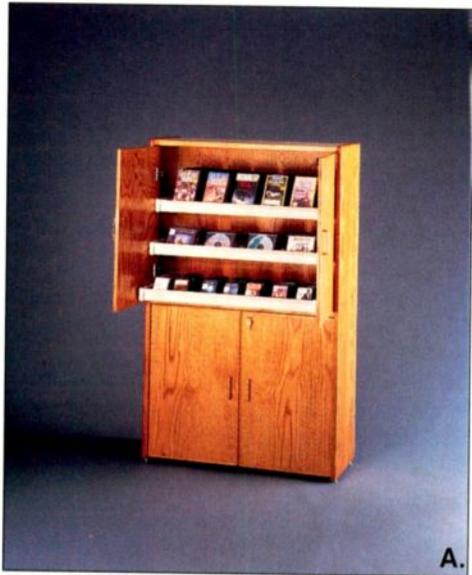
Accessories

F. **KW18 and KW6 Mounting Brackets** (not shown) sold in pairs.

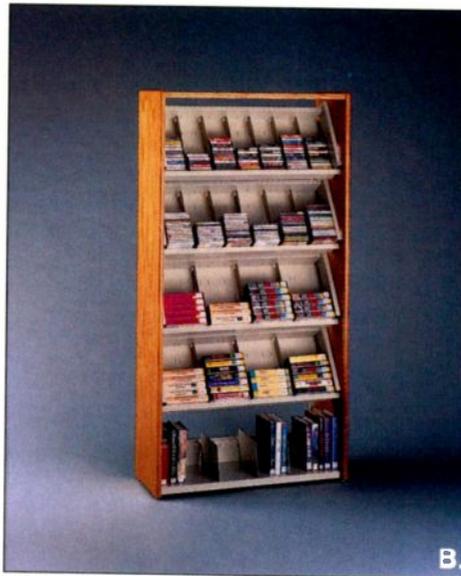
▼KW18	18" adjustable	4 lbs.	UPS	\$30.00
▼KW6	6" fixed	1 lb.	UPS	\$15.00
▼KW1	Wall/Ceiling	5 lbs.	UPS	\$20.50



MULTI-MEDIA STORAGE



A.



B.



C.

LEGACY Library System

LEGACY Shelving and Storage combines traditional beauty with complete modularity for future growth. Features include:

- Handsome real wood end panels
- Easy add-on unit options available
- Sturdy steel frames and shelving
- Tamper-proof pin adjustment system
- Available in three beautiful hand-rubbed finishes:
 - (-2) Natural Oak
 - (-7) Medium Oak
 - (-3) Dark Oak

A. Media Storage Cabinet. 60" high single-faced media-storage unit with back wood panels, plus a wood laminate top and middle shelf. Two sets of locking cabinet doors. Six glide-out media storage drawers will hold:

- 420 cassette tapes;
- or 576 C.D.'s;
- or 192 Videos.

Overall Dimensions: 37"W x 14 1/2"D x 60"H

LS60MCS-2	Ntrl Oak	60"H	285 lbs.	\$ 1971.00
LS60MCS-7	Med Oak	60"H	285 lbs.	\$ 1971.00
LS60MCS-3	Dark Oak	60"H	285 lbs.	\$ 1971.00

B. Media Storage Unit. 72" high single-faced open media-storage unit with a wood laminate top shelf. Includes one slotted shelf and four angled media storage shelves for displaying materials. Unit will store:

- 504 cassette tapes;
- or 600 C.D.'s;
- or 160 Videos.

Overall Dimensions: 37"W x 14 1/2"D x 72"H

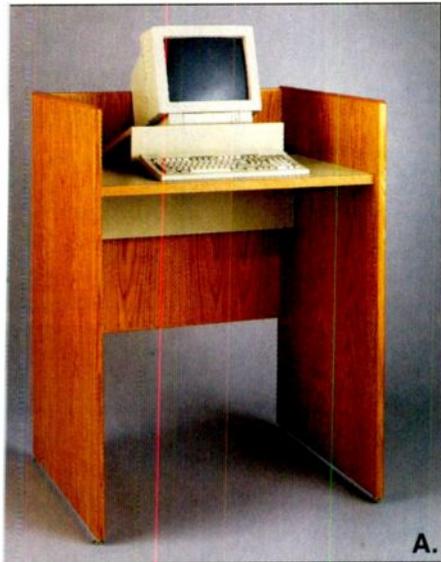
LS72MSS-2	Ntrl Oak	72"H	182 lbs.	\$ 837.00
LS72MSS-7	Med Oak	72"H	182 lbs.	\$ 837.00
LS72MSS-3	Dark Oak	72"H	182 lbs.	\$ 837.00

C. Media Display and Storage unit is an 84" high single-faced storage and display unit with a wood laminate top shelf. Includes one flat slotted shelf, three angled media storage shelves, and two, 2-tier display shelves.

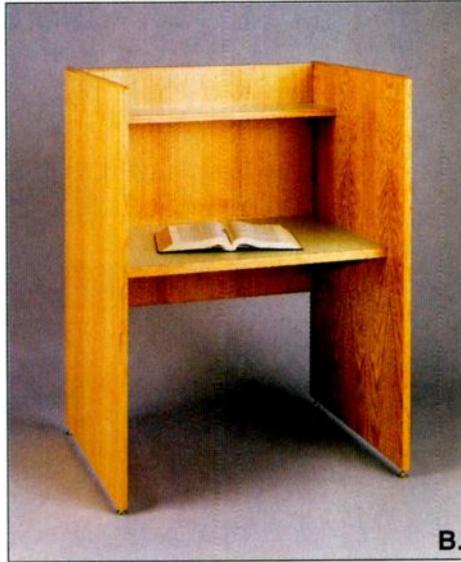
Overall Dimensions: 37"W x 14 1/2"D x 84"H

LS84MDS-2	Ntrl Oak	84"H	184 lbs.	\$ 873.00
LS84MDS-7	Med Oak	84"H	184 lbs.	\$ 873.00
LS84MDS-3	Dark Oak	84"H	184 lbs.	\$ 873.00

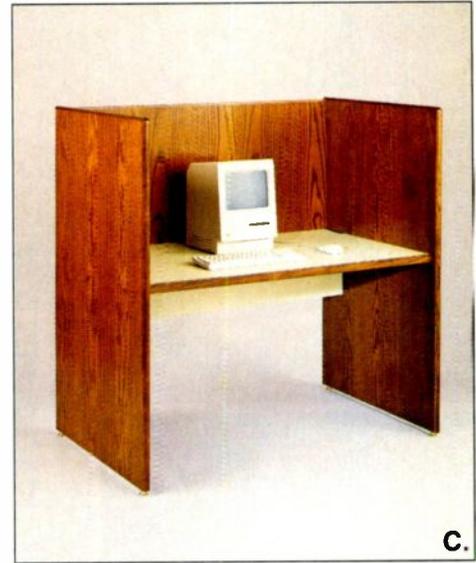
LIBRARY CARRELS



A.



B.



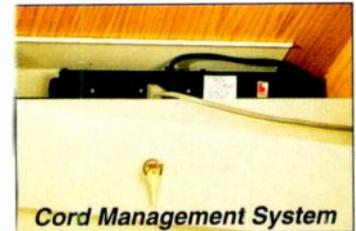
C.



D.

Tilt monitor stand

LEGACY
Library System



Cord Management System

LEGACY Carrels are attractive and efficient additions to any media center. Carrels feature:

- Handsome real wood end panels
- Easy add-on options available
- Sturdy wood laminate worksurfaces
- Adjustable height worksurfaces
- Available in three beautiful hand-rubbed finishes:
 - (-2) Natural Oak
 - (-7) Medium Oak
 - (-3) Dark Oak

C. Computer Carrels have large worksurfaces to accommodate both computer equipment and study materials. Single faced. Worksurface adjusts to either 26 1/2" or 29" in height. Cord management bin included. Accommodates Bretford CFPS surge protected power strip. Overall Dimensions: 49"W x 30"D x 48"H

LSCOS-2	Ntrl Oak	155 lbs.	\$ 650.00
LSCOS-7	Med Oak	155 lbs.	\$ 650.00
LSCOS-3	Dark Oak	155 lbs.	\$ 650.00

A. Patron Access Stations are designed for stand-up use with a 39" high worksurface. Single faced. Ideal for computer information centers. Cord management bin included. Accommodates Bretford CFPS surge protected power strip. Overall Dimensions: 37"W x 30"D x 48"H

_SPASS-2	Ntrl Oak	138 lbs.	\$ 595.00
_SPASS-7	Med Oak	138 lbs.	\$ 595.00
_SPASS-3	Dark Oak	138 lbs.	\$ 595.00

Accessories

D. Tilt Monitor Stand - For Computer and Patron Access Carrels. Monitors rests at 18° angle for comfortable viewing.

LTMS-PB	Putty Beige finish	12lbs.	\$ 56.00
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CFPS Computer Furniture Power Strip provides four outlets 20' cord, and surge suppression. Attaches easily to carrel. Black finish. UL Listed.

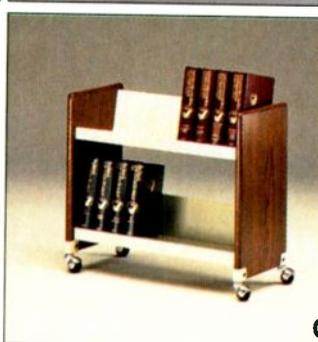
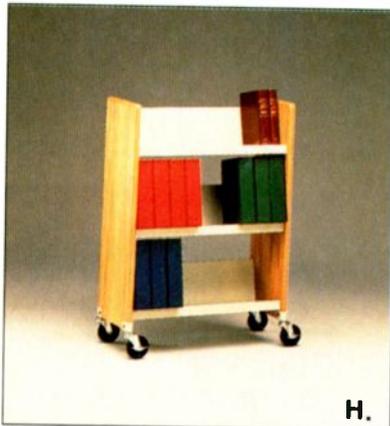
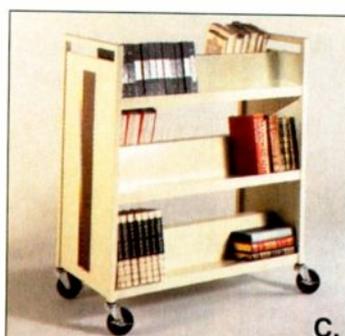
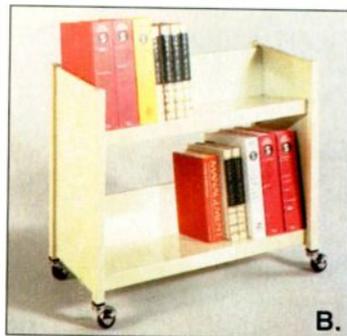
CFPS		4 lbs.	\$ 76.00
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B. Study Carrels include worksurfaces that adjust to either 26 1/2" or 29" in height. Single faced. 8" reference shelf near top of unit. Overall Dimensions: 37"W x 30"D x 48"H

LSSCS-2	Ntrl Oak	146 lbs.	\$ 595.00
LSSCS-7	Med Oak	146 lbs.	\$ 595.00
LSSCS-3	Dark Oak	146 lbs.	\$ 595.00

*Please Contact Us For
Information About Additional
LEGACY Library Furniture Products.*

MOBILE UTILITY TRUCKS



Transport books, reference materials, supplies and more on a Bretford Utility Booktruck!

Transport books, reference materials, video tapes and more quietly and efficiently on a Bretford Library Booktruck. Select a slant-shelf or flat-shelf model - each provides ample space for all your materials. Putty beige finish with accent stripes that you apply - specify walnut, blue, red or gold accent stripes when ordering (no accent stripe on L330 and R227). Heavy gauge steel construction or select a real wood end-panel model. Quiet-glide 4" casters (2 lock).

A. L330 Slant-Shelf Library Booktruck has three shelves. 12" between shelves. Shelves: 30"W x 9 1/2"D.

L330	31"W x 42"H x 13"D	45 lbs.	\$231.00
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B. R227 Slant-Shelf Library Booktruck has two shelves. 2" ball casters. 13 1/2" between shelves. Shelves: 27"W x 9 1/2"D.

R227	28"W x 24 1/2"H x 13"D	26 lbs.	UPS	\$178.00
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C. V336 Slant-Shelf Library Booktruck has six shelves. 11 1/2" between shelves. Shelves: 36"W x 6 3/4"D.

V336	37"W x 42"H x 18"D	74 lbs.	\$327.00
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V230 Slant-Shelf Library Booktruck (not shown) includes four shelves. 11 1/2" between shelves. Shelves: 30"W x 6 3/4"D.

V230	31"W x 37"H x 18"D	44 lbs.	\$277.00
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D. VF336 Combination-Shelf Booktruck features four top slant shelves and one bottom flat shelf. Shelves: 36"W x 6 3/4"D.

VF336	37"W x 42"H x 18"D	69 lbs.	\$320.00
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FV336 Combination-Shelf Booktruck featuring a flat top shelf and four slant shelves below. 11 1/2" between shelves.

FV336	37"W x 42"H x 18"D	70 lbs.	\$320.00
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E. F336 Flat-Shelf Booktruck features three shelves - 11 1/2" between. Shelves: 36"W x 16"D.

F336	37"W 42"H x 18"D	62 lbs.	\$279.00
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F. F230 Flat-Shelf Booktruck includes two shelves - 11 1/2" between. Shelves: 30"W x 16"D.

F230	31"W x 37"H x 18"D	40 lbs.	\$264.00
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G. WR227 Slant-Shelf Wood Booktruck has two shelves. Desk height with 2" ball casters. 13 1/2" between shelves. Shelves: 27"W x 9 1/2"D. Overall: 28"W x 24 1/2"H x 13"D.

WR227-3	dark oak	37 lbs.	\$218.00
WR227-7	medium oak	37 lbs.	\$218.00

H. WL330 Slant-Shelf Wood Booktruck has three shelves. Overall: 31"W x 43 1/2"H x 13"D. 12 3/4" between shelves.

WL330-3	dark oak	58 lbs.	\$285.00
WL330-7	medium oak	58 lbs.	\$285.00

LUXOR

OVERHEAD PROJECTOR TABLES



OHT-20

OHT-32

OHT-32 Plastic compact stand-up overhead projector table. Includes 3-outlet, 15' surge suppressing electric assembly U.L. and C.S.A. listed and 4" casters, two with locking brake. Assembly required. 24"W x 15 3/4"D x 32"H. Wt. 34 lbs. **\$160**

F-20 Same as above but sit-down two shelf table. 24"W x 15 3/4"D x 20"H. Wt. 24 lbs. **\$145**



OHT-42

OHT-42 Plastic stand-up table for large overhead projectors. Includes 3-outlet, 15' surge suppressing electric assembly U.L. and C.S.A. listed and 4" casters, two with locking brake. Top shelf has tray for storing supplies. Assembly required. 32"W x 24"D x 36"H. Wt. 45 lbs. **\$237**



TL-OH-29

TL-OH-29 Sit down overhead projector table with 2" furniture casters, 2 with brake. Specify black or gray frame. Assembly required. 40"W x 21"D x 29"H. Projector opening is 20" x 17 1/2". Wt. 47 lbs. **\$299**

OH-38 Same as above but with stand capability. 40"W x 21"D x 38"H. Wt. 48 lbs. **\$299**



OHS-32

OHS-32 Plastic compact stand-up overhead projector table. Includes 3-outlet, 15' surge suppressing electric assembly U.L. and C.S.A. listed and 4" casters, two with locking brake. Middle shelf has tray for storing supplies. Assembly required. 24"W x 15 3/4"D x 32"H. Wt. 34 lbs. **\$171**

New Lower Price



OHS-42

OHS-42 Plastic stand-up table for large overhead projectors. Includes 3-outlet, 15' surge suppressing electric assembly U.L. and C.S.A. listed and 4" casters, two with locking brake. Top shelf has tray for storing supplies. Assembly required. 32"W x 24"D x 36"H. Wt. 45 lbs. **\$247**



OHT-30

OHT-30 Plastic Sit-down overhead projector table with 3-outlet 15' surge suppressing electric assembly U.L. and C.S.A. listed and 4" casters, two with locking brake. Includes two sets of legs to allow top shelf height to match OH projector. Assembly required. 39 3/4"W x 18"D x 29" to 32"H. Projector opening is 17 3/4" x 15 3/4". Wt. 31 lbs. **\$205**

OHT-40 Same as above with stand-up capability. 39 3/4"W x 18"D x 38" to 40 1/2"H. Wt. 33 lbs. **\$219**



OHT-50

OHT-50 Plastic stand-up table with 3-outlet 15' surge suppressing electric assembly U.L. and C.S.A. listed and 4" casters, two with locking brake. Accommodates the new larger overhead projectors and provides a large work area. Assembly required. 39 3/4"W x 24"D x 36"H. Projector opening is 20 1/8" x 15 1/4". Wt. 35 lbs. **\$225**

Plastic Side Shelves



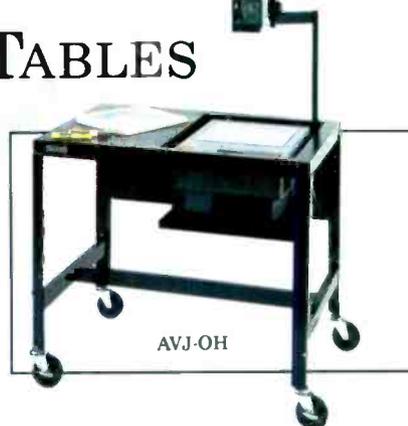
OHT-29

OHT-29 Sit-down adjustable height steel overhead projector table. Complete with 3-outlet 15' U.L. and C.S.A. listed electric assembly and 4" casters, two with locking brake. Assembly required. 39"W x 20 1/4"D x 29"H. Projector platform adjusts from 17 1/2" to 27 1/2" in 2 1/2" increments. Projector opening is 19 3/4" x 17". Wt. 29 lbs. **\$225**

OHT-39 Same as above with stand-up capability. 39"W x 20 1/4"D x 39"H. Projector platform adjusts from 27 1/2" to 37 1/2" in 2 1/2" increments. Projector opening is 19 3/4" x 17". Wt. 37 lbs. **\$235**

New

New



AVJ-OH

AVJ-OH Steel adjustable height overhead projector table for stand-up or sit-down use. Work surface adjusts from 27" to 41 1/2". Projector platform adjusts from 6" to 10" in 1" increments. Complete with 3-outlet 20' U.L. and C.S.A. listed electric assembly. Ships set-up. 36"W x 24"D x 27" to 41 1/2"H. Projector opening is 20 1/2" x 17 1/2". Wt. 60 lbs. **\$301**

Ebony Granite Melamine Finish

Tubular Steel Construction



TL-27-TP

TL-27-TP Overhead projector and computer workstation with adjustable terminal and projector platform. Complete with 2" furniture casters, 2 with brake. Specify black or gray frame. Assembly required. 51 1/2"W x 32"D x 43 1/2"H. Projector opening is 20" x 17 1/2". Wt. 114 lbs. **\$595**

TL-27 Same as above without adjustable terminal platform. 51 1/2"W x 32"D x 30"H. Wt. 94 lbs. **\$495**



DS-27-TP

DS-27-TP Wood overhead projector and computer workstation features an adjustable terminal and projector platform. Complete with 2" furniture casters, 2 with brake. Specify putty or black color and oak or walnut top. Assembly required. 48"W x 30"D x 40"H. Projector opening is 19 1/2"D x 16 3/8"W. Wt. 124 lbs. **\$583**

DS-27 Same as above without adjustable terminal platform. 48"W x 30"D x 27"H. Wt. 103 lbs. **\$471**



DS-37-TP

DS-37-TP Wood overhead projector and computer workstation features an adjustable terminal and projector platform. Complete with 2" furniture casters, two with brake. Specify putty or black color and oak or walnut top. Assembly required. 60"W x 30"D x 40"H. Projector opening is 15 1/2"D x 18 1/2"W. Wt. 127 lbs. **\$629**

DS-37 Same as above without adjustable terminal platform. 60"W x 30"D x 27"H. Wt. 110 lbs. **\$512**

New



ENDURA® EQUIPMENT TABLES

- Lifetime warranty.
- Integral safety push handle is molded into top shelf.
- Top shelf reinforced with one steel bar.
- Big wheel models are (UL) listed.



- Molded cord wrap attaches around table leg and swings out for easy access.
- 3-outlet, 15 ft. surge suppressing electric assembly. U.L. & C.S.A. listed.
- Cable-Track Cord Management System.
- 4" ball bearing casters, two with locking brake.
- Assembly required.



- | | | |
|---|---|---|
| LE-26 24"W x 18"D x 26"H equipment table. Wt. 23 lbs. \$141 | LE-34 24"W x 18"D x 34"H equipment table. Wt. 30 lbs. \$168 | LE-42 24"W x 18"D x 42"H equipment table. Wt. 32 lbs. \$195 |
| LEB-26 (UL) listed with 8" big wheels. Wt. 33 lbs. \$183 | LEB-34 (UL) listed with 8" big wheels. Wt. 40 lbs. \$210 | LEB-42 (UL) listed with 8" big wheels. Wt. 42 lbs. \$237 |
| LE-26C With locking cabinet. Wt. 45 lbs. \$267 | LE-34C With locking cabinet. Wt. 52 lbs. \$294 | LE-42C With locking cabinet. Wt. 54 lbs. \$321 |
| LEB-26C (UL) listed with locking cabinet and 8" big wheels. Wt. 55 lbs. \$309 | LEB-34C (UL) listed with locking cabinet and 8" big wheels. Wt. 62 lbs. \$336 | LEB-42C (UL) listed with locking cabinet and 8" big wheels. Wt. 64 lbs. \$363 |

Models pictured with optional VTO-20 Video Tape Rack \$28



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|---|--|---|---|---|
| LEF-34C Locking console with one inner shelf. 24"W x 18"D x 34"H. Wt. 61 lbs. \$330 | LEB-50C Same as above with 8" big wheels on one end. Wt. 90 lbs. \$412 | LEVC-34 18"W x 24"D x 34"H equipment table with tamper resistant video compartment. Wt. 31 lbs. \$175 | LEVC-42 18"W x 24"D x 42"H equipment table with tamper resistant video compartment. Wt. 33 lbs. \$180 | LEVC-45 24"W x 24"D x 45"H equipment table with tamper resistant video compartment. Wt. 50 lbs. \$240 |
|---|--|---|---|---|

All wood cabinet models available with 4" casters.



- | | | |
|---|---|---|
| LE-26WC Locking wood cabinet table with 2" casters. Putty and walnut color. 24"W x 18"D x 26"H. Wt. 45 lbs. \$267 | LE-34WC Same as above with two shelves. 24"W x 18"D x 34"H. Wt. 52 lbs. \$294 | LE-42WC Same as above with two shelves. 24"W x 18"D x 42"H. Wt. 54 lbs. \$299 |
|---|---|---|

Accessories



LSK SECURITY SYSTEM
6-foot cable, two mounting plates and lock. **\$29**

LSO Optional - two additional mounting plates. **\$11**



LSS SAFETY STRAP
10-foot safety strap with easy lock buckle. **\$12**



LP Audio/Visual Table

The LP line is a high quality economical version of the traditional audio visual/utl stand.

- Shelves and legs are molded. Table won't stain, scratch, dent or rust.
- Integral safety push handle and cord wrap.
- 4" ball bearing casters, two with locking brake.
- Optional electric and big wheel models.
- Assembly required.

- | | | |
|---|---|---|
| LP-26 24"W x 18"D x 26"H table. Wt. 19 lbs. \$80 | LP-34 24"W x 18"D x 34"H table. Wt. 26 lbs. \$90 | LP-42 24"W x 18"D x 42"H table. Wt. 27 lbs. \$100 |
| LP-DUO 24"W x 18"D x 16", 26", 34", 42"H table. Wt. 28 lbs. \$110 | "E" - 3-outlet, 20' electric assembly, U.L. listed. Wt. 3 lbs. \$28 | "LP-BW" - Big wheel assembly. Wt. 10 lbs. \$41 |
| LE-C Cabinet pack for 18" x 24" tables. Wt. 22 lbs. \$126 | | |

LUXOR

ENDURA® VIDEO TABLES

1 year warranty.
 Integral safety push handle is
 welded into top shell.
 Shelf reinforced with two
 1" bars.



Removable cord wrap attaches
 to table leg and swings out
 for easy access.
 Integral, 15 ft. surge suppressing
 electric assembly. U.L. & C.S.A.
 approved.
 Cable-Track Cord Management
 system.
 Heavy-duty ball bearing casters, two with
 king brake.
 Assembly required.



LE-27 32"W x 24"D x 27"H video table. Wt. 42 lbs. **\$219**



LE-40 32"W x 24"D x 40"H video table. Wt. 51 lbs. **\$262**



LE-48 32"W x 24"D x 48"H video table. Wt. 55 lbs. **\$270**

LEB-27 With 8" big wheels. Wt. 52 lbs. **\$262**

LE-27C With locking cabinet. Wt. 74 lbs. **\$387**

LEB-27C With locking cabinet & 8" big wheels. Wt. 84 lbs. **\$430**

LEB-40 With 8" big wheels. Wt. 61 lbs. **\$304**

LE-40C With locking cabinet. Wt. 83 lbs. **\$430**

LEB-40C With locking cabinet & 8" big wheels. Wt. 93 lbs. **\$472**

LEB-48 With 8" big wheels. Wt. 65 lbs. **\$313**

LE-48C With locking cabinet. Wt. 87 lbs. **\$438**

LEB-48C With locking cabinet & 8" big wheels. Wt. 97 lbs. **\$480**

Models pictured
 with optional
**VTO-28 Video
 Tape Rack \$33.**



LE-54

LEB-54C

LEF-40C pictured
 with the optional
LECS shelf \$66.



LEF-40C

LEF-56C Locking video console with one inner shelf. Cabinet features ventilation louvers in back panel. 32"W x 24"D x 59 1/2"H. Wt. 140 lbs. **\$748**



LEF-56C

LE-54 32"W x 24"D x 54"H video table. Wt. 59 lbs. **\$277**

LEB-54 With 8" big wheels. Wt. 69 lbs. **\$320**

LE-54C With locking cabinet. Wt. 91 lbs. **\$445**

LEB-54C With locking cabinet & 8" big wheels. Wt. 101 lbs. **\$487**

LEF-40C Locking video console with one inner shelf. Cabinet features ventilation louvers in back panel. 32"W x 24"D x 44 1/2"H. Wt. 90 lbs. **\$518**

Accessories



4" DUAL WHEEL CASTERS

In lieu of standard casters. Add suffix "DW" and \$15 to unit cost.



LSK SECURITY SYSTEM
 6-foot cable, two mounting plates and lock. **\$29**



LSS SAFETY STRAP
 10-foot safety strap with easy lock buckle. **\$12**

All wood cabinet models
 available with 4" casters.



LE-27WC



LE-48WC

LE-27WC Locking wood cabinet table with 2" casters. Putty and walnut color. 32"W x 24"D x 27"H. Wt. 74 lbs. **\$387**

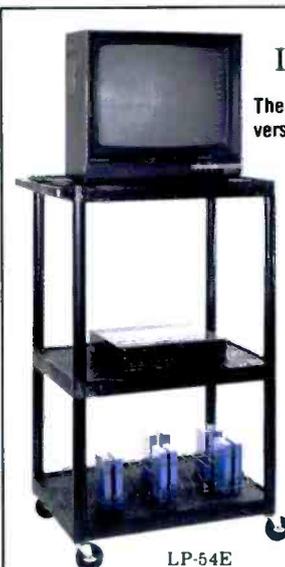
LE-40WC 32"W x 24"D x 40"H. Wt. 83 lbs. **\$430**

LE-48WC 32"W x 24"D x 48"H. Wt. 87 lbs. **\$438**

LE-54WC 32"W x 24"D x 54"H. Wt. 91 lbs. **\$445**

LP TV/Video Tables

The LP line is a high quality economy version of the traditional TV/video stand.



LP-54E

LP-27 32"W x 24"D x 27"H table. Wt. 36 lbs. **\$161**

LP-40 32"W x 24"D x 40"H table. Wt. 44 lbs. **\$209**

LP-48 32"W x 24"D x 48"H table. Wt. 48 lbs. **\$217**

LP-54 32"W x 24"D x 54"H table. Wt. 50 lbs. **\$224**

LPL-DUO 32"W x 24"D x 27" 40", 48", 54"H. Wt. 54 lbs. **\$240**

"E" Electric assembly Wt. 31 lbs. **\$28**

"LPL-BW" Big wheel assembly. Wt. 10 lbs. **\$41**



MOBILE STEEL TABLES

Fixed Height Tables — Adjustable Height Tables — Large Screen Monitor Tab

- Die pressed shelves with baked-on enamel finish.
- 3-outlet 20' U.L. and C.S.A. listed electric assembly.
- Integral safety push handle.
- Ships assembled.
- Cable pass through holes.



- AV-26** Fixed height, open shelf table with 4" casters, two with brake. Wt. 34 lbs. **\$190**
- AV-26B** listed. Same as above with 8" big wheels. Wt. 38 lbs. **\$234**
- AV-34** Fixed height, open shelf table with 4" casters, two with brake. Wt. 41 lbs. **\$205**
- AV-34B** listed. Same as AV-34 with 8" big wheels. Wt. 45 lbs. **\$250**
- AV-42** Fixed height, open shelf table with 4" casters, two with brake. Wt. 42 lbs. **\$212**
- AV-42B** listed. Same as above with 8" big wheels. Wt. 46 lbs. **\$256**



- AVJ-42** Adjustable height open shelf table with 4" casters, two with brake. Adjusts to 24", 26", 30", 34", 38", 42" 24"W x 18"D. Wt. 48 lbs. **\$208**
- AVJ-42B** Same as above with 8" big wheels. Wt. 52 lbs. **\$253**
- AVJ-42C** Adjustable height cabinet table with 4" casters, two with brake. Adjusts to 24", 26", 30", 34", 38", 42" 24"W x 18"D. Wt. 62 lbs. **\$342**
- AVJ-42BC** Same as above with 8" big wheels. Wt. 66 lbs. **\$386**



- ATW-56** Adjustable height wide base table. Adjusts to 40", 45", 50", 54", 56". 32"W x 27"D. Wt. 80 lbs. **\$208**
- ATW-56C** Same as above with wide base cabinet. 106 lbs. **\$256**



TWR-54C

NEW

NEW



- TVP-32LT** Heavy-duty, two-shelf large screen monitor table. 39 3/8"W x 27 5/8"D x 32"H. Wt. 101 lbs. **\$519**



TVP-44LT

- TVP-44LT** Heavy-duty, three-shelf, large screen monitor table. 39 3/8"W x 29 1/4"D x 44"H. Wt. 126 lbs. **\$625**

- TVP Features Include**
- Heavier gauge steel, arc-welded.
 - Durable baked-on silicone paint.
 - Push handle.
 - 1 1/2" lip on all shelves.
 - Slots in top shelf for safety strap.
 - Sure grip pads.
 - U.L. and C.S.A. listed, 20' cord, outlets.
 - Cable management system.
 - 8" pneumatic tires, 2 fixed, 2 swivel with brakes.
 - Ships set up.



TVP-44C



TVP-32

- TVP-44** Three-shelf, large screen monitor table. 37"W x 25"D x 44"H. Wt. 121 lbs. **\$591**

- TVP-32** Two-shelf, large screen monitor table. 38 1/4"W x 26 1/4"D x 32"H. Wt. 96 lbs. **\$505**

- TVP-44C** Three-shelf, large screen monitor table with locking cabinet. 37"W x 25"D x 44"H. Wt. 165 lbs. **\$861**



TVP-44

Traditional TV Tables Accessories

For All Mobile Steel Tables



- 4" DUAL WHEEL CASTERS**
In lieu of standard casters. Add suffix "DW" and \$15 to unit cost.



- LSB SAFETY BELT**
8-foot long strap with "J" hooks and easy lock buckle. **\$25**



- LSK SECURITY SYSTEM**
6-foot cable, two mounting plates and lock. **\$29**
- LSO Optional** - two additional mounting plates. **\$11**



- ATW-56** Adjustable height 24" deep open shelf table with electric and 4" casters, two with brake. Adjusts to 40", 42", 48", 50", 54", 56". 28"W x 24"D. Wt. 77 lbs. **\$303**

- ATW-56B** Same as above with 8" big wheels on one end. Wt. 81 lbs. **\$348**



- TVR-54** Fixed height, slant top, 24" deep open shelf table with electric and 4" casters, two with brake. 28"W x 24"D x 54"H. Wt. 80 lbs. **\$306**

- TVR-54B** Same as above with 8" big wheels one one end. Wt. 84 lbs. **\$357**



ATW-56D

- ATW-56D** Adjustable height wide base table with locking video tape storage drawer. Suspended on heavy-duty, full extension system. Adjusts to 40", 42", 48", 50", 54", 32"W x 27"D. Wt. 131 lbs. **\$519**



AVJ-42D

- AVJ-42D** Adjustable height table with locking video tape storage drawers. Suspended on heavy-duty, full extension rail system. Adjusts to 24", 30", 34", 38", 42". 24"W x 18"D. Wt. 82 lbs. **\$256**

LUXOR

MOBILE STEEL TABLES



Listed Models

- Integral safety push handle
- 1/2" retaining lip
- Safety belt
- Sure grip safety pads
- Cabling holes
- 3-outlet, 20' U.L. & C.S.A. listed electric assembly
- 4" casters, 2 fixed, 2 swivel w/brake



ATW-48EUL



TVW-48EUL

48EUL UL listed. Adjustable height wide base table. 32"W x 27"D x 40" to 48"H. et-up. Wt. 81 lbs. **\$376**

48CEUL UL listed wide base cabinet table. 32"W x 27"D x 40" to 48"H. Wt. 102 lbs. **\$528**

TVW-48EUL 48" UL listed wide base table. Assembly required. 32"W x 27"D x 48"H. Wt. 62 lbs. **\$322**

TVW-44EUL 44" UL listed wide base table. 32"W x 27"D x 44"H. Wt. 62 lbs. **\$284**



TVW-44CEUL

TVW-48CEUL 48" UL listed wide base cabinet table. 32"W x 27"D x 48"H. Assembly required. Wt. 93 lbs. **\$522**

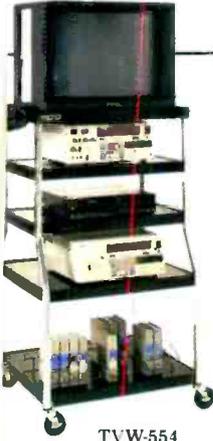
TVW-44CEUL 44" UL listed wide base cabinet table. 32"W x 27"D x 44"H. Wt. 93 lbs. **\$514**



TWP-46

TWP-46 46" UL listed wide base table. Includes 8" semi-pneumatic casters. 2 fixed. 2 swivel. Assembly required. 32"W x 27"D x 46"H. Wt. 95 lbs. **\$536**

TWP-46P Non U.L. 46" wide base table. Includes 8" pneumatic casters. 2 fixed. 2 swivel. Assembly required. 32"W x 27"D x 46"H. Wt. 95 lbs. **\$536**



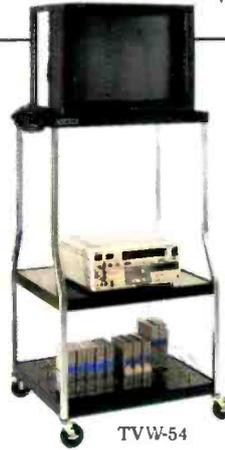
TVW-554



TVWE-54C

TVW Video Tables

- Die pressed shelves with baked-on enamel finish
- 3-outlet, 20' U.L. & C.S.A. listed electric assembly
- Heavy duty, 4" ball bearing casters, two with brake
- Integral safety push handle
- Cable pass through holes
- Assembly required
- Models pictured with optional VTO-28 tape rack \$33



TVW-54



TVW-44C

V-554 Wide base video table. 32"W x 54"H. Wt. 85 lbs. **\$350**

TVWE-54C Wide base video table with locking cabinet. 32"W x 27"D x 54"H. Wt. 106 lbs. **\$550**

TVW-54 Wide base video table. 32"W x 27"D x 54"H. Wt. 62 lbs. **\$284**

TVW-48 32"W x 27"D x 48"H. Wt. 61 lbs. **\$280**

TVW-44 32"W x 27"D x 44"H. Wt. 60 lbs. **\$276**

TVW-54C Wide base video table with locking cabinet. 32"W x 27"D x 54"H. Wt. 93 lbs. **\$515**

TVW-48C 32"W x 27"D x 48"H. Wt. 92 lbs. **\$510**

TVW-44C 32"W x 27"D x 44"H. Wt. 91 lbs. **\$506**

TVS Video Tables

TVS models feature the same high quality conveniences of the TVW video tables.

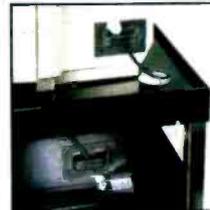
Accessories



4" DUAL WHEEL CASTERS
In lieu of standard casters. Add suffix "DW" and \$15 to unit cost.



LHB SAFETY BELT
10-foot long, 2" wide safety belt **\$30**



LSK SECURITY SYSTEM
6-foot cable, two mounting plates and lock. **\$29**



TVS-54



TVS-48C

TVS-54 Standard base table with 4" casters. W x 20"D x 54"H. Wt. 55 lbs. **\$259**

TVS-48 With 4" casters. 32"W x 20"D x 48"H. Wt. 54 lbs. **\$254**

TVS-44 With 2" casters. 32"W x 20"D x 44"H. Wt. 49 lbs. **\$247**

TVS-34 With 2" casters. 32"W x 20"D x 34"H. Wt. 48 lbs. **\$234**

TVS-54C Standard base table with locking cabinet and 4" casters. 32"W x 20"D x 54"H. Wt. 83 lbs. **\$477**

TVS-48C With 4" casters. 32"W x 20"D x 48"H. Wt. 82 lbs. **\$472**

TVS-44C With 2" casters. 32"W x 20"D x 44"H. Wt. 77 lbs. **\$464**

TVS-34C With 2" casters. 32"W x 20"D x 34"H. Wt. 76 lbs. **\$452**



TVS-554



TVS54C

TVS-554 Standard base table with 4" casters. 32"W x 20"D x 54"H. Wt. 81 lbs. **\$326**

TVS54C Standard base table with locking cabinet and 4" casters. 32"W x 20"D x 54"H. Wt. 96 lbs. **\$525**

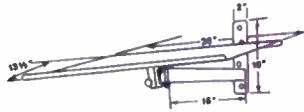
NEW ECONOMOUNT TV AND VCR MOUNTING SYSTEMS

Economount TV and VCR mounting systems are designed to provide strength and durability, yet compliment any environment they are used in. Their easy installation and economical price provide an exceptional value.

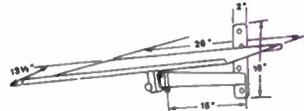
- Heavy-gauge steel tube/plate assembly.
- Arc-welded joints for maximum strength.
- Baked-on powder coat paint for durability.
- Ship U.P.S.
- Safety strap included with all Economount TV mounts.
- Mounting systems accommodate 19" to 27" monitors.



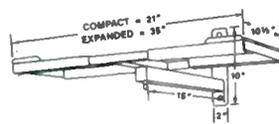
LTE-1 is a platform wall mount. It will accommodate most 19" and 20" TV receivers. TV rests on 20" wide by 13½" deep heavy-gauge steel platform with ½" front retainer lip. Safety strap included. Maximum forward tilt 15° and 240° swivel capability. Installations vary; therefore, mounting hardware is not included. Load capacity 90 lbs. Wt. 18 lbs. **\$99**



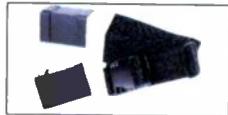
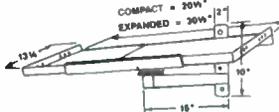
LTE-2 is a platform wall mount. It will accommodate most 25" to 27" TV receivers. TV rests on a 26" wide by 13½" deep heavy-gauge steel platform with ½" front retainer lip. Safety strap included. Maximum forward tilt 15° and 240° swivel capability. Installations vary; therefore, mounting hardware is not included. Load capacity 110 lbs. Wt. 20 lbs. **\$103**



LTE-3 is an adjustable platform wall mount. It will accommodate most 19" to 27" TV receivers. TV rests on a 10½" deep platform with a 3/8" front retainer lip which adjusts up to 32" wide. Safety strap included. This mount features 240° swivel and 0° tilt. Installations vary; therefore, mounting hardware is not included. Load capacity 110 lbs. Wt. 16 lbs. **\$139**

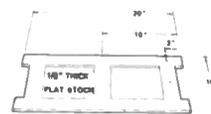


LTE-4 is an adjustable, full platform wall mount. It will accommodate most 19" to 27" TV receivers. TV rests on a 13¼" deep platform, with a full 1" front retainer lip, which adjusts up to 30½" wide. Platform is perforated to allow the monitor to be bolted down for added security. Safety strap included. Maximum forward tilt 15° and 240° swivel capability. Installations vary; therefore, mounting hardware is not included. Load capacity 110 lbs. Wt. 20 lbs. **\$119**

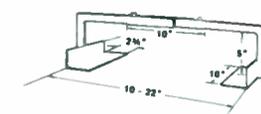


LTVS Safety kit for television mounts. Includes 2" heavy-duty safety strap and two self-adhesive corners which attach to monitor case and serve as a track for safety strap. Wt. 2 lbs. **\$30**

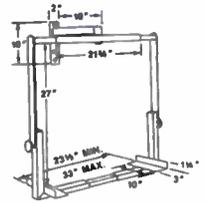
LTDS is a heavy-duty, double stud mounting plate that works with any Luxor LTE Economount wall mount. Allows fastening to two wall studs for added support and safety. Arc welded and constructed of 3/8" steel plate. Mounting hardware not included. Wt. 13 lbs. **\$70**



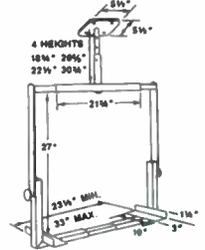
LTEV is a VCR bracket which fits all Luxor LTE Economount-type TV mounts. Adjusts from 14" to 20" width to accommodate most front loading recorders. VCR rests on 2¾" x 6" brackets. Swivels independently of TV mount. All mounting hardware included. Wt. 5 lbs. **\$46**



LTE-5 is an adjustable yolk-style wall mount. It will accommodate most 19" to 27" TV rece. Adjust from 21½" to 33" without LTEV accessory VCR shelf, or 23½" to 33" with LTEV. Heavy-gauge tubular steel construction with 3" wide by 10" long steel supporters, covered in nc material. Heavy-duty 2" wide safety strap included. Maximum forward tilt 15° and 24° capability. Installations vary; therefore, mounting hardware is not included. Load capacity 1 Wt. 25 lbs.



LTE-6 is an adjustable yolk-style ceiling mount. It will accommodate most 19" to 27" TV rece. Adjusts from 21½" to 33" without LTEV accessory VCR shelf, or 23½" to 33" with LTEV. Dist between ceiling and top of mount has four settings, 18¾", 22½", 26½" and 30¾". Heavy-g tubular steel construction with 3" wide by 10" long steel supports, covered in non-skid mat. Heavy-duty 2" wide safety strap included. Maximum forward tilt 15° and 24° swivel capa. Installations vary; therefore, mounting hardware is not included. Load capacity 110 Wt. 27 lbs.



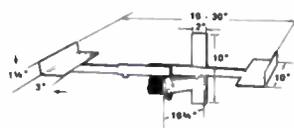
PROMOUNT TV & VCR MOUNTING SYSTEMS

- Heavy-gauge steel tube combined with solid steel bar construction.
- Arc-welded joints for maximum strength.
- Infinite adjustability within minimum and maximum widths.
- Durable textured baked-on powder coat finish. Satin black color.
- Provisions to secure monitor with screws by adhesive bond or with adjustable grip clamps.

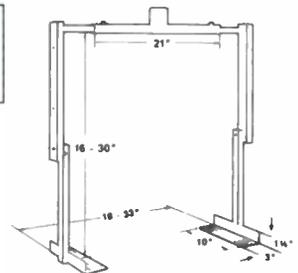
- Options include single- or double-stud mounting plates for ceiling wall installations.

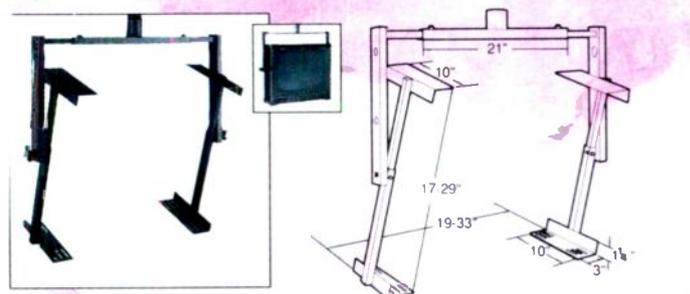


LTM-1 is a wall mount. It will accommodate most 19" to 27" TV receivers. Adjusts from 16" to 30" width. TV rests on 3" wide 1/8" steel supports which are slotted. Super bond adhesive strips and safety strap included. TV bolts, bonds and straps to mount. Maximum forward tilt 10° and 180° swivel capability. Mount to wood, brick or concrete surfaces. Installations vary; therefore, mounting hardware is not included. Ships in 1 carton. Weight 17 lbs. . . . **\$150**

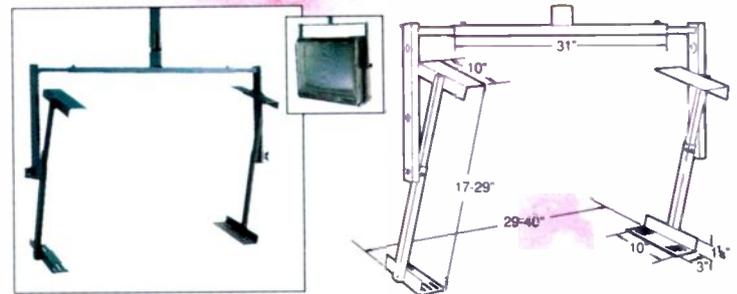


LTM-2 is a ceiling or wall mount. It will accommodate most 19" to 27" TV receivers. Ac from 19" to 33" width and from 16" to 30" height on 2" increments. TV rests on 3" wide steel supports which are slotted. Super bond adhesive strips included. TV bolts and bon mount. 10° maximum forward tilt recommended, 360° swivel capability. Select the Luxor or ceiling mounting bracket suitable for your installation. Fastens to 1½" N.P.S. threaded for ceiling installation. Pipe provided by installer. Ships in 1 carton. Weight 21 lbs. . . .



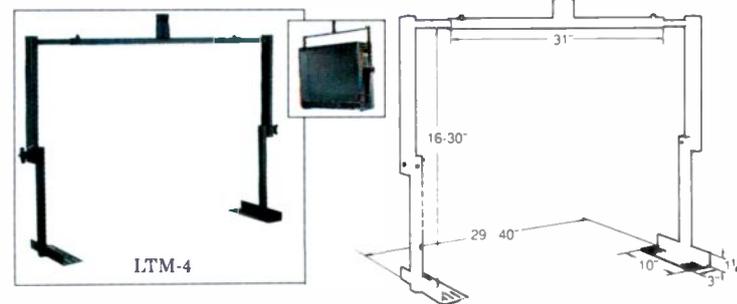


LTM-2 is a ceiling or wall mount having the same features as the LTM-1 model. In addition, it has an adjustable clamp grip system. TV rests on 3" wide 1/8" steel supports which are slotted and secured by the same 3" wide support at the top which clamps the TV in position. Super adhesive strips included. This mounting system is recommended for maximum security and stability where a forward tilt greater than 10° is required. It adjusts from 19" to 33" width and 17" to 29" in height on 2" increments. Select the Luxor wall or ceiling mounting bracket for your installation. Fastens to 1/2" N.P.S. threaded pipe for ceiling installation. Pipe provided by installer. Ships in 2 cartons. Wt. 30 lbs. **\$330**



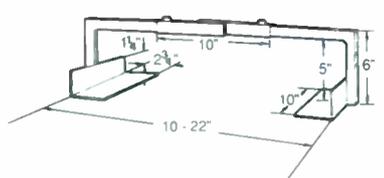
LTM-5 is a ceiling or wall mount. It is a larger version of the LTM-3 having the same features. It will accommodate most 27" to 35" TV receivers. Adjusts from 29" to 40" width and from 17" to 39" height on 2" increments. Select the Luxor wall or ceiling mounting bracket suitable for your installation. Fastens to 1/2" N.P.S. threaded pipe for ceiling installations. Pipe provided by installer. Ships in 2 cartons. Wt. 31 lbs. **\$340**

LTM-3 is a ceiling or wall mount. It is a larger version of the LTM-2 having the same features. It will accommodate most 27" to 35" TV receivers. Adjusts from 29" to 40" width and from 16" to 39" height on 2" increments. Select the Luxor wall or ceiling mounting bracket suitable for your installation. Fastens to 1/2" N.P.S. threaded pipe for ceiling installations. Pipe provided by installer. Ships in 1 carton. Wt. 22 lbs. **\$240**

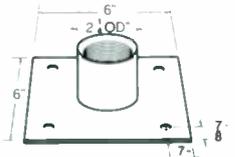
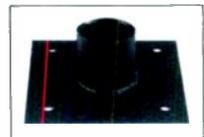


Accessories

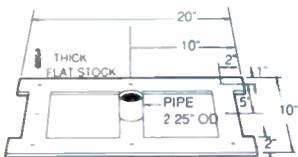
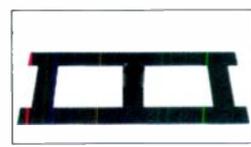
Luxor offers a variety of mounting plates and arms to provide for a safe, secure ceiling or wall installation. These options allow installing mounts on wood, brick or concrete surfaces. Installations vary; therefore, mounting hardware is not included. All accessories shipped via UPS.



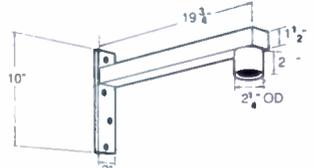
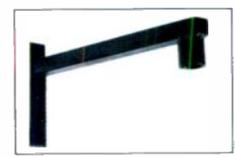
VCR-1 is a VCR bracket which may be fitted to any Luxor TV mount. Adjusts from 10" to 22" width to accommodate any front loading recorder. VCR rests on 3" x 10" brackets. Super bond adhesive secures VCR to brackets. Swivels independently of TV mount. All mounting hardware included. Ships in 1 carton. Wt. 11 lbs. **\$80**



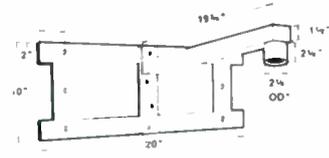
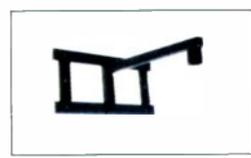
CC-1 is a ceiling plate for drop height installations intended for mounting on concrete slab, beam or other steel structure. Screw in coupling is arc-welded to 3/8" steel plate. Mount fastens to 1/2" N.P.S. threaded pipe. Three lengths of pipe available, order separately. Wt. 3 lbs. **\$60**



CC-2 is a heavy-duty joist ceiling mounting plate for installations over plaster board or other material covering ceiling joists. Screw in coupling is arc-welded to 1/8" steel plate. Mount fastens to 1/2" N.P.S. threaded pipe. Three lengths of pipe available, order separately. Wt. 15 lbs. **\$80**



MW-1 is a single-stud, wall mounting arm. It is arc-welded and constructed of 3/8" steel plate and 1-1/2" diameter 1/2" steel tube. Complete with coupling for fitting to mount. Wt. 9 lbs. **\$80**



LTMW-2 is a heavy-duty, double stud, wall mounting arm. Recommended for receivers weighing more than 100 lbs. It is arc-welded and constructed of 3/8" steel plate and 11-gauge 1/2" steel tube. Complete with coupling for fitting to mount. Wt. 22 lbs. **\$155**



FFA-3



FMA-2



MMA-1

FFA-3 is a heavy-duty, 1 1/2" N.P.S. coupling/coupling adaptor. Adaptor created to allow smooth and safe axis turning at the 1/2" coupling point. 1/4" thick steel plate is welded to each half of the swivel plates, then milled to ensure flatness of the mating surfaces. The two surfaces are then secured together by an 8" point, hard steel, 1/2" x 1 3/4" bolt and self-locking nut. Designed to support weights up to 275 lbs. Wt. 2 lbs. **\$70**

FMA-2 Same as above but 1 1/2" pipe/coupling adaptor. Wt. 2 lbs. **\$67**

MMA-1 Same as above but 1 1/2" pipe/pipe adaptor. Wt. 2 lbs. **\$65**



CCA-4



CPA-5

CCA-4 is a "C" clamp with coupling monitor/speaker mount adaptor, created to allow a quick and safe method of "truss type" mounting of the popular Luxor 1 1/2" N.P.S. yoke mounting systems. The "C" clamp portion of the adaptor is constructed on 1/4" steel capable of supporting weight up to 275 lbs. The mouth of the clamp will accept up to a 2" diameter pipe with an overhanging back lip for safety. Both the 1 1/2" coupling and 1 1/2" pipe models are mated to their "C" clamps with "8" point, 1/2" x 1 3/4" hard steel bolts and self-locking nuts. These adaptors make "quick work" out of installing Luxor monitor and speaker 1 1/2" yoke mounts for both permanent and temporary installations. Wt. 3 lbs. **\$77**

CPA-5 Same as above but "C" clamp with pipe. Wt. 3 lbs. **\$75**



LTM-RB

LTM-RB is a heavy-duty retaining bracket. Provides additional security to your valuable equipment. Fits all Luxor mounting systems. (Set of 2) Wt. 4 lbs. **\$20**

P-4, P-10 and P-24 are various lengths of pipe available for ceiling installations. Pipe is threaded at both ends and measures 1 1/2" N.P.S. Black powder coat finish. P-4 measures 4", Wt. 2 lbs. **\$8**. P-10 measures 10", Wt. 3 lbs. **\$12**. P-24 measures 24", Wt. 4 lbs. **\$16**



MOBILE VIDEO CONSOLES

- Wide variety of models available to accommodate any size components.
- Heavy gauge welded steel cabinets finished with baked on enamel.
- Quiet and easy rolling 4" ball bearing swivel casters, two with locking brake.

- Locking wood grain doors.
- 3-outlet 15' cord with U.L. listed circuit breaker.
- Available for immediate shipment.

Monitor compartment size is 27 1/4" W x 22" D x 20 7/8" H.

NEW



PS-300

PS-300 A video console for basic systems. Has two stationary, adjustable shelves. Lower cabinet allows for tape and equipment storage. 24 3/8" W x 22" D x 61 1/4" H. Wt. 104 lbs. **\$514**

PS-500 A video console with one fixed and one roll-out shelf. 29 1/4" W x 23" D x 56" H. Wt. 115 lbs. **\$967**

PS-510 A video console with one fixed monitor shelf, one roll-out shelf and one fixed tape storage shelf. 29 1/4" W x 23" D x 56" H. Wt. 173 lbs. **\$1006**

PS-520 A video console with one fixed and two roll-out shelves. 29 1/4" W x 23" D x 56" H. Wt. 191 lbs. **\$1057**

PS-530 A video console with one fixed and three roll-out shelves. 29 1/4" W x 23" D x 56" H. Wt. 209 lbs. **\$1140**

PS-500S A video console with one fixed monitor shelf and one roll-out shelf. 29 1/4" W x 23" D x 56" H. Wt. 155 lbs. **\$967**

PS-520S A video console with one fixed and two roll-out shelves. 29 1/4" W x 23" D x 56" H. Wt. 191 lbs. **\$1057**

PS-500SD A video console with one fixed monitor shelf, one roll-out shelf and one video tape storage drawer. 29 1/4" W x 23" D x 56" H. Drawer installation required. Wt. 180 lbs. **\$1050**

PS-510D A video console with one fixed monitor shelf, one stationary and roll-out shelf and one video tape storage drawer. 29 1/4" W x 23" D x 56" H. Wt. 198 lbs. **\$1089**

All Studio Series monitor compartments are 31 7/8" W x 23 1/4" D x 21 3/4" H.

SS-780 A video console for large screen monitor systems. Upper cabinet has one monitor shelf and one roll-out shelf. Lower cabinet has one shelf for tape and equipment storage. 34" W x 26" D x 77" H. Wt. 276 lbs. **\$1512**

PS-762 Luxor's top of the line video console has one fixed monitor shelf and one fixed tape storage shelf. Shown with optional PSS roll-out shelf! **\$86** Order separately. 29 7/8" W x 22 1/2" D x 66 3/8" H. Wt. 161 lbs. **\$1246**

PS-762D A video console for a two-recorder duplicating system. Has one fixed monitor shelf, two fixed equipment shelves and video tape storage drawer. Drawer installation required. 22 7/8" W x 22 1/2" D x 66 3/8" H. Wt. 195 lbs. **\$1329**

PS-765 A video console for a three-recorder duplicating system. Has four fixed shelves. 29 7/8" W x 22 1/2" D x 66 3/8" H. Wt. 185 lbs. **\$1281**



SS-800

SS-800 A video console for a four-recorder duplicating system. Upper cabinet has one monitor shelf and one roll-out shelf. Lower cabinet has three roll-out shelves. Shown with optional SST walnut top **\$77**. Order separately. 34" W x 26" D x 77" H. Wt. 314 lbs. **\$1733**

SS-800D A video console for a three-recorder duplicating system. Upper cabinet has one monitor shelf and one roll-out shelf. Lower cabinet has two roll-out shelves and one video tape storage drawer. Drawer holds approximately 31 VHS or 21 3/4" tapes. 34" W x 26" D x 77" H. Wt. 319 lbs. **\$1815**

Shown with optional SST walnut laminate top. Order separately **\$77**.

PS-765D

PS-765D A video console for a recorder duplicating system. Has one monitor shelf, three fixed equipment shelves and one video tape storage drawer. (Drawer installation required). 29 7/8" W x 22 1/2" D x 66 3/8" H. Wt. 208 lbs. **\$1281**



PS-500S



ES-45W

ES-45W Wood laminate console with locking doors. One roll-out shelf for a video recorder. 4" casters and electric. Available in oak or walnut. Assembly required. 29 3/4" W x 21 1/4" D x 48" H. Wt. 149 lbs. **\$672**

ES-45WD Same as above with video tape storage drawer. Drawer holds approximately 31 VHS tapes. Available in oak or walnut. Assembly required. 29 3/4" W x 21 1/4" D x 45" H. Wt. 174 lbs. **\$738**



ES-60W

ES-60W Wood laminate console with locking doors. One roll-out shelf for a video recorder. 3" casters and electric. Available in oak or walnut. Ships fully assembled. 28 3/4" W x 27 3/4" D x 58 1/4" H. Wt. 214 lbs. **\$974**

ES-60D Same as above with video tape storage drawer. Drawer holds approximately 31 VHS tapes. Available in oak or walnut. Drawer installation required. Wt. 239 lbs. **\$1041**



ES-30W

ES-30W Wood laminate console with locking doors. Video recorder shelf is slanted. 2" casters and electric. Available in oak or walnut. Assembly required. 26" W x 19 3/4" D x 30" H. Wt. 70 lbs. **\$320**



SS-402

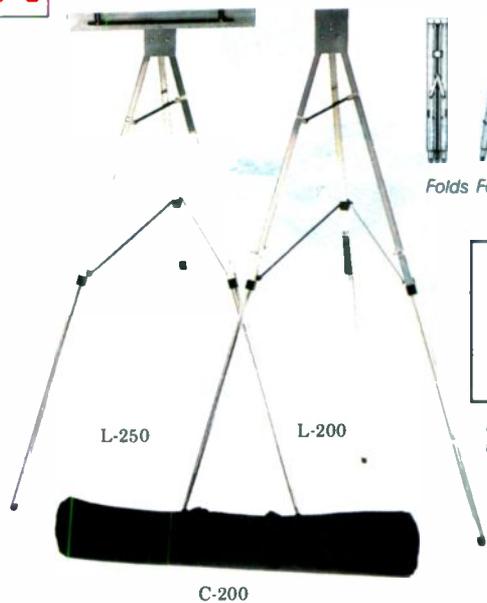
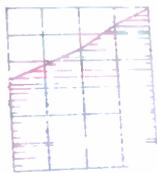
SS-402 A video console for large screen monitor systems. Has one monitor shelf and one roll-out shelf. 34" W x 26" D x 40" H. Wt. 148 lbs. **\$823**



SS-403

SS-403 A video console for a three-recorder system. Has three roll-out shelves. 34" W x 26" D x 40" H. Wt. 166 lbs. **\$1006**

SALES



Folds For Compact Storage



Adjustable chart holder



Model L-150 has adjustable chart holder and leg bar

L-75

L-250

L-200

C-200

C-200 Nylon carrying case accommodates Models L-200 and L-250. Wt 5 lbs. **\$45**

L-150

L-100

Portable aluminum economy poster easel. Chart holder and easel pad hanger. Push button leg release allows for easy height adjustment and compact storage size. 68"H. Weight 3 lbs. **\$93**

L-200 Portable aluminum poster easel. with fold-out adjustable chart holder. Push button leg release allows for easy height adjustment and compact storage size. 68"H. Wt 5 lbs. **\$108**

L-250 Same as L-200 with quick release easel pad clamps. 68"H. Wt 12 lbs. **\$152**

L-150 Heavy-duty hardwood poster easel. Solid mahogany A-frame construction with a satin finish. Adjustable chart-holder. Folds flat for storage. 65"H. Assembly required. Wt 11 lbs. **\$72**

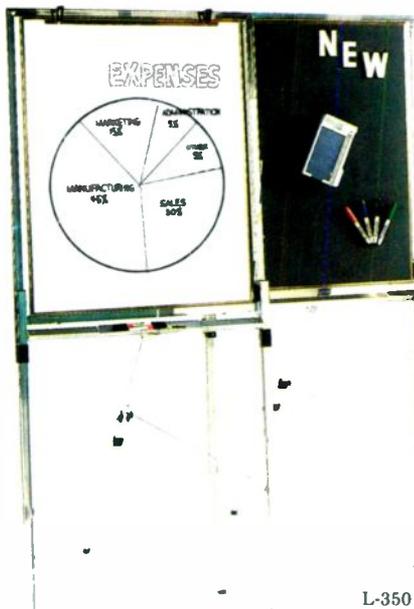
L-100 Hardwood poster easel constructed of solid mahogany with a satin finish. Lightweight yet sturdy. 65"H. Assembly required. Wt 5 lbs. **\$33**



L-300 Lecturer's pad/projection easel features aluminum tubular frame, a white board surface which can be used with dry erase markers or for a slide presentation. Includes 24" marker tray and will accommodate easel pad. Push button leg release allows for easy height adjustment and compact storage size. Floor or table top application. 72"H. Wt 15 lbs. **\$218**



C-300 Water repellent nylon carrying case will accommodate Models L-300 and L-350. Wt 10 lbs. **\$65**



L-350 Lecturer's pad/projection easel features aluminum tubular frame, a white board surface which can be used with dry erase markers or for a slide presentation. Reverse side has a gray velcro surface. Floor or table top application. Folds flat for compact storage. 72"H. Wt 18 lbs. **\$303**



L-300



SALES

P-50-4-N

P-50-4-P



LX-50

P-50-4-N Package of 4 easel pads, 50 sheets each 27"W x 34"H. Choose news print or news print. Indicate N or P in ordering. Wt. 20 lbs. **\$62**

LX-50 Steel lectern with black finish. Tilts back on rear wheels for easy mobility. Ships assembled. 46 1/2"H. Wt. 43 lbs. **\$147**



LEP-50

Portable Endura Table

Complete with compact carrying case



LEP-50 Portable two-shelf audio visual table allows assembly at either 24" or 44". Includes carrying case with shoulder strap. Weight 20 lbs. **\$158**

LEP-E 20' U.L. and C.S.A. listed power cord and cord wrap bracket. Weight 6 lbs. **\$39**



HI-TECH COMPUTER WORKSTATIONS AND PRINTER STANDS



TL-24-35

TL-24-35 Workstation with two shelves. Specify black or gray frame 24"W x 30"D x 35"H. Assembly required. Weight 55 lbs. **\$255**



TL-24-28

TL-24-28 Workstation with two shelves. black or gray frame 24"W x 30"D x 28"H. A required. Weight 53 lbs.



TL-36-28

TL-36-28 Workstation with two shelves. Specify black or gray frame 36"W x 30"D x 28"H. Assembly required. Weight 68 lbs. **\$290**



TL-36-28

The top shelf of this Hi-Tech model provides a spacious work area while the lower shelf helps organize references and software.



TL-48-35

TL-48-35 Workstation with two shelves. black or gray frame 48"W x 30"D x 35"H. Assembly required. Weight 87 lbs.

TL-48-28 Workstation with two shelves. Specify black or gray frame 48"W x 30"D x 28"H. Assembly required. Weight 85 lbs. **\$357**



TL-24-54

TL-24-54 Computer center with four shelves. Specify black or gray frame. 24"W x 19"D x 50"H. Assembly required. Weight 84 lbs. **\$380**

TL-24-52 Computer center with two shelves. Specify black or gray frame 24"W x 19"D x 50"H. Assembly required. Weight 60 lbs. **\$290**

Accessories

<p>CHROME WIRE PRINT-OUT BASKET TL-PC for 24" wide models only. Attaches to printer shelf. Weight 3 lbs. \$48</p>	<p>SWING-OUT STORAGE BASKET TL-SB attaches to right leg tube only. Adjustable up/down on 1" increments. Measures 13" x 10 1/2" x 4". Wt 15 lbs. \$42</p>
<p>SWING-OUT PRINTER SHELF WITH BASKET TL-PS. Weight limit 20 lbs. Attaches to right leg tube only. Adjustable up/down on 1" increments. Measures 18" x 14" x 4". Weight 5 lbs. \$90</p>	<p>CHROME WIRE COPY HOLDER TL-CH1 attaches to upright tube at any shelf level on left or right side. For Hi-Tech computer workstation models TL-24-52 and TL-24-54 only. 12" x 10" W. 2 lbs. \$32 TL-CH2 same as above but for all other Hi-Tech workstations. Weight 2 lbs. \$32</p>



TL-24-52

Improve convenience by adding optional copy holder, storage basket or print-out basket.



TL-24-P4

TL-24-P4 Printer stand with four shelves. Specify black or gray frame. 24"W x 19"D x 37"H. Assembly required. Weight 74 lbs.

TL-24-P2 Printer stand with two shelves. Specify black or gray frame 24"W x 19"D x 30"H. Assembly required. Weight 50 lbs.

HI-TECH COMPUTER & TRAINING ROOM FURNITURE



TL-60-35

35 60" wide workstation with two shelves. Specify gray frame. Assembly required. 60"W x 30"D x 28"H. Wt. 103 lbs. **\$489**

NEW



TL-16-PS



TL-16-PS 22" wide printer stand with two shelves. Specify black or gray frame. Designed to fit under 35" Hi-Tech units and other selected models. Assembly required. Height 16". Weight 26 lbs. **\$142**

NEW



TL-60-28

TL-60-28 60" wide workstation with two shelves. Specify black or gray frame. Assembly required. 60"W x 30"D x 28"H. Wt. 100 lbs. **\$489**



TL-36-W



36-W 36" wide wheelchair workstation. Specify black or gray frame. Assembly required. Adjustable to 35" in 1" increments. 36"W x 30"D x 35"H. Wt. 54 lbs. **\$240**



TL-36-W Pictured with optional S-36 top shelf. Workstation provides a spacious work area for computer hardware while top shelf accommodates your monitor and software.



TL-48-W



TL-48-W 48" wide wheelchair workstation. Specify black or gray frame. Assembly required. Adjustable to 35" in 1" increments. 48"W x 30"D x 35"H. Wt. 66 lbs. **\$319**



TL-59-27



These workstations may be arranged to create a computer learning lab in any classroom area.

TL-59-27 Corner-cluster computer workstation with tubular steel construction and ebony granite melamine finish on shelves. Complete with adjustable leveler glides. Specify black or gray frame. Assembly required. 59"W x 35"D x 27"H. Wt. 62 lbs. **\$320**

HI-TECH AUDIO VISUAL TABLE

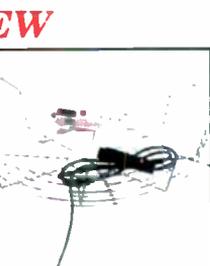


TL-37-TV



TL-37-TV Audio visual table with black tubular steel construction and ebony granite melamine finish on shelves. Complete with 2" furniture casters, two with brake. Assembly required. 24"W x 19"D x 37"H. Wt. 45 lbs. **\$245**

Accessories



EW **CORD ORGANIZER**
For model TL-59-27 cluster workstations. See above for location. Black color. Wt. 20 lbs. **\$65**

NEW **CPU BRACKET**
TL-CPU Adjustable bracket designed to hold your CPU unit. Attaches on inside or outside of Hi-Tech workstation. Black color. Wt. 91 lbs. **\$70**

NEW **MOUSE SHELF**
TL-MS For added work space, slide-out mouse shelf. Attaches on left or right side of table. Black color. Wt. 8 lbs. **\$38**

NEW **WIRE LEG SHELF**
TL-WS-24 Fits all 24" wide Hi-Tech workstations. Wt. 9 lbs. **\$48**
TL-WS-36 Fits all 36" wide Hi-Tech workstations. Wt. 10 lbs. **\$54**

- Lifetime warranty.
- Integral safety push handle is molded into top shelf.



- Molded cord wrap attaches around table leg and swings out for easy access.
- 3-outlet, 15 ft. surge suppressing electric assembly. U.L. & C.S.A. listed.
- 2" furniture casters, 2 with locking brake, 4" casters standard on some models.
- Assembly required.



LE-MST 24" wide Endura workstation with terminal platform, and leg room cutout. Specify putty, black or gray color. 24"W x 18"D x 35"H. Wt. 28 lbs. **\$176**

LE-MS 24" wide Endura workstation with leg room cutout. Specify putty, black or gray color. 24"W x 18"D x 26"H. Wt. 22 lbs. **\$147**



LE-MFP 24" wide Endura workstation with pull-out keyboard shelf and fixed printer shelf. Specify putty, black or gray color. 24"W x 18"D x 35"H. Wt. 38 lbs. **\$239**



LE-MPS 24" wide Endura workstation with two pull-out shelves. Specify putty, black or gray color. 24"W x 18"D x 33"H. Wt. 42 lbs. **\$271**

LE-MSS 24" wide Endura workstation with pull-out keyboard shelf. Specify putty, black or gray color. 24"W x 18"D x 33"H. Wt. 32 lbs. **\$202**



LEM-58 Workstation adjustable pull-out shelf. Chrome wire print-out base electric and 2" casters, 2 Specify putty, black or gray x 18"D x 52 3/4"H. Weight 4



LEM-32TS 32" wide Endura workstation with printer stand. Mobile printer stand stores under workstation and locks into position for safe, easy mobility and rolls out for convenient use. 2" casters, two with brakes. Specify putty, black or gray color. 32"W x 24"D x 36"H. Printer stand 24"W x 15 3/4"D x 14"H. Wt. 57 lbs. **\$346**

LEM-32S Same as above but without terminal platform. 32"W x 24"D x 27"H. Wt. 49 lbs. **\$303**



LEM-32T 32" wide Endura workstation with legroom cut-out and monitor platform. Complete with surge electric and 4" casters, 2 with brake. Specify putty, black or gray color. 32"W x 24"D x 36"H. Wt. 42 lbs. **\$262**

LEM-32 Same as above but without terminal platform. 32"W x 24"D x 27"H. Wt. 34 lbs. **\$219**



LEM-32K Interactive video cart with pull-out keyboard shelf. Complete with surge electric and 4" casters, 2 with brake. Specify putty, black or gray color. 32"W x 24"D x 32"H. Wt. 41 lbs. **\$290**



LEM-32FTO Interactive video cart with full top shelf, pull-out keyboard shelf and overhead projector stand. Complete with surge electric and 2" casters. Specify putty, black or gray color. 32"W x 24"D x 42"H. Printer stand 24"W x 15 3/4"D x 14"H. Wt. 69 lbs. **\$416**

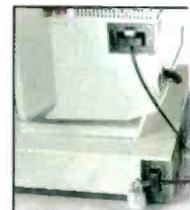


LEM-32FT Interactive video cart with full top shelf and pull-out keyboard shelf. Complete with surge electric and 4" casters, 2 with brake. Specify putty, black or gray color. 32"W x 24"D x 42"H. Wt. 54 lbs. **\$333**



LE-554TO Interactive video cart with overhead stand and pull-out keyboard shelf. Keyboard shelf can be positioned on either the side or front of cart. Complete with surge electric and 2" casters. Black color. 32"W x 24"D x 52"H. Printer stand 24"W x 15 3/4"D x 14"H. Wt. 82 lbs. **\$445**

Accessories



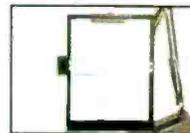
SECURITY SYSTEM LCK 3-foot cable lock. Two plates and lock.



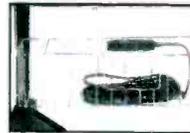
SIDE SHELF LES 12"W x 18"D. Fits side of 18"D workstation



SAFETY STRAP LSS 10" safety strap with buckle.

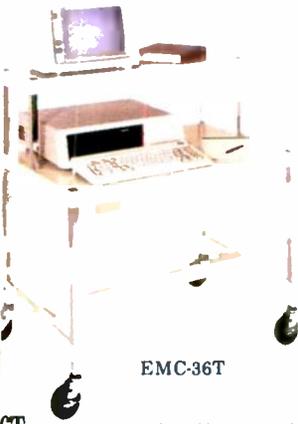


COPYHOLDER LE-CH Attaches to hand side of workstation. Black color

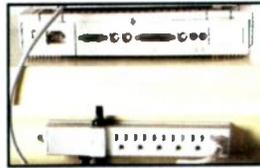


SUPPLY BASKET T-5 For use with 24" workstations.

- Steel finished with durable baked on silicone enamel.
- Chrome legs.
- Electric assembly.
- Large cable management tray.
- 4" ball bearing casters, two with locking brake.



EMC-36T



"S" models feature a 6-outlet, 20 foot surge suppressing electric assembly with remote on/off switch. U.L. listed.



EMC-36

6T All steel workstation with monitor platform. Monitor platform justable. Complete with 4" casters, 2 with brake and 3-outlet, 15' electric assembly. U.L. & C.S.A. listed. Putty or black color. Assembly required. 36"W x 24"D x 36"H. Wt. 56 lbs. **\$383**

6TS Same as above with U.L. listed 6-outlet, 20' surge protector regular electric assembly. Wt. 57 lbs. **\$429**

Accessories



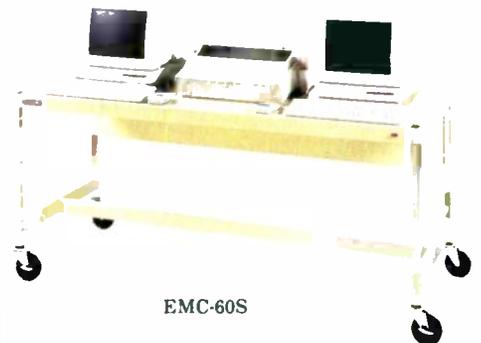
SECURITY SYSTEM
LCK 3-foot cable, two mounting plates and lock. **\$27**
LSO Optional two additional mounting plates. **\$11**



EMC-60T

EMC-36 All steel workstation. Complete with 4" casters, 2 with brake and 3-outlet, 15' electric assembly. U.L. & C.S.A. listed. Putty or black color. Assembly required. 36"W x 24"D x 27"H. Wt. 45 lbs. **\$337**

EMC-36S Same as above with U.L. listed 6-outlet, 20' surge protector in lieu of regular electric assembly. Wt. 46 lbs. **\$384**



EMC-60S

60T All steel workstation with monitor platform. Monitor height adjustable. Complete with 4" casters, 2 with brake and 3-outlet, 15' electric assembly. U.L. & C.S.A. listed. Putty or black color. 60"W x 24"D x 36"H. Wt. 80 lbs. **\$494**

60TS Same as above with U.L. listed 6-outlet, 20' surge protector in lieu of regular electric assembly. Wt. 81 lbs. **\$540**



SAFETY STRAP
LSS 10-foot safety strap with easy lock buckle. **\$12**



SAFETY BELT
LSB 8-foot strap with "J" hooks and easy lock buckle. **\$25**

EMC-60 All steel workstation. Complete with 4" casters, 2 with brake and 3-outlet, 15' electric assembly. U.L. & C.S.A. listed. Putty or black color. Assembly required. 60"W x 24"D x 27"H. Wt. 67 lbs. **\$421**

EMC-60S Same as above with U.L. listed 6-outlet, 20' surge protector in lieu of regular electric assembly. Wt. 68 lbs. **\$466**

Endura Printer Stands



OEPS-26



OEPS-24

- Lifetime warranty, molded shelves and legs. Won't stain, scratch, dent or rust.
- Retaining lip and sure grip safety pads prevent equipment from sliding.
- 2" furniture casters.
- Assembly required.



OEPS-32



OEPS-30

OEPS-26 Two-shelf printer stand. Includes heavy-duty chrome wire printout basket. Standard with 2" casters, two with locking brakes. Specify putty or black color. 24"W x 18"D x 26"H. Wt. 27 lbs. **\$120**

OEPS-24 Three-shelf printer stand for bottom feed printers. Includes chrome wire paper guide. Standard with 2" casters, two with locking brakes. Black color. 15 3/4"W x 24"D x 28"H. Wt. 25 lbs. **\$121**

OEPS-32 Three-shelf printer stand. Includes heavy-duty chrome wire printout basket. Standard with 2" casters, two with locking brakes. Specify putty or black color. 24"W x 18"D x 32"H. Wt. 32 lbs. **\$147**

OEPS-30 Four-shelf printer stand with chrome wire paper guide and 2" casters, 2 with locking brake. Specify putty or black color. Assembly required. 24"W x 18"D x 27"H. Wt. 30 lbs. **\$176**

OEPS-20 Three-shelf printer stand with chrome wire paper guide and 2" casters, 2 with locking brake. Specify putty or black color. 24"W x 18"D x 20"H. Wt. 20 lbs. **\$147**

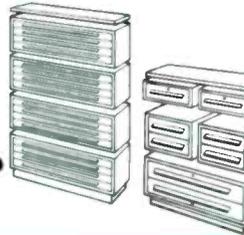


- Sound Filmstrips
- Cassettes
- Slides
- Filmstrips

COLOR CHOICES



Specify color choice adding letter suffix to model no:
 G = Gold
 B = Blue
 T = Tangerine
 P = Putty
 W = Walnut



HOW TO ORDER

MODEL NUMBERS

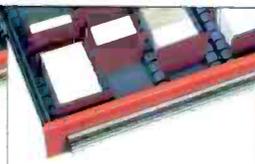
19 - 12 - 37 - G

19 1/2" Wide
 One 2 1/4" Drawer
 Insert Number
 Color

Accessories are ordered by separate Model No. as individual item.



Files individual slides in 2 1/4" drawers. Each cavity slot holds up to three ready-mount slides or a single glass-mount. Index and file slides in numbered slots. 636 up to 1908 slides per 39" drawer; 318 up to 954 per 19 1/2" drawer.
 Order code No. 37



Files 2" x 2" cardboard, glass or plastic mounted slides in groups in 2 1/4" drawers. 48 fiber dividers per 39" drawer; 24 per 19 1/2" drawer. 2,800 ready-mount or 1,400 glass-mount slides per 39" drawer; 1,400 ready-mounts or 700 glass-mounts per 19 1/2" drawer.
 Order code No. 63



For filmstrips. Individual filing in numbered compartments in 2 1/4" drawers. Storage capacity is 200 filmstrips per 39" drawer; 100 per 19 1/2" drawer.
 Order code No. 50

OPTIONS



RECESSED BASE raises systems providing recessed kick plate.
 19-RB Wt. 15 lbs. \$67
 17 1/2" w x 15 3/4" d x 3" h.
 19-RB-C Wt. 16 lbs. \$82
 With 2" casters, 5 1/2" h.
 39-RB Wt. 25 lbs. \$90
 36" w x 15 3/4" d x 3" h.
 39-RB-C Wt. 26 lbs. \$104
 With 2" casters, 5 1/2" h.



LOCKING EQUIPMENT STORAGE CABINET BASE. Specify color.
 19-BC-G Wt. 30 lbs. \$274
 With glides 19 1/2" w x 17 1/2" d 15 1/2" h.
 19-BC-C Wt. 32 lbs. \$285
 With 2" casters, 18" h.
 39-BC-G Wt. 64 lbs. \$423
 With glides, 39" w x 17 1/2" d 19 1/2" h.
 39-BC-C Wt. 66 lbs. \$434
 With 2" casters, 22" h.



WALNUT LAMINATE ACCESSORY TRAY
 19-T Wt. 11 lbs. \$39.
 For 19 1/2" w modules, 19 1/2" w 17 1/2" d x 7/8" thick.
 39-T Wt. 20 lbs. \$63.
 For 39" w modules, 39" w x 17 1/2" x 7/8" thick.



ACCESSORY LOCK ASSEMBLY
 For locking three or four draw modules. Field installed.
 19-L Wt. 1 lb. \$34.
 39-L Wt. 1 lb. \$34.



For filmstrips. Side-slip (Dewey) filing in 2 1/4" drawers. Storage capacity is 200 filmstrips per 39" drawer; 100 per 19 1/2" drawer.
 Order code No. 51



Files cassette/filmstrip sets (without boxes) side-by-side in numbered compartments in 2 1/4" drawers. 72 sets of cassettes and filmstrips per 39" drawer; 36 per 19 1/2" drawer.
 Order code No. 18



Files cassettes without boxes in individual slots in 2 1/4" drawers. Storage capacity is 144 cassettes per 39" drawer; 72 per 19 1/2" drawer.
 Order code No. 19



Files cassettes in boxes horizontally on side in 4" drawers. Includes six dividers to separate cassettes into groups. Storage capacity is 144 cassettes per 39" drawer; 72 per 19 1/2" drawer.
 Order code No. 72

19 Series Modules — 19 1/2" wide x 17 1/2" deep.

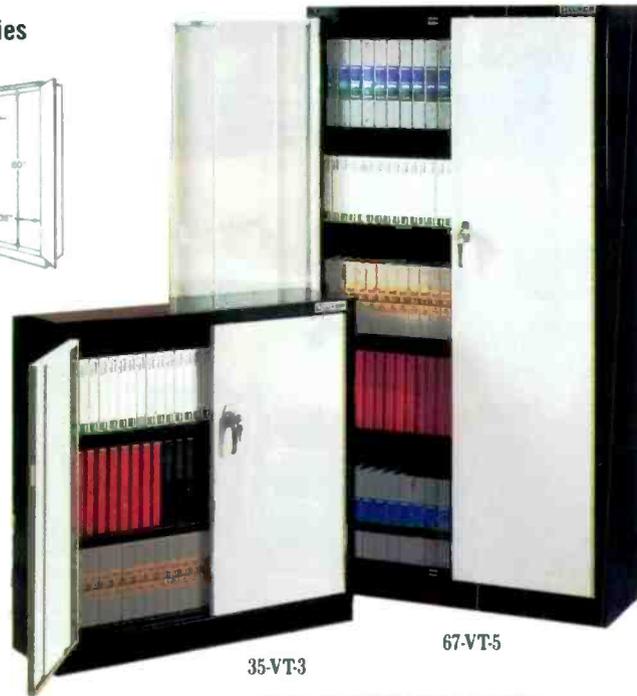
39 Series Modules — 39" wide x 17 1/2" deep.

MEDIA STORAGE		2 1/4" Drawer 3 1/2" H	2 1/4" Drawer 6" H	2 1/4" Drawer 10 3/4" H	4" Drawer 13 3/4" H	2 1/4" Drawer 8 3/4" H	2 1/4" Drawer 11 1/4" H	4" Drawer 13 1/2" H
Prices		\$200	\$280	\$413	\$468	\$619	\$722	\$894
Individual Slides	No. 37	No. 19-12-37 318 to 954	No. 19-22-37 636 to 1908	No. 19-42-37 1272 to 3816	—	No. 39-32-37 1908 to 5724	No. 39-42-37 2544 to 7632	—
Slide Groups	No. 63	No. 19-12-63 700 to 1400	No. 19-22-63 1400 to 2800	No. 19-42-63 2800 to 5600	—	No. 39-32-63 4200 to 8400	No. 39-42-63 5600 to 11,200	—
Individual Filmstrips	No. 50	No. 19-12-50 100	No. 19-22-50 200	No. 19-42-50 400	—	No. 39-32-50 600	No. 39-42-50 800	—
Dewey Filmstrips	No. 51	No. 19-12-51 100	No. 19-22-51 200	No. 19-42-51 400	—	No. 39-32-51 600	No. 39-42-51 800	—
Sound/Filmstrips	No. 18	No. 19-12-18 36 Sets	No. 19-22-18 72 Sets	No. 19-42-18 144 Sets	—	No. 39-32-18 216 Sets	No. 39-42-18 288 Sets	—
Cassettes w/o Boxes	No. 19	No. 19-12-19 72	No. 19-22-19 144	No. 19-42-19 288	—	No. 39-32-19 432	No. 39-42-19 576	—
Cassettes in Boxes	No. 72	—	—	—	No. 19-34-72 216 Box Groups	—	—	No. 39-34-72 432 Box Groups
Empty Drawers	No. 01	No. 19-12-01	No. 19-22-01	No. 19-42-01	No. 19-34-01	No. 39-32-01	No. 39-42-01	—

Video Tapes
Cassettes
Audio Tape Reels

• Records
• Audio Discs
• Floppy Discs

• Overhead
• Transparencys



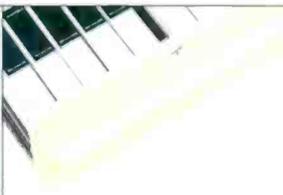
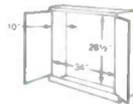
35-VT-3

67-VT-5

VIDEO TAPE SECURITY CABINET

File like books on shelves. Capacity is about 30 videocassettes per shelf depending on cassette dimension. Charcoal with gray color doors. Last digit in model no. indicates number of shelves.

35-VT-2	\$ 455	67-VT-5	\$1108
35-VT-3	\$ 517	67-VT-6	\$1196
67-VT-4	\$1023	67-VT-7	\$1296



Files 72 Beta or 60 VHS tapes in slip cases per 39" drawer; 36 Beta or 30 VHS per 19 1/2" drawer.
Order code No. 12

Files 60 video tapes in padded cases per 39" drawer; 22-1/2" per 19 1/2" drawer; 33 to 44-3/4" tapes per 39" drawer; 14 to 16-3/4" per 19" drawer.
Order code No. 14

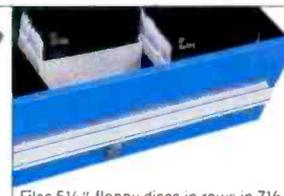


Files cassettes w/o boxes on end in individual numbered slots in 5" drawers. Numerical labels furnished. 320 per 39" drawer; 160 per 19 1/2" drawer.
Order code No. 60

Files cassettes in boxes on end in groups w/bookend followers in 5" drawers. 284 per 39" drawer; 142 per 19 1/2" drawer.
Order code No. 61



Files compact discs in rows in 7 1/2" drawers. Includes row dividers and followers. 240 per 39" drawer; 120 per 19 1/2" drawer.
Order code No. 85



Files 5 1/4" floppy discs in rows in 7 1/2" drawers. Includes row and mylar group dividers, followers and out file markers. 800 per 39" drawer; 400 per 19 1/2" drawer.
Order code No. 80



Files 5" and 7" audio tape reels in rows w/ dividers in 7 1/2" drawers. 175-5" or 135-7" per 39" drawer; 88-5" or 68-7" per 19" drawer.
Order code No. 65

19 Series Modules — 19 1/2" wide x 17 1/2" deep. 39 Series Modules — 39" wide x 17 1/2" deep.

MEDIA STORAGE	19 Series Modules — 19 1/2" wide x 17 1/2" deep.				39 Series Modules — 39" wide x 17 1/2" deep.			
	5" Drawer 6 1/2" H	5" Drawer 11 1/4" H	7 1/2" Drawer 9" H	Door Cabinet	5" Drawer 11 1/4" H	7 1/4" Drawer 9" H	Door Cabinet	
Prices	\$249	\$352	\$280	No. D \$274 No. DE \$328	\$715	\$468	No. D \$686 No. DE \$811	
For Video Tape No. 12	No. 19-15-12 30 VHS or 36 Beta	No. 19-25-12 60 VHS or 72 Beta	—	RECORD & TRANSPARENCY STORAGE for filing un-mounted and mounted overhead transparencies, disc records with or without jackets, and study prints. Locking doors. 19 1/2" w x 17 1/2" d x 17 1/2" h. Supplied with master index system. D Model has 4 compartments. D-E Model has 160 swing out envelopes.	No. 39-25-12 120 VHS or 144 Beta	—	RECORD & TRANSPARENCY STORAGE Locking doors. Door opening 35" x 15 1/2" with dust guard. 39" w x 17 1/2" d x 19 1/2" h. Available with glides or casters. Add suffix letter G or C to model no. Supplied with master index system. D Model has nine compartments. DE Model has nine compartments. DE Model has 320 swing out envelopes.	
For Video Tape No. 14	—	—	No. 19-17-14 22-1/2" or 16-3/4"		—	No. 39-17-14 44-1/2" or 32-3/4"		—
Cassettes w/o boxes No. 60	No. 19-15-60 160	No. 19-25-60 320	—		No. 39-25-60 640 cassettes w/o boxes	—		—
Cassettes in Boxes No. 61	No. 19-15-61 142	No. 19-25-61 284	—		No. 39-25-61 572 cassettes	—		—
Compact Audio Discs No. 85	—	—	No. 19-17-85 120		—	No. 39-17-85 240		—
Floppy Discs No. 80	—	—	No. 19-17-80 400 Add \$23		—	No. 39-17-80 800 Add \$23		—
Audio Tape Reels No. 65	—	—	No. 19-17-65 88-5" or 68-7" reels		—	No. 39-17-65 157-5" or 135-7" reels		—
Records And Overhead Transparencys No. DC	—	—	—		No. 19-D 225 Trans. or 100 LPs	—		—	No. 39-D 450 Trans. or LPs
Records And Overhead Transparencys No. DE	—	—	—	No. 19-D-E 160 Trans. or LPs	—	—	No. 39-DE 320 Trans. or LPs	



NEW DISPLAY RACKS

Luxor Literature Display Racks are designed for an attractive display of magazines, brochures, forms or any other literature needs. Luxor has several models to choose from for maximum floor, wall and desk top

- Available in light executive gray color.
- Pockets made from durable, injection molded plastic, mounted on tubular steel frames.
- Standard pocket size of 12 $\frac{3}{8}$ " W x 9 $\frac{1}{4}$ " H x 1" D.
- For easy mobility, several models come complete with 2" casters with locking brake.
- Assembly Required.

- LD-1** Two-pocket desk-top literature holder. 12 $\frac{3}{8}$ " W x 8" D x 13 $\frac{3}{4}$ " H. Wt. 3 lbs.
- LD-2** Eight-pocket free standing literature holder with base. 12 $\frac{3}{8}$ " W x 10" D. Wt. 17 lbs.
- LD-3** Twelve-pocket mobile literature holder with 2" casters, two with brake. 15 $\frac{1}{4}$ " W x 14 $\frac{1}{2}$ " H. Wt. 21 lbs.
- LD-4** Eight-pocket mobile literature holder with 2" casters, two with locking brake. 14 $\frac{1}{2}$ " W x 34 $\frac{1}{2}$ " H. Wt. 16 lbs.
- LD-5** Sixteen-pocket mobile literature holder with 2" casters, two with locking brake. 28 $\frac{3}{4}$ " W x 34 $\frac{1}{2}$ " H. Wt. 22 lbs.
- LD-6** Twenty-four-pocket mobile literature holder with 2" casters, two with locking brake. 42" D x 35" H. Wt. 27 lbs.
- LD-7** Sixteen-pocket mobile literature holder with 2" casters, two with locking brake and two hanging racks below. Unit will accommodate four hanging racks. 30 $\frac{1}{2}$ " W x 13" D x 31" H. Wt. 31 lbs.
- LD-PH** Additional paper/file hanger. 26 $\frac{1}{2}$ " W x 10 $\frac{3}{4}$ " D. Wt. 2 lbs.
- LD-8** Four-pocket wall-mounted literature holder. 12 $\frac{3}{4}$ " W x 4" D x 20" H. Wt. 15 lbs.

LIBRARY BOOK/TRUCKS

- Heavy gauge steel construction.
- Baked-on enamel finish.
- Patented knockdown construction.
- Patented big wheel assembly.
- 4" swivel casters.
- 8" big wheel models available.
- Assembly required.
- 11" between shelves, excluding

- MT-222** 6 slanted shelf truck provides three 7" deep shelves on each side. 28"W x 17"D. Wt. 66 lbs.
- MTB-222** With 8" big wheels on one end. Wt. 70 lbs.
- MT-12** 2 slanted and 1 flat shelf truck. One double-slanted 7" deep shelf on each side. Flat shelf inverted to assemble as a tray. 28"W x 17"D x 36"H. Wt. 44 lbs.
- MTB-12** With 8" big wheels on one end. Wt. 48 lbs.
- MT-111** 3 shelf utility truck. Assemble as three flat shelves or invert any shelf to assemble 28"W x 17"D x 46"H. Wt. 55 lbs.
- MTB-111** With 8" big wheels on one end. Wt. 59 lbs.
- MT-112** 2 slanted and 2 flat shelf truck. One double-slanted 7" deep shelf on each side. Flat shelf inverted to assemble as trays. 28"W x 17"D x 46"H. Wt. 53 lbs.
- MTB-112** With 8" big wheels on one end. Wt. 57 lbs.
- MT-2** 2 slanted shelf truck. Provides two 9 $\frac{1}{4}$ " deep shelves. 11 $\frac{3}{4}$ " between shelves. 2" casters x 13"D x 27"H. Ships set-up. Wt. 29 lbs.
- MT-11** 2 shelf utility truck. Assemble as flat shelves or invert any shelf to assemble as a tray. x 17"D x 36"H. Wt. 41 lbs.
- MTB-11** With 8" big wheels on one end. Wt. 45 lbs.
- MT-3** Big wheel book caddy. Three single-slanted shelves provide three 7 $\frac{3}{4}$ " deep shelves on each side of truck. Two 4" casters on front with 8" big wheels on back for easier mobility. 17 $\frac{1}{2}$ " W x 43 $\frac{1}{2}$ " H. Ships set-up. Wt. 33 lbs.
- MT-22** 4 slanted shelf truck provides two 7" deep shelves on each side of truck. 28"W x 17"D x 36"H. Wt. 47 lbs.
- MTB-22** With 8" big wheels on one end. Wt. 51 lbs.
- MT-122** 4 slanted and 1 flat shelf truck provides two 7" deep shelves on each side. Flat shelf inverted to assemble as a tray. 28"W x 17"D x 46"H. Wt. 63 lbs.
- MTB-122** With 8" big wheels on one end. Wt. 67 lbs.



Accessories



MTAF Book followers keep books stable on Luxor Book Trucks. Wt. 1 lb. \$9

LCB Caster bumpers prevent scuff of furniture, walls, doors and more. Set of four plastic bumpers for any book truck having 4" casters. Wt. 1 lb. \$

STANTRON VIDEO

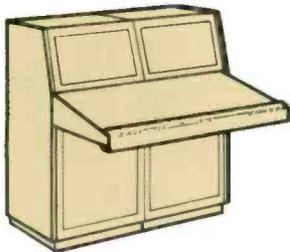
PREASSEMBLED CONSOLES, CABINETS, RACKS AND ACCESSORIES FOR THE VIDEO INDUSTRY



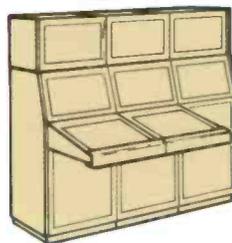
PREDESIGNED CONSOLES

New line of preassembled, modular consoles that include a wide range of up-to-the-minute colors with the choice of light or dark oak wood trim.

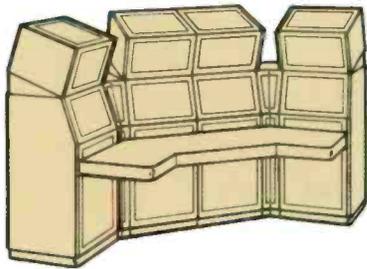
CONSOLES COMPLETELY MODULAR • STANTRON HAS A CONSOLE TO MEET THE REQUIREMENTS OF ALL SYSTEMS • PREASSEMBLED • WELDED FOR STRENGTH • TAPPED RAILS • CHOICE OF 22 COLORS



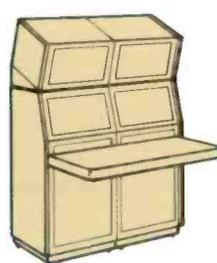
VCAS6019		\$1599.60
QTY.	CATALOG NO.	DESCRIPTION
2	VCSF30025	SLOPING CABINETS
2	VCSS30025	SIDE PANELS
2	VCP17	PANELS
2	VCP21	PANELS
1	VCSD44	SLOPING DESK



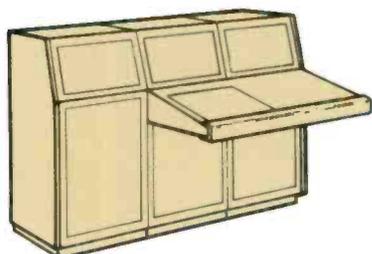
VCAS6003		\$2542.50
QTY.	CATALOG NO.	DESCRIPTION
3	VCSF30025	SLOPING CABINETS
2	VCSS30025	SIDE PANELS
2	VCEDS22PE	SLOPING DESKS
2	VCP21	LOWER PANELS
1	VCP28	LOWER PANEL
2	VCAS241022LS	CABINET ASSEMBLIES
1	VCAS241022	CABINET ASSEMBLY



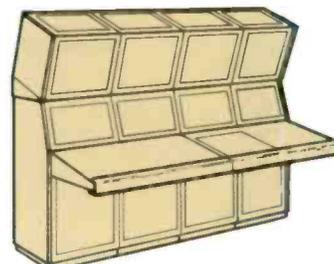
VCAS5025		\$5144.70
QTY.	CATALOG NO.	DESCRIPTION
4	VCSF30025	CABINETS
2	VCSF34525	WEDGE CABINETS
2	VCSS30025	SIDE PANELS
4	VCP31L	LOUVERED REAR PANELS
4	VCP21	BOTTOM PANELS
4	VCP21	FRONT PANELS
4	VCP3	FRONT PANELS
1	VCWD44525	WEDGE DESK
4	VCSB240022	SLOPING BASES
3	VCAS241022	CABINET ASSEMBLIES
1	VCAS241022-LS	CABINET ASSEMBLY
4 Sets	VCC3	3" CASTERS



VCAS5023		\$2307.00
QTY.	CATALOG NO.	DESCRIPTION
2	VCSF30025	CABINETS
2	VCSS30025	SIDE PANELS
2	VCP31L	LOUVERED REAR PANELS
2	VCP21	BOTTOM PANELS
2	VCP24	LOWER FRONT PANELS
1	VCEDF2	FLAT EDITOR DESK
2	VCSB240022	SLOPING BASES
1	VCAS241022-LS	CABINET ASSEMBLY
1	VCAS241022	CABINET ASSEMBLY
2 Sets	VCC3	3" CASTERS



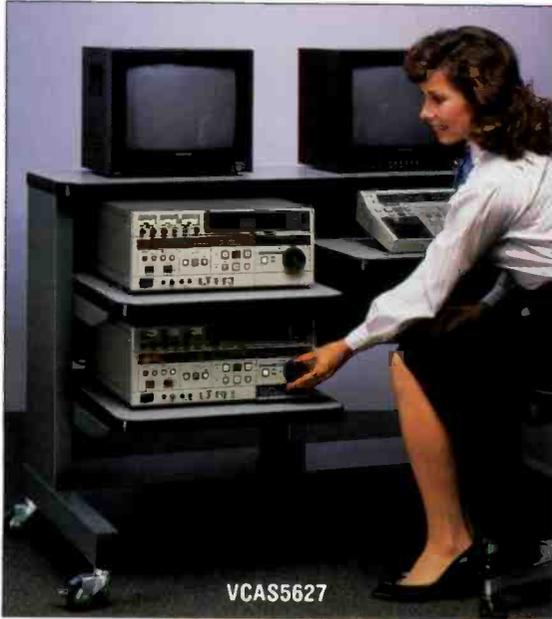
VCAS6002		\$2121.10
QTY.	CATALOG NO.	DESCRIPTION
3	VCSF30025	SLOPING CABINETS
1	VCSD44CL	SLOPING DESK WITH CUT OUT
2	VCSS30025	SIDE PANELS
1	VCP21	LOWER PANELS
1	VCP28	LOWER PANEL
3	VCP17	PANELS
1	VCP14	PANELS



VCAS6037		\$4093.30
QTY.	CATALOG NO.	DESCRIPTION
4	VCSF30025	SLOPING CABINETS
2	VCSS30025	SIDE PANELS
4	VCP1	PANELS
1	VCSD44	SLOPING DESK
1	VCSD44-CL	SLOPING DESK WITH CUT OUT
4	VCP21	LOWER PANELS
3	VCAS241722LS	FRAME ASSEMBLIES
1	VCAS241722	FRAME ASSEMBLY
4	VCSB240022	SLOPING BASES

STANTRON VIDEO MODULAR WORK STATIONS

PREASSEMBLED CONSOLES, CABINETS, RACKS
AND ACCESSORIES FOR THE VIDEO INDUSTRY



VCAS5627

ECONOMICAL CONSOLES FEATURE ADJUSTABLE SHELVES, EASY ACCESS FOR EQUIPMENT EXCHANGE.

- TOTAL MOBILITY.
- FIT THROUGH STANDARD DOORWAYS.
- CAN BE SET UP FOR AIB ROLL CASTERS INCLUDED
- FOR 1/2" and 3/4" FRONT LOADING VTR's



VCAS7001
\$1382.34

WORK STATIONS ILLUSTRATED HERE HAVE VARIOUS COMBINATIONS OF THE FOLLOWING:

- MONITOR BRIDGE
- SLIDING EDITOR SHELF
- FIXED EDITOR SHELF
- CASTERS



VCAS7003
\$1005.61



VCAS7002
\$972.98

• CONSULT DEALER FOR OTHER CONFIGURATIONS and PRICES



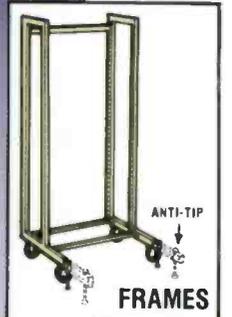
VCAS7004
\$898.82

• PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

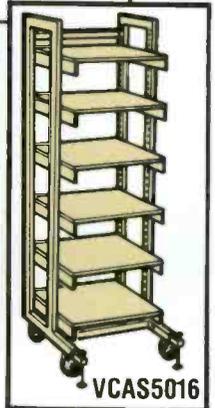
MOBILE VTR RACKS



VCAS5628



FRAMES



VCAS5016

These HIGH QUALITY RACKS feature the added safety of our exclusive ANTI-TIP™ extensions which should be used whenever a component is slid forward. SLIDING SHELVES feature POST-LATCH™ to further protect your equipment.

FRAMES

CATALOG NO.	HEIGHT	WIDTH	DEPTH
VCRK2723	27 1/2"	23"	15"
VCRK2731	27 1/2"	31"	15"
VCRK5123	51 1/2"	23"	15"
VCRK5131	51 1/2"	31"	15"
VCRK6323	63 1/2"	23"	15"
VCRK6331	63 1/2"	31"	15"
VCRK7523	75 1/2"	23"	15"
VCRK7531	75 1/2"	31"	15"

VCAS5016

QTY.	CATALOG NO.	DESCRIPTION
1	VCRK6323	RACK
6	VCF523	FIXED SHELVES
1 Set	VCC5	5 CASTERS

\$995.23

• CONSULT DEALER REGARDING OTHER MODELS, PRICES & SPECS.

DUPLICATOR RACKS



DESIGNED SPECIFICALLY FOR ALL DUPLICATORS

VCAS5634-1 \$1183.59

(16 RECORDERS)
INCLUDES:

- 8 SLIDING SHELVES
- 2 PLUG MOLDS
- 1 PAIR OF ADAPTER RAILS for 19" DISTRIBUTION EQUIP.

OVERALL HEIGHT - 87 1/4"
OVERALL WIDTH - 27 5/32"
OVERALL DEPTH - 18 5/8"

VCAS5634-2 \$1475.78

(24 RECORDERS)
INCLUDES:

- 8 SLIDING SHELVES
- 2 PLUG MOLDS
- 1 PAIR OF ADAPTER RAILS for 19" DISTRIBUTION EQUIP.

OVERALL HEIGHT - 87 1/4"
OVERALL WIDTH - 38 1/4"
OVERALL DEPTH - 18 5/8"

• CHOICE of 22 STANDARD COLORS •

• PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

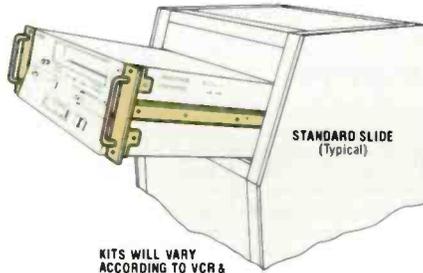
STANTRON VIDEO CATALOG has the FULL LINE SHOWING of all video products and accessories - Contact your dealer for FREE CATALOG and PRICE LIST.

ASTANTRON engineering staff is readily available to design racks and cabinets for your special applications.

PREASSEMBLED DELIVERY

VIDEO ACCESSORIES

RACK SLIDE KITS ALLDS EQUIPMENT SERVICE WITH MINIMAL EFFORT and DOWNTIME



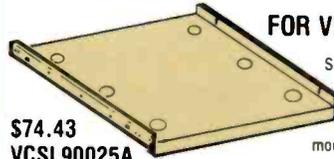
KITS WILL VARY ACCORDING TO VCR & MONITOR MODELS

CATALOG NUMBER	FOR VCR BRAND & MODEL NUMBER	PRICE
SMVP9000/ SMVD9600	SONY: BVE900/910, VP5020/7000, VP7020/7040, V07600/7630, VP9000/V09600	\$253.00
SMBVW75	BVW10/60, BVW65/70/75	\$229.25
SMPVW2800	PVW2600/2650, PVW2800	\$229.25
SMVP9800	VP5000/5030, V05600/5630, V05800/5852, V09800/9820/9850	\$229.25
SMAG7150	PANASONIC: AG7150/AG7355	\$196.00
SMAG7650	AG7650/AG7750	\$196.00
SM8RS622	JVC: BRS522/525, BRS622/822	\$229.25
CATALOG NUMBER	FOR MONITOR BRAND AND MODEL NUMBER	PRICE
SMPVM1340	SONY: PVM1340/41/42/44	\$143.75
SMPVM8040	PVM8040/41/44	\$143.75
SMBTS900Y	PANASONIC: BTS900Y/901Y	\$131.00
SMBTS1350	BTS1350/60/70	\$131.00
SMCT1381	CT1381/82/83	\$126.00
SMTMS9U	JVC: TMSU/TM91SU	\$147.28

• Full Suspension Ball Bearing Slides • Positive Stop at Full Extension • Locks In open position • Quick Disconnect, no tools required • Easily installed in Standard Racks • INCLUDES ALL MOUNTING HARDWARE and COMPREHENSIVE INSTRUCTIONS.

SLIDING SHELVES

FOR VIDEO EQUIPMENT



Support up to 75 lbs. Include positive stops. All sliding equipment includes ball bearing slides. Slides bolt to mounting angles. Finish: Black.

\$74.43
VCSL90025A

19" WIDE PANEL OPENING CATALOG NO.	24" WIDE PANEL OPENING CATALOG NO.	INSTALLS IN CABINET DEPTH	SHELF DEPTH
VCSL90022A	VCSL92422A	22 1/8"	19 1/8"
VCSL90025A	VCSL92425A	25 5/8"	22 5/8"
VCSL90030A	VCSL92430A	30 7/8"	27 7/8"

EDITOR-SLIDING WRITING SHELVES

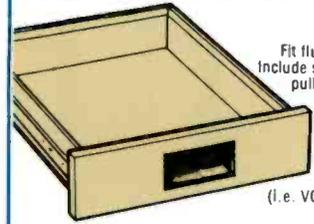
Pullout when writing surface is required • Laminate Top.



\$176.19
VCSS25

19" WIDE PANEL OPENING CATALOG NO.	24" WIDE PANEL OPENING CATALOG NO.	INSTALLS IN CABINET DEPTH	EXPOSED DEPTH WHEN PULLED OUT
VCSS22	VCSS2224	22 1/8"	16"
VCSS25	VCSS2524	25 5/8"	19 1/2"
VCSS30	VCSS3024	30 7/8"	24 3/4"

EQUIPMENT DRAWERS



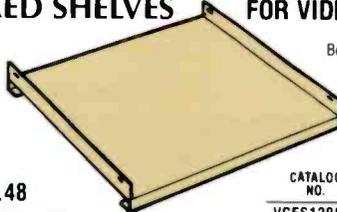
Fit flush into cabinets. Include slides and drawer pulls, 16 gauge steel front panels and 20 gauge steel drawer bodies. If locks are required add suffix LK (i.e. VCED1000325-LK).

VCED1000-3-25 \$108.63

USE WITH 19" WIDE PANEL OPENING CATALOG NO.	USE WITH 24" WIDE PANEL OPENING CATALOG NO.
VCED1000325	VCED1024325
VCED1000330	VCED1024330
VCED1000525	VCED1024525
VCED1000530	VCED1024530
VCED1000725	VCED1024725
VCED1000730	VCED1024730
VCED1000825	VCED1024825
VCED1000830	VCED1024830
VCED10001025	VCED10241025
VCED10001030	VCED10241030
VCED10001225	VCED10241225
VCED10001230	VCED10241230
VCED10001425	VCED10241425
VCED10001430	VCED10241430

FIXED SHELVES

FOR VIDEO EQUIPMENT



Bolt directly to mounting angles. Finish: Black.

\$34.48
VCES120025

CATALOG NO.	INSTALLS IN CABINET DEPTH
VCES120025	25 5/8"
VCES120030	30 7/8"

SUPPORTING ANGLES VIDEO EQUIPMENT

- Finish: CADMIUM PLATING
- 2" x 2"
- 12 GA STEEL

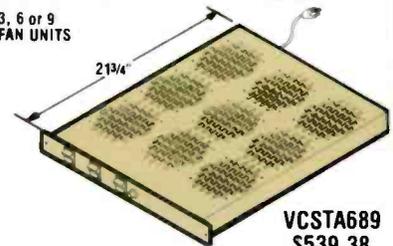
CATALOG NO.	INSTALLS IN CABINET DEPTH	LENGTH OF PIECE
VCCA22A	22 1/8"	17 1/8"
VCCA25A	25 5/8"	20 5/8"
VCCA30A	30 7/8"	25 7/8"



\$39.64
VCCA25A

LOW NOISE FAN TRAY

3, 6 or 9 FAN UNITS

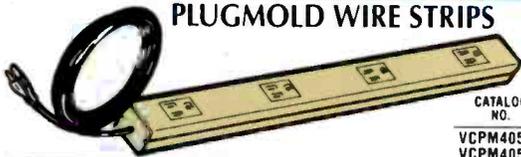


VCSTA689
\$539.38

110VAC, 60Hz operation, 80CFM Per Fan (free air). Switches and Circuit Breaker in front (each switch controls 3 fans); cord and plug at rear.

CATALOG NO.	DESCRIPTION
VCSTA683	3 FAN
VCSTA686	6 FAN
VCSTA689	9 FAN

PLUGMOLD WIRE STRIPS



CATALOG NO.	LENGTH	NO. OF OUTLETS
VCPM4050C	3'	6
VCPM4051C	6'	12

VCPM4051C
\$110.22

PHILLIPS HEAD PANEL SCREWS

For 5/8" deep formed panels. Screw length 1 1/2".
Nickel - CATALOG NO. VCH99
Black - CATALOG NO. VCH92

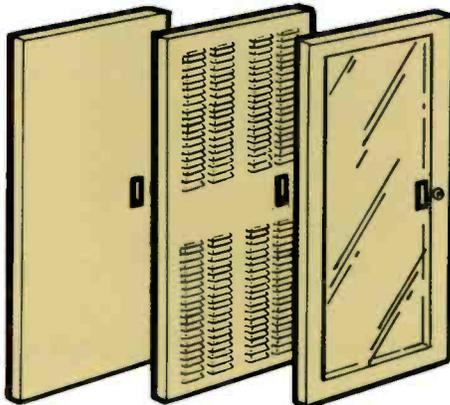


VCH100 \$27.69 / Per 100

Bright nickel plated or black zinc. Pressed on nylon washer protects finish.

For 1/8" thick flat panels. Screw length 5/8".
Nickel - CATALOG NO. VCH100
Black - CATALOG NO. VCH102

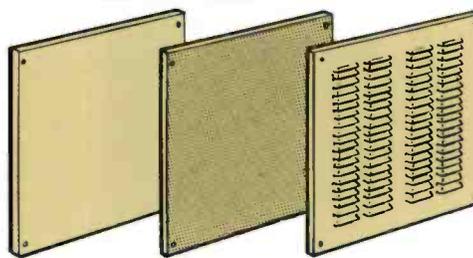
FACE MOUNTED DOORS



PLAIN LOUVERED PLEXIGLAS

VCD60017 \$92.98

FORMED PANELS



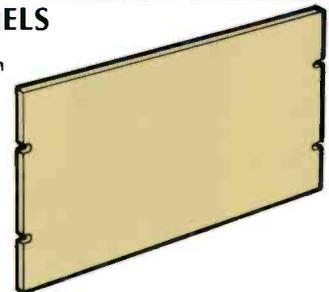
PLAIN PERFORATED LOUVERED

VCPI \$10.78

For front, rear, top and bottom openings in cabinets. All formed panels are 16 gauge steel. 5/8" flanges on all four sides. Fit into recess panel openings.

FLAT PANELS

Available in .125 thick aluminum or 12 gauge steel.



VCPA 4001
\$10.56

CONTACT YOUR DEALER FOR ADDITIONAL PRICES AND SPECS OF PANELS AND DOORS

STANTRON VIDEO CATALOG VC-R93 HAS THE FULL LINE SHOWING OF ALL VIDEO PRODUCTS and ACCESSORIES. CONTACT YOUR DEALER FOR CATALOG & PRICE LIST. A STANTRON ENGINEERING STAFF IS READILY AVAILABLE TO DESIGN RACKS and CABINETS FOR YOUR SPECIAL APPLICATIONS. PREASSEMBLED DELIVERY

All panels and doors are 16 gauge steel. Left or right hand hinged doors. They include a key lock with two keys and recessed handles. All doors are installed at the factory. Unless otherwise specified, all doors will be installed L.H. All short doors will be installed at the top of panel opening.

90%
all orders
shipped within
24 hours.

Video • Security • Multi-Media Furniture Systems



A Model K8552
\$4737.00

Video Furniture . . .



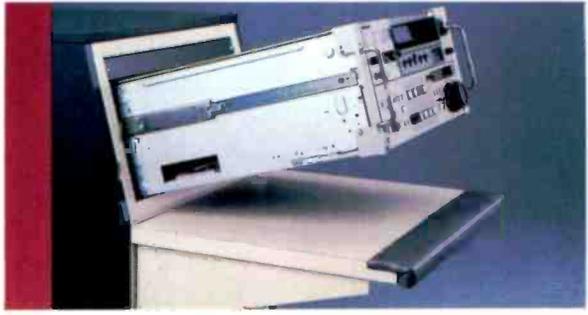
B Model E4111
\$1010.00

Multi-Media Workstations . . .



C Model K8459
\$5128.00

Security Furniture . . .



■ Rack Mount Slide Kits

Order separately. Not included in console prices.

- A** **Four Bay 10 1/2" Slope Console With 19 1/4" Top Modules** angled forward for easy viewing of monitors. This system displays a special mounting cradle for the edit controller and a shroud for rack mounting VTRs vertically. Dove Grey and Pearl Grey enamel finish.
Model K8552 complete. Shpg. wt. 737 lbs. **\$4737.00**
- B** **Model E4111.** Post production console with 18" D (457mm) x 24" W (610mm) monitor shelf—adjusts from 10" (254mm) to 15" (381mm) high on 1" (25mm) centers. Extension shelf makes room for a third VCR. Overall dimensions are 43 1/4"-48 1/4" H (1098-1225mm) x 28" D (711mm) x 48" W (1219mm). High Tec Black.
Model E4111 complete. Shpg. wt. 223 lbs. **\$1010.00**
- C** **Five Bay Surveillance and Monitoring Console.** Built to strict 19" EIA standards. Lower slope portion has 14" of rack space. The upper 10 1/2" racks are tilted down for easy viewing. Dove Grey and Pearl Grey enamel finish.
Model K8459 complete. Shpg. wt. 867 lbs. **\$5128.00**

- 1** **Model F8106** Rack slide kit. For use with Sony's "PVW" VTRs. Equivalent to Sony's RMM 110 kit.
Shpg. wt. 9 lbs. **\$235.00**
- 2** **Model F8521** Rack slide kit. For use with Sony's 5020, 7000 and 9000 series VTRs. Equivalent to Sony's RMM-507 kit.
Shpg. wt. 9 lbs. **\$260.00**
- 3** **Model F8214** Rack slide kit. For use with Panasonic's AG-7150 and AG-7350 VTRs.
Shpg. wt. 7 lbs. **\$160.00**
- 4** **Model F8101** Rack slide kit. For use with Sony's "BVW series" VTRs. Equivalent to Sony's RMM-100 kit.
Shpg. wt. 10 lbs. **\$235.00**

Custom Consoles With In-Stock Parts

Call us for additional Rack Kits.

Winsted

Video Furniture Systems

We'll customize a wood trimmed console any way you want it.



A Model K8615
\$3903.00

Wrap-around design reduces worker's fatigue while boosting efficiency. Modular design gives flexibility in rearranging the console as your needs change.

Space-Saving Custom Corner Consoles



B Model K8527
\$6795.00



C Model K8481
\$3706.00

A Four Bay Corner Console. Corner design for operator comfort and efficiency. 19" EIA rack mount shelves for control electronics and mixers. Removable side panels for convenient access to wire management and VTR maintenance. See Winsted's full line catalog for additional products and information.

Model K8615 Shpg. wt. 649 lbs. **\$3903.00**

B Blue With Light Oak Trim Custom Corner Console. Wraparound design keeps all the electronics within reach of a single operator. Customized wood trim creates an elegant, contemporary console whether the racks are old or new. Work shelf has a beveled oak edge for comfort and durability.

Model K8527 Shpg. wt. 821 lbs. **\$6795.00**

Security & Surveillance Console

C Four Bay Monitoring Station. This new low profile cabinet is perfect for a guard to observe both the monitors and surrounding areas. The cabinets are modular in design to allow for easy expansion or reconfiguration. Sloping portion has 10 1/2" (6U) of rack space. The upper vertical section has 5 1/4" (3U) of rack space for switching equipment and VCRs.

Model K8481 complete. Shpg. wt. 439 lbs. **\$3706.00**

Multi Media Workstations

Compact "mini" editing consoles for both 1/2" and 3/4" front loading VCRs

An economical series of compact editing consoles. All shelves adjust on 1" increments for editing efficiency and user comfort.



A Model E4116 \$732.00



NEW!
AVID
Desk



B Model E4774 \$1892.00

**TOASTER
DESK**



C Model E4742 \$2420.00



D Model E4990 \$799.00

A Compact, Mobile Editing System fits most VCRs. Top monitor shelf measures 18" D x 48" W. VCR shelves are 23" D x 20" W; edit shelf is 13" D x 24" W—adjusts in 1" increments. Includes glides and 3" casters for mobility. Baked on enamel finish in Black and Black Granite laminated top. Overall size 35 3/4" H x 28" D x 48" W.
Model E4116 Shpg. wt. 159 lbs. \$732.00

B A NEW Winsted Desk Top Workstation conceived for the AVID System. This custom workstation is perfectly suited for the Quadra 950 CPU and up to eight hard drives, all contained in the base cabinet. A large black work surface is 30" D x 72" W, with a recessed monitor well for ergonomic viewing. Black bumper edge provides durable user comfort. Adjustable monitor well fits up to 20" monitors on a 21 3/8" W x 20 1/2" D pan. Monitor pan can conform to the user with up to a 30° tilt. Table top space is provided for a keyboard and mouse. Elevated riser adjusts from 10"-17" high. The black riser top is 18" D x 72" W. Dove Grey baked enamel rack frame with black sides and modesty panel. Overall dimensions are 29" H x 72" W x 30" D.
Model E4774 Shpg. wt. 224 lbs. \$1892.00

C Extra Deep Dual Cabinet Edit Desk. Set up to fit most controllers. 49" (28U) of rack space below the work surface in Dove Grey cabinets allows ample space for rack mounting electronics. Three 19 1/4" (11U) vertical racks along the back edge of the work surface offer space for primary control access and monitors. Black Granite top with a black bumper edge. A File Drawer (Model 88324) is included with this desk. Overall dimensions: 50 13/16" H x 72" W x 48" D.
Model E4742 Shpg. wt. 529 lbs. \$2420.00

Computer Graphics Work Stations

A computer graphics furniture system that applies ergonomic solutions to everyday work place problems.

D Video Toaster Desk. Features three adjustable height (in 1" increments) equipment shelves and recessed monitor well for easy viewing without neck or eye strain. Monitor shelf is 16" W (406mm) x 18" D (457mm) and angle adjusts 10° to 15° for user comfort. Equipment shelves (3) are 20" W (508mm) x 23" D (584mm). Adjustable keyboard shelf is 23 1/2" W (596mm) x 10" D (254mm). Extra deep back panel includes a large wire management tray for no-mess cord control. Workstation overall is 48" W (1219mm) x 28" D (711mm) x 35 3/4" H (908mm)
Model E4990 Shpg. wt. 220 lbs. \$799.00

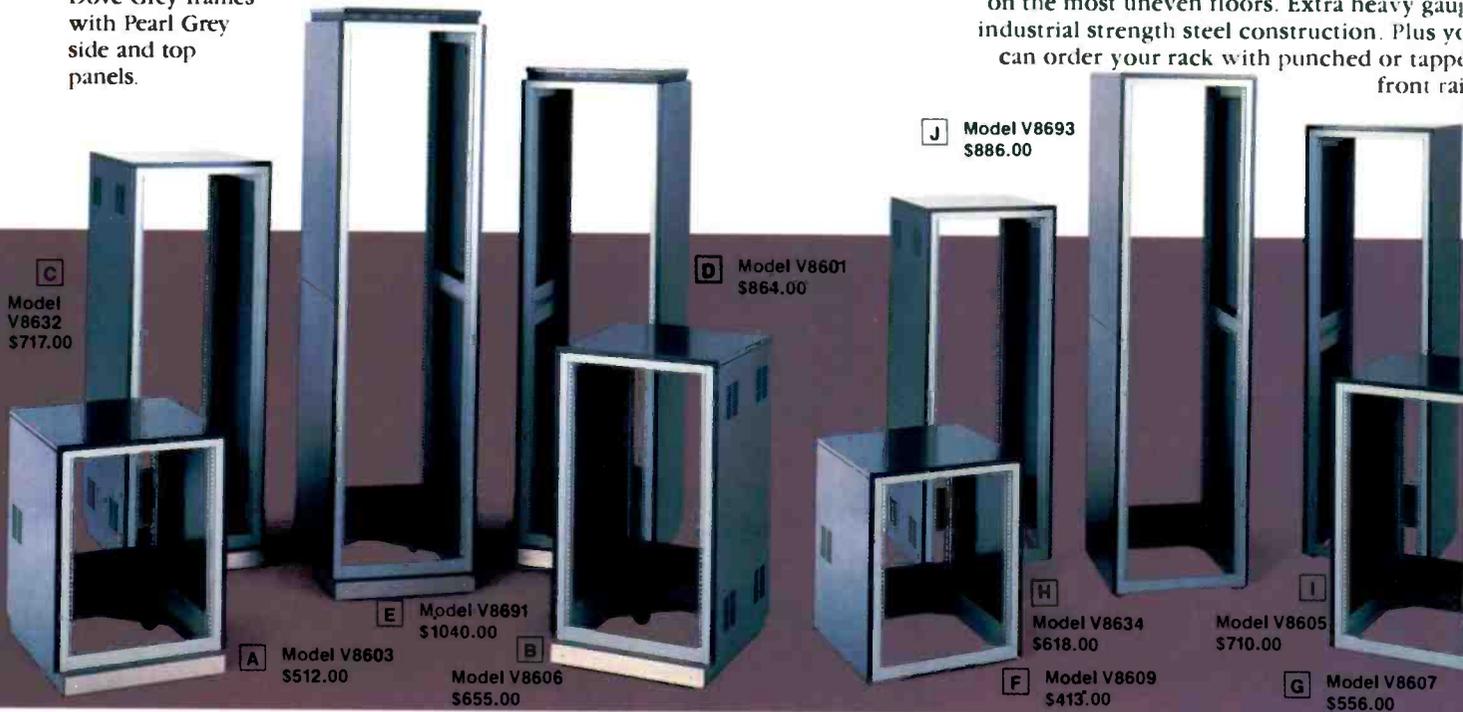
Winsted

Video Furniture Systems

90% of
all orders
shipped
in 24
hours.

Ruggedly constructed, totally adaptable electronic equipment cabinets. Featuring snap together instant assembly frames, designed to the industry standard of 19"W x 26"D. Open pedestal for cabling. Removable side panels. Some racks feature ventilated tops and open pedestals to keep electronics cool. Dove Grey frames with Pearl Grey side and top panels.

All Winsted rack cabinets have easy lift-off side panels for quick servicing or installation of electronics. Side panels are also vented to keep your valuable electronics cool. Levelers allow rack to be perfectly square even on the most uneven floors. Extra heavy gauge industrial strength steel construction. Plus you can order your rack with punched or tapped front rails.



C Model V8632 \$717.00

D Model V8601 \$864.00

J Model V8693 \$886.00

E Model V8691 \$1040.00

A Model V8603 \$512.00

B Model V8606 \$655.00

H Model V8634 \$618.00

I Model V8605 \$710.00

F Model V8609 \$413.00

G Model V8607 \$556.00

Vertical Equipment Cabinets

With removable side panels for installation and servicing convenience.

- A** 24½" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vents in the sides for cooling. Overall dimensions: 31½"H x 22⅞"W x 28"D.
Model V8603 Shpg. wt. 87 lbs \$512.00
- B** 35" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vents in the sides for cooling. Overall dimensions: 42½"H x 28"D x 22⅞"W.
Model V8606 Shpg. wt. 107 lbs \$655.00
- C** 56" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vents in the sides for cooling. Overall dimensions: 63"H x 28"D x 22⅞"W.
Model V8632 Shpg. wt. 146 lbs \$717.00
- D** 70" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vented top and open bottom for cooling. Overall dimensions: 78½"H x 28"D x 22⅞"W.
Model V8601 Shpg. wt. 198 lbs \$864.00
- E** 78¾" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vented top and open bottom for cooling. Overall dimensions: 87¼"H x 28"D x 22⅞"W.
Model V8691 Shpg. wt. 223 lbs \$1040.00

Economy Rack Cabinets

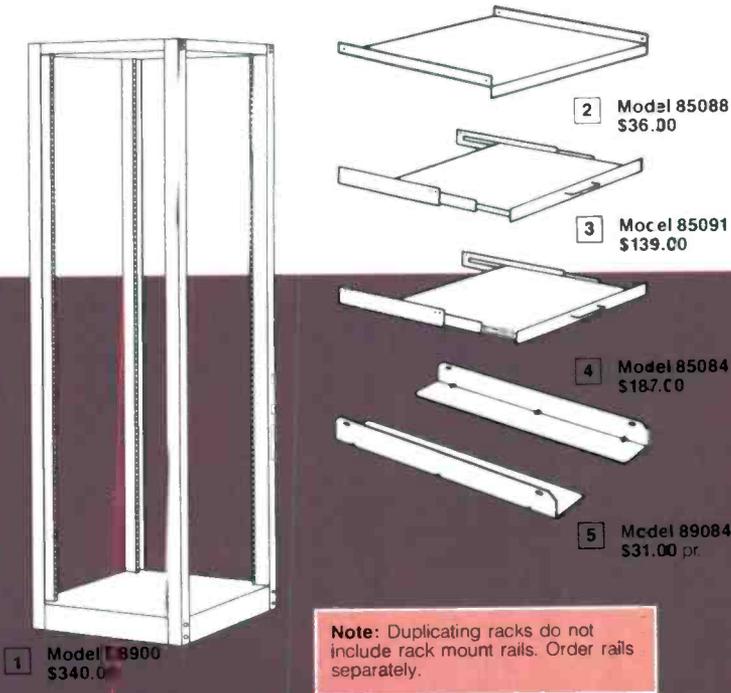
Designed for easy servicing and maintenance.

- F** 24½" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey baked enamel finish. Overall dimensions: 29½"H x 22⅞"W x 26"D.
Model V8609 Shpg. wt. 68 lbs \$413.00
- G** 35" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimension 40"H x 22⅞"W x 26"D.
Model V8607 Shpg. wt. 88 lbs \$556.00
- H** 56" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimension: 61"H x 22⅞"W x 26"D.
Model V8634 Shpg. wt. 127 lbs \$618.00
- I** 70" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimensions: 75"H x 22⅞"W x 26"D.
Model V8605 Shpg. wt. 173 lbs \$710.00
- J** 78¾" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimensions: 83¼"H x 22⅞"W x 26"D.
Model V8693 Shpg. wt. 193 lbs \$886.00

Stationary & Movable Dubbing Racks for 1/2" and 3/4" Formats

To Design Your Own Add-A-Rack System

To design your own Add-A-Rack duplication system (1) Bolt together two or more single frames and/or double frames without side panels (2) Choose the proper shelves for your needs—stationary, 13" pull-out or 20" full-suspension shelves (20" full suspension shelves are available for single width frames only and require an anti-tip base.) (3) Add side panels. Don't forget to order your options.



Note: Duplicating racks do not include rack mount rails. Order rails separately.



Design Your Own Duplicating System Components

- 1 **Model D8900.** Single width frame without sides or shelves.
Shpg. wt. 88 lbs. \$340.00
- 2 **Model 85088.** Stationary shelf.
Shpg. wt. 11 lbs. \$36.00
- 3 **Model 85091.** 13" pull-out shelf.
Shpg. wt. 16 lbs. \$139.00
- 4 **Model 85084.** 20" full-suspension shelf. When using this shelf anti-tip base model 89061 must also be used.
Shpg. wt. 19 lbs. \$187.00
- 5 **Model 89084.** 2" x 5" VTR support brackets. Holds duplicating machines and allows full air circulation.
Shpg. wt. 13 lbs. \$31.00 pr.

For full-line catalog of editing, production and dubbing consoles, tape and film trucks, film and videotape storage systems contact your Winsted dealer.

- A **Double Wide Duplication Center.** Set up to hold 16-1/2" duplicating machines. Open back allows easy access to the back of the machines for maintenance. Can be bolted together with another duplicating rack to form an in-line duplicating center. Overall size 78"H x 26"D x 42"W.
Model D8945 shpg. wt. 315 lbs. \$968.00



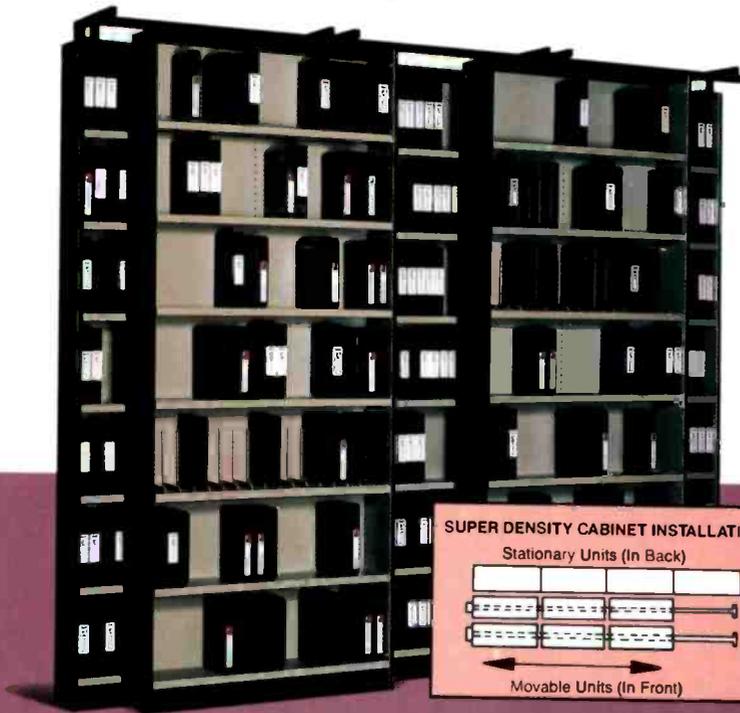
B Model D8912
\$779.00

- B **Single Bay Duplication Console.** Eight stationary shelves adjust in 1/2" increments to fit your VCRs. 14" rack rail included for rack mounting electronics. Overall size 78"H x 26"D x 23 1/8"W.
Model D8912
Shpg. wt. 224 lbs. \$779.00



C Model D8970
\$901.00

- C **22 Machine Dubbing Rack.** Top rack has 8 3/4" of rack space. Holds up to 22 compact duplication machines. Overall dimensions: 87 1/4" H x 21" D x 27 1/8" W.
Model D8970
Shpg. wt. 228 lbs. \$901.00



Movable Storage Systems

In a variety of designs and 5" to 30" depths to serve your special storage needs.

Winsted Shelf Storage System. Offers organization and storage for many tape or film storage systems. Choose from stock or custom shelving at affordable prices. All designs are completely flexible—can be adapted to a variety of configurations and setups to serve your special storage needs. What's more, Winsted shelving grows as your needs grow. Both stock and custom installations can be expanded, or relocated as your needs change.

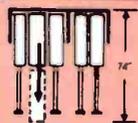
A "Super Density" Movable Cabinets. Offered in a range of cabinet depths for maximum storage in a limited space. Front row cabinets move side to side on floor tracks for easy access to rear storage. Ideal for "VHS," "BETA," U-matic and broadcast tape storage.

SUPER DENSITY CABINET INSTALLATION

Stationary Units (In Back)



Movable Units (In Front)

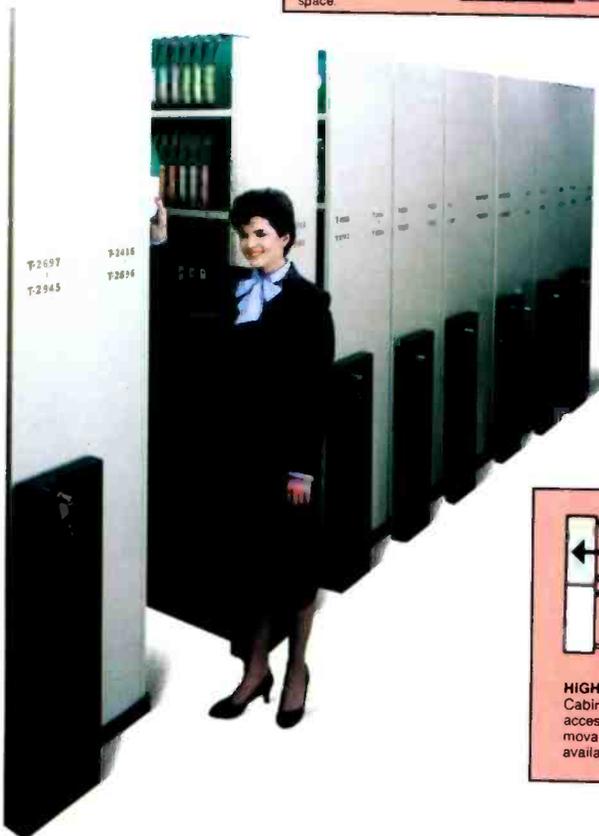
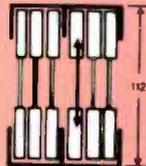


PULL-OUT CABINET INSTALLATION

WALK-IN CENTER AISLE COMBINATIONS

Cabinets are installed directly opposite each other and use a common track and center aisle. Units pull out from left or right to provide fast access to stored material. All steel construction.

HOW IT WORKS
Sliding cabinets, in two unit or three unit configurations, pull-out for time saving access to tapes. Ideal for previously unusable storage space.



B Space-Saving Pull-Out Cabinets. Ideal for "high access" tape storage. May be installed in room alcoves or set-backs. Save floor space, too, by eliminating unnecessary aisles. Gives you 100% storage space efficiency. Units bolt together for any length system. Cabinets pull-out effortlessly on a low-profile track.

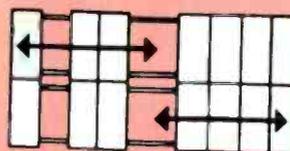
C High Capacity Tape Storage System. Affords compact storage in a limited space. Offered in a full range of cabinet depths to meet every storage need. Cabinets move laterally on low-profile rails for easy access to all records instantly, effortlessly.

Free Planning Service...

Let our analysts show you how you can save storage space and make your operations more efficient with Winsted's movable storage systems. Just call or write and let us know the quantity and type of tapes to be stored, along with dimensions of available space. We will analyze your storage space problems and provide a design for your particular operation.

Call or write to:

Winsted Tape Storage Design
10901 Hampshire Ave. So.
Minneapolis, MN 55438
800-447-2257



HIGH CAPACITY CABINET INSTALLATION
Cabinets roll on low-profile rails for easy access to all contents. Stationary, movable and movable with mechanical assist modes are available.

Open Shelf Tape Cabinets

For the organization & storage of all tape formats



C Model T7800
\$540.00



B Model T7700
\$483.00



D Model 70300
\$257.00



E Model T7100
\$414.00



A Model T7400
\$457.00

A **Model T7400.** Ideal videotape storage system for 3/4" U-Matic videocassettes. Eight inch deep cabinet holds 161 videocassettes. Order molded plastic dividers for videocassettes separately (Model 70983—see Optional Accessories). Seven shelves. Overall: 88"H x 8"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 120 lbs. **\$457.00**

B **Model T7700.** Video tape storage system holds 102 1" video tapes. Deeper 12" cabinet depth takes 1" broadcast tapes, 7"10 1/2" quad tapes and 3/4" U-Matic videocassettes. Order molded plastic dividers for video-cassettes separately. Six shelves overall: 88"H x 12"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 138 lbs. **\$483.00**

C **Model T7800.** Quad Tape Storage System. A 16" deep cabinet that is perfect for 2" quad and holds 55 tapes. Five shelves. Overall: 88"H x 16"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 185 lbs. **\$540.00**

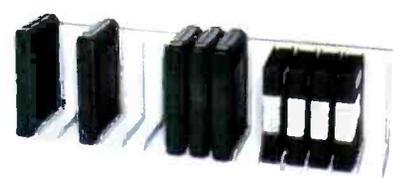
D **Model 70300.** Locking cabinet doors provide security for valuable master tapes. Doors fit all of the Winsted "T" series tape cabinets (except T7200 and T7500 models) and can be added to any existing "T" unit. Full length door hinge and two-point locking system. **Note:** Install cabinet doors only on cabinets that are securely fastened to a wall. Dimensions: 84 1/2"H x 1 1/4"D x 34 1/2"W. Beige baked enamel finish. Shpg. wt. 61 lbs. **\$257.00**

E **Model T7100.** Beta or VHS Storage. Holds 270 Beta tapes or 240 VHS. Ideal for 1/2" videocassette storage. Order molded plastic dividers for videocassettes separately (Model 70986). Overall: 88"H x 4 1/2"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 100 lbs. (VHS) **\$414.00**

Model T7104. (Not shown.) Cocoa Brown cabinet with Beige interior. Shpg. wt. 100 lbs. (BETA) **\$436.00**

Optional Accessories

1 **Model 70983.** Molded plastic divider insert (3/4" tapes) for use in T7400, T7600, or T7700. Shpg. wt. 3 lbs. **\$14.00**



2 **Model 70986.** Plastic cassette holder (1/2" tapes) for use in T7100 or T7104 cabinets. Shpg. wt. 2 lbs. **\$13.00**



Winsted

Video Furniture Systems

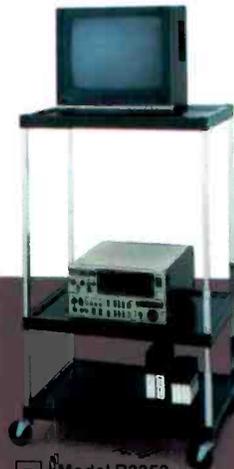
Mobile Video Centers

Mobile carts and consoles to organize and store your video equipment

Four new economy A/V carts with the same built-in quality you've learned to expect from all Winsted products. Choose from 34" or 54" heights. Shelves are 28 $\frac{5}{8}$ "W x 18 $\frac{5}{8}$ "D to fit most any electronics. Sturdy, strong, formed and welded steel construction for years of service. Four-inch swivel casters (two locking) for mobility. Textured baked on enamel gray finish with chrome post accents.



A Model R3303
\$212.00



B Model R3353
\$224.00



C Model R3405
\$415.00

90% of
all orders
shipped
in 24
hours.



D Model 37515
\$1066.00



E Model 37511
\$723.00

Medium Oak Large Security Cabinet. (Not shown.) Same features as our Model 37515 in a rich Medium Oak low pressure laminate with Black accents.

Model 37516 Shpg. wt. 295 lbs. . . . \$1067.00

E Dove Grey Executive Video Console. Dove Grey low pressure laminate with Slate Grey accents. Holds any 3/4" or 1/2" VTR machine and monitor up to 25". Convenient shelf stores tapes and other video accessories. VTR shelf pulls out for easy access to controls. Both the pullout and accessory shelf adjust in height in 1/4" increments. Locking cabinet doors for extra security swing back out of your way. Rear openings provide access to cords, cables and control adjustments. Swivel plate casters for effortless movement. Additional shelves or drawers can be mounted into this cabinet. Overall size: 33"H x 32"W x 27 1/4"D.

Model 37511 Shpg. wt. 115 lbs. . . . \$723.00

Medium Oak Executive Video Console. Same features as our Model 37511 in a rich Medium Oak low pressure laminate with Black accents.

Model 37512 Shpg. wt. 115 lbs. . . . \$724.00

For full-line catalog of editing, production and dubbing consoles, tape and film trucks, film and videotape storage systems contact your Winsted dealer.

All prices are subject to change without notification.

Executive Conference Room Consoles

D Dove Grey Large Security Cabinet. Dove Grey low pressure laminate with Slate Grey accents. Provides ample storage space for 25" monitors as well as front loading VTRs. Full length locking front doors. Plate casters for total mobility. Pullout and accessory shelves are adjustable in 1/4" increments. Extra shelves or drawers can be mounted in lower or upper section of this cabinet. Base compartment offers space for storage of tapes or other accessories. Overall size: 65"H x 32"W x 27 1/4"D.

Model 37515 Shpg. wt. 295 lbs. . . . \$1066.00

A 34" High Video Stand. Features three shelves to fit all of your electronics. 11 1/2" clearance between shelves leaves plenty of room for equipment access. Measures 34"H x 22"D x 32"W. Shpg. wt. 55 lbs.

Model R3303 \$212.00

B Portable Video Stand. Ideal for setup anywhere. Three shelves make a space for your monitor, VCR and accessories. Measures 54"H x 22"D x 32"W. Shpg. wt. 60 lbs.

Model R3353 \$224.00

C Low-Profile Video Center. Designed for smaller groups and individual use. Monitor shelf is set back slightly to permit easy access to VTR. Top shelf is 32"W x 15"D. Cabinet is 34 1/4"H x 32"W x 22"D. Wt. 91 lbs.

Model R3405 \$415.00

THE S-VHS EDITING VCR THAT LEAVES THE OTHERS STANDING STILL.



To appreciate some of Panasonic's S-VHS improvements, watch them in slow motion. Panasonic's AG-DS850 is a micro-processor-controlled S-VHS slow motion editing VCR that employs digital technology to provide higher quality slow motion images at the speeds most critical to viewers. It is further proof that Panasonic's S-VHS keeps getting better all the time.



AG-DS850 S-VHS VCR
WITH DIGITAL SLOW MOTION CAPABILITY

Panasonic
Broadcast & Television Systems Company

VIDEO IMAGES

Video Images proudly represents these equipment manufacturers.

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Channematic
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Cinema Products Company
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Comtek
Covid
Crestron

Crown
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CV Technologies
Da-Lite
Dataton AB
Diaquest
DPS/Digital Processing Systems
Draper
Electrohome
Electro-Voice
ELMO
EMI
Ensemble Designs
Evertz
Extron
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Microtime
Microwave Radio
Modular Console
Navitar AV
NEC
nVIEW
Ommimount
Orban
Panasonic
ParkerVision
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Winsted
YEM/Yamashita
Zero Stantron



VIDEO
I M A G E S

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FAX: (414) 785-9264

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Madison, WI 53716-2851
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