

BROADCAST

AN INTERTEC PUBLICATION

ENGINEERING

NOVEMBER 1992/\$20

Equipment Reference Manual

Includes:
Buyers Guide

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BENCHMARK COMMUN CORP
4700 SW 75TH AVE
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asked NBC, CBS, RTO 1992 Olympics (International Broadcast Center), Sunset Post, Video Post & Transfer, U.S. Air Force, Mills/James Productions, University of Arizona, The Family Channel, NEP and The United Nations.

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Burbank, CA 800-323-7372
New York City 800-328-1008

*NBC routing switcher
for 1992 Olympic
Summer Games in
Barcelona, Spain.*

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PESA CHYRON
GROUP

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CHYRON

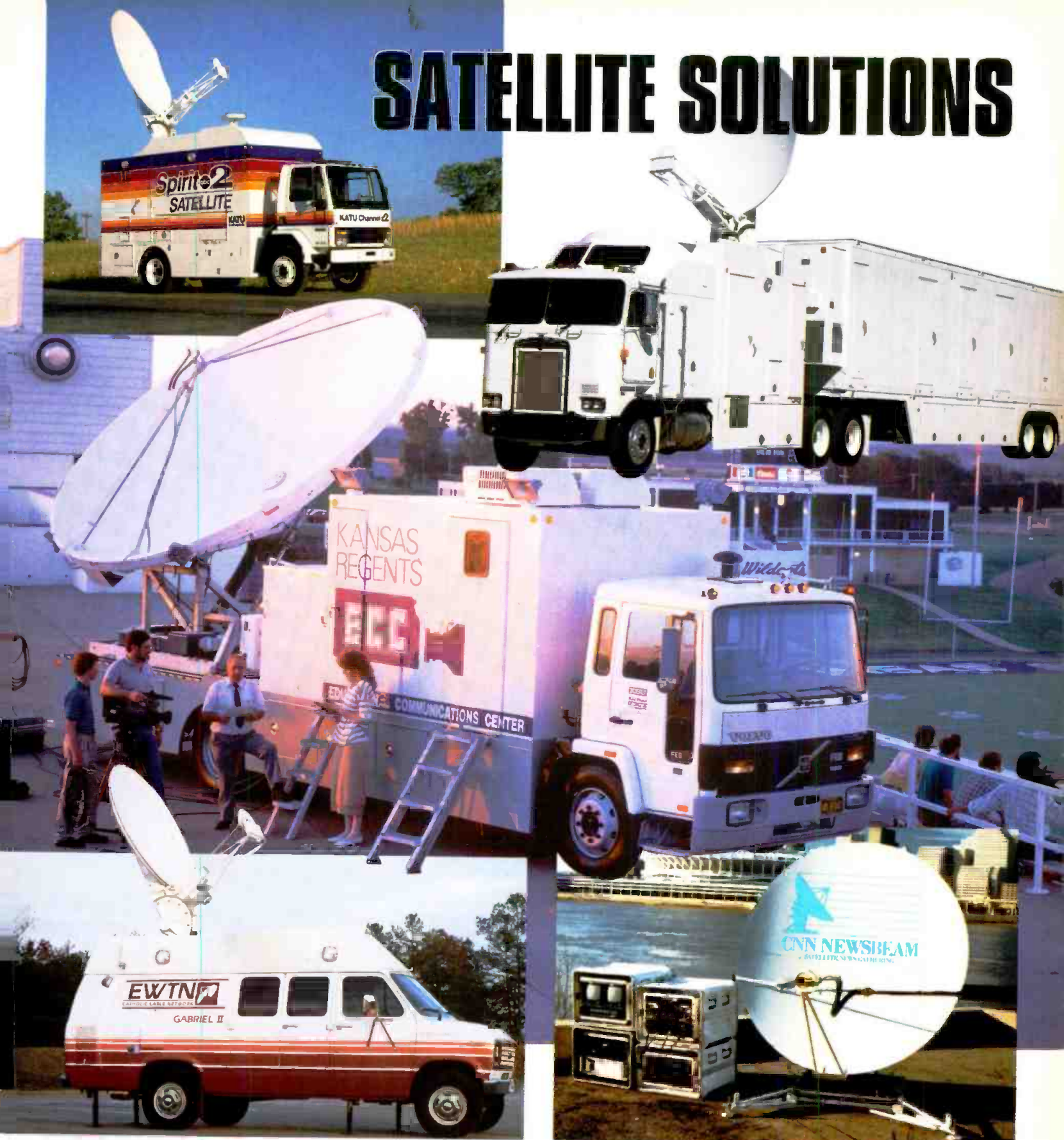
CMX

AURORA

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the torch
for Albertville
and Barcelona.*

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SYSTEMS
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A listing of more than 1,000 broadcast manufacturers makes available to you the companies that offer the equipment you need. The red listings indicate advertisers in this issue.

30 Manufacturers' addresses

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ON THE COVER

The annual Equipment Reference Manual is a comprehensive directory for radio and TV broadcasters. This special *BE* publication can be used as a guidebook whenever an equipment purchase is being planned. Keep this annual publication on your desk for reference throughout the year. (Cover design by Nenita Gumangan, graphic designer.)

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Doug Coonrod, Corporate Art Director
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ADMINISTRATION

R.J. Hancock, President
Carol Sharp, Circulation Director
Customer Service: 913-967-1711

TECHNICAL CONSULTANTS

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Sustaining Members of:
• Acoustical Society of America
• Society of Broadcast Engineers
• Society of Motion Picture and TV Engineers
Member,
Association of Business Publishers
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Business Publications
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CORRESPONDENCE

Editorial and Advertising: 9800 Metcalf, Overland Park, KS 66212-2215. Telephone: 913-381-1300; Editorial fax: 913-967-1905. Advertising fax: 913-967-1904.

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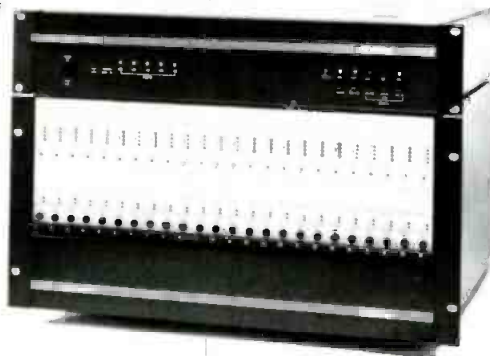
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1. The Model 363 Series two-channel unit incorporates Dolby SR, Dolby A-type, or switchable SR/A-type modules in a compact 1 U-high chassis.



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5. The Model 422 Series is a reference encoder/decoder with four channels of Dolby B-type, C-type, and S-type for mastering and monitoring in audio and video cassette duplication.

7. The Model SDU-4 is a 2:4 reference decoder for monitoring Dolby Surround and Dolby Stereo program material in broadcast, video, music recording, and some film applications.

6. The Model 430 Series, based on Dolby SR, is our newest, most powerful background noise suppressor system. For use in reducing broadband noise on location recordings for film and video applications.



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Editorial

Decisions, Decisions

Welcome to the 1993 *Broadcast Engineering* Equipment Reference Manual and Buyers Guide. Continuing the tradition, this 12th reference issue contains a wealth of information regarding manufacturers and many facts on the latest equipment for broadcast, cable and production environments.

Buying hardware today is difficult and there is an abundance of equipment and options available. The task for the engineering manager is to select the best product for the given application. That can be a difficult task. Fortunately, the Equipment Reference Manual and Buyers Guide is your key to making the correct hardware purchases.

We've incorporated several features to make your search for the best equipment even easier. The fold-out tab pages quickly guide you to different product specification sections of this issue: Video Specs and Audio Specs. A third specification section, RF and Test & Measurement, follows the audio section.

As usual, the Buyers Guide Product Listings and Manufacturers' Addresses can be found in the front half of this issue. Color highlighting throughout the issue alerts you to those companies that have their products advertised in this issue.

In the Product Directory, a number of closely related categories (for example, audio mixers, microphones and transmitters) have been combined to make your search faster. One list shows all players, with logical code letters following their names to indicate which type of equipment they offer.

This issue contains the most complete listing of products and specifications available in one source for this industry. The information is based on data provided by those companies responding to our request for assistance. Multiple requests for information were directed to all participants of previous directories, to new companies exhibiting at trade shows and those

appearing in our New Products columns during the year.

There are more than 1,000 companies listed in the Manufacturer Address listing. If a company is missing from this compendium, it is because we did not receive information from that company after repeated requests.

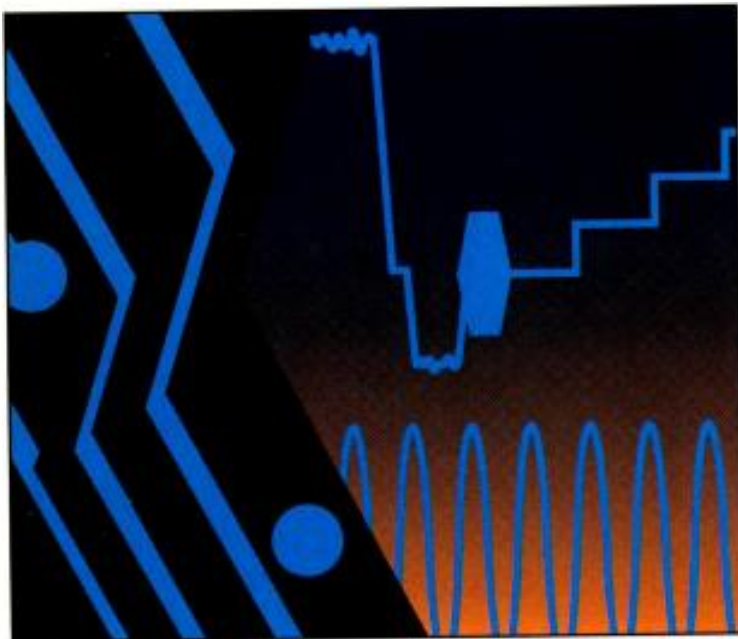
Thank you for helping *Broadcast Engineering* in our efforts to continue the tradition of serving the industry in a first-class form. If we can be of further assistance, please let us know.



Pat Blanton
Directory Editor



Carl Bentz
Special Projects Editor



**Nikon ENG/EFP lenses.
All you need to look good.**

When you're on location with a CCD camera reaching for the best shot possible, you need ENG/EFP lenses that are compact, lightweight, and easy to maneuver. Lenses with the flexibility to adapt to any situation. Lenses with all the star qualities found only in a Nikon.

Our ENG/EFP precision lenses are created from the same superior glass and coating technology that have made Nikon the world renowned name in optics. Which means they're made with Nikon's exclusive Extra-Low Dispersion (ED) glass. And treated with special anti-reflection coatings to minimize ghosts and flare. Plus, their strong magnesium housing makes them extremely durable. So no matter how tough the assignment, Nikon ENG/EFP lenses are even tougher.

Our full line of outstanding ENG/EFP lenses includes the Nikon S9x5.5 wide angle lens — perfect for tight, close-up shots. The Nikon S19x8, with its unsurpassed focal length and range. The all-purpose Nikon S15x8.5. And the economical Nikon S13x9.

Want to create special effects with your CCD camera? We have two ENG/EFP converters that will allow you to use your whole bag of Nikkor 35mm SLR lenses. One lets you use wide angle lenses down to an effective focal length of 2 mm. The other lets you use long focal lenses out to 1200 mm.

And in the unlikely event something should

happen to your Nikon lens, a simple call to our Nikon Express Loaner Service will get you a loaner lens overnight. So you don't ever have to worry about a crew being out of action until you can get a lens repaired.

To learn more about how Nikon

ENG/EFP lenses can make you look good, call 800-52-NIKON or (516) 547-4355 for our complete brochure. Or write: Nikon Electronic Imaging, Dept. D1, 101 Cleveland Avenue, Bayshore, NY 11706.

SHOOTING STARS.

A collection of Nikon ENG/EFP lenses and converters arranged on a dark, textured surface. The lenses vary in size and color, with some showing internal elements. A Nikon camera body is visible in the foreground. The Nikon logo is visible on one of the lenses.

Nikon

ELECTRONIC IMAGING

r e c r e a t i v i t y

Buyers' Guide Product Categories

Audio Products

Color highlights denote advertisers; see ad index

Amplifiers, Audio

D distribution, **M** monitor/power, **P** phono or mic pre-amplifier

Acoustech Corp. M
Advanced Audio Visual Systems DMP
AEQ-Aplicaciones Electronicas Quasar DM
Alesis Corp. M
Alphaton P
Altec Lansing Corp. DMP
Aphex Systems Ltd. D
API-Audio Products Inc. DP
Arrakis Systems DMP
Ashly Audio, Inc. MP
ATI-Audio Technologies Inc. DMP
Audio Developments Ltd. D
Auditronics, Inc. DP
Auxid Ltd. DP
Avitel Electronics Corp. D
BAL D
Beaveronics, Inc. D
Benchmark Media Systems, Inc. DP
BGW Systems, Inc. DM
Biamp Systems DMP
Bogen Communications, Inc. MP
Broadcast Devices Inc. DMP
Bryston/Brystonvermont Ltd. MP
BSM/West Starr Int. D
BTS Broadcast Television Systems D
BURLE INDUSTRIES, INC. D
Canford Audio plc P
Carver Corp. MP
Crown M
Channelmatic, Inc. D
Conex Electro Systems DP
Datek Corp. DMP
Day Tronics M
Digital Processing Systems Inc. D
DTL Broadcast Ltd. D
Dwight Cavendish Co. DM
DYMA Engineering, Inc. DMP
Dynacord M
DYNAIR Electronics, Inc. D



EDCOR Electronics

eela audio

EELA Audio MP
Electro-Voice Inc. MP
ESE DP
Farrtronics Ltd. DMP
FM Acoustics Ltd. DMP
FM Systems, Inc. D
Full Compass Systems, Ltd. DP
Furman Sound, Inc. M
GEE Broadcast Systems Ltd. D
Genelec Oy M
Gentner Communications Corp. D
Georg Neumann GmbH P
GML, Inc. George Massenburg Labs P
Grass Valley Group D
H.A. Solutec Ltd. D
Harris Allied Broadcast Equipment P
HEDCO D
Henry Engineering DP
HES Electronics DMP
Hill Audio Ltd. MP
Image Video Ltd. D
Industrial Strength Industries M
Integrated Switching Systems D
IRP Professional Sound Products DP
IRT Electronics Pty. Ltd. DM
ITI Electronics, Inc. DMP
Ivie Technologies, Inc. DP
JBL Professional M
Jem-Fab Corp. M
Jensen Transformers Inc. P
JNS Electronics, Inc. DMP
JT Communications D
Leitch Inc. D

Lenco Electronics, Inc. MD
Logitek Electronic Systems, Inc. DMP
LPB Inc. D
Mobile-Cam Products D
Modular Audio Products DMP
Modulation Sciences D
Morenz Development Corp. M
MTR AG/Electronics Department D
Multidyne D
The Music Co. M
NTP Elektronik A/S DP
NVision, Inc. D
Opamp Labs, Inc. DMP
Optical Electronics P
Pacific Recorders & Eng. Corp. DP
Panasonic Broadcast & TV Systems DMP
Panasonic Professional Audio Systems M
PESA America Inc. D
Philip Drake Electronics DP
PKE Int'l DMP
Pro-Bel Ltd. D
Professional Sound Corp. D
ProTech Audio Corp. DMP
QSC Audio Products, Inc. M
Radio Systems Inc. DP
Ramko Research DMP
Rane Corp. DMP
RE UK Ltd. D
Redwood Marketing Inc. DMP
Renkus-Heinz, Inc. M
Richmond Sound Design, Ltd. MP
Rohde & Schwarz M
ROH Products DMP
Sandar Electronics D
Scantex Labs Inc. D
SCV Audio DP
Sescom, Inc. DMP
Shure Brothers Inc. DP
Siemens Audio & Video Div. MP
Sierra Video Systems D
Somich Engineering M
SONDOR AG P
Sonosax SA MP
Spectra Sonics DMP
Stanton Magnetics Inc. P
Studio Technologies, Inc. P
Summit Audio Inc. P
Symetnx Inc. MP
Tech Electronics, Inc. D
The Music Co. P
TOA Electronics, Inc. DMP
UREI, JBL Professional M
Utah Scientific, Inc. D
Video Accessory Corp. D
Videoquip Research Ltd. DMP
Videotek, Inc. D
Vortex Communications DP
Ward-Beck Systems, Ltd. DP
Wheatstone Corp. D
Wohler Technologies Inc. M
World Video Inc. MP
Yamaha Corp. of America MP

Cable, Audio, Mic

AKG Akustische u. Kino-Geräte GmbH
Alpha Wire Corp.
Audio-Technica U.S., Inc.
Avtech Electronics Inc.
BARCO-EMT GmbH
Beyer Dynamic Inc.
Bi-Tronics, Inc.
CAE
Canford Audio plc
Clark Wire & Cable
Cole Wire & Cable
Comprehensive Video Supply Corp.
Connectronics Corp.
Cooper Industries Inc. Belden Div.
FM Acoustics Ltd.
Gepco Int'l, Inc.
Gotham Technology Group
Marshall Electronics Inc.
The Music Co.
Georg Neumann GmbH
Philips Broadband Networks, Inc.
T.R. Pitts Co.
Professional Sound Corp.

MD
SCV Audio
Sennheiser Electronic Corp.
Shure Brothers Inc.
Teledyne Thermatics
Videoquip Research Ltd.
Wireworks Corp.

CD Players

Audio Design
BARCO-EMT GmbH
Carver Corp.
Concept Productions
Denon America, Inc.
EuroSon Amencia, Inc.
Gotham Technology Group
LPB Inc.
The Management
The Music Co.
Panasonic Broadcast & TV Systems
Sony Broadcast & Communications
Sony Business & Professional
Stanton Magnetics Inc.
Studer Int'l
Studer Revox America Inc.

Audio Digital Coders, Decoders

Audio Developments Ltd.
Audio Processing Technology
Comrex Corp.
Conex Electro Systems
Dolby Labs, Inc.
DT Electronics Ltd.
Integrated Network Corp.
ITELCO S.p.A.
T.R. Pitts Co.
Tayo Industries
TFT Inc.
TRW LSI Products Inc.

Converters, Digital

A A-D/D-A; **R** Sampling Rate; **S** Serial-Parallel, **P** Parallel-Serial;
Abekas Video Systems A
Alphaton A
Antex Electronics A
Apogee Electronics Corp. A
Audio Design A/R
Audio Processing Technology A
B&B Electronics Mfg. A/S
BAL A
CEDAR Audio Ltd. R/S
Computer Concepts Corp. A
Datek Corp. A
Digital Audio Research R
Philip Drake Electronics A
Gotham Technology Group A/R
Grass Valley Group A/S
Jem-Fab Corp. S
JNS Electronics, Inc. A/S
Lexicon Inc. A
NVision, Inc. A/R
PKE Int'l A
Pro-Bel Ltd. A
Questech Ltd. A/R
RE UK Ltd. A/R/S
Redwood Marketing Inc. A
ROH Products A
Roland Corp. A/R
Schmid Telecom AG A/S
Siemens Audio & Video Div. A/R
Sony Broadcast & Communications A
Studer Digitec A/R
Studer Int'l R
T-Tech Corp. A
TFT Inc. A
TRW LSI Products Inc. A

Delay Systems

For audio delays to compensate for signal delays in video processing; excludes audio effects, reverb.
AKG Akustische u. Kino-Geräte GmbH
Altec Lansing Corp.
Audio/Digital

BAL
BARCO-EMT GmbH
CEDAR Audio Ltd.
Dalanco Spry
DOD Electronics/ Harman Int'l
Dolby Labs, Inc.
DT Electronics Ltd.
Electro-Voice Inc.
Eventide Inc.
Gotham Technology Group
IRP Professional Sound Products
Klark Teknik
Lexicon Inc.
Merlin Engineering Works, Inc.
Georg Neumann GmbH
NVision, Inc.
Panasonic Professional Audio Systems
PKE Int'l
Pro-Bel Ltd.
Questech Ltd.
Siemens Audio Co.
Sony Broadcast & Communications
TC Electronic
TFT Inc.
Vortex Communications
White Instruments Div. of C Van R, Inc.

Digital Workstations

Hard disk recorders, software.
A/Z Associates



AKG Acoustics, Inc.
AMS Industries Inc. A Siemens Co.
Audio Design
Auxid Ltd.
CEDAR Audio Ltd.
Comprehensive Video Supply Corp.
Dalanco Spry
Digital Audio Research
Doremi Labs, Inc.
Fairlight ESP PTY Ltd.
Fougerolle
Gotham Technology Group
IGM Communications
IMC/Aka
JLCooper Electronics
Lazerus
Lexicon Inc.
The Management
New England Digital Corp.
Otar Corp.
PKE Int'l
Publison Audio Professional
Racom Broadcast Ltd.
Radio Computing Services
Roland Corp. US Pro Audio/Video Group
Siemens Audio & Video Div.
Siemens Audio Co.
Solid State Logic
Studer Digitec
Studer Int'l
Studer Revox America Inc.
Videoquip Research Ltd.

Duplicators, Audio

Accurate Sound Corp.
CEDAR Audio Ltd.
KABA Research & Development
Otar Corp.
Telex Communications, Inc.

Dynamics Processors

Compression, limiting, expansion, noise reduction, de-essing, spectral enhancements.

AEV
AIR Corp.
AKG Akustische u. Kino-Geräte GmbH
Alesis Corp.
Altec Lansing Corp.
AMEK Systems & Controls, Ltd.

Antex Electronics
Aphex Systems Ltd.
 API-Audio Products Inc.
 Ashly Audio, Inc.
ATI-Audio Technologies Inc.
 Audio Animation Inc.
 Audio Design
 Audio Dynamics, Inc.
 Audioarts Engineering
 Audix Ltd.
 BARCO-EMT GmbH
 BFE AG
 Biamp Systems
 CEDAR Audio Ltd.
 CRL Systems-Circuit Research Labs, Inc.



dbx Professional Products/AKG Acoustics
 DOD Electronics/Harman Int'l
Dolby Labs, Inc.
 Dorrrough Electronics
 Dynacord
 Electro-Voice Inc.
 Eventide Inc.
 Focusrite Audio Eng. Ltd.
 GML, Inc. George Massenburg Labs
 Gotham Technology Group
 Inovonics Inc.
 IRP Professional Sound Products
 ITI Electronics, Inc.
 JBL Professional
 JT Communications
 Klark Teknik
 Lazerus
 The Management
 Modular Audio Products
 Modulation Sciences
 The Music Co.
 Georg Neumann GmbH



Orban Associates, Div. of AKG Acoustics.
 Pacific Recorders & Eng. Corp.
 Panasonic Professional Audio Systems
 Pelcom Sound Systems
 PKE Int'l
 Publison Audio Professional
 QMI
 Rane Corp.
 Redwood Marketing Inc.
 Roland Corp. US Pro Audio/Video Group
 Sabine Musical Mfg. Co. Inc.
 SCV Audio
 Siemens Audio & Video Div.
 Siemens Audio Co.
Solid State Logic
 Somich Engineering
 Spatial Sound, Inc.
 Summit Audio Inc.
 Symetrix Inc.
 Tayo Industries
 TOA Electronics, Inc.
 UREI, JBL Professional
 Wheatstone Corp.
 Yamaha Corp. of America

EBS Equipment

Encoders and decoders
 CEDAR Audio Ltd.
 Gorman-Redlich Mfg. Co.
 TFT Inc.

Effects Processors

Plate/room simulation, reverb, flanging, chorus functions; profanity delays; may include simple delay function but excludes delay-only compensation.
 Alesis Corp.
 AMS Industries Inc. A Siemens Co.
 API-Audio Products Inc.
 BARCO-EMT GmbH
 CEDAR Audio Ltd.
 DOD Electronics/Harman Int'l
 Dynacord

Electro-Voice Inc.
 Eventide Inc.
 Klark Teknik
 The Music Co.
 Orban Associates/ AKG Acoustics
 Publison Audio Professional
 Questech Ltd.
 Redwood Marketing Inc.
 Roland Corp. US Pro Audio/Video Group
 Sony Broadcast & Communications
 Tayo Industries
 TC Electronic
 TOA Electronics, Inc.
 Wheatstone Corp.
 Yamaha Corp. of America

Equalizers

HP-/LP-Filters, parametric, psophometric, swept.
 AKG Akustische u. Kino-Geräte GmbH
 Alesis Corp.
 Allen Avionics, Inc.
 Alphonon
 Altec Lansing Corp.
 AMEK Systems & Controls, Ltd.
Aphex Systems Ltd.
 API-Audio Products Inc.
 Ashly Audio, Inc.
 Audio Animation Inc.
 Audio Developments Ltd.
 Audioarts Engineering
 Audiocontrol Industrial
 Audix Ltd.
 BFE AG
 Biamp Systems
 CEDAR Audio Ltd.



dbx Professional Products/AKG Acoustics
 DOD Electronics/Harman Int'l
 DT Electronics Ltd.
 Dynacord
 Electro-Voice Inc.
 Focusrite Audio Eng. Ltd.
 GML, Inc. George Massenburg Labs
 Gotham Technology Group
 Industrial Strength Industries
 IRP Professional Sound Products
 ITI Electronics, Inc.
 JBL Professional
 JVC Professional Products Co.
 Klark Teknik
 Modular Audio Products
Multidyne
 The Music Co.
 Georg Neumann GmbH



Orban Associates/AKG Acoustics
 Panasonic Professional Audio Systems
 PKE Int'l
 QMI
 Rane Corp.
 Redwood Marketing Inc.
 Roland Corp. US Pro Audio/Video Group
 Sabine Musical Mfg. Co. Inc.
 SCV Audio
 Sescom, Inc.
 Siemens Audio & Video Div.
Solid State Logic
 Spectra Sonics
 Summit Audio Inc.
 Symetrix Inc.
 TC Electronic
 TOA Electronics, Inc.
 TTE, Inc.
 UREI, JBL Professional
 Ward-Beck Systems, Ltd.
 Wheatstone Corp.
 White Instruments Div. of C Van R, Inc.
 Yamaha Corp. of America

Manufacturer Address Directory begins on page 30

Faders, Attenuators

Console replacement and automated faders; audio attenuator pads.
 API-Audio Products Inc.
 BFE AG
 CEDAR Audio Ltd.
 ESE
 JLCoooper Electronics
 Georg Neumann GmbH
 Penny & Giles, Inc.
 Pro-Bel Ltd.
 Redwood Marketing Inc.
 Richmond Sound Design, Ltd.
 Shalco, Inc.
 Siemens Audio Co.
 Tayo Industries
 Tech Labs Inc.
Television Technology Corp.

Headphones, Headsets



AKG Acoustics, Inc.
 Audio-Technica U.S., Inc.
 Beyer Dynamic Inc.
 Canford Audio plc
 CEDAR Audio Ltd.
 David Clark Co.
 Clear-Com Intercom Systems
 Countryman Associates Inc.
 HM Electronics, Inc.
 Koss Corp.
 The Music Co.
 Plantronics, Inc.
 R-Columbia Products Co., Inc.
 Redwood Marketing Inc.
 ROH Products
 Roland Corp. US Pro Audio/Video Group
 Sennheiser Electronic Corp.
 Setcom Corp.
 Shure Brothers Inc.
 Sony Broadcast & Communications
Sony Business & Professional Group
 Stanton Magnetics Inc.
 Technical Projects, Inc.
 Television Equipment Associates
 Telex Communications, Inc.
 Yamaha Corp. of America

Intercoms

Advanced Audio Visual Systems
 Ampco Sound Lab (ASL)
 API-Audio Products Inc.
 Canford Audio plc
 David Clark Co.
 Clear-Com Intercom Systems
 Comrex Corp.



Philip Drake Electronics
 Farrtronics Ltd.
 Full Compass Systems, Ltd.
 GEE Broadcast Systems Ltd.
 Heikki Malkki Ltd.
 HES Electronics
 HM Electronics, Inc.
 IRT Electronics Pty. Ltd.
 ITI Electronics, Inc.
 JNS Electronics, Inc.
 JT Communications
 Lee Dan Communications, Inc.
 The Music Co.
 PKE Int'l
 Professional Sound Corp.
 R-Columbia Products Co., Inc.
 Redwood Marketing Inc.
 ROH Products
 Studio Technologies, Inc.
 Technical Projects, Inc.
 Television Engineering Corp.
 Telex Communications, Inc.
 Telos Systems
 3M Sound Products
 TOA Electronics, Inc.

Ward-Beck Systems, Ltd.

Microphone Equipment

A Windscreens; direct boxes; booms, stands; other accessories; B Boundary, surface-mount; H Hand-held, stand, shotgun; L Lavalier; W Wireless

Ac-cetera, Inc. A



AKG Acoustics, Inc. A/B/H/L/W
 Alphonon A
 Altec Lansing Corp. H/W
 AMS Industries Inc. A Siemens Co. H
 API-Audio Products Inc. A
ATI-Audio Technologies Inc. A
 Atlas/Soundolier A
Audio Ltd. USA W
 Audio-Technica U.S., Inc. B/H/L/W
 Audio Visual Assistance A
 Audix Corp. H/L/W
 Beyer Dynamic Inc. A/B/H/L/W
 Black Audio Devices A
 Bogen Communications, Inc. A/H
 Canford Audio plc A



Comtek Communications Technology W
 Countryman Associates Inc. A/B/L/W
 Crown B/H
 Danish Pro Audio ApS H
 DYMA Engineering, Inc. H
 Electro-Voice Inc. A/B/H/L/W
 Fostex Corp. of America H
 Full Compass Systems, Ltd. H
 Gotham Technology Group A/H
 Har-Ken Specialties A
 HM Electronics, Inc. L/W
 Karl Heitz, Inc. A
 Keith Monks Sound Systems A
 Lectrosonics, Inc. W
 LTM Corp. of America A
 Micron Audio Products Ltd. B/H/L/W
 Milab Microphones A/B/H
 The Music Co. A/B/H/L/W
 Nady Systems, Inc. H/L/W
 Georg Neumann GmbH A/B/H
 Panasonic Professional Audio A/H/L/W
 Professional Sound Corp. A/B/L
 R-Columbia Products Co., Inc. L/W
 Theodore A. Rapp Associates/Tram L
 Samson Technologies Corp. W
 Sanken Mics/ Audio Interviewal Design A/H
 Schoeps Schalltechnik A/H
 Seam-Tech A
 Sennheiser Electronic Corp. A/H/L/W
 Sescom, Inc. A
 Shure Brothers Inc. A/H/L/W
 Siemens Audio Co. H
 Sony Broadcast & Communications H/L/W
Sony Business & Professional H/L/W
 Spectra Sonics L/W
 Swintek Communications H/L/W
 Systems Wireless Ltd. W
 Tannoy/TGI North America A/H
 Telex Communications, Inc. H/L/W
 TOA Electronics, Inc. H/L/W
Vega, A Mark IV Co. W
 Yamaha Corp. of America H

Mixers

O On-Air Radio/TV; P Portable, ENG; S Studio Production, ESAM, Recording, Reinforcement
 AEQ-Applicaciones Electronicas Quasar O/P
 AEV O/P
 Alesis Corp. S
 Allen & Heath S
 Altec Lansing Corp. O/S
 AMEK Systems & Controls, Ltd. P/S
 AMEK/TAC US Operations S
 AMS Industries Inc. A Siemens Co. S
 API-Audio Products Inc. S
 Arrakis Systems O/S

Ashly Audio, Inc.	P/S
ATI-Audio Technologies Inc.	O/P
Audio Developments Ltd.	O/P
Audio Teknology Inc.	P
Audioarts Engineering	O/P/S
Auditronics, Inc.	O/S
Audix Ltd.	O
BARCO-EMT GmbH	O/S
Beyer Dynamic Inc.	P
Biamp Systems	O/P/S
Broadcast Electronics, Inc.	O/S
Burk Technology, Inc.	O
Canford Audio plc	P
Cellcast Remote Broadcast / Tri-Tech	O
Comrex Corp.	P
Conex Electro Systems	P
Cooper Sound Systems	P/S
Dav Tronics	S
DDA	S
D&R Electronica b.v.	O/P/S



Digital Processing Systems Inc.	S
Dorem Labs, Inc.	S
Philip Drake Electronics	O/P

eela audio

EELA Audio	O/P/S
Electro-Voice Inc.	P/S
Euro Tech Inc.	O
Fidelipac Corp.	O
Focusrite Audio Eng. Ltd.	S
Fostex Corp. of America	S
Furman Sound, Inc.	P
GML, Inc. George Massenburg Labs	S
Gotham Technology Group	S
Graham-Patten Systems, Inc.	S
Hallikainen & Friends, Inc.	O/P
Harris Allied Broadcast Equipment	O
Harrison by GLW	O/S
Henry Engineering	P
Hill Audio Ltd.	O/P/S
ITAME, S.A.	O/P
JLCooper Electronics	S
JT Communications	O/P
Kaitronics Corp.	P
Logitek Electronic Systems, Inc.	O/P
LPB Inc.	O
The Management	O
MBI Broadcast Systems Ltd.	O/S
Media Touch Systems, Inc.	O
Micron Audio Products Ltd.	P
Midas	O
Modular Audio Products	S
The Music Co.	P/S
Nady Systems, Inc.	P
Neotek Corp.	O/S
Georg Neumann GmbH	S
OMB Sistemas Electronicos, SA	O/P
Opamp Labs, Inc.	S
Otari Corp.	S
Pacific Recorders & Eng. Corp.	O/S
Panasonic Broadcast & TV Systems	O/P/S
Panasonic Professional Audio	P/S
PKE Int'l	O/P
Professional Sound Corp.	P
ProTech Audio Corp.	O
Quad Eight Electronics, Inc.	S
Racom Broadcast Ltd.	P
Radio Systems Inc.	O
Ramko Research	O/P/S
Redwood Marketing Inc.	O/P/S
Samson Technologies Corp.	S
Scantex Labs Inc.	S
Schafer World Communications	O/P/S
Seem Audio A/S	O/P/S
Sennheiser Electronic Corp.	O/P
Sescom, Inc.	P
Shure Brothers Inc.	O/P/S
Siemens Audio & Video Div.	S
Siemens Audio Co.	O/S
Sierra Automated Systems	O
Solid State Logic	O/S
Sonosax SA	O/P/S
Sony Business & Professional	O/P/S
Sound Designers Studio	S

Soundcraft USA	O/P/S
Soundtracs PLC	O/S
Spectra Sonics	S
Studer Digitec	O/S
Studer Int'l	O/P/S
Studer Revox America Inc.	O/P/S
TASCAM / TEAC America, Inc.	O/P/S
Television Technology Corp.	O
Telfax Communications	P
TOA Electronics, Inc.	O/P/S
Total Audio Concepts Ltd.	P/S
Trident Audio USA	O/S
Unitronic	O/P
Ward-Beck Systems, Ltd.	O/S
Wheatstone Corp.	O/P/S
Yamaha Corp. of America Professional	S

Musical Instruments, MIDI Equipment

And specialized instrumental pickups/microphones.

Alesis Corp.	
Ashly Audio, Inc.	
CEDAR Audio Ltd.	
Countryman Associates Inc.	
DNF Industries	
DOD Electronics/ Harman Int'l	
Dynacord	
E-mu Systems, Inc.	
Electro-Voice Inc.	
Hill Audio Ltd.	
IMC/Akai	
JLCooper Electronics	
Lone Wolf	
The Music Co.	
Nady Systems, Inc.	
Panasonic Broadcast & TV Systems	
Richmond Sound Design, Ltd.	
Roland Corp.	
Tayo Industries	
Wheatstone Corp.	
Yamaha Corp. of America	

Recorders

C Cartridge, NAB (and digital products emulating standard cart machines); S Cassette; D Digital (all formats); R Reel Analog; M Duplicators

Accurate Sound Corp.	S/R/M
Alesis Corp.	D
Asaca/Shibasoku Corp. of America	C/D
Audi-Cord Corp.	C
Audio Dynamics, Inc. C	
Audio Follow	D
Audio Processing Technology	C
Audio-Technica U.S., Inc.	D
Audix Ltd.	D
A/Z Associates	D
BARCO-EMT GmbH	C/D
Bencsik Associates Inc.	S
Broadcast Cartridge Service	C/S/R
Broadcast Electronics, Inc.	C/D
CEDAR Audio Ltd.	C/S/D/M
CoarcVideo	S
Computer Concepts Corp.	D
Concept Productions	D
Dalanco Spry	
DIC Digital	C/D
Digidesign Inc.	D
Digital Audio Research	D
Digital Audio Technologies SA	D/R
Dorem Labs, Inc.	D
Fidelipac Corp.	C
Fostex Corp. of America	S/D/R
Fougerolle	D/R
Full Compass Systems, Ltd.	S/D
Gentner Communications Corp.	D
Gotham Technology Group	S
Graff Electronic Machines Ltd.	S
Hall Electronics, Inc.	C
Henry Engineering	D
High Fidelity	S
IMC/Akai	S/D
Int'l Tapetronics Corp.	C/D
ITAME, S.A.	D
JVC Professional Products Co.	D
KABA Research & Development	S/M
Klark Teknik	D
Lazerus	D
Lyrec Mfg. A/S	R

Magna-Tech Electronic Co., Inc.	D
The Management	S/D
The Music Co.	C/S/D/R
Nagra Kudelski S.A.	D/R
Otari Corp.	S/D/R/M
Pacific Recorders & Eng. Corp.	C/D
Panasonic Broadcast & TV Systems	D
Panasonic Professional Audio	D
Perfectione Corp. S.A.	R
PKE Int'l	C/D
PolyQuick Div. of Polyline Corp.	S
Publison Audio Professional	D
Questech Ltd.	D
Radio Systems Inc.	C/D
Roland Corp.	D
Schafer World Communications	D
Siemens Audio Co.	D
Solid State Logic	D
SONDAR AG	R
Sonifex Ltd.	D
Sony Broadcast & Communications	D
Sony Business & Professional	D/R
Studer Digitec	R
Studer Revox America Inc.	S/D/R
TASCAM / TEAC America, Inc.	S/D/R
Sonifex Ltd.	C
Tayo Industries	D
Telex	M
Television Technology Corp.	C/R
360 Systems	C/D
Uher of America	S/R
Unitronic	S/D/R
Wheatstone Corp.	D
Yamaha Corp. of America	S/D
Zonal Ltd.	R

Recording Heads

CEDAR Audio Ltd.	
Fougerolle	
Int'l Electro-Magnetics	
JRF Magnetic Sciences Inc.	
KABA Research & Development	
Nagra Kudelski S.A.	
Northern Magnetics, Inc.	
Nortronics Co. Inc.	
Saki Magnetics Inc.	
Sonifex Ltd.	
Studer Revox America Inc.	
Television Technology Corp.	

Recording Tape

Ampex Corp.	
Ampex Recording Media Corp.	
Audiopak, Inc.	
Broadcast Cartridge Service	
CEDAR Audio Ltd.	



DIC Digital	
Fidelipac Corp.	
Fougerolle	
Fuji Photo Film USA, Inc.	
Int'l Tapetronics Corp.	
Maxell Corp. of America Pro	
Panasonic Broadcast & TV Systems	
Panasonic Professional Audio Systems	
Sony Broadcast & Communications	
Sony Recording Media of America	
3M Professional A/V & Specialty Products	
Zonal Ltd.	

Routing Switchers

A audio, V video; some also serve for data signal routing; S Single-bus Utility routers.

Adrienne Electronics Corp.	A/S
Advanced Audio Visual Systems	A/V/S
Alpha Image Ltd.	V
American Broadcast Systems, Inc.	A/V
Ampex Corp.	S
Amtel Systems, Inc.	A
Antenna Technology	V/S
API-Audio Products Inc.	A
Arrakis Systems	A
Asaca/Shibasoku Corp. of America	A/V
ATI-Audio Technologies Inc.	A
Audix Ltd.	A



AutoPatch

AutoPatch Div. of XN Technologies	A/V/S
Avitel Electronics Corp.	A/V
BARCO-EMT GmbH	A



Barco, Inc.	V
Benchmark Media Systems, Inc.	A
Biamp Systems	A
Broadcast Video Systems, Ltd.	S
BSM/West Star Inc.	V/S
BTS Broadcast Television Systems	A/V/S
Dwight Cavendish Co.	V/S
CEDAR Audio Ltd.	A
CEL Electronics	V/S
Computer Concepts Corp.	A
Conex Electro Systems	A
Crestron Electronics, Inc.	V
Datatek Corp.	A/V/S
Dav Tronics	A
Di-Tech Inc.	V/S
DTL Broadcast Ltd.	V/S
DYMA Engineering	S
DYNAIR Electronics, Inc.	A/V
FSR, Inc.	V/S
GEE Broadcast Systems Ltd.	A
Gennum Corp.	V
Gentner Communications Corp.	A
Grass Valley Group	V/S
Harrison by GLW	A
HEDCO	V/S
IGM Communications	A
Image Video Ltd.	V/S
IMC/Akai	A/V
Integrated Switching Systems	V
Int'l Tapetronics Corp.	A
IRIS Technologies, Inc.	V/S
IRT Electronics Pty. Ltd.	S
ITI Electronics, Inc.	A
JNS Electronics, Inc.	A
JT Communications	A
Kaitronics Corp.	V/S
Lenco Electronics	S
Miranda Technologies	S
Monroe Electronics, Inc.	A
MTR AG/Electronics Department	A
Multidyne	A
Network Technologies Inc.	V
Georg Neumann GmbH	A
Nova Systems, Inc.	S
NTP Elektronik A/S	A
nVision, Inc.	V
Omicron Video	V
Opamp Labs, Inc.	V
Pacific Recorders & Eng. Corp.	A
Panasonic Broadcast & TV Systems	V/S
PESA America Inc.	A/V
PKE Int'l	A
Pro-Bel Ltd.	V/S
ProTech Audio Corp.	A
Questech Ltd.	S
Ramko Research	A
Richmond Sound Design, Ltd.	A
ROH Products	V
Sandar Electronics	A/V/S
Scantex Labs Inc.	S
SCV Audio	A
Siemens Audio & Video Div.	A/V
Sierra Automated Systems	A
Sierra Video Systems	V
Sigma Electronics, Inc.	V/S
Solid State Logic	A
Sony Broadcast & Communications	A/V
Sony Business & Professional	A/V
Studer Digitec	A/V
System Video	V
Target Technology Inc.	S
Tech Electronics, Inc.	A/S
Telfax Communications	A
Thomson Broadcast	V/S
360 Systems	A
Titus Technological Labs	A
TOA Electronics, Inc.	A
Utah Scientific, Inc.	A/V/S
Vicon Industries, Inc.	V
Video Accessory Corp.	S

Announcing SSL's

Scenaria

DIGITAL POST-PRODUCTION MIXING SYSTEM



AUDIO RECORDING, EDITING,
SWEETENING AND MIXING

- 38-channel, totally automated digital mixing console
- Digital EQ and dynamics on every channel
- Integral 24-track random access recorder/player
 - Multitrack digital audio editor

RANDOM ACCESS VIDEO STORAGE

- Integral VisionTrack™ system

CONTROL OF EXTERNAL DEVICES

- Multiple ATR/VTR machine controller
 - Automated audio/control routing

SYSTEM COMPATIBILITY

- Fully compatible with ScreenSound™ and SoundNet™
- Projects transfer to and from ScreenSound
 - Multi-user networking capability

Solid State Logic

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SSL DIGITAL

Introducing multi-cassette software so ahead of



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its time, it solves problems before they occur.



Sony's new 2100 multi-spot software can't actually see the future. But It can make yours run smoother.

It works with our Library Management System™ to put your entire commercial library—up to 10,000 spots—on line. This lets you conserve shelf space, minimize library tasks and avoid lost spots.

In fact, we've redefined the concept of multi-spot software. Our system prevents play-back conflicts by automatically making two copies of each commercial.

And It can perform multiple tasks at the same time. So you can record new spots, create a back-up reel, and edit the playlist—all concurrently, even while you're on air.

In addition, system-wide redundancy is provided for security.

Of course, it's an easy upgrade for current Sony LMS owners.

To learn more, call 1-800-635-SONY, ext. 752, and look into the future of multi-cassette software.

SONY

Video Data Systems S
 Videoquip Research Ltd. A/V
 Videotek, Inc. S
 Vistek Electronics Ltd. A/V/S
 Vortex Communications A/V
 Wiltronix, Inc. V/S

Speakers, Enclosures

Integrated amplifier-speaker units.
 Acoustech Corp.
 AKG Akustische u. Kino-Geräte GmbH
 Atlas/Soundolier
 Audix Corp.
 Auernheimer Labs & Co.
 Auratone Corp.
 Bencsik Associates Inc.
 Bogen Communications, Inc.
 Canford Audio plc
 CEDAR Audio Ltd.
 Dynacord

eela audio

EELA Audio
 Electro-Voice Inc.
 EuroSon America, Inc.
 Genelec Oy
 Gotham Technology Group
 JBL Professional
 KINTEK, Inc.
 Koss Corp.
 Lakeside Associates, Inc.
 The Music Co.
 Panasonic Broadcast & TV Systems
 Panasonic Professional Audio Systems
 QMI
 Redwood Marketing Inc.
 Renkus-Heinz, Inc.
 Samson Technologies Corp.
 SCV Audio
 Sony Broadcast & Communications
 Spectra Sonics
 Tannoy/TGI North America
 TOA Electronics, Inc.
 UREI, JBL Professional
 Vandenberghe Profenex B.V.

Westlake Audio

Westlake Audio Pro Mfg. Group
 Wohler Technologies Inc.
 Yamaha Corp. of America

Stereo Correctors, Synthesizers

And audio phase correction systems.
 BBE Sound, Inc.
 Broadcast Devices Inc.
 FM Systems, Inc.
 KINTEK, Inc.
 Modulation Sciences
 Redwood Marketing Inc.
 Studio Technologies, Inc.
 Titus Technological Labs

Telephone Bandwidth Extenders

Audio Processing Technology
 Comrex Corp.
 Gentner Communications Corp.
 Integrated Network Corp.
 Racom Broadcast Ltd.
 Redwood Marketing Inc.
 Telfax Communications

Telephone Hybrids

AEQ-Aplicaciones Electronicas Quasar
 AEV
 Audix Ltd.
 Comrex Corp.
 D&R Electronica b.v.

eela audio

EELA Audio

ESE
 Gentner Communications Corp.
 Henry Engineering
 ITI Electronics, Inc.
 NTP Elektronik A/S
 Old Dominion Broadcast Eng. Service
 PKE Int'l
 Professional Sound Corp.
 Racom Broadcast Ltd.
 Redwood Marketing Inc.
 Sonifex Ltd.
 Studer Int'l
 Studer Revox America Inc.
 Symetrix Inc.
 Telos Systems

Test, Alignment Records, Tapes, CDs

Alphaton
 CEDAR Audio Ltd.
 Consultronics
 Gotham Technology Group

HAMLET

Hamlet Video Int'l Ltd.
 JNS Electronics, Inc.
 Standard Tape Lab, Inc.
 Studer Int'l
 Tentel

Time Modification Equipment

Products for time compression, expansion of recorded material.
 Adams-Smith
 BBE Sound, Inc.
 Furman Sound, Inc.
 Lazerus
 Lexicon Inc.
 PKE Int'l
 Roland Corp.
 TouchVision Systems, Inc.
 VideoLab

Transformers, Matching, Splitting

Allen Avionics, Inc.
 Alphaton
 ATI-Audio Technologies Inc.
 Beyer Dynamic Inc.
 ESE
 FSR, Inc.
 Henry Engineering
 ITI Electronics, Inc.
 Jensen Transformers Inc.
 Microtran Co.
 The Music Co.
 Georg Neumann GmbH
 Neutrik USA, Inc.
 North Hills Electronics, Inc.
 ProTech Audio Corp.



Sescom, Inc.
 Shure Brothers Inc.
 Spectra Sonics
 TTE, Inc.

Turntables & Cartridges, Phono

BARCO-EMT GmbH

eela audio

EELA Audio
 Gotham Technology Group
 Henry Engineering
 The Music Co.
 Shure Brothers Inc.
 Stanton Magnetics Inc.

Video Products

Amplifiers, Distribution

Video, Pulse, Clamp, EQ
 Advanced Audio Visual Systems
 Allen Avionics, Inc.
 American Broadcast Systems, Inc.
 API-Audio Products Inc.
 Asaca/Shibasoku Corp. of America
 Avitel Electronics Corp.
 Avtech Electronics Inc.
 BAL
 Beaveronics, Inc.
 BTS Broadcast Television Systems
 BURLE INDUSTRIES, INC.
 Dwight Cavendish Co.
 CCTV Corp.
 Channelmatic, Inc.
 Chromatek Scan Process, Inc.
 Cohu Inc., Electronics Div.
 Communications Specialties Inc.
 Datatek Corp.
 Digital Processing Systems Inc.
 DT Electronics Ltd.
 DTL Broadcast Ltd.
 DYMA Engineering, Inc.
 DYNAIR Electronics, Inc.
 Ensemble Designs
 ESE
 FM Systems, Inc.
 GEE Broadcast Systems Ltd.



Gennum Corp.
 Grass Valley Group
 HEDCO
 Image Video Ltd.
 Integrated Switching Systems
 IRT Electronics Pty. Ltd.
 JNS Electronics, Inc.
 Leitch Inc.
 Lenco Electronics, Inc.
 Marshall Electronics Inc.
 MBI Broadcast Systems Ltd.
 Miranda Technologies
 Mobile-Cam Products
 MOCCE, Inc.
 Modulation Sciences
 MTR AG/Electronics Department
 Multidyne
 Multiplex Technology, Inc.
 Network Technologies Inc.
 Nova Systems, Inc.
 Omicron Video
 Opamp Labs, Inc.
 Optical Electronics
 Panasonic Broadcast & TV Systems
 PESA America Inc.
 Philips Broadband Networks, Inc.
 Pro-Bel Ltd.
 RE UK Ltd.
 Redwood Marketing Inc.
 ROH Products
 Sandar Electronics
 Scantex Labs Inc.
 Sierra Video Systems
 Sigma Electronics, Inc.
 H.A. Solutec Ltd.
 Television Equipment Associates
 Utah Scientific, Inc.
 VGV, Inc.
 Video Accessory Corp.
 Videoquip Research Ltd.
 Videotek, Inc.
 Wiltronix, Inc.

Animation Equipment

Film, digital video.
 Alpine Optics, Inc.
 Ampex Corp.
 Aurora Systems
 Bencher, Inc.
 BTS Broadcast Television Systems
 CV Technologies
 Digital Arts
 Digital Processing Systems Inc.
 Grass Valley Graphics Div.
 GEE Broadcast Systems Ltd.
 Kavouras Inc.

Laurentel Systems Inc.
 Lazerus
 Matrox Video Products Group
 Neilson-Hordell Ltd.
 Pinnacle Systems
 Questech Ltd.
 Smith Audio-Visual, Inc.
 Spaceward Graphics Ltd.
 TDI America
 Time Arts Inc.
 United Media
 Videomedia, Inc.

Camera Cables

Multicore, triaxial.
 Bi-Tronics, Inc.
 CAE
 Cine 60, Inc.
 Clark Wire & Cable
 Cole Wire & Cable
 Comprehensive Video Supply Corp.
 Cooper Industries Inc. Belden Div.
 Gepco Int'l, Inc.
 Hitachi Denshi America, Ltd.
 Marshall Electronics Inc.
 Mohawk Wire & Cable Corp.
 PERROTT 'The Battery People'

Camera Remote Controls

For remote camera adjustments, lens control; may include camera positioning, CCU capability.
 AF Associates Inc.
 Alpine Optics, Inc.
 Bi-Directional Microwave/Diversified Mktg.
 BTS Broadcast Television Systems
 BURLE INDUSTRIES, INC.
 Cohu Inc., Electronics Div.
 Concept W Systems, Inc.
 Crestron Electronics, Inc.
 Hitachi Denshi America, Ltd.
 Mark Roberts Motion Control
 Neilson-Hordell Ltd.
 Radamec EPO Ltd.
 Telemetrics Inc.
 Vicon Industries, Inc.

Camera Stabilizers

Specialized lens systems and camera support products to reduce image vibration, operator or mounting instability.
 Ac-cetera, Inc.
 Harry Carter Cartop, Inc.
 FSR, Inc.
 Mobile-Cam Products
 Tiffen Mfg. Corp.
 Wiltronix, Inc.

Camera Imaging Devices

Tubes, CCDs.
 Avtech Electronics Inc.
 BURLE INDUSTRIES, INC.
 EEV
 Hitachi Denshi America, Ltd.
 Philips Components Discrete Products Div.
 Sony Business & Professional Group
 Teltron Inc.
 Thomson Tubes Electroniques

Cameras, Video

C Camcorder 1-piece camera recorder systems, including still video; E ENG/EPF portable and docking units; H HDTV; S Studio models.
 Ampex Corp. C/E
 BTS Broadcast Television Systems C/E/H/S
 Canon USA Inc. Broadcast Equipment Div. C
 For.A COrp. of America H
 Hitachi Denshi, Ltd. C/E/H/S

Ikegami

Ikegami Electronics (USA), Inc. C/E/H/S
 JVC Professional Products Co. C/E/S
 Nikon Corp.

Panasonic
Broadcast & Television Systems

Panasonic Broadcast & TV Systems C/E/S
Sony Broadcast & Communications C/E/H/S
Sony Business & Professional C/E/S

SUPER CIRCUITS

Affordable MicroVideo
CAMERAS AND TRANSMITTERS

Supercircuits C/E/S
Thomson Broadcast C/E/H/S
Toshiba Corp. C/E/H/S

Captioning, VBI Data Systems

Includes Teletext, Videotext equipment.

Cavena Image Products AB
Computer Prompting Corp.
EDS Portaprompt Ltd.
EEG Enterprises, Inc.
Horita Co.
ISC Datacom
Multiplex Technology, Inc.
PESA America Inc.
Solitel Systems
VG Electronics Ltd.
Video Data Systems

Character Generators, Titlers

Video titling systems; excludes time code character insertion.

Abekas Video Systems

Advanced Audio Visual Systems
AF Associates Inc.
Ampex Corp.
Aston Electronic Designs Ltd.
Aston from Paltex Paltex Imaging Systems
AVS Broadcast
BTS Broadcast Television Systems
Comprehensive Video Supply Corp.
Croma Research Ltd.
Display Systems Int'l, Inc.
Evertz Microsystems Ltd.
GEE Broadcast Systems Ltd.
Horita Co.
Laurentiel Systems Inc.
Leitch Inc.
Matrox Video Products Group
MFJ Enterprises Inc.
MOCCE, Inc.
MTR AG/Electronics Department
Multidyne
Multiplex Technology, Inc.
Omni Q Inc.
Outland Technology Inc.
Panasonic Broadcast & TV Systems
PESA America Inc.
QSI Systems, Inc.
Quanta Corp.
Quantel
Spaceward Graphics Ltd.
TDI America
Technosystem SPA
Teledac Inc.
Texscan MSI
Thomson Broadcast
Toshiba Corp.
Vicon Industries, Inc.
Video Data Systems
World Video Inc.

Color Correction Equipment

Color balance, component level adjustments, color enhancement.

Broadcast Systems Design
BTS Broadcast Television Systems
CEL Electronics
Dynatech ColorGraphics, Inc.
Electrocrafft Labs Ltd.
FOR.A Corp. of America
Fougerolle
Hamlet Video Int'l Ltd.
Intelvideo, Inc.
Pandora Int'l
Quantel

Rank Cintel
RGB Dynamics Inc.
Snell & Wilcox
Sony Broadcast & Communications
Sony Business & Professional Group
Thomson Broadcast
Vistek Electronics Ltd.

A-D/D-A Digital Video Converters

Accom, Inc.
Alpha Image Ltd.
Ampex Corp.
BAL
BTS Broadcast Television Systems
CEL Electronics
Ensemble Designs
Fougerolle
Lazerus
Leitch Inc.
Miranda Technologies
Optical Electronics
Panasonic Broadcast & TV Systems
Questech Ltd.
RE UK Ltd.
RGB Dynamics Inc.
Sony Broadcast & Communications
Tektronix Inc.
Thomson Broadcast
Vistek Electronics Ltd.
Witronix, Inc.

Video Scan Converters

CEL Electronics
Chromatek Scan Process, Inc.
Communications Specialties Inc.
Electrocrafft Labs Ltd.
Faroudja Labs, Inc.
FOR.A Corp. of America
James Grunder & Associates Inc.
I.Den Videotronics Corp.
Ikegami Electronics (USA), Inc.
RGB Dynamics Inc.
RGB Spectrum
Video Int'l Development Corp.

Delays, Pulse/video

Includes simple delay-lines and packaged delay systems.

Advanced Audio Visual Systems
Allen Avionics, Inc.
Avitel Electronics Corp.
BAL
Broadcast Video Systems Ltd.
DTL Broadcast Ltd.
Intelvideo, Inc.
IRT Electronics Pty. Ltd.
Lenco Electronics, Inc.
Matthey Electronics
Miranda Technologies
PESA America Inc.
Pro-Bel Ltd.
Television Equipment Associates
Thomson Broadcast
Witronix, Inc.

Digital Effects Systems

Advanced Audio Visual Systems
Abekas Video Systems



Alta Group, Inc.
Ampex Corp.
CEL Electronics
Digital FX
Dynatech ColorGraphics, Inc.
ECHOlab, Inc.
FOR.A Corp. of America
Fougerolle
GEE Broadcast Systems Ltd.
Grass Valley Graphics Div.
Hotronic, Inc.
I.Den Videotronics Corp.
Imaging Systems
JVC Professional Products Co.
Laurentiel Systems Inc.
Lazerus

Matrox Video Products Group
Microtime, Inc.
Miranda Technologies
Omni Q Inc.
Pinnacle Systems
Quantel
Questech Ltd.
Sony Broadcast & Communications
Sony Business & Professional Group
TDI America
Thomson Broadcast
Toshiba Corp.

Duplicators, Video

Dwight Cavendish Co.
JVC Professional Products Co.
Macrovision
Matco Mfg. & Test Co.

Panasonic
Broadcast & Television Systems

Panasonic Broadcast & TV Systems
Tech Electronics, Inc.

Editing Controllers

Includes cuts-only, A/B roll, large scale on-line, off-line; ATR and transport synchronizer (not frame synchronizer) equipment.

Abekas Video Systems

Accom, Inc.
The Adelaide Works Inc.
Ampex Corp.
Amtel Systems, Inc.
Audio Kinetics UK Ltd.
BTS Broadcast Television Systems

CALAWAY EDITING
Dynamatech Video Group

Calaway Editing
CEL Electronics
Channematic, Inc.
CMX Editing Systems
Comprehensive Video Supply Corp.
Convergence Editing Paltex Int'l
CV Technologies
Editing Technologies Corp.
FOR.A Corp. of America
FutureVideo
JVC Professional Products Co.
Matrox Video Products Group
NEC America, Broadcast Equipment
Paltex Int'l

Panasonic
Broadcast & Television Systems

Panasonic Broadcast & TV Systems
RGB Computer & Video/Amilink
Smith Audio-Visual, Inc.
Sony Broadcast & Communications
Sony Business & Professional Group
Strassner Editing Systems
TimeLine Vista, Inc.
Toshiba Corp.
TouchVision Systems, Inc.
United Media
Videomedia, Inc.

Encoders, Decoders

And scan conversion; component-to-composite, composite-to-component; computer-to-video.

Accom, Inc.
Allen Avionics, Inc.
Asaca/Shibasoku Corp. of America
BAL
Broadcast Systems Design
Broadcast Video Systems
BTS Broadcast Television Systems
CEL Electronics
Colorado Video Inc.
Communications Specialties Inc.
Croma Research Ltd.
Digital Processing Systems

Electrocrafft Labs Ltd.
Microtime, Inc.
Ensemble Designs
Faroudja Labs, Inc.
FOR.A Corp. of America
Fougerolle
Grass Valley Graphics Div.
James Grunder & Associates Inc.
I.Den Videotronics Corp.
Ikegami Electronics (USA), Inc.
Instant Replay
Intelvideo, Inc.
Intraplex, Inc.
Laird Telemedia Inc.

Leitch Inc.
Lenco Electronics
Magni Systems, Inc.
Merlin Engineering Works, Inc.
Nova Systems, Inc.
Omicron Video
Optical Electronics
Panasonic Broadcast & TV Systems
Quanta Corp.
Questech Ltd.
RGB Spectrum
Sigma Electronics, Inc.
Snell & Wilcox
Sony Business & Professional Group
System Video
Thomson Broadcast
ULTIMATE Corp.
VGV, Inc.
Video Int'l Development Corp.
Vistek Electronics

Film, Telecine Systems

Film-to-video presentation, transfer systems.

The Adelaide Works Inc.
BTS Broadcast Television Systems
Buhl Optical Co.
Hitachi Denshi, Ltd.
Pandora Int'l
Rank Cintel
Snell & Wilcox
Steenbeck, Inc.
Tamron Industries Inc.

Filters, Optical

Includes visual effect, ND illumination level compensation and color correction.

Ampex Corp.
Canon USA Inc. Broadcast Equipment Div.
Lee Filters Ltd.
Schneider Corp.
Tiffen Mfg. Corp.

Format Translators

For inter-format conversions among video component types.

Accom, Inc.
The Adelaide Works Inc.
Avitel Electronics Corp.
Broadcast Video Systems Ltd.
CEL Electronics
Faroudja Labs, Inc.
Fougerolle
Intelvideo, Inc.
Miranda Technologies
Nova Systems, Inc.
Optical Electronics
Panasonic Broadcast & TV Systems
Pro-Bel Ltd.
RGB Dynamics Inc.
Sierra Video Systems
Thomson Broadcast
Vortex Communications

Generators, Safe Area/source ID

Advent Communications, Ltd.
Asaca/Shibasoku Corp. of America
Boland Communications
Broadcast Video Systems, Ltd.
Ensemble Designs
ESE
Horita Co.
Lenco Electronics, Inc.
Multidyne
QSI Systems, Inc.

Video Products

Sigma Electronics, Inc.
Tektronix Inc.
Wiltronix, Inc.
World Video Inc.

Graphics Systems

Dedicated and PC-based products; software packages
Accu-Weather, Inc.
Aurora Systems
CEL Electronics
Comprehensive Video Supply Corp.
Digital F/X
Display Systems Int'l. Inc.
Dynatech ColorGraphics, Inc.
GEE Broadcast Systems Ltd.
Getris Images
Grass Valley Graphics Div.
Laurentel Systems Inc.
Lazerus
Matrox Video Products Group
PESA America Inc.
Pinnacle Systems
QSI Systems, Inc.
Rank Cintel
Spaceward Graphics Ltd.
Teledac Inc.
Thomson Broadcast
Time Arts Inc.
Vortex Communications

Hardcopy Printers, Video

Hitachi Denshi America, Ltd.
Mitsubishi Electronics America
Nikon Photo/ Electronic Imaging Products
Panasonic Broadcast & TV Systems
Sony Business & Professional Group

HDTV, ATV Equipment

Forming images of more than 1,000-line structure; interlace, sequential scans; excludes computer CAD and non-video products.
Asaca/Shibasoku Corp. of America
Aston Electronic Designs Ltd.
Avitel Electronics Corp.
BTS Broadcast Television Systems
Canon USA Inc. Broadcast Equipment Div.
Chromatek Scan Process, Inc.
DTL Broadcast Ltd.
ESE
FOR.A Corp. of America
Hitachi Denshi America, Ltd.
Hitachi Denshi, Ltd.
Ikegami Electronics (USA), Inc.
Kaitronics Corp.
Keystone Metal Products, Inc.
Quantel
Rank Cintel
Snell & Wilcox
Sony Business & Professional Group
Tektronix Inc.
Television Equipment Associates
Thomson Broadcast
Toshiba Corp.
Videomedia, Inc.
Vistek Electronics Ltd.
Vortex Communications

Keyers

DSK, Chroma, Linear, Luminance, Compositing
Accom, Inc.
Advanced Audio Visual Systems
Alpha Image Ltd.
Ampex Corp.
Beaveronics, Inc.
Broadcast Video Systems, Ltd.
GEE Broadcast Systems Ltd.
Imaging Systems
Matrox Video Products Group
Paltex Int'l
Pro-Bel Ltd.
Thomson Broadcast
Toshiba Corp.
ULTIMATE Corp.
Videotek, Inc.
Visionetics Int'l Corp.
Vistek Electronics Ltd.
Vortex Communications

Lens Systems

Fixed, zoom lenses for video cameras, including adapters, extenders.
Alpine Optics, Inc.
Angenieux
Canon USA Inc. Broadcast Equipment Div.
CCTV Corp.
Century Precision Optics
Fujinon Inc.
Innovation Optics
Nikon Corp.
Nikon Photo/ Electronic Imaging Products
Schneider Corp.
Tamron Industries Inc.
VMI-Visual Methods Inc.

Lighting Instruments, Kits

1 Lighting Instruments, Kits; D Dimmer, Control Systems; L Lamps



Anton Bauer, Inc. I
Apollo Audio Visual/Lighting L
Arriflex Corp. I
Broadcast Marketing Int'l I
CAE Inc. I/D
Celco Inc. I/D
Cine 60, Inc. I
Colortran, Inc. I/D
Cool-Lux Lighting Industries I/L
Dedotec USA, Inc. I/L
Dove Systems D
Frezzolini Electronics, Inc. I
G&M Power Products I
Gray Supply Co. L
The Great American Market I/D
Keystone Metal Products, Inc. I
Koto Luminous Corp. L
Lee Filters Ltd. I
Lowel-Light Mfg., Inc. I
LTM Corp. of America I
Lumitrol, Ltd. I/D/L
Mole-Richardson Co. I/D/L
L.E. Nelson Sales Corp. L
Packaged Lighting Systems I/D/L
Philips Lighting L
Premier Lighting & Production Co. I/D/L
Richmond Sound Design, Ltd. I
Sachtler Corp. of America I/D/L
Scorpio Controls D
Strand Lighting, Inc. I/D/L
Vantage Lighting I/L

Monitors, Video

M Standard; H HDTV; S Hoods
Asaca/Shibasoku Corp. of America M/H



Barco, Inc. M/H
BTS Broadcast Television Systems M/H
BURLE INDUSTRIES, INC. M
CCTV Corp. M
Croma Research Ltd. M



Dotronix, Inc. M
Electrohome M
Electronic Visuals Ltd. M
Hitachi Denshi M/H
Hoodman Corp. S
Ikegami Electronics (USA), Inc. M/H
JVC Professional Products Co. M
Melford Electronics Ltd. M
Mitsubishi Electronics America M
MultiVideo Image Display Co. M



Panasonic Broadcast & TV Systems M
Peerless Sales Co. M

Color highlights denote advertisers; see ad index

Projectors, Video

Large Screen Systems Using CRT, LCD light sources.



Barco, Inc.
Buhl Optical Co.
Electrohome
GE Co., Projection Display Products
Hitachi Denshi America, Ltd.
Ikegami Electronics (USA), Inc.
Lazerus
Mitsubishi Electronics America
Neumade Products Corp.
Nytone Inc.
Panasonic Broadcast & TV Systems
Sharp Electronics Corp. LCD Products
George R. Snell Associates
Sony Broadcast & Communications
Sony Business & Professional Group
Telex Communications, Inc.

Prompting Systems, Software

BDL Autoscript
Beacon Software, Inc.
Blue Feather Co.
Comprehensive Video Supply Corp.
Computer Prompting Corp.
CV Technologies
EDS Portaprompt Ltd.
Listec Video Corp.
Magic Teleprompting, Inc.
maney_logic
QTV
Tekskil Industries Inc.
Telescript, Inc.

Recorders, Video

A 1/2" S-VHS, M-II, Betacam; U 3/4" U-matic; C 1" Type B and C; D D-1, D-2, D-3 digital; H HDTV; K Solid-state
Ampex Corp. A/C/D
Asaca/Shibasoku Corp. of America D
BTS Broadcast Television Systems A/C/D/H
Hitachi Denshi America, Ltd. A/C/D
Instant Replay A
JVC Professional Products Co. A
Lazerus H
Merlin Engineering Works, Inc. K
Mitsubishi Electronics America A
NEC America, Inc. Broadcast Equipment K

Panasonic Broadcast & Television Systems

Panasonic Broadcast & TV Systems A/D
Questech Ltd. K
Sony Broadcast & Communications A/U/D/H
Sony Business & Professional A/U/C/D
Thomson Broadcast D
Toshiba Corp. H

Recorders, Still Stores

Includes still video reproduction products; optical and magnetic videodisc systems.
Abekas Video Systems
Accom, Inc.
Asaca/Shibasoku Corp. of America
Aston Electronic Designs Ltd.
Aston from Paltex Paltex Imaging Systems
CEL Electronics
Editing Machines Corp.
GEE Broadcast Systems Ltd.
Leitch Inc.
Matrox Video Products Group
Nikon Photo/ Electronic Imaging Products
Okitel, LP
Optical Disc Corp.
Optical Media Int'l
Panasonic Broadcast & TV Systems
Pinnacle Systems
Pioneer Communications of America
Prime image, Inc.

PESA America Inc. M
Sharp Electronics/LCD Products M
Sony Broadcast & Communications M/H
Sony Business & Professional Group M
Thomson Broadcast M/H
Vicon Industries Professional Products M
Video Visions, Inc./Delcom M
Videotek, Inc. M
Vistek Electronics Ltd. M

Noise Reduction Systems

Accom, Inc.
AF Associates Inc.
BTS Broadcast Television Systems
CEL Electronics
Deerfield Lab
FOR.A Corp. of America
Intelvideo, Inc.
Nova Systems, Inc.
Optical Electronics
Snell & Wilcox
Sony Business & Professional Group

Pan/Tilt Heads, Controls

H Pan/Tilt Heads, Controls; P Pedestals, Tripods, Dollies; both may include automated camera positioning products.
Ac-cetera, Inc. P
AF Associates Inc. H/P
Aritel Systems, Inc. H
Arriflex Corp. H
Bogen Photo Corp. P
BURLE INDUSTRIES, INC. H
Canon USA Inc. Broadcast Equipment P
CCTV Corp. H
Cestron Electronics, Inc. H
Fuji Photo Optical Co., Ltd. H
Fujinon Inc. H
Innovation Optics H/P
Karl Heitz, Inc. H/P
Keystone Metal Products, Inc. P
Peter Lisand Corp. H/P
Mathews/ITE H/P
Miller Fluid Heads (USA) Inc. H/P
Mobile-Cam Products H
Mole-Richardson Co. P
Neilson-Hordell Ltd. H
O'Connor Engineering H/P
Panther Corp. of America H/P
Penny & Giles, Inc. H
Precision Specialties, Inc. H/P
Sachtler Corp. of America H/P
Telemetrics Inc. H
Tiffen Mfg. Corp. P
TSM H/P
ULTIMATE Corp. H
Velbon Int'l Corp./P
Vicon Industries Professional Products H
Vinten Broadcast H/P

Production Systems, Integrated

May include functions of time base correction, switching, effects, graphics.
Abekas Video Systems
AF Associates Inc.
Ampex Corp.
Bencher, Inc.
CEL Electronics
Digital F/X
Digital Processing Systems Inc.
Dynatech ColorGraphics, Inc.
FOR.A Corp. of America
James Grunder & Associates Inc.
I.Den Videotronics Corp.
JVC Professional Products Co.
Lazerus
Matrox Video Products Group
Microtime, Inc.
Paltex Int'l
Panasonic Broadcast & TV Systems
Pinnacle Systems
Questech Ltd.
Sony Business & Professional Group
Toshiba Corp.
Vistek Electronics Ltd.

Rank Cintel
 Sony Broadcast & Communications
 Sony Business & Professional Group
 Spaceward Graphics Ltd.
 Thomson Broadcast
 3M Pre-recorded Optical Project
 Wiltronix, Inc.

Recording Heads

Ampex Corp.
 CMC-Datatape
 Pioneer Communications of America

Recording Tape

Ampex Corp.
 Ampex Recording Media Corp.
 Avtech Electronics Inc.
 CoarcVideo



DIC Digital
 Fuji Photo Film USA, Inc. Magnetic Products
 JVC Professional Products Co.
 Panasonic Broadcast & TV Systems
 Sony Broadcast & Communications
 Sony Recording Media of America
 3M Professional A/V & Specialty Products

Signal Enhancers

Detail correction, enhancement equipment.
 Accom, Inc.
 Broadcast Systems Design
 BTS Broadcast Television Systems
 Nova Systems, Inc.
 Optical Electronics
 Snell & Wilcox

Standards Converters

Inter-standard conversion between composite video; NTSC, PAL/-N/-M, SECAM; may include video component input and output capabilities.
 AF Associates Inc.
 AVS Broadcast
 BTS Broadcast Television Systems
 CEL Electronics
 Chromatek Scan Process, Inc.
 I.Den Videotronics Corp.
 Snell & Wilcox
 Sony Broadcast & Communications
 Video Int'l Development Corp.
 Vistek Electronics Ltd.
 Vortex Communications
 Wiltronix, Inc.

Switchers, Routing

See Page 8.

Switchers, Video

M Master-Control, **P** Production/Post
 Abekas Video Systems P
 AF Associates Inc. P



Alta Group, Inc. P
 American Broadcast Systems, Inc. M
 Ampex Corp. P
 BTS Broadcast Television Systems M/P
 ECHOlabs, Inc. P
 FOR.A Corp. of America P
 Grass Valley Group M/P
 I.Den Videotronics Corp. P
 Image Video Ltd. M
 JVC Professional Products P
 MOCCE, Inc. P
 Multidyne P
 Omni Q Inc. P
 Panasonic Broadcast & TV Systems P
 PESA America Inc. M
 PKE Int'l M/P
 Prime Image P

Ross Video Ltd. P
 Siemens Audio & Video Div. M
 Sony Broadcast & Communications P
 Sony Business & Professional Group M/P
 Studer Digitec M/P
 Tech Electronics, Inc. M
 Thomson Broadcast M/P
 Toshiba Corp. M/P
 Utah Scientific, Inc. M/P
 VGV, Inc. P
 Videotek, Inc. M/P
 Vistek Electronics Ltd. M/P

Sync/Pattern Generators

Produces video drive pulses, sub-carrier, blackburst, color bar, test patterns.
 Asaca/Shibasoku Corp. of America
 CEL Electronics
 Digital Processing Systems Inc.
 DT Electronics Ltd.
 Electrocraft Labs Ltd.
 ESE
 FOR.A Corp. of America
 Fougerolle
 Grass Valley Group
 HEDCO
 Horita Co.
 Intelvideo, Inc.
 Leitch Inc.
 Multidyne
 Omicron Video
 Optical Electronics
 RE UK Ltd.
 Rohde & Schwarz
 Sigma Electronics, Inc.
 System Video
 Tektronix Inc.
 Thomson Broadcast
 Video Accessory Corp.
 Videotek, Inc.
 Vistek Electronics Ltd.
 Vortex Communications
 Wiltronix, Inc.

TBCs, Synchronizers



Alta Group, Inc.
 American Broadcast Systems, Inc.
 Ampex Corp.
 CEL Electronics
 Chromatek Scan Process, Inc.



Digital Processing Systems Inc.
 DT Electronics Ltd.
 East Coast Video Systems
 Electrocraft Labs Ltd.
 Ensemble Designs
 FOR.A Corp. of America
 Fougerolle
 Hamlet Video Int'l Ltd.
 Hotronic, Inc.
 I.Den Videotronics Corp.
 Jem-Fab Corp.
 JVC Professional Products Co.
 Microtime, Inc.
 Nova Systems, Inc.
 Prime Image, Inc.
 Questech Ltd.
 Snell & Wilcox
 Sony Business & Professional Group
 Tektronix Inc.
 Videotek, Inc.
 Vistek Electronics Ltd.
 Wiltronix, Inc.

Film Cameras/Editors

The Adelaide Works Inc.
 Arriflex Corp.
 CMX Editing Systems
 Keystone Metal Products, Inc.
 Lightworks The O.L.E. Partnership

Neumade Products Corp.
 Pioneer Technology Corp.
 Steenbeck, Inc.

Teleconferencing Systems

Artel Communications Corp.
 Crestron Electronics, Inc.
 FOR.A Corp. of America
 FSR, Inc.
 Hitachi Denshi, Ltd.
 Integrated Network Corp.
 LNR Communications, Inc.
 Microdyne Corp.
 Nytone Inc.

Panasonic Broadcast & Television Systems

Panasonic Broadcast & TV Systems
 George R. Snell Associates
 Sony Business & Professional Group
 Telemetrics Inc.
 Vicon Industries, Inc.

TEST, ALIGNMENT TAPES

HAMLET

Hamlet Video Int'l Ltd.
 Tentel

Time Code Equipment

Generators, readers, character insertion; film frame counting, film data products.
 A/Z Associates
 Adams-Smith
 The Adelaide Works Inc.
 Adrienne Electronics Corp.
 Advanced Audio Visual Systems
 American Broadcast Systems, Inc.
 Audio Kinetics UK Ltd.
 Avitel Electronics Corp.
 Beaveronics, Inc.
 Cipher Digital, Inc.
 Comprehensive Video Supply Corp.
 Denecke Inc.
 ESE
 Evertz Microsystems Ltd.
 Fast Forward Video
 FOR.A Corp. of America
 FutureVideo
 Gray Engineering Labs, Inc.
 Horita Co.
 JLCoooper Electronics
 JVC Professional Products Co.
 Leitch Inc.
 Magna-Tech Electronic Co., Inc.
 Multidyne
 Panasonic Broadcast & TV Systems
 Redwood Marketing Inc.
 Skotel Corp.
 Sony Business & Professional Group



Telcom Research
 Thomson Broadcast
 TimeLine Vista, Inc.
 TouchVision Systems, Inc.
 United Media
 Video Data Systems
 VideoLab
 Vortex Communications

Weather Displays, Radar

Dedicated weather graphics display systems and radar electronics.
 Accu-Weather, Inc.
 Advanced Designs Corp.
 Dynatech ColorGraphics, Inc.
 GEE Broadcast Systems Ltd.
 Grass Valley Graphics Div.
 Lazerus
 Norpak Corp.

QSI Systems, Inc.
 Spaceward Graphics Ltd.
 Video Data Systems

RF Products

Antenna Positioning Systems

Microwave and ES/TVRO antenna controllers.
 Antenna Technology
 Continental Microwave Ltd.
 Hallikainen & Friends, Inc.
 Microdyne Corp.
 Mobile-Cam Products
 NSI
 Precision Specialties, Inc.
 Radiation Systems/SatCom Technologies
 Toshiba Corp.

Antenna Remote Indicators

ABB Infocom Ltd.
 Burk Technology, Inc.
 Gorman-Redlich Mfg. Co.
 Hallikainen & Friends, Inc.
 Harris Allied Broadcast Equipment
 Paltech Int'l
 Potomac Instruments, Inc.
 SSAC Inc.

Antenna Sampling Equipment

ABB Infocom Ltd.
 Delta Electronics Inc.
 ERI-Electronics Research, Inc.
 Geleco Electronics Ltd.
 LBA Technology, Inc.
 Harris Allied Broadcast Equipment

Antennas, AM

A Arrays; T Tuning units
 ABB Infocom Ltd. A/T
 Dav Tronics T
 Continental Electronics Corp. T
 Alan Dick & Co. Ltd. A/T
 ERI-Electronics Research, Inc. A/T
 GEC-Marconi Communications, Ltd. A/T
 Geleco Electronics Ltd. A/T
 Gorman-Redlich Mfg. Co. A
 Ham-Pro Antennas/Kopps Corp. T
 Harris Allied Broadcast Equipment A/T
 ITAME, S.A. T
 Kintronic Labs, Inc. A/T
 LBA Technology, Inc. A/T
 LDL Communications, Inc. A
 Lightning Prevention Systems A/T
 LPB Inc. T
 T.R. Pitts Co. A
 ROHN A
 Stellar Communications Inc. A
 Swager Communications, Inc. A
 Telefunken Sendertechnik GmbH A/T

Antennas, FM Transmitting



Antenna Concepts Inc.
 Broadcast Electronics, Inc.
 Cablewave Systems Div. of Radio Frequency Systems Inc.
 CED
 Central Tower Inc.
 Comark Communications, Inc.
 Continental Electronics Corp.
 CTE Int'l
 DB Elettronica Telecomunicazioni S.p.A.
 Alan Dick & Co. Ltd.
 Dielectric Communications
 ERI-Electronics Research, Inc.
 Euro Tech Inc.
 GEC-Marconi Communications, Ltd.
 Hans Kolbe & Co./FUBA
 Harris Allied Broadcast Equipment
 Hitachi Denshi, Ltd.



B R O A D C A S T

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SPAIN

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CMNO. DE LOS ALBARES, 14
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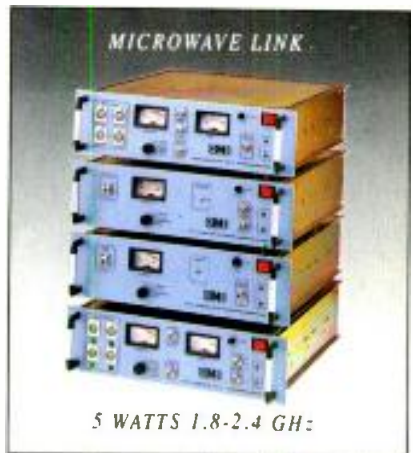
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DIGITAL STEREO GENERATOR 45-60 dB SEPARATION	1.375
3 kW RADIATING SYSTEM 4 DIPOLES POWER DIVIDER 1 2" CELLFLEX	2.750
PORTABLE TRANSMITTER 12 V 88-108 MH: 10 WATTS SYNTH	1.550
STL 200-400 MH: 10 WATTS 800-960 MH: 516 WATTS TELEMETRY SYNTH.	
μPROCESSOR MONO MPX 2 SCA	4.685
FM TRANSMITTER 88-108 MH: 20 WATTS SYNTH μPROCESSOR	2.475
FM TRANSMITTER SOLID STATE 88-108 MH: 500 WATTS	8.890
FM TRANSMITTER TUBE 3CX1500 88-108 MH: 1.000 WATTS	10.890
FM TRANSMITTER TUBE 4CX1500 88-108 MH: 5.000 WATTS	25.375
TV REPEATER 5 WATTS	6.500
PANEL RADIATOR UHF STAINLESS STEEL	790
MICROWAVE LINK 5 WATTS 1.8-2.4 GHZ	15.150

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It's called DCT™—Digital Component Technology.

It's the world's first realistic CCIR-601 digital component system available from one manufacturer.

Tape drive, tape cartridge, switcher, editor, ADO®, character animator, and interconnect equipment.

All available now. Only from Ampex.

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JT Communications
Kathrein-Werke KG
LDL Communications, Inc.
Micro Communications, Inc.
Rohde & Schwarz
Scala Electronic Corp.
Sharp Electronics HPG Industries Inc.
Shively Labs/Howell Labs, Inc.
SIRA Sistemi Radio. srl
Southern Illinois Antennas



SWR Inc.
Telefunken Sendertechnik GmbH
Tenco Tower Co.
Tennaplex Systems Ltd.
Thomson-LGT
Toshiba Corp.

Antennas, Microwave

ENG, ITFS, MDS, STL/ICR.
Andrew Corp.
Bi-Directional Microwave/Diversified Mktg.
Broadcast Microwave Services, Inc.
BURLE INDUSTRIES, INC.
Cablewave Systems
CED
Conifer Corp.
Continental Microwave Ltd.
CTE Int'l
DB Elettronica Telecomunicazioni S.p.A.
Elenos
Euro Tech Inc.
Gabriel Electronics Inc.
GEC-Marconi Communications Ltd.
Ham-Pro Antennas/Kopps Corp.
Hans Kolbe & Co./FUBA
Hitachi Denshi, Ltd.
Ikegami Electronics (USA), Inc.
ITAME, S.A.
J&L Associates
Kathrein-Werke KG
Lance Industries
Loral Microwave-Narda
Lucas Epsco Inc.
Marti Electronics
Micro Controls



Microwave Radio Corp.
NSI
Nucomm Inc.
Racon Inc.
Radiation Systems Mark Antennas
RF Technology, Inc.
Scala Electronic Corp.
TFT Inc.
Wegener Communications Inc.

Antennas, Satellite R/T, TVRO

Advent Communications, Ltd.
Andrew Corp.



Antenna Technology
ComStream Corp.
Comtech Antenna Systems, Inc.
Continental Microwave Ltd.
CPS Communications Group
GEC-Marconi Communications, Ltd.
Hans Kolbe & Co./FUBA
Kathrein-Werke KG
LNR Communications, Inc.
Lucas Epsco Inc.
Microdyne Corp.
Orbitron Int'l Complete Satellite Systems
Prodelin Corp.
Radiation Systems/ SatCom Technologies
RF Technology, Inc.

Telesat Int'l, Ltd.
Vertex Communications Corp.
Wegener Communications Inc.

Antennas, TV Transmitting

Andrew Corp.
Antenna Concepts Inc.
Astre Systems Inc.
Cablewave Systems
CED
DB Elettronica Telecomunicazioni S.p.A.
Alan Dick & Co. Ltd.
Dielectric Communications
ERI-Electronics Research, Inc.
Euro Tech Inc.
GEC-Marconi Communications, Ltd.
Hans Kolbe & Co./FUBA
Harris Allied Broadcast Equipment
J&L Associates
Jampro Antennas Inc.
Kathrein-Werke KG
Lance Industries
LDL Communications, Inc.
Micro Communications, Inc.
ORA Electronics
Rohde & Schwarz
Scala Electronic Corp.
Sharp Electronics HPG Industries Inc.
SIRA Sistemi Radio. srl
Southern Illinois Antennas



SWR Inc.
Telefunken Sendertechnik GmbH
Tennaplex Systems Ltd.
Thomson-LGT
Toshiba Corp.

Attenuators, RF

Allen Avionics, Inc.
Antenna Technology
Bird Electronic Corp.
Comark Communications, Inc.
Hans Kolbe & Co./FUBA
Harris Allied Broadcast Equipment
Kay Elemetrics Corp.
Loral Microwave-Narda
Rohde & Schwarz
Tech Labs Inc.
Trilithic, Inc.

CATV System Components

Alpha Technologies
Antenna Technology
Hans Kolbe & Co./FUBA
Marshall Electronics Inc.
Microwave Filter Co., Inc.
Microwave Solutions Inc.
Orbitron Int'l Complete Satellite Systems
Penta Labs
Philips Components Discrete Products Div.
T.R. Pitts Co.
TFT Inc.
Toshiba Corp.
Trilithic, Inc.
Wegener Communications Inc.

De-Icer Systems

Antenna Technology
Comtech Antenna Systems, Inc.
Dielectric Communications
Environmental Technology, Inc.
ERI-Electronics Research, Inc.
Ice Krackers, Inc.
Jampro Antennas Inc.
Shively Labs/Howell Labs, Inc.
Southern Illinois Antennas

ENG Components, Electronics

Antenna Technology
Broadcast Microwave Services, Inc.
Continental Microwave Ltd.
Dielectric Communications
Eagle Wichita
ERI-Electronics Research, Inc.
Kings Electronics Co., Inc.

Marti Electronics



Microwave Radio Corp.
NSI
Nucomm Inc.
Penta Labs
RF Technology, Inc.
Sennheiser Electronic Corp.
Shively Labs Howell Labs, Inc.
Tectan, Inc.
Toshiba Corp.
Wolf Coach, Inc.

Exciters, Generators

*F FM/Stereo, SCA
T TV/Stereo/SAP/PRO*
ABB Infocom Ltd.
Acrodyne Industries Inc.
Advent Communications, Ltd.
Aphex Systems Ltd.
Asaca/Shibasoku Corp. of America
Astre Systems Inc.
Audio Animation Inc.
Avocet Instruments
Access USA Corp.
Bext Inc.
Broadcast Electronics, Inc.
CCA Electronics, Inc.
CEDAR Audio Ltd.
Cemtys S.A.
Comark Communications, Inc.
Continental Electronics Corp.
Continental Microwave Ltd.
CRL Systems-Circuit Research Labs, Inc.
CTE Int'l
Delta Electronics Inc.
DB Elettronica Telecomunicazioni
Elenos



ELIT-Elettronica Italiana
Euro Tech Inc.
GEC-Marconi Communications
Gentner Communications Corp.
Harris Allied Broadcast Equipment
Inovonics Inc.
ITAME, S.A.
ITELCO
ITS Corp.
J&L Associates
JNS Electronics, Inc.
JT Communications
Kahn Communications, Inc.
LDL Communications, Inc.
Marti Electronics
Modulation Sciences
Moseley Associates, Inc.
Motorola AM Stereo
Multidyne
Orban Associates/ AKG Acoustics
QEI Corp.
Rohde & Schwarz
Sharp Electronics HPG Industries Inc.
Siel Sistemi Elettronici SRL

Coaxial Dynamics
Conifer Corp.
Continental Electronics Corp.
CTE Int'l
Dielectric Communications
Euro Tech Inc.
Hans Kolbe & Co./FUBA
Richard Hirschmann GmbH
ITAME, S.A.
ITELCO S.p.A.
J&L Associates
Kings Electronics Co., Inc.
LDL Communications, Inc.
Lucas Epsco Inc.
Matthey Electronics
MFJ Enterprises Inc.
Micro Communications, Inc.
Microwave Filter Co., Inc.
Multiplex Technology, Inc.
North Hills Electronics, Inc.
Nucomm Inc.
RF Technology, Inc.
Shively Labs Howell Labs, Inc.
SIRA Sistemi Radio. srl
Technosystem SPA
Television Equipment Associates
Tennaplex Systems Ltd.
Tepco Corp.
Trilithic, Inc.
Unitronic
UTE Microwave, Inc.

Heat Exchangers

Includes all transmitter air-handling and cooling products.
Astre Systems Inc.
Bird Electronic Corp.
Electro Impulse Lab, Inc.
Harris Allied Broadcast Equipment
J&L Associates
Technosystem SPA

Isocouplers

Dielectric Communications
J&L Associates
Shively Labs/Howell Labs, Inc.
UTE Microwave, Inc.

ITFS, MDS Components, Electronics

Cadco, Inc.
CED
Conifer Corp.
EMCEE Broadcast Products
ITS Corp.
J&L Associates
Microwave Filter Co., Inc.
Orbitron Int'l Complete Satellite Systems
Technosystem SPA

Mobile Radio, Cellular Phones

Utility communications products.
Access USA Corp.
Cellabs
Cellcast Remote Broadcast/Tri-Tech
Hans Kolbe & Co./FUBA
Motorola Inc. Land Mobile Products Sector
SIRA Sistemi Radio. srl
Spectrum Communications Corp.



Standard Communications
Technosystem SPA
Teko Telecom S.R.L.
Telefunken Sendertechnik GmbH
Television Technology Corp.
Tepco Corp.
TFT Inc.
VG Electroncis Ltd.



Standard Communications

Modulators, TV

Advent Communications, Ltd.
Antenna Technology
Asaca/Shibasoku Corp. of America
Astre Systems Inc.



Barco, Inc.
Cadco, Inc.
Comark Communications, Inc.

Filters, Microwave, RF

ABB Infocom Ltd.
Allen Avionics, Inc.
Antenna Technology
Bird Electronic Corp.
Broadcast Microwave Services, Inc.

Continental Microwave Ltd.
CTE Int'l
DB Elettronica Telecomunicazioni S.p.A.



ELIT-Elettronica Italiana S.p.A.
Euro Tech Inc.
Hans Kolbe & Co./FUBA
Richard Hirschmann GmbH
ISS Engineering, Inc.
ITELCO S.p.A.
ITS Corp.
J&L Associates
Multiplex Technology, Inc.
Orbitron Int'l Complete Satellite Systems
Philips TV Test Equipment
T.R. Pitts Co.
Rohde & Schwarz



Standard Communications
Technosystem SPA
Teko Telecom S.R.L.
Television Technology Corp.

Power Amplifiers, Cavities

ABB Infocom Ltd.
Acrodyne Industries Inc.
Astre Systems Inc.
AVCOM of Virginia, Inc.
BURLE INDUSTRIES, INC.
Cemty's S.A.
Comark Communications, Inc.
Continental Electronics Corp.
Continental Microwave Ltd.
CTE Int'l
DB Elettronica Telecomunicazioni S.p.A.



ELIT-Elettronica Italiana S.p.A.
EMCEE Broadcast Products
Euro Tech Inc.
GE Support Services/ RCA Broadcast
Hans Kolbe & Co./FUBA
Harris Allied Broadcast Equipment
Richard Hirschmann GmbH
ITAME, S.A.
ITELCO S.p.A.
ITS Corp.
J&L Associates
Lucas Epsco Inc.
Marconi Communications Inc.
MCL, Inc.
MFJ Enterprises Inc.
Microwave Solutions Inc.
QEI Corp.
Rohde & Schwarz
Siel Sistemi Elettronici SRL
Spectrum Communications Corp.
Technosystem SPA
Teko Telecom S.R.L.
Television Technology Corp.
TFT Inc.
Thomson Tubes Electroniques
Varian Power Grid Tube Products

Power Combiners, Diplexers

Antenna Technology
Astre Systems Inc.
Comark Communications, Inc.
Continental Electronics Corp.
Continental Microwave Ltd.
CTE Int'l
DB Elettronica Telecomunicazioni S.p.A.
Dielectric Communications
Eagle Wichita
Hans Kolbe & Co./FUBA
Harris Allied Broadcast Equipment
Richard Hirschmann GmbH
ITAME, S.A.
ITELCO S.p.A.
ITS Corp.

J&L Associates
Jampro Antennas Inc.
Kintronic Labs, Inc.
Loral Microwave-Narda
Lucas Epsco Inc.
Micro Communications, Inc.
North Hills Electronics, Inc.
Rohde & Schwarz
Shively Labs/Howell Labs, Inc.
SIRA Sistemi Radio, srl
Southern Illinois Antennas
Teko Telecom S.R.L.
Telefunken Sendertechnik GmbH
Television Technology Corp.
Tennaplex Systems Ltd.
TFT Inc.

Power Dividers

Andrew Corp.
Antenna Technology
AVCOM of Virginia, Inc.
Comark Communications, Inc.
Continental Electronics Corp.
Continental Microwave Ltd.
Dielectric Communications
Euro Tech Inc.
Hans Kolbe & Co./FUBA
Harris Allied Broadcast Equipment
Richard Hirschmann GmbH
ITAME, S.A.
J&L Associates
Jampro Antennas Inc.
Loral Microwave-Narda
Micro Communications, Inc.
Microwave Solutions Inc.
North Hills Electronics, Inc.
T.R. Pitts Co.
Rohde & Schwarz
Shively Labs/Howell Labs, Inc.
SIRA Sistemi Radio, srl
Southern Illinois Antennas
Standard Communications
Teko Telecom S.R.L.
Television Technology Corp.
Tennaplex Systems Ltd.
TFT Inc.

Pressurization Equipment

Andrew Corp.
Cablewave Systems
Dielectric Communications
Environmental Technology, Inc.
Euro Tech Inc.
J&L Associates
Nucomm Inc.
Shively Labs/Howell Labs, Inc.
SIRA Sistemi Radio, srl
Southern Illinois Antennas

Receivers, AM, FM, SCA

Ace Communications
Antenna Technology
Avocet Instruments
Access USA Corp.
Bext Inc.
Bogen Communications, Inc.
CEDAR Audio Ltd.
CTE Int'l
Dav Tronics
DB Elettronica Telecomunicazioni S.p.A.
Delta Electronics Inc.
Gorman-Redlich Mfg. Co.
Hemec Communications
Inovonics Inc.
ITAME, S.A.
ITELCO S.p.A.
J&L Associates
JNS Electronics, Inc.
Marconi Communications Inc.
Marti Electronics
MFJ Enterprises Inc.
Modulation Sciences
Moseley Associates, Inc.
Norpak Corp.
Orbitron Int'l Complete Satellite Systems
Reach Electronics, Inc.
Rohde & Schwarz
SCA Data Systems, Inc.
TFT Inc.

Receivers, Satellite

Includes associated LNA, LNC products.
Advent Communications, Ltd.
Antenna Technology
AVCOM of Virginia, Inc.



Barco, Inc.
Fairchild Data Corp.
Hans Kolbe & Co./FUBA
Hemec Communications
Richard Hirschmann GmbH
Intraplex, Inc.
ISS Engineering, Inc.
Kathrein-Werke KG
LNR Communications, Inc.
Microdyne Corp.
Orbitron Int'l Complete Satellite Systems
T.R. Pitts Co.
Rohde & Schwarz



Standard Communications
TFT Inc.
Wegener Communications Inc.

Remote Pickup Components, Electronics

Antenna Technology
Avocet Instruments
Continental Microwave Ltd.
Gentner Communications Corp.
Intraplex, Inc.
ITAME, S.A.
J&L Associates
Moseley Associates, Inc.
NSI
Nucomm Inc.
Spectrum Communications Corp.
Technosystem SPA
TFT Inc.

Satellite T/R Components, Electronics

Excludes antennas.
Antenna Technology
Astroguide
ComStream Corp.
Continental Microwave Ltd.
EEV
Fairchild Data Corp.
Hans Kolbe & Co./FUBA
Hemec Communications
Intraplex, Inc.
ISS Engineering, Inc.
Kathrein-Werke KG
LNR Communications, Inc.
Macrovision
MCL, Inc.
Microdyne Corp.
Orbitron Int'l Complete Satellite Systems
Radiation Systems, Inc. SatCom Technologies Div.
RF Technology, Inc.
Toshiba Corp.
Varian Microwave Equipment Products

STL Components, Electronics

O Fiber optic; excludes antennas.
Artel Communications Corp.
Broadcast Microwave Services, Inc.
CED
Cemty's S.A.
Continental Microwave Ltd.
Dolby Labs, Inc.
Elenos
Hitachi Denshi, Ltd.
Intraplex, Inc.
IRT Electronics Pty. Ltd.
ITAME, S.A.
J&L Associates
JNS Electronics, Inc.
Marti Electronics

Microwave Networks Inc.



Microwave Radio Corp.
Modulation Sciences



Moseley Associates, Inc.
NSI
Nucomm Inc.
QEI Corp.
RF Technology, Inc.
Siel Sistemi Elettronici SRL
Spectrum Communications Corp.
T-Tech Corp.
Technosystem SPA
Tectan, Inc.
TFT Inc.
Wegener Communications Inc.

Switchers, RF Coaxial

ABB Infocom Ltd.
Antenna Technology
Astre Systems Inc.
Bird Electronic Corp.
BURLE INDUSTRIES, INC.
Comark Communications, Inc.
Continental Electronics Corp.
Delta Electronics Inc.
Dielectric Communications
Gentner Communications Corp.
Hans Kolbe & Co./FUBA
Harris Allied Broadcast Equipment
ITAME, S.A.
J&L Associates
Key Elemetrics Corp.
Loral Microwave-Narda
MFJ Enterprises Inc.
Micro Communications, Inc.
Monroe Electronics, Inc.
Shively Labs/Howell Labs, Inc.
SIRA Sistemi Radio, srl
Trilithic, Inc.

Tower Lighting Systems

ABB Infocom Ltd.
Allied Tower Co., Inc.
Astre Systems Inc.
Broadcast Communications
Burk Technology, Inc.
Central Tower Inc.
Computer Power Inc.
Crouse-Hinds Airport Lighting Products
Alan Dick & Co. Ltd.
EG&G Electro-Optics
Flash Technology Corp.
Flying Fur Industries
FWT
Hughey & Phillips Inc.
Kline Towers
LDL Communications, Inc.
Lightning Prevention Systems
Microlect Co., Inc.
Northern Power Systems
Racal Decca Canada Ltd., Insulators Div.
ROHN
SG Communications
SSAC Inc.
Stainless Inc.
Stellar Communications Inc.
Tenco Tower Co.
Trylon Towers



TWR Lighting, Inc.
Utility Tower Co.
Will-Burt Co.
Xcel Controls, Inc.

Towers & Accessories

ABB Infocom Ltd.
Allied Tower Co., Inc.

Aluma Tower Co. Inc.
Andrew Corp.
Astre Systems Inc.
Broadcast Communications
CED
Central Tower Inc.
Alan Dick & Co. Ltd.
ERI-Electronics Research, Inc.
Express Tower Co.
FWT
Ice Crackers, Inc.
Kline Towers
LDL Communications, Inc.
LeBlanc & Royle Telcom Inc.
Lightning Master Corp.
Lightning Prevention Systems
Magnum Towers, Inc.
Marconi Communications Inc.
Microlect Co., Inc.
Fred A. Nudd Corp.
Orbitron Int'l Complete Satellite Systems
PiRod Inc.
Racal Decca Canada Ltd., Insulators Div.
ROHN
SG Communications
Solder Absorbing Technology Inc.
Stainless Inc.
Stellar Communications Inc.
Swager Communications, Inc.
Telefunken Sendertechnik GmbH
Tenco Tower Co.
Trylon Towers
Utility Tower Co.
United Ropeworks
Will-Burt Co.

Towers, Portable Masts

ABB Infocom Ltd.
Aluma Tower Co. Inc.
Central Tower Inc.
ERI-Electronics Research, Inc.
FWT
Kline Towers
LDL Communications, Inc.
Precision Specialties, Inc.
ROHN
Stainless Inc.
Will-Burt Co.
Wolf Coach, Inc.

Transformers, Power, Modulation

ABB Infocom Ltd.
Computer Power Inc.
Peter Dahl Co. Inc.
FWT
Norlake Mfg. Co.
Plastic Capacitors, Inc.

Translators, Transposers FMn TV

Receiving, retransmitting systems; F FM; T TV.
Acrodyne Industries Inc. T
Andrew Corp. T

ANTENNA CONCEPTS INC.

Antenna Concepts Inc. F/T
Astre Systems Inc. T
Bext Inc. F/T
Continental Microwave Ltd. T
Continental Electronics Corp. F
CTE Int'l F/T
DB Elettronica Telecomunicazioni S.p.A. F/T
Elenos F



ELIT-Elettronica Italiana S.p.A. F/T
Euro Tech Inc. F/T
EMCEE Broadcast Products T
Hans Kolbe & Co./FUBA F/T
Richard Hirschmann GmbH T
ISS Engineering, Inc. T
ITAME, S.A. F/T
ITELCO S.p.A. T

ITS Corp. T
J&L Associates F/T
Moseley Associates, Inc. F/T
National Transcommunications Ltd. F T
Shively Labs/Howell Labs, Inc. F



SWR Inc. F/T
Technosystem SPA F/T
Teko Telecom S.R.L. F/T
Telefunken Sendertechnik GmbH F
Television Technology Corp. F
Tepco Corp. F T
TFT Inc. F
Thomson-LGT F T
VMI (Video Masters Inc.) T

Transmission Line, Waveguide

Andrew Corp.
Antenna Technology
Astre Systems Inc.
Cablewave Systems
CED
Comark Communications, Inc.
Continental Microwave Ltd.
J&L Associates
Loral Microwave-Narda
Micro Communications, Inc.



MYAT, Inc.
NSI
Nucomm Inc.
Shively Labs Howell Labs, Inc.
SIRA Sistemi Radio, srl
Southern Illinois Antennas



SWR Inc.
TFT Inc.
Transmitter Remote Control, Telemetry
Includes transmitter logging systems.
ABB Infocom Ltd.
Advanced Audio Visual Systems
Astre Systems Inc.
Continental Electronics Corp.
CTE Int'l
Elenos
Harris Allied Broadcast Equipment
Intraplex, Inc.
ITELCO S.p.A.
J&L Associates



Moseley Associates, Inc.
National Transcommunications Ltd.
NSI
Paltex Int'l
Potomac Instruments, Inc.
Schmid Telecom AG
Technosystem SPA
Telefunken Sendertechnik GmbH
TFT Inc.

Transmitters

A AM/SW; F FM; T TV
ABB Infocom Ltd. A
Acrodyne Industries Inc. T
American Laser Systems T
Antenna Technology T
Astre Systems Inc. T
Bext Inc. F T
Broadcast Electronics, Inc. A F
Richard W. Burden Associates A
CCA Electronics, Inc. A/F
CED F T

Cemlys SA F
Comark Communications, Inc. T
Communication Microwave Corp. T
Continental Microwave Ltd. T
Continental Electronics Corp. A F
CTE Int'l F
DB Elettronica Telecomunicazioni F/T
Elenos F



ELIT-Elettronica Italiana F/T
EMCEE Broadcast Products T



Energy-Onix A/F
Euro Tech Inc. F
GE Support Services/ RCA Broadcast A/F T
GEC-Marconi Communications, Ltd. A/F T
Hans Kolbe & Co./FUBA F/T
Harris Allied Broadcast Equipment A/F T
Richard Hirschmann GmbH T
ITAME, S.A. A F
ITELCO S.p.A. F T
ITS Corp. T
J&L Associates A F T
JT Communications F
Kahn Communications, Inc. A
LDL Communications, Inc. T
Loma Scientific, Inc. T
LPB Inc. A F
National Telecommunications Ltd. F T



Nautel Maine Inc. A/F
OMB Sistemas Electronicos, SA F/T
QEI Corp. F
Pauza & Co., Ltd. T
Radio Systems Inc. A
RIZ Transmitters A/F
Rohde & Schwarz A F T
Sharp Electronics HPG Industries Inc. A/F
Siel Sistemi Elettronici SRL F
SIRA Sistemi Radio, srl F T
Technosystem SPA F/T
Teko Telecom S.R.L. F/T
Telefunken Sendertechnik GmbH A F/T
Television Technology Corp. F/T
TFT Inc. F
Thomson-LGT F T
VMI (Video Masters Inc.) A T

Tubes, Power Devices

R Rectifiers; P RF Power Devices; K Klystrons/Klystrodes, TWTs
ABB Infocom Ltd. R/P
Astre Systems Inc. R/P/K
Avtech Electronics Inc. R/P/K
BURLE INDUSTRIES, INC. P
California Tube Lab Inc. P/K
Comark Communications P/K
Daily Electronics Corp. R/P/K
DB Elettronica Telecomunicazioni S.p.A. P
Econco P/K
EEV P/K
Geleco Electronics Ltd. P
J&L Associates P/K
JoLida Inc. R/P
Motorola Semiconductor Products Sector R/P
Pauza & Co., Ltd. K
Penta Labs P
Philips Components Discrete Products P/K
Sharp Electronics HPG Industries Inc. R/K
Thor Electronics Corp. P/K
Vacuum Tube Industries R/P/K
Varian Associates P/K
Power Grid Tube Products P
Power Gnd Tube Products P/K
Traveling Wave Tube Products K
Microwave Equipment Products K
Canada Microwave Products K
Microwave Power Tube Products K

Vacuum Contactors

Astre Systems Inc.
Avtech Electronics Inc.
EEV
Geleco Electronics Ltd.
Surcom Associates, Inc.
Vacuum Tube Industries

Voltage Regulators

High-power systems transmitter operation.
Computer Power Inc.
Control Technology, Inc.
J.E. Cuesta & Co. Inc.
Hipotronics Inc. Power Products Div.
Northern Technologies, Inc.
RIZ Transmitter Factory
Superior Electric Co.

Weather Radar RF Products

Accu-Weather, Inc.
Advanced Designs Corp.
Avtech Electronics Inc.
California Tube Lab Inc.
EEV
Microwave Solutions Inc.
Varian Power Gnd Tube Products

Computer, Automation Products

Bar Code Equipment

And Supporting Software.
The Adelaide Works Inc.
Computer Assisted Technologies
Evertz Microsystems Ltd.
Louth Automation
Multidyne
Nesbit Systems, Inc.
Swintek Communications

Business Automation, Software

AGAP
CBSI-Custom Business Systems, Inc.
Columbine Systems, Inc.
Computer Assisted Technologies
Continental Electronics Corp.
D.A.T.A. Business Publishing
Datacount, Inc.
Decision, Inc.
Gefen Systems
Leonardo Software
The Management
MBS Technologies, Inc.
Multidyne
Panasonic Professional Audio Systems
PKE Int'l
Racom Broadcast Ltd.
Remote Control Int'l
Sony Business & Professional Group
Summit Software Systems Inc.
Systemation Corp.
Xymox Systems

Automation Systems

C Commercial Insertion; P Playback; R Record/Playback; S Full Station
ABB Infocom Ltd. S
Advanced Audio Visual Systems C/P/R/S
AEV P
AGAP C/P/S
Alamar Electronics USA, Inc. C/P/R/S
American Broadcast Systems, Inc. C
AMX Corp. P
Asaca/Shibasoku Corp. of America C/P/R/S
Audio Follow P/S



Barco, Inc. S
BASYS Automation Systems C/P/R/S



THOMSON-LGT TRANSMITS THE SIGHTS AND SOUNDS OF HISTORY.

Seville's Universal Exposition: a dazzling showcase for every country in the world seen by millions of television viewers. We were there.

When it comes to recording history in the making, you have to be the best throughout the world. And to achieve that position, you have to offer the most extensive range of products in the world. Thomson-LGT does just that.

You have to be present in over 120 countries, from Abu Dhabi to Zimbabwe. Thomson-LGT is there.

You have to have experts able to study, analyse, build and install systems 24 hours a day. Thomson-LGT has them.

You have to be able to broadcast from - 40 to + 6,000 metres, and from - 40° to + 58 °C. Thomson-LGT does it.

You have to be a top performer in advanced technology. Thomson-LGT is certainly that.

Recording history in the making means ensuring an image chain that is complementary all the way down the line.

It means building complete systems and networks from video signal to transmitter, transposer and transmitting antenna.

It also means having a team of men and women who are completely dedicated to the work they do.

BECAUSE TO US AT THOMSON-LGT, OUR WORK IS MORE THAN A CHALLENGE, IT'S A TOTAL COMMITMENT.

Broadcast Electronics, Inc. S
Channelmatic, Inc. C/P

ChronTrol®

Programmable timers

ChronTrol Corp. P/R/S
Columbine Systems, Inc. P/R/S
Computer Concepts S
Concept Productions P
Cycle-Sat Inc. R
DNF Industries C/P/R
ESE P/R
FloriCal Systems, Inc. C/R/S
FOR.A Corp. of America C
Gefen Systems P/R/S
Gentner Communications Corp. R
IGM Communications C/P/S
Image Video Ltd. P/R/S
Int'l Tapetronics Corp. P
Lazerus P/R
Leightronix, Inc. C/P/R
Louth Automation P/R/S
The Management P/S
Matco Mfg. & Test Co. C/P/R
Media Computing S
Media Touch Systs. Inc. P/S
Merlin Engineering Works, Inc. R
MTR AG R/S
Music Director Programming Service S
Odetics Broadcast C/P/R
Old Dominion Broadcast Eng. Service P
Optical Media Int'l S
Outland Technology Inc. C

Panasonic

Broadcast & Television Systems

Panasonic Broadcast & TV Systems P/R/S
Panasonic Professional Audio Systems P
T.R. Pitts Co. C
PKE Int'l P/S
Prime Image, Inc. C/R
Racom Broadcast Ltd. P/S
Schafer World Communications P/S
Schmid Telecom AG S
H.A. Solutech Ltd. C
Sentry Systems P/S
Siemens Audio & Video S
Sierra Automated Systems P
Sony Business & Professional Group S
Soundtracs PLC S
Studer Digitec C/P/R/S
Studer Int'l P
Systemation Corp. P
Tech Electronics, Inc. C/P/R/S
Texscan MSI C/S
360 Systems C/P/R/S
Time Logic, Inc. C/P/R/S
Titus Technological Labs R
Utah Scientific, Inc. P/R/S
Video Data Systems C/P/R
Videomedia, Inc. C/P/R/S
Vistek Electronics Ltd. C/P/R/S
Vortex Communications P/R/S

Computers, Peripherals

Includes PCs, VDT terminals, touch-screen control adaptations; engineering management, maintenance and non-production software.

Adrienne Electronics Corp.
American Broadcast Systems, Inc.
Ampex Corp.
Antex Electronics
Aydin Controls
B&B Electronics Mfg., Co.
BGW Systems, Inc.
Broadcast Systems Design
CH Products
Computer Power Inc.
Display Systems Int'l, Inc.
FutureVideo
ISC Datacom
JLCooper Electronics
Kavouras Inc.
Lazerus
The Management
maney_logic
Media Touch Systems, Inc.

Micro Express
Modgraph, Inc.
Network Technologies Inc.
Opcode Systems, Inc.
Prime Image, Inc.
Racom Broadcast Ltd.
Richmond Sound Design, Ltd.
Sentry Systems
Sharp Electronics Corp. LCD Products
Tamron Industries Inc.
Tektronix Inc.
Tripp Lite

Controllers, Signal Activated

Includes tone encoding, decoding equipment.

AGAP
CH Products
Channelmatic, Inc.
ChronTrol Corp.
DNF Industries
ESE
Lazerus
PKE Int'l
Sierra Automated Systems
Tech Electronics, Inc.
Visionetics Int'l Corp.

Engineering Software

CAD, diagnostics, maintenance

Advanced Audio Visual Systems
Altec Lansing Corp.
American Broadcast Systems, Inc.
American Small Business Computers
Audio Teknology Inc.
B&B Electronics Mfg., Co.
BAI Systems, Inc.
Franklyn R. Beemish & Co.
CEL Electronics
Computer Assisted Technologies
DesignCAD, Inc.
EDX Engineering, Inc.
HES Electronics
Jensen Transformers Inc.
Lazerus
OrCad
Radiotechniques Engineering Corp.
Rohde & Schwarz
Schmid Telecom AG
Doug Vermier Broadcast Technical Consultant
Video Design Pro
Videomedia, Inc.

Newsroom Automation

Dedicated, PC-based, supporting software packages.

BASYS Automation Systems
Columbine Systems, Inc.
Computer Prompting Corp.
Designing Minds
IRIS Technologies, Inc.
Kavouras Inc.
Louth Automation
Media Computing, Inc.
Odetics Broadcast
Panasonic Broadcast & TV Systems
PKE Int'l
Schmid Telecom AG
Sony Business & Professional Group
360 Systems
Videomedia, Inc.
Vistek Electronics Ltd.

Test & Measurement Products

Analyzers, Audio System

includes distortion measurement and automated test systems.

Alphaton
Amber Electro Design Div. of Coreco Inc.
Antenna Technology
Asaca/Shibasoku Corp. of America
Audio Precision

Audiocontrol Industrial
Boonton Electronics Corp.
Briel & Kjaer Instruments, Inc.
Consultronics
Dorough Electronics
Gotham Technology Group
Hamlet Video Int'l Ltd.
Hewlett-Packard Co.
Inovonics Inc.
Ivie Technologies, Inc.
Jason Electronics
JNS Electronics, Inc.
Klark Teknik
Leader Instruments Corp.
MFJ Enterprises Inc.
Neutrik USA, Inc.
Pacific Coast Marketing
Potomac Instruments, Inc.
Pro-Bel Ltd.
Rohde & Schwarz
Schmid Telecom AG
Sencore Inc.
Sescom, Inc.
Sound Technology, Inc.
Studer Int'l
TC Electronic
Techni-Tool Inc.
Tektronix Inc.
Wandel & Goltermann Electronic

Analyzers, RF Spectrum/sideband

Antenna Technology
AVCOM of Virginia, Inc.
Boonton Electronics Corp.
Delta Electronics Inc.
Eagle Wichita
Hamlet Video Int'l Ltd.
Hemec Communications
Hewlett-Packard Co.
Rohde & Schwarz
Stanford Research Systems
Techni-Tool Inc.
Tektronix Inc.
TFT Inc.
Trilithic, Inc.
Wandel & Goltermann Electronic

Analyzers, Video System

includes automated test systems.

Advanced Audio Visual Systems
Antenna Technology
Asaca/Shibasoku Corp. of America
AVCOM of Virginia, Inc.
Boland Communications
GEE Broadcast Systems Ltd.
Hamlet Video Int'l Ltd.
Richard Hirschmann GmbH
Minolta Corp. Instrument Systems Div.
PESA America Inc.
Plateau Digital Technology
Pro-Bel Ltd.
Rohde & Schwarz
Sencore Inc.
System Video
Techni-Tool Inc.
Tektronix Inc.
Videotek, Inc.

Antenna Impedance Bridges

Delta Electronics Inc.
Eagle Wichita
Rohde & Schwarz
Trilithic, Inc.
Wide Band Engineering Co., Inc.

Audio Generators

Stand-alone systems.

Advanced Audio Visual Systems
Alphaton
Amber Electro Design Div. of Coreco Inc.
Asaca/Shibasoku Corp. of America
Audio Precision
Avitel Electronics Corp.
Black Star Ltd.
Boonton Electronics Corp.
Richard W. Burden Associates
Conex Electro Systems
Consultronics
Danbridge A S

Gentner Communications Corp.
HEDCO
Hewlett-Packard Co.
Horita Co.
JNS Electronics, Inc.
Leader Instruments Corp.
Leitch Inc.
Multidyne
Neutrik USA, Inc.
NTP Elektronik A/S
Pacific Coast Marketing
Potomac Instruments, Inc.
Pro-Bel Ltd.
Rohde & Schwarz
Schmid Telecom AG
Sencore Inc.
Sescom, Inc.
Sound Technology, Inc.
Stanford Research Systems
TC Electronic
Techni-Tool Inc.
Tektronix Inc.

Bench Power Supplies

Alpine Optics, Inc.
B&K Precision Maxtec Int'l Corp.
Calex Mfg. Co., Inc.
John Fluke Mfg. Co. Inc.
Hewlett-Packard Co.
Leader Instruments Corp.
Multidyne
Plastic Capacitors, Inc.
Stanford Research Systems
Techni-Tool Inc.

Demodulators, TV Precision

Antenna Technology

BARCO

Barco, Inc.
Cadco, Inc.
FM Systems, Inc.
Modulation Sciences
Philips TV Test Equipment
QSI Systems, Inc.
Rohde & Schwarz
Tektronix Inc.
TFT Inc.
Videotek, Inc.

Detectors, Non-ionizing Radiation

Holiday Industries, Inc.
JFW Industries
Loral Microwave-Narda
Potomac Instruments, Inc.

Frequency Counters

B&K Precision Maxtec Int'l Corp.
Beckman Industrial Corp. Instrumentation Products Div.
Black Star Ltd.
EIP Microwave, Inc.
John Fluke Mfg. Co. Inc.
Hewlett-Packard Co.
Leader Instruments Corp.
MFJ Enterprises Inc.
Schmid Telecom AG
Sencore Inc.
Sescom, Inc.
Simpson Electric
Stanford Research Systems
Techni-Tool Inc.
Tektronix Inc.
Tremetrics Inc. Industrial Instruments Div.

Meters, Ac/power Phase

Alphaton
Beckman Industrial Corp. Instrumentation Products Div.
Dranetz Technologies, Inc.
Hewlett-Packard Co.
A.W. Sperry Instruments Inc.
Techni-Tool Inc.
Tektronix Inc.
Telecommunications Techniques Corp.



From **MISSION CRITICAL** To **CRITICAL MISSIONS**, *There's a BARCO Monitor for Every Broadcast Need*

At BARCO, we've been pioneering commercial broadcast and display systems since 1934. Today, we have the broadest product offering of any company in the industry. Bar none.

Just look around. You'll find BARCO intelligent monitors and control equipment in network studios, post-production and editing suites, control rooms, OB vans, electronic theaters and hundreds of other television facilities. Anywhere the need for crisp, clear and visual information is critical.

The same creative spirit and ingenuity that was behind one of our first innovations, a television set that received different European signal formats, is evident in all of our intelligent monitors today. In the broadcast industry, BARCO intelligent monitors are standard equipment in production facilities worldwide. In the emerging fields of HDTV and LCD projection, BARCO makes innovative products that allow large audiences to see sharp, larger-than-life images.

BARCO is an international leader in multi-standard visual communications. After we combined the broadcast monitor with the microprocessor, our intelligent monitors won an EMMY Award for their unique design and engineering. And because we're known for our reliability and technology, BARCO monitors and projectors will be used for large screen, on-site transmission of HDTV at both the Olympic Games and the World Exposition in Spain in 1992.

At BARCO, every application is critical!

So if you have a broadcast display requirement, talk to the company that offers more solutions than anyone in the industry. Chances are we already have a product that's ideal for your needs. If we don't we can build it for you.

For more information, call us today. And remember, at BARCO every application--big or small--is critical!

BARCO

1000 Cobb Place Boulevard Kennesaw, GA 30144
Telephone: (404) 590-7900 (Ext. 1297) Fax: (404) 590-8836

Circle (12) on Reply Card

www.americanradiohistory.com

Meters, Audio Level Indicator

Acoustech Corp.
Alesis Corp.
Alphaton
Amber Electro Design Div. of Coreco Inc.
ATI-Audio Technologies Inc.
B&B Systems, Inc.

BOLAND COMMUNICATIONS

Boland Communications
Consultronics
D&R Electronica b.v.
Dorrrough Electronics
ESE
FM Systems, Inc.
Furman Sound, Inc.
Gotham Technology Group
Hamlet Video Int'l Ltd.
Hewlett-Packard Co.
Inovonics Inc.
KINTEK, Inc.
Leader Instruments Corp.
Logitek Electronic Systems, Inc.
NTP Elektronik A/S
Scantex Labs Inc.
Selco Products Co.
Sencore Inc.
Sescom, Inc.
Simpson Electric
H.A. Solutec Ltd.
Studer Int'l
Techni-Tool Inc.
Tektronix Inc.
TFT Inc.
Titus Technological Labs
Videoteq Research Ltd.
Videotek, Inc.
Wohler Technologies Inc.

Meters, Field Strength, RF Level

R.B. Annis Co.
Bird Electronic Corp.
Kathrein-Werke KG

Meters, Photographic Light

Includes monitor color balance measurement, adjustment systems.
Asaca/Shibasoku Corp. of America
Dorrrough Electronics
EIP Microwave, Inc.
Fotec, Inc.
Hewlett-Packard Co.
Minolta Corp. Instrument Systems Div.
Philips TV Test Equipment
Sachtler AG
Techni-Tool Inc.
Tektronix Inc.

Meters, RF Power

Antenna Technology
Bird Electronic Corp.
Boonton Electronics Corp.
Coaxial Dynamics
EIP Microwave, Inc.
Hewlett-Packard Co.
Loral Microwave-Narda
T.R. Pitts Co.
Potomac Instruments, Inc.
Rohde & Schwarz
Techni-Tool Inc.

Modulation Monitors

AM, FM radio, TV aural
Antenna Technology
Belar Electronics Lab, Inc.
Dav Tronics
Delta Electronics Inc.
FM Systems, Inc.
Harris Allied Broadcast Equipment
Inovonics Inc.
ITAME, S.A.
Leader Instruments Corp.
Modulation Sciences
QEI Corp.

Rohde & Schwarz
Studer Int'l
Tektronix Inc.
TFT Inc.
Titus Technological Labs

Oscilloscopes, Accessories

B&K Precision Maxtec Int'l Corp.
Black Star Ltd.
John Fluke Mfg. Co. Inc.
Hamlet Video Int'l Ltd.
Hewlett-Packard Co.
Hitachi Denshi
Leader Instruments Corp.
NTP Elektronik A/S
Pacific Coast Marketing
T.R. Pitts Co.
Sencore Inc.
Sescom, Inc.
A.W. Sperry Instruments Inc.
Techni-Tool Inc.
Tektronix Inc.
Test Probes Inc.

Recorder Test Systems

ortion analyzer, audio generator, level, noise measurement equipment; includes tension and alignment products.
R.B. Annis Co.
Audio Precision
Solder Absorbing Technology Inc.
Tentel

RF Generators

Stand-alone; excludes products designed used as part of a transmitter.
Antenna Technology
Asaca/Shibasoku Corp. of America
AVCOM of Virginia, Inc.
John Fluke Mfg. Co. Inc.
Hewlett-Packard Co.
JNS Electronics, Inc.
Kay Elemetrics Corp.
Leader Instruments Corp.
Rohde & Schwarz
Sencore Inc.

RF Load Resistors, Dummy Loads



Altronic Research Inc.
Bird Electronic Corp.
Coaxial Dynamics
Continental Electronics Corp.
Dielectric Communications
Electro Impulse Lab, Inc.
Geleco Electronics Ltd.
Harris Allied Broadcast Equipment
Hewlett-Packard Co.
JFW Industries
Kings Electronics Co., Inc.
Kintronic Labs, Inc.
Loral Microwave-Narda
Rohde & Schwarz
SIRA Sistemi Radio, srl
Technosystem SPA
Wide Band Engineering Co., Inc.

SC/H Phase Measurement, Displays

Excludes waveform, vector monitors with SC/H phase measurement capability.

HAMLET

Hamlet Video Int'l Ltd.
Leader Instruments Corp.
Lenco Electronics, Inc.
Magni Systems, Inc.
Plateau Digital Technology
Potomac Instruments, Inc.

Rohde & Schwarz
System Video
Tektronix Inc.

Time Domain Reflectometers

AVO Biddle Instruments
Delta Electronics Inc.
Hewlett-Packard Co.
T.R. Pitts Co.
Riser-Bond Instruments
Siecor Corp.
Techni-Tool Inc.
Tektronix Inc.

Vectorscopes

Antenna Technology
Digital Processing Systems Inc.
Electronic Visuals Ltd.
Fougerolle
GEE Broadcast Systems Ltd.
James Grunder & Associates Inc.

HAMLET

Hamlet Video Int'l Ltd.
Hewlett-Packard Co.
Hitachi Denshi
Leader Instruments Corp.
Magni Systems, Inc.
Philips TV Test Equipment
Plateau Digital Technology
Snell & Wilcox
System Video
Techni-Tool Inc.
Tektronix Inc.
Videotek, Inc.

Video Generators

Pattern, blackburst, color bar; includes programmable systems.
Advanced Audio Visual Systems
Asaca/Shibasoku Corp. of America
B&K Precision Maxtec Int'l Corp.
Black Star Ltd.
Electrocraft Labs Ltd.
John Fluke Mfg. Co. Inc.
FOR.A Corp. of America
Fougerolle
GEE Broadcast Systems Ltd.
Grass Valley Group
Hamlet Video Int'l Ltd.
HEDCO
Horita Co.
Leader Instruments Corp.
Leitch Inc.
Lenco Electronics, Inc.

MAGNI

Magni Systems, Inc.
Multidyne
Network Technologies Inc.
PESA America Inc.
Philips TV Test Equipment
T.R. Pitts Co.
Pro-Bel Ltd.
Rohde & Schwarz
Sencore Inc.
Stanford Research Systems
System Video
Techni-Tool Inc.
Tektronix Inc.
Videotek, Inc.
World Video Inc.

VITS, VIRS Generators, Inserters

Asaca/Shibasoku Corp. of America
Leitch Inc.
Multidyne
Philips TV Test Equipment
Rohde & Schwarz
Sencore Inc.
System Video
Techni-Tool Inc.
Tektronix Inc.

Wiltronix, Inc.

VSWR Indicators, Detectors

Antenna Technology
Bird Electronic Corp.
Eagle Wichita
ERI-Electronics Research, Inc.
Flying Fur Industries
Hewlett-Packard Co.
Loral Microwave-Narda
MFJ Enterprises Inc.
Rohde & Schwarz
Wide Band Engineering Co., Inc.

Waveform Monitors

Antenna Technology
Digital Processing Systems Inc.
Dragnet Technologies, Inc.
Electronic Visuals Ltd.
Fougerolle
GEE Broadcast Systems Ltd.
James Grunder & Associates Inc.

HAMLET

Hamlet Video Int'l Ltd.
Hewlett-Packard Co.
Hitachi Denshi
Leader Instruments Corp.

MAGNI

Magni Systems, Inc.
Philips TV Test Equipment
Plateau Digital Technology
ROH Products
Snell & Wilcox
Tektronix Inc.
Videotek, Inc.

Ancillary Products

Acoustic Materials

Acoustic Systems
Acoustical Solutions/ Alpha Audio Acoustics
ASC-Tube Traps
Illbruck, Sonex Acoustical Products Div.
Industrial Acoustics Co.
Netwell Noise Control
Professional Audio Supply
RPG Diffusor Systems, Inc.
Sonex-Source
Systems Development Group

Attenuators, Fixed, Impedance Matching

Antenna Technology
Atlas/Soundolier
AVA Electronics Corp.
Bird Electronic Corp.
Coaxial Dynamics
DYMA Engineering, Inc.
Electro Impulse Lab, Inc.
Fotec, Inc.
FSR, Inc.
Har-Ken Specialties
JFW Industries
Kings Electronics Co., Inc.
Matthey Electronics
Penny & Giles, Inc.
Penstock, Inc.
Philips Broadband Networks, Inc.
RF Industries
RIZ Transmitters
Shively Labs/Howell Labs, Inc.
SIRA Sistemi Radio, srl
Tech Labs Inc.
3M Telecom Markets
Toshiba Corp.
Trithic, Inc.

Batteries, Chargers, Analyzers, Reconditioners

Alexander Batteries
Alpha Technologies
Alpine Optics, Inc.
Antenna Technology



Anton Bauer, Inc.
Beyer Dynamic Inc.
Christie Electric Corp.
Cine 60, Inc.
Computer Power Inc.
Energex Systems Corp.
Frezzolini Electronics, Inc.
FWT
G&M Power Products
Gray Supply Co.
Mole-Richardson Co.
Multidyne
Northern Power Systems
PAG Ltd.
Periphex Inc.
PERROTT 'The Battery People'
Philips Broadband Networks, Inc.
Professional Sound Corp.
Reach Electronics, Inc.
Reliance Comm/Tec
Synergistic Batteries Inc.
Tungstone Batteries Inc.
VDO-PAK

Capacitors, HV

ABB Infocom Ltd.
Continental Electronics Corp.
DB Elettronica Telecomunicazioni S.p.A.
Geleco Electronics Ltd.
Motor Capacitors, Inc.
NWL Capacitors
Plastic Capacitors, Inc.
Power Electronic Components, Inc.
Surcom Associates, Inc.
Toshiba Corp.
Voltronics Corp.

Cases, Equipment, Transport

Aarmor Case Co.
Anvil Cases
ASA Productions
Bud Industries, Inc.
Calzone Case Co.
Dago Cases
EDAK
Hardigg Cases
IPK Broadcast Systems
Island Cases
K&H Products-Porta Brace
Mole-Richardson Co.
Nalpak Video Sales Inc.
Parsons Mfg. Corp.
Plastic Reel Corp of America
Research Technology Int'l
Seam-Tech
Star Case Mfg. Co., Inc.
Techni-Tool Inc.
Tek Media Supply Co.
Telepak San Diego
Thermodyne Int'l Ltd.
Viking Cases

Chemicals

Cleaners, conditioners
CAIG Labs, Inc.
DW Electrochemicals Ltd.
Keith Monks Sound Systems
E.C. Mitchell Co., Inc.
Mole-Richardson Co.
ORA Electronics
Professional Audio Supply
Research Technology Int'l
TECH-SA-PORT
Techni-Tool Inc.
Tek Media Supply Co.
3M Professional A/V & Specialty Products
3M Telecom Markets

Clocks

Master, synchronized studio time displays.
BAI Systems, Inc.
Beaveronics, Inc.
Canford Audio plc
Channelmatic, Inc.

ChronTrol®

Programmable timers

ChronTrol Corp.
CRL Systems-Circuit Research Labs, Inc.
ESE
Evertz Microsystems Ltd.
Horita Co.
Leitch Inc.
maney_logic
Radio Systems Inc.
Time Service Systems Inc.
Torpey Controls & Eng. Ltd.
Vortex Communications
Wiltronix, Inc.

Coaxial Cable

RF, video; excludes transmission line products rated greater than 1kW.

Alpha Wire Corp.
Andrew Corp.
Antenna Technology
Arcor Broadcast Products
Avtech Electronics Inc.
Berk-Tek, Inc.
Bi-Tronics, Inc.
Brave Products
Cablewave Systems
CAE
Canare Cable, Inc.
Canford Audio plc
CCTV Corp.
Clark Wire & Cable
Cole Wire & Cable
Comark Communications, Inc.
Comprehensive Video Supply Corp.
Cooper Industries Inc. Belden Div.
DB Elettronica Telecomunicazioni S.p.A.
Dielectric Communications
Gepeco Int'l, Inc.
J&L Associates
LPB Inc.
Marshall Electronics Inc.
Mohawk Wire & Cable Corp.
Mole-Richardson Co.
Multidyne
Nemal Electronics Int'l
Orbitron Int'l Complete Satellite Systems
Penstock, Inc.
T.R. Pitts Co.
RF Industries
SIRA Sistemi Radio, srl



SWR Inc.
Teledyne Thermatics
3M Telecom Markets
Trompeter Electronics, Inc.
Wireworks Corp.

Components, Electronic

Resistors, capacitors, inductors; solid-state devices; panel indicators.

Acoustech Corp.
Alphaton
Beyer Dynamic Inc.
Bi-Tronics, Inc.
CAE
Comark Communications, Inc.
Computer Power Inc.
DB Elettronica Telecomunicazioni S.p.A.
DT Electronics Ltd.



Gennum Corp.

Jensen Transformers Inc.
Lamp Technology Inc.
Ledtronics, Inc.
Motorola Semiconductor Products Sector
Neutrik USA, Inc.
ORA Electronics
Panduut Electrical Group
Penstock, Inc.
Penta Labs
Philips Components Discrete Products Div.
Plastic Capacitors, Inc.
Tech Labs Inc.
Tektronix Inc.



Video Display Corp.

Connectors, All Types

ADC Telecommunications, Inc.
Alpha Wire Corp.
AMP
Andrew Corp.
Arcor Broadcast Products
AVA Electronics Corp.
Beyer Dynamic Inc.
Bi-Tronics, Inc.
Bird Electronic Corp.
Cablewave Systems
CAE
Canare Cable, Inc.
Canford Audio plc
CCTV Corp.
Clark Wire & Cable
Comark Communications, Inc.
Comprehensive Video Supply Corp.
Connectronics Corp.
DB Elettronica Telecomunicazioni S.p.A.
Gepeco Int'l, Inc.
Har-Ken Specialties
ITT Cannon, Canada
Lemo USA
Marshall Electronics Inc.
Nemal Electronics Int'l
Neutrik USA, Inc.
OFTI
ORA Electronics
Orbitron Int'l Complete Satellite Systems
Panduut Electrical Group
Penstock, Inc.
T.R. Pitts Co.
Reliance Comm/Tec
RF Industries
Shively Labs/Howell Labs, Inc.
Siecor Corp.
SIRA Sistemi Radio, srl
Switchcraft Inc.
Tenco Tower Co.
3M Telecom Markets
Trompeter Electronics, Inc.
Union Connector Co., Inc.
Yeam, Div. of Litton Systems
Wireworks Corp.

Fiber-optic Equipment

Cable and terminal equipment.

ADC Telecommunications, Inc.
American Lightwave Systems, Inc.
AMP
Antenna Technology
Artem Communications Corp.
Bec Technologies
Berk-Tek, Inc.
Bi-Tronics, Inc.
C-COR/COMLUX, Inc.
Chromatic Technologies
Continental Microwave Ltd.
DiCon Fiberoptics
DYNALIR Electronics, Inc.
Fiber Options, Inc.
Fotec, Inc.
FWT
Innovision Optics
Integrated Switching Systems
Intraplex, Inc.
IRT Electronics Pty. Ltd.
JNS Electronics, Inc.
Kathrein-Werke KG
Lester Labs

LNR Communications, Inc.
Marshall Electronics Inc.
Mohawk Wire & Cable Corp.
Moseley Associates, Inc.
Multidyne
Nvision, Inc.
OFTI



Ortel Corp.
Philips Broadband Networks, Inc.
T.R. Pitts Co.
RF Technology, Inc.
Siecor Corp.
T-Tech Corp.
Telecast Fiber Systems
Teledyne Thermatics
3M Telecom Markets
Wiltronix, Inc.

Film Cleaning, Inspection, Processing Equipment

Lipsner-Smith Co.
Research Technology Int'l
Steenbeck, Inc.
Tek Media Supply Co.

Filters, Video Hum-reduction

Allen Avionics, Inc.
Audio-Video Engineering
BAL
Beaveronics, Inc.
Deerfield Lab
DT Electronics Ltd.
JNS Electronics, Inc.
Matthey Electronics
Multidyne
North Hills Electronics, Inc.
Smith Audio-Visual, Inc.
TTE, Inc.
Vortex Communications

Patch Panels, Accessories, Cables

ADC Telecommunications, Inc.
AEQ-Aplicaciones Electronicas Quasar
AMP
Antenna Technology
Arcor Broadcast Products
Audio Accessories, Inc.
Avitel Electronics Corp.
Berk-Tek, Inc.
BFE AG
Bi-Tronics, Inc.
CAE
Canare Cable, Inc.
Canford Audio plc
Connectronics Corp.
Dielectric Communications
DT Electronics Ltd.
DYMA Engineering, Inc.
East Coast Video Systems
ERI-Electronics Research, Inc.
Farrtronics Ltd.
Fotec, Inc.
Furman Sound, Inc.
Gentner Communications Corp.
Gepeco Int'l, Inc.
Har-Ken Specialties
ITI Electronics, Inc.
Jem-Fab Corp.
Kings Electronics Co., Inc.
Lester Labs
Marshall Electronics Inc.
Mobile-Cam Products
Neutrik USA, Inc.
OEI Electronics Systems, Inc.
Packaged Lighting Systems, Inc.
Patch Bay Designation
Penny & Giles, Inc.
RIZ Transmitters
Seam-Tech
Sescom, Inc.
Shively Labs/Howell Labs, Inc.
Siecor Corp
Switchcraft Inc.
Trompeter Electronics, Inc.
Union Connector Co., Inc.

EDX Engineering, Inc.
 ERI-Electronics Research, Inc.
 Frontier Communications Corp.
 Funke & Associates
 Gendra Int'l, Inc.
Harris Allied Systems
 Hemec Communications
 HN Engineering Inc.
 IPK Broadcast Systems
 IRIS Technologies, Inc.
Jem-Fab Corp.
 Kezvale Ltd.
 Ron Krob Technical Consultant
 Lakeside Associates, Inc.
 Lenbar Electronics Corp.
 Malouf Engineering Int'l
 Marcom
 D.L. Markley & Associates Inc.
 Kenneth R. Meades
 Jay Mitchell Associates
 Lawrence L. Morton Associates
 Moss Bay Group Inc.
 Nesbit Systems, Inc.

Philips Broadband Networks, Inc.
 PKE Int'l
 Radiotechniques Engineering Corp.
 Rohde & Schwarz
 SIRA Sistemi Radio, srl
 Southern Illinois Antennas
 Spectrum Communications Corp.



SWR Inc.
 Technet Systems Group
 Technosystem SPA
 Teletech, Inc.

Tenco Tower Co.

**Satellite Program
 Distribution, Time Brokers**

GE American Communications
 Global Access Telecommunications Services
 GTE Spacenet Corp.
 Hero Productions
 National Transcommunications Ltd.
 PKE Int'l
 Skaggs Telecommunications Service
 SpaceCom Systems
 VVYX NVN

The names in these listings are based on responses received from our requests for information mailed in June of this year. If your organization manufactures applicable products and does not appear, perhaps we were unaware of your company, had incorrect address phone data or did not receive a response to our questionnaire.

NETCOM

Netcom
 Newman-Kees Measurements Engineering & Installations
 Nissen Group Inc.
 Old Dominion Broadcast Eng. Service
 Orbitron Int'l Complete Satellite Systems
 Radio/TV Engineering Co.
 Radiotechniques Engineering Corp.
 A.D. Ring
 Rosner TV Systems, Inc.
 RPS Communications
 SIRA Sistemi Radio, srl
 Skaggs Telecommunications Service, Inc.
 Smith & Powstenko
 Somich Engineering
Sony Business & Professional Group
 Sound Designers Studio
 Southern Illinois Antennas
 SSL Industries Inc.
 Standard Frequency Measuring Service
 Swager Communications, Inc.
 Synergistic Technologies, Inc.
 Technet Systems Group
 Teletech, Inc.
Television Technology Corp.
 Thalner Electronic Labs, Inc.
 VDO Ltd.
 Doug Vernier Broadcast Tech Consultant
 Vir James Consulting Engineers
 VMI (Video Masters Inc.)

**Head Refurbishing,
 Relapping**

Hall Electronics, Inc.
 JRF Magnetic Sciences Inc.
 Northern Magnetics, Inc.
 Sprague Magnetics, Inc.



Videomagnetics, Inc.

RF System Maintenance

ABB Infocom Ltd.
 Astre Systems Inc.
 Lawrence Behr Associates Inc.
 Comark Communications, Inc.
 John J. Davis & Associates
 Alan Dick & Co. Ltd.
 DSI Communications, Inc.
 Dave Fant Co.
 Frontier Communications Corp.
 Harris Allied Broadcast Equipment
 Kintronic Labs, Inc.
 Ron Krob Technical Consultant
 LBA Technology, Inc.
 LeBlanc & Royle Telcom Inc.
 Marcom
 National Transcommunications Ltd.
 Newman-Kees Measurements Engineering & Installations

**The Digital Audio
 Cart Machine**

People like the sound of Digital Audio. It's revolutionized the way listeners respond to radio. Today, 360 Systems' DigiCart brings consistently great sound to spots and ID's too.

DigiCart delivers the production values of an expensive workstation in a cart-sized format. Seamless back-to-back cuts. Smooth fades. Fast and precise editing.

Your production people will appreciate its ease of operation the first time they use it.

But the best reason to go digital is for quality, and DigiCart delivers on every count. Rugged Bernoulli cartridges with a ten-year field track record. Dolby AC-2 data compression that puts six times more audio on every



disk. Optional hard disks by Hewlett-Packard, with a 250,000 hour MTBF figure. And premium audio specs that leave every other cart machine in the dust.

At \$3,995 DigiCart is the most cost effective record-play stereo cart machine on the market today. And it's also the best sounding one ever made. Call us today for a brochure on how DigiCart can bring an even better on-air sound to your station.



DigiCart
 by 360 Systems

18740 Oxnard Street, Tarzana, California 91356 U.S.A.
 Telephone (818) 342-3127 • Fax (818) 342-4372

Bernoulli is a trademark of Iomega Corp. Dolby and Hewlett-Packard are trademarks of the respective companies
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Circle (13) on Reply Card

Manufacturers' Addresses

A**A Z Associates**

P.O. Box 357, Needham, MA 02192
617-444-0191; 800-441-3179
Fax: 617-444-0757

Aarmor Case Co.

2100 Lapo Road, Lake Odessa, MI 48849
616-374-5431; 800-722-5763
Fax: 616-374-8686

ABB Infocom Ltd.

Broadcast Transmitter Systems
CH-5300 Turgi, Switzerland
41 56 79 3251; 41 56 79 4433
Fax: 41 56 28 1125

Abekas

A Carlton Company

Abekas Video Systems

101 Galveston Drive
Redwood City, CA 94063
415-369-5111; Fax: 415-369-4777
Martha Lash

Ac-cetera, Inc.

3120 Banksville Road, Pittsburgh, PA 15216
412-344-1520; 800-537-3491
Fax: 412-344-0818

Accom, Inc.

1490 O'Brien Drive, Menlo Park, CA 94025
415-328-3818; Fax: 415-327-2511

Accu-Weather, Inc.

619 W. College Ave.
State College, PA 16801
814-234-9601; Fax: 814-238-1339

Accurate Sound Corp.

3475-A Edison Way, Menlo Park, CA 94025
415-365-2843; Fax: 415-365-3057

Ace Communications

10707 E. 106th St., Fishers, IN 46038
317-842-7115; 800-445-7717
Fax: 317-849-8794

Acoustech Corp.

306 Maple Ridge, Suite 2
Ann Arbor, MI 48103
313-663-7013; 800-858-8025
Fax: 313-663-2877

Acoustic Systems

P.O. Box 3610, Austin, TX 78764
512-444-1961; 800-749-1460
Fax: 512-444-2282

Acoustical Solutions, Inc.

Alpha Audio Acoustics
See Alpha Audio Acoustics

Acrodyne Industries Inc.

516 Township AC Line Road
Blue Bell, PA 19422
215-542-7000; 800-523-2596
Fax: 215-540-5837

Adams-Smith

34 Tower St., Hudson, MA 01749
508-562-3801; Fax: 508-568-0404

ADC Telecommunications, Inc.

4900 W. 78th St., Minneapolis, MN 55435
612-938-8080; 800-366-3891
Fax: 612-946-3292

The Adelaide Works Inc.

445 Adelaide St. W.
Toronto, Ont., Canada M5V 1T1
416-941-9318; Fax: 416-366-6357

Adrienne Electronics Corp.

11994 Marjon Drive, Nevada City, CA 95959
916-265-8288; 800-782-2321
Fax: 916-265-3805

Advance Products Co.

P.O. Box 2178, Wichita, KS 67201
Fax: 316-263-4245

Advanced Audio Visual Systems AAVS

222-226 Rue de Rosny
F-93100 Montreuil, France
33-4857-2164; Fax: 33-4857-3358

Advanced Audio Visual Systems AAVS

3200 Sencore Drive, Sioux Falls, SD 57107
800-769-2287

Advanced Designs Corp.

P.O. Box 1907, Bloomington, IN 47402
812-333-1922; Fax: 812-333-2030

Advent Communications, Ltd.

Alma Road
Chesham, Bucks., England HP5 3HE
44-494-774400; Fax: 44-494-791127

AEQ- Aplicaciones Electronicas

Quasar S/A
C/Rey Pastor 36 (Pol. Ind. Leganes)
Leganes Madrd, Spain E-28914
34-686-1300; Fax: 34-686-4492

AEV

Via Saviolo I/E, Bologna, Italy I-40017
39-051-950201; Fax: 39-051-950201

AF Associates Inc.

100 Stonehurst Court, Northvale, NJ 07647
201-767-1200; Fax: 201-784-8637

AGAP

POB 118, 264 Ave. Sainte-Catherine
Montflavet, Cedex, France F-84144
33-90-31-10-68; Fax: 33-90-23-51-26

AIR corp

3727 Northridge Drive, Irving, TX 75038
214-255-0550; Fax: 214-252-0020

AirCRAFT Production Music Libraries

162 Columbo Ave., Boston, MA 02116-5222
800-343-2514; Fax: 617-542-7222

AKG Acoustics, Inc.

1525 Alvarado St., San Leandro, CA 94577
510-351-3500; Fax: 510-351-0500

AKG Akustische u. Kino-Geräte GmbH

Brunhildengasse 1, POB 584
Vienna, Austria A-1150
43 1 98 124-0; Fax: 43 1 982 34 58

Alamar Electronics USA, Inc.

489 Division St., Campbell, CA 95008
408-866-9373; 215-678-8711
Fax: 408-866-4367

Alden Electronics, Inc.

40 Washington St., Westborough, MA 01581
508-366-8851; Fax: 508-898-3511

Alesis Corp.

3630 Holdrege Ave., Los Angeles, CA 90016
310-558-4530; Fax: 310-836-9192

Alexander Batteries

P.O. Box 1508, Mason City, IA 50401
515-423-8955; 800-247-1821
Fax: 515-423-1644

John P. Allen Airspace Consultant

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Fernandina Beach, FL 32034
904-261-6523; Fax: 904-277-3651

Allen & Heath

5639 S. Riley Lane
Salt Lake City, UT 84107
801-268-8400; 800-777-1363
Fax: 801-262-4966

Allen Avionics, Inc.

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516-248-8080; Fax: 516-747-6724

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P.O. Box 945, Vinita, OK 74301
918-256-8761; Fax: 918-256-6110

Alpha Audio Acoustics

Acoustical Solutions, Inc.
P.O. Box 5403, Richmond, VA 23220
804-358-3852; 800-782-5742
Fax: 804-358-9496

Alpha Image Ltd.

4 Votec Centre, Hambridge Lane
Newbury, England RG14 5TN
44-635-521939; Fax: 44-635-528387

Alpha Technologies

3767 Alpha Way, Bellingham, WA 98226
206-647-2360; 206-671-7703
Fax: 206-671-4936

Alpha Wire Corp.

711 Lidgerwood Ave., Elizabeth, NJ 07207
908-925-8000; 800-52-ALPHA
Fax: 908-925-7429

Alphaton

Fischbacherstr. 27
D-6233 Kelkheim, Germany
49-6195-74032; 49-6195-74033
Fax: 49-6195-8484

Alpine Optics, Inc.

13920 S.W. 107th Ave., Miami, FL 33176
305-254-4495; Fax: 305-254-4495

Alta Group, Inc.

535 Race St., Suite 230
San Jose, CA 95126
408-297-2582; 800-677-ALTA
Fax: 408-297-1206



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405-324-5311; Fax: 405-324-7601

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501-449-4093; 800-482-5623
Fax: 501-449-6000

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407-567-3423; Fax: 407-567-3432

Amber Electro Design Div. of Coreco Inc.

6969 Transcanada Highway, Suite 113
St. Laurent, Que., Canada H4T 1V8
514-333-8748; 800-361-4914
Fax: 514-333-1388

Amco Engineering Co.

3801 N. Rose St., Schiller Park, IL 60176
708-671-6670; Fax: 708-671-9469

AMEK Systems & Controls, Ltd.

New Islington Mill Regent Trad. Estate
Oldfield Rd., Salford, England M5 4SX
44-61-834 6747; Fax: 44-61-834 0593

AMEK TAC US Operations

10815 Burbank Blvd.
North Hollywood, CA 91601
818-508-9788; Fax: 818-508-8619

American Broadcast Systems, Inc.

8222 Jamestown Drive, Suite 1098
Austin, TX 78758
512-837-3737; 800-950-2223
Fax: 512-837-3791

American Laser Systems

P.O. Box 6944, Santa Barbara, CA 93160
805-967-0423; Fax: 805-683-4382

American Lightwave Systems, Inc.

999 Research Parkway
Meriden, CT 06450-8323
203-630-5770; Fax: 203-630-5701

American Small Business Computers

One American Way, Pryor, OK 74361
918-825-4848; Fax: 918-825-6359

American Small Business Computers

102 Rue La Fontaine
Paris, France F-75016
331-4520-6540; Fax: 331-4520-6539

Ametek Lamb Electric Division

P.O. Box 4239 GCS
New York, NY 10163
216-673-3451; Fax: 216-673-8994

AMP

P.O. Box 3608, Harrisburg, PA 17105-3608
717-564-0100; 800-522-6752
Fax: 717-986-7575

Ampeco Sound Lab (ASL)

Zonnebaan 42a
Maassenbroek, The Netherlands 3606 CC
31-30-414500; Fax: 31-30-410638

Amplex Corp.

401 Broadway, MS 3A-01
Redwood City, CA 94063-3199
415-367-2011

Amplex Recording Media Corp.

401 Broadway, M-S 22-02
Redwood City, CA 94063
415-367-3809; 415-367-3888
Fax: 415-367-4132

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203-792-4997; Fax: 203-730-8549

AMS Industries PLC

Billington Road, Burnley, Lancs., England
0282-57011; 707-762-4840
Fax: 0282-39542

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310 Judson St., Unit 6
Toronto, Ont., Canada M8Z 5T6
416-251-2748; 416-251-3355
Fax: 416-251-2748

AMX Corp.

11995 Forestgate Drive, Dallas, TX 75243
214-644-3048; 800-222-0193
Fax: 214-907-2053

Andrew Corp.

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Orland Park, IL 60462
708-349-3300; 800-255-1479
Fax: 708-349-5948

Angenieux

Etablissements P. Angenieux
Saint Heand, France F-42570
33-7730-4210; Fax: 33-7730-4875

Eric Neil Angevine, P.E.

420 E. Rogers Drive, Stillwater, OK 74075
405-744-6444; 405-372-3949

R.B. Annis Co.

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Indianapolis, IN 46202
317-637-9282; Fax: 317-637-9282

Antenna Concepts Inc.

3234 Saddlehill Court
Placerville, CA 95667
916-622-2015; Fax: 916-622-3274

Antenna Technology

1128 E. Greenway, Mesa, AZ 85203
602-264-7275; Fax: 602-898-7667

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16100 S. Figueroa St., Gardena, CA 90248
310-532-3092; 800-338-4231
Fax: 310-532-8509

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203-929-1100; 800-422-3473
Fax: 203-929-9935

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City of Industry, CA 91745
818-988-4100; 800-359-2884
Fax: 818-988-1703

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818-767-2929

API-Audio Products Inc.
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703-455-8188; Fax: 703-455-8188

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Audiopak, Inc.
P.O. Box 3100, Winchester, VA 22601
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901-362-1350; Fax: 901-365-8629

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19439 S.W. 90th Court, Tualatin, OR 97062
503-692-4426

Audix Ltd.
Station Road, Welden
Saffron Walden, Essex, England CB11 4LG
44-799-40888; Fax: 44-799-41618

Auernheimer Labs & Co.
4561 E. Florence Ave., Fresno, CA 93725
209-442-1048

Auratone Corp.
P.O. Box 180698, Coronado, CA 92178
619-297-2820; Fax: 619-296-8734

Aurora Systems
2230 Martin Ave., Santa Clara, CA 95050
408-988-2000; 707-577-8331
Fax: 408-986-0452



AutoPatch

AutoPatch Div. of XN Technologies
14 Calispell, Box 350, Cheney, WA 99004
509-235-2636; 800-622-0246
Fax: 509-235-2646

Art Veale

Regional Offices:

AL, Andalusia, 205-222-8950
CA, Concord, 510-686-6340
CA, Gardena, 310-719-1383
CO, Aurora, 303-680-1903
FL, Tampa, 800-274-5666
IL, Elburn, 708-365-9600
PA, Furlong, 215-348-9481
PA, Maple Glenn, 215-643-3031
TX, Fort Worth, 817-560-3970

AVA Electronics Corp.
P.O. Box 184, Drexel Hill, PA 19026
215-284-2500; 800-331-8838
Fax: 215-259-8379

AVCOM of Virginia, Inc.
500 Southlake Blvd., Richmond, VA 23236
804-794-2500; Fax: 804-794-8284

AVEC
200 Keystone Drive, Carnegie, PA 15106
412-429-2000; Fax: 412-429-2015

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3678 West 2100 South
Salt Lake City, UT 84120
801-977-9553; Fax: 801-977-9674

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510 Township Line Road
Blue Bell, PA 19422
215-646-9200; 800-366-5543
Fax: 215-643-2670

Avocet Instruments
1249 Virginia Ave., Campbell, CA 95008
408-376-3700; 800-443-0728
Fax: 408-376-0777

AVS Broadcast
Venture House, Davis Road
Chessington, Surrey, England KT9 1TT
44-081-391-5678; Fax: 44-081-391-5409

Avtech Electronics Inc.
141 Ayers Court, Teaneck, NJ 07666
201-833-8777; 800-221-1300
Fax: 201-833-4995

Access USA Corp.
2830 Scherer Drive, Suite 300
St. Petersburg, FL 33716
813-573-5811; Fax: 813-573-5064

Aydin Controls
414 Commerce Drive
Fort Washington, PA 19034
215-542-7800; Fax: 215-542-8447

B&B Electronics Mfg., Co.
P.O. Box 1040, Ottawa, IL 61350
815-434-0846; Fax: 815-434-7094

B&B Systems, Inc.
28111 N. Ave. Stanford, Valencia, CA 91355
805-257-4853; 800-345-1256
Fax: 805-257-8065

B&K Precision Maxtec International Corp.
6470 W. Cortland Ave., Chicago, IL 60635
312-889-9087

BAF

BAF Communications Corp.
16 Bourbon St., Ste. A, Peabody, MA 01960
508-535-1969; 800-633-8223
Fax: 508-535-1441

BAI Systems, Inc.
20 Red Rose Drive, Levittown, PA 19056
215-547-7133; Fax: 215-547-6021

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Hazell Way, Nuneaton,
Warwks, England CV10 7PQ
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Baranti Group
2650 John St., Unit 22
Markham, Ont., Canada L3R 2W6
416-479-0148; Fax: 416-940-9968

BARCO

Barco, Inc.
1000 Cobb Place Blvd.
Kennesaw, GA 30144
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BARCO-EMT GmbH
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Kippenheim, Germany W-7634
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Fax: 49-78-25 22 85

BASYS Automation Systems
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2684 State Route 60
Londonville, OH 44842
419-994-3849

BBE

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Huntington Beach, CA 92649
714-897-6766; Fax: 714-895-6728

BDL Autocript
C22 Poplar Bus. Park, 10 Prestons Road
London, England E14 9RL
44-71-538-1427; Fax: 44-71-515-9529

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P.O. Box 751, Milwaukee, WI 53201
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Bec Technologies
9460 Delegates Drive, Orlando, FL 32837
407-855-8181; 800-855-8228
Fax: 407-855-1653

Beck Associates, Inc.
2403 Howard Lane, Austin, TX 78727
512-388-9777; Fax: 512-388-1833

Product directory
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ATI

ATI-Audio Technologies Inc.
328 W. Maple Ave., Horsham, PA 19044
215-443-0330; Fax: 215-443-0394

Beckett Electronic Engineering & Research Inc.
2794 Circleport Drive, Erlanger, KY 41018
606-282-1802; 606-282-1803
Fax: 606-282-1804

Beckman Industrial Corp.
Instrumentation Products Div.
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619-495-3200; 800-854-2708
Fax: 619-268-0172

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P.O. Box 8026, Greenville, NC 27835-8026
919-757-0279; Fax: 919-752-9155

Belar Electronics Lab, Inc.
P.O. Box 76, Devon, PA 19333
215-687-5550; Fax: 215-687-2686

Bencher, Inc.
831 N. Central Ave., Wood Dale, IL 60191
708-238-1183; Fax: 708-238-1183

Benchmark Media Systems, Inc.
5925 Court St. Road
Syracuse, NY 13206
315-437-6300; 800-262-4675
Fax: 315-437-8119

Bencsik Associates Inc.
3730 N.E. 42nd Ave., Ocala, FL 32670
904-732-9775; Fax: 904-867-8691

BERC-Broadcast Equipment Rental Co.
4545 Chermak, Burbank, CA 91505
818-841-3000; 619-272-3000
Fax: 818-841-7919

Berk-Tek, Inc.
132 White Oak Road
New Holland, PA 17557
717-354-6200; 800-BERK-TEK
Fax: 717-354-7944

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P.O. Box 280, Necedah, WI 54646
608-565-7200; 800-356-7594
Fax: 608-565-2221

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739 Fifth Ave. #7A, San Diego, CA 92101
619-239-8462; 619-239-8469
Fax: 619-239-8474

Beyer Dynamic Inc.
56 Central Ave., Farmingdale, NY 11735
516-293-3200; Fax: 516-293-3288

beyerdynamic GmbH & Co.
Theresienstrasse 8
Heilbronn, Germany D-7100
49-7131-617-0; Fax: 49-7131-60459

BFE AG
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6500 Mainz 23, Germany
37-6131-4630; Fax: 37-6131-463122

BGW Systems, Inc.
13130 Yukon Ave., Hawthorne, CA 90250
310-973-8090; 800-246-AMPS
Fax: 310-676-6713

Bi-Directional Microwave c/o Diversified Marketing
3918 W. Clearwater, Kennewick, WA 99336
509-735-6812; 509-582-4085
Fax: 509-735-6812

Bi-Tronics, Inc.
76 Main St., Tuckahoe, NY 10707
914-961-2004; 800-666-0996
Fax: 914-961-4244

Biamp Systems
14270 N.W. Science Park Drive
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503-641-7287; 800-826-1457
Fax: 503-626-0281

Bird Electronic Corp.
30303 Aurora Road
Cleveland (Solon), OH 44139-2794
216-248-1200; Fax: 216-248-5426

Black Audio Devices
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805-653-5557

Black Star Ltd.
4 Harding Way, St. Ives
Huntington, Cambs., England PE17 4WR
44-480-62440; Fax: 44-480-495172

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P.O. Box 669, New Glarus, WI 53574-0669
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Bogen Photo Corp.
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201-818-9500; Fax: 201-818-9177

BOLAND COMMUNICATIONS

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Fax: 717-421-8343

Bretford Mfg., Inc.
9715 Soreng Ave., Schiller Park, IL 60176
708-678-2545; Fax: 800-343-1779

Broadcast Automation, Inc.
4125 Keller Springs, Suite 122
Dallas, TX 75244
214-380-6800; 800-336-8004
Fax: 214-380-0823

Broadcast Cartridge Service
15131 Triton Lane, Suite 108
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714-898-7224

Broadcast Communications
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608-527-5670; Fax: 608-527-5674

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914-737-5032

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4100 N. 24th St., Quincy, IL 62301
217-224-9600; Fax: 217-224-9607

Broadcast Marketing International, Ltd.
30 Sagamore Road, Shelton, CT 06484
203-925-8258; Fax: 203-925-8259

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7322 Convoy Court, San Diego, CA 92075
619-560-8601; 800-669-9667
Fax: 619-560-1637

Broadcast Store, Inc.
4525 Valerio St., Burbank, CA 91505
818-845-7000; Fax: 818-845-9483

Broadcast Systems Design
1845 S. Winchester Blvd., Suite C
Campbell, CA 95008-1165
408-866-6900; Fax: 408-866-7097

Broadcast Video Systems, Ltd.
40 W. Wilmot St.
Richmond Hill, Ont., Canada L4B 1H8
416-764-1584; Fax: 416-764-7438

Brüel & Kjær Instruments, Inc.
185 Forest St., Marlborough, MA 01752
508-481-7000; Fax: 508-485-0519

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800-673-7899; 215-628-4255
Fax: 215-628-2970

BSM West Starr Int.
W. 7106 W.D. Alton Drive #106
Spokane, WA 99204
509-838-0110; 800-366-8660
Fax: 509-624-2941

BTS Broadcast Television Systems
2300 South 2300 West
Salt Lake City, UT 84119
801-972-8000; 800-962-4BTS
Fax: 801-972-0837

BTS Broadcast Television Systems
Robert-Bosch-Str. 7
Darmstadt, Germany W-6100
49-6151-8080; Fax: 49-6151-894463

Bud Industries, Inc.
4605 E. 355th St., Willoughby, OH 44094
216-946-3200; Fax: 216-951-4015

Buhl Optical Co.
1009 Beech Ave., Pittsburgh, PA 15233
412-321-0076; 800-245-4574
Fax: 412-322-2640

Richard W. Burden Associates
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Canoga Park, CA 91303
818-340-4590

Burk Technology, Inc.
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Fax: 508-433-8981

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717-295-6123; 800-326-3270
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203-239-3311; Fax: 203-234-7718

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214-271-3651; 800-877-2288
Fax: 214-271-3654

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Garden Grove, CA 92641
714-895-1887; Fax: 714-895-3827

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313-231-9373; Fax: 313-231-1631

CAIG Labs, Inc.
16744 W. Bernardo Drive
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510-687-4411; 800-542-3355
Fax: 510-687-3333

California Tube Lab Inc.
1305 17th Ave., Santa Cruz, CA 95062
408-475-2939; 800-824-3197
Fax: 408-475-0241

Calzone Case Co.
225 Black Rock Ave., Bridgeport, CT 06605
203-367-5766; 800-243-5152
Fax: 203-336-4766

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Fax: 408-376-0777

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Tyne & Wear, England NE38 0BW
Fax: 44 91 416-0392

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Fax: 708-673-1389

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Fax: 503-271-5721

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Saffron Walden Essex, England CB11 3AQ
44-799-523817; Fax: 44-799-528081

CEL Electronics
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Overland Park, KS 66211
913-345-0925; Fax: 913-345-2771

Celco Inc.
80 Sea Lane, Farmingdale, NY 11735
516-249-3662; 516-249-3665
Fax: 516-753-1020

Cellabs
21111 Osborne St., Canoga Park, CA 91304
818-773-2020; Fax: 818-700-1300

Cellcast Remote Broadcast Studio
Div. of Tri-Tech, Inc.
6015 N. Xanthus, Tulsa, OK 74130
918-425-5588; 800-852-1333
Fax: 918-428-1423

Cemtsy S.A.
Explanada 4 & 6
Madrid, Spain E-28040
34-1-533-2508; Fax: 34-1-553-7888

Centennial
2500 N.W. 39th St., Miami, FL 33142
305-633-2200; 800-422-2880
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Century Precision Optics
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North Hollywood, CA 91601
818-766-3715; 800-228-1254
Fax: 818-505-9865

CH Products
970 Park Center Drive, Vista, CA 92083
619-598-2518; Fax: 619-598-2524

Channematic, Inc.
821 Tavern Road, Alpine, CA 91901
819-445-2691; 800-766-7171
Fax: 619-445-3293

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18120 S. Broadway, Gardena, CA 90248
310-715-1402; Fax: 310-618-8368

Chromatek Scan Process, Inc.
2049 Century Park E., Suite 2710
Los Angeles, CA 90067
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212-586-8782; Fax: 212-459-9556

Cipher Digital, Inc.
P.O. Box 170, Frederick, MD 21701
301-695-0200; 800-331-9066
Fax: 301-694-5152

David Clark Co.
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508-756-6216; Fax: 508-753-5827

Clark Wire & Cable
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708-272-9889; 800-CABLE-IT
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945 Camelia St., Berkeley, CA 94710
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CoarcVideo
Box 2 Route 217, Mellenville, NY 12544
518-672-4451; 800-888-4451
Fax: 518-672-4048

Coaxial Dynamics
15210 Industrial Parkway
Cleveland, OH 44135
216-267-2233; 800-COAXIAL
Fax: 216-267-3142

Cohu Inc., Electronics Div.
P.O. Box 85623, San Diego, CA 92186-5623
619-277-6700; Fax: 619-277-0221

Cole Wire & Cable
6430 N. Hamlin Ave., Lincolnwood, IL 60645
800-323-1403; Fax: 708-673-2243

Colorado Video Inc.
P.O. Box 928, Boulder, CO 80306
303-530-9580; Fax: 303-530-9569

Colortran, Inc.
1015 Chestnut St., Burbank, CA 91506-9983
818-843-1200; 800-843-1200
Fax: 818-954-8520

Columbine Systems, Inc.
1707 Cole Blvd., Golden, CO 80401
303-237-4000; Fax: 303-237-0085

Comark Communications, Inc.
A Thomson-CSF Co.
Route 309 & Advance Lane
Colmar, PA 18915
215-822-0777; Fax: 215-822-9129

Communication Resources
P.O. Box 141397, Cincinnati, OH 45250
606-491-5410; Fax: 606-491-4340

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89-A Cabot Court, Hauppauge, NY 11788
516-273-0404; Fax: 516-273-1638

Comprehensive Video Supply Corp.
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Comprompter, Inc.
141 S. Sixth St., LaCrosse, WI 54601
608-785-7766; 800-658-9099
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847-A Second Ave., Suite 175
New York, NY 10017
212-687-BCAM; Fax: 212-922-9521

Computer Concepts Corp.
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913-541-0900; 800-255-6350
Fax: 913-541-0169

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908-638-8000; 800-526-5088
Fax: 908-638-4931

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3408 Wisconsin Ave. N.W., Suite 201
Washington, DC 20016
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Comrex Corp.
65 Nonset Path
Acton, MA 01720
508-263-1800; 800-237-1776
Fax: 508-635-0401

ComStream Corp.
10180 Barnes Canyon Road
San Diego, CA 92121
619-458-1800; Fax: 619-552-0488

Comtech Antenna Systems, Inc.
3100 Communications Road
St. Cloud, FL 34769
407-892-6111; Fax: 407-957-3402



Comtek Communications Technology
357 W. 2700 S., Salt Lake City, UT 84115
801-466-3463; Fax: 801-484-6906

**Comwave Div. of Communication
Microwave Corp.**
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Fax: 717-474-5469

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120 Main St., Roseville, CA 95678
916-782-7754; 800-783-3454
Fax: 916-786-8304

Concept W Systems, Inc.
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316-342-7743; Fax: 316-342-7405

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Fax: 203-375-5811

Conrac Display Products Group
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Consultronics
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716-754-8250; 800-267-7235
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Continental Electronics Corp.
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214-381-7161; Fax: 214-381-4949

Walt Rice
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CA, Modesto, 209-523-7505
CO, Evergreen, 303-670-1049
IL, Streator, 815-672-8585
MN, Apple Valley, 612-431-1313
NY, Schroon Lake, 518-532-7488
SC, Inman, 803-599-1819
TX, Dallas, 214-381-7161
TX, Plano, 214-423-3644
WA, Seattle, 206-546-6546

Continental Microwave Ltd.
I Crawley Green Road
Luton, Beds., England LU1 3LB
44-582-424233; Fax: 44-582-455273

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607-724-2484; 800-288-6169
Fax: 607-722-8713

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818-761-8181; 800-223-2589
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Cooper Industries Inc. Belden Div.
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317-983-5200; 800-BELDEN-1
Fax: 317-983-5294

Cooper Sound Systems
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San Juan Capistrano, CA 92675
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6444 N. Ridgeway, Lincolnwood, IL 60645
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Cortana Corp.
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Countryman Associates Inc.
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415-364-9988; 800-669-1422
Fax: 415-364-2794

CPS Communications Group
Unit 2, Rocky Lane Trading Estate
Birmingham, England B7 5ER
44-021-359-7247; Fax: 44-021-359-6778

Creative Engineering
2257 W. Broadway
South Portland, ME 04106
207-773-6989; Fax: 207-774-0258

Crestron Electronics, Inc.
101 Broadway, Cresskill, NJ 07626
201-894-0660; 800-237-2041
Fax: 201-894-1192

CRL Systems-Circuit Research Labs, Inc.
2522 W. Geneva Drive, Tempe, AZ 85282
602-438-0888; 608-438-8227
Fax: 602-438-8227

Croma Research Ltd.
Croma House N. Way, Walworth Estate
Andover, Hants., England SP10 5AZ
0264-332132; Fax: 0264-332189

Crouse-Hinds Airport Lighting Products
1200 Kennedy Road, Windsor, CT 06095
203-683-4300; Fax: 203-683-4354

Crown
P.O. Box 1000, Elkhart, IN 46515-1000
219-294-8000; 800-535-6289
Fax: 219-294-8329

Cruse Communications Co.
4903 Dawn Ave., East Lansing, MI 48823
517-332-3579; 800-678-6311
Fax: 517-332-3579

CTE International
Via Sevardi, 7
Reggio Emilia, Italy 42100
39-522-921212; 39-522-516660
Fax: 39-522-921268

J.E. Cuesta Co., Inc.
P.O. Box 188, Valley Forge, PA 19481
215-935-0400; Fax: 215-935-8856

Current Technology Inc.
101 W. Buckingham, Richardson, TX 75081
214-238-5300; 800-238-5000
Fax: 214-238-0911

CV Technologies
148 Veterans Drive, Northvale, NJ 07647
201-767-7990; 800-526-0242
Fax: 201-767-7377

Cycle-Sat, Inc.
119 John K. Hanson Drive
Forest City, IA 50436
515-582-6999; 800-622-1865
Fax: 515-582-6998



D&R Electronica b.v.
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Farum, Denmark DK-3520
45 429 55522; Fax: 45 429 54504

Danish Pro Audio ApS
Concordiavej 1
Naerum, Denmark DK-2850
45-42-800588; Fax: 45-42-800578

Data Security, Inc.
2801 N. 27th St., Lincoln, NE 68521
402-464-5858; 800-225-7554
Fax: 402-464-6586

Datacount, Inc.
P.O. Box 3078, Opelika, AL 36801-3078
205-749-5641; Fax: 205-749-5666

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Fax: 908-232-6381

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Vancouver, BC, Canada V5L 2G8
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818-355-6909; Fax: 818-355-4890

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39-49-8700588; Fax: 39-49-8700747

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1525 Alvarado St., San Leandro, CA 94577
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402 S. Ragsdale, Jacksonville, TX 75766
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Fax: 903-586-6751

Dedotec USA, Inc.
410 Garibaldi Ave., Lodi, NJ 07644
201-777-2771; Fax: 201-777-5585

Deerfield Lab
P.O. Box 1300, Los Altos, CA 94023
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Delta Electronics Inc.
5730 General Washington Drive
Alexandria, VA 22312
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Fax: 703-354-0216

Deltec Corp.
2727 Kurtz St., San Diego, CA 92110
619-291-4211; 800-854-2658
Fax: 619-291-2973

Denecke Inc.
5417 Cahuenga Blvd., Suite B
North Hollywood, CA 91601
818-766-3525; 800-426-2226
Fax: 818-766-0269

Denon America, Inc.
222 New Road, Parsippany, NJ 07054
201-575-7810; 201-882-7467
Fax: 201-808-1608

DesignCAD, Inc.
One American Way, Pryor, OK 74361
918-825-4848; Fax: 918-825-6359

Designing Minds
3006 N. Main, Logan, UT 84321
801-753-4947; Fax: 801-753-4947

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1501 Broadway Suite 408
New York, NY 10036
212-391-1313; Fax: 212-391-2744

Di-Tech Inc.
48 Jeffry Blvd., Deer Park, NY 11729
516-667-6300; Fax: 516-595-1012

DIC Digital
222 Bridge Plaza S., Fort Lee, NJ 07024
201-224-9344; 800-328-1342
Fax: 201-224-9363

Alan Dick & Co. Ltd.
The Barlands, London Road
Cheltenham, Glos., England GL52 6UT
44-242-518500; Fax: 44-242-510191

DiCon Fiberoptics
1331 8th St., Berkeley, CA 94710
510-528-0427; Fax: 510-528-1519

Dielectric Communications
P.O. Box 949, Raymond, ME 04071
800-341-9678; 207-655-4555
Fax: 207-655-7120

Digi-Grade Systems/DGS
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Kent, England DA4 0JP
44-322-864855; Fax: 44-322-862875

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818-972-2112; Fax: 818-972-2115

Digital Audio Research
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Chessington, Surrey, England KT9 2QL
44-372-742848; Fax: 44-372-743532

Digital Audio Technologies SA
Puits-Godet 20, Neuchatel, Switzerland 2000
41-38-244 400; Fax: 41-38-253 230

Digital F/X
755 Ravendale Drive
Mountainview, CA 94043
800-753-3948



Digital Processing Systems Inc.
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606-371-5533; Fax: 606-371-3729

Display Systems International, Inc.
203 Mallin Crescent
Saskatoon, Sask., Canada S7K 7W8
306-934-6884; Fax: 306-934-6447

DNF Industries
1032 N. Sweetzer Ave., Suite 212
West Hollywood, CA 90069
213-650-5256; Fax: 213-650-6639

DOD Electronics/Harman International
5639 S. Riley Ln., Salt Lake City, UT 84107
801-268-8400; 800-999-9DOD
Fax: 801-262-4966

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100 Potrero Ave., San Francisco, CA 94103
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K. Tam
Regional Office:
England, London, 44-71-720-1111

Doremi Labs, Inc.
4927 N. Glen Arden Ave.
Covina, CA 91724
818-966-2454; Fax: 818-966-6554

Dorrough Electronics
5221 Collier Place
Woodland Hills, CA 91364
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Fax: 818-998-1507

DOTRONIX

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160 First St. S.E.
New Brighton, MN 55112
612-633-1742; Fax: 612-633-7025

Dove Systems
3563 Sueldo, #E
San Luis Obispo, CA 93401
805-541-8292

drake

Philip Drake Electronics
The Hydeway, Welwyn Garden City
England AL7 3UQ
44-0-707-333866; Fax: 44-0-707-371266

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1000 New Durham Rd, Edison, NJ 08818
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Fax: 908-248-9240

**Product directory
begins on page6.**

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Station Sq., Coventry, England CV1 2F2
44-203-525466; Fax: 44-203-525468

DTL Broadcast Ltd.
Johnsons Estate, Silverdale Road
Hayes, Middlesex, England
44-81-813-5200; Fax: 44-81-813-5022

DW Electrochemicals Ltd.
97 Newkirk Road N. Suite 3
Richmond Hill, Ont., Canada L4C 3G4
416-508-7500; Fax: 416-508-7502

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P.O. Box 1535, Los Lunas, NM 87031
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Fax: 619-264-4181

Dynamote Corp.
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206-282-1000; 800-426-2838
Fax: 206-283-7714

Dynatech ColorGraphics, Inc.
6400 Enterprise Lane, Madison, WI 53719
608-274-5786; Fax: 608-273-5686

E

Eagle Wichita
P.O. Box 9446, Wichita, KS 67277
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ECHOLab, Inc.
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617-273-1512; Fax: 617-273-3275

Econco
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916-662-7553; 800-532-6626
Fax: 916-666-7760

EDAK
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407-242-2953; 800-462-8478
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Moorpark, CA 93021
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EDS Portaprompt Ltd.
Lane End Road, Sands
High Wycombe, Bucks., England HP12 4JQ
44-494-450414; Fax: 44-494-437591

EDX Engineering, Inc.
P.O. Box 1547, Eugene, OR 97440
503-345-0019; Fax: 503-345-8145

EEG Enterprises, Inc.
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516-293-7472; Fax: 516-293-7417

EELA Audio
Parmentierweg, 3
5657 EH Eindhoven, The Netherlands
31-40-510484; Fax: 31-40-570482

EEV
4 Westchester Plaza, Elmsford, NY 10523
914-592-6050; 800-DIAL-EEV
Fax: 914-682-8922

EEV Ltd.
Waterhouse Lane
Chelmsford, Essex, England CM1 2QU
44-245-493493; Fax: 44-245-492492

EG&G Electro-Optics
35 Congress St., Salem, MA 01970
508-745-3200; 800-950-3441
Fax: 508-745-0894

EIP Microwave, Inc.
1589 Centre Pointe Drive
Milpitas, CA 95035
408-945-1477; 800-232-3471
Fax: 408-945-0977

Electro Impulse Lab, Inc.
P.O. Box 278, Neptune, NJ 07754-0278
908-776-5800; Fax: 908-776-6793

Electro-Voice Inc.
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616-695-6831; 800-234-6831
Fax: 616-695-1304

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Liss Mill, Mill Road
Liss, Hamps., England GU33 7BD
44-730-893444; Fax: 44-730-894341

Electrohome
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Kitchner, Ont., Canada N2G 4J6
519-744-7111; Fax: 519-749-3131

Electronic Communication Systems
2906 Brady St., Davenport, IA 52803
319-322-1525; Fax: 319-322-5920

Electronic Visuals Ltd.
Goldsworth Road
Woking, Surrey
England GU21 1RU
44-483-771663; Fax: 44-483-750358

Elenos
Via G. Amendola, 9
Poggiorenatico (FE), Italy I-44020
39-532-829965; Fax: 39-532-829177



ELIT-Elettronica Italiana S.p.A.
Via Gadames 100
Milan 1, Italy I-20151
39.2.33402992; Fax: 39.2.38000136

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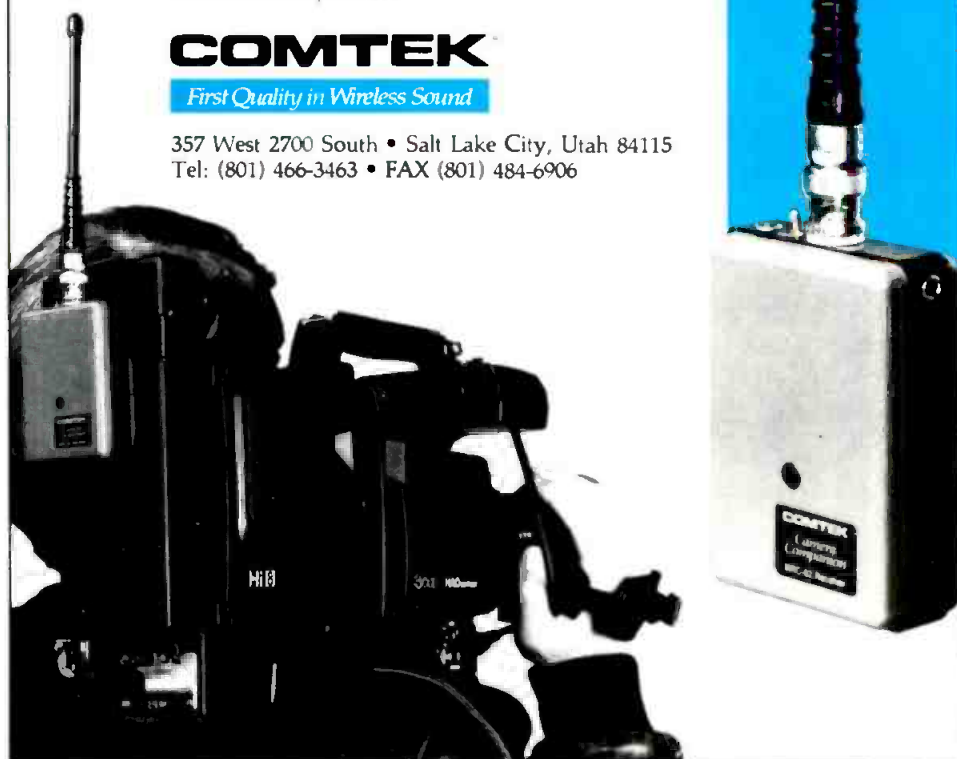
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Bethlehem, PA 18017-9359
215-837-0700; 800-524-0400
Fax: 215-837-7978

Karl Heitz, Inc.
34-11 62nd St., Woodside, NY 11377
718-565-0004; Fax: 718-565-2582

Kathrein-Werke KG
P.O. Box 260
Rosenheim, Germany W-8200
49-08031-184-0; Fax: 49-08031-184306

Kavouras Inc.
6301 34th Ave. S., Minneapolis, MN 55450
612-726-9515; 800-328-2278
Fax: 612-727-1157

Kay Elemetrics Corp.
P.O. Box 2025, Pine Brook, NJ 07058
201-227-2000 Ext 116; Fax: 201-227-7760

Keith Monks Sound Systems
The Red House
Fowey, Cornwall, England PL23 1JN
44-252-334123; 44-726-833783
Fax: 44-252-334123

Keystone International, Inc.
376 Stanley Drive, Kingston, PA 18704
717-283-0895; Fax: 717-283-2744

Keystone Metal Products, Inc.
2711 N. California St., Burbank, CA 91504
818-846-9210; Fax: 818-567-0283

Kezvale Ltd.
Unit 5, Johnsons Estate, Silverdale Rd.
Hayes, Middlesex, England UB3 3BA
44-81-569-2731; Fax: 44-81-569-2790

K&H Products-Porta Brace
P.O. Box 246, North Bennington, VT 05257
802-442-8171; Fax: 802-442-9118

Kings Electronics Co., Inc.
40 Marblehead Road, Tuckahoe, NY 10707
914-793-5000; Fax: 914-793-5092

KINTEK, Inc.
224 Calvary St., Waltham, MA 02254-9143
617-894-6111; Fax: 617-647-4235

Kintronic Labs, Inc.
P.O. Box 845, Bristol, TN 37621-0845
615-878-3141; Fax: 615-878-4224

Klark Teknik
200 Sea Lane, Farmingdale, NY 11735
516-249-3660; Fax: 516-420-1863

Kline Towers
P.O. Box 1013
Columbia, SC 29202
803-251-8000; 803-739-3900
Fax: 803-739-3939

Koss Corp.
4129 N. Port Washington Ave.
Milwaukee, WI 53212
414-964-5000; 800-872-5677
Fax: 414-964-8617

Koto Luminous Corp.
Fujita Estate Bldg., 57th Floor
1-4-8 Ueno Taito-Ku, Tokyo, Japan
81-3-3839-1151; Fax: 81-3-3837-4720

Ron Krob Technical Consultant
4910 Four Star Court
Fort Collins, CO 80524
303-484-2704

L

Lake Cabinet Systems
40 Young St.
Beeton, Ont., Canada L0G 1A0
416-729-4150; Fax: 416-729-4306

Lakeside Associates, Inc.
9272 Jeronimo Road, Suite 123C
Irvine, CA 92718
714-720-6601; Fax: 714-720-6575

Lamp Technology Inc.
1645 Sycamore Ave., Bohemia, NY 11716
516-567-1800; Fax: 516-567-1806

Lance Industries
13001 Bradley Ave., Sylmar, CA 91342-3832
818-367-1811; Fax: 818-362-3594

Laurentel Systems Inc.
8 Sunnyside Road
Monfort, Que., Canada J0T 1Y0
514-226-8694; 514-226-3847
Fax: 514-226-3847

Lazerus
P.O. Box 13249, Oakland, CA 94661
510-339-6263; 510-339-9636
Fax: 510-339-6263

LBA Technology, Inc.
P.O. Box 8026, Greenville, NC 27835-8026
919-757-0279; Fax: 919-752-9155

LDL Communications, Inc.
14440 Cherry Lane Court, Suite 201
Laurel, MD 20707
301-498-2200; Fax: 301-498-7952

Leader Instruments Corp.
380 Oser Ave., Hauppauge, NY 11788
516-231-6900; 800-645-5104
Fax: 516-231-5295

LeBlanc & Royle Telcom Inc.
514 Chartwell Road, Box 880
Oakville, Ont., Canada L6J 5C5
416-844-1242; Fax: 416-844-8837

Lectrosonics, Inc.
P.O. Box 15900, Rio Rancho, NM 87174
505-892-4501; 800-821-1121
Fax: 505-892-6243

Ledtronics, Inc.
4009 Pacific Coast Highway
Torrance, CA 90505
310-534-1505; Fax: 310-534-1424

Lee Dan Communications, Inc.
155 Adams Ave.
Hauppauge, NY 11788-3699
516-231-1414; 516-533-3261
Fax: 516-231-1498

Lee Filters Ltd.
Central Way, Walworth Industrial Estate
Andover, Hants., England SP10 5AN
44-0264-66245; Fax: 44-0264-55058

Leightronix, Inc.
2330 Jarco Drive, Holt, MI 48842
517-694-5589; Fax: 517-694-4155

Leitch Inc.
920 Corporate Lane
Chesapeake, VA 23320
804-548-2300; 800-231-9673
Fax: 804-548-4088

Gary Stephens
Regional Offices:
Canada, Toronto, Ont., 416-445-9640
England, Bramley Hants, 44-256-880088

Lemo USA
335 Tesconi Circle, Santa Rosa, CA 95406
707-578-8811; 800-444-5366
Fax: 707-578-0869

Lenbar Electronics Corp.
9131 Bedell Lane, Brooklyn, NY 11236
718-272-5000; Fax: 718-272-1739

Lenco Electronics, Inc.
753 Enterprise St.
Cape Girardeau, MO 63701
314-334-4433; Fax: 314-334-9255

Leonardo Software
12421 W. Olympic Blvd.
Los Angeles, CA 90064-1022
310-820-2868; Fax: 310-820-5753

LESTER
LABORATORIES

Lester Labs
1111 W. Mockingbird Lane, Suite 1342
Dallas, TX 75247
214-637-9311; 800-525-3443
Fax: 214-637-9314

Lexicon Inc.
100 Beaver St., Waltham, MA 02154-8425
617-736-0300; Fax: 617-891-0340

Lighting Master Corp.
P.O. Box 6017
Clearwater, FL 34618-6017
813-447-6800; Fax: 813-461-3177

Lightning Eliminators & Consultants, Inc.
6687 Arapahoe Road
Boulder, CO 80303
303-447-2828; Fax: 303-447-8122

Lightning Prevention Systems
204-B Cross Keys Road, Berlin, NJ 08009
609-767-7209; Fax: 609-767-7547

Lightworks The O.L.E. Partnership
69 Wells St.
London, England W1P 3RB
44-71-494-3084; Fax: 44-71-436-8934

Lipsner-Smith Co.
4700 Chase Ave., Lincolnwood, IL 60646
708-677-3000; 800-323-7520
Fax: 708-677-1311

Peter Lisand Corp.
352 River Road, Edgewater, NJ 07020
201-943-5600; Fax: 201-943-6913

Listec Video Corp.
30 Oser Ave., Hauppauge, NY 11788-3809
516-273-3020; Fax: 516-435-4544

James Lloyd Group
P.O. Box 3, Ashland, OR 97520
503-488-1405; Fax: 503-488-5627

LNR Communications, Inc.
180 Marcus Blvd.
Hauppauge, NY 11788-3795
516-273-7111; Fax: 516-273-7119

Logitek Electronic Systems, Inc.
3320 Bering Drive, Houston, TX 77057
713-782-4592; 800-231-5870
Fax: 713-782-7597

Loma Scientific, Inc.
3115 Kashiwa St., Torrance, CA 90505
310-539-8655; Fax: 310-539-8634

Lone Wolf
1509 Aviation Blvd.
Redondo Beach, CA 90278
310-379-2036; Fax: 310-374-2496

Loral Microwave-Narda
435 Moreland Road, Hauppauge, NY 11788
516-231-1700; Fax: 516-231-1711

Louth Automation
707 Menlo Ave., Suite 100
Menlo Park, CA 94025
415-329-9498; Fax: 415-329-9530

Lowel-Light Mfg., Inc.
140 58th St., Brooklyn, NY 11220
718-921-0600; 800-334-3426
Fax: 718-921-0303

LPB Inc.
28 Bacton Hill Road, Frazer, PA 19355
215-644-1123; Fax: 215-644-8651

LTM Corp. of America
11646 Pendleton St., Sun Valley, CA 91352
818-767-1313; 800-762-4291
Fax: 818-767-1442

Lucas Epsco Inc.
99 South St., Hopkinton, MA 01748
508-435-2400; Fax: 508-435-2022

Lumitrol, Ltd.
#2000, 89 Research Road
Toronto, Ont., Canada M4G 2G8
416-424-4284; Fax: 416-424-4682

Luxor Corp.
2245 Delany Road, Waukegan, IL 60087
708-244-1800; 800-323-4656
Fax: 708-244-2638

Lyncole XIT Grounding
22412 S. Normandie Ave.
Torrance, CA 90502
213-320-8000; 800-962-2610
Fax: 213-320-8040

Lyrec Mfg. A/S
Box 123 (Mileparken 22)
Skovlunde, Denmark DK-2740
45 44 53 2522; Fax: 45 44 53 5335

M

Macrovision
700 El Camino Real W., Suite 200
Mountain View, CA 94040
415-691-2900; Fax: 415-691-2999

Magic Teleprompting, Inc.
1390 Waller St
San Francisco, CA 94117
415-626-5283; Fax: 415-626-2762

Magna-Tech Electronic Co., Inc.
630 Ninth Ave., New York, NY 10036
212-586-7240; Fax: 212-265-3638

Magni Systems, Inc.
9500 S.W. Gemini Drive
Beaverton, OR 97005
503-626-8400; 800-237-5964
Fax: 503-626-6225

Magnum Towers, Inc.
9370 Elder Creek Road
Sacramento, CA 95829
916-381-5053; Fax: 916-381-2144

Malouf Engineering International
901 Waterfall Way, Suite 203
Richardson, TX 75080
214-783-2578; Fax: 214-783-2583

The Management
P.O. Box 136457, Fort Worth, TX 76136
817-625-9761; 800-334-7823
Fax: 817-624-9741

maney_logic
4535 Thurston Lane
Madison, WI 53711-4767
608-277-8001

Manhattan Production Music
311 W. 43rd St., Suite 702
New York, NY 10036
212-333-5766; 800-227-1954
Fax: 212-262-0814

Marcom
P.O. Box 66507, Scotts Valley, CA 95066
408-438-4273; Fax: 408-438-6617

Marconi Communications Inc.
11800 Sunrise Valley Drive
Reston, VA 22091
703-620-0333; Fax: 703-620-0415

Mark Roberts Motion Control
Unit 4, Birches Ind. Est., Imberhorne Lane
E. Grinstead, W. Suss., England RH19 1XZ
44-342-313522; Fax: 44-342-327566

D.L. Markley & Associates Inc.
Consulting Engineers
2104 W. Moss Ave., Peoria, IL 61604
309-673-7511; Fax: 309-673-8128

Marshall Electronics Inc.
5649 Mesmer Ave., Culver City, CA 90230
310-390-6608; Fax: 310-391-8926

Marti Electronics
P.O. Box 661, Cleburne, TX 76033-0661
817-645-9163; Fax: 817-641-3869

Matco Mfg. & Test Co., Inc.
dba: Matco Control Products
427 Perrymont Ave., San Jose, CA 95125
408-998-1655; 800-225-5390
Fax: 408-998-8020

Matrox Video Products Group
1055 St. Regis Blvd.
Dorval, Que., Canada H9P 2T4
514-685-2630; 800-361-4903
Fax: 514-685-2853

Matthews/ITE
2405 Empire Ave., Burbank, CA 91504
818-843-6715; Fax: 213-849-1525

Matthey Electronics
William Clowes St., Burslem
Stoke-On-Trent, England ST6 3AT
44-782-577588; Fax: 44-782-575687

Maxell Corp. of America Pro/Industrial Products
22-08 Route 208, Fair Lawn, NJ 07410
201-794-5900; 800-533-2836
Fax: 201-796-8790

MBI Broadcast Systems Ltd.
69 Ship St.
Brighton, England BN1 1AE
44-273-24928; Fax: 44-273-821767

MBS Technologies, Inc.
34 W. Sycamore, Arcadia, CA 91006
818-572-0258; 800-860-8700
Fax: 818-355-7862

MCG Electronics, Inc.
12 Burt Drive, Deer Park, NY 11729
516-586-5125; 800-851-1508
Fax: 516-586-5120

MCL, Inc.
501 S. Woodcreek Road
Bolingbrook, IL 60440-4999
708-759-9500; 800-743-4625
Fax: 708-759-5018

Phil McQuatters Measurement Service
601 S. Bunker Hill Drive
San Bernardino, CA 92410
714-884-1526

Kenneth R. Meades
P.O. Box 1469, Los Angeles, CA 90053
213-665-1463

Media Computing, Inc.
3506 E. Meadow Drive
Phoenix, AZ 85032-2718
602-482-9131; Fax: 602-992-6572

Media Concepts, Inc.
559 49th St. S., St. Petersburg, FL 33707
813-321-2122; 800-330-DUPE
Fax: 813-321-2272

Media Touch Systems, Inc.
50 Northwestern Drive, Suite 11
Salem, NH 03079
603-893-5104; Fax: 603-893-6390

Meirick Inc.
420 S. Hickory St., Mount Vernon, MO 65712
417-466-3941; Fax: 417-466-4207

Melford Electronics Ltd.
Leigh Court, Leigh St.
High Wycombe, Bucks., England HP11 2RH
44-494-525696; 44-494-523801
Fax: 44-494-463358

Merlin Engineering Works, Inc.
1888 Embarcadero Road
Palo Alto, CA 94303
415-856-0900; 800-227-1980
Fax: 415-858-2302

MFJ Enterprises Inc.
921 Louisville Road
Starkville, MS 39759
601-323-5869; 800-647-1800
Fax: 601-323-6551

Micor Video Equipment Sales
5545 N. Clark
Chicago, IL 60640
312-334-4300; Fax: 312-334-4385

Micro Communications, Inc.
P.O. Box 4365, Grenier Field
Manchester, NH 03108-4365
603-624-4351; Fax: 603-624-4822

Micro Controls
P.O. Box 728, Burleson, TX 76028
817-295-0965

Micro Express
1801 Carnegie Ave.
Santa Ana, CA 92705
714-852-1400; 800-642-7621
Fax: 714-852-1225

Microdyne Corp.
P.O. Box 7213, Ocala, FL 32672
904-687-4633; Fax: 904-687-3392

Microflect Co., Inc.
P.O. Box 12985
Salem, OR 97309-0985
503-363-9267; Fax: 503-363-4613

Micron Audio Products Ltd.
410 Garibaldi Ave.
Lodi, NJ 07644
201-777-7223; Fax: 201-777-5585

Microtime, Inc.
1280 Blue Hills Ave.
Bloomfield, CT 06002
203-242-4242; 800-243-1570
Fax: 203-242-3321

Microtran Co.
P.O. Box 236,
Valley Stream, NY 11582-0236
516-561-6050; Fax: 516-561-1117

Microwave Filter Co., Inc.
6743 Kinne St.
East Syracuse, NY 13057
315-437-3953; 800-448-1666
Fax: 315-463-1467

Microwave Networks Inc.
10795 Rockley Road
Houston, TX 77099
713-495-7123; 800-749-2577
Fax: 713-879-4728



Microwave Radio Corp.
20 Alpha Road
Chelmsford, MA 01824
508-250-1110; Fax: 508-256-5215

Microwave Solutions Inc.
3200 Highland Ave., Suite 3A
National City, CA 91950
619-474-6906; 800-967-4267
Fax: 619-474-7003

Midas
200 Sea Lane,
Farmingdale, NY 11735
516-249-3660; Fax: 516-420-1863

Milab Microphones
80 Sea Lane,
Farmingdale, NY 11735
516-249-1399; Fax: 516-753-1020

Miller Fluid Heads
30 Hotham Parade
Artarmon, Australia 2064
61-2-4396377; Fax: 61-2-4382819

Miller Fluid Heads (USA) Inc.
410 Garbald Ave., Lodi, NJ 07644
201-473-9592; Fax: 201-473-9693

Minolta Corp. Instrument Systems Div.
101 Williams Drive
Ramsey, NJ 07446
201-818-3571; Fax: 201-825-4374

Miranda Technologies
5695 Chemin St. Francois
Montreal, Que., Canada H4S 1W6
514-333-1772; Fax: 514-333-9828

Jay Mitchell Associates
P.O. Box 1285, Rte 2, Fairfield, IA 52556
515-472-4087; Fax: 515-472-6457

E.C. Mitchell Co., Inc.
P.O. Box 607, Middleton, MA 01949-0907
508-774-1191; Fax: 508-774-2494

Mitsubishi Electronics America Pro Electronics Div.
800 Cottontail Lane
Somerset, NJ 08873-6759
201-563-9889; Fax: 201-563-9196

Mobile-Cam Products
340-F Vernon Way, El Cajon, CA 92020
619-441-1295; Fax: 619-441-9263

MOCCE, Inc.
P.O. Box 27478, Salt Lake City, UT 84127
801-972-5900; Fax: 801-975-0970

Modgraph, Inc.
83 Second Ave., Burlington, MA 01803
617-229-4800; 800-327-9962
Fax: 617-272-3062

Modular Audio Products Unit of Modular Devices, Inc.
One Roned Road, Shirley, NY 11967
516-345-3100; 800-333-7697
Fax: 516-345-3106

Modulation Sciences
12-A Worlds Fair Drive, Somerset, NJ 08873
908-302-3090; 800-826-2603
Fax: 908-302-0206

Mohawk Wire & Cable Corp.
9 Mohawk Drive, Leominster, MA 01453
508-537-9961; 800-422-9961
Fax: 508-537-4358

Mole-Richardson Co.
937 N. Sycamore Ave.
Hollywood, CA 90038-2384
213-851-0111; Fax: 213-851-5593

Monroe Electronics, Inc.
100 Housel Ave., Lyndonville, NY 14098
716-765-2254; Fax: 716-765-9330

Morenz Development Corp.
2790 Loker Ave., Suite 105
Carlsbad, CA 92008
619-431-8077; Fax: 619-431-5077

Lawrence L. Morton Associates
1231 Mesa Oaks Lane
Mesa Oaks, CA 93436
805-733-4275; Fax: 805-733-4793

Moseley Associates, Inc.
111 Castilian Drive
Santa Barbara, CA 93117
805-968-9621; Fax: 805-685-9638

Moss Bay Group Inc.
5525 Lakeview Drive, Suite 200
Kirkland, WA 98033
206-827-3363; Fax: 206-827-4002

Motor Capacitors, Inc.
6655 N. Avondale Ave., Chicago, IL 60631
312-631-0713; Fax: 312-774-8778

Motorola AM Stereo
3701 W. Algonquin
Rolling Meadows, IL 60008-3120
708-576-3592; 708-576-3591
Fax: 708-576-5479

Motorola Inc. Land Mobile Products Sector
1301 E. Algonquin Road
Schaumburg, IL 60196
800-247-2346; Fax: 708-576-2702

Motorola Semiconductor Products Sector
3102 N. 56th St., M/S 56-102
Phoenix, AZ 85018-6606
800-441-2447

MTC/Mycomp Technologies Corp.
1050 Calle Negocio
San Clemente, CA 92672
714-498-9743; Fax: 619-630-0567

MTR AG/Electronics Department
Linden (Bern), Switzerland CH-3517
41 31-771-1100; Fax: 41 31-771-1165

Multidyne
12 Frost Creek Drive
Locust Valley, NY 11560
516-628-1495; 800-4-TEST
Fax: 516-628-1496
James G. Jachetta

Multiplex Technology, Inc.
3200 E. Birch St., Brea, CA 92621
714-996-4100; 800-999-5225
Fax: 714-996-4900

MultiVideo Image Display Co.
221 26 Del Valle St.
Woodland Hills, CA 91364
818-347-3505; Fax: 818-347-3579

The Music Co.
Unit 3E Hillam Rd. Ind. Estate Canal Rd.
Bradford, W. Yorks, England BD2 1QN
44-274-370966; Fax: 44-274-308706

Music Director Programming Service
P.O. Box 51978, Indian Orchard, MA 01151
413-783-4626; Fax: 413-783-3168

MYAT, Inc.
308 Chestnut St., Norwood, NJ 07648
201-767-5380; Fax: 201-767-4147



Nady Systems, Inc.
6701 Bay St., Emeryville, CA 94608
510-652-2411; Fax: 510-652-5075

Nagra Kudelski S.A.
Route de Geneve 22
Cheseaux, Switzerland CH-1033
41-21-731.0101; Fax: 41-21-731.0100

Nalpak Video Sales Inc.
1937-C Friendship Drive
El Cajon, CA 92020
619-258-1200;

National Transcommunications Ltd.
Crawley Court
Winchester, Hamps., England SO21 2QA
44-962-822243; Fax: 44-962-822374



Nautei Maine Inc.
201 Target Industrial Circle
Bangor, ME 04401
207-947-8200; 902-823-2233
Fax: 207-947-3693

NEC America, Inc. Broadcast Equipment Department
383 Omni Drive, Richardson, TX 75080
214-907-4710; Fax: 214-907-4711

Neilson-Hordell Ltd.
Unit 11, Central Trading Estate
Staines, Middlesex, England TW18 4UU
44-784-456456; Fax: 44-784-459657

L.E. Nelson Sales Corp.
5451 Ukiah Circle, Las Vegas, NV 89118
702-367-3656; Fax: 702-367-7876

Nemal Electronics International

12240 N.E. 14th Ave.
North Miami, FL 33161
305-899-0900; 800-522-2253
Fax: 305-895-8178

Neotek Corp.

1154 W. Belmont, Chicago, IL 60657
312-929-6699; Fax: 312-975-1700

Nesbit Systems, Inc.

5 Vaughn Drive, Princeton, NJ 08540
609-799-5071; 609-799-6049
Fax: 609-799-9540

Netcom

1465 Palisade Ave., Teaneck, NJ 07666
201-837-8424; Fax: 201-837-8384

Netwell Noise Control

6125 Blue Circle Drive
Minneapolis, MN 55343
612-939-9845; 800-638-9355
Fax: 612-939-9836

Network Technologies Inc.

7322 Pettibone Road
Chagrin Falls, OH 44023
216-543-1646; 800-742-8324
Fax: 216-543-5423

Neumade Products Corp.

P.O. Box 5001, Norwalk, CT 06856
203-866-7600; Fax: 203-866-7522

Georg Neumann GmbH

Charlottenstrasse 3
Berlin 61, Germany D-1000
49-30-25993-0; Fax: 49-30-25993-108

Neutrik USA, Inc.

195 Lehigh Ave., Lakewood, NJ 08701
908-901-9488; Fax: 908-901-9608

New England Digital Corp.

Rivermill Commercial Center
Lebanon, NH 03766
603-448-5870; Fax: 603-448-3684

**Newman-Kees Measurements
Engineering & Installations**

8611 State Road
Evansville, IN 47712
812-963-3294

Newton Instrument Co. Inc.

111 East A St., Butner, NC 27509-2426
919-575-6426; Fax: 919-575-4708

Nikon Corp.

Fuji Bldg., 2-3 Marunouchi 3
Chome Chiyoda-Ku, Tokyo, Japan 100
81-3-3216-1034; Fax: 81-3-3214-8193

Nikon Photo/ Electronic Imaging Products

623 Stewart Ave.
Garden City, NY 11530
516-222-0200; Fax: 516-222-0265

Nissen Group Inc.

32 Ridge Drive
Port Washington, NY 11050
516-944-5477
Fax: 516-944-5474

Noriake Mfg. Co.

39301 Taylor Parkway, Elyria, OH 44035
216-353-3200; Fax: 216-353-3232

Norpak Corp.

10 Hearst Way
Kanata, Ont., Canada K2L 2P4
613-592-4164; Fax: 613-592-6560

North Hills Electronics, Inc.

1 Alexander Place, Glen Cove, NY 11542
516-671-5700; Fax: 516-759-3327

Northern Magnetics, Inc.

P.O. Box 16409, Minneapolis, MN 55416
612-333-3071; Fax: 612-333-3978

Northern Power Systems

P.O. Box 659, Moretown, VT 05660
802-496-2955; Fax: 802-496-2953

Northern Technologies, Inc.

P.O. Box 280, Veradale, WA 99027
509-927-0401; 800-727-9119
Fax: 509-927-0435

Nortronics Co. Inc.

1000 Superior Blvd., #302
Wayzata, MN 55391
612-476-7356; 800-325-2853
Fax: 612-476-7316

Nova Systems, Inc.

50 Albany Turnpike, Canton, CT 06019
203-693-0238; Fax: 203-693-1497

NSI

9050-H Red Branch Rd
Columbia, MD 21045
410-964-8400; Fax: 410-964-9661

NTP Elektronik AS

Knapholm 7, Herlev, Denmark DK-2730
45-4453-1188; Fax: 45-4453-1170

Nucomm Inc.

101 Bilby Road, Building 2
Hacketstown, NJ 07840
908-852-3700; Fax: 908-813-0399

Fred A. Nudd Corp.

P.O. Box 577, Ontario, NY 14519
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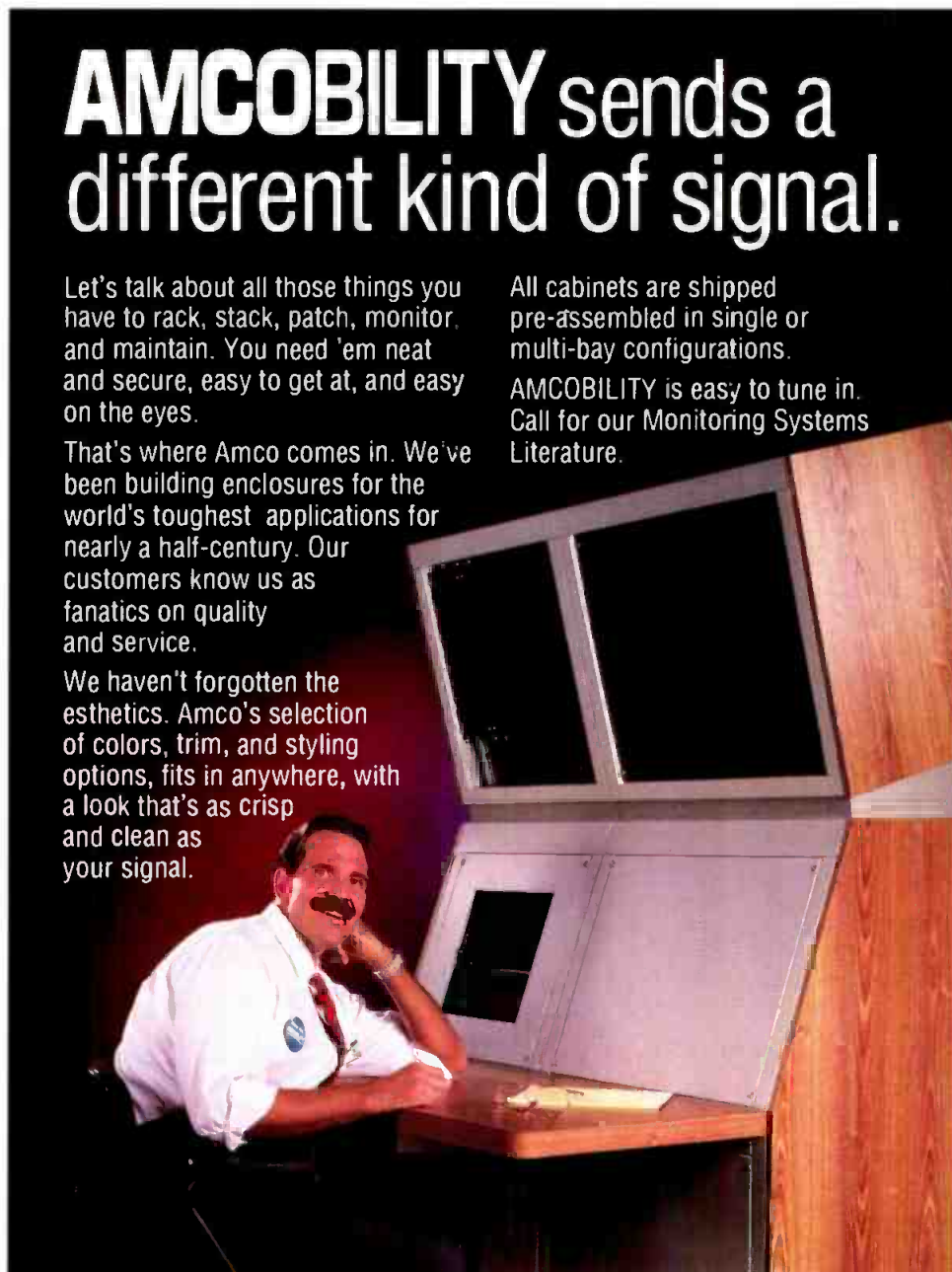
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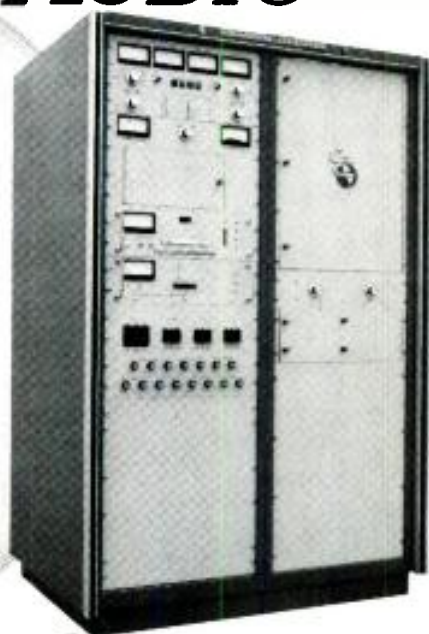
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Fax: 81-3-5476-4057

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Fax: 719-591-0027

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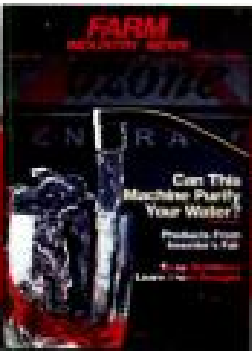
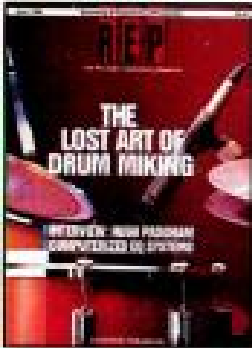
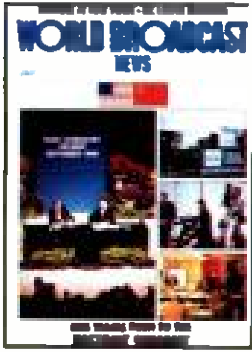
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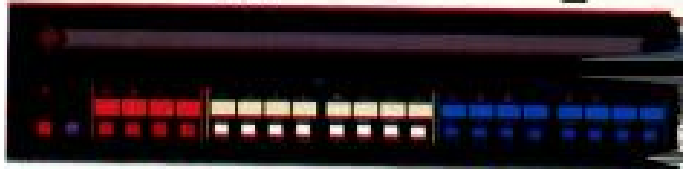
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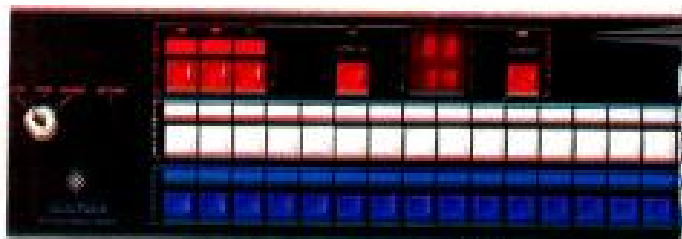
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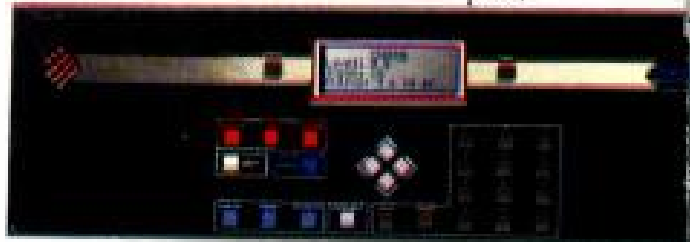
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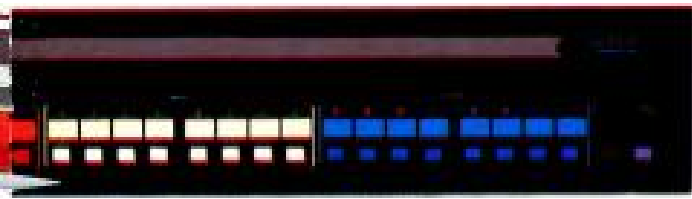
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Manufacturer	Ampex	BTS				Canon USA	Hitachi	
Model	CVC-7A(-70IS)	KCH 1000 ¹	LDK 9	LDK 91	LDK 910	UCS3	SK-F2 (-F3) ²	SK-F200(-300) ³
Composite output	Yes	Any HDTV	Yes N P	Yes N P	Yes N P	Yes	Yes	Yes
RGB output	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Y/R-Y/B-Y output	Yes	Yes	Yes	Yes	Yes	No	Yes	No
S-VHS Y-C output	No	No	No	No	No	Yes	Option	No
Direct VCR cable	Yes	No	...	Yes	Yes	No	Yes	No
Cable type	C/T/FO	Tnax	T/M	T/M	T/M	...	C/T M	T/M
Docking VCR	Yes	No	No	Opt	Opt	Integral Hi8	Yes	No
Intercom audio	Yes	Yes	Yes	Yes	Yes	...	...	Yes
Program audio	Yes	2-ch	Yes	Yes	Yes	Stereo mic	Yes	Yes
Return video circuit	Yes	Yes	Yes	Yes	Yes	...	Yes	Yes
Lens correction memory	No	Yes	Yes	...	...	AE system	...	...
Color balance memories	Yes	Scenes	Yes	Yes	Yes	..	32 scenes	Yes
ND, color filters	4C-2N	4-position	8-position	...	...	...	2N-2C	4N-5C
Application	EN/EF	HDTV	Studio	ENG	EN/EF/ST	Camcorder	EN/EF	OB/ST
Pickup size/type	2/3" IT (FIT)	30mm PbO	FT 1/2	2/3	1/2"	1/3"	2/3" IT (FIT)	2/3" IT (FIT)
CCD array size/type	768x493 HAD	or 24mm SAT	806x504	806x504	806x504	410kp/768x494	400k pixel	400k pixel
Standard sensitivity	2000; 5.6	800; 4 PbO	2000; 4.0	1750; 4.0	2000; 4.0	3-100klx range	2000; 5.6	2000; f/5.6
Limiting sensitivity at f/1.4	15; +18	70; 2; +9	32; +18	13; +18	15; +18	3 lx	15; +18	17; 1.8; +18
S/N ratio	62dB NTSC	...	62dB	62dB	62dB	43dB	60dB (62dB)	62dB
Limiting resolution TVL	700	1200 50% 600	>700 (55% 5MHz)	>700 50% 5MHz	>700 50% 5MHz	430/380 off tape	650 (700)	700
Electronic shutter	Variable	No	Yes	2-speed	2-speed	12-speed	6-sp to 1/2000	6-speed
Registration error %	0.005%	0.02%	0.05%	0.05%	0.05%	..	0.05% all zones	<0.1%
Highlight compensation	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Color correction matrix	Option	Yes	Yes	...	Yes	No	Option	Yes
Camera control unit	Option	Yes	Yes	Yes	Yes	No	Option	Yes
Multi-camera panel	...	Yes	Yes	Ser. 9000	Ser. 9000	No	Option	Yes
Operating power	10.5-17V	350W	80W	11W	170W	6Vdc battery	10.5-17V 14W	110VA
Camera head weight lbs	7.5 lb	72.6	46	7.5	<40	1.54 lb	7.5 lb	55 lb
Reader Service No	101	102	103	104	105	106	107	108

¹Software adjustable to all current HDTV proposals. ²-F3C uses high sensitivity FIT CC. ³-300S high sensitivity FIT; -350S 450

Manufacturer	Hitachi				Ikegami			
Model	SK-F700 710	SK-F750(-760) ⁴	Z-One-B	HC-240A (-340)	HDL-70	HK-343 ⁵	HK-353 ⁵	HK-377
Composite output	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
RGB output	Yes	Yes	Yes	Opt (Yes)	Yes	Yes	Yes	Yes
Y/R-Y/B-Y output	Option	Option	Yes	Opt (Yes)	YPbPr	Yes	Opt	Yes
S-VHS Y-C output	Option	...	Opt	Yes	No	No	No	No
Direct VCR cable	Yes	...	Yes	Yes	Yes	No	No	Opt
Cable type	T/M	Yes/M	M	M	F	T	C/T/F M	C/T/F M
Docking VCR	No	No	Yes	Yes	Yes (Proposed)	No	No	No
Intercom audio	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Program audio	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Return video circuit	Yes	Yes	...	Yes	Yes	Yes	Yes	Yes
Lens correction memory	...	...	...	No	No	No	Yes	Yes
Color balance memories	32 data files	32 scenes	Yes	Yes	Yes	Yes	Yes	Yes
ND, color filters	4N-3C	4N-4C	...	(3C 1N)	4C 2N	3C-1N (3C-3N)	...	4C-4N
Application	OB/ST	ST/EF	EN/EF	EN/EF/ST	HDTV	Studio	Studio	EF/OB/ST
Pickup size/type	2/3" FIT CCD	2/3" FIT CCD	3 2/3" CCD	FIT 1/2" (2/3")	2/3" FIT	2/3" IT	IT 2/3"	2/3" FIT
CCD array size/type	400k pixel	450k pixel	400k pixel	400k	1300k pixel	400k pixel	400k pix	600k pixel
Standard sensitivity	2000; 5.6	2000; 5.6	2000; 8	2000; f 5.6 (8)	2000; f 5.6	2000; f 5.6	2000; f 8	2000; f 8
Limiting sensitivity at f/1.4	15; +21	15; +18	12; 1.8; +18	16; +18(4; +24)	31; +12dB	31; +12	15; +12dB	15; +12
S/N ratio	60dB/N; 57dB/P	62dB	62dB	60	50dB	62	62dB	62dB
Limiting resolution TVL	700	800	750	750	900; 65% 400	850	700H 400V	900
Electronic shutter	No	6-st to 1/2000	Yes	Yes	Yes	Variable	Yes	Variable
Registration error %	0.05% all zones	0.05% all zones	0.05%	0.05%	...	0.05%	0.05%	0.02%
Highlight compensation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
Color correction matrix	Yes	Yes	No	No (Yes)	Yes	Yes	Yes	Yes
Camera control unit	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Multi-camera panel	Yes	Yes	No	No	No	Yes	Yes	Yes
Operating power	300VA	300VA	13W	11-16Vdc 12.5W	11-16Vdc 28W	115Vac 160W	130VA	115Vac 130W
Camera head weight lbs	66	66	7.7	7.0	7.7	50	55	55
Reader Service No	109	110	111	112	113	114	115	116

⁴-600/-610 use 400k pixel IT CCDs. ⁵Optical axis of CCD block adjusts to center of lens.

Manufacturer	Ikegami							JVC
	Model	HK355A (355PA) ⁶	HL-55A ⁷ (-53A)	HL-57 ⁸ (-V57)	HL-V55	HL-W40 ⁹	HL1125 (HC2000)	LK-33	GY-X1 TCAU
Composite output	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
RGB output	Yes	Yes	Yes (No)	No	Yes	Yes	Yes	No
Y/R-Y/B-Y output	Opt	Yes	Yes	Yes	Yes	Y/PB/PR	...	No
S-VHS Y-C output	No	No	No	No	No	No	...	Yes
Direct VCR cable	Opt	Yes	Yes	Yes	Yes	No	No	No
Cable type	C/T/F/M	C/T/M	C/T/M (No)	C/T	C/T/M	F(No)/M	M	C
Docking VCR	No (Yes)	Yes	Yes (Integral D3)	Integral Betacam	Yes	No	No	S-VHS-C
Intercom audio	Yes	Yes	Yes (No)	Yes	Yes	Yes	No	...
Program audio	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Return video circuit	Yes	Yes	Yes	Yes	Yes	Yes	...	No
Lens correction memory	Yes	No	No	No	No	Yes	...	IC Card memory
Color balance memories	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
ND, color filters	4C-4N (3C-3N)	...	...	4C 2N	4C 2N	...	...	1N-3C
Application	ST/EF/OB	EN/EF/ST	EN/EF/ST/CA	Camcorder	EFP	HDTV	EFP 3D	EN/EF
Pickup size/type	FIT CCD 2/3"	FIT (IT) 2/3"	FIT 2/3"	2/3" FIT	Plumbicon 2/3"	Harpicon 2/3"	FIT 1/2"	1/2" IL CCD
CCD array size/type	450k (400k)	400k pix	400k pix	400k pixel	...	...	400k	330k pixel Microlens
Standard sensitivity	2000; 1/8	2000; 1/8	2000; 1/8	2000; 8	2000; 4.5	200; 4(1000; 2.8)	2000; 5.0	2000; 1/5
Limiting sensitivity at f/1.4	15; +12	8; +18dB	2; +30dB	2; +30dB	24; +18	...	25; +18dB	20; +18
S/N ratio	62dB	62dB	62dB	62dB	61dB	45dB	60dB	59dB
Limiting resolution TVL	700 (400V)	700H 400V	750H 400V	700	650	800	700	600
Electronic shutter	Yes	6-speed	Yes	Variable	No	No	6-speed	4-speed
Registration error %	0.02% (0.03)	0.05%	0.05%	0.05	0.05/0.1/0.3	0.05/0.1	0.05%	0.05%
Highlight compensation	Yes	Yes	Yes	...	...	Yes	Yes	...
Color correction matrix	Yes	Yes	Yes	Yes	Yes	Yes	No	...
Camera control unit	Yes	Yes	Yes	Yes	Yes	Yes	...	No
Multi-camera panel	Yes	Yes	Yes	No	No	Yes	...	No
Operating power	130VA 26W	11-16V 14.5W	11-16V 16.5(40)W	11-16Vdc 23W	11-16Vdc 26W	110-220V	12V; 29W	12Vdc 25W
Camera head weight lbs	55 (13.2)	6.8	6.8 (18.7)	10.6	12.1	14.3 (14)	9.4	11 lb
Reader Service No	117	118	119	120	121	122	123	124

⁶ 355P portable; optical block adjusts to center of lens. ⁷ HL55/V55 camcorder-Betacam; 55NA detachable optics. ⁸ 10-bit digital processing. ⁹ Switchable aspect ratio 4:3/16:9.

Manufacturer	JVC				Panasonic			
	Model	KY-17BU (FITU)	KY-25U	KY-35U	KY-90U (-90E)	AG-460U	AJ-D310	AK 450	AQ-20 (-255)^{10}
Composite output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RGB output	Yes	Yes	Yes	Yes	No	...	Yes	Yes
Y/R-Y/B-Y output	Yes	Yes	Yes	Yes	...	...	Yes	Digital
S-VHS Y-C output	Yes	Yes	Yes	Yes	Yes	...	No	No
Direct VCR cable	Yes	Yes	Yes	w/adaptor	Integral	...	Option	Yes
Cable type	M-26	C/M	M	M	No	...	C/T/M	C/T/F/M
Docking VCR	Adapter	Adapter	Adapter	w/adapters	Integral S-VHS	D-3	AU 400	AU 400 (No)
Intercom audio	Yes	Yes	Yes	Yes	...	...	...	Yes
Program audio	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes
Return video circuit	Yes	Yes	...	Yes	...	...	...	Yes
Lens correction memory	No	No	No	...	...	...	...	...
Color balance memories	...	...	...	Yes	Yes	Yes	...	...
ND, color filters	1N-3C	1N-3C	2N-4C	Yes	...	...	3N 4C	...
Application	EN/EF	EN/EF	ST/EF/EN/OB	EF/ST	Camcorder	ENG/EFP	EN/EF/ST/CA	EN/EF/ST/CA
Pickup size/type	1/2" IT (FIT)	3 2/3" IT CCD	2/3" IT CCD	FIT	2 1/2" CCD	2/3" FIT	FIT 2/3"	FIT 2/3"
CCD array size/type	330k (360k)	380k pixels	768x482	772x492 (754x583)	...	754x487	838x485	574x487
Standard sensitivity	2000; 1/7(5)	2000; 5.6	2000; 1/7	2000; 1/7	1400; lux	2000; 1/5.6	2000; 5.6	2000; 5.6
Limiting sensitivity at f/1.4	10(20); +18	23; 1.7; +18	16; 1/1.7 +18	16; 1/1.7 +18	25 lux	7.5; +18	20; 1.6; +18	7.5(15); +18
S/N ratio	60dB	60dB	62dB	62dB (60dB)	45dB off VHS	62	60dB	62dB
Limiting resolution TVL	640 (700)	700	700	700	>400 S-VHS	>750	800	750 60% 5MHz
Electronic shutter	Yes	3-sp to 1/1000	5-speed	Yes	...	Yes	5-speed	Yes
Registration error %	0.05%	0.05%	0.05%	0.05%	...	<0.05%	0.05%	0.05%
Highlight compensation	Yes	...	...	...	...	...	Yes	Yes
Color correction matrix	No	No	Matrix mask	No	No	Yes	Yes	Yes
Camera control unit	No	No	No	No	No	...	Yes	Yes
Multi-camera panel	No	No	No	No	No	No	...	(No) Yes
Operating power	12Vdc 15W	12Vdc 18W	12Vdc 15W	10.5-17Vdc	12Vdc 14W	12Vdc 40W	10.5 17V	14W (100W)
Camera head weight lbs	6 lb	6.6	5 lb	4.9	8.14	18.7 w/VF	7.5	5.5 (47.6)
Reader Service No	125	126	127	128	129	130	131	132

¹⁰With digital signal processing.

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FOCUSED ON THE FUTURE

Circle (21) on Reply Card

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Manufacturer	Panasonic				Sony			
	Model	WV-F250B	WV-F700 (300CLE)	BVP-370 (270)	BVP-375 (BVP-90)	BVW-400A	BVW-500 series ¹³	DXC-325/325P
Composite output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RGB output	Yes	Switched	From CCU	CCU	No	...	Yes	Yes
Y/R-Y/B-Y output	Yes	Switched	From CCU	Yes	Yes	Yes	No	Yes
S-VHS Y-C output	Yes	Yes	No	No	Y/C and S-	...	Yes	Adapler
Direct VCR cable	Yes	...	Option	Option	Camcorder	Yes	Yes	Yes
Cable type	C M	C/Mx	T	T 3km/M opt	C	M	C M	M
Docking VCR	AG-7450	MII/Beta/S (Yes)	No	Option	Betacam	Yes ¹⁴	Hi8	EVV-9000 Hi8
Intercom audio	Yes	...	Yes	2-ch.	...	No	Yes	Yes
Program audio	Yes	Yes	370	370	Yes	Yes	Yes	Yes
Return video circuit	Yes	...	Yes	Yes	...	No	...	...
Lens correction memory	...	...	Yes	Yes	No	No	No	No
Color balance memories	...	Yes	...	...	...	...	...	...
ND, color filters	...	Yes	4N 3C	4N 3C	2N 2C	2N 4C	1N 3C	2N 4C
Application	EF/ST	EN/EF	ST/EF	ST (portable)	EN/EF	EN/EF	Utility	EN/EF
Pickup size/type	3 FIT CCD 1/2"	2/3" IT	FIT (IT) 2/3"	1000H HyperHAD FIT	CCD 2/3" IT	FIT & IT 2/3"	CCD IT 1/2	3 IT 1/2"
CCD array size/type	768x495	768x493 (711x485)	380k	480k effective ¹²	HyperHad type	510(768)x492	510x492	HyperHAD 380k
Standard sensitivity	2000:1/5	2000:1/8	2000:5.6	2000:1/8	2000:8.0	2000:5.6	2000:5	2000:8.0
Limiting sensitivity at f/1.4	20: +18dB	7:1.8; +24dB ¹¹	15: +18	7.5: +18	7.5: +18dB	15: +18	20: +18	7.5: +18dB
S/N ratio	60dB	62dB (>60)	62dB	62dB	60dB	62dB (60)	58dB	62dB
Limiting resolution TVL	750	750 (>700)	700	800 H/>450 V	700	550 (700)	530	700
Electronic shutter	Yes	Yes	6-speed	6-speed	6-speed	No	6-speed	5-speed
Registration error %	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%
Highlight compensation	Yes	...	Yes	Yes	Yes	Yes	Yes	Yes
Color correction matrix	Mask	... (Yes)	Option	Option	No	No	No	Yes
Camera control unit	...	...	Yes	CCU-370	No	No	Option	Option
Multi-camera panel	No	...	Option	MSU-370/-350	No	No	No	Option
Operating power	12V 14.4W	12Vdc	120V 350W	120V 350W	12Vdc 22W	12V	12Vdc 8W	12Vdc 8W
Camera head weight lbs	5.7 lbs	... (7.7)	44 lbs	44 (...)	15.5 lb	15.3	6.5	7.5
Reader Service No	133	134	135	136	137	138	139	140

¹¹ 25lx/f 1.7/18dB for 300CLE. ¹² 520,000 actual pixels. ¹³ BVP-5/-7/-50/BVW-505/-507/-550 docking VCRs.

Manufacturer	Sony			Thomson			Toshiba	
	Model	DXC-537	DXC-M7	EVW-300	TTV 1250 Proscan ¹⁴	TTV Proscan Light ¹⁴	TTV1542	TTV1647.S ¹⁵	TSC-100
Composite output	Yes	Yes	Yes	No	No	Yes	Yes	Yes
RGB output	CCU	Yes	No	Yes	Yes	Yes	Yes	...
Y/R-Y/B-Y output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
S-VHS Y-C output	Yes	Y/C	Y/C and S-	No	No	No	...	S-VHS
Direct VCR cable	Yes	Option	Camcorder	Tnax	...	No	Yes	Not req.
Cable type	M	C.M	C	M to 200m	M to 200m	T/M	T/M-26	C
Docking VCR	Adapters	No	Hi8	No	No	No	Beta SP	Hi8 integral
Intercom audio	Yes	Yes	...	Yes	Yes	Yes	Yes	...
Program audio	Yes	Yes	Yes	...	Yes	Yes	Yes	Yes
Return video circuit	...	Yes	...	Yes	Yes	Yes	Yes	No
Lens correction memory	No	...	No	Yes	Yes	...	...	...
Color balance memories	...	...	...	...	...	...	10	Yes
ND, color filters	2N 2C	2N 2C	2N 2C	6 pos.	6-pos./Effects	4N:4 effects	4 pos	3C 1N
Application	EN/EF	EN/EF	EN/EF/CA	HD(1)	HDTV	ST/EF	EN/EN/ST	Camcorder
Pickup size/type	CCD IT 2/3"	IT 2/3"	CCD 1/2" IT	PbO or SAT 2/3"	SAT 2/3"	2/3" IT (FIT)	2/3" IT (FIT)	IT 1/2" CCD
CCD array size/type	380k HyperHad	768x493	380k HyperHad	...	...	786 (754) pxl/line	768 (838) pix/line	768x494
Standard sensitivity	2000:8.0	2000:5.6	2000:8.0	2200:4.3 S	2200:1/4	1000:4	1000:1/4(5.6)	2000:1/5.6
Limiting sensitivity at f/1.4	7.5: +18dB	26: 1.8; +18	7.5: +18dB	50: +12	70: +12	15: +18dB	14: +21	16 lux
S/N ratio	62dB	60dB	60dB	43dB/47dB	61dB	62dB	62dB	62dB
Limiting resolution TVL	700	700	700	... 20% 20MHz	...	700	700	700
Electronic shutter	5-speed	5 speeds	6-speed	No	No	1/60-1/2000	1/60-1/2000	5-speed
Registration error %	0.05%	0.05%	0.05%	0.05%; 0.1%	0.05%; 0.1%	0.05%; 0.1%	0.05%	...
Highlight compensation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Color correction matrix	No	Option	No	Option	Option	Yes	Option	Yes
Camera control unit	Option	CCU-M7	No	Option	Option	Yes	Option	No
Multi-camera panel	No	Option	No	Option	Option	Yes	Option	No
Operating power	12Vdc 9.2W	10.5-17Vdc/16W	12Vdc 17W	110/220V	110/220V 150W	110-220Vac	16.5W	12Vdc 14W
Camera head weight lbs	7.65 lb	9.4lbs	12.5 lb	28kg	5.5kg	28kg	3.5kg	12.54 lb
Reader Service No	141	142	143	144	145	146	147	148

¹⁴ 1250:50; 1050:60 interlace scan; 625:50; 525:60 progressive scan. ¹⁵ ST IT; STX IT, microlens; SF FIT; SFX FIT microlens.

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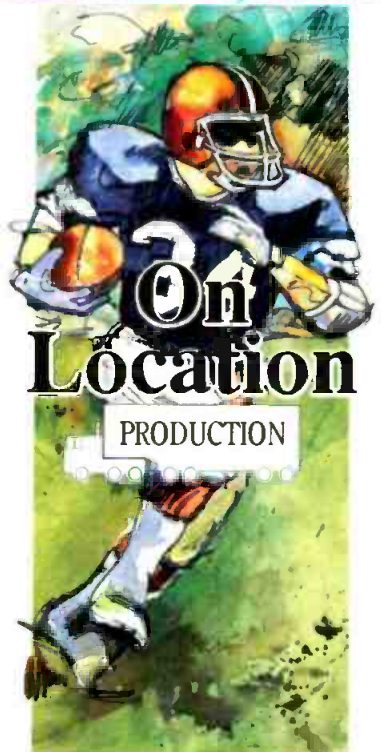
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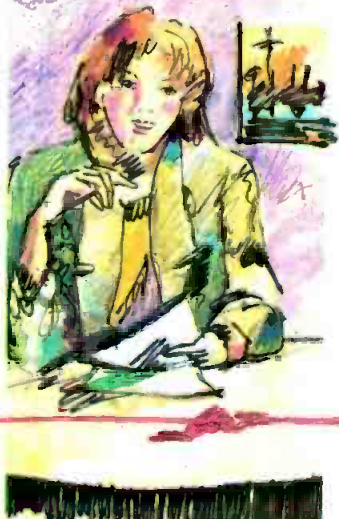
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Circle (22) on Reply Card

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TV Camera Zoom Lens Systems

1/2" Format

Manufacturer	angenieux					Canon USA
Model	14x anamorphic ¹	14x6	14x6.6 (x6)	15x5	20x7	PH14ax6.6B IRS ⁶
Application	16:9 conversion	NG FP QB	E/F/Q	ST FP OB	S/F/O	E/F
Zoom range (mm)	5.6-78.4	6-84	6.6-92.5(6-84)	5-75	7-140	6.6-92.4
Aperture (W-T)	1.4	1.4-1.6	1.4-1.6	1.4-1.7	1.2	1.4-1.55
MOD distance	31"	310	31"	19.5"	0"	31.5"
MOD area (HxV) mm	...	61x46	13.5x10	35.4x46.8	110x83	712x534
H angle (W-T)	66.5-5.25 (x1.33)	58'-4.5'	55'-4' ³	68.5-5	51.5'-2.75'	51.7'-4'
Back focus (mm)	...	Adjustable	Adjustable	Adjustable	Electronic	Adjustable
Extender(s)	2x	2x; 0.64x ²	2x ⁴	2x	2x ⁵	2x
Macro focus	...	Yes	to 0.4m	...	to 0" MOD	Yes
Diascope	No	No	No	...	3-lamp	No
Operating wt	...	4.2 lbs	1.8	23 lbs	39 lbs	2.87 lbs
Reader Service No	151	152	153	154	155	156

¹ Creates 16:9 image on 4:3 camera. ² Wide angle attachment. ³ 58-4 1/2 for x6. ⁴ 0.64x super wide angle; 0.8x retro zoom; 1.66 tele. Non-rotating focus element. ⁵ Other extenders: 1.2x; 1.4x; 1.6x; 1.8x. ⁶ Internal focus.

Manufacturer	Canon USA				Fujinon	
Model	PH16xSuper	PH20xSuper	PH33ax8.5B IAS ⁷	PH55xSuper	S24x8.8ERD	S8.5x4.2ERM/ERD
Application	Studio	Studio	E/F	EFP	E/F	E/F
Zoom range (mm)	6.4-102	6-120	8.5-280	7-385	8.8-211	4.2-36
Aperture (W-T)	1.4	1.4-1.5	1.5-2.5	1.4-2.2	1.5-2.1	1.4-1.5
MOD distance	0.48m	23.6"	7.2'	7.2'	1.8m	11"
MOD area (HxV) mm	650x488	813x610	153x115cm	178.8x134.1	1231.8x923.9	46.9x35.1
H angle (W-T)	53.1'-3.59'	56.1'-3.06'	41.2'-1.31'	49.1'-0.95'	39.58'-10.44'	74'-10'
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	...	...
Aperture (F-B)	...	...	...	...	...	...
Extender(s)	2x; 1.5x	2x; 1.5x	2x	2x; 2.6x	1.7x; 2x	1.7x
Macro focus	(0.09m MOD)	(at 3.74" MOD)	to 0.5m	at 15.7" MOD	Yes	Yes
Diascope	No	No	No	No	...	Yes
Operating wt	35.2 lbs	35.2 lbs	9.9 lbs	39 lbs	4 lbs	4 lbs
Reader Service No	157	158	159	160	161	162

⁷ Internal focus.

2/3" Format

Manufacturer	angenieux					Canon USA		
Model	14x anamorphic ¹	14x8 (x8.5)	15x6.5	20x8.5 ⁴	Super 1000	J13x9BIRS-IIA	J14ax8.5BIRS	J15x9.5B IRS
Application	16:9 conversion	E/F/O	Studio/OB	S/F/O	S/F/O	E/F	ENG/EFP	E/F
Zoom range (mm)	6.7-94	8-112 (8.5-119)	6.5-97.5	8.5-170	9.5-380 ⁵	9-117	8.5-119	9.5-143
Aperture (W-T)	1.6	1.6-2	1.6-2.3	1.3	1.3-2.1	1.6-1.9	1.7-2.0	1.8-2.1
MOD distance	31"	31"	0.5m	0"	0"	29.1"	31.5"	34.6"
MOD area (HxV)mm	...	13.5x10, 35.4x46.8	121.9x91.7	55x41.5 ⁶	55x41.5 ⁶	...	755x566	86.2x64.7
H angle (W-T)	66.5-5.25 (x1.33)	58'-4.5' ²	68.5'-5'	55'-3'	49.75'-1.33'	52.1'-4.3'	54.7'-4.24'	49.7'-3.5'
Back focus (mm)	...	Adjustable	Adjustable	Adjustable	Adjustable	Var	man adj	Adjustable
Extender(s)	2x	2x ³	2x	2x	2.15x; 2.7x	2x	2x	2x
Macro focus	...	to 0.4m	...	to 0" MOD	to 0" MOD	Yes	Yes	Yes
Diascope	No	No	No	3-lamp	3-lamp	Option	No	No
Operating wt	...	1.8 lbs	23 lbs	39 lbs	43 lbs	2.84 lbs	2.82 lbs	3.5 lbs
Reader Service No	163	164	165	166	167	168	169	170

¹ Creates 16:9 image on 4:3 camera. ² 55-4 for x8.5. ³ 0.64x super wide angle; 0.8x retro zoom; 1.66x tele. Non-rotating focus element. ⁴ Optional integral shutter; other extenders include: 1.2x, 1.4x, 1.6x, 1.8x. ⁵ 1025mm length with 2.7x extender. ⁶ Based on MOD of 8.2"; μ P control system.

Manufacturer	Canon USA					Fujinon		
Model	J18x8.5B IRS	J20xSuper	J50xSuper	J55xSuper	PH33ax11B IAS ⁷	A14x8.5EVM ⁸	A15x8ESM ⁹	A16x9.5ERM ¹⁰
Application	E/F	Studio	EFP	EFP	E/F	E/F	EFP	E/F
Zoom range (mm)	8.5-153	7.5-150	9.5-475	9-500	11-363	8.5-119	8-120	9.5-152
Aperture (W-T)	1.7-2.3	1.5-1.9	1.4-2.7	1.4-2.8	2.0-3.3	1.7-2.0	1.5-1.7	1.8-2.2
MOD distance	35"	21.8"	24"	8.2'	7.2'	31.5"	27.5"	37.4"
MOD area (HxV)mm	86.2x64.6	89x67	180x135cm	190x143	162x121cm	777x583	915x686	817x613
H angle (W-T)	54.7'-3.3'	51.9'-3.3'	49.7'-1.1'	52.1'-1'	43.6'-1.39'	54'-4'	57'-4'	49'-3'
Back focus (mm)	Adjustable	Adjustable	Var; man adj	...	Adjustable	...	...	...
Extender(s)	2x	2x; 1.5x	2x	2x; 1.5x	2x	2x	2x	2x
Macro focus	Yes	Yes	...	No	50mm wide	Yes	No	Yes
Diascope	Option	Option	Option	Option	No	Yes	Yes	Yes
Operating wt	3.5 lbs	35.2 lbs	37.5 lbs	37.5 lbs	9.9 lbs	2.8 lbs	28.6 lbs	3.2 lbs
Reader Service No	171	172	173	174	175	176	177	178

⁷ Internal focus. ⁸ Similar unit for 1/2" is S14x6.4ERM/ERD. ⁹ Similar unit for 1/2" is S15x6ESM. ¹⁰ Similar unit for 1/2" is S16x7ERM/RM.

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Tubes

Circle (23) on Reply Card

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Manufacturer	Fujinon							
Model	A18x8.5ERM ¹¹	A20x7ESM ¹²	A24x11.5ERD ¹³	A34x10ESM ¹⁴	A34x20.5ESM	A55x9.5ESM	A55x9.5ESM ¹⁵	A8.5x5.5ERM
Application	E/F	EFF	E/F	EFF	EFF	EFF	EFF	E/F
Zoom range (mm)	8.5-153	7-140	11.5-276	10-340	20.5-700	9.5-525	9.5-525	5.5-47
Aperture (W-T)	1.7-2.3	1.4-1.6	2.0-2.7	1.6-2.4	2.4-3.5	1.4-2.9	1.4-2.9	1.7-1.9
MOD distance	35.4"	29.5"	5.9'	5.9'	16.4'	7.2'	<1'	11.8"
MOD area (HxV) mm	379x659	1166x874	1296x972	1446x1085	2000x1500	2028x1521	2028x1521	492x369
H angle (W-T)	54°-3'	64°-3'	41°-1'	47°-1'	24°-0.7'	49°-42'-0' 58'	49°-0.97'	77°-10'
Extender(s)	2x	2x	2x	2x	2x	2x	2x	1.7x
Macro focus	Yes	No	Yes	No	No	No	No	Yes
Diascope	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operating wt	3.34 lbs	33 lbs	6.38 lbs	28.6 lbs	42.9 lbs	35 lbs	36.9 lbs	4 lbs
Reader Service No	179	180	181	182	183	184	185	186

¹¹Similar unit for 1/2" is S18x6.2ERM/ERD. ¹²Similar unit for 1/2" is S20x5.4ESM. ¹³Similar unit for 1/2" is S24x8.8ERD. ¹⁴Similar unit for 1/2" is S34x8ESM. ¹⁵Similar unit, for 1/2" is S55x7.3ESM.

Manufacturer	Nikon				Schwem
Model	S13x9B	S15x8.5B	S19x8B	S9x5.5B	Gyrozoom FP-1
Application	E/F	E/F	E/F	E/F	E/F/O/S
Zoom range (mm)	9-117	8.5-127.5	8-152	5.5-49.5	60-300
Aperture (W-T)	1.7-2.0	1.7-2.2	1.7-2.2	1.7-1.9	6.2
MOD distance	31.5"	31.5"	35.4"	0.3m	10'
MOD area (HxV)	72.2x54.2	76.4x57.5	89.3x67.4	60x45	...
H angle (W-T)	52.1°-4.3'	54.7°-4.0'	57.6°-3.3'	77.3°-10.2'	8.38°-1.68'
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	...
Extender(s)	2x	2x	2x	1.7	...
Macro focus	Yes	Yes	Yes	Yes	No
Operating wt	2.42 lbs	2.75 lbs	2.75 lbs	4.25 lbs	7.4 lbs
Reader Service No	187	188	190	191	192

Products listed in these tables represent only a portion of those available. Contact the manufacturer for further information.

1" Format

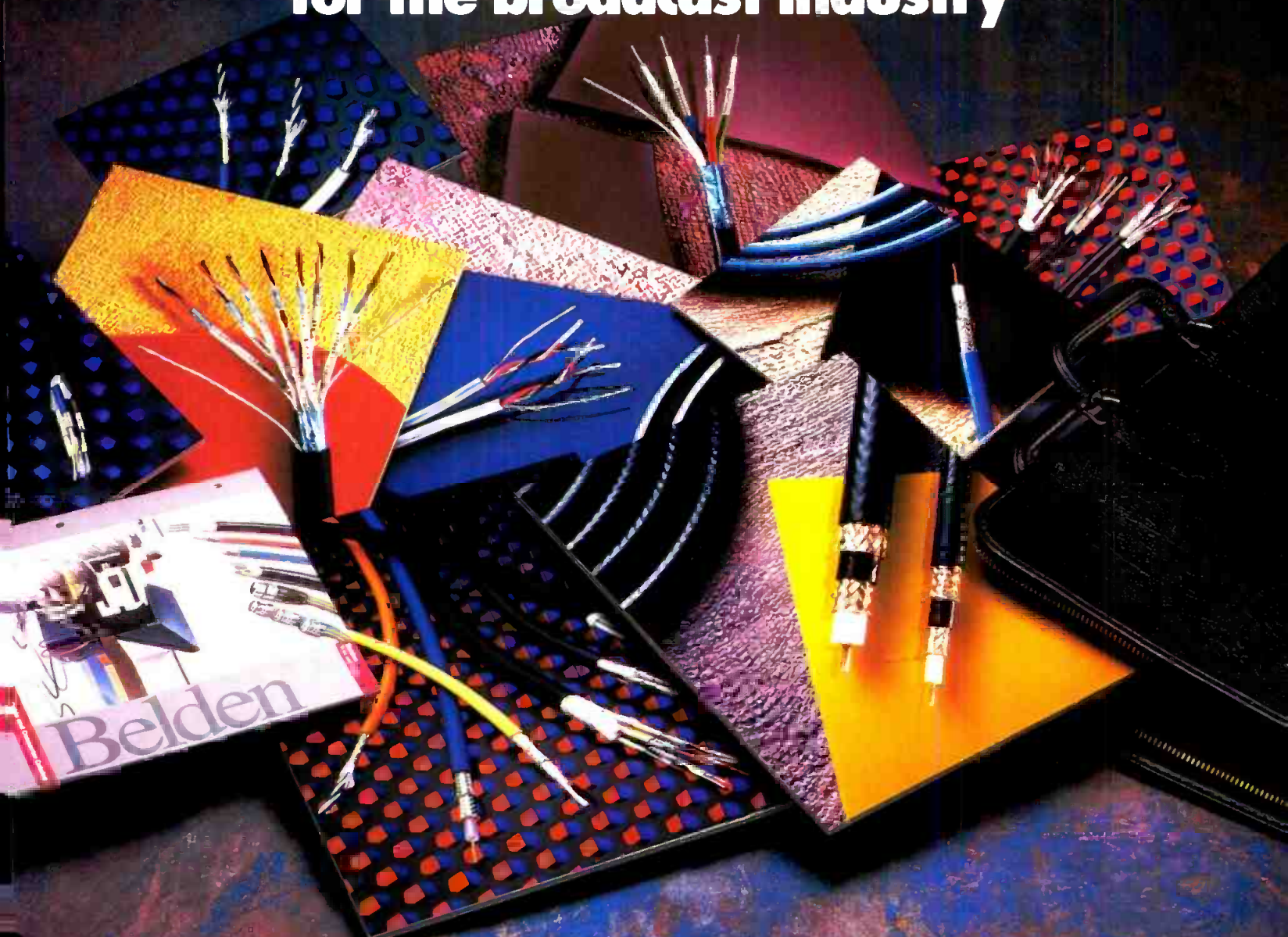
Manufacturer	Angenieux	Fujinon				
Model	40x14	HR11x11SD	HR12x15SD	HR14x12.5ES	HR22x18ES	HR22x18ES
Application	S/F/O	HDTV	HDTV	HDTV	HDTV	HDTV
Zoom range (mm)	14-560	11-121	15-180	12.5-175	18-400	18-400
Aperture (W-T)	1.9-3	1.8-2.0	1.8-2.0	1.6-1.7	1.8-2.0	1.8-2.7
MOD distance	0"	3.9'	5.26'	4.6'	5.5m	18'
MOD area (HxV) mm	55x41.5	1179x663	982x589	1058.6x595.5	3644x2050	3644x2050
H angle (W-T)	49.75°-1.33'	64°-6'	49°-4'	58°-4'	42°-21'-2"	42°-2'
Back focus (mm)	Adjustable	...	...	...	...	...
Extender(s)	2.15x; 2.7x	...	...	2x	2x	2x
Macro focus	to 0" MOD	No	No	No	...	No
Diascope	3-lamp	Option	Option	Option	...	Yes
Operating wt	43 lbs	18.7 lbs	16.5 lbs	45.1 lbs	57 lbs	57.2 lbs
Reader Service No	193	194	195	196	197	198

Manufacturer	Fujinon					Nikon
Model	HR6x12.5SD	R17x12.5ESM	R20x10.5ESM	R34x29.5ESM	R44x13.5ESM	R5.5x12.5AD-HD
Application	HDTV	F/S/O/S	F/S/O	F/S/O/Special	F/S/O/Special	HDTV
Zoom range (mm)	12.5-75	12.5-215	10.5-210	29.5-1000	13.5-600	12.5-70
Aperture (W-T)	1.5	1.6-2.0	1.6-2.1	3.5-5.0	1.8-3.0	1.5
MOD distance	3.9'	29.5"	29.5"	18.7'	8.2'	1.21m
MOD area (HxV)	1013x570	987x174	1168x876	2021x1516	2181x1636	...
H angle (W-T)	58°-10'	54°-3'	62°-3'	24°-0.6'	50°-1'	58.3°-11.4'
Extender(s)	...	2x; 1.5x	2x; 1.5x	2x	2x	No
Diascope	Option	Yes	Yes	Yes	Yes	...
Operating wt	15 lbs	42.9 lbs	45.1 lbs	45.1 lbs	55 lbs	20 lbs
Reader Service No	199	200	201	202	203	204

1 1/4" Format

Manufacturer	Angenieux	Canon USA			Fujinon			
Model	15x16	P14x16.5BIE	P18x15BIE	P40x18BIE	HP5x16SD	P17x16.5ESM	P20x14ESM	P44x18ESM
Application	HDTV	Studio	F/S	Field	HDTV	F/S/O/Special	F/S/O/Special	F/S/O/Special
Zoom range (mm)	16-240	16.5-235	15-270	18-720	16-80	16.5-280	14-280	18-800
Aperture (W-T)	2-2.4	2.1	2.1-2.7	2.3-3.7	1.4	2.1-2.7	2.1-2.8	2.4-4.0
MOD distance	0"	27.6"	23.6"	8.2'	3.9'	29.5"	29.5"	8.2'
MOD area (HxV) mm	60x34.5	965x724	922x692	211x158	1055x594	1000x750	1171x878	2181x1636
H angle (W-T)	60.25°-4.5'	54.8°-4.2'	60.4°-3.7'	50.7°	60°-13'	54°-3'	62°-3'	50°-1'
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	...	...	...	...
Extender(s)	1.4x; 2x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x
Diascope	3-lamp	Option	Option	Option	Yes	Yes	Yes	Yes
Operating wt	54 lbs	51 lbs	59 lbs	68 lbs	31.9 lbs	42.9 lbs	45.1 lbs	55 lbs
Reader Service No	205	206	207	208	209	210	211	212

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Circle (24) on Reply Card

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Color Video Monitors

Manufacturer	ASACA/ShibaSoku				Barco			
Model	CM201/141 (202/142) ¹	CM203N	CM321H/361H	CP1207	AVM series ²	CPM2000 ³	CVM 2137	CVS 2037/2051
Beam feedback CRT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aperture correction	Yes	>10dB	No	...	Yes	Yes	Yes	Yes
X-Y display output	No	...	RGB only	No	...	No	...	No
Underscan/overscan	Yes	Under	Under	...	Yes	Yes	Yes	Yes
# composite inputs	1	3	None	No	3	3	3 (& non-comp)	3
RGB inputs	Yes	Yes	2	Yes	Yes	Yes	Yes	Yes
S-VHS inputs	Y/C	Yes	No	No	No	Yes	No	No
Y/CrCb inputs	Yes	No, D-2/D-3 opt	2	Yes	Yes	Yes	Yes	Opt
Audio amp/speaker	No	No	No	No	Amp	Amp	Option	-ASP opt
Application	Video	Grade 2	HDTV	HDTV 1125/60	Grade 1	Grade 2	Grade 2	Grade 1
CRT diagonal (in.)	20 (14)	20	32 (36)	12	10-28	21/28	14	14 (20)
CRT type	In-line dot	In-line dot	Delta/shdw msk	In-line dot	In-line slot	In-line dot	In-line dot	In-line dot
Dot/stripe pitch (mm)	0.4/.31	0.28	0.34 (.5)	0.28	0.31	.08/.075	0.31	0.31
Resolution at center	600TVL	>900TVL	525NS/1125/1050	700TVL	>500 15"	500TVL	680TVL	900TVL
Luminance bandwidth	7MHz	7MHz	3 30MHz	50MHz	6MHz	5MHz	5MHz	6MHz
Chrominance bandwidth	0.6MHz	0.6 I/O.3 Q	3 30MHz	...	0.6MHz	0.6MHz	0.6MHz	0.6MHz
Demodulation axes	I&Q	R-Y/B-Y	[16:9 & 4:3	...	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y
Decoder filter	Comb & notch	Comb & notch	[aspect ratios	...	Comb filter	Comb & notch	...	Comb & notch
Standards	202/142	NTSC (P/S opt)	Autoselection	1125/60	NTSC	N/P/S	NTSC/PAL	N/P/S
Multiscan capability	No	No	...	No	No	4:3/16:9 format	4:3/16:9 format	No
µP/auto-setup	No	Opt	Yes	No	Option	Option	Standard feature	Standard feature
Reader Service No	218	219	220	221	222	223	224	225

¹CM 202/142 may include multiple decoders with auto standard selection. ²Available with MMRC, SRC multiple, single monitor remote controller. ³Stackable viewing monitors; flat/square CRT. Full control of 48 monitors from one remote panel; on-screen menu and digital controls; interfaces for PAL, NTSC, PAL, D-1, D-2.

Manufacturer	Barco		Dotronix	Electronic Visuals		Hitachi Denshi	Ikegami	
Model	CVS series ⁴	HDM2051/-81 IH	DSV series	EV6351B ⁶	EV6437/EV6537	CM-151 (-211)	16 series ⁷	18 series ⁸
Beam feedback CRT	Yes	Yes	...	Yes	Yes	Yes	No	No
Aperture correction	Yes	...	Sharpness	...	Yes	...	Yes	Yes
X-Y display output	No	No	No	No	No	No	No	No
Underscan/overscan	Yes	Yes	...	Yes	Yes	Yes	Yes	Yes
# composite inputs	2	2 HDTV	1	Yes	2 - 6537	3	2	2
RGB inputs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S-VHS inputs	No	No	...	Yes	Yes - 6537	Yes	Yes	Yes
Y/CrCb inputs	Opt	Yes	No	Yes	Yes - 6537	...	No	Yes
Audio amp/speaker	-ASP opt	No	No	No	Sound-in-Sync opt	No	No	No
Application	Grade 1	HDTV	Videowall	Video	Video	Video	Video	Video
CRT diagonal (in.)	14 (20)	20/32	20 /25/ 27	20	14	15 (21)	10, 14, 20	14, 20
CRT type	In-line dot	In-line dot	In-line	In-line dot	In-line dot	Dark-Tint	In-line slot	In-line/dot
Dot/stripe pitch (mm)	0.31	0.26/0.36/0.65	0.68/0.84/0.76	0.43 (0.47)	0.42	0.57	0.41 (0.55)	0.31 (0.43)
Resolution at center	900TVL	barco2	>500	...	...	450 (500)	500	600
Luminance bandwidth	6MHz	30MHz/channel	10MHz	8MHz	5MHz RGB	...	to 7MHz	to 8MHz
Chrominance bandwidth	0.6MHz	...	...	...	...	...	to 3.58MHz	to 0.6MHz
Demodulation axes	R-Y/B-Y	...	R-Y/B-Y	U/V	U/V	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y
Decoder filter	Comb & notch	...	...	Notch	Notch	Notch (NTSC)	Comb & notch	Notch & Comb
Standards	N/P/S	HDTV ⁵	NTSC	PAL	Auto PAL/NTSC	NTSC/PAL	NTSC	NTSC
Multiscan capability	No	16:9 ⁵	No	No	525/60, 625/50	No	No	No
µP/auto-setup	Yes; setup opt	Yes	No	No	No	No	No	No
Reader Service No	226	227	228	229	230	231	232	233

⁴Multiple input cards for input capability including quad input: NTSC 4.43; PAL/-M/-N; D-1/D02; CCIR 601 digital. ⁵Supports 525/60, 625/50 1:1 progressive scan; 1050/59.94, 1125/60; 1250/50 2:1 interlace scan. ⁶EV6351 Grade II; -B model Grade I; switchable aspect ratio shows 4:3 or 16:9 pictures. ⁷TM10-16R; TM14-16R; TM20-16R. ⁸TM14-18R and TM20-18R.

Manufacturer	Ikegami			JVC Company		Melford Electronics	Mitsubishi Electric	
Model	19 series ⁹	20 series ¹⁰	HTM-2003(-3203)	TM6-1 portable	TM-1400SU ¹¹	VM-R190SU ¹²	DU5-20C	SMR-2601R
Beam feedback CRT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
Aperture correction	Yes	Yes	Yes	Yes	...	Yes	...	Yes
X-Y display output	Yes	Y/B-Y/R-Y opt	No	No	No	No	EBU	No
Underscan/overscan	Yes	Yes	Yes	No	Under	Yes	Overscan	Yes
# composite inputs	3	3	No	A/B	2	2	2	3
RGB inputs	Yes	Yes	Yes	No	No	Yes	Yes	Yes
S-VHS inputs	No	opt (D-1/-2 opt)	No	No	Yes	Yes	No	Yes
Y/CrCb inputs	Yes	Yes	Yes	No	No	Yes	No	No
Audio amp/speaker	No	No	No	No	Yes	No	No	Yes
Application	Video	Video	HDTV	Video	Video/data	Video/data	Video; Data	Data; Mon/Rcvr
CRT diagonal (in.)	10, 14, 20	14 (20)	20, 32	6	14 Full Square	19	20	26

Manufacturer	Ikegami				JVC Company		Melford Electronics	Mitsubishi Electric
Model	19 series ⁹	20 series ¹⁰	HTM-2003(-3203)	TM6-1 portable	TM-1400SU ¹¹	VM-R190SU ¹²	DU5-20C	SMR-2601R
CRT type	In-line dot	Shadow mask/dot	In-line/dot	In-line dot	In-line dot	In-line dot	In-line dot	In-line dot
Dot/stripe pitch (mm)	0.28 0.31 (0.43)	0.31 (0.43)	0.31 (0.34)	0.49	0.499 stripe	0.4	0.4; 0.31	...
Resolution at center	700	700	900/1000	>240 lines	450	600	5.5MHz pattern	...
Luminance bandwidth	to 10MHz	to 10MHz	to 27MHz	to 4MHz	...	...	to 10MHz	...
Chrominance bandwidth	0.6MHz	3.58MHz	...	3.08-4.08MHz	...	...	...	...
Demodulation axes	R-Y/B-Y	R-Y/B-Y	...	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	UV	...
Decoder filter	Comb & notch	Comb & notch	...	Comb	Comb	Comb	Notch	...
Standards	NTSC	Multistandard	1050 HDTV	NTSC	NTSC/Y/C358	NTSC/component	PAL; NTSC	NTSC
Multiscan capability	No	No	No	No	No	No	525/625	...
μP/auto-setup	No	Digital control	No	No	No	No	No	...
Reader Service No	234	235	236	237	238	239	240	241

⁹TM10-19RH; TM14-19RH; TM20-19RH. ¹⁰TM14-20RH; TM20-20RH. ¹¹TM-200SU 20". TM-91SU 9" have similar features and specifications. ¹²VM-R140SU 14" unit with similar characteristics and specifications.

Manufacturer	Panasonic				PESA	Sharp	Sony	
Model	CT-2010Y (YV)	CT-2082Y (YV)	BT-H -D/-M ¹⁵	BT-S series ¹⁶	BM-4400 series	XM-2001 (2701)	BVM-1310 (-15)	BVM-1910 (-15)
Beam feedback CRT	...	...	Yes	Yes	Yes	...	Yes	Yes
Aperture correction	Sharpness ctl.	...	Yes	Yes	6dB	Sharpness	6dB	6dB
X-Y display output	No	No	No	No	No	No	Yes	Yes
Underscan/overscan	No	No	Yes	Yes	Yes	No	Yes	Yes
# composite inputs	2	1	2	2	2	1	Yes	Yes
RGB inputs	No	No	Yes	Yes	Yes	No	Yes	Yes
S-VHS inputs	Yes	1	Yes	BT-S901Y	Yes	Yes	No	No
Y/CrCb inputs	No	No	Yes	No	Yes	No	Yes	Yes
Audio amp/speaker	Yes	Yes	Yes	Yes	No	Mon/Rcvr	No	No
Application	Video	Video	Video	Video	Video	Video/TV	Video/data	Video/data
CRT diagonal (in.)	20 /13 ¹³	20/ 13/ 25 ¹⁴	13; 19	19/13/9/7	14; 20	20, 27	13	19
CRT type	In-line dot	In-line dot	In-line dot	3-beam/OLF gun	Dot mask	Linytron Plus ¹⁷	Trinitron	Trinitron
Dot/stripe pitch (mm)	...	...	0.31	0.31; 0.44	0.31	...	0.31 (0.34)	0.25
Resolution at center	450 (420)	>450	750; 550	230-350	>600, >700	600 (400 S-)	700 (600)	900 (600)
Luminance bandwidth	>4MHz	>4MHz	>8	>7	6MHz	to 27MHz	8MHz (6) NTSC	8MHz (6) NTSC
Chrominance bandwidth	0.6/0.3	0.6/0.3	...	0.6	...	...	10MHz (6) RGB	10MHz (6) RGB
Demodulation axes	R-Y/B-Y	R-Y/B-Y	PrPb	I/O	UV	R-Y/B-Y	R-Y B-Y	R-Y/B-Y
Decoder filter	Both	Notch	Both	Both	Both	Notch	Comb & notch	Comb & notch
Standards	NTSC	NTSC	NTSC	N/P/S	NTSC or PAL	NTSC	per decoder	per decoder
μP/auto-setup	No	No	No	No	Option	No	BKM-2053 adptr	BKM-2056 adptr
Reader Service No	242	243	244	245	246	247	248	249

¹³CT-1030 10"; CT 1331 13". ¹⁴CT-2582 25"; CT 1382 13"; flat square CRT. ¹⁵CompuFocus CRT with overlapping field lens gun; BT-H1350w/C-phosphor, 4-std auto selection; BT-H1350 C-phosphor BT-D1920 19" w/.55mm dot pitch; BT-M1310 13" w/.39mm pitch. ¹⁶CompuFocus CRT w/overlapping field lens gun on 13"/19" models; BT-S1900, BT-S1300N, BT-S901Y, BT-S701/702/703N. ¹⁷Flat, square; in-line gun, self-converging.

Manufacturer	Sony			Videotek			Vistek Electronics
Model	BVM-1912 (-1312)	BVM-1920 (2010P)	BVM-8021/9021	AVM-13sv (-19s)	Studio 13	VM-13 PRO	GM7100(7200) ¹⁸
Beam feedback CRT	Yes	Yes	...	No	No	No	...
Aperture correction	Yes	Yes	Yes	Yes	No	No	No
X-Y display output	Yes	Yes	No	No	No	No	No
NTSC test matrix	Yes	No	...	No	No	No	No
Blue gun only test	Yes	Yes	Yes	Yes	Yes	Yes	No (Opt)
Underscan/overscan	Yes	Yes	Yes	Under	Yes	Yes	Yes (Opt)
Crosspulse display	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# composite inputs	2	2	2	2	3	3	A/B
RGB inputs	Yes	Yes	No	No	No	No	Yes
S-VHS inputs	[4:2:2 opt]	No	No	-13vs	No	No	...
Y/CrCb inputs	Yes	Yes	No	No	No	No	No
VCR 8-pin input	No	No	No	Yes	Yes	No	No
Audio amp/speaker	No	No	0.8W	Yes	Yes	No	No
Application	Grade I	graphics	Grade I	graphics	Grade II	Grade 2	Grade 2
CRT diagonal (in.)	19 (13)	19 (8, 13)	8	13 (19)	10	13	14/20(6.5/10)
CRT type	Trinitron	Trinitron	Trinitron	In-line slot	In-line Slot	Trinitron Plus	Dot mask
Dot/stripe pitch (mm)	0.30	0.30	0.25	...	...	0.25	0.39/0.44
Resolution at center	900 TVL	900 TVL	400	450 (380)	380 TVL	260TVL	...
Luminance bandwidth	10MHz	10MHz	5.5MHz	4.2MHz	3MHz	3.2MHz	6MHz
Chrominance bandwidth	...	...	...	1MHz	1MHz	1.5MHz	...
Demodulation axes	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	U-V
Decoder filter	Comb filter	N P S	NTSC (PAL/SECAM)	Comb filter	Comb, notch	Notch	Comb filter
Standards	per decoder	CF/1-CF/3-CF/notch	Comb-filter	NTSC	NTSC	NTSC	PAL
μP/auto-setup	Standard	...	No	No	No	No	No
Reader Service No	250	251	252	253	254	255	256

¹⁸GM7200 available for NTSC-358/4.43, PAL or SECAM.

Time Base Correctors

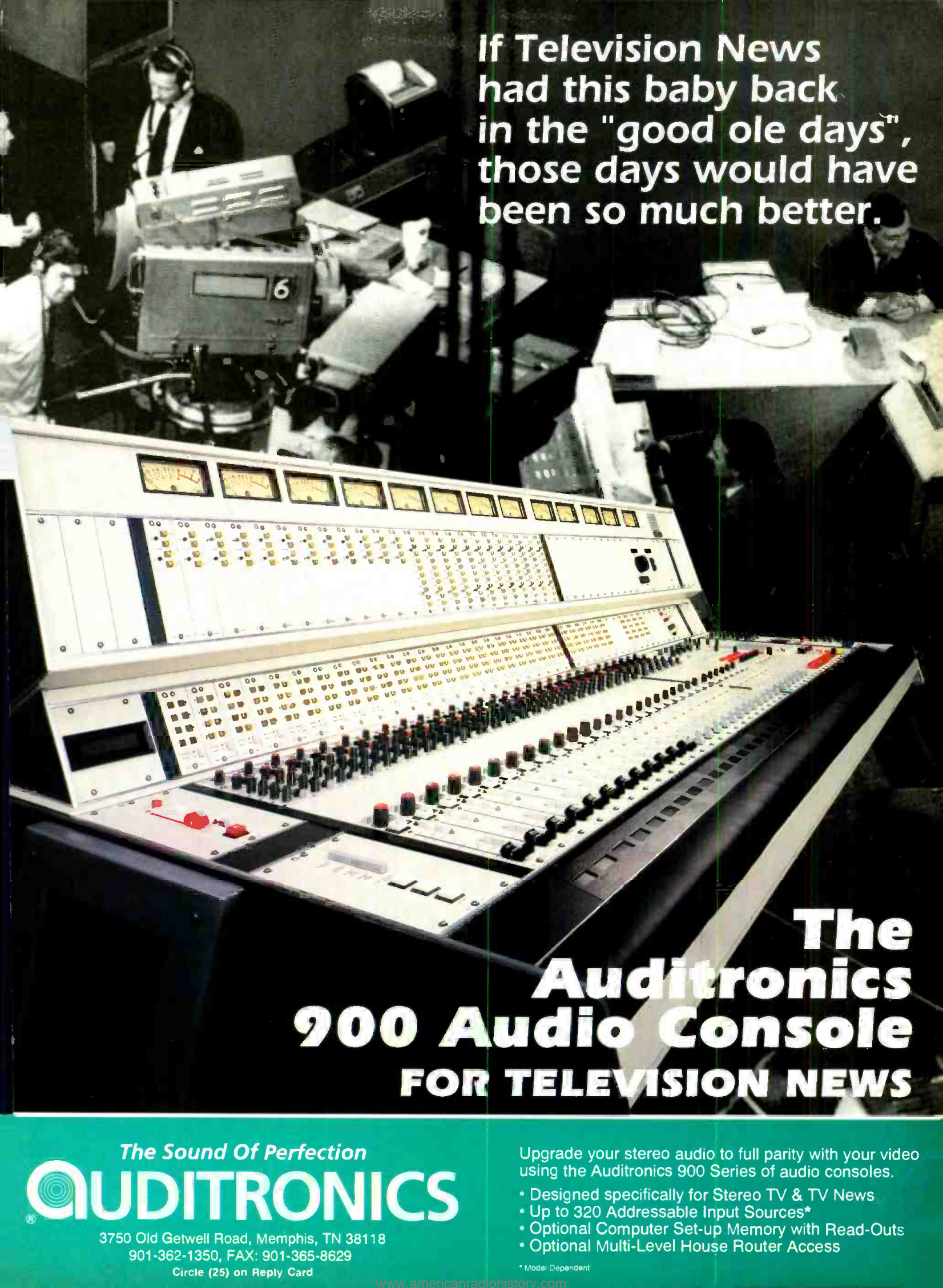
Manufacturer	ALTA Group	Amplex Corporation		BTS	CEL Electronics	Digital Processing Systems	
Model	Cygnus (-5.5)	TBC-7	ZEUS	DSY7	P164-38 (-18)	DPS-220	DPS-230
Function TBC/Synchronizer	Both	TBC	TBC	Synchronizer	Both	Both	TBC
Standard NTSC/PAL/SECAM comp	NTSC	NTSC/PAL	N; P-M; S	CCIR 601	N/P/S	NTSC	NTSC
Format conversions	(5.5 only)	No	No	No	Yes	No	Yes
Sampling frequency	14.318	4xF _{SC}	14.318	13.5MHz	13.5	4xF _{SC}	14.318
Bits/sample	8-bit	8-bit	9-bit	8/9/10-bit	8-bit	8-bit	8-bit
Correction window	1 field	28-line	60 lines	1 frame	5-field PAL	Infinite [†]	Infinite
Video bandwidth	290 lines (5.5MHz)	4.2 N/5.5 P	±0.2dB 5MHz	...	5.5MHz	-3/+0.5 to 6MHz	5.5MHz
S/N ratio	>55dB (>56dB)	>56dB	>58dB	[Unit is	56dB	>58dB	>58dB
Diff phase/gain	<3°/3% (<2°/2%)	<2%, <2%	<2°/2%	[digital	...	<2°/2%	<2°/2%
Residual error	...	<±2.5ns color	<±10ns mono	[device	...	<15ns	±15ns
Advanced sync output	No	Yes	Yes	...	Yes	Yes	Yes
Coherent subcarrier out	No	Yes	Yes	AF delay ctrl	...	Yes	No
Composite I/O	Yes	Yes	Yes	With options	Yes	Yes	Yes
Component I/O	(Y/C 3.58)	No	D-2 ZeusPort	4:2:2 digital	YUV; Y/C[S-VHS]. CCIR-601/656	No	Y/C S-VHS
Heterodyne operation	...	Yes	Yes	No	...	Yes	...
Dropout compensation	...	Digital	Yes	[Auto selects	Yes	Opt	No
For servo capstan	...	Yes	Yes	[525/625 line	...	...	...
Supports dynamic tracking	Yes	Yes	Yes	[standard ref.	Yes	No	...
Noise reduction	No	...	Yes	[to input sync.	...	...	No
Image enhancement mode	Yes (No)	No	...	[Variable delay.	...	...	No
Video effects	Yes	No	No	...	-38 only	No	No
Freeze-frame/-field	Yes	No	Yes	Yes	Yes	Yes	Yes
Video mixer feature	4-input V/A	No	No	No	4-in BIM opt	No	No
Reader Service No	257	258	259	260	261	262	263

[†] DPS-245 quad framestore synchronizer.

Manufacturer	Digital Processing Systems			Digital Vision	For-A		
Model	DPS-265	DPS-295 ²	VT-2000/Personal	DVFS 1000	FA 810	FA-310	FA-510
Function TBC/Synchronizer	Both	TBC	TBC	Both	Synchronizer	TBC	TBC
Standard NTSC/PAL/SECAM comp	NTSC	NTSC	NTSC	NTSC, PAL, comp.	NTSC	NTSC	NTSC
Format conversions	Yes	Yes	Yes	Yes	No	Transcode opt	Yes
Sampling frequency	4xF _{SC}	4xF _{SC}	4xF _{SC}	4xF _{SC}	14.318	14.318	13.5MHz
Bits/sample	8-bit	8-bit	8-bit	10-bit	10-bit	8-bit	8-bit 4:2:2
Correction window	Infinite	Infinite	Infinite	...	4-field	1-frame	2-field
Video bandwidth	-3/0.5dB 6MHz	-3/+2.5 6MHz	0-5.5MHz	[Spec per	5.5MHz	4.2MHz	5MHz
S/N ratio	58dB	58dB	>58dB	[CCIR 601	>60dB	58dB	<56dB
Diff phase/gain	<2°/2%	<2°/2%	<2°/2%	...	1.5°/1.5%	2°/2%	2°/2%
Residual error	±15ns	<15ns	<15ns	...	±15ns	±15ns	±15ns
Advanced sync output	No	Yes	...	...	No	Yes	Yes
Coherent subcarrier out	No	Yes	...	...	No	Yes	...
Composite I/O	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Component I/O	Color-under	Yes	S-VHS Hi8	RGB YCrCb D1	No	Y/C Dub, YPbPr	...
Heterodyne operation	Yes	...	S-VHS	...	...	Yes	Yes
Dropout compensation	...	AUTODOC-3D	No	...	No	Yes	Yes
For servo capstan	...	...	...	...	...	Yes	Yes
Supports dynamic tracking	No	No	...	...	...	Option	Yes
Noise reduction	...	...	...	...	Optional	9dB 3-step	3 steps
Image enhancement mode	...	...	No	Yes	No	[Auto Chroma	...
Video effects	(VITS insert)	Yes	No	No	No	[Level Ctl	No
Freeze-frame/-field	Yes	Yes	No	...	Automatic	Yes	Yes
Reader Service No	264	265	266	267	268	269	270

² NTSC/Y-C/Dub input; Y/R-Y/B-Y out.

Manufacturer	For-A	Grunder-Feral	Hotronic		I-DEN	JVC	
Model	UDP-1000	C-100 ³	AF75	AH91 ⁴	IVT-60	TBCard (Plus)	KM-F250U
Function TBC/Synchronizer	TBC	Both	Both	Both	Both	TBC	Both
Standard NTSC/PAL/SECAM/comp	NTSC/PAL	NTSC or PAL	NTSC	NTSC	N/P	NTSC	NTSC
Format conversions	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sampling frequency	4xF _{SC}	13.5MHz	4xF _{SC}	14.3MHz, 8-bit	14.3MHz	13.5MHz	13.5MHz
Bits/sample	8-bit	8-bit/4:2:2	8-bit	8-bit	8-bit	8-bit	8-bit
Correction window	1-frame	1 frame	1 frame	1 frame	1 frame	1 frame	1-frame
Video bandwidth	±0.3 5MHz	5.5MHz	4.2 (400 lines)	5.5MHz	5.5MHz	5.5MHz	5.5MHz component
S/N ratio	58dB	58dB	58dB	58dB	58dB	56dB	>58dB
Diff phase/gain	2°/2%	2°/2%	<2°/2%	1°, 1%	2°/2%	2°/2%	...
Residual error	±2.5ns	...	±10ns	10ns C, 1 L	±15ns	...	±15ns
Advanced sync output	Yes	No	Yes	Yes	No	No	Yes



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Manufacturer	For-A	Grunder-Feral	Hotronic		I-DEN	JVC	
Model	UDP-1000	C-100 ³	AF75	AH91 ⁴	IVT-60	TBCard (Plus)	KM-F250U
Coherent subcarrier out	Yes	No	Yes	Yes	No	No	Yes
Composite I/O	Yes	2 inputs	Yes	Yes	to 6-channel	Yes	Yes
Component I/O	RGB Y/C-358/-688 YPbPr, D1 opt	2 inputs	Y/C358; S-VHS; U-matic/SP	Y/C-358 -688	Y/C YCrCb	Y/C & YCrCb I/O, S-VHS Out	Y/C, YCrCb
Heterodyne operation	...	...	Yes	Yes	...	...	Yes
Dropout compensation	Yes	...	Yes	Yes	No	...	Yes
For servo capstan	Yes	...	...	Yes	...	...	Yes
Supports dynamic tracking	Yes	No	...	No	No	No	...
Noise reduction	2-stage	No	3dB chroma	Chrominance	No	No	...
Image enhancement mode	Yes	No	...	No	No	No	...
Video effects	No	No	No	No	No	No	No
Freeze-frame/-field	Yes	Yes	Yes	Yes	Yes	No	Yes
Reader Service No	271	272	273	274	275	276	277

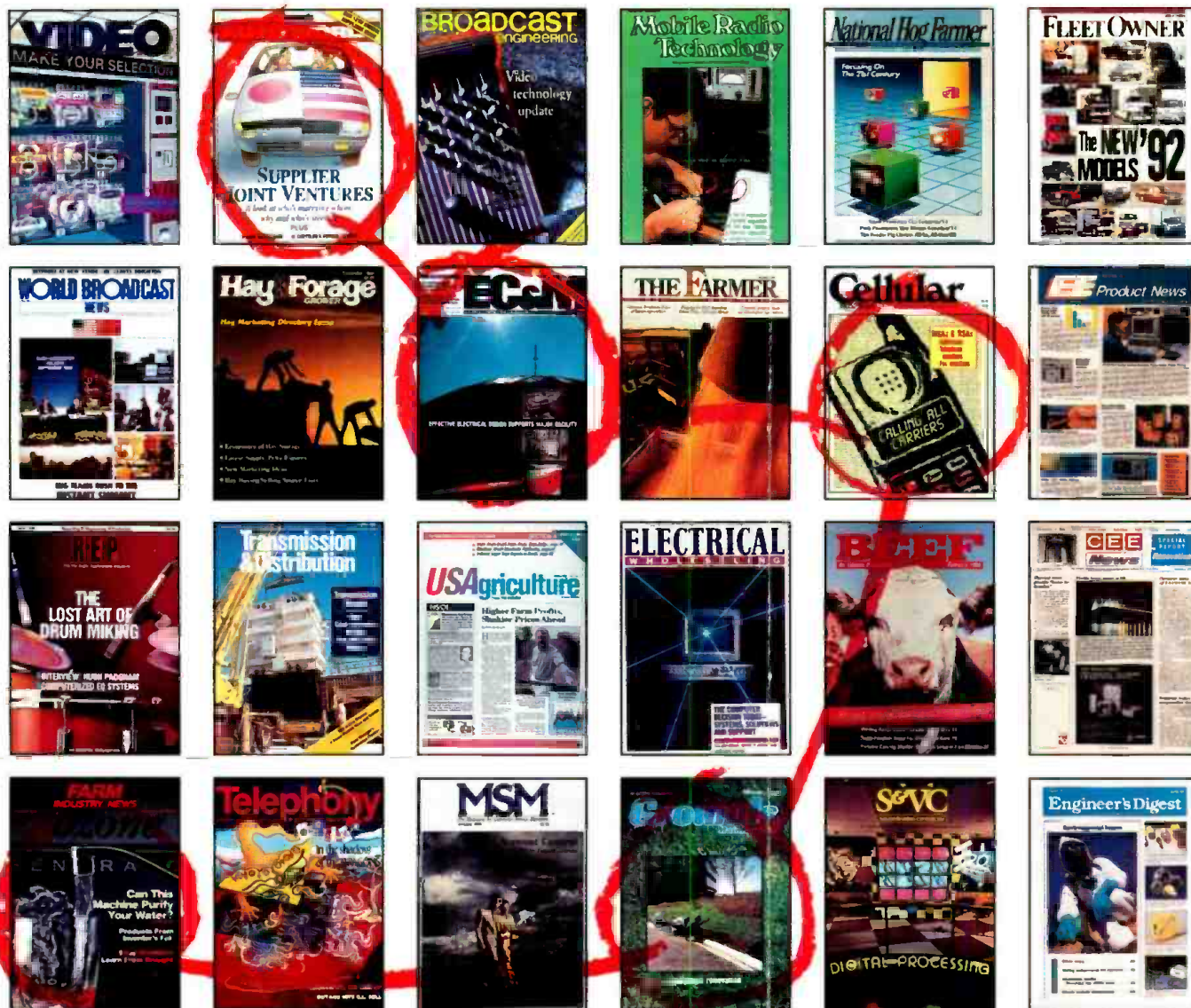
³C-100N NTSC; C-100P PAL; S-100A auto select from input signal. ⁴Audio/Video mixer integrated.

Manufacturer	JVC	Leitch Video	Microtime				Nova Systems
Model	SA-T400U(-411U)	DFS-3002N ⁵	FS-10 (-8)	Tx3 FIT	Tx4.2 Component	Tx5 Component	#700 (#800)
Function TBC Synchronizer	TBC	Synchronizer	Sync	TBC	TBC	TBC	TBC (Both)
Standard NTSC/PAL/SECAM comp	NTSC	NTSC/D2	N/P	NTSC/PAL	N/P	N/P	NTSC
Format conversions	Yes	No	D-2 out	Yes	Yes	Yes	No
Sampling frequency	13.5MHz	14.3MHz	4xFS	14.3MHz	14.3MHz	14.3MHz	14.3MHz
Bits sample	8-bit	10-bit	10-bit (8-)	8-bit	8-bit	8-bit 4:2:2	8-bit
Correction window	1 frame	Infinite	4-field	1 frame	1 frame	1 frame	32-line (frame)
Video bandwidth	5MHz	4.5MHz	5.5MHz	5.2MHz	5.2MHz SVHS	5.5MHz	5.5MHz #710
S/N ratio	56dB	>70dB	>60dB (54)	58dB	58dB NTSC	58dB NTSC	>58dB
Diff phase/gain	2 /2%	<1' /<1.25%	1' . 1% (2/2)	2' . 2%	2' . 2%	2' . 2%	<2' /<2%
Residual error	±15nsec	<10ns	...	2' C, 15ns L	<15ns Y	<15ns Y	±10ns
Advanced sync output	Yes	...	Yes (adv. adj.)	Yes	Yes	Yes	Yes
Coherent subcarrier out	No	...	Yes	Yes	Yes	...	Yes
Composite I/O	Yes	NTSC, D2	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC
Component I/O	S-VHS	N.A.	D-2 (opt)	M2, YUV, SVHS Dub/YCrCb/RGB	Y/C, S-VHS	S-VHS (710/810)	...
Heterodyne operation	Yes	...	...	Betacam, U, YC-358	...	...	...
Dropout compensation	Yes	...	Yes	Hetero component	Yes	Yes	Yes
For servo capstan	...	...	or non-servo	or non-servo	or non-servo	or non-servo	Yes
Supports dynamic tracking	...	...	Vari-Trak	Vari-Trak	Vari-Trak	Yes	No
Noise reduction	-411U	NO	...	Luma Chroma	Option	Option	No
Image enhancement mode	-411U	No	...	No	...	...	No
Video effects	No	No	No	Option	Option	No	No
Freeze-frame/-field	Yes	Signal fail	Yes	Yes	Yes	Yes	Yes
Reader Service No	278	279	280	281	282	283	284

⁵DFS-3000N NTSC synchronizer, no D-2 features.

Manufacturer	Nova Systems			Prime Image			
Model	#20SP 950 (900)	NovaMate	NOVASync ⁶	#1010	#10X ⁷	7.5MHz (ser 700) ⁸	Excel 6.5 (ser 600) ⁹
Function TBC Synchronizer	Both	Both	Both	Sync	Both	TBC	Both
Standard NTSC/PAL/SECAM comp	NTSC (& PAL)	N/P	NTSC	NTSC	N/P	NTSC	NTSC
Format conversions	#950	Yes	(Sync2/2F)	Yes	Yes	Yes	Not 605/650.
Sampling frequency	13.5	14.3 (13.5)	14.3	28.6MHz	...	...	...
Bits sample	8-bit/4:2:2	8-bit	8-bit	10-bit	8-bit	8-bit	8-bit Y&C
Correction window	1 field	Full frame	4-field opt	4-field	1 frame	16 lines	16-line
Video bandwidth	to 5.5MHz	>6MHz	-3.5MHz	10MHz	5.5MHz	7.5MHz	6.5MHz
S/N ratio	>58dB	>58dB	>58dB	65dB	58dB	58dB	58dB
Diff phase gain	<2' /<2%	<2' /<2%	2' /2%	1' /1%	1' /2%	1.5' /1.5%	1.5' /1.5%
Residual error	±10ns	±10ns	±10ns Y	±15nsec	±15ns	±15nsec	±15nsec
Advanced sync output	Yes	Yes	Yes	No	No	Yes	Yes
Coherent subcarrier out	No	No	Yes	No	No	Yes	Option
Composite I/O	Yes	I/O	NTSC	w/D-2 out opt/4-in	Yes	Yes	Yes
Component I/O	Y/C(S-); YCrCb out	Y/C S-/Hi8	S-VHS in	No	S-/YC	Y/C(S-) YCrCb	Y/C(S-) YCrCb
Heterodyne operation	...	Yes	Yes	...	Yes	Yes	Yes
Dropout compensation	Yes (No)	...	Yes	...	Yes	Yes	Yes
For servo capstan	Yes	Yes	Yes	...	Yes	...	...
Supports dynamic tracking	No	No	No	...	No	Yes	Yes
Noise reduction	3dB chroma	Adaptive comb	No	No	...	to 20dB	20dB
Image enhancement mode	No	Plug-in card	No	No	Yes	...	No
Video effects	Yes	for PC in	No	No	No	Not 700	Yes
Freeze-frame/-field	Yes	Desktop system	NOVASync F/2F	Yes	Yes	Yes	Yes
Video mixer feature	4x1	No	No	4-input	No	No	No
Reader Service No	285	286	287	288	289	290	291

⁶NOVASync/-F synchronizers; NOVASync 2/-2F sync/TBCs. ⁷ 1 to 10 separate or locked channel modules in frame; -2X dual channel. ⁸ TBC 705/750 have composite I/O only; others include components. 700/70, 1/705 TBC; 710/711/750 synchronizer. ⁹ 605 or composite I/O; -610 use composite I/O.



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Manufacturer	Prime Image		QuesTech	Sony	Tektronix		Videotek
Model	HR600+ (ser 800) ⁹	TBC/PCB	2102P	BKH-3010 (-3050) ¹⁰	110-S ¹¹	VS-210 (-211) ¹²	VDP-8400 (-8000) ¹³
Function TBC/Synchronizer	Both	TBC	Synchronizer	N	Synchronizer	Synchronizer	Synchronizer
Standard NTSC/PAL/SECAM comp	NTSC	N/P	PAL	TBC	NTSC	NTSC (PAL)	NTSC
Format conversions	Yes	Yes	No	NTSC/c	No	Yes	No
Sampling frequency	...	14.318	3xFsc	Composite	14.314	28.64 (17.73)	14.318
Bits/sample	8-bit	8-bit Y&C	9-bit	No	10-bit	10-bit	8-bit
Correction window	1 frame	...	2-fld + 16 line	14.32MHz	8-bit	Infinite	4-field
Video bandwidth	7.5MHz	5.0MHz	±0.5 5.5MHz	15 TVL	to 4.2MHz	±1dB 6MHz (5.5)	-3dB 5MHz
S/N ratio	58dB	58dB	55dB	4.5MHz	60dB	60dB	>58dB
Diff phase/gain	1.5°/1.5%	1°/2%	1.5°/2.5%	49dB NTSC	1°/1%	±1°/1%	2°/2%
Residual error	±15nsec	±15nsec	±10ns	-	%	20ns max	...
Advanced sync output	Not required	No	Yes	±2.5ns C	<±15ns	No	No
Coherent subcarrier out	Yes	No	No	No	No	No	No
Composite I/O	Yes	Yes	w/D-2 opt.	Yes	NTSC	Analog & Dig. O	Yes
Component I/O	Y/C [S-], YCRCB	DUB S-Y-C	RGB/YUV	Yes	None	...	No
Heterodyne operation	Yes	Plug-in	Yes	Yes	w/TBC opt	...	...
Dropout compensation	Yes	for	...	Direct	...	No	...
For servo capstan	...	Amiga or	...	Servo	...	...	...
Supports dynamic tracking	Yes	IBM in	...	Yes	No	No	...
Noise reduction	No	Desktop system	Var comb	No	No	...	No
Image enhancement mode	No	Yes	...	No	No	No	No
Video effects	Some models	No	Option	No	No	No	No
Freeze-frame/-field	Yes	Yes	Yes	No	Yes	Yes	Yes
Video mixer feature	No	No	...	Full	No	No	No
Reader Service No	292	293	294	295	296	297	298

⁹801 TBC, #800 with effects; 810 TBC synchronizer; 810 limited effects. ¹⁰Units designed for use with BVH-3000/-3100 VTRs. ¹¹Link to AS-18 audio delay to resynchronize audio delayed through transmission or processing. V S-211 video synchronizer for PAL standard; 10-bit sampling. ¹²Port available to control 118-AS audio synchronizer. ¹³2-frame freeze memory for 1-frame freeze, while 2nd channel operates normal with synchronized output.

Standards Converters

Manufacturer	AVS				CEL	
Model	Cyrus	EOS	ISIS	P256 Worldmaster	P165 PLUS	P165-22 STANDI
Supports NTSC 3.58 I/O	3.58 & 4.43	3.58 & 4.43	3.58 & 4.43	3.58 & 4.43	3.58 & 4.43	3.58 & 4.43
Supports PAL/CCIR I/O	CCIR, M	CCIR, M, N	CCIR, M, N opt.	CCIR, M	CCIR, M output	CCIR
Supports SECAM I/O	Yes	Yes	Option	I (O opt.)	Yes	Opt out
Supports Y/C, S-VHS I/O	Yes	Yes	Option	Output	Yes	Yes
Supports Y/C, C, I/O	Yes	Yes	Option	YUV	Yes	Yes
Supports RGB I/O	Yes	...	Option	& VGA In opt	...	...
Supports D-1, D-2	D-1, D-2	No	D-1 Option	...	D-1	D-1
Luma /chroma b.w. or sampling MHz	to 5.5	13.5/6.75	13.5/6.75	13.5/6.75	13.5/6.75	13.5/6.75
Quantizing scheme L/C	10-bit	8-bit	8-bit	8 bit	8 bit	8-bit
Input S/N minimum	>55dB	>50dB	...	>56dB	>56dB	>56dB
Resolution B/W	5.5MHz	4.5MHz NTSC	3.58MHz	5.5MHz	4.2MHz NTSC	3.5MHz PAL
Functions						
Timebase corrector	Yes	Yes	Yes	Yes	Yes	Yes
Synchronizer	Yes	Yes	Yes	Yes	Yes	Yes
Frame freeze	Yes	Yes	Yes	Yes	Yes	Yes
Field freeze	4-fld/4-line	Yes	Yes	Yes	Yes	...
Image enhancement	Yes	Yes	Yes	Yes	Y & chroma	Yes
Noise reduction Y/C	17dB Y/21dB C	Yes	17dB/21dB	21dB var.	Yes	3dB Y/3dB C
Composite encoder	Yes	Yes	Yes	Yes	Yes	Yes
Format conversion	Yes	Yes	Yes	Yes	Yes	Yes
Auto input selection	Yes	Yes	Yes	Yes	Yes	...
Color correction	Yes	Yes	Yes	Yes	Yes	Yes
Programmable	No	4-preset	No	Yes	Rmt Ctl	RS-423
Color balance	Yes	Yes	Yes	Yes	...	...
Proc-amp adjustment	Full	Full	Full	Full	Yes	Yes
Reader Service No	299	300	301	302	303	304

Manufacturer	CEL Electronics	I-DEN	Snell & Wilcox			
Model	P165-50 TETRA Plus	IP-500 (-450)	Alchemist	Atlantis series	CVR 40 series	HD2100/HD3100
Supports NTSC I/O	3.58, 4.43	3.58	3.58, 4.43	3.58, 4.43	3.58, 4.43	Yes ¹
Supports CCIR I/O	CCIR, M	CCIR, M	CCIR, M	CCIR, M	CCIR, M	CCIR, M
Supports SECAM I/O	Yes	Yes	Yes	Yes	Yes	Yes
Supports Y/C, S-VHS I/O	Yes	Yes	Yes	Yes	Yes	No
Supports Y/C, C, I/O	Yes	Yes	YUV	YUV	& YUV	Yes
Supports RGB I/O	No	Yes	Yes	Yes	Output	Yes
Supports CCIR 601	D-1 Opt	No	D-1, D-2	...	...	D-1, (HD2-MAC)

Manufacturer	CEL Electronics	I-DEN	Snell & Wilcox			
Model	P165-50 TETRA Plus	IP-500 (-450)	Alchemist	Atlantis series	CVR 40 series	HD2100/HD3100
Supports D-2	...	No	Yes	...	No	(HD3100 HD2-MAC)
Downconversion from HDTV	No	No	...	...	...	Yes
Luma/chroma bandwidth or sampling MHz	13.5/6.75	5.5/3.58	13.5/6.75	±1 3.3MHz NTSC	<-3dB 5.4MHz	5.5/2.5
Quantizing scheme L/C	8-bit	8-bit 4:2:2	10-bit	...	8-bit	10-bit 4:2:2
Input S/N minimum	>56dB	DOC	...	56dB	>56dB	>50dB
Resolution B/W	4.2MHz	...	...	...	...	...
Functions						
Timebase correcton	Yes	Yes	Yes	Yes	Yes	...
Synchronizer	Yes	Yes	Yes	Yes	Yes	...
Frame freeze	Yes	Yes	Yes	Yes	Yes	Yes
Field freeze	Yes	Yes	Yes	Yes	4-fld/4-line	...
Image enhancement	C	-500 only	H/V	H/V	Variable	V and H
Noise reduction Y/C	Yes	-500 only	Yes	Yes	CVR 45	Yes
Composite encoder	Yes	Yes	Yes	Yes	Yes	Yes
Format conversion	Yes	Yes	Yes	No	No	HDTV to std.
Scan conversion	Opt	No	No	No	No	[Aspect ratio..
Auto input selection	...	No	Yes	Yes	Yes	[pan.,
Color correction	Yes	ACC circuit	Yes	Yes	Level/hue	[zoom features
Programmable	RS-423	No	Yes	No	No	...
Color balance	...	No	Yes	Yes	Yes	...
Proc-amp adjustment	Yes	Full	Yes	Yes	Yes	Yes
Reader Service No	305	306	307	308	309	310

¹ Simultaneous 50Hz/59.94Hz output.

Manufacturer	Snell & Wilcox	Thomson Broadcast	Video International			Vistek Electronics
Model	ME9900 series	TTV 7810	DTC 3604	DTC 4500	DTC 1504	V4401 VECTOR VMC
Supports NTSC 3.58 I/O	3.58, 4.43	Yes	3.58, 4.43	3.58, 4.43	13.58, 4.43	3.58, 4.43
Supports PAL-M I/O	CCIR (9930 M)	Yes	CCIR, M	CCIR, M	CCIR, M	PAL I (M output opt.)
Supports SECAM I/O	(I/O 9930)	Yes	I/O	I/O	I/O	Option
Supports Y/C, S-VHS I/O	(9910 DUB)	...	I/O	Dub O	I/O	No
Supports Y _R C _B I/O	(9930)	...	I/O	Y/O	I/O	Yes
Supports RGB I/O	(9930)	...	I/O	Y/O	...	Yes
Supports CCIR 601	No	D-1	D1	D-1	...	D-1
Downconversion from HDTV	No	Yes	No	...	No	Yes
Luma/chroma bandwidth or sampling MHz	3.3MHz	[Converts signals	13.5/6.75	13.5/6.75	...	13.5/6.75MHz
Quantizing scheme L/C	8-bit	[to progressive scan	8-bit	8-bit	8-bit/4:2:2	8-bit
Input S/N minimum	56dB	[for internal processing	60dB wtd	54dB	60dB	>50dB
Resolution B/W	4-field motion processing	...	>5.5MHz	>5.5MHz	...	5.5MHz
Functions						
Timebase correcton	Yes	Yes	Yes	Yes	Yes	Yes
Synchronizer	Yes	Yes	Yes	Yes	Yes	Yes
Frame freeze	Yes	Yes	Yes	Yes	Yes	Yes
Field freeze	Yes	...	4-field	1 or 2	Yes	Yes
Image enhancement	Yes	[Pel Recursive	H/V	Yes	Yes	...
Noise reduction Y/C	Yes	[motion estimation	15dB	Yes	15dB	Yes
Composite encoder	Yes	to 1/4pixel	Yes	Yes	Yes	Yes
Format conversion	Yes	[precision.	Yes	...	Yes	Yes
Auto input selection	Yes	[±31H, ±15V	Yes	No	No	Yes
Color correction	Yes	[dynamic range	Yes	Yes	Level only	Yes
Programmable	Yes	[of motion	No	No	No	No
Color balance	Yes	[estimation and	Yes	Yes	No	No
Proc-amp adjustment	Full	[compensation.	Full	Full	Yes	Full
Reader Service No	311	312	313	314	315	316

Routing Switchers

Nearly all systems listed here can be operated with a variety of control types, including RS-232/-422 protocol.

Manufacturer	AAVS		Alpha Image	Auditronics	Barco	BTS			
Model	S193/194 ¹	Onyx	Alpha 264S	1900 IFB	BVRS/BARS	TAS/TVS-3000	TAS/TVS-2000	Mars	Venus (BAS/BVS) ²
Audio/Video/Data	A/V/data	V/A	Senal digital	Audio	V/A	V/A	V/A	A/V	A/V and Digital
Basic crosspoint matrix	8x1	16x8	16x16	16x8	16x16	10x10	10x10	24x8	16x32
Typical system size	8x4	128x128	64x64	48x24	32x32	200x200	250x150	48x8	352x128 ³
Audio response ±dB Hz-kHz	-1dB /40-15kHz	-0.25 /20-20k	...	±0.5/ 20-20k	±0.1/ 20-20k	±0.1/ 20-20k	±0.1/ 20-20k	-3dB to 150k	±0.1/ 20-20k
Harmonic distortion	...	<0.05%	...	<0.01%	<0.02%	<0.007%	<0.007%	<0.01%	<0.01%
S/N ratio	>95dB +12dBu	82dB	[Permits mixture	91dBu	...	85dB	85dB	90dB	89dBu
Audio crosstalk (worst)	...	<075dB	[of D1/D2-NTSC	-88dBu 1kHz	-100dB	<-90dB	<-90dB	<-90dB 20kHz	<-90dB 20kHz

Manufacturer	AAVS		Alpha Image	Auditronics	Barco	BTS			
Model	S193/194 ¹	Onyx	Alpha 264S	1900 IFB	BVRS/BARS	TAS/TVS-3000	TAS/TVS-2000	Mars	Venus (BAS/BVS) ²
Video response	±0.5dB 20MHz	-3 to 60MHz	and D2-PAL	Intended as	to 40MHz	>70MHz	to 20MHz	-3dB >65MHz	-1/+0.5 30MHz
Diff phase/gain	...	<0.5'/<0.5%	signals	IFB audio	<0.1'/<0.1%	<0.15'/<0.15%	<0.1'/<0.1%	<0.1'/0.1%	<0.1'/<0.1%
Chroma/Luma delay	...	2ns	simultaneously,	signal	1' 4.43MHz	<±1'	<±1'	<2ns p-p	...
Video S/N ratio	...	...	[	control.	...	>70dB	>75dB	>70dB hum+noise	...
Video crosstalk (worst)	...	<-56dB 4.43	[	...	50dB 5MHz	-40dB 30MHz	-60dB 3.58	>60dB 4.43MHz	<-45dB 30MHz
Multilevel audio control	Yes	Possible	...	...	Possible	Yes	Yes	Yes	Yes
Component video	Yes	Possible	D1 only	...	Possible	Possible	Possible	Yes	Yes
Reader Service No	317	318	319	320	321	322	323	324	325

¹S195 relaymodules for RS-232 use. ²Family of routers for AES digital audio, stereo analog audio, HDTV-compatible analog component and composite video, 400Mbit serial digital video. ³BAS-400 2048 X-points/stereo audio rack frame; BVS-400 1024 X-points/video rack frame. Permits mixed switcher types in a single chassis.

Manufacturer	Datatek			Di-Tech					
Model	D-2500 series ⁴	D-2700 DVS/DAS	5216	5865A/5864V	5860 series	5616/5618	5217 Wideband	Model 5856	Model 5863
Audio/Video/Data	A/V/data	Digital A/V	Video D1/D2	V/2A	5861V/5862A	V/A	Video	HDTV/RGB	4-wire data
Basic crosspoint matrix	20x10	16x16	16x16	32x24	64x32	16x8/16x16	16x16	20x20	32x2
Typical system size	20x20 expanded	64x64/128x128	64x16	64x32	256x256	16x32 audio	HDTV video	60x20/20x20 RGB	32x32/frame
Audio response ±dB Hz-kHz	±0.05/20-20k	Audio sampling	Digital; 75Ω	±0.1/ 20-20k	±0.5/ 20-100k	±0.5/ 20-100k	...	...	[expandable
Harmonic distortion	<0.005%/16dBu	per AES/EBU	input/output	<0.05%	<0.1%	<0.25%	...	...	system for
S/N ratio	88dBu	sampling from	at 0.8Vp-p;	>70dB	>70dB	>70dB	...	...	[RS-232/-422
Audio crosstalk (worst)	-80dB 20kHz	25kHz to 55kHz	data rates	<-75dB	<-80dB	<-80dB20-1k	...	...	distribution
Video response	-3, +0.5/ 40MHz	D1-270Mbit/s	to 270Mbit/s	-1/0 20MHz	-1.5/0 20MHz	-1/0 20MHz	±0.25 /50MHz	0.3/ 45MHz	applications
Diff phase/gain	±0.1'/0.1%	177 - 143Mb/s	in D1	...	<0.25'/<0.25%	<0.25'/<0.25%	<0.25'/0.25%	<0.2'/<0.2%	<0.2'/0.2%
Chroma/Luma delay	±0.75'	EDTV - 360Mb/s	D3 formats.	<1'	<1'	<1' dB	...	<0.05dB	relays for
Video S/N ratio	-70dB hum+noise	reclocking or	[Matrix can be	>70dB	>70dB	>70dB	>60dB	>60dB RMS	switching
Video crosstalk (worst)	-60dB 5MHz	transparent to	expanded.	<-60dB 4.5MHz	<-60dB 4.5MHz	<-60dB 4.5MHz	<-40dB 100MHz	-60dB 5MHz	operation.
Multilevel audio control	Yes	400Mbit/s	...	...	4-level breakaway	Yes	N.A.	...	...
Component video	Yes	...	...	No	...	Possible	...	Yes	...
Reader Service No	326	327	328	329	330	331	332	333	334

⁴D-2511V video; D-2520S stereo; D-2514D data; D-2530 serial digital video covers 140Mbit-400Mbit data rates.

Manufacturer	DTL	DYNAIR Corporation				Grass Valley Group			Harrison _{GLW}
Model	Routemaster	DYNASTY 100	DYNASTY	DYNA MITE D2	DYNA MITE	Horizon DHX-532	Horizon systems ⁵	20-TEN TEN-20	ARS-9
Audio/Video/Data	A/V	Video/digital	V/A 30(40)MHz	D-2 ser dig	V/A 40MHz	Video/digital	V/A	V/A	Audio
Basic crosspoint matrix	16x1	10x10	10x10	10x10	10x10	8x8	8x16	20x10/10x20	64x32
Typical system size	32x4, 16x8	50x100	100x100 (x50) video	30x10	30x10 A/V	32x32	128x128	20x20-10x40	256x256
Audio response ±dB Hz-kHz	±0.25/ 20-20k	...	±0.1/ 20-20k	±0.1/ 20-20k	±0.2/ 30-20k	[Conforms to	±0.1/ 20-20k	±0.1/ 20-20k	>20kHz
Harmonic distortion	0.1%	...	0.1%	0.1%	0.1%	[SMPTE RP125	<0.05%	0.05%	...
S/N ratio	-80dBm Hum+noise	...	75dB	75dB	75dB	[CCIR 601/F	>100dB	120dB	...
Audio crosstalk (worst)	-70dB 10kHz	...	56dB	<-80dB	80dB	[EBU 3246-E	<-80dB	80dB	...
Video response	-0.5 to 10MHz	±2 to 100MHz	±0.3 20MHz	-3/1.5 70MHz	-3dB 40MHz	[standards	±0.015 8MHz	±0.5 10MHz	[21.5dB
Diff phase/gain	0.2'/0.2%	0.25'/0.25%	0.05'/0.05%	0.2'/0.15%	0.05'/0.05%	...	<0.1'/0.1%	0.2'/0.1%	[headroom
Chroma/Luma delay	...	...	1' 5MHz	1'	1' 5MHz	[DHX-88 8x8;	±1'	>±1'	[above a
Video S/N ratio	-80dB	55dB 100MHz	80dB < 1Vp-p	55dB 70MHz	30dB RMS	[DHX-1616 16x16	>75dB	>75dB	[+4dB level
Video crosstalk (worst)	-60dB 4.43MHz	-25dB 100MHz	<-60dB 5MHz	<-25dB 70MHz	<-50dB 5MHz	[DHX-3216 32x16	-60dB 5MHz	-50dB 10MHz	...
Multilevel audio control	Yes	...	Yes	Yes	Yes	...	Yes	Yes	Possible
Component video	Yes	Yes	Yes	Yes	Yes	Digital	Yes	Yes	...
Reader Service No	335	336	337	338	339	340	341	342	343

⁵HX-16 16x16; HX-32 8x16/16x16/24x16/32x16; HX-48 to 48x48; HX-64 to 64x64.

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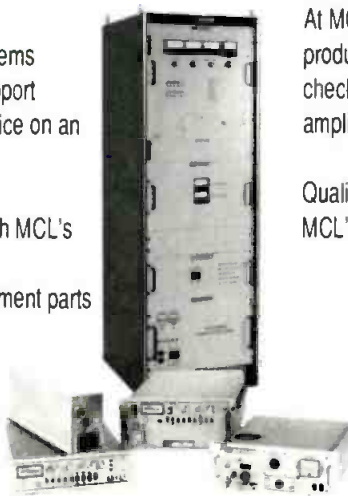
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Manufacturer	HEDCO	IKON Video Ltd/I.DEN	Image Video			Int'l Tapetronics	IRIS Tech.	JNS	Microvideo
Model	8X ^{plus} 6	Autorouter ⁷	9520 (9521)	9540 (9541)	Model 9600	Audio Switcher	Video Commander	9000 series	RS422 matrix
Audio/Video/Data	V/A/pulse	Audio/Video	Vid (Dual audio)	Video (audio)	Video/audio	Audio only	A/V	Audio	RS-422 data
Basic crosspoint matrix	8x8 (2-4x4)	8x8-32x32	20x10	20x10	20x10/40x20	16x16	16x16	15x8 stereo	12x6
Typical system size	8x8 (2-4x4)	32x128	20x10	40x20	320x320	64x48 mono	64x64	(15x16 mono)	32x32
Audio response ±dB Hz-kHz	±0.25dB 20-20k	to 20kHz	-1.0dB 20-100k	(-0.25 20-20k)	-0.25 20-20k	±0.1 20-20k	±0.1dB 20-20k	<±0.2dB 10-20k	[Buffer I/O
Harmonic distortion	<0.025%	...	% +24dBm	(<0.02 +18))	<0.02%	0.01%	...	30kΩ	[meet relevant
S/N ratio	-88dB	...	96dB	>96dB	>96dB	95dB	95dB	+24dBm	[SMPTE, EBU,, 4:2:2 or
Audio crosstalk (worst)	>95dB	>65dB	KdB 20kHz	>75dB	>75dB	<-95dB	<-90dB	>80dB	[EIA spec, to
Video response	-3dB to 100MHz	±3dB to 40MHz	-1.0dB 20MHz	-1dB 30MHz	-1 30MHz	[Programmable	±3dB 30MHz	Bal 40Ω	[10Mbaud data
Diff phase gain	<0.1 /0.1%	0.2' /0.5%	%	0.1', 0.1%	<0.1', <0.1%	[to 99 salvos	...	+24dBm max	[rates; for
Chroma/Luma delay	...	...	...	<10nsec	<10ns	[693 event total	...	<±0.2dB 10-20k	[reallocation
Video S/N ratio	>75dB 5MHz	>60dB	FdB hum-noise	>70dB	70dB	[capacity	70dB	<0.01%	[of edit ctl
Video crosstalk (worst)	< 70dB 5MHz	<-65dB	...	>65dB	>65dB	...	-53dB worst case	>90dB	[lines to multi
Multilevel audio control	Yes	Yes	...	2-channel	2-channel	Yes	Yes	<-90dB	[VTRs.
Component video	Yes	Yes	...	...	...	No	...	...	...
Reader Service No	344	345	346	347	348	349	350	351	352

⁶ASM-8X^{plus} audio; VSM-8X^{plus} video; PSM-8X^{plus} pulse. ⁸ Various configurations available; system may be operated from PC with GUI or as stand-alone system with integrated PC motherboard, software and ROM; both use mouse with VGA screen.

Manufacturer	MTR AG		NTP Elektronik		nVision	OpAmp	PESA/Chyron Group		
Model	MCD 2088 portable	MCD 2128	System 525	Type 612	NV3512A	#1010 (#20x5)	System 5	RM5488V RM5488A	RM4000
Audio/Video/Data	A/V	Video	Digital audio	Audio	Audio/Data	Audio	A/V analog	A/V monitoring	Video
Basic crosspoint matrix	8x8	8x16	...	16x8/64x8	8x32	10x10 (20x5)	8x8	8x8	8x8
Typical system size	8x8	128x16	126x96 analog	96x192	512x512/2500x2500	10x10 (20x5)	48x96	48x8(48-96x8/48x16)	48x40/96x40
Audio response ±dB Hz-kHz	±0.5/ 40kHz	...	-0.2, .1 40kHz	±0.01/ 40-20k	...	...	to 20k	±0.1/ 20-20k	...
Harmonic distortion	<0.04%	...	<0.01% +20dBu	<0.01% +22dBu	[Digital audio	...	<0.1%	<0.1% +28dB	...
S/N ratio	-95dB +16dBu	...	<-85dBu rms	<-93dBu rms	[8 data using	...	73dBm	>90dBm A-wtd	...
Audio crosstalk (worst)	<-90dB 10kHz	...	>100dB	>100dB	[50Mbits on coax	-80dB	<-90dB	90dBm	...
Video response	±3dB 40MHz	±3dB to 40MHz	[TDM bus arch.	N.A.	[or FO	10Mbits	...	-1.5 to 20MHz	<±1dB 50MHz
Diff phase/gain	<0.3' /0.3%	<0.3' /0.3%	[offers various	N.A.	[on bal. I/O	...	0.1' /0.1%	<0.12' 4.43MHz	0.12 /0.14%
Chroma/Luma delay	...	...	[configurations	N.A.	...	...	<-62ns	...	0.2%
Video S/N ratio	...	...	[for broadcast	N.A.	...	...	73dB	>73dB	>81dB a-wtd
Video crosstalk (worst)	-60dB 4.43MHz	-60dB 4.43MHz	[or voice grade	N.A.	...	...	-62dB 4.43MHz	<-62dB 4.43MHz	-62dB 4.43MHz
Multilevel audio control	Yes	...	[audio.	3-level	Yes	...	Yes	...	...
Component video	Yes	Yes	...	N.A.	...	...	Yes	Composite only	Yes
Reader Service No	353	354	355	356	357	358	359	360	361

Manufacturer	Pro-Bel	Ramko Research	Siemens	Sierra Automated Systems	Sierra Video Systems	Sigma Electronics	Studer Digitec	
Model	HD 5500 series	Prodigy series	RS-1616	CROSSMATIC DSAS32000	Series 32	Series 16 ⁹	Series 2188	AS-M 6000 (DS-M6000)
Audio/Video/Data	4-wire intercom	V/A(TC)/D ⁸	Audio	Audio	Audio	Video/audio	V/A	Audio
Basic crosspoint matrix	6x6	24x12 (16x16)	2-8x1/16x1	32x32	32x16 stereo	32x8	16x4	8x8
Typical system size	96x96 (512x512)	24x24	128x64	32x96	64x32	32x8 to 32x32	16x8/16x16	8x8
Audio response ±dB Hz-kHz	<1/ 60-12k	<±0.25 /20-20k	>100kHz	<0.4 /40-15k	±0.25 /20-20k	...	±3 150kHz	±0.1/ 20-20k
Harmonic distortion	<0.1% +18dB	<0.1%	0.008%	<0.1	<0.05%	...	0.1%	...
S/N ratio	>70dB +9dBm	>96dB	87dB	>70dB	>86dB 20kHz	...	>100dB	...
Audio crosstalk (worst)	<-90dB	<-100dB	-100dB 20kHz	>100dB	<-70dB	...	<-80dB 1kHz	-80dB
Video response	[16-bit sampling	<3dB to 30MHz	...	...	...	to 100MHz	-3dB 30MHz	±0.25 to 25MHz
Diff phase/gain	[of audio used	<0.2' /<0.15%	...	...	...	...	0.25 /0.25%	0.1 /0.1%
Chroma/Luma delay	[in DSP section.	<5ns	...	...	...	...	...	...
Video S/N ratio	...	<78dB luma	...	...	...	...	60dB	...
Video crosstalk (worst)	...	-60dB 4.43MHz	...	...	...	...	-50dB 3.58MHz	-60dB 5MHz
Multilevel audio control	...	2nd level	Yes	Yes	...	Yes	Yes	No
Component video	...	Yes	...	...	...	Yes	Y-C/RGB, YPrPb	w/multiple units
Reader Service No	362	363	364	365	366	367	368	369

⁸ Prodigy series includes analog audio, video, RS-422 data and serial digital video. ⁹ Series 8 offers 8x8 matrix with similar characteristics; System 16x4/16x8 video or 16x8 with four audio channels; model 61 8x8 may include one to three levels of video with stereo.

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DIGITAL

Model 5860D Waveform Monitor and Model 411D Sync/Test Generator handle both serial and parallel digital signals in the D2/D3 format. The generator supplies AES/EBU digital audio as well as a combination color bar/ramp for testing digital systems.



COMPONENT

HDTV

Model 5100 four-channel component/composite Waveform Monitor operates in Betacam, MII, HDTV, and SMPTE formats, as well as analog. Model 425 Generator supplies RGB, Betacam or MII in 3 and 2-wire (Y/CTDM) form, and analog.



COMPOSITE

Model 5870 Waveform/Vector/SCH Monitor shown sharing a half-rack adapter with the

Model 411 Sync/Test Generator synthesizes precision analog from a 10 bit D/A.



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Manufacturer	Utah Scientific						Vistek	West Starr Int'l	X ^N Tech
	360 Systems								
Model	AM-16	RR-384	AVS-1B series ¹⁰	DVS-1	AVS-2	DVS-2/32	ARRAY ser. ¹¹	Modula series ¹²	4XDM (4YDM)
Audio/Video/Data	Audio	Data	V/A	Video/digital	V/A	Serial digital	A/V/dig. video	V/A	V/A/Data
Basic crosspoint matrix	8x8/16x16	8x8	10x10	4x16	10x10	32x32	8x8	8x8	4x4
Typical system size	16x16x4	96x96 expanded	320x (150x10)	32x16	320x320	...	128x128/64x64	256x256	16x48 (128x128)
Audio response ±dB Hz-kHz	-3 to 50k	[designed for	±0.05 30-20k	[10-bit arch.	±0.05 30-20k	[for D1 270Mb/s	±0.025 20-20k	±0.1dB 10-50k	±3dB to 150kHz
Harmonic distortion	<0.008%	[use in RS-422	0.05%	[conforms to	0.05%	[D-2 143Mb/s for NTSC	<0.1%	<0.1%	<0.03%
S/N ratio	105dB	[signal routing,	85dB	[SMPTE RP125	85dB	[D2 -177Mb/s for PAL	-90dBm Hum+noise	80dB	>100dB
Audio crosstalk (worst)	88dB 1kHz	[machine control	-90dB to 20k	[EBU 3246E	-90dB to 20k	[jitter time at	-90dB	-90dB max	<-100dB 20kHz
Video response	...	[Form "A" DIP	±0.5 20MHz	[for digital	±0.5dB 30MHz	[<10% of the	-3dB 30MHz	>30MHz	to 120MHz
Diff phase/gain	...	[type relays;	0.05°/0.05%	[video signals	±0.05°/0.05%	[bit time	0.1°/0.1%	<0.01°/0.01%	<0.1°/0.1%
Chroma/Luma delay	...	[matrix may	±0.75'	[Switch allows	±5ns	...	...	...	...
Video S/N ratio	...	[follow router	80dB	[use as 8-bit,	80dB	...	>65dB	1.5mV floor	...
Video crosstalk (worst)	...	[A/V source &	-60dB 4.43MHz	[9-bit	10-bit	-60dB 4.43MHz	...	-60dB 4.43MHz	-65 max
Multilevel audio control	Yes	[destinations.	Yes	[per input.	8-level	...	Yes	Yes	Yes
Component video	...	...	Possible	...	Possible	...	Possible	Yes	Yes
Reader Service No	371	372	373	374	375	376	377	378	379

¹⁰ 1-BB bandwidth 60MHz; -1WB bandwidth 100MHz for video with response of ±2dB. ¹¹ Series includes V2300 analog audio, V2200 analog video, V2100 digital for digital video permits an array size to 1024x1024 with dual standard (NTSC/PAL) switching capability. ¹² ARS-2500 audio; VRS-2500 video.

Video Production/Master Control Switchers

Manufacturer	Abekas Video Systems		Alpha Image	ALTA Group		Ampex Corporation	
	A82 Digital	A84 Digital Post	Alpha 500	Pegasus	Pyxis 5.5	DCT 700s ³	Vista Series ⁴
Model	A82 Digital	A84 Digital Post	Alpha 500	Pegasus	Pyxis 5.5	DCT 700s ³	Vista Series ⁴
Control application	Post production	Digital	Production	Production	Production	Post-Prod suite	Production
Standard	Composite D-2	CCIR 601; D-1	CCIR 601; D-1	NTSC	NTSC	Digital	RGB/YPrPb/Beta/MII
# inputs	32 video or key	12 ²	16	8 Y/C or encoded	4 Y/C or encoded	16	10 or 18
Integral matte source	Yes	Yes	Yes	3 generators	Yes	Multi	5 generators
Key sources	Any input ¹	12 ext 12 int	Yes	10-input	Yes	Per input	2 ext 10/18 int
Chroma keyers	8 RGB	8 RGB	Yes	RGB option	...	SpectraKey	3 RGB/Y/ISO ⁵
Downstream keyer	No	No	...	[2 linear keys	No	...	w/UNIKEY
Switching buses	...	...	3	3	2	16	12
# switcher M/E amps	4 Multilayer	8 layer capability	1	1	1	Multiple	1.5
# pattern generators	2	3	20 basic	27 patterns	10 transitions	60+ patterns	32 patterns
Wipe effects	Rotation/Soft Edge; Adjustable edging		...	hard/soft	Yes	Hard/soft edge	Hard/soft edge
Spotlight effects	...	...	...	No	No	Yes	Yes
Border effects	Yes	Yes	...	Matte/outlines	Yes	Full adjustment	4 types
Shadow effects	Yes	Yes	...	Yes	No	Yes	Yes
Programmable routines	Yes	Yes	[Configures in	Yes/learn mode	Yes	Multi configuration	24 routines
Memory backup battery	Yes	Yes	[layers	...	[Dual TBC	Yes	Yes+VistaDisk
Diagnostic software	Yes	Yes	...	...	[channels	Yes	Yes
Digital effects port	Yes	Yes	Yes	to Editor	Integral effects	Digi-Loop	Digi-Loop ⁶
Automation port	From M/Edit control		...	No	GPI/serial	GPSI/PIPS	GPSI/PIPS
Input timing adjustment	...	...	...	<1.5'	[>450-line...	...	...
Crosstalk at subcarrier	...	Not applicable	...	<-54dB	[resolution	8-bit resolution	>50dB
Link to rack electronics	1 digital line	1 digital line	[up to 4	15-conductor	...	25-pin cables	Multicore cable
Audio preview function	No	No	[separate	No audio	[4-input	...	Option
Audio metering	No	No	[layers plus	N.A.	[stereo	...	Option
Audio level control	No	No	[background;	N.A.	[audio follow	...	Option
Audio mixer interface	No	No	[full switcher	N.A.	[mixer	...	Option
Edit control interface	Yes	Yes	[setup for each layer,	RS-488	Yes	...	Option
Reader Service No	380	381	382	383	384	385	386

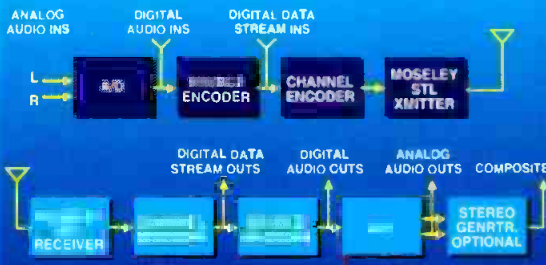
¹ Adaptive Sub-Pixel Intelligent Keying; framestores associated with each keyer. ² Frame store associated with each input and all 12 key inputs; Adaptive Sub-Pixel Intelligent Keying. ³ Section of DCT Digital Component Technology Post Production System. ⁴ Both composite NTSC/PAL and component RGB/Beta/MII/YPrPb systems. ⁵ 3 SpectraKey units. ⁶ SE models may include integrated ADO digital effects.

Manufacturer	AVS Broadcast	ECHOLab Inc		Feral Industries	For-A	Grass Valley Group	
	Integra ⁷	DV-5	SE-6	6119 (6119YC)	VM-100	VPS-510(C)	110/CV ⁸
Model	Integra ⁷	DV-5	SE-6	6119 (6119YC)	VM-100	VPS-510(C)	110/CV ⁸
Control application	Production	Production	Production	Analog	Production	Prod. digital	Production/Post
Standard	PAL; CCIR 601	NTSC; PAL	NTSC; PAL	NTSC (S-VHS)	NTSC; PAL	NTSC; PAL	RGB; YUV
# inputs	8 external ⁷	10	10	6 (6 Y-C)	3 Composite/S-VHS	6 ⁸	10
Integral matte source	2 generators	3 generators	3 generators	Colorizer	Yes	Brdr Bckgrnd Key	3 generators
Key sources	4 external	4 ext/10 int	5 ext 20 int	Linear int/ext	Title key	2 ext/2 int	2 ext/8 int
Chroma keyers	...	RGB/Composite options		RGB option	No	Option	1 RGB optional
Downstream keyer	Per setup	Y	Yes	w/key dissolve	No	Yes	DSK-101
Switching buses	Multiple	3 primary	4 primary 1 aux	3	1	2 prime	3 prime
# switcher M/E amps	to 4 key levels	1½	2½	1	1	1+digital effects	1

The Digital STL Advantage

- CD-Quality Audio
- Higher System Gain
- Constant SNR
- No Crosstalk
- No Background Noise
- No Phase Distortion
- Degradation-Free Multiple Hops

Open Architecture



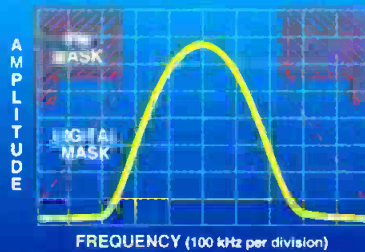
Open and optimal partition of source and channel coder. AES/EBU allows for end-to-end digital connectivity.

25 dB higher system gain translates into significant savings on antenna and transmission line costs.

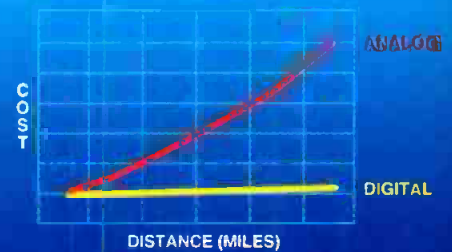
A new transmission technology that has the power to deliver CD-quality audio and solve your STL problems.

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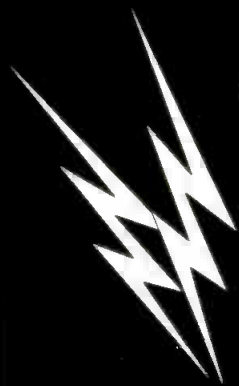
Manufacturer	AVS Broadcast	ECHOLab Inc		Feral Industries	For-A		Grass Valley Group
Model	Integra ⁷	DV-5	SE-6	6119 (6119YC)	VM-100	VPS-510(C)	110/CV ⁹
# pattern generators	13-patterns	1 1/2/39 patterns	2/40 patterns	12 wipes	8 patterns	15 transitions	1 gen/10 patterns
Wipe effects	Yes	Rotary/adj edge	Adjustable edge	Yes	Softness ctrl	Adj edge	Soft edge/adj edge
Spotlight effects	...	Yes	Yes	Yes	No	No	Yes
Border effects	Yes	Yes	Yes	Yes	...	Yes	Yes
Shadow effects	Yes	Opt	Option	No	No	Yes	Yes
Programmable routines	Yes	1 std/5 opt	10/297 keyframes	No	Via edit ctrl	Integral	E-MEM memory
Memory backup battery	...	Yes	Opt	No	...	...	Yes
Diagnostic software	...	Yes	No	Timing test mode	...	...	Yes
Digital effects port	Integral 3-D	Yes	No	No	No	Integral effects	to DPM-100
Automation port	RS-422	No	No	Serial option	RS-422/GPI	RS-422	Serial editor
Input timing adjustment	...	±0.001ms	±0.001ms	0.5dB 8MHz	...	...	Unspecified
Crosstalk at subcarrier	...	-52dB	-51dB	>50dB	<-45dB	production	-54dB DC-5MHz
Link to rack electronics	24-pin D	2 coaxial	Multicore cable	<1.5%/<1%	2%/2%	system	1-line digital
Audio preview function	[4:2:2:4 image	No	No	No	AM-100	for AM-100 mixer	Option
Audio metering	[store permits	No	No	No	Yes	Option	Option
Audio level control	[recursive	No	No	232/422 option	To EC-740/780	Option	Option
Audio mixer interface	[effects	No	No	...	...	Option	to AMX-170S mixer
Edit control interface	Yes	GPI Opt	No	...	...	Option	Option
Reader Service No	387	388	389	390	391	392	393

⁷ 1-6 composite, YCrCb or Y-C; 7-8 also for RGB. ⁸ Six composite or Y/C; -C model uses RGB or YPbPr components. ⁹ 110 composite; 110CV component.

Manufacturer	Grass Valley Group						JVC Pro. Products
Model	200 Composite	200-2CV	KADENZA	MASTER 21	Model 3000 ¹²	Model 4000 (1000)	KM-1600U
Control application	Production/Post	Production/Post	Production	Master control	Production	Production	Production
Standard	NTSC; PAL	YCrCbYUV	NTSC; PAL ¹¹	NTSC; PAL	NTSC	Dig/Analog CAV	S-VHS; Y-C
# inputs	20	20	32 maximum	16 V/stereo audio	to 64	24 (10)	4
Integral matte source	9 generators	9 generators	...	1 Int generator	Yes	Multiple	1 generator
Key sources	6 ext/20 int	16 ext	20 int	32 maximum	4 ext std/5 opt	per input+	24 (10) ext+int
Chroma keyers	to 8 optional	...	Options	1 RGB opt	Yes	Chromatte	RGB
Downstream keyer	Standard	Yes	Yes	Yes	Dual	Yes	Yes
Switching buses	8 prime/4 aux	8 prime/4 aux	10-channel	2 prime	...	10 (3)	2; flip/flop
# switcher M/E amps	1 or 2	2 M/Es	...	1 opt	2 4-layer	2	...
# pattern generators	2 gen 56 patterns ¹⁰	2 gen/56 patterns	2 w/44 patterns	1 w/10 patterns	Dual	2 per M/E	6 patterns
Wipe effects	Rot/S-E/Adj Edge	Rot S-E Adj Edge	Rot/S-E/Adj-Edge	SE/Adj E	User definable	Yes	Soft wipes
Spotlight effects	Standard	Yes	Yes	Option	...	...	No
Border effects	Yes	Yes	Yes	Option	Yes	Borderline edging	No
Shadow effects	Yes	Yes	Yes	Option	Yes	Yes	No
Programmable routines	E-MEM system	E-MEM 30 event	Yes	Event Stacker	E-MEM	Yes	No
Memory backup battery	Yes	Yes	Yes	Yes	Yes	Yes	...
Diagnostic software	Yes	Yes	Yes	Yes	Yes	Yes	No
Digital effects port	...	No	Kaleidoscope	Opt /GVG DPM-100	Yes	For DPM-1	No
Automation port	Serial editor opt	Serial editor opt	Editor option	RS-422	[Inputs from	Yes	...
Input timing adjustment	...	...	...	...	[analog, serial and	Auto ±18µsec	...
Crosstalk at subcarrier	<-54dB	<-56dB DC-4MHz	...	56dB	[parallel	<-50dB 5MHz	...
Link to rack electronics	1-cable 2-port seria	1-line digital	...	Multicore cable	[digital	Digital	...
Audio preview function	No	No	No	Yes	...	...	No
Audio metering	No	No	No	Yes	...	...	No
Audio level control	No	No	No	Yes	...	...	No
Audio mixer interface	No	No	Option	No	...	...	No
Edit control interface	Option	Option	Option	No	]]...	Yes	No
Reader Service No	394	395	396	397	398	399	400

¹⁰ Programmable ((20+4)x16)+32. ¹¹ Supports RGB, YUV SMPTE, YUV Betacam, CCIR 601/656 digital. ¹² Inputs from analog and ser/pal digital; Fineline key processor, Lamina image layering.

Manufacturer	JVC Professional Products			Panasonic		Ross Video Ltd		
Model	KM-2500U ¹³	KM-3000U	KM-D600U\	EGP-7	AS-D700	Model 210A/216A	Model 416 (424)	RVS 630
Control application	Production	Production	Production	Production	Production	Production	Production	Production
Standard	NTSC	M-II; Y/R-Y/B-Y	S-VHS; Y-C	NTSC	Composite digital	NTSC; PAL	NTSC; PAL	NTSC; PAL
# inputs	8	8	4	6 Y-C or encoded	10	8/14	16 (24)	30
Integral matte source	2 gen w/DSK	2 generators	1 generator	3 generators	2	3 generators	6	Yes
Key sources	Ext/Int	1-Ext/1-Int	Ext/Int	6	Ext, Int, Dig. Effects	3-Ext: 8/14-Int	6-E; 14-1	Int/Ext
Chroma keyers	RGB	RGB soft key	RGB	Option	Option	RGB & composite	4-RGB/1-composite	Yes
Downstream keyer	Yes	Yes	Yes	Yes	Yes	Yes	Option	8-lvl Multi-Keyer
Switching buses	3 prime 1 aux	3 prime	2; flip/flop	3	4	3 prime	6 prime; aux avail	2x4 + 12 aux
# switcher M/E amps	1	1	1	2 multilevel keys	2



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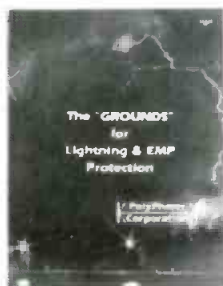
HIGH CURRENT/ENERGY
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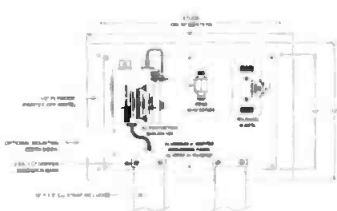
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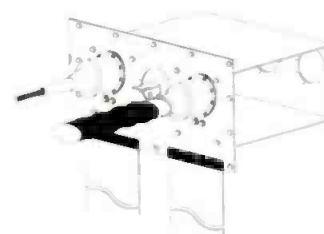
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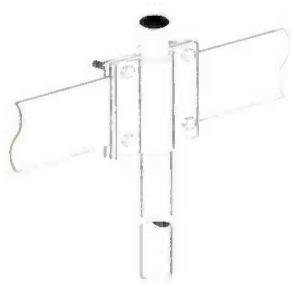
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Manufacturer	JVC Professional Products			Panasonic		Ross Video Ltd		
Model	KM-2500U ¹³	KM-3000U	KM-D600UJV2	EGP-7	AS-D700	Model 210A/216A	Model 416 (424)	RVS 630
# pattern generators	13 patterns	23 patterns	6 patterns	28 patterns	48 patterns	1 w/53 patterns	2 w/64 patterns	2
Wipe effects	S-E/Adj.	S-E/Adj	Soft wipes	Yes	Full edge adjust.	Soft-edge/Adj Edge	Rot/S-E/AdjE	Rot/spin/matrix
Spotlight effects	No	No	No	...	Option	No	No	...
Border effects	Yes	Yes	No	...	Full border effects	Yes	Option	Yes
Shadow effects	No	No	No	...	Optional	No	No	...
Programmable routines	No	16-event	No	Panel setup	Yes	No	(40 event 424)	Yes
Memory backup battery	No	Yes	...	...	...	Yes	Yes	...
Diagnostic software	No	No	No	...	Memory cards	Yes	Yes	Yes
Digital effects port	...	No	Int. dig. effects	No	Option	Yes	Yes	Yes
Automation port	GPI	GPI	[Integrated	Editor only	to AU-A65/-A950	RS-422 option	RS-422 opt	RS-422
Input timing adjustment	...	...	[dual TBC	...	...	...	...	...
Crosstalk at subcarrier	...	...	[for editing	-50dB	...	-53dB	-53dB	<-56dB 4.43MHz
Link to rack electronics	1-line digital	1-line digital	[facilities	Coax	Digital link	Dig 1-line	Dig 1-line	50-conductor
Audio preview function	No	No	[production	Yes	[Options for	No	No	...
Audio metering	No	No	No	VU L/R	[analog and	No	No	...
Audio level control	No	No	No	Yes	[parallel I/O.	No	No	...
Audio mixer interface	No	Yes	No	No	No	No	No	...
Edit control interface	GPI opt.	Serial, GPI	No	RS-422	to AU-A65/-A950	Option	Option	RS-422
Reader Service No	401	402	403	404	149	405	406	407

¹³KM-1200U 4-input switcher with similar characteristics.

Manufacturer	Snell & Wilcox DVS		Sony		Thomson		Utah Scientific
Model	DVS 1000	BVS 3200 (3200C) ¹⁴	BVS 8000 (8000C)	DFS-500	IMPULS	Synonym	MC-500 series ¹⁸
Control application	Digital component	Production	Production	Production	Production	Dig. Prod	Master
Standard	CCIR R-601 4:2:2	NTSC/PAL (RGB/YC _R C _B)	D-2 (D-1)	NTSC; S; Y/R-Y/B-Y	4:2:2 digital	D-1	NTSC; PAL
# inputs	8 10-bit serial	8 composite ¹⁴	24	4	16	24 D-1 component	30 A/V + 8A
Integral matte source	Yes	4 generators	4 generators	Multiple	Yes	Yes	1 generator
Key sources	...	3 ext/8 int ¹⁵	24	Int/Ext	Int/Ext	10 inputs	3 ext; 1 int
Chroma keyers	...	1 RGB	1 RGB	...	Yes	Yes	None
Downstream keyer	...	Yes	Yes	Yes	...	Multilevel	None
Switching buses	4	4 prime 0 aux	4 prime 4 aux	2	5 prime	7+	2 prime/1 aux
# switcher M/E amps	Yes	1	2 w/2 keyers each	1	Multiple	Multiple	1
# pattern generators	Various patterns	1 w/18 patterns	1 w/18 patterns	1	Multiple digital	4 gen	1 w/4 patterns
Wipe effects	Yes	Soft-edge/adj edge	Various	Soft edge/border	Yes	64 patterns	Soft-edge
Spotlight effects	...	No	...	...	Yes	Yes	No
Border effects	Yes	Yes	Yes	Limited	Yes	Yes	Yes
Shadow effects	...	Yes	Yes	...	Yes	Possible	Yes
Programmable routines	Yes	E-File registers ¹⁶	Yes	Yes	Yes	with MEMBOX	Opt 99 routines
Memory backup battery	...	No	No	...	Yes	[270Mbit/s	Yes
Diagnostic software	...	Yes	...	...	Yes	[data stream	Yes
Digital effects port	...	Yes ¹⁷	Link to DME-5000	...	Yes	Yes	No
Automation port	RS-422	No	Yes	FroM/Editor	Yes	RS-422	for TAS
Input timing adjustment	per CCIR 601	...	...	...	Automatic	...	...
Crosstalk at subcarrier	...	-54dB	...	<-50dB 4.43MHz	...	[Keyers use	-60dB
Link to rack electronics	...	Digital/RS-422	Digital/RS-422	[Includes digital	...	[autophasing	Multicare
Audio preview function	No	No	No	[effects functions	No	[over 15 to	Yes
Audio metering	No	No	No	[accessible with	No	[40µs	LED
Audio level control	No	No	No	[editor or BVS-	No	...	Yes
Audio mixer interface	No	No	No	[3000 switcher.	No	...	8x3 matrix
Edit control interface	via RS-422	Yes	Yes	BVE-9100	Yes	RS-422	No
Reader Service No	408	409	410	411	412	413	414

¹⁴3200C is RGB/Betacam component. ¹⁵Any input on key bus may be assigned as an internal key source. ¹⁶10 E-File registers std. may be sequenced from M/Editor. ¹⁷Dedicated RS-422 control of DME 450. ¹⁸MC-501C, M502B; 30-210 V/A + 8 A only inputs; SAP; Dynabus interface.

Manufacturer	Utah Scientific		VGV		Videotek		
Model	PVS2-224 ¹⁹	PVS2-224 ²¹	D2500 (D3200)	DX120 (DX300)	PDG-418	Prodigy ²⁵	Prodigy C ²⁵
Control application	Analog	Production	Dig. Prod	Dig. Prod	Production	Production	Production
Standard	NTSC composite	NTSC	D2; D3; Analog	Digital NTSC/PAL	NTSC	NTSC; PAL	NTSC; PAL
# inputs	24	24	10 to 20 ²²	10 (23) ²⁴	16	8	8
Integral matte source	Yes	1 generator	8+2 ²²	Yes	Yes	1 generator	1 generator
Key sources	6 linear	12-inx6 keyers	10 ext 20 int	15 (10)	Linear	3 ext 8 int	3 ext 8 int
Chroma keyers	Yes	Analog	RGB; R-Y/B-Y	Optional	RGB-Y/R-Y/B-Y opt	RGB Opt	RGB Opt
Downstream keyer	Yes	Analog	...	Yes	Yes	Yes	Yes
Switching buses	3 A/B+Key 2 Aux	3 prime/2 aux	5 prime/4 aux	8 (11)	3 prime	3 prime	3 prime
# switcher M/E amps	2	2	3, multilevel keys	(3 multilevel)	1 ME	1 ME	1 ME
# pattern generators	42 patterns	1 w/42 patterns	6 w/100 patterns	20 (...)	24 pat/programmable		
Wipe effects	Yes	Full feature	Rot/S-E/Adj E	Yes	Soft-edge/adjustable edging		
Spotlight effects	Yes	Yes	Yes	...	...	Yes	Yes
Border effects	Soft/hard	Soft/hard	Option	Options	Yes	Yes	Yes

Manufacturer	Utah Scientific		VGV		Videotek		
Model	PVS2-224 ¹⁹	PVS2-224 ²¹	D2500 (D3200)	DX120 (DX300)	PDG-418	Prodigy	Prodigy
Shadow effects	...	Yes	Option ²⁵	Options	No	No	No
Programmable routines	AMES ²⁰	250 event	EZMEMthan 100	EZMem system	100 routines	100 routines	100 routines
Memory backup battery	3.5" disk	Yes	Yes	...	Yes	Yes	Yes
Diagnostic software	Yes	...	Yes	...	Yes	Yes	Yes
Digital effects port	Yes	No	Yes	Option	Key loop	Option	Option
Automation port	Router/peripherals	AMES system	RS-422	RS-422/GPI	Data Transfer	Option	Option
Input timing adjustment	-0.5dB to 8MHz	...	...	...	10MHz	...	...
Crosstalk at subcarrier	-55dB	-55dB	...	...	<-54dB 4.43MHz	<-60dB	<-60dB
Link to rack electronics	0.5"/0.5%	Multicore	1-line digital	1-line digital	<0.5"/0.5%	...	...
Audio preview function	...	...	No	No	AFV stereo	Yes	Yes
Audio metering	No	No	No	No	No	No	No
Audio level control	GPI	No	No	No	No	No	No
Audio mixer interface		No	No	No	No	No	No
Edit control interface		8 GPI in	Option	Option	Yes	Yes	Yes
Reader Service No	415	416	417	418	419	420	421

¹⁹PVS2-112 12-input with 4 keys; PVS2-212 12-input with 5 linear keys with 12 inputs each; hot-keys recall presets. ²⁰Automated Memory Effect System. ²¹AMES (Automated Memory Effects System); PVS2-112 12-input system with 4 keys. ²²D3200 includes 20-input phantom analog package; digital inputs are 8-10 bit parallel or serial. Eight complex function generators with two paint-type generators. ²³Includes flying the entire screen. ²⁴8-to-10-bit inputs for DX300; both systems use 16/32-bit internal processing. ²⁵Prodigy/P PAL composite; Prodigy C 525/60 analog component; Prodigy C/P 625/50 analog component.

Video Editing Controllers

Manufacturer	Abekas Video Systems	Accom	ALTA Group	Ampex Corporation	Ampex Corporation	Amtel Systems	BTS	Calaway Editing
Model	A34 Solo ¹	Axial 2020	Pyxis (E)	ACE 25 ⁴	DCT 700e ⁶	E-Pix	BBE-910 ⁷	CD-400
Suggested for	On-line	On-line	On-line	On, Off-line	On/Off-line	Off-line	On/off-line	On-line
Editing type	Linear	Non-linear	A/B roll	Linear	Linear	Non-linear	...	...
Transports controlled R P	2-R/4-P	48 devices	1R 2P	1R, 3P	7 total	8 R, 8 P	1R/3P	13 VTRs
Videodisc interface	No	Yes	...	No	No	Yes	No	...
Control uP type	Centralized	Proprietary	...	80286 PC	Proprietary	Distributed	Centralized 8-bit	80386/DOS
# events (internal storage)	512	...	None	1000	3000-line	2000	128	9999-line
External event storage	FD	MO disk	[Dual-channel	FD dual 3.5"	FD dual 3.5"	Floppy disk	None	FD
Edit decision list	Yes	Yes	[TBC facility	Yes	to 3000 lines	Yes	Yes	TurboTrace+
Edit data display	CRT	CRT	[(E) includes	CRT	CRT	CRT	CRT	CRT
Printer interface	3.5" disk on PC	36-pin	[Synchronizers	RS-232 ser/par	Serial/parallel	Centronics parallel	None	Yes
Command entry via	Keyboard	Keyboard	Control panel	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard
Deck motion control via	KB/Joystick ²	Trackball	None	Keyboard, Knob	Keyboard/Knob	Joystick	Keyboard/knob	Knob
Assemble edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insert edit	Yes	Yes	...	Yes	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
A B sync roll	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Animation mode	No	Yes	[Includes audio	No	...	Yes	...	Yes
Integral TC reader	No	...	[& video mix	No	No	No	Yes	...
Integral TC generator	No	...	[capability	No	No	No	No	...
Time reference support for	LTC VITC Ctl-Trk	LTC	None	LTC VITC CtlTrk	LTC VITC CtlTrk	LTC VITC	LTC VITC CtlTrk Sync	...
Color framing	Yes	Yes	...	Yes	Yes	Yes	NTSC/PAL	NTSC/PAL
Editing accuracy	1 TC ±2 CtlTrk ³	...	...	0 TC ±1 CtlTrk	0 TC ±1 CtlTrk	±0 TC	±0 TC/±2 CTL	...
Interfaces available	AF mixer, Vid EFX system	Various	...	AF Vd Xtch ATR, Ser/Par interface ⁵	AF Vd Xtch/ATR, Ser/Par interface	AF mix VD xtch, ATR Titler	Switcher/mixer, GPI equipment	VTR, TBC
Control protocol	RS-422/GPI	Ethernet, RS422/232/-GPI	GPI triggers	RS-232	RS-422	GPI	RS-232	RS-422
Reader Service No	422	423	424	425	426	427	428	429

¹Combines editing control with 8-input A/V switcher, 2-D digital effects, 3 TBCs, flying bus, luma and DSK keying. ²Or thumb wheel control. ³Daccuracy dependent upon VTRs used in the system. ⁴ACE-200 (20 GPIs, 16 devices), ACE 10 (4 GPI, 2P/1R VTRs), ACE Micro (4 GPIs, 4VTRs) have characteristics similar to the ACE 25 system. ⁵ACE-MIF, digital effects system on GPI. ⁶Part of "Digital Component Technology" production system. ⁷BBE-600 scaled down version with fewer VTRs and reduced effects type control.

Manufacturer	Calaway Editing	CMX	CV Tech.	Digital F/X	EMC ⁸	ETC ⁹	FOR-A	Grass Valley
Model	CE-210 (CE-110) ¹⁰	OMNI-1000 (-500)	Edit Master	Video F/X ¹¹	EMC ¹²	Ensemble Pro 5 ¹³	EC-740	Saber 4100
Suggested for	On-line	On/off-line	On-line	Post-Prod suite	Off-line	On-line	On-line	On/Off
Editing type	...	...	Linear	Non-linear	Non-linear	Non-linear	Linear	Lin/non-lin
Transports controlled R P	8 (4)	9 (5) transports	1R 4P	To 4	Opt configs	5 transport	1R, 2P	12-36 devices
Videodisc interface	...	...	...	...	Option	...	...	Yes
Control uP type	80286/DOS	68020	80286, 68000	Macintosh IIci min. PC	PC	80386/486	...	Motorola/TI

Manufacturer	Calaway Editing	CMX	CV Tech.	Digital F/X	EMC ⁸	ETC ⁹	FOR-A	Grass Valley
Model	CE-210 (CE-110) ¹⁰	OMNI-1000 (-500)	Edit Master	Video F/X ¹¹	EMC ¹²	Ensemble Pro 5 ¹³	EC-740	Saber 4100
# events (internal storage)	3000-line (1980)	999,999	900	...	...	10 active EDLs	1-event	...
External event storage	FD	3.5 FD/40M HD	Floppy disk	3.5" FD	FD	Per PC	None	3.5"
Edit decision list	TurboTrace+	Yes (10,000 lines)	Yes	Yes	Yes	2000/EDL	No	Yes
Edit data display	CRT	CRT/X-Windows	CRT	Multi-window CRT	RGB CRT		LED displays	X-Windows CRT
Printer interface	Yes	RS-232	via PC	...	RS-232	COM1/LPT1	None	RS-232
Command entry via	Keyboard	Knob/keyboard	Keyboard	Keyboard/trkball	Keyboard	Keyboard	Keyboard	Keyboard
Deck motion control via	Keys	knob	Knob/keyboard	Keyboard	Keyboard/trkball	Keyboard	Keyboard/trkball	Knob
Assemble edit	Yes	Yes	Yes	Yes	Option	Yes	Yes	Yes
Insert edit		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	4-ch AF	Yes	Yes	Yes	Yes	Yes
A B sync roll	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes
Animation mode	Possible	Yes	...	Yes	No	...	...	Yes
Integral TC reader	...	² interfaces	Yes	...	No	...	...	...
Integral TC generator	...	² interfaces	Yes	...	No	...	...	...
Time reference support for	...	LTC/VITC/Film	VITC/LTC	LTC/VITC	LTC	LTC	...	...
Color framing	NTSC & PAL	Yes	...	Yes	Yes	Yes	...	Yes
Editing accuracy	...	0	...	0 frame error	...	0	±2	±0 frames
Interfaces available	A/V mixers, TBC	VTRs, 9 ports, 16 GPI	Various	Integral system	Various	Various	Various	RS-422 SCSI/Ethernet
Control protocol	RS-422	CMX, ESBUS	...	...	...	...	GPI, RS-422	RS-422
Reader Service No	430	431	432	433	434	435	436	437

⁸Editing Machines Corporation. ⁹Editing Technologies Corporation. ¹⁰Related systems include CE-25 cuts only, CE-75 A/B roll with 999-line EDL. ¹¹Soft F/X companion package for stand-alone creation of edit list, graphics off-line with Macintosh II computer. ¹²EMC¹ hard-disk based; EMC² MO optical disks for source material; EMC-PC is editing software only for PCs/compatibles. ¹³Also Pro3 3-VTR A/B roll; Pro2 cuts only.

Manufacturer	Grass Valley Group		JVC Professional Products		NEC America	OLE Partnership	Paltex	
Model	VPE-141 (241) ¹⁴	VPE-251	RM G86U	RM-G870U	VUES	Lightworks	EDDi series	Europa Europa Plus
Suggested for	On, Off	On-line	Off-line	Off-line	On-line	Off-line	On-/Off-line	On-/Off-line
Editing type	Linear	Linear	Linear	Linear	...	Random access	Linear	Linear
Transports controlled R P	1-R, 6-P	14 VTRs	1-R, 1-P	1-R, 2-P	...	Equip of 5 VTRs	2 or 3 transports	8-16 machines ¹⁵
Videodisc interface	No	...	No	No	...	...	EDD/SID	Option
Control uP type	DEC CPU	DEC CPU	...	...	Macintosh IIx	...	80386+ PC	Multiple
# events (internal storage)	2000 (8004)	16,000	1 event	128	...	...	999-line	3100-event
External event storage	FD, papertape	FD, papertape	None	None	...	FD	3.5" in PC	Floppy disk
Edit decision list	Yes	Yes	No	No	Yes	Yes	Yes	7000 lines
Edit data display	CRT	CRT	LED display	CRT display	Macintosh CRT	CRT.1	Via MS Windows	E-Screen CRT
Printer interface	RS-232	RS-232	...	RS-232C	via Macintosh	...	COM/LPT:	RS-232
Command entry via	K2 or K3 types	K2/K3 keyboard	Keyboard	Keyboard	Keyboard	Kybrd	console	Keyboard/mouse
Deck motion control via	KB w/jog knob	KB or jog knob	Knobs	Knobs	Keyboard	Console	Keyboard/mouse	Shuttle knobs
Assemble edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insert edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	No	Yes	...	Yes	Yes	Yes
A B sync roll	Yes	Yes	No	Yes	...	Yes	Pro & visiorPro	Yes
Animation mode	Option	Yes	No	...	Single frame	Yes	...	Yes
Integral TC reader	No	No	No	...	based on VSR-11	...	...	Yes
Integral TC generator	No	No	No	...	Solid-state	...	No	No
Time reference support for	Accepts mixture	Accepts mixed	CtlTrk	LTC VITC	recorder with	LTC VITC	LTC CtlTrk VITC	LTC CtlTrk VITC
Color framing	Yes	Yes	N	Yes	[34s memory, ...	Yes	No	...
Editing accuracy	...	±0 TC, ±1 CT	±2 CtlTrk	±0	[expandable to	...	±0 TC	±0 TC/±1 CtlTrk
Interfaces available	AFMixer VidProd switcher, Still store. Multitrack-ATR, Titrer, Dig EFX	...	...	...	[136s.	Various	GPI	AF/V/D, TELC/Still store. ATR, title Dig EFX
Control protocol	RS-422	RS-422	Other	RS-422	RS-422	...	RS-422/GPI Parallel	RS-422/-232 GPI/Parallel
Reader Service No	438	439	440	441	442	443	444	445

¹⁴VPE-131 supports four VTRs. ¹⁵Europa permits 4 of 8 VTRs rolled per event; Europa plus 6 for 6 of 12; Europa plus 8 for 8 of 16.

Manufacturer	Paltex International	Panasonic	QUANTEL	Sony		Strassner Editing Systems		
Model	ECS-85	AG-A770 (-A96)	AG-A950	Henry	BVE-600 (BVE-910)	BVE-9100	RM-450	SES PRO
Suggested for	On-line	...	On-line	Concurrent	On (& Off) line	On & Off line	On-line	Both
Editing type	Linear	2-machine	S-VHS MII/D-3 Lin	andom access	Non-linear	Non-linear	Non-linear	Linear
Transports controlled R P	1P 1P (opt ¹⁶)	1R/1P (AG1960)	1R 4P	Int. disk-based	1-R/2-P, 1-R/3-P	2-R/12-P/1	1-R, 1-P	To 7 ¹⁷
Videodisc interface	...	No	No	Option	No	...

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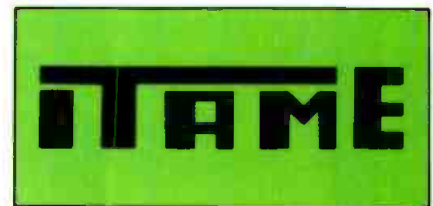
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 - SUPERGALAXY SERIES: from 2 kW to 10kW.
 - Tube-type: 1 kW, 3 kW, 5 kW, 10 kW, 20 kW, 30 kW.
 - AM transmitters: 5 kW, 10 kW, 20 kW.
 - Analog and digital radio links in all bands from 140 MHz to 1700 MHz.
- TURN-KEY SERVICES ANYWHERE IN THE WORLD.

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Manufacturer	Paltex International	Panasonic		QUANTEL	Sony			Strassner Editing Systems
Model	ECS-85	AG-A770 (-A96)	AG-A950	Henry	BVE-600 (BVE-910)	BVE-9100	RM-450	SES PRO
Control uP type	Proprietary	Proprietary	ISA bus	Proprietary	Centralized	Central, Distribute	Centralized	80386/-486
# events (internal storage)	1000 line	128-event (8-)	2000-event	(Multilayer	... (998)	1000	...	2Mbyte
External event storage	Floppy disk	via PC/RS-232 (No)	3.5" disk/PC RS-232C	(capability	Floppy disk	Floppy disk	None	5 1/4/3 1/2
Edit decision list	Yes	...	CMX format	(for up to	No (Yes)	Yes	No	Yes
Edit data display	CRT	TC on LEDs (LCD)	Color CRT	42 layers.	LED (CRT)	CRT	LED	CRT
Printer interface	...	No	Centronics	...	RS-232	RS-232	...	Yes
Command entry via	Keyboard	Keyboard	Keyblard	Keyboard/pad/pen	Keyboard	Keyboard	Keyboard	Keyboard/Knob
Deck motion control via	Shuttle joystick	Shuttle knobs	Mouse, Functions	...	Keyboard	Keyboard	Keyboard	Keyboard/Knob
Assemble edit	Yes	Yes	Yes	(For editing of	No (Yes)	Yes	No	Yes
Insert edit	Yes	Yes	Yes	(short segments	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	Yes, 4-ch audio	(to 5 min total	Yes	Yes	Yes	Yes
A B sync roll	A/B upgrade	No	A/B/C	(CRT display	No (Yes)	Yes	No	Yes
Animation mode	...	...	(Pre-read edits	(of video and	No (Yes)	Yes	No	...
Integral TC reader	SID interface	No	...	(commands;	No (Opt)	Option	No	...
Integral TC generator	SID interface	No	...	(may link to	No (Opt)	Option	No	...
Time reference support for	LTC/VITC/CltTrk	LTC and (CltTrk)	LTC, VITC	(Paintbox	LTC VITC CItTrk	LTC VITC CItTrk	LTC VITC CItTrk	LTC/VITC/CItTrk
Color framing	Yes	...	Yes	(Picturebox and	Yes (Opt)	Yes (Opt)	No	Yes
Editing accuracy	...	...	±0 frames...	(other Quantel	0 TC, ±2 CItTrk	0 TC, ±2 CItTrk	0 TC, ±2 CItTrk	±0 TC
Interfaces available	Numerous	Integral switching	To switching equipment	(devices.	AF mix, Video switcher, ATR, DigEFX	None	None	Various
Control protocol	RS-422/-232	...	RS-422, 2GPI in, 10 GPI out	...	RS-422, GPI	RS-422, GPI	RS-422, GPI, paral 1 for VO, SLO serie VTRs.	RS-232/-422, 6 GPI
Reader Service No	446	447	448	449	450	451	452	453

¹⁶ Upgradable to 6-machine system. ¹⁷ Other models: single source "C"; multi source "D" to 5 VTRs.

Manufacturer	United Media				Videomedia			
Model	MultiTasking	PC 200 (300)	UMI 400 series ¹⁸	UMI 500 (600)	Mickey	Micron (SuperMicron)	V-LAN	VLC-32
Suggested for	On, Off-line	Multimedia	On	Off-line	On, Off-line	On/Off line	On/Off line	On/Off line
Editing type	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear
Transports controlled R P	3; 2-6; 2-9	3 (8) total	2, 3, 4 total	4 (6) total	R/P	R/P	to 31 devices	2-16 transports
Videodisc interface	Yes	...	Yes	...	Option	Option	Option	Option
Control uP type	Multi distributed	80386/-486	Multi distrib	MC68000	Distributed	Distributed	Distributed	Distributed
# events (internal storage)	2000, 3000	2000 per EDL	250	1000 (2000)	400	250	...	500
External event storage	Floppy disk	3.5 Floppy disk	Floppy disk	3.5 Floppy disk	FD	FD	FD/HD	Floppy disk
Edit decision list	Yes	1 (10) list(s)	Yes	Yes	Yes	Yes	Yes	Yes
Edit data display	CRT	MS Windows	CRT	CRT	CRT	CRT	CRT	CRT
Printer interface	RS-232	per PC	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232
Command entry via	Keyboard	Keyboard/mouse	Keyboard joystick	Keyboard	Keyboard, Mouse	Keyboard	Keyboard	Keyboard
Deck motion control via	Keyboard	Keyboard/mouse	Keyboard	Joystick	Mouse	Keyboard	Keyboard	Keyboard
Assemble edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insert edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
A B sync roll	Yes	Yes	Yes	Yes	Yes	(SuperMicron)	Yes	Yes
Animation mode	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Integral TC reader	Yes	...	Yes	...	Option	Option	Optional	Option
Integral TC generator	Yes	Yes	Yes	Yes	No	No	Optional	No
Time reference support for	LTC VITC CItTrk Tmr	LTC/VITC/CItTrk	LTC VITC CItTrk Tmr	LTC VITC CItTrk	LTC/VITC/CItTrk	LTC/VITC/CItTrk	LTC/VITC/CItTrk	LTC/VITC/CItTrk
Color framing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Editing accuracy	±0 TC ±2 CItTrk	±0 TC	±0 TC, ±2 CItTrk	±0 TC	...	...	...	...
Interfaces available	AF mix Vid switcher, ATR	Various	AF mix, Vid xtch	Various	V-LAN controllable network units ¹⁹			
Control protocol	RS-232/-422/GPI	RS-232/422/8GPI	RS-232/-422/GPI	RS-232/422/6 GPI	RS-232/-422/GPI	RS-232/-422/GPI	RS-232/-422/GPI	RS-232/-422/GPI
Reader Service No	454	455	456	457	458	459	460	461

¹⁸ UMI420 2-VTR, UMI430 3-VTR, UMI440 4-VTR, UMI450 3-VTR w/switcher cl. ¹⁹ VLX modules tie controlled devices to V-LAN network.

Most manufacturers offer numerous other products not included in these listing. Please contact them for additional information on their complete lines.

Are your company's applicable products not listed among the categories included in this Equipment Reference Manual? Either we were unaware of your product line or we failed to receive a response to our questionnaires requesting information.

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Analog Video Recorders

The technical parameters of the various recording formats have been standardized, leaving prospective buyers to select products according to operational features and preferences. The following tables indicate the types of video recorders available, along with their model numbers. We invite you to request information from the manufacturers to learn more about their features before you make your selections for purchasing.

		Betacam SP				M-II		S-VHS		Hi8		Type C	
Manufacturer	Ampex	BTS	Ikegami	Sony	Thomson	Panasonic	Hitachi	JVC	Panasonic	Sony	Ampex		
Camcorder	CVR-300A-400	LCK-391	HL-V55	BVS-300A-400A		AU-410/-410S							
Docking VCR	CVR-5			PVW-1	TTV-3505	AG-7450		BR-S411U BR-S420CU ⁷	AG07450A				
Portable VCR	CVR-35-50	BCB-35-50		BVW-50	TTV-3525	AU-500-520-520S ⁴ -530/-550	VL-S100	BR-S405U	AG-7400				
Field player	CVR-22	BCB-22			TTV-3522				AG-5700				
Studio player	CVR-60-65	BCB-60-65		PVW-2650	TTV-3560-65	AU-A63 ⁵ -62 AU-62H/-63H ⁶		BR-605U, BR-S525U ⁸	AG-7650-7150	SVP-9000			
Studio recorder	CVR-70-75 -D75 ¹ , -85 ²	BCB-70-75 -D75 ¹ , -2800		PVW-2800	TTV-3570-75	AU-65/-665, -65H ⁶		BR-S6 ¹ U/-622U -S811U/-S822U	AG-7750/-7350, AG-1960, AG-7355	EVO-9650	VPR-3/-6/-80		
Reader Service No.	462	463	464	465	466	467	468	469	470	471	472		

¹ VPR-200, -250 use short and medium length cassettes; VPR-300, -350 also accept long cassettes. ² -10, -20 systems support short and medium length cassettes; -18, -28 also support long cassettes. ³ Design follows that of BVW-65 with composite serial digital audio/video outputs for compatibility with D-2 serial digital outputs. ⁴ Extended bandwidth systems including component digital serial interface feature. ⁵ Digital audio channels with DAP-85 processor. ⁶ Design follows that of BVW-65 with composite serial digital audio/video outputs for compatibility with D-2 serial digital outputs. ⁷ Extended bandwidth automatic tracking mode. ⁸ Enhanced series. ⁹ Uses S-VHS-C media. ¹⁰ Variable speed tracking feature.

Digital Video Recorders

		D-1		D-2		D-3		DCT		D-5 ³	
Manufacturer	BTS	Ampex	Sony	BTS	Hitachi	Sony	Panasonic	Ampex	Panasonic	Ampex	Panasonic
Portable recorder				DCR-2	VL-D500	DVR2	AJD-310		AJD-310		"D-5" preliminary
Studio recorder	DCR-100, DCR-500	DVR-2100		DCR-10-18 ² , -20, -28		DVR-20-28 ² , -10	AJD-350	DCT 700d	AJD-350	DCT 700d	specs available
Reader Service No.	473	474	475	476	477	478	479	480	481	482	483

¹ VPR-200, -250 use short and medium length cassettes; VPR-300, -350 also accept long cassettes. ² -10, -20 systems support short and medium length cassettes; -18, -28 also support long cassettes. ³ The "D-5" format designation has not been officially approved by SMPTE.

Videocassette Automation Systems

Dedicated automation systems, not machine sequencers with stand-alone transports.

		ASACA		Odetics		Panasonic Broadcast		Sony	
Manufacturer	Ampex	ALC-6000C	TCS-2000	M.A.R.C. Systems	BVC-1000S LMS	BFC-1Flexicart			
Model	ACR-225	Betacam SP/M-II	Various	M-II/D-3	Betacam SP/D-2	Betacam SP/D-2			
Video format	D-2		6 & external	1 or 2	4 sid/6 max	3 or 4			
# record decks	3-4 & external	1	4-5	6 & external	5	...			
# play decks	3-4 & external	3-4 & external	Multiple	Multiple	2	...			
Multiple outputs	4 simultaneous		Per deck	Per deck	Per deck	Per deck			
Editing features	Full feature		RS-422 Ethernet/ESBus	RS-422	RS-422	RS-422/-232			
Control protocol	RS-232-422		Yes	Yes	Option	Possible			
Record delayed play	Option		Barcode TC/UB	Barcode TC/UB	Barcode TC/UB	Barcode			
Cassette ID	Barcode	Barcode	LTC	LTC	LTC/VITC	LTC/VITC			
Timecode reader	LTC	Per transport	LTC	LTC	LTC/VITC	LTC/VITC			
Timecode generator	LTC	Per transport	LTC	LTC	LTC/VITC	LTC/VITC			
Storage capacity	256-32-min	600	280	107/expandable	1036 D-2	70 small Betacam			
Shortest segment	70 small Betacam	75/4 decks	15s cycle	12s	10-15s	<9s			
Reader Service No.	482	483	484	485	486	487			

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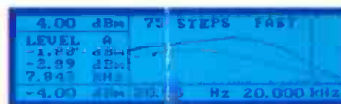
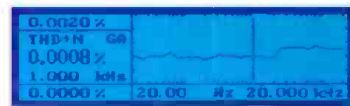
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AUDIO SPECS

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CANADA—Gould Marketing; DENMARK—SC Sound; FINLAND—Nores-Oy;
FRANCE—Cineco; GERMANY—AKG Acoustics; GREECE—Omikron S.A.;
HONG KONG—Ace Co. Ltd.; HOLLAND—TM Audio; HUNGARY—ATEC;
INDIA—Pro Sound; INDONESIA—David Sutedja & Assoc.; ISRAEL—Sontronics;
ITALY—Audio Equipment sri; JAPAN—Otaritec; KOREA—Young Nak So Ri Sa;
NEW ZEALAND—Maser Broadcast Systems, Ltd.; NORWAY—Audiotron S/A;
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Audio Mixers, On-Air

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Manufacturer	AEQ	AMEK Systems & Controls	Arrakis Systems	ATI/Audio Technologies	Auditronics			Audix Ltd.
Model	BC-2000	BC III	15,000 (12000)	Vanguard BC8 (12)	310 series ¹	800.850	Model 210	ACC series
Modular system	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automation port	No	Option	No	Opt	Yes	...	210-ESA ²	Yes
Digital control	No	No	No (...)	Yes	No	...	Yes	...
Mono mix output	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes
Solid-state bus switching	...	...	Yes	Yes	Yes	Yes	Yes	Yes
VCA gain control	...	Option	Yes	Yes	Yes	Yes	Yes	Yes
Pan pots	Yes	Yes	...	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	Yes	Yes	Yes	Option	Yes	Yes	Yes	Yes
Talkback circuit	Multichannel	Yes	Yes	...	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	...	Yes	Yes	Yes	Yes	Yes
Tone oscillator	Yes	Yes	...	No	Yes	Option	...	Yes
Patch points	...	Yes	Yes	No	Yes	Yes	Yes	Yes
# of inputs (total)	14/25/35	12 (20/28)	8 18/28(56)	16-32	16-40	12/18/24	6/12/18/24	24 + 12 Phones
# of mixing buses	4	10 + 4	3 (6)	4	4/8	4 ST/2M	2-ST/2-M	L/R/M
Fader type	Slider	Slider	P&G slider	Rot or slider	P&G slider	Slider	Slider	Slider
Meter type	VU movement	VU PPM	VU/PPM	VU/PPM	VU	VU/PPM	VU movement	VU movement
Input connection	Mic/line	A/T 1.2k/20k	AB	A 20k	A 1k/50k Ω	>20k Ω	for 150/600 Ω	1k/20k Ω
Input range	-84 +20dBv	+26dBu	\pm 20dB	-60/4dBu	...	-65/+10dBu	Mic/line	-70/+5dBu
Output connection	100 Ω source	A/T >50	AB	A 400 Ω	A 60 Ω	<50 Ω source	600 Ω load	<50 Ω source
Output level max	+20dBm max	26dBu	27dB	24dBm	+24dBv	+27dBm	+24dBm	+24dBu
AF response \pm dB/Hz-kHz	30-20kHz	-1 20-20k	\pm 0.5 20-20k	\pm 0.25 20-20k	-0.5 20-20k	\pm 0.3dB 20-20k	-1/0dB 20-20k	\pm 0.5dB 40-15k
THD % \pm dB/Hz	<0.05% +20dBm	0.02	0.006 (0.01)	0.15	0.05%	<0.03%	0.05% +24dBm	<0.1%
S/N Mic EIN/Line dB	-124dBm	-128/81	-126/85(75)	-124/95	-129/84	>100dB +24dBm	-128.5dBm/86dB	-125dBu/80dB
Crosstalk (worst case)	<65dB	<-90	<-75dB 20kHz	-74dB 10k	-65 20kHz	<-70dB +18dBm	<-74dB	<-60dB 40-15k
Reader Service No	501	502	503	504	505	506	507	508

¹Expands in groups of 8.

Manufacturer	Audix Ltd.	Autogram			Broadcast Audio	Broadcast Electronics	D&R Electronica	Harrison _{GLW}
Model	ALB systems	IC-10 (LC-10)	Pacemaker 1032	R/TV-20 ²	Series VI*	AirTrak 90	Aircorn (Airteq)	AIR 790
Modular system	Yes	No	No	No	Yes	Yes	Yes	Yes
Automation port	...	No	...	Option	Yes	Limited	No	VSI editor port
Digital control	No	No	No	Option	No	No	No	Yes
Mono mix output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Solid-state bus switching	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
VCA gain control	Yes	No	Yes	Yes	No	Yes	No (Yes)	Yes
Pan pots	Yes	No	...	No	Option	No	Yes	Yes
Machine starts/stops	Yes	...	Per mix position	Yes	Yes	Yes	Yes	Yes
Talkback circuit, Speaker muting	Yes, Yes	... Yes	... Yes	... Yes	Yes, Yes	Yes, Yes	Yes, Yes	Yes, Yes
Tone oscillator	...	...	No	No	Opt	...	Yes	Yes
Patch points	...	No	No	No	Yes	No	Yes	Yes
# of inputs (total)	Various config.	28 stereo	32	34	24 (72)	2x position	16 (12/18/24)	12-28
# of mixing buses	Stereo mono	2	3	3	2 (4)	2	L/R/M +2	6
Fader type	Slider	Rotary (Slider)	VCA sliders	Slider	Slider	Slider	Sliders	P&G slider
Meter type	VU	PPM	bargraph	VU	VU	VU	VU/LED peak	VU
Input connection	1k 20k Ω	B/Unb 50 10k Ω	B/Unb 150-20k	150-20k Ω	A/TB 150/20k	1.5k/10k Ω	2k/10k Ω	AB 1.2k
Input range	Mic/line	-65 +10dBm	-65/+10dBm	-65/+10dBm	-60/10dBv	-60/8dB	Mic/line	-28/-52dB
Output connection	<50 Ω bal source	B/Unb 600 Ω	B/Unb 600 Ω	B/Unb 600 Ω	TB 150 Ω	Bal <100 Ω	47 Ω source	AB/40 Ω source
Output level max	+24dBm	+24dBm	+24dBm	+24dBm	28dBm	+29dB	+6dBu	+24dBm max
AF response \pm dB/Hz-kHz	\pm 0.5/ 40-15k	\pm 1 30-15k	\pm 0.1/ 20-20k	\pm 0.1/ 20-20k	\pm 0.5/ 20-20k	-0.25/ 20-20k	\pm 0.5/ 20-20k	...
THD % \pm dB/Hz	<0.1%	<0.5%	<0.05%	<0.05%	0.007	<0.05%	<0.02%	...
S/N Mic EIN/Line dB	<-125dBm >80dB	-120dBm EIN	>90dB	-118dBm	80dB	>90dB	>90dB	...
Crosstalk (worst case)	<-70dB	...	...	...	-80dB 15k	>80db	<-100dB 1kHz	...
Reader Service No	509	510	511	512	513	514	515	516

²Rmt Ctl for all Channels.

Manufacturer	Harrison ^{GLW}	ITAME	Logitek		LPB Inc		MBI Broadcast Systems	Pacific Recorders & Engineering
Model	AP-100	Sierra 13S	Stereorack	TR2 (Mariner ³)	CITATION II	SIGNATURE III	Series 30	Radiomixer
Modular system	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Automation port	...	Yes	No	No	No	No	Yes	No
Digital control	Yes	No	No	No	No	No	Yes	No
Mono mix output	Yes	Yes	Yes	Yes	Yes	Opt	Yes	Opt
Solid-state bus switching	Yes	Yes	Yes	No (Yes)	No	No	Yes	...
VCA gain control	DCA	Yes	Yes	No (Yes)	No	No	Yes	Yes
Pan pots	No	No	No	No	No	No	Yes	Yes
Machine starts/stops	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Talkback circuit, Speaker mute	... Yes	Yes, Yes	Yes, Yes	... Yes	No, Yes	No, Yes	Yes, Yes	Yes, Yes
Tone oscillator	...	No	Yes	No	No	No	Yes	No
Patch points	Yes	No	...	...	No	No	Yes	Yes
# of inputs (total)	24 typical	16	11 line+1	36	30/3/ch	18-36	8/12 module frames	12/20/28
# of mixing buses	3	8	2	2 (2ST+1)	2	2	4+1 stereo	3
Fader type	P&G slider	Slider	Rotary	Slider	Slider	Rotary	Slider	Slider
Meter type	VU	VU/PPM	VU movement	VU	VU	VU	VU/PPM	Sifam R32 VU
Input connection	...	TB	Mic/line	AB 10k Ω	TB 150/600 Ω	TB 150/600 Ω	Mic/line	AB >30k Ω
Input range	...	-30/20dB	-25dBv /+23dBm	-60/23dBu	-65/-10dBm	-65/+10dBm	...	-70/+9Bu
Output connection	...	TB	600 Ω load	AB 60 Ω	TB 600 Ω	TB 600 Ω	2K Ω min load	AB 80 Ω source
Output level max	...	15dB	23dBm	+23dBu	+22dBm	22dBm	+22dBu	+26dBm
AF response \pm dB/Hz-kHz	...	0.1 30-20k	\pm 0.3dB 20-20k	\pm 0.25 20-20k	1.0dB 20-20k	10 20-20k	\pm 0.5 40-20k	-0.7 20-20k
THD %/+dB/Hz	...	0.1	0.02% +23dBm	0.006%	0.04% 22dBm	0.05	<1% +16dBu	<0.01
S N Mic EIN Line dB	...	75dB	122dB/72dB	90dB	>75dB	75dB	-128/80dB	-128/88
Crosstalk (worst case)	...	80dB 400Hz	-80dB	...	Below noise	-61dB 1kHz	<-75dB	-80dB 1kHz
Reader Service No	517	518	519	520	521	522	523	524

³System is waterproofed.

Manufacturer	Pacific Recorders & Engineering	PKE Int'l	Radio Systems	SEEM Audio	Sonosax Switzerland	Sony	Soundcraft	
Model	Stereomixer	MC-200	RS-6 (12/18)	SEELECT	SX-V	MXP-2900	SAC 100	SAC 200
Modular system	Yes	Yes	No	Yes/assignable	Yes	Yes	Yes	Yes
Automation port	No	No	No	mP-base	Opt	Opt	No	Yes
Digital control	No	No	Yes	Yes	Opt	No	No	No
Mono mix output	No	...	Yes	Yes	Yes	...	Yes	Yes
Solid-state bus switching	Yes	Yes	Yes	Yes	No	Yes	No	No
VCA gain control	No	...	Yes	Yes	Option	...	No	Yes
Pan pots	Yes	No	No	...	Yes	Yes	Yes	Yes
Machine starts/stops	Yes	Yes	Yes	Yes	Option	Yes	Yes	Yes
Talkback circuit, Speaker mute	Yes, Yes	Yes Yes	Yes, Yes	Yes, Yes	Option, No	Yes, Yes	Yes, Yes	Yes, Yes
Tone oscillator	Yes	No	No	Yes	Yes	Yes	...	Yes
Patch points	Yes	...	Yes	Yes	Yes	Yes	...	Yes
# of inputs (total)	16	8/12/16	12-36	46	10	2x positions	12	32-48
# of mixing buses	1	Main/Aux	3	L/R M/Aux	3	3	...	3
Fader type	Rotary	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Meter type	VU	LED VU	VU; LED Peak	On-CRT	VU; LED peak	LED	LED (VU/PPM)	VU/PPM
Input connection	AB (40k)	...	A 10k	Mic/line	AB 10k Ω	TB 1.2k/10k Ω	A 2k/10k Ω	A 1k/10k
Input range	-10/8dBv	-60dBm mic	-60/10dBm	...	-85/6dBu	-62 24dBs	Mic/Line	-80/30dBu
Output connection	AB 80 Ω	...	AB 100 Ω	Line	AB 50 Ω	TB <100 Ω	<75 Ω	AB
Output level max	24dBm	+16dBm	22dBm	...	24dBu	+24dB	26dBu 600 Ω	26dBu
AF response \pm dB/Hz-kHz	-0.7 20-20k	0.5 40-20k	\pm 0.25 20-20k	...	\pm 0.5 30-20k	-1.5 20-20k	\pm 0.5 20-20k	\pm 0.5 20-20k
THD %/+dB Hz	<0.01	0.15%	0.02	...	0.01	0.1%	<0.01 10kHz	0.02
S N Mic EIN Line dB	-126/88	75dB	-124/88	...	-129.2dBm	-122/85	-127.5dBu	-128dBm
Crosstalk (worst case)	-70dB 1kHz	...	<-75dB 20kHz	...	80dB 20k	69dB 16kHz	>90dB	-58dB 10kHz
Reader Service No	525	526	527	528	529	530	531	532

Manufacturer	Soundtracs	Studer	Wheatstone Corporation		
Model	FMB console	Studer 970	A-32/A-30	A-500	SP-40 series ⁴
Modular system	Yes	Yes	Yes	Yes	Yes
Automation port	No	No	No
Digital control	No	No	No	No	No

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Joshua Weisberg (left) and Peter Scharff of Scharff/Weisberg in Green Turtle Studios, New York, New York

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Circle (36) on Reply Card

www.americanradiohistory.com

Manufacturer	Soundtracs	Studer	Wheatstone Corporation		
Model	FMB console	Studer 970	A-32 A-30	A-500	SP-40 series ⁴
Mono mix output	Yes	Yes	Yes	Yes	Yes
Solid-state bus switching	Yes	Yes	No	No	No
VCA gain control	Yes	...	No	Option	No
Pan pots	Yes	Yes	No	Yes	Yes
Machine starts/stops	Yes	Yes	Yes	Yes	Yes
Talkback circuitry	Yes	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	Yes	Yes	Yes
Tone oscillator	Yes	Yes	No	Yes	Opt
Patch points	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	Various config.	18/exp x9's	2/position	3/position	2/position
# of mixing buses	L/R/M/4-aux/4-grp	Pgm. Aux	2	3	2+mono
Fader type	Slider	Slider	Slider	Slider	Slider
Meter type	LED	VU/Peak LED	VU	SIFAM VU	VU
Input connection	>3k Ω /10k Ω	A/T >1.6k/10k	...	A BR; Xfmr	AB 150/50k Ω
Input range	+20/+25dB max	-60/21dBu	28dBu max	Mic/line	+26dBu max
Output connection	600 Ω load	T <40 Ω	AB	AB	AB
Output level max	0dB = +4dBu	6.15dBu	27dBu	30dBu max	+29dBu
AF response \pm dB/Hz-kHz	>20-20k	-1/5 4.5-45k	-0.25 20-20k	\pm 0.1 20-20k	\pm 0.1 10-20k
THD %/+dB/Hz	0.02%	<0.03	<0.003%	<0.002	<0.004
S/N Mic EIN.Line dB	-127.9dBm/82dB	<-125/>95	-128/88	-128dBm/90dB	-128/75
Crosstalk (worst case)	<-80dB worst	>80dB	-65dB	-65dB separation	-80dB 1Hz
Reader Service No	533	534	535	536	537

⁴SP-42 portable; SP-44; SP-48.

Audio Mixers, Portable/ENG

Manufacturer	AEQ	AEV		Audio Developments		Comprehensive Video Supply	Comrex
Model	MP-10	BSM 622	MMS 412 series ¹	AD146	AD261 ENG	MM-3100	STLX/SLX ²
Modular system	No	No	Yes	Yes	No	No	No
Mono mix output	Mono only	Yes	Yes	Yes	Yes	Mono only	Yes
Telephone hybrid	Yes	Yes	Yes	No	No	No	Yes
Telephone dial	Yes	No	No	No	No	No	...
Solid-state bus switching	No	No	...	...	...	No	No
VCA gain control	No	No	No	No	No	No	No
Compressor/limiter	No	No	No	Limiting	Limiting	No	AGC
Pan pots	NA	Yes	Yes	Yes	Yes	N.A.	No
Machine starts/stops	No	Yes	Yes	No	No	No	No
Tone oscillator	w/ID	...	...	Yes	Yes	Yes	...
Patch points	No	No	No	...	No	No	No
# of inputs (total)	5	18	8-24	6-12	4	3	4M/2L
# of mixing buses	1	4	4 stereo	A B stereo	R/L	t	1 mono
Fader type	Rotary	Slider	Slider	Slider	Rotary	Rotary	Slider
Meter type	VU	LED	VU	LED	VU/PPM/opt.	LED	VU
EQ types	No	2-band	2-band	3-band		None	None
Filters	No	...	...	HP	HP	Low cut	None
Input connection Ω k Ω	TB 1k Ω	Bal 220 Ω	TB/200-47k Ω	1.5k/10k Ω	Mic/line	1k.27k Ω	Bal 150/500 Ω
Input range	-79/+33dBm	-60/6dB	-77/+6dB			...	-70/+8dBm
Output connection Ω	XLR 600 Ω	Unbal	100 Ω	<50 Ω source	80 Ω source	100 Ω	Bal 600
Output level max	+14dBm	+12dB	+6dB	+24dBm	+24dBm	+16dBm	+24dB clip
AF response \pm dB/Hz-kHz	-0.5 20-20k	-0.1/20-50kHz	\pm 0.1/20-50k	-1/0 20-20k	-1/0dB 20-20k	1.5 40-15k	\pm 0.5 50-15k
THD	...	0.003%	0.003%	<0.5% +15dB	<0.5% 50-20k	<0.01%	0.5%
S/N Mic EIN.Line dB	-121dBm	...	90dB	<-127dB/>75dB	-127dB	<-120dBu EIN	-127dBm/80dB
Crosstalk (worst case)	...	>-65dB	-79dB	<70dB	<70dB	...	...
Weight (portable) lb	9.3	5kg	22lb/24-ch	19.8lb 12-ch	5 lb	4 lb	18 lbs
Power source (portable)	110-220/Nicad	110Vac 12W	220Vac	10 C/12-24Vdc	9 C/10-24Vdc	2 9V alkaline	Vac or Nicad
Reader Service No	538	539	540	541	542	543	544

¹ MMS312 8-24 inputs. ² STLX 2-line Frequency Extender; SLX 1-line Frequency Extender.

Manufacturer	Comrex	D&R Electronica	Fostex	Furman Sound	JVC	Seem Audio A/S	Shure Brothers
Model	Talk Console	Portamix	1840	MM-4AB (MM-8AB)	MI-2000U	SEEPOR ³	FP32 (FP31)
Modular system	No	No	Yes	Yes	No	Yes	No
Mono mix output	Yes	Yes	No	Yes	Yes	Yes	No (Yes)
Telephone hybrid	2-line	No	No	No	No	No	No
Telephone dial	Yes	No	No	No	No	No	No
Solid-state bus switching	Tactile-mem pad	No	No	No	No	No	No
VCA gain control	No	No	No	No	No	No	Yes
Pan pots	No	Yes	Yes	Yes	Yes	Yes	Yes (No)
Machine starts/stops	No	No	No	No	No	Option	No
Tone oscillator	...	No	No	No	Yes	Yes	No (Yes)
Patch points	No	No	No	No	...	No	No
# of inputs (total)	2 mic	4	18	4M/1S (11)	8	8	3
# of mixing buses	...	1	4	3	R/L	1 ST + 4	2 (1)
Fader type	No fader	Rotary	Slider	Rotary	Slider	Slider	Rotary
Meter type	LED	VU movement	LED	(LED)	LED	LED	VU
EQ types	None	...	Parametric	...	3-band	2-band	...
Filters	None	3 HP	Shelving	HP	...	HP/LP	HP
Input connection Ω k Ω	Bal 150/500 Ω	20k bal	3k Ω /16k Ω	A (600 Ω)	Mic/line	AB 8k Ω	TB 1k Ω
Input range	-70/+8dBm	+11dBu max	-10/+25dBV	-75/18dBV(-60/18)	...	Mic/line	Mic/line
Output connection Ω	Bal 600	500 Ω bal	UB 10k Ω	A (200 Ω)	600/10k Ω	<40 Ω source	330 Ω (TB 150)
Output level max	-10/+8dBm	+17dBu	+15dBV	23dBV (21)	0dB	+20dBu	+18dBm
AF response \pm dB/Hz-kHz	300-3kHz	\pm 0.5 10-23k	-1.5/1 20-20k	-3/0 20-20k	-1/0 20-20k	-0.7dB 30-20k	-3/+1(\pm 2) 30-15k
THD	...	<0.05%	0.05%	0.02%	<0.1%	<0.1%	0.25%
S/N Mic EIN.Line dB	...	-129dBu	-125.48	-126/-118dBV	-128dB	-125dBu	-129dBm EIN
Crosstalk (worst case)	...	90dB	65dB	-40dB 20kHz	<-70dB	>90dB	45dB 1kHz
Weight (portable) lb	9 lbs	5.5 lb	70	6 lbs	18 lb	...	2.5 lbs (2.2)
Power source (portable)	120/240Vac	110/220Vac	37W	115/230Vac	120Vac/12Vdc	AC or DC	18Vdc
Reader Service No	545	546	547	548	549	550	551

³Optional remote control.

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Circle (37) on Reply Card

Manufacturer	Shure Brothers		Sonosax		Sony	Soundcraft Electronics	SQN Electronics
Model	FP410 IntelliMix	FP51 (FP42)	SX-PR series	SX-S6 (8:10)	MXP-390	Delta DLX	SQN-4S Ser II ⁴
Modular system	No	No	Yes	Yes	No	Yes	No
Mono mix output	Mono only	Yes (No)	No	Yes	4 mono channels	Yes	Yes
Telephone hybrid	No	No	No	No	No	No	No
Telephone dial	No	No	No	No	No	No	No
Solid-state bus switching	No	No	No	No	Yes	No	No
VCA gain control	Yes	Yes	No	No	Yes	No	No
Pan pots	No	No (Yes)	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	No	No	No	Opt	No	...	No
Tone oscillator	1kHz	Yes	Yes	Yes	...	Yes	Yes
Patch points	No	Yes	No	Yes	...	Yes	No
# of inputs (total)	4	4	2 to 6	6/8/10	20	16-48	4
# of mixing buses	1	1 (2)	2	3	4 channel	3	Stereo pair
Fader type	Rotary	Rotary	Rotary	Slider	Slider	Slider	Rotary
Meter type	LED VU/Pk	VU	VU/LED peak	VU/LED peak	LED	LED	TB meter
EQ types	No	...	...	Swept	4-/3-band	3-band	...
Filters	Low cut	HP	HP	HP	HP	...	Bass cut
Input connection Ω ,k Ω	TB 900 66k Ω	TB 1k Ω	A >10k	A 10k	Mic	line	>2k/10k Ω
Input range	Mic/line	Mic/line	-98/6dBu	-85/6dBu	-60/24dBs	...	-20.0dB
Output connection Ω	TB 100 Ω line	TB 185 Ω	A <50 Ω	A,T <50 Ω	Line	75 Ω	Bal/Unbal
Output level max	+19dBm	+18dBm	21dBu	24dBu	...	+21dBu	18dBm 600 Ω
AF response \pm dB Hz-kHz	-.5/2 25-20k	\pm 2(-3/1) 30-20k	\pm 0.5 30-20k	\pm 0.5 30-20k	...	22-22kHz	-1/0 30-20k
THD	<0.5%	0.4%	0.01%	0.01%	...	<0.006%	...
S/N Mic EIn.Line dB	-128.5dBv EIn	-129dBm EIn	-129.6	-129.2	...	-129dBu EIn	3dB A wtd
Crosstalk (worst case)	...	(-50dB 1kHz)	80dB	-80dB 20kHz	...	>85dB	<80dB 1kHz
Weight (portable) lb	5 lbs	6 lbs	4.88 lbs	14.8lbs	...	...	2.2kg
Power source (portable)	Vac 18Vdc	Vac 27Vdc	3Vdc	9-15Vdc	...	110Vac	8 AA cells
Reader Service No	552	553	554	555	556	557	558

⁴SQN-3M mono; M-S Stereo matrix.

Manufacturer	Stanton	Studer	TASCAM		Telfax Comm.
Model	PMC-1000	961/962	M-108	M208 (M216 M224)	GX series
Modular system	Yes	Yes	Yes	No	No
Mono mix output	...	Yes	No	No	Yes
Telephone hybrid	No	No	No	No	Yes
Telephone dial	No	No	No	No	Touchpad
Solid-state bus switching	Yes	...	No	No	No
VCA gain control	Yes	...	No	No	No
Pan pots	No	Yes	Yes	Yes	No
Machine starts/stops	...	Yes	No	No	No
Tone oscillator	...	Yes	No	No	Yes
Patch points	No	Yes	...	...	...
# of inputs (total)	6	18	8 + 4 line	8 (16/24)	4 mic/2 line
# of mixing buses	3 stereo	6	6	4	1
Fader type	Slider	Slider	Slider	Slider	Rotary
Meter type	LED	VU or PPM	LED ladder	VU/Peak LED	LED
EQ types	4-band	Yes	Hv/Lo EQ	Swept	...
Filters	...	HP	...	...	HP/LP
Input connection Ω ,k Ω	2.2k-220k Ω	1.6k/10k	2.2k/10k/45k	A 2.8k 22k	Mic line
Input range	-60/-10dB	-69/21dBu	Mic/line	-70/24dBV	...
Output connection Ω	250 Ω	<40 Ω	UB 100 Ω	100 Ω	150/600 Ω
Output level max	+4dB/250 Ω	24dBm	16dBV	20dBV	+4dBm
AF response \pm dB Hz-kHz	20-20kHz	-1/0.5 4.5-45k	-1/0.5dB 20-20k	-2/1 20-25k	...
THD	<0.02%	<0.03%	<0.02%	0.025%	...
S/N Mic EIn.Line dB	>85dB	<-125/95	-129dB 74dB	83dB	...
Crosstalk (worst case)	>70dB	<-90dB	<-60dB	<-60dB	...
Weight (portable) lb	27.6 lbs	55-75 lbs	15.4 lbs	18.75 lbs	3 lb
Power source (portable)	120Vac 12W	110/220Vac	110/220Vac	110/220Vac	6 AA cells
Reader Service No	559	560	561	562	563

Audio Mixers, Studio/Production

Manufacturer	ADM Systems		Allen & Heath		AMEK Systems & Controls	AMS Siemens	Applied Research & Tech.	Audiotronics	
Model	Post-Pro (II)	STV consoles	GS3 series	SR series	Classic	Logic 2	Phantom series	400 series	700 series
Modular system	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automation port	Rmt ctl	...	MIDI	For	Yes	Yes	No	Yes	1200 ser. opt
Digital control	No	..	Yes	sound	Opt	Yes	No	No	...
Digital processing	No	No	No	reinforcement	No	Yes	No	No	No
Mono mix output	Yes	Yes	Yes	Yes	Yes	Yes	...	Yes	Yes
Solid-state bus switching	Yes	Yes	No	...	No	Yes	...	Yes	Yes
VCA gain control	Yes	Yes	Yes	...	Opt	Yes	...	Yes	Yes
Compressor/limiter	...	No	No	No	Opt	Yes	No	Yes	...
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	...	Yes	Yes
Machine starts/stops	Yes	Yes	...	No	Yes	Yes	No	Yes	Yes
Talkback Speaker muting	Yes/Yes	Yes/Yes	Yes/Yes	.../Yes	Yes/Yes	.../Yes	Assignable Yes	Yes/Yes	Yes/Yes
Tone oscillator	Yes	Yes	Yes	...	Yes	...	...	Yes	Yes
Patch points	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	8 12 (16)	16/24/32	16/24/expands	24-72	32 (48/64)	112	24 40/56	18-24	24-36
# of direct outputs	...	...	per input	4 groups	40 (56/82)	Multiple	8.8/16	18-24	24
# of mixing buses	L/R/Mon	L/R/M	L/R/Group	6	28	Multiple	20	4 or 8	Var. config.
# of groups.subgroups	(4)	4 group	8	4	2ST 8ST	Various	8+4	...	Var. config.
# of sends.returns	...	2	6 aux/4 ret	4	8mono/8stereo	Multiple	Var. config.	2 S/2 R	Var. config.
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Solo type	...	..	Prelade	PFL	PF/AF/IP	PFL	AFL PFL	In-place	Pre-fader
Meter type	VU movement	VU movement	LED	LED	LED VU/PPM	Bargraph	...	VU/LED peak	VU movements
EQ types	3-band opt.	3-band	2-/3-band	4-band	Parametric	4-band	4-band	Swept	3-band
Filters	HP LP	HP/LP	HP/LP	Hi/Lo	HP	LP	Adjustable	...	LP/HP
Input connection Ω k Ω	Mic line	...	Mic/line	Mic/line	A 20k Ω	/Specifications	...	A 1k/50k Ω	>20k >15k Ω
Input range	...	Mic/line	...	...	-75/26dB	/per AES/EBU	Mic line	-65/8dBu	Mic/line
Output connection Ω	600 Ω load	600 load	>2k Ω load	600/2k Ω load	A T <50 Ω	/I/O analog or	...	A 60 Ω	<30 Ω source
Output level max	+27dBu	+27dBm	+21dBu	21dBv	26dBu	/digital with	...	24dBm	+24dBm
AF response \pm dB/Hz-kHz	\pm 0.4/20-20k	\pm 1/ 20-20k	-1/ 20-20k	-1. 0/ 20-20k	\pm 1/ 20-20k	/20-bit cards	...	/0.5/ 20-20k	\pm 1/20-20k



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AUDIO
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Circle (39) on Reply Card

Manufacturer	ADM Systems		Allen & Heath		AMEK Systems & Controls	AMS Siemens	Applied Research & Tech.	Auditronics	
Model	Post-Pro (II)	STV consoles	GS3 series	SR series	Classic	Logic 2	Phantom series	400 series	700 series
THD	<0.08%	<0.15% 24dBm	<0.008%	<0.05%	0.03%	Direct link	...	0.05%	<0.01%
S/N Mic EIN.Line dB	-129dBm/83dB	-125.5dBu/80dB	-127dBm/80dB	-125dBm/88dB	-127dBm/85dB	To AudioFile	...	-127.5/84	-127dBm/76dB
Crosstalk (worst case)	<-85dB 1kHz	<-72dB	<-80dB	60dB	System dep	...	...	-65dB 20kHz	<-76dB
Reader Service No	564	565	566	567	568	569	570	571	572

Manufacturer	Auditronics	Broadcast Audio	Broadcast Electronics	Fostex	Graham-Patten Systems		Grass Valley Group	Harrison ^{GLW}	
Model	900 series	Series IV ¹	Mix Trak-90	1240 (2440)	D/ESAM 800 ²	ESAM series ²	AMX-170S ²	PRO 790	SeriesTen-B
Modular system	Yes	Yes	Yes	No	Digital edit	Yes	No	Yes	Yes
Cue amp	Yes	Yes	Yes	No	Suite mixer	No	No	...	...
Automation port	Yes	Yes	Yes	No	To editor	To editor	Yes	VSI editor port	Yes
Digital control	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Digital processing	...	No	No	No	Yes	...	No	...	...
Mono mix output	...	Yes	Opt	No	...	Yes	No	Yes	Yes
Solid-state bus switching	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
VCA gain control	Yes	No	Yes	No	Yes	...	Yes	Yes	Digital
Compressor/limiter	Yes	No	No	No	No	No	No	...	Yes
Pan pots	Yes	Opt	Yes	Yes	No	No	No	Yes	Yes
Machine starts/stops	Yes	Yes	Opt	No	...	...	No	Yes	Yes
Talkback/Speaker muting	Yes/Yes	Yes/Yes	Opt/Yes	No/No	No/No	No/No	No/Yes	Yes/Yes	Yes/Yes
Tone oscillator	Yes	Opt	No	No	Yes	No	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of inputs (total)	32	18-48	24-48	24 (48)	To 16	12-16	8/16	12-28	384 max
# of direct outputs	...	3-7	3	12-24	...	12-46	...	To 8-track	Yes
# of mixing buses	4/8	2-4	6	4	4 channels	2	4	6	32/8 stereo
# of groups.subgroups	4 groups	User defined	...	4	...	...	2	4 groups	8 groups
# of sends.returns	...	2R/Defined sends	...	4	...	...	4	2	8 aux send/module
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider	P&G slider	Slider
Solo type	In-place	PF	...	IP	...	...	...	PFL In-place	...
Meter type	VU	VU/peak LEDs	VU/PPM/LED pk	PPM	LED VU	VU analog	VU/PPM/LED pk	VU & LED	LED
EQ types	Swept	Swept	Parametric	Parametric	Dig. parametric	Programmable	Fixed freq	3-band	4-band
Filters	LP/HP	...	HP/LP	...	No	No	LP/HP	LP/HP	LP/HP
Input connection Ω.kΩ	A 1k/50k	A/TB 150/20kΩ	AB >10kΩ	A 7kΩ	...	Opt TB >20kW	A Hi-Z	AB 1.2k	Mic/line
Input range	...	-60/10dBm	-65/13dBu	-70, 15dBV	...	...	-40, 8dBu	-28/-52dB	-70/+24dB
Output connection Ω	A 60Ω	TB 150Ω	A <100Ω	...	...	3/2 20kΩ	A 60Ω	AB/40Ω source	AB/40Ω source
Output level max	+24dBv	28dBm	26dBu	15dBV	...	+8dBu nom.	20dBm	+24dBm max	+24dBm max
AF response ±dB/Hz-kHz	-0.5/20-20k	±0.5/20-20k	-0.25/20-20k	±1/20-20k	...	±0.5/20-20k	-0.3/20-20k	...	-1.5, 2/20-20k
THD	0.05%	0.007% 28dBm	0.05% 0dBu	0.05% 1Hz	...	<0.1% 16dBu	0.03% +4dB	...	<0.005%
S/N Mic EIN.Line dB	-129/84	80dB	-128dBm/90dB	52dB (48dB)	...	dB	89dB	...	-125dBm/79dB
Crosstalk (worst case)	-65dB 20kHz	-80dB 1.5kHz +8dBm	<-80dB 20-20k 0dB	-65dB 1kHz	...	<-82db 15kHz	-75dB/20kHz +4dB	...	...
Weight (portable) lb	...	...	...	53 (88)	...	...	...	...	...
Power source (portable)	...	...	...	33 (45)	...	8	...	...	...
Reader Service No	573	574	575	576	577	578	579	580	581

¹Usable in on-air applications. ²Editing suite mixer system.

Manufacturer	Harrison ^{GLW}	MBI Broadcast Systems	Neotek	NEVE Electronics		Pacific Recorders & Engineering		Philip Drake	Solid State Logic
Model	TV-3 (TV-4)	Series 20	Express	44 series	66 series	Production mixer	STX	PD2000 series	SL 5000M ser ³
Modular system	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	Yes	Yes	...	...	Yes	Yes	Yes	...	Yes
Automation port	Yes	Rmt Ctl	Options	Options	Yes	No	No	Yes	Yes
Digital control	Yes	No	Yes	...	Yes	No	No	Yes	Yes
Digital processing	No	No	No	No	No	No	No	...	No
Mono mix output	Yes	Yes	Yes	Yes	Yes	Yes	Opt	Yes	Yes
Solid-state bus switching	Yes	No	Yes	...	Yes	...	Yes	Yes	Yes
VCA gain control	Yes	VCA	Yes	...	Yes	Yes	No	Yes	Yes
Compressor/limiter	...	Ducking	...	Yes	Option	No	Option	...	Yes
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	Yes	Yes	Option	Yes	Yes	Yes	Yes	...	Opt
Talkback/Speaker muting	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Tone oscillator	Yes	...	Yes	Yes	...	No	Yes	Yes	Yes

Manufacturer	Harrison ^{GLW}	MBI Broadcast Systems	Neotek	NEVE Electronics		Pacific Recorders & Engineering		Philip Drake	Solid State Logic
Model	TV-3 (TV-4)	Series 20	Express	44 series	66 series	Productionmixer	STX	PD2000 series	SL 5000M ser ³
Patch points	Yes	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	36-60 (16-60)	8-48	Per frame size	---	24/36/48	28	156-252	48+8aux	to 96
# of direct outputs	24/48	...	configuration	Yes	per input	8	...	per input	1 per channel
# of mixing buses	2 ST/4 Mono	3	2 main stereo	2+	Main/Aux	3	15	12+	32
# of groups.subgroups	8 groups	2 aux	4 group	4 option	4-8	...	...	12	Variable
# of sends.returns	4	...	2 mono/1 st	...	Multiple	2/2	12/1	8 send	8 S/1 per chan.
Fader type	P&G slider	Slider	Slider	Slider	Flying Fader	Slider	Slider	Slider	Slider
Solo type	AFL/PFL/APFL	...	Pre-fade	...	Yes	Cue	...	AFL/PFL	PF/AF/IP
Meter type	VU & 40-seg LED	VU	VU/LED opts	LED bargraph	Var. opts.	Sifam R32 VU	VU/PPM	VU	VU/PPM/LCD
EQ types	3-band	3-band	4-band	3-band	4-band	3-band	...	4-band	Parametric
Filters	HP/LP	LP/HP	HP	HPFx3	...	...	HP/LP	HP/LP	HP/LP
Input connection Ω ,k Ω	AB	1.2k-20k Ω	Mic/line	Bal	1k 10k Ω	AB >30k Ω	AB 40k Ω	...	T:AB 10kW
Input range	+4dB	...	...	...	-70/+20dB	-70/+9Bu	-15/10dBv	...	-80/+16dBu
Output connection Ω	AB	600 Ω min load	...	Bal	600 Ω TB <30 Ω	AB 80 Ω source	AB 30 Ω	...	AB 30 Ω
Output level max	+4 dB nom	+22dBu	...	...	25.5dBu max	+26dBm	28dBm	...	+28dBu
AF response \pm dB Hz-kHz	...	\pm 0.5 40-20k	...	...	\pm0.5dB 20-20k	-0.7 20-20k	-0.9 20-20k	...	\pm 0.5dB 20-20k
THD	...	<1% 16dBu	...	...	<0.2%	<0.01	<0.1	...	0.08% +24dBu 1kHz
S/N Mic EIN.Line dB	...	-128 >80dB	...	...	-125dBu EIN	-128/88	-127/88	...	-125 dBm
Crosstalk (worst case)	...	<-75dB	...	...	...	-80dB 1kHz	-80dB 1kHz	...	- 80dB/15kHz/+4 dB
Reader Service No	582	583	584	585	586	587	588	589	590

³Configures for on-air operation.

Manufacturer	Solid State Logic		Sony			Soundcraft		Soundtracs	
Model	SL 6000G ser ⁴	SL 8000 G ser.	DMX-E3000	MXP-2000	VSP-8000	BYE 100	Delta 200 (AVE)	Sapphire	ERIC series
Modular system	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	Yes	...	...	Yes	Yes	No	No	No	No
Automation port	Yes	Ultimation	Edit suite mixer	via editor	from editor	VSA24 interface	... (for edit suite)	Yes	No ⁵
Digital control	Yes	Yes	Yes	Yes	Yes	...	No	No	Yes
Digital processing	No	No	Yes	No	Yes	...	No	No	No
Mono mix output	Yes	Yes	...	Yes	48	44.1 or	Yes	Yes	Yes
Solid-state bus switching	No	Yes	Yes	No	32-bit.	No	No	No	Yes
VCA gain control	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes	No
Compressor/limiter	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Pan pots	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	Opt	Yes	...	Yes	...	Yes	Yes	Yes	Yes
Talkback circuitry	Yes	Yes	No	Yes	...	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	...	Yes	...	Yes	Yes	Yes	Yes
Tone oscillator	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	24 to 96	16-96	16/32+2	16-36	16 or 32 dig	8	8-96	64	32-48
# of mixing positions	One	16-108	16	16-36	16 or 32	8	8/16/24/32	32	...
# of direct outputs	Option	per inputs	...	16-36	...	No	per mix pos.	2-32 track	32-48
# of mixing buses	6	4-L/R; 2 LCRS	8x4	4+2	4 out dig	1 pr + mono	1 pr + 6	1 pr	8-24
# of groups.subgroups	1-32, 1-32	24/48	...	4+2-G/4R	...	...	4 subgroups	8 groups	8-24
# of sends.returns	6 S, 8 R	6 aux	...	4S/4R	...	2/2	2 (4)	6	8
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Solo type	PF/AF/IP	Various	...	PF/AF	...	...	PFL	...	PF/AF/IP
Meter type	VU PPM/Plasma	VU & LED	LED bargraph	VU PPM Peak Led	201-seg plasma	LED bar	LED bar	Bargraph/VU	LED peak
EQ types	Parametric	4-band	3-band	Swept	4-band	3-band	4-band	4-band	Parametric
Filters	HP/LP options	HP/LP	HP/LP	HP	HP/LP	HP	HP/LP	HP/LP	Swept HP
Input connection Ω ,k Ω	TB/AB 1k/10kW	Mic/line	XLR 3-31	A/TB10k Ω	XLR-3-31	[Opt Serial Ctl	A 2k/10k	A 2k/15k	AB 710k Ω
Input range	-80/+24dBu	...	Per AES/EBU	+27dBm max	Per AES/EBU	[compatible w/	-80/30dBu	-80/30dBu	-60/+10dB
Output connection Ω	AB 75 Ω	>600 Ω load	600 Ω /preview	A/TB 50 Ω	XLR-3-32	[GVG100	ESAM1	AB 75 Ω	AB 600 Ω
Output level max	+29dBu	...	+24dBs/preview	+25dBm	...	[ESAM2	AMX100	27dBu	27dBu
AF response \pm dB Hz-kHz	\pm 0.5dB 20-20k	...	-0.5/ 2.20-20k	\pm 0.5dB 30-20k	-1/+0.5 20-20k	[protocol.	0.5 20-20k	-0.9 20-20k	-2.0dB 20-20k
THD	0.02% +8dBu 1kHz	...	<0.02%	0.05% 20dB 1kHz	...	...	0.003%	0.005	0.008% 0dB 1kHz
S/N Mic EIN.Line dB	-127.5dBm	...	...	-126dBm EIN	...	...	-127.5/93dB	-127.5dBm	-127.5dBm
Crosstalk (worst case)	-70dB/1kHz/+4dB	...	<-90dB	60dB 15kHz	...	...	80dB max gain	85dB 10kHz	-82dB/1kHz/0dB
Reader Service No	591	592	593	594	595	596	597	598	599

⁴Configures for on-air operation. ⁵ERIC III moving faders.

Manufacturer	Soundtracs Pic	Studer	TASCAM	Trident Audio	Wheatstone Corporation		
Model	IL4832 (3632)	Quartz series	990 series	M-3500	Vector 432	SP-5	SP-6
Modular system	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	No	No	Yes	Yes	Opt	No	No
Automation port	No	Auto muting	Option	...	Yes	No	No
Digital control	No	Yes	Yes	No	No	No	No
Digital processing	No	No	No	No	No	No	No
Mono mix output	Yes	Yes	Yes	Yes	Opt	Opt	Opt
Solid-state bus switching	No	Yes	Yes	No	Yes	No	No
VCA gain control	No	No	Yes	...	Opt	No	No
Compressor/limiter	No	No	...	No	Yes	No	No
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	No	Yes	Yes	No	Yes	No	No
Talkback circuitry	Yes	Yes	...	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	Yes	Yes	Yes	Opt	Opt
Tone oscillator	Yes	Yes	...	Yes	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	...	Yes	Yes	Yes
# of inputs (total)	48 (36)	32-48	80	24/32	40-4	2/input	2/input
# of mixing positions	...	...	per config	24/32	1-4	16-32	16-32
# of direct outputs	48 (36)	32-48	1/channel	...	40-64	Per mix position	Per mix position
# of mixing buses	32	8-24	4+8+4	Program	4-8	1 stereo/1 mono	1 stereo/1 mono
# of groups/subgroups	32 In line	8-24	8	8 groups	32 G/32 S	8M/4S	8M/4S
# of sends/returns	8 S	8	2/channel	6 send/4 ret	8 S/8 R	4/4	4/4
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Solo type	PF/AF/IP	PF/AF/IP	PFL	IP/PFL	PF AF IP	PF	PF
Meter type	LED Peak	LED peak	...	Bargraph	VU/PPM/Peak LEDs	VU	VU
EQ types	Parametric	4-band	4-band	4-band	Parametric/swept	3-band	3-band
Filters	HP	Swept HP	LF/HF	HP	HP/LP	HP	HP
Input connection Ω, kΩ	AB	AB 2kΩ 10kΩ	T/A δ1.6k/δ10kW	Bal 2.2k/16kΩ	AB TB >10kW	AB 10k-20kΩ	AB 10k-20kΩ
Input range	-60/+10dB	-60/+10dB	-70.+20dBu	-67/+4dBm	-20/+70dB dBu	Mic/line	Mic/line
Output connection Ω	AB	AB ...	TB à50Ω	Bal 75Ω	AB/TB 600W	AB 600Ω	AB 600Ω
Output level max	+26dBV	+26dBu	+24dBm	+25dBm	+28dBu	+28dBu	+28dBu
AF response ±dB/Hz-kHz	-2/0dB 20-20k	...	-1/+0.5 30-20k	-1.5/+0.5 20-20k	±0.5dB 10-50k	-0.2 20-20k	-0.5 10-30k
THD	0.008% 0dBV 1kHz	<0.02% 0dB 1kHz	à0.1%	<0.018%	0.03%	0.004	0.005
S/N Mic EIN.Line dB	-127dBm	-127.5dBm/81dB	-125dBm/>100dB	-130dBm/85dB	-128dBm/+70dB	-129dBm/-90dBu	-129dBm/90dB
Crosstalk (worst case)	-82dB/1kHz/0dB	<-85dB	<-85dB	<59dB	<-80dB/0dB	-75dB 1kHz	-100dB
Reader Service No	600	601	602	603	604	605	606

Wireless Microphones


Manufacturer	Audio Limited ¹	Audio-Technica			beyerdynamic			Comprehensive Video Supply
Model	2000 series	ATW1031	ATW1032	PRO 88W	SDM 170/NE 170	TS 170/NE 170	U 700 UHF	HighBand 1500
RF spectrum	140-1000MHz	169-216 MHz	169-216 MHz	169-171MHz	169.5-202.3MHz	169.5-202.3MHz	470-980MHz	203-215MHz
Modulation control	Compression	Compression	Compression	...	...	...	Limiting	...
Companding function	Proprietary	2:1	2:1	...	Low noise	Low noise	LN Compander	Yes
System AF response	50Hz-15kHz	±1 40-16k	±1 40-16k	...	-3 30-18k	-3 30-18k	30-20k	æ3 25-20k
System S/N ratio	>100dB	95dB	95dB	...	102dBA	102dBA	101dB A	...
System distortion	<0.3%	0.5%	0.5%	...	0.5%	0.5%	<0.5%	<0.3%
Transmitter Model:	HX-(HX-)2000	ATW-T31 UniPak	ATW-T32	PRO 88W/T	SDM-170	TS-170	S700 (TS900)	HBT-1500
Transmitter packaging	HH (Pocket)	Pocket unit	Handheld	Pocket	Handheld	Pocket unit	HH (Pocket)	Body pack
RF output	30mW (60mW) ²	30mW	30mW	35mW	50mW	50mW	10mW	50mW
FM deviation	±75kHz max	±15kHz	±15kHz	±15kHz	±15kHz	±15kHz	±50kHz rated	æ16kHz
Microphone support	Various	AT831b/ATM73a ³	ATW-T32-HE ⁴	AT829mW MT830mW	DM 186.04 head	Electret ⁶	various capsules	Lavalier/mini XLR
Auxiliary line input	No (Yes)	Yes	Yes	No	No	No	No	...
Power requirement	DL123A (9Vdc)	9Vdc	9Vdc	9Vdc	9Vdc alkaline	9Vdc	9Vdc alkaline	9V alkaline
Operating weight	4.75oz (3.7)	3.2	3.2	2.8oz	160g	160g	300g (160g)	...
Receiver Model:	RX-(MX-)2000	ATW-R10	ATW-R10	PRO 88W/R	NE 170	NE 170	RR7000 TG12	HBR-1500
RF sensitivity	0.98dBm 40dB SINAD	1µV 60dB quieting	1µV 60dB quieting	6dB 30dB S/N	0.5µV 20dB quieting	0.5µV 20dB quieting	8µV	Adjustable
Spurious rejection	>75dB	60dB	60dB	...	>60dB	>60dB	80dB	60dB
Antenna types	Whip dipole	Whip furnished	Whip furnished	Whip	Dual whips	Dual whips	Dual grnd plane	Softwire
Diversity reception	Yes (No)	Yes	Yes	No (Mounts)	Yes	Yes	w/EED 700 cards	N.A.

Manufacturer	Audio Limited ¹	Audio-Technica			beyerdynamic			Comprehensive Video Supply
Model	2000 series	ATW1031	ATW1032	PRO 88W	SDM 170 NE 170	TS 170/NE 170	U 700 UHF	HighBand 1500
Multichannel	2-channel	No	No	2 [on camera	No	No	12 per unit	No
AF output level	Mic.line	-8dBV Unbal ⁵	-8dBV Unbal ⁵	Mic Lo-Z	-20 +6dBm	-20 +6dBm	-20 +6dBm	600Ω Unb
Power requirement	dc	120ac 12-18dc	120ac 12-18dc	9Vdc	15Vdc	15Vdc	110Vac	9V alkaline
Metered parameters	RF Diversity	AF RF	AF/RF	...	AF RF	AF RF	AF RF	...
Metering types	Meter (LED)	LEDs	LEDs	...	LEDs	LEDs	LEDs	LEDs
Reader Service No	607	608	609	610	611	612	613	614

¹ Available in US through Murry Rosenblum Sound Associates. ² TX 2000HP 250mW and 600mW requires 12Vdc external power. 4-channel system: MX miniature receiver: DX small diversity receiver. ³ Or AT803b, AT857A. ⁴ Or ATW-T32-C condenser type capsule. La. ATM35, AT851a. ⁵ -20dB balanced. ⁶ Suitable for various mic units: phantom power.

Manufacturer	Comtek		HM Electronics		Lectronsonics		Micron Audio Products	
Model	MR-180 M-72	MR-182/M-182	515 (525)	System 55 (50)	Pro-STD-T (-L)	PRO-DIV-L(-T)	MDR530-SH	MDS-2
RF spectrum	169-216MHz	169-216MHz	169-216MHz	169-216MHz	150-216MHz	150-216MHz	170-216MHz	150-216MHz
Modulation control	Compression	Compression	Compression	Compression	Compression	Compression	Limiting	Limiting
Companding function	2:1	2:1 companding	Dynamic expansion		2:1	2:1	CNS type	CNS type
System AF response	±2 50-15k	±2 80-15k	±3 100-15k	±3 100-15k	±1 50-15k	50-15k	±2 50-15k	±2 50-15k
System S/N ratio	95dB	95dB	NRX II	NRX II	96dB A wtd	96dB A wtd	>115dB	115dB
System distortion	0.05%	0.5%	1%	1%	0.7%	0.7%	<0.3% THD	<0.3% THD
Transmitter Model:	M-72 ⁷	M-182	TX550 (555)	TX555 (TX550)	T185 (M185)	M185 (T185)	TX-513 -516	TX-501 (503) ¹²
Transmitter packaging	Pocket	Handheld	Body-Pac (HH)	Body-pac	HH (Pocket)	Pocket (HH)	[-513 switches	Pocket (HH) ¹³
RF output	35mW	50mW	>50mW	>50mW	50mW	50mW	[among 3 freq in	50mW
FM deviation	±30kHz	±30kHz	15kHz max	15kHz max	±15kHz	±15kHz	[1.2MHz range	±15kHz
Microphone support	Elect Dynam Rib	Electret	1.5-5kΩ (dynam)	Dynamic	SM58 (Electret ⁸)	Electret (dynamic)	[-516 switches	Electret
Auxiliary line input	Possible	No	...	No	No (Yes)	Yes (No)	[among 6 freq	Yes (No)
Power requirement	9Vdc	3-AA	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc
Operating weight	4	11	4.7	10	13.2 (5.3)	5.3 (13.2)	8.5	8.5 (11)
Receiver Model:	MR-180	MR-182 ⁸	RX522	RX520	R185	DR185	MDR-530 ¹¹	MDR-540 (-4) ¹³

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Circle (41) on Reply Card

Manufacturer	Comtek		HM Electronics		Lectronsonics		Micron Audio Products	
Model	MR-180 M-72	MR-182 M-182	515 (525)	System 55 (50)	Pro-STD-T (-L)	PRO-DIV-L (-T)	MDR530-SH	MDS-2
RF sensitivity	1μV 45dB quieting	1μV 45dB	1μV 30dB quieting	1μV 30dB quieting	0.5μV 20dB quieting	0.5μV 20dB quieting	2μV 60dB quieting	2μV 60dB quieting
Spurious rejection	80dB	>90dB	>50dB	>60dB	>100dB	>100dB	>80dB	>80dB
Antenna types	Whip dpl multiel acc	Whip dpl multiel acc	Whip BNC	Whip BNC	Whip furnished ¹⁰	Whip furnished	Whips furnished	Dipole
Diversity reception	No	No	No	Yes	No	Yes	Yes	Yes
Multichannel	No	No	No	No	No	No	No	Yes
AF output level	+9dBm	+10dBm	-4dBV	-4dBV	-18dBm	-65.0dBm	-65.0dBm	-53; 0dBV line
Power requirement	6-12dc 50hr	ac/dcV 8W	120ac/12-16dc	120ac/12-16dc	12dc/120ac	12dc 120ac	12-18dc Vac	10-22dc/120ac
Metered parameters	AF/V	AF/RF/V	Vdc/RF	Vdc RF/AF	AF/RF/Vdc	AF/RF/Vdc	AF/RF Vdc	AF/RF/Vdc
Metering types	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs
Reader Service No	615	616	617	618	619	620	621	622

⁷ M-72 base station adapter permanently powers transmitter. ⁸ MRC-82 Camera Companion receiver attaches to camera; connects to camera audio circuit. ⁹ M1B5 also supports dynamic mic units. ¹⁰ Dipole antenna available as an added accessory. ¹¹ MDR-550 mobile diversity receiver offers similar characteristics in portable, compact dc-powered package. ¹² TX100 series does not use CNS noise suppression. ¹³ -4 model does not include noise suppression; multiple element accessory available.

Manufacturer	Nady Systems				Panasonic	Samson Technologies		
Model	2000 VHF	551 VR	750 VHF	950 UHF	WX-RP410 RP700	Broadcast STD	Concert II	MR-1 system ¹⁶
RF spectrum	170-216MHz	170-216MHz	170-216MHz	945-955MHz	UHF (800MHz)	174-199MHz	174-199MHz	174.46-199.6MHz
Modulation control	120dB range	120dB	120dB range	120dB range	...	...	...	...
Companding function	...	...	...	...	...	NRS dbx I/II	NRS dbx I/II	NRS dbx II
System AF response	±0.3 25-20k	±0.3 25-20k	±0.3 25-20k	±0.3 25-20k	...	±3 30-18k	40Hz-15kHz	±3dB 60-12k
System S/N ratio	Hiss mute	...	...	...	...	>115dB	94dB	95dB IHF
System distortion	<0.3%	<0.3%	<0.3%	<0.5%	...	<0.5% 400Hz	<0.5% 1kHz	...
Transmitter Model:	2000 VHF	551VR	750 VHF	950 UHF GT (HT)	WX-RP410	BH-3 (BT-3)	HT-3 (CT-3)	SH-2 (ST-2(L))
Transmitter packaging	Handheld/bodypac	Lavalier	HH; Lav: Instr	Bodypac/handheld	Bodypac	Handheld (Belt)	Handheld (Belt)	Handheld (Belt)
RF output	50mW	50mW	50mW	50mW	30mW	50mW	50mW	50mW
FM deviation	±15kHz	±15kHz	±15kHz	±100kHz	...	±15kHz	±15kHz	±15kHz
Microphone support	Electret	Electret	Electret dym.	Electret	...	Various ¹⁴	Various ¹⁴	Various ¹⁵
Auxiliary line input	...	No	1MΩ input	...	No	No	No	No
Power requirement	9Vdc	9Vdc	9Vdc	9Vdc	AA cells	9Vdc	9Vdc	9Vdc[6-8 hr]
Operating weight	...	...	...	...	7 oz	...	330g (90g)	7.8 oz (5.1)
Receiver Model:	2000 VHF	551VR	750VHF	950 UHF	WX-RP700	BR-3	CR-3X	MR-1 Micro
RF sensitivity	...	1μV	1μV	...	...	15μV 60dB S N	55dBu 60dB S N	15-45dBu
Spurious rejection	to 80dB	to 60dB	to 80dB	to 60dB	...	60dB ±60Hz	-60dB ±100kHz	60dB ±60kHz
Antenna types	Whip	Rubber duck	Whip	Dual whip	Whip	Dual whips	Dual whips	7" Flex whip
Diversity reception	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Multichannel	10	Two	10	10	30	10	No	1 of 10
AF output level	Mic/line	Low Z	...	Mic/line	Line/mic	Bal/unbal 8dBm	Mic/line	Bal/unbal 0dBv
Power requirement	24dc/110Vac	9Vdc	12dc/110Vac	24dc 110Vac	AA cells	110/220ac	12Vdc/110Vac	9V
Metered parameters	RF/AF,+V	+V/TX	RF/AF	RF/AF,+V	Camera mountable	Vdc/RF A-B Ch/AF	Vdc RF A/B	Vdc
Metering types	LED bargraphs	LEDs	LED bargraph	LED bargraphs	...	LEDs	LEDs	LEDs
Reader Service No	623	624	625	626	627	628	629	630

¹⁴ Various mic possibilities include: AKG, Audio-Technica, E-V, Sennheiser, Shure, Sony. ¹⁵ Supports various mics from all major manufacturers in dynamic and condenser types. ¹⁶ SR-22 receiver for Stage 22 series: tabletop package.

Manufacturer	Samson Technologies			Sennheiser Electronics			Shure Brothers	
Model	Super TD	UHF system	VLP system	UHF 1B (1H)	UHF 2B (2H)	VHF 1B-90 (1H)	LS14/839 ²⁰	LS23
RF spectrum	174-216MHz	944-951MHz	174-216MHz	450-960MHz	450-960MHz	174-216MHz	169-216MHz	169-216MHz
Modulation control	...	Yes	...	Compress (limit)	Compress (limit)	Compress (limit)	Compressing	Compressing
Companding function	dbx Type II	dbx Type II NR	Compander	Hi-Dyn	Hi-Dyn	Hi-Dyn	Yes	Yes
System AF response	40Hz-18kHz	50Hz-15kHz	50Hz-15kHz	±3 40(70)-20k	±3 40(70)-20k	±3 40(70)-20k	±2 50-15k	±2 50-15k
System S/N ratio	>104dB	94dB	>94dB	94dB	94dB	+92dB A wtd (94)	...	<13dB SPL
System distortion	<0.5% 1kHz	...	<1% 1kHz	<2%	<2%	<2%	0.3%	0.3%
Transmitter Model:	CH-2 (TX-3)	JH-4 (UT-4)	VT-1	SK-2012-TV (SKM 4031)	SK-2012-TV (SKM 4031)	SK-2012-90 (4031-90)	L11	L2
Transmitter packaging	HH (Belt)	Handheld (Belt)	HH (Belt)	Pocket (handheld)	Pocket (handheld)	Pocket (handheld)	Pocket	Handheld
RF output	50mW	50mW	50mW	20mW	20mW	30mW	50mW	50mW
FM deviation	15kHz	20kHz	15kHz	±40kHz	±40kHz	±40kHz nom.	±15kHz	±15kHz
Microphone support	Various	Various ¹⁷	...	Electret (MKE-2/-40)	MKE-2/-40	MKE-2/-40	Electret 839W	58; 96
Auxiliary line input	No	(UT-4)	No	No	No	No	No	No

Manufacturer	Samson Technologies			Sennheiser Electronics			Shure Brothers	
	Super TD	UHF system	VLP system	UHF 1B (1H)	UHF 2B (2H)	VHF 1B-90 (1H)	LS14.839 ²⁰	LS23
Model								
Power requirement	9Vdc	9Vdc	9Vdc	4.5V 3-AAA cells	4.5V 3-AAA cells	4.5Vdc 3-AAA	9Vdc	9Vdc
Operating weight	15.9oz (4.3oz)	205g (141g)	4.6oz (5.4oz)	7 oz (9 oz)	7 oz (9 oz)	7 oz (9 oz)	5.5oz	10.4 oz max
Receiver Model:	RX-3	UR-4	VR-1	EK-2012-TV ¹⁸	EM 2003-TV	EK-2012-90 ¹⁹	L4 MARCAD	L3
RF sensitivity	7dBu 60dB S/N	15dBu 60dB S/N	15-45dBu	<20µV 40dB quietn	<10µV 40dB quieting	<20µV 40dB quieting	0.45µV 12dB	0.35µV 12dB
Spurious rejection	-60dB ±40kHz	-60dB ±150kHz	-60dB ±60kHz	>70dB	>80dB	>70dB	75dB	75dB
Antenna types	Dual whip	Dual tuned whips	Single whip	Whip furnished	Whip furnished	Whip furnished	Whip furnished (2)	Whip furnished (2)
Diversity reception	Yes	Yes	No	No	Yes	No	Yes	No
Multichannel	1 of 14	1 of 7 possible	1 of 14	Option	Yes	No	No	No
AF output level	Line	Mic/line	Mic	-26/+6dBm	-28/+12dBm	-26,+26dBm	0dBm	-2dBv
Power requirement	110Vac	110Vac	12Vdc	4.5Vdc 3-AAA cells	12-24Vdc 117Vac	4.5Vdc	12-18Vdc	12-18Vdc
Metered parameters	AF RF Power	RF AF	Vdc RF A B	None	AF/RF	None	AF/RF/V/Div	AF/RF/V
Metering types	LEDs	LEDs	LEDs	...	LEDs	...	LEDs	LEDs
Reader Service No	631	632	633	634	635	636	637	638

¹⁷ Supports various mics from all major manufacturers in dynamic and condenser types. ¹⁸ Camera mounted receiver. ¹⁹ VHF camera mount receiver. Model WM 1 wireless mixer may be used; 4 of 5 channels include wireless receivers with Hi/Lo EQ, 70Hz cutoff, prefader listen features. ²⁰ Various other systems available combining L11 transmitter with other microphone instruments.

Manufacturer	Sony Pro Audio	Switek			Telex Comm.	Vega/Mark IV	
	UHF system	Mark 1L UHF	Mark 1L VHF	MK50A Hi-fi-S ²³	ENG Wireless	Pro Plus	VX-20 systems
Model							
RF spectrum	794-806MHz	400-520MHz	72-330MHz	49-470MHz	165-216MHz	150-216MHz	150-174/174-216
Modulation control	Companding	120dB range	120dB range	Limit/compression	...	...	Compression
Companding function	Switchable ²¹	dB-S	dB-S	Yes	Selectable	Dynex III	DYNEX III
System AF response	70-15k	40Hz-12kHz	40Hz-12kHz	±3dB	60Hz-20kHz	±1dB 100-15k	40-15kHz
System S/N ratio	60dB A-wtd	...	...	80dB	104dB companded	110dB	>100dB
System distortion	...	...	...	1%	<0.2%	<0.2%	<0.5%
Transmitter Model:	WRT-830A ²²	50A UHF (SM58)	SM58	MK50A HiFi	WT-400 ²⁴	77/DIII (T-81)	T-25/-28/-29
Transmitter packaging	Handheld	Bodypac (HH)	Handheld	Pocket	Belt-pack	Body (handheld)	Bodypack/Handheld
RF output	2.5/10mW	50mW	50mW	50mW	50mW	50mW	50mW
FM deviation	±5kHz	±20kHz	±12kHz	...	±15kHz

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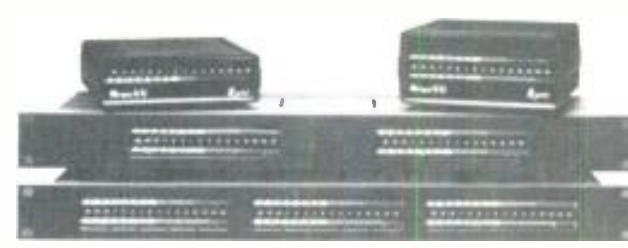
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Circle (43) on Reply Card

Manufacturer	Sony Pro Audio	Swintek			Telex Comm.	Vega/Mark IV	
Model	UHF system	Mark 1L/UHF	Mark 1L/VHF	MK50A Hi-fi-S ²³	ENG Wireless	Pro Plus	VX-20 systems
Microphone support	Electret	Electret (dynamic)	Dynamic	Electret; dynamic	Electret	Various ²⁵	Electret/...
Auxiliary line input	No	...	No	Yes	...	No	No
Power requirement	3Vdc (AA)	9Vdc	9Vdc	9Vdc	9Vdc	9V alk	9V MN1604
Operating weight	11 oz	8 oz	...	5 oz	5.5 oz	7 (9-13.5)	5.9/10Oz
Receiver Model:	WRR-28 37	Mark 1L/UHF RFSD	Mark 1L RFSD	QDC Hi-fi	ENG-4(ENG1) ²⁴	R-42A	R-27
RF sensitivity	10dBµ mute level	0.25µV (12dB SINAD)	0.25µV 12dB SINAD	1µV 12dB quieting	0.5µV 12dB quieting	1.3µV 50dB SNR	<1.3µV 50dB S/N
Spurious rejection	>70dB	...	...	80dB	70dB	...	75dB
Antenna types	Whip	Whip	Whip	Whip	L/4 rubber ducky	Dual whips	Whip
Diversity reception	WRR-37	Yes	Yes	O	No	Yes	No
Multichannel	Yes	Option	Option	O	Yes	No	No
AF output level	-58dBs 600Ω	Hi/Lo-level line	Hi/Lo-level line	56dBm,+10dBm	Mic/line	Line level	-45,+1dBm
Power requirement	3/10-17Vdc	110/220Vac	110/220Vac	9Vdc	AA (9V)	ac/dc	9V alkaline
Metered parameters	AF/RF	...	...	AF/RF/V	AF/RF/V	A B; RF/AF	RF/AF/DC
Metering types	LEDs	...	...	LEDs	Meter	LEDs	Meter
Reader Service No	639	640	641	642	643	644	645

²¹Linear or companded;>60dB SNR w/companding; 0.7% distortion w/companding. ²²WP-27 amplifier gives 500mW. ²³Video camera system. ²⁴Camera mountable receiver; WT-400 transmitter covers 150-216MHz range. ²⁵T-series includes elements such as E-V N/D757, Shure SM-58, SM-85, SM-87.

Shotgun Microphones

Manufacturer	AKG Acoustics				AMS Industries	Audio-Technica	
Model	C 460B ULS/61	C 568 EB	CK 62 DF-ULS	CK98 SE300B	SoundField	AT4071	AT4073a
AF response Hz-kHz	20-20k	20-20k	20-20k	20-20k	...	30-20k	30-20k
Polar pattern(s)	Cardioid	HC/directional	Omni	Directional	Variable ¹	Lobar	Nar. dir.
Output impedance	120Ω	500Ω	120Ω	200Ω	...	250 B	250Ω
Output level (mV/Pa)	(8mV/Pa)	(11mV/Pa)	(8mV/Pa)	(20mV/Pa=-34dBV)	...	62mV	52mV/Pa -25.7dBm
Maximum SPL dB; % dist.	...	128dB 0.5%	...	100Pa = 134dB	140dB 0.5%	127dB	129dB 1% dist
Output noise	15dB	18dB DIN 45412-A	15dB	17dB DIN 45412-A	20dB per pattern spec	12dB A-wtd	16dB
S/N ratio	79dB	76dB	79dB	30dB (DIN 45405)	...	...	>75dB
Mic capsule type	Electret	Electret	Electret	Electret	...	Capacitor	Ext polarized cap.
Stereo design	No	No	No	No	M/S or L/R	No	No
Power source	C460B preamp	9-45Vdc	C460B preamp	9-52Vdc	48Vdc or ac	12-48V	12-48Vdc
Filters	N.A.	...	N.A.	LP 75Hz	Bass rolloff	...	High-pass
Weight	4.2gm	6.2gm	4.2gm	2.8oz	...	5.8 oz	4.2oz
Reader Service No	646	647	648	649	650	651	652

¹Patterns from omni through cardioids to Figure-eight.

Manufacturer	Audio-Technica		beyerdynamic			Electro-Voice	
Model	AT815a	AT835a	MC 736-PV	MC 737-PV	MCE 86 S	RE45N D	RE45N D ²
AF response Hz-kHz	40-20k	40-20k	40-20k	40-20k	50-18k	50Hz-15kHz	150-15k
Polar pattern(s)	Narrow directional	Narrow directional	Cardioid lobe	HC/lobe	HC/lobe	Cardioid-line	Card.-line
Output impedance	600Ω	600Ω	150Ω	150Ω	190Ω	600Ω	600Ω
Output level (mV/Pa)	9.0mV/Pa -44.5dBm	9.0mV/Pa -45.5dBm	25mV/Pa	25mV/Pa -30dBV	4.2mV/Pa -47dBm	5mV/Pascal 1kHz	5mV/Pa 1kHz
Maximum SPL dB; % dist.	120dB 3% dist	115dB 3% dist	128dB	122dB	138dB 0.7% dist	<5mV/P sens.	...
Output noise	18dB	17dB	4.5µVS	4.5µVS	3.8µVS	-130dBm hum pickup	
S/N ratio	>70dB	>70dB	74dB	74dB	61dB	...	...
Mic capsule type	Fixed-charge cond.	Fixed-charge cap.	RF condenser	RF condenser	Electret	Dynamic	Dynamic
Stereo design	No	No	No	No	No	No	No
Power source	1.5Vdc AA-cell	1.5Vdc	AA cell	12Vdc	12-48Vdc	8-48Vdc	...
Filters	High-pass	High-pass	Bass rolloff	Bass rolloff	...	250Hz HP	...
Weight	9.2oz	7.5 oz	4 oz	7 oz	2.5 oz	7.5 oz	7.5 oz
Reader Service No	653	654	655	656	657	658	659

²Shock mount,case, handle, clamp, attenuator.

Manufacturer	Georg Neumann ³		Sennheiser Electronics				Shure Brothers
Model	KMR8 1i(KMR82i) ⁴	RSM190i MS-stereo ⁵	MKH 416 P48 ⁶	MKH 60 P48	MKH 70 P48	MKH 816 P48	SM89
AF response Hz-kHz	40-18k (40-20k)	40-18k	40-20k	50-20k	±2 70-20k	40-20k	60-20k
Polar pattern(s)	HC	HC/fig-8	Sup card./lobe	Sup card./lobe	Sup card. lobe	Ultra dir/lobe	HC; LOBAR
Output impedance	150Ω	50Ω	10Ω	130Ω	150Ω bal	10Ω	100Ω source
Output level (mV/Pa)	18mV/Pa (21mV/Pa)	23mV/Pa	1.25	1.3V	40mV/Pa	1.2V	2.2mV/Pa -53dBV
Maximum SPL dB; % dist.	>128dB	134mV/Pa	128dB	125dB	124dB	124dB	127dB 0.5% dist
Output noise	...	...	17dB	9dBa	10dBa/DIN 45500	15Ba	16dB A wtd
S/N ratio	82dB	78dB M/72dB S	>77dBa	>85dBa	...	>78dBa	79dB
Mic capsule type	...	...	RF condenser	RF condenser	RF condenser	RF condenser	Electret

Manufacturer	Georg Neumann ³			Sennheiser Electronics			Shure Brothers
Model	KMR8 1i(KMR82i) ⁴	RSM190i MS-stereo ⁵	MKH 416 P48 ⁶	MKH 60 P48	MKH 70 P48	MKH 816 P48	SM89
Stereo design	No	Yes	No	No	No	No	No
Power source	48Vdc±4V	48Vdc±4V	48V	48V	48Vdc	48Vdc ⁶	11-52Vdc
Filters	...	...	...	Low cut	hi boost	Low cut	Highpass
Weight	145 g	300 g	6.25 oz	5.25 oz	6.5 ozams	13.4 oz	6.9oz
Reader Service No	670	671	672	673	674	675	676

³Available in US from Gotham Audio. ⁴Windscreen, case mounting accessories. ⁵MTX 190i matrix am⁶MKH 416 TU3 12Vdc. ⁶MKH8166 TU3 12Vdc.

Telephone Audio Bandwidth Extender

Manufacturer	Comrex				Gentner Communications			
Model	2XP/2XR	3XP/3XR	LX-T/LX-R	PLXmicro/THX	EFT-1000A ¹	EFT-100 ¹	EFT-3100	EFT-900A ¹
System type	2-line	3-line	1-line	1-line duplex	1-line	1-line	3-line duplex	1-line
Offset line 1 (Hz)	250	250	250	250	250	250	320	250
Offset line 2 (Hz)	2k	2k	...	...	...	...	2.82k	...
Offset line 3 (Hz)	...	2k	...	...	...	...	5.32k	...
Translation error	±0.02Hz	±0.02Hz	±0.02Hz	±0.02Hz	±0.0Hz	±0.0Hz	±0.0Hz	±0.0Hz
Processing type	Analog	Analog	Analog	Analog	Digital	Digital	Digital	Digital
AF response dB/Hz	0.5/50-5k	0.5/50-10k	0.5/50-5k	0.5/50-5k	0.5/50-3.5k	0.5/50-3k	0.5/50-7k	0.5/50-3.5k
Compression/Expansion	...	Auto lvl ctl	Yes	...	Yes	Yes	No	Yes
System transmitter	2XP	3XP	LX-T	PLXmicro	EFT-1000A	EFT-100	EFT-3100	EFT900A
Package	Portable	Portable	Rack-mount	Portable	Portable	Rack/Table	Rack/Table	Portable
input impedance	600Ω	600Ω	600Ω	150Ω/10kΩ	600Ω	>10kΩ	150/600Ω	150/600Ω
AF input level dBm	+4	+4	-20/+8	-60/0	-55/0	-10/0	10	-55/0
Inputs (Mic/Line)	Line	Line	Line	Mic/Line	Mic/Line	Line	Mic/Line	Mic/Line
Output connection	600Ω Xfmr bal	600Ω Xfmr bal	600Ω Xfmr bal	600Ω Xfmr bal	600Ω Xfmr bal	600Ω Ext hybrid	600Ω Xfmr bal	600Ω Xfmr bal
Output level	-9dBm	-9dBm	-9dBm	-9dBm	-15dBm	-2dBm	-10dBm	0dBm
Power requirement	120/240Vac	120/240Vac	120Vac	120Vac; ±15Vdc	117/234Vac; dc	117/234Vac	117/234Vac	117/234Vac; dc
System receiver	2XR	3XR	LX-R	TH-X	EFT-1000A	EFT-100	EFT-3100	EFT-900A
Package	Rack-mount	Rack-mount	Rack/Table	Rack-mount	Portable	Rack/Table	Rack/Table	Portable
Power requirement	...	120/240Vac	...	...	117/234Vac	117/234Vac	117/234Vac	117/234Vac
Telco connection	Xfmr bal.	Xfmr bal.	Xfmr bal.	Xfmr bal.	Xfmr bal.	Xfmr bal.	Xfmr bal.	Xfmr bal.
Telco input level	-40; +8	-40; +8	-40; +8	-40; +8	-30; +17	-20; 0	0	-35; +4
AF output level	0dBm	0dBm	0dBm	0dBm	0dBm	-10; 0	10dBm	-60; 0
Reader Service No.	677	678	679	680	681	682	683	684

¹Transceiver units; one is required at each end of a link.

Multichannel Digital Audio Production Systems

I = Input, O = Output, A = Auxiliary; MXC = Mixing Console, VD = video device; FL = film device; PR = Processor; DAT = Digital Audio Tape; SCSI = small computer system interface. WC = word clock, OD = optical disk; HD = hard disk; M-O = Magneto-Optical.

Manufacturer	AKG	AMS Ind.	Augan Instr.	Digidesign	Digital Audio Research	Doremi Labs	Electronic Digital Innovations
Model	DSE-7000	AudioFile Plus	408 OMX	Pro Tools	SoundStation II	DAWN	EDI Tracker
Recording storage	64MB RAM	380MB HD	325MB optical disk	660MB HD	760MB HD	HD, RAM, OD	...
Recording channels	2	8	4/module (32 max)	4/module (16 max)	4/module (16 max)	8	4 (exp to 8)
Editing tracks	8	16	4 or 8/module	4/mod (16 max)	4/module (16 max)	8	99
Simultaneous replay channels	8	16 w/o crossfades	4 or 8/module	4/mod (16 max)	4/module (16 max)	8	8
Archiving	HD	DAT	Optical disk	Exabyte, DAT, Mac media	DAT, OD	Various dig media	...
Platform	Proprietary, 80386	Proprietary	Proprietary	Macintosh II	Proprietary	Proprietary +Macintosh	80386
User interface	Console, transport ctrls, jog wheel, faders	Display, kybrd, transport ctrl, 2 jog wheels.	Dedicated function keys, LCD w/ softkeys, transport ctrls, Jog keys	Kbrd, mouse, CS-10 ctrler, transport ctrl, jog wheel, faders	Console, touch screen, dedicatd keys, jog wheel, transport ctrls	Mac Keyboard, mouse	TouchScreen
Peripherals	...	CDs, DAT, VTRsLogic 1 MXC	SCSI interface, MXC, VD, FL, PR	SCSI, MIDI	VTRs, DAT, dig ATRs	via Mac	...
Analog I/O	2I, 4O	2-8I, 16 O	2-4I, 4-8O	to 16 I and O	8I, 8O	4I, 8O	4<, 4O
Sampling rate, kHz	32, 16-bit PCM	44.1, 48	32, 44.1, 48	44.1, 48	32, 44.1, 48	44.1, 48, 96kHz	...
Synchronization	...	LTC, WC, video	VITC, LTC, MIDI, WC	LTC, MIDI, WC	LTC, WC, video	MIDI	VITC, LTC, WC, Video, Pilotone
Digital signal interface	AES/EBU, DAT, SPDIF	SPDIF, SDIF-2, AES/EBU	AES/EBU, SPDIF, MIDI	AES/EBU, SPDIF, MIDI	AES/EBU, SDIF-2, SPDIF	AES/EBU, SPDIF	...
Max record time mono	17.6 min/32k	8 hr.	14 min/track	Per disk	4 hrs (24 max)	3hrs @ 48kHz 18 hrs max	...
Reader Service No.	685	686	687	688	689	690	691

Manufacturer	Fairlight ESP	KORG	Lexicon	Otari	Roland	Solid State Logic	
Model	MFX MFX2	SoundLink	OPUS	PD464	DM-80	ScreenSound	Scenaria
Recording storage	1.2GB HD, 32MB RAM	670MB HD	1.2GB (2.5GB ¹)	...	100MB HD, OD	1.2GB	M-O discs
Recording channels	8 continuous 16 discontinuous	8	8	4 (to 64)	4	8	...
Editing tracks	24	8	99	4 (to 64)	4/8	8	...
Simultaneous replay channels	2/module (16 max)	8	8	4 (to 64)	4 to 8	8	24
Archiving	Exabyte, OD	Streamer, OD	Streamer tape	Removable disk, off-line backup	DAT, OD	Video 8 tape, OD	...
Platform	Proprietary	Proprietary	Proprietary w/mixer	Proprietary	Proprietary	Proprietary	Proprietary
User interface	Kybrd, LCD display function/trk select keys, transport ctrls, jog wheel	Console, soft/hrd keys, transport ctrls, jog wheel, faders	Kybrd, dedicated/soft keys, transport controls, jog wheel, Mixer	MS Windows, Mac, mouse, software	Function keys, track select buttons, transport ctrls, jog wheel, LCD, Mac software	Tablet/pen, keyboard	38-channel digital mixer feature: router; jog wheel; CRT; permits networking; includes full random access video editing capabilities.
Peripherals	MXC, VTR, ATR, CD, DAT, MIDI	U-matic VTR, MIDI, ATR, MIDI	VTRs, processors	CD, ATR, VTR, DAT	...	VTRs, ATRs, DAT, MXC	VTR, ATR, Laserdisc, Others
Analog I/O	...	8i, 8O	0-28i/0-28O	24i, 24O	4/8i, 4-8O	2i, 8O	...
Sampling rate, kHz	44.1, 48	44.1, 48	44.056, 44.1, 48	...	32, 44.1, 48	32, 44.1, 48	...
Sample rate conversion	...	No	Yes	...	No	Yes	...
Synchronization	MIDI, LTC	MIDI, VITC, LTC, genlock	LTC, wordclock, pilotone, video ref.	MIDI, LTC, video ref.	MIDI, LTC	VITC, LTC, video ref.	Time code
Digital signal interface	AES EBU, SPDIF, ProDigi, MADI, MIDI	AES/EBU, SPDIF, MIDI	AES/EBU, SDIF-2, SPDIF	AES/EBU, SPDIF	AES/EBU, MIDI	AES/EBU	AES/EBU
Max record time mono	2 hrs (21 Max)	2 hrs (12 hrs max)	190 min (>14 hrs.)	...	18- min/4ch	50 min int (180 ext)	...
Reader Service No.	692	693	694	695	696	697	698

¹Next version to support 2.5GByte hard disk.

Manufacturer	Sonic Solutions	Studer Editech	Studio Audio ARAS	TASCAM	WaveFrame	
Model	Sonic System	DYAXIS II	SADiE	RA-4000	CyberFrame	AudioFrame
Recording storage	1.2GB HD (and OD)	to 1.2GB HD, OD	SCSI disk	200MB HD, MO	to 1.2GB HD, OD	to 1.2GB HD, RAM
Recording channels	8 (and 4)	2/disk	2, 4	2	4	4 or 3
Editing tracks	4/module to 8	Unlimited	2, 4	...	8	8 disk, 64 RAM
Simultaneous replay channels	4 module (8 max)	2/module to 4	2, 4	...	8	8 dis, 48 RAM
Archiving	DAT, OD, 1610, 1630	DAT, OD	DAT, OD	DAT, SCSI	Video 8 streamer, OD	Exabyte tape
Platform	MAC II w/proprietary	Proprietary, Mac II	IBM PC	Proprietary	Proprietary, IBM 386	Proprietary, IBM 386/33
User interface	Kybrd, mouse, motorized fader control board	Keyboard, mouse	MS Windows, mouse, transport controls	Editing console	motor, kybrd, mouse	MS Windows, token ring LAN, kybrd mouse
Peripherals	VTRs, Laser Disc, Sony StartLab CD	Dig, analog multitrack	...	Various	VTRs, 24-track analog, digital ATR, 1/4" tape	Uptown moving faders, multichannel digital I/O
Analog I/O	D/As, A Ds req.	2i, 2O	Opt. 2i, 2O (2i, 4O)	2i, 4O	8i, 8O	2-8(32)i, 8 to 32O
Sampling rate, kHz	44.056, 44.1, 48	44.056, 44.1, 48	All std rates	...	44.056, 44.1	32 to 50
Sample rate conversion	48 to 44.1	No	...	...	No	No
Synchronization	LTC, wordclock, video ref.	VITC, LTC, MIDI	SMPTE LTC	LTC, VITC, MIDI, WC, Video	VITC, LTC	VITC, LTC, wordclock, video sref.
Digital signal interface	AES/EBU, SDIF-2, SPDIF	AES, EBU, SDIF-2, SPDIF, ProDigi, MIDI	AES/EBU, SPDIF	AES/EBU, SPDIF	AES/EBU, SDIF-2, SPDIF, ProDigi, MADI, MIDI	AES/EBU, SDIF-2, SPDIF, ProDigi, MADI, MIDI, ProDigi Dub
Max record time mono	54 min (432 min st)	60 min st (12 hrs)	Per SCSI drive	...	4-8 hrs (24 max)	12 hrs (40 max)
Reader Service No.	699	700	701	702	703	704

The products shown in these comparison tables generally represent only a portion of a manufacturer's line. We invite you to contact the manufacturers for information on other products that may fit your requirements.

The information appearing in this *Equipment Reference Manual* is based on material provided to the staff of **Broadcast Engineering** by the manufacturers. If a company does not appear in the directory section of this publication, either **BE** was unaware of the company, was provided with erroneous contact information or the questionnaire initially mailed in June was simply not returned.

AM Broadcast Transmitters

Manufacturer	Broadcast Electronics	CCA Electronics	Continental Electronics			GEC-Marconi	
Model	AM series	AM15000F ¹	419G ²	420C	T-line	B6043	B6126 (6128)
Band of service	Broadcast	Broadcast or SW	Shortwave/SSB	Shortwave/SSB	Broadcast	Broadcast	Shortwave
RF output	10kW (5kW/1kW)	15kW	250kW/300kW	500kW	5kW/2.5kW/1kW	600kW	300kW (500kW)
RF output connection	1½" (¾")	50Ω	50/75/300Ω bal.	50/75/300Ω bal.	50Ω (N on 1kW)	50Ω	50Ω/300Ω
Carrier stability	±3ppm	±5Hz	±1x10 ⁻⁶ Hz	±1x10 ⁻⁶ Hz	±5Hz	±10Hz (5Hz opt)	< 1ppm/yr
Carrier shift	<1%	3% max	<5%	<5%	<2%	<5%	<2.5%
Modulation maximum	>145%	125%	100%	100%	125%	75% cont.	100%
Audio input connection	600Ω bal.	600Ω	Act 600Ω	10kΩ	Act 600Ω	10kΩ	...
Audio response (dB Hz)	20Hz-10kHz	+1.5dB 50-10kHz	±1 50-7.5k	±1 50-7.5k	0.5 20-10k	1...2.50-7.5k	±1 50-6k
Audio distortion	<1% mono	3% max	<3% to 98% mod	<3% to 98%	<2%	<4% 90% mod	4%
AM noise figure	>65dB mono	-55dB	<-55dB residual	<-55dB unwt'd	...	-50dB	<-56dB
Final amplifier	Solid-state	4CX15.000A	Multiple source	Multiple source	Solid-state	TH558 tetrode	TH 537 (TH 558)
Modulator final	Solid-state	4CX5.000A	SS modulator	SS modulator	Solid-state	4CW25000	TH 555 (TH 581)
Input AC power	220Vac	208-380Vac 3φ	4.160-13kV 3φ	4.160-13kV 3φ	220Vac 3φ/1φ/φ	380-415Vac 3φ	11kVac 3φ
Power consumption	20kW	...	640kW 95% mod	1075kVA 95% mod	12.8kVA	3.5kVA	429kW (...)
Power factor, Efficiency	... >75%	...	>0.95, 70%	>0.95, 70%	>75%, >65%	>0.9, >73%	0.9, 65%
Stereo capable	Yes		No	No	Yes	No	No
Fault logic	Yes	Relay	μP system	μP system	Yes	Solid-state	Solid-state, relay
Floor space used	46Wx32D	76Wx34D	400x72"	42m ²	22.4x29	13mWx12mD	72(85)m ²
Reader Service No	706	707	708	709	710	711	712

¹Also AM5.000F 5kW; AM10.000F 10kW. ²Model 418D-2 at 100kW has similar characteristics.

Manufacturer	GEC-Marconi	Harris Broadcast			ITAME	LPB Inc	
Model	B6034 ³	DX-100 ⁴	DX-50 ⁵	Gates series ⁶	SX-series ⁷	TAURO S 10 ⁸	AM-100P ⁹
Band of service	Broadcast	Broadcast	Broadcast	Broadcast	Broadcast	Broadcast	Broadcast
RF output	50kW	100kW	60kW	5.6kW	5.6kW	10kW	100W
RF output connection	50Ω/300Ω	6½" 50Ω	3½" 50Ω	7/8"	7/8" 50Ω	1½"	SO-239 UHF 50Ω
Carrier stability	<1ppm/year	±2Hz typical	±2Hz typical	±2Hz	±10Hz PLL	±5Hz	±10Hz
Carrier shift	<2.5%	<1%	<1%	<1% 100%	<2% 100%	<3%	<2%
Modulation maximum	125%	130%	145% 50kW	130% peak	125%	125% PDM	+125%
Audio input connection	Bal 600Ω	50/150/600Ω bal	50/150/600Ω bal	600Ω bal	600Ω bal	Bal 600Ω	600Ω
Audio response (dB Hz)	±1 50-6k	-0.9, .1 30-10k	-0.9, .1 30-10k	±0.5 20-10k	-1.5...5 20-12.5k	±1 20-10k	±1.0 20-15k
Audio distortion	4% 90% mod	1% 95% mod	1% 95% mod	<1.3% 95% mod	<1% 95%	<2% 99%	<2%
AM noise figure	<-56dB	65dB	65dB	>60dB	>60dB	60dB	-55dB
Final amplifier	Tetrode	MOSFET	MOSFET	FET	MOSFET	3CX10000A7	Solid-state
Modulator final	Tetrode	AM digital	AM digital	Polyphase PDM	Polyphase PDM	4CX15000A	Solid-state
Input AC power	230Vac 2φ	220Vac 3φ	220Vac 3φ	220Vac 3φ	240Vac 3j	220/380Vac	117Vac 1φ
Power consumption	...	117kW	59kW	7.7kW	11.6kW	11kW	400W

AS-101 AUDIO SWITCHER

- Illuminated and legandable control buttons
- Instant or overlap switching
- Front panel accessible level controls
- Optional RS-232 interface
- Optional relay follow switch outputs
- Plug-in screw-clamp terminals

CONEX ELECTRO SYSTEMS

P.O. Box 1342 Bellingham, WA 98227 12061 734-4323

Circle (44) on Reply Card

Manufacturer	GEC-Marconi		Harris Broadcast			ITAME	LPB Inc
Model	B6034 ³	DX-100 ⁴	DX-50 ⁵	Gates series ⁶	SX-series ⁷	TAURO S ⁸	AM-100P ⁹
Power factor, Efficiency	0.9	0.98, 86%	0.98, 85%	... 5%	... >65%	... 40%	0.9, 25%
Stereo capable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fault logic	Solid-state, relay	Solid-state	Solid-state	Solid-state	μP	Solid-state, relay	Relay
Floor space used	3.65x1.54m ²	...	120x33	28x30	28x30"	45x37	Wall-mount
Reader Service No	713	714	715	716	717	718	719

³B6035 rated 100kW, B6036 rated 150kW and B6037 rated 200kW are combinations of the B6034 system. ⁴System combinations for levels from 200kW to 1MW. ⁵DX10 11kW; DX25U 27.5kW; 3 pre-set power levels; lower power units combine for systems from higher powers. ⁶5kW with frequency-agile carrier; 2.5kW; 1kW. ⁷Also 1kW; 2.5kW. ⁸Systems available at 7kW, 5kW and 2kW available featuring similar characteristics. ⁹Series includes units at 5W, 30W, 60W.

Manufacturer	Nautel		Radio Systems	RIZ		TELEFUNKEN Sendertechnik	
Model	AMPFET ND 10 ¹⁰	AMPFET ND50 ¹¹	TR-20	OR K series ¹²	OR S series ¹³	S4005 ^{14, 16}	S4006 (S4005) ¹⁵
Band of service	Broadcast	Broadcast	Broadcast (LP)	SW 3.2-6.1MHz	AM/MW	Shortwave	Brdcst/MW (SW)
RF output	11kW	55kW	20W	50-250kW	20kW-1MW	500kW	600kW (500kW)
RF output connection	1½" 50Ω	3½" 50Ω	50Ω	UHF SO-239	50Ω/300Ω	50/60Ω, 120Ω	50Ω ^{100/230}
Carrier stability	±5Hz	±5Hz	±0.002%	...	...	0.5x10 ⁻⁶ Hz/yr	0.5x10 ⁻⁶ Hz/yr
Carrier shift	<1%	<1%	2%	...	[auto-tuning	3%, 1kHz	<3%, 1kHz (<3%)
Modulation maximum	125% at 11kW	125%, 55kW	100%	...	[on OR20S-02	100%	100%
Audio input connection	Bal 600Ω	600Ω bal	Bal 600Ω	...	...	600Ω Bal	600Ω Bal
Audio response (dB Hz)	±0.5 30-10k	±0.5 30-10k	1 20-15k	...	...	±1 40-4.5kHz	±1 40-4.5kHz
Audio distortion	<1% 95% mod	<1% 95% mod	2% 99% mod	<3%	<2-3%	3% 80% mod	2% 80% mod (<3%)
AM noise figure	60dB	60dB	-60dB	50/60dB	55/65dB	>55dB unwt'd	>55dB unwt'd
Final amplifier	Modular SS	Modular SS	Solid-state	...	...	TH558	1-TH558
Modulator final	TRF 140	TRF 130	Solid-state	...	...	TH558	1-TH558
Input AC power	208Vac 3φ	480Vac 3φ	100Vac 1φ	440Vac	440Vac	400V	400Vac
Power consumption	20kVA	97.4kVA	0.1kVA	40kVA-645kVA	60kVA-2.3MVA	1103kVA	1253kVA (1103kVA)
Power factor, Efficiency	0.98, >75%	0.98, 80%	... 27%	... 40%-65%	.../49-72%	>0.9, 68%	>0.9, 75% (68%)
Stereo capable	Yes	Yes	Yes	...	...	No	No
Fault logic	Solid-state	Solid-state	...	...	...	Solid-state	Solid-state
Floor space used	45x24"	164x32"	Wall-mount	...	...	5.5x5.6m	5.5x5.6m
Reader Service No	720	721	722	723	724	725	726

¹⁰ND 5 5kW, ND 2.5 2.5kW, ND 1 1kW. ¹¹ND25 25kW. ¹²OR 250K-01/A 250kW; OR 100K-01/A 100kW; OR 50K-01/A 50kW; OR 20K-02 20kW; OR 10K-02 10kW; 10-20kW covers 3.2-22MHz. ¹³OR 20S-02 20kW; OR 100S-02 100kW; OR 300-05 300kW; OR 1000-03 1MW. ¹⁴S4003 rated 300kW; S4001 rated 100kW; TH 573 and TH-555 devices are used. ¹⁵Model S4004 rated 300kW, 4002 rated 100kW have similar characteristics. ¹⁶All S4000 systems use PDM/PANTEL modulation and DAM volume-dependent carrier control improved efficiency.

FM Broadcast Transmitters

Manufacturer	Broadcast Electronics			C.T.E. Int'l	CCA Electronics	Cemtys	
Model	FM-300B ¹	FM-35B ²	FM-5B ³	VL5000 ⁴	FM35,000G ⁵	EF-20KX ⁶	FM 2.000-SS ⁷
Exciter suggested	FX-50	FX-50	FX-50	VL30	FM50G 50W	Model 18.128	Cemtys 18.128
Output power range	400W	10-38.5kW	5.5kW	5kW	25-38.5kW	22.5kW	2kW
Output impedance	50Ω, Type N	50Ω, 3½"	50Ω, 1½"	50W, 1½"	3½"	50Ω, 2, 3½"	50Ω, Type N
Typical VSWR	1.1:1 max	1.8:1 max	2:1 max	Protected	...	1.8:1	...
Auto power control	...	Yes	Yes	Yes	Yes	Yes	...
Auto modulation control	...	...	...	Yes	...	...	...
Integrated remote control	Yes	Yes	Yes	Yes	Yes	Yes	...
μP diagnostics	...	Yes	Yes	Yes	...	CMOS logic	...
PA device or complement	Solid-state	4CX20000C, 8990	4CX3500A tetrode	250kW SS modules	3CX20000A7 tn... 5CX1500B	YL-1631.	Solid-state
PA circuit type	...	Folded ½	Folded ¼	...	Grounded Grid	¼ cavity	...
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	5CX1500B	Solid-state	Solid-state
Floor space	51x32"	91x32	35x38	1280x565x680mm	38Wx34D	1,800x1,236x900	19" rack
Input ac power needed	194-266Vac	208Y/240D	208Y/240D	220V/380V	220-240Vac	220 380Vac	200Vac
Power consumption, Efficiency	1.2kW	51kW (.94PF), ≈68%	8.3kW (.92PF), ≈60%	9.8kW, 51%	...	>0.93 pf	...
Reader Service No	727	728	729	730	731	732	733

¹FM-250B 250W; FM-100 100W. ²FM-20A to 22kW; FM-30A at 20kW; FM-30B 30kW; FM-20B 2kW; FM-10B 11kW. ³FM-3.5B 3.8kW; FM-1.5B 1.65kW; FM-1B 1.1kW. ⁴VL2000 2kW; 10kW linear amplifier available. ⁵FM-G series includes models from 2.5kW through 27.5kW based on grounded-grid triode PA. ⁶EF-5KX 5kW; EF-1.0kX 10kW. ⁷FM 1.000-SS 1kW.

Manufacturer	Continental Electronics						Electronica Telecom
Model	813A (814D)	814C	815A	816A	816R-4B ⁸	817R-5B ⁹	PE-20S KA1000 ¹⁰
Exciter suggested	802B	802B	802B	802B	802B	802B	PE 20.S
Output power range	500W (1kW)	3.8kW	5kW	11kW	27.5kW	70kW	1kW

Output impedance	50Ω, Type N	50Ω, 1½"	50Ω, 1½"	50Ω, 3¼"	50Ω, 3¼"	50Ω, 6½"	50Ω N, 7/8"
Typical VSWR	2:1 max	1.2:1 max	2:1 max	2:1 max	2:1 max	2:1 max	...
Auto power control	Yes	Yes	Yes	Yes	Yes	Yes	...
Auto modulation control	Yes	Yes	Yes	Yes	Yes	Yes	...
Integrated remote control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
μP diagnostics	Yes	...	Yes	Yes	Yes	Yes	...
PA device or complement	Solid-state	700W SS modules.	4CX3500A	4CX15000A	4CX15000A	9019/YC130	3CX800A7
PA circuit type	...		¼	¼	Grounded Screen	90° hyb./2-tetrode	...
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Floor space	42x21x25	38x34	69x34.75x33.5	45x34	72x28	160x28	0.5mWx0.5mD
Input ac power needed	110 (220)Vac	220Vac	220Vac 3φ	220Vac 3φ	220Vac 3φ	220Vac 3φ s.p.s.	110/220 Vac
Power consumption, Efficiency	1.19kW (2.89kW)	10.5kW	9.8kW	18.45kW	42kW	108kW	1.450kVA
Reader Service No	734	735	736	737	738	739	740

⁸816R-2B rated 21.5kW; 816R-3B rated 25kW; using the 816B units in tandem results in 817R-2B 40kW; 817R-3B 50kW; 817R-4B 55kW; all other characteristics are similar. ⁹816-R5B (35kW) Uses single 9019/YC130 tetrode; similar characteristics. ¹⁰LPFM exciter/transmitter with tube-type amplifier; KN 1000 amplifier is solid-state system.

Manufacturer	ELENOS srl	Energy-Onix			GEC-Marconi Eddystone	Harris Broadcast	
Model	T-2000-3 ¹¹	MK 22 ¹²	MK 50 ¹³	SST-1000 ¹⁴	B6600	FM 1FM ¹⁵	HT 10FM ¹⁶
Exciter suggested	60W required	SST-30	SST-30	SST-30	Integral XE11	THE-1	THE-1
Output power range	2kW	23.5kW	55kW	1kW	3-10kW	1kW	4-10kW
Output impedance	50Ω, 7/8"	50Ω, 3"	50Ω, 7/8"-3¼"	50Ω, 7/8"	50Ω unbal	50Ω	50Ω
Typical VSWR	Cont. monitoring	<1.3:1	<1.3:1	Protected	1.5:1	1.5:1	1.7:1 max
Auto power control	Yes	Yes	Yes	...	Yes	Yes	Yes
Auto modulation control	...	...	...	...	...	Yes	No
Integrated remote control	Optional	Opto isolation	Opto isolation	Yes	Option	Yes	Yes
μP diagnostics	via rmt ctl	...	...	...	C-MOS logic	...	Yes
PA device or complement	3CX1500A7	3CX10000A7, w/3CX1500A7	2 3CX15000A7, w/3CX3000A7	Solid-state	9011 (8986) Coaxial tetrode	FET modules	4CX7500A, tetrode

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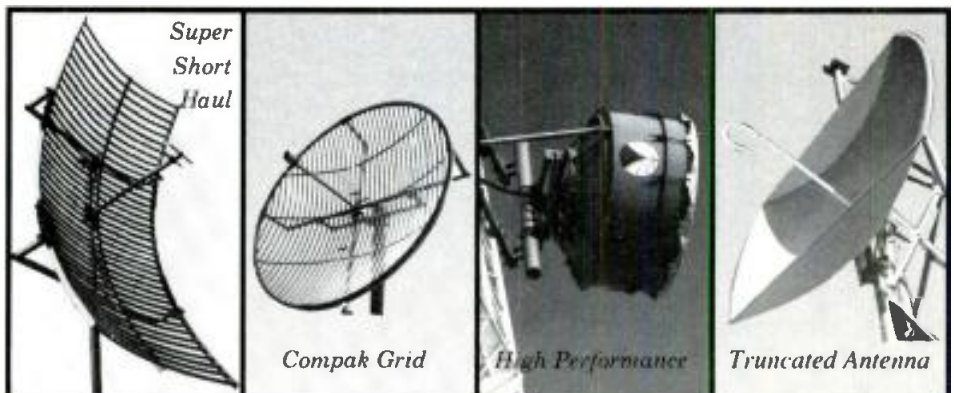
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Manufacturer	ELENOS srl	Energy-Onix			GEC-Marconi Eddystone	Harris Broadcast	
Model	T-2000-3 ¹¹	MK 22 ¹²	MK 50 ¹³	SST-1000 ¹⁴	B6600	FM 1FM ¹⁵	HT 10FM ¹⁶
PA circuit type	...	Grounded-grid	Grounded-grid	500W modules	Class C	...	¼-cavity
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	200W S-S	Solid-state	300W S-S
Floor space	19x24"	37x26	37x52	24x27"	42x40	23x25	33x34
Input ac power needed	240/380Vac	208-230V 3φ	208-230V 3φ	208-230Vac	125-220/380-415	220Vac	220-380 3j
Power consumption, Efficiency	4.1kVA, 64%	35kW for 22kW	75kW for 50kW	2kW	7.1-22.5kW	2.9kW	15.7kW
Reader Service No	741	742	743	744	745	746	747

¹¹T 800 800W; T 1200 1.2kW; T 1500 1.5kW; T 1800 1.8kW; T 5000 >5kW. ¹²MK 15 (17.5kW); MK 12 (12kW), MK 7.5 (7.5kW), MK 5.5 (5.5kW), MK 3.5 (3.5kW), MK 1.5 (1.5kW); systems at 12kW or less use YU-148, 3CX3000A7 or 3CX1500A7 PA device w/o driver stage. ¹³MK 40 (40kW), MK 30 (30kW), MK 25 (25kW). ¹⁴SSA-100 100W; SSA-300 300W; SSA-500 500W. ¹⁵HT 250FM (250W), HT 500FM (500W) configurations upgrade to 1kW model. ¹⁶Similar models include: HT 7FM (8kW); HT 5FM (5kW), HT 3.5FM (4kW) using 4CX3500A as PA device.

Manufacturer	Harris Broadcast		ITAME SA			ITELCO	
Model	HT 35FM ¹⁷	Platinum PT10FM ¹⁸	ES-2000 (-1000)	Tauro Mod 10 ¹⁹	Tauro Mod 30 ²¹	TFM-3000 (1000)	S233
Exciter suggested	THE-1	THE-1	20W	10W	15W	W	T 241
Output power range	20-35kW	10kW	2kW (1kW)	5-10kW	10-30kW	3kW (1kW)	2kW
Output impedance	50Ω, 3¼"	50Ω, 3¼"	50Ω, 1½" (7/16)	50Ω, 1½"	50Ω, 3¼"	50Ω, 1½" (7/16)	50Ω
Typical VSWR	1.7:1 max	1.24:1	...	Protected	Protected	Protected	...
Auto power control	Yes	Yes	...	...	...	...	Yes
Integrated remote control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
µP diagnostics	Yes	Yes	...	...	...	...	...
PA device or complement	4CX20000D Tetrode	S-S FETs, 1.35kW modules	Solid-state, V-MOS; 600W	4CX-7500A ²⁰ Tetrode	4CX-20000C Tetrode	4CX-3500A	4 500W FET modules
PA circuit type	¼-cavity	...	modules	...	...	...	...
IPA device	600W SS	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Floor space	34x34	47x39"	24x36	45x38	68x38	31x33	22x30
Input ac power needed	220-380 3φ	220/400Vac	220Vac	220-380 3j	220-380 3j	220Vac	380Vac 3φ
Power consumption, Efficiency	52kW, 0.95	28.2kVA, 0.75PF	kW (kW)	18kW	43kW	7kW (3kW)	4.5kVA
Reader Service No	748	749	750	751	752	753	754

¹⁷Similar models: HT30 FM 30kW; HT25 FM (25kW), HT20 FT (20kW) using 8990 as alternative PA device. ¹⁸PT 8FM 8.8kW; PT 5FM 5.5kW; PT 4FM 4.4kW; PT 2FM 2.2kW. ¹⁹Tauro 5 (5kW), Tauro 3 (3kW), Tauro 1 (1kW). ²⁰Alternative devices include Thomson TH341, Philips YL016. ²¹Philips YL 1530 available as alternative PA device.

Manufacturer	ITELCO	Nautel	OMB Sis. Electronicos	QEI Corporation			Rohde & Schwarz
Model	T224 (T254)	AMPFET FM series	EM2000 (-1000VR)	695T1kW	FMQ-30000B ²²	QSS-10000	NR 350 T1 ²³
Exciter suggested	T 241	Various	EM-20	QEI#695 or #675	QEI#695 or #675	QEI#695	SU115/SU155
Output power range	15kW (30kW)	4kW, 7kW	2kW (1.1kW)	500-1250W	10-30kW	1-11kW	5kW
Output impedance	50Ω, 3¼"	50Ω, 1½"	50Ω, N (7/16)	50Ω, 1½"	50Ω, 3¼"	50Ω, 1½"	50Ω, 1½"
Typical VSWR	...	1.5:1	...	...	...	1.6:1 max	1.5:1 max
Auto power control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto modulation control	Yes	...	Yes	Automod	Automod	Automod	Yes
Integrated remote control	Yes	Interface	Yes	ARC-27 opt	ARC-27 opt	ARC-27 opt	Yes
µP diagnostics	Yes	...	...	Option	Option	Option	Yes
PA device or complement	4CX12000 (4CX20000C)	Solid-state	S-S(3CX1500A7) (Grnd-Grid)	Solid-state	3CX15000A7Triode	Solid-state	4 VU315 1.5kW PA modules
PA circuit type	FET modules	250W modules	...	Solid-state	Grounded-grid	Modular	Solid-state
IPA device	Solid-state	...	Solid-state	...	3CX3000A7	Solid-state	Solid-state
Floor space	32x43	29x32"	480x470 (540x540)	24x30	72x30	24x34	23x40
Input ac power needed	208/380V 3φ	220Vac (3φ opt)	120 or (220)Vac	208-240V 1j	208-240V 3j	208-240V	220/380V 3φ
Power consumption	22 (43)kVA	10.8kW @ 7kW, 65%	...	2kW for 1.25kW	50kW	65%	8.86kW
Reader Service No	755	756	757	758	759	760	761

²³NR330 rated 3kW uses 2 modules; NR315 rated 1.5kW uses 1 module. ²²FMQ-20000B (20kW); FMQ-10000 (10kW) uses Eimac YU148 PA device; FMQ-35000 w/4CX20000C.

Manufacturer	Rohde & Schwarz	TELEFUNKEN Sendertechnik		Thomson LGT	TTC/Television Technology Corp		
Model	NU411	S3185 ²⁵	S3217 ²⁶	FMT5000S RAMSESI ²⁷	FM-25000J ²⁸	FMS-8000 ²⁹	XLFM translators ³⁰
Exciter suggested	SU155 R2	S3161	S3161	Integral	Model X	Model X	N.A.
Output power range	10kW	1.5kW	3kW-10kW	5kW	15-25kW	8kW	10W, 100W
Output impedance	50Ω, Dezifix D ²⁴	50Ω	50Ω, 1½"	50Ω, 1½"	50Ω, 3¼"	50Ω, 1½"	75Ω, Type N
Typical VSWR	1.8:1	...	...	1.4:1 max	...	2:1 max	...
Auto power control	Yes	Yes	Yes	Yes	...	...	...

Manufacturer	Rohde & Schwarz	TELEFUNKEN Sendertechnik		Thomson LGT	TTC/Television Technology Corp		
Model	NU411	S3185 ²⁵	S3217 ²⁶	FMT5000S RAMSESI ²⁷	FM-25000J ²⁸	FMS-8000 ²⁹	XLFM translators ³⁰
Auto modulation control	Yes	Yes	Yes	Yes	Yes	Yes	...
Integrated remote control	Yes	Yes	Yes	Yes/RS-232C	Option	Option	...
μP diagnostics	Yes	Yes	MCSG5364	Yes	...	...	...
PA device or complement	RS2024CL tetrode	Multi SV3169 500W modules	RS2032CL single tetrode	Solid-state	4CX15000A tetrode	Solid-state	Solid-state
PA circuit type	Grounded cathode	Solid-state	Grounded cathode	600W modules	...	...	...
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	4CX250B	Solid-state	...
Floor space	23x29	24x24	24x40	19x27	35x38	46x31	Rack-mount
Input ac power needed	220/380V 3φ	220Vac 47-70Hz	220/380Vac 3φ	380V	240V 3φ	240V	110/220Vac
Power consumption	21kVA	2.5kW	19kVA	11kW	38kW	13kW	75W (XL10FM2)
Reader Service No	762	763	764	765	766	767	768

²⁴Other connectors on request. NU351 rated 5kW also uses Siemens RS 2024CL tetrode. ²⁵S3175 rated 1kW, S3169 500W modules; SS 3206 5kW. ²⁶Configurations include dual and redundant systems: SS3236 20kW with active reserve redundant PA; passive reserve exciters. ²⁷Related products in Ramses II line include: 100W to 2kW solid-state, 10kW tube types; transposers to 100W. ²⁸FM-5000J to 6kW; FFM-10000J to 11kW. ²⁹FMS-4000 to 4kW. ³⁰XL1FM 1W, XL1FM2 dual 1W output; XM10FM 10W, XL10FM2 dual 10W output; for translator service.

UHF TV Transmitters

Manufacturer	Acrodyne Industries			Browning Labs	CED	Comark Comm.	Electronica Telecom.
Model	TL series ¹	TL VHF series ²	TR series ³	TVT series ⁴	TVU-1000S	IOT series ⁵	VAM 01-S KTU 1000
Visual peak power	1kW (100W)	1kW (200W)	30kW (5kW)	1kW	1.22kW	40kW-240kW	1kW ⁶
Response vs brightness	±0.75dB	±0.75dB	±0.75dB	...	...	±0.75dB	...
Low frequency linearity	0.45dB	0.45dB	0.45dB	...	...	1.0dB	...
ICPM/uncorrected	+2	+2	+2	2	...
Diff phase/gain	±1.5 /5%	±1.5 /3%	1.5 /3%	<3 /<5%	<3 /<5%	±3 /5%	2 /2%
K factor for 2T/12.5T	.3%	2%/5%	2%/5%	4% 2T	...	2%/5%	2% 2T

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Circle (48) on Reply Card

Manufacturer	Acrodyne Industries			Browning Labs	CED	Comark	Ellectronica
Model	TL series ¹	TL VHF series ²	TR series ³	TVT series ⁴	TVU-1000S	IOT series ⁵	VAM 01-S KTU 1000
Harmonics below visual	-60dB	-60dB	-60dB	-60dB	-60dB	-60dB	Per regulations
Visual PA UHF	Solid-state	Tetrode (S-S)	Tetrode	TH-347 tetrode	Solid-state	IOT	YL-1057
Aural output power	10% of visual	100W (20W)	10% of visual	10%	180W	10% of visual	100W
Carrier deviation	100kHz	100kHz	100kHz	25kHz (50kHz opt)	±75kHz	±25kHz	
Audio response	±0.1 50-50k	±0.1 50-50k	±0.1 50-50k	± 30Hz-15kHz	±0.5dB	±0.5 30-15k	0.5 40-15k
Applicable to stereo	BTSC	BTSC	BTSC	...	...	MTS	Yes
Harmonic distortion	1%	0.5%	0.5%	<1% full dev.	±0.5%	0.5%	<1%
AM FM noise	-50dB/-60dB	-50dB -60dB	-50dB -60dB	...	-55dB FM	-50dB/-60dB	...
Cooling method	Forced air	Forced air	Water & (air 5kW)	Forced air	Air	Forced air/water	Forced air
Input AC power	120Vac (120/230)	230Vac	208Vac	220Vac	220Vac	...	110/220-380V 3φ
Power consumption	4.4kVA (1.2kVA)	4.4kVA	46kVA (16)	3.5W	4.8kW	...	3.5kVA
Reader Service No	769	770	771	772	773	774	775

¹TLU/1KSE 1kW solid-state transmitter/translator; TLU/1kACE 1kW with tetrode; TLU/100SE, 200SE solid-state 100W, 200W. ²For transmitter and translator service; 10W through 100W also available. ³Also TRU/25KV 25kW available with TRU/1KS solid-state driver; TRU/10kV 10kW with 500W driver. ⁴Other units rated 25W, 100W, 250W, 500W. ⁵IOT inductive output tube system based on EEV development; systems from 40kW to 240kW based on PA sockets; common amplification systems from 40kW-140kW. ⁶VAM01-S modulator. KTU 1000 1kW tetrode amplifier; related equipment available for translator service.

Manufacturer	EMCEE Broadcast	GEC-Marconi		Harris Broadcast	Harris TVT		
Model	TTU 5000DP/(1000ES)	B7540 series ⁷	B7600 series	TV-UM series ⁸	1740 series ⁹	1790 series ¹⁰	SCEPTRE ¹¹
Visual peak power	5kW (1kW)	10kW-60kW	5kW (20kW)	120kW	10-30kW	60-240kW	3-30kW
Response vs brightness	±0.75dB	±0.5dB	±0.5dB	±0.75dB	±1.0dB	±1.0dB	±1.0dB
Low frequency linearity	4%	95%	90%	<1.0dB	0.8dB	0.8dB	0.8dB
ICPM uncorrected	2	±4	<±4	±2.0	±3'	±3'	±3'
Diff phase/gain	±2 /4%	3 /0.95	±3' /0.95dB	3' /<0.5dB	±3' /0.4%	±3' /0.4%	±3' /0.4%
K factor for 2T/12.5T	2% (3%) 2T	2% for 2T	<2% for 2T	2% 3%	<2% /<2%	<2% /<2%	<2% /<2%
Harmonics below visual	-60dB	-60dB (20mW)	60dB	-60dB	-70dB	-70dB	-70dB
Visual PA UHF	TH382 (S-S)	Klystron Ext	Solid-state	MSDC Klystron	Klystron	Klystron	SS modules
Aural output power	500W (100W)	1kW to 6kW	0.5kW (2kW)	12kW (24)	1-3kW	6-24kW	% of visual
Carrier deviation	50kHz stereo	±50kHz	±100kHz	±120kHz	>100kHz	>100kHz	>100kHz
Audio response	±0.5dB	±1dB 30-15k	±1 30-15k	±0.5 to 110k	0.5dB 30-15k	0.5dB 30-15k	0.5dB 30-15k
Applicable to stereo		Yes	Yes	Yes	Yes	Yes	IRT BTSC/NICAM
Harmonic distortion	>1% (0.5%)	0.5%	<0.5%	0.5%	0.5%	0.5%	0.5%
AM/FM noise	(-55dB/-60dB)	-50dB/-60dB	-50dB/-60dB	-55dB/-60dB	-50dB/-60dB	-50dB/-60dB	-50dB -60dB
Cooling method	Air	Vapor	Forced air	Vapor phase	Air/vapor	Air/vapor	Air
Input AC power	208/380 (220)Vac	380-415Vac 3φ	380-415Vac 3φ	480Vac ±5% 3φ	380/415Vac	480vac	380-480
Power consumption	20kVA (4.3kVA)	38kW-129kW	4.9 for 1kW	165kVA 10% aural	28-70kW	140-553kVA	11-45kVA
Reader Service No	776	777	778	779	780	781	782

⁷B7545A10/15kW; B7546A20/30kW; B7547A30/45kW; B7548A6 55/60kW. ⁸TV-60UM 60kW; units with appropriate combining networks to develop higher power systems. ⁹#1740 rated 10-30kW; #1741 10-15kW; #1742 20-30kW; external cavity devices; LDM 1781 is similar but uses TH382 in visual, TH327 in aural amplifiers with forced air cooling. ¹⁰#1790 60kW; 1790+1791 120kW; 1791+3 1790 240kW; aural 1790 24kW, 1791 12kW; 1792 6-8kW; external cavity klystron output devices. ¹¹Models for 3kW, 5kW, 10kW, 15kW; combiners for higher powers.

Manufacturer	Harris TVT	ITS Corporation			Richard Hirschmann	Techno system	TELEFUNKEN Sendertechnik
Model	VISTA (1890) ¹²	ITS-1230	ITS-1240	ITS-235A (-234A)	UHF systems	TX-5000S ¹³	S 5355 ¹⁴
Visual peak power	60-240kW	1kW	10kW	5kW (2kW)	5kW	5kW	5kW
Response vs brightness	±1.0dB	±0.5dB	±0.5dB	±0.5dB	...	...	...
Low frequency linearity	0.8dB	5%	5%	5%	2%	...	...
ICPM uncorrected	±3'	±2'	±2'	±2'	...	...	...
Diff phase/gain	±3' /0.4%	±2' /5%	±2' /5%	±2' /5%	<2' 3%	3' /3%	...
K factor for 2T/12.5T	<2% /<2%	2% 2T	2% 2T	2% 2T	<2%	...	...
Harmonics below visual	-70dB	-60dB	-60dB	-60dB	-70dB	-60dB	<20mW
Visual PA UHF	VKP 7990	Solid-state	TH382 tetrode	TH382 (9017)	TH382	TH382	Tetrode
Aural output power	6.6-24kW	0.1kW	0.5kW	0.5kW (100W)	10% tplex	Combined	20:1 2-channel
Carrier deviation	>100kHz	±75kHz	±75kHz	±75kHz	±50kHz	...	50kHz
Audio response	0.5dB 30-15k	30Hz-15kHz	30Hz-15kHz	30Hz-15kHz	<0.2 40-15k	...	30Hz-15kHz
Applicable to stereo	Yes	Yes	Yes	Yes	Yes	Yes	2-channel
Harmonic distortion	0.5%	0.5%	0.5%	0.5%	<0.7%	...	<0.4%
AM/FM noise	-50dB -60dB	-50dB -60dB	-50dB -60dB	-50dB -60dB	>60dB	...	>46dB >60dB
Cooling method	Air/water	Air	Air	Air	Air	Air	Forced air
Input AC power	480Vac	230Vac	230Vac	230Vac	220/380Vac	220Vac	220/380Vac
Power consumption	76-296kW	5.4kW	22kW	17kW (10kW)	20kVA	18kW	26kVA
Reader Service No	783	784	785	786	787	788	789

¹²LDM 1890 60kW; LDM 1890+1891 120kW; LDM 1891+3 1890 240kW. ¹³TX-25000 rated 25kW; TX-10000 rated 10kW. ¹⁴Other systems: S5354 2kW; S5352/10 10kW; S5352/20 20kW.

Manufacturer	TELEFUNKEN Sendertechnik	Television Technology Corp		Thomson-LGT
Model	S 5357	UHF HP serie ¹⁵	XL 1000U ¹⁶	EUHF10000 ¹⁷
Visual peak power	20kW	30-120kW	1kW	10kW
Response vs brightness	...	1dB	1dB	...
Low frequency linearity	...	0.8dB	0.8dB	5%
ICPM/uncorrected	...	3	2	<3
Diff phase/gain	...	4 ±5%	3 0 dB	±3 95%
K factor for 2T/12.5T	...	2%/2%	2%	±1 5%
Harmonics below visual	<20mW	-65dB	<-60dB	-60dB
Visual PA UHF	Klystron	See note 20	TH-347	Solid-state
Aural output power	20:1 2-channel	2-10% visual	100W	1kW
Carrier deviation	50kHz	±25kHz	±40kHz	50kHz
Audio response	30Hz-15kHz	0.5 30-15k	0 5dB 30-15k	±0.5dB 40-20k
Applicable to stereo	2-channel	BTSC MTS	BTSC MTS	Yes
Harmonic distortion	<0.4%	0.5%	<0.5%	0.5%
AM FM noise	>46dB>60dB	<-50dB <-58dB	<-60dB	-50dB
Cooling method	Forced air	Vapor	Forced air	Forced air
Input AC power	220 380Vac	480Vac	220Vac	380Vac
Power consumption	73kVA	0.9 PF	4 8kVA	34kVA
Reader Service No	790	791	792	793

¹⁵UHF-30 30kW, UHF-60 60kW, UHF-120 120kW; PA device options for klystron, MDSC klystron, Klystrode and IOT. ¹⁶Configures for translator XLS-1000U with solid-state PA, reception from CCIR I/II/IV/V; also available as XL 100U/XLS 100U 100W. ¹⁷EUHF 5000 rated at 5kW visual; RUHF 500S rated 500W; RUHF 100S rated 1kW with provisions for translator operation.

VHF TV Transmitters

Manufacturer	Acrodyne Industries	Browning Labs	CED	GEC-Marconi Comm	Harris Broadcast	
Model	TR series ¹	TVT series ²	TVV-10kSS ³	B7530 series ²⁴	Platinum HT-10 ⁵	Platinum HT-60 ⁶
Frequency band	VHF CCIR I or III	VHF	VHF	VHF CCIR III	VHF CCIR I III	VHF CCIR I III
Visual peak power	30kW (5)	5kW (1kW)	10kW	10kW (25 30kW)	10kW	60kW
Response vs brightness	±0.75dB	+0.5dB	±0.75dB	±0.75dB

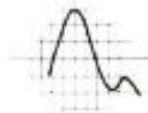
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Circle (51) on Reply Card

1993 Equipment Reference Manual *Broadcast Engineering* 107

Manufacturer	Acrodyne Industries	Browning Labs	CED	GEC-Marconi Comm	Harris Broadcast	
Model	TR series ¹	TVT series ²	TVV-10kSS ³	B7530 series ⁴	Platinum HT-10 ⁵	Platinum HT-60 ⁶
Low frequency linearity	0.45dB	...	...	90%	<0.5dB	<0.5dB
ICPM/uncorrected	±2'	...	...	±4'	±1.5'	±1.5'
Diff phase/gain	±1.5'/3%	<3'/<5%	<3'/<5%	±3'/0.95dB	1'/3%	1'/3%
K factor for 2T/12.5T	2%/5%	4% 2T	...	2% for 2T	1.5%/3%	1.5%/3%
Harmonics below visual	-60dB	-60dB	-60dB	60dB	-70dB	-70dB
Visual PA VHF	Tetrode	8976 (S-S)	Solid-state	SS & tetrode	SS modules	SS modules
Aural output power	10% of visual	10%	1kW	1.kW (2.5.3kW)	10% (20% opt)	10% (20% opt)
Carrier deviation	100kHz	25kHz (50kHz opt)	±75kHz	±50kHz	±200kHz	±200kHz
Audio response	±0.1 50-50k	± 30Hz-15kHz	±0.5dB	±1 30-15k	±0.5 to 110k	±0.5 to 110k
Applicable to stereo	BTSC	...	...	Yes	Yes	Yes
Harmonic distortion	0.5%	<1% full dev.	±0.5%	0.5%	0.25%	0.25%
AM/FM noise	-50dB/-60dB	...	-55dB FM	-50dB/-60dB	-55dB -70dB	-55dB/-70dB
Cooling method	Forced air	Forced air	Air	Forced air	Forced air	Forced air
Input AC power	208Vac	220/380 (220)	220Vac	380-415Vac 3φ	280-415Vac 3φ	280-415Vac 3φ
Power consumption	68kVA (21)	18kW (3.5kW)	26kW	59.5kW for 30kW	24.4kW for 10kW	135kW 10% aural
Reader Service No	794	795	796	797	798	799

¹TRL low-band VHF; TRH high-band VHF; tube or solid-state drivers. ²Other units rated 25W, 100W, 250W, 500W, 2.5kW. ³Related models rated at 5kW, 2.5kW, 1kW, 100W, 275W, 20W. ⁴All units high-band; B7533 10kW; B7536 25/30kW. ⁵HT-5 5kW; HT-2 2kW; HT-1 1kW; output based on number of modules; all units available in HS (high-band) and LS (low-band). ⁶HT-15 15kW; HT-30 30kW; HT-45 45kW; HT-20 20kW; available in HS or LS; consumption slightly higher for HS models.

Manufacturer	ITELCO	LDL Communications LARCAN		OMB Sis. Electronics	Rohde & Schwarz	Thomson-LGT
Model	T134 (383A) ⁷	TTS22M TTP44M ⁸	TTS3M TTS12M ⁹	OMB-TV	NT VHF series	EVHF20000 ¹¹
Frequency band	CCIR I (III)	VHF	CCIR I/III	Hi-VHF ¹⁰	VHF CCIR III	VHF CCIR I-III
Visual peak power	20kW (5kW)	22kW (44kW)	3kW (12kW)	1.6kW	100W-20kW	20kW
Response vs brightness	0.5dB	±0.75dB	±0.75dB	...	<0.3dB	...
Low frequency linearity	0.5dB	0.5dB	0.5dB	...	...	5%
ICPM/uncorrected	...	±1'	±1'	...	...	<3'
Diff phase/gain	±3'/4%	±1'±3%	±1'±3%	...	3'5%	±3'5%
K factor for 2T/12.5T	...	1%/3%	1%/3%	...	<2% 20T	±1.5%
Harmonics below visual	<1mW	-80dB	-80dB	<- 0dB	-60dB	-60dB
Visual PA VHF	TH 371 tetrode	MOSGET SS	MOSGET SS	TH347	SS or tetrode	Solid-state
Aural output power	1/10; 1/20 of visual	2.2kW (4.4kW)	500W (1kW)	10% of visual	1/10-1/20 visual	2kW
Carrier deviation	±50kHz	±200kHz	±200kHz	...	50kHz	50kHz
Audio response	0.5 40-15k	±0.5dB	±0.5dB	...	±0.3dB to 60kHz	±0.5dB 40-20k
Applicable to stereo	...	Yes	BTSC	...	Dual carrier	Yes
Harmonic distortion	<0.3%	0.05%	0.05%	...	0.4% ±50khz	0.5%
AM/FM noise	>50dB/>60dB	-60dB/-62dB	-60dB/-62dB	>65dBa	46dB/56dB unwt'd	-50dB
Cooling method	Air	Forced air	Forced air	Forced air	Per PA type	Forced air
Input AC power	380Vac 3φ	208-242Vac 3φ	240Vac 3φ	220. 220/380	220-380Vac 3φ	380Vac
Power consumption	41.5kVA	36kW (80kW)	5.5kW (19kW) ave.	3.6kW	1kVA-52kVA	36kVA
Reader Service No	800	801	802	803	804	805

⁷T383A high-band with common amplification of visual and aural carriers. ⁸TTS30M rated 30kW. ⁹TTS6M 6kW. ¹⁰Units also available for Band IV-V UHF operation. ¹¹EVHF 5000S rated 5kW; EVHF 10000S rated 10kW.

Vectorscopes

Manufacturer	Electronic Visuals	Hamlet Video Int'l ¹	Leader Instruments		Magni Systems	Philips Test & Measuring
Model	EV4121	HVI 203	5850C	5854	VS 561	PM5667
Display size	8x10cm	128 linesx8.5μs ²	8x10cm	2.75" diagonal	4x3.25"	8x10cm
Graticule	Internal	Electronic	Int/ext	Internal	Internal	Internal
Waveform mode	No	Yes	No	No	No	Vector. 8φ
Standards	NTSC; PAL-M	NTSC/PAL/SECAM	NTSC	NTSC	NTSC PAL	NTSC PAL-G/-M/-N
Function control	Manual	Manual	Manual	Manual	Manual & remote	Manual & remote
Integral calibrator	No	Yes	Yes	No	Test mode	Yes
# composite inputs	A/B	2		2	6 composite ⁴	A B
Subcarrier reference	Yes	A/B/Black	A/B/Black	A/B	A B/C/Black	A/B/Blk/CompSync
Sync reference	A/B/Blk/Composite	A/B/Black	A/B/Blackburst	A B	A B/C Black	A/B/Blk/CompSync

Manufacturer	Electronic Visuals	Hamlet Video Int'l ¹	Leader Instruments		Magni Systems	Philips Test & Measuring
Model	EV4121	HVI 203	5850C	5854	VS 561	PM5667
RGBYRGB displays	Yes	Yes	Yes	No	Yes	Yes
Display reference	A/B Ext	A B/Ext	A B/Ext	A B	A B C/Ext	A/B/External
Diff phase/gain measurements	2 / 2%	1 / 1%	1 / 1%	1 / 1%	%	0.2'
VITS line select (range)	No	Full line range	Yes ³	No	w/WFM530/560	from 5665 WFM
Luminance measurements	No	Yes	No	No	No	No
Reader Service No	806	807	808	809	810	811

¹ James Grunder & Associates exclusive US distributor. ² Expanded mode shows 512 lines x 34µs; unit displays vector and waveform patterns on standard video monitor; includes freeze, store functions; outputs recordable, transmittable; dual standard option; 300 series uses 4x sample rate for clearer display. ³ Determined by companion line select waveform monitor. ⁴ Or component inputs.

Manufacturer	Philips Test & Measuring	System Video	Tektronix	Videotek	
Model	PM5668	1255	1720 series	TVM-720 combo	VSM-61
Display size	8x10cm	10x10cm	8x10cm	8x10cm	8x10cm
Graticule	internal	Internal	Internal	Internal	Internal etched
Waveform mode	Vector/δφ SC/H φ	No	Stereo audio phase	Yes	Vector only
Standards	NTSC PAL-G/M/N	NTSC PAL-M	NTSC/PAL ⁶	NTSC/PAL	NTSC/PAL/M
Function control	Manual/remote	µP control panel	µP control	µP control -422-232	Manual
Integral calibrator	Yes	Yes	Yes	Yes	Yes
# composite inputs	2	A/B	A B	To 8 ⁷	2
Subcarrier reference	A/B/Blk/CompSync	A/B/Ext Int	Ext ref	Various	A B/Sync
Sync reference	A/B/Blk/CompSync	A/B/Ext Int	Yes	Various	...
Display reference	A/B/Ext	A/B/Ext/Int	Int/Ext	Various	A/B/Ext
Diff phase/gain measurements	0.2	to 0.05 / 0.05% ⁵	≤2 ≤2%	±0.1 ±0.1%	±10 / ±10%
VITS line select (range)	from 5665 WFM	...	From 1730 WFM	Digital selector	No
Luminance measurements	No	No	No	Yes	No
Reader Service No	812	813	814	815	816

⁵With 1407 δφ/δG measurement option. ⁶1725 for PAL signals; use with 1730, 1731, 1735 or WFM 300A waveform monitors. ⁷Input for two CAV and two composite, one CAV and five composite or eight composite signals; 3-D vector display shows luminance component on Z-axis; on-screen cursors; quad SC/H phase display; TVM-710 similar.

Waveform Monitors

Manufacturer	D P S	Electronic Visuals			Hamlet Video Int'l ²			
Model	DPS VM-2000	EV4142 (4131) ¹	EV4151 Multiformat	EV4161 combo	HVI 301 ³	HVI 304 ⁴	Micro Scope ⁵	Porta Scope ⁶
Display size	In-picture	8x10cm	8x10cm	8x10cm	In-picture	In-picture	In-picture	In-picture or VF
Graticule	Generated	Int. Illum	Int.	Illuminated	Generated	Generated	Generated	Generated



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Circle (52) on Reply Card

Manufacturer	D P S	Electronic Visuals			Hamlet Video Int'l ²			
Model	DPS VM-2000	EV4142 (4131) ¹	EV4151 Multiformat	EV4161 combo	HVI 301 ³	HVI 304 ⁴	Micro Scope ⁵	Porta Scope ⁶
Standards supported	NTSC	N/P/S	525/60/625/50	N/P-M/S	N/P/S auto select	N/P/S auto select	N/P/S auto select	N/P/S auto select
Internal calibrator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vertical response	LP filter	Chr/LP/δG Flat/Lin.	Chr/LP/Flat/Lin.	Chr/LP/Flat δG/δφ	Chr LP Flat δG	Chr LP Flat δG	Chr LP Flat	Chr LP Flat δG
Time bases	1H/2H	H/2H/2Hx V/2V/2Vx	1/2/3-field/-line	H/2H/2Hx V/2V/2Vx	H/2H/2Hm 3H V Vm	H/2H/2Hm 3H V Vm	H/2H/2Hx V Vx	H/2H/2Hm 3H V Vm
Time base magnification	...	1μs/200μs/div	x5/x50	Yes	x3	x3	...	...
RGBYRGB displays	No	Yes (No)	Yes	Yes	Also YUV/YC	Also YUV/YC	...	Yes
DC restore	...	Back porch	Back porch/input	Back porch	Back porch	Back porch	Back porch	Back porch
VITS line select	No	7-22 (No)	No	No	...	2-line	No	No
Programmable	via DPS TBC II	No	No	No	No	No	No	...
Remote control	via PC	4142 only	No	No	Yes	Yes	No	Yes
Composite inputs	Yes	Yes	2 signals	A B/Ref	3 inputs	Yes	One	to 4 composite
Component inputs	Unit is PC card	Yes	2 YCrCb/RGB	RGB	YCrCb/S-VHS	YCrCb	No	or component
Line strobe pulse	for Amiga/IBM	No	No	No	Bowtie display	Bowtie display	No	Bowtie display
Vectorscope function	Limited	No	Yes	Full function	Yes	Yes	Yes	w/SC-H o
AF stereo phase mode	No	No	Bowtie display	No	Opt for vectors	No	No	Lin. or polar
Waveform comparison	No	Parade on 4142	Parade/super	RGB parade	Parade/Overlays	Parade/Overlays	No	Split-screen/mix
Reader Service No	817	818	819	820	821	822	823	824

¹Compatible with sound-in-sync. ²James Grunder & Assoc. exclusive US distributor. ³Generated waveform, vector patterns on standard video monitor; produces composite and component outputs simultaneously. HVI 303 for composite only with programmable function keys. ⁴Generated waveform, vector patterns on standard video monitor; produces composite and component outputs simultaneously. HVI 305 for RGB and composite. ⁵Portable unit generators WFM or vector displays on monitor or camera viewfinder. ⁶Waveform/vectors displayed on standard monitor or camera viewfinder.

Manufacturer	Leader Instruments		Magni Systems		Magni Systems	Philips Test & Measuring		
Model	5860C (5860H) ⁷	5870 (5872) ⁸	MagniMonitor	WFM 560/561	WV 560/561	PM5661 Combo (5662)	PM5664 Component ⁹	PM5665
Display size	8x10cm	8x10cm	5.25x4.52-inch	4x3.25"	4x3.25"	8x10cm	8x10cm	8x10cm
Graticule	Int. illuminated	Int. illuminated	Int. gen'd	Int. illuminated	Int. illuminated	Int.	Int. electronic	Int.
Standards supported	NTSC	NTSC (PAL)	NTSC/PAL	N P S	NTSC/PAL	NTSC PAL	RGB YPbPr M-II YIQ:1	NTSC PAL
Internal calibrator	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Vertical response	Chr LP Flat δG Lin:1	Chr LP Flat δG	LP/HP/wideband	Chroma LP Flat	Chroma LP Flat	Chroma LP Flat δG	Low pass: Flat	Chroma LP Flat δG
Time bases	H/2H/2Hm V/2V/2Vm:1	H/2H/2Hm V/2V/2Vm	1H/2H/2F	H/2H/2Hm 2V 2Vm	H/2H/2Hm 2V 2Vm	H/2H/2Hx V/2V/2Vx	H 2H 3H V/2V/2Vx	H/2H/2Hx V/2V/2Vx
Time base magnification	x10 H/x20V	x10 H/x20V	8x.32x/25x	x10 (H/2H) x25 (2V)	x10 (H/2H) x25 (2V)	x10/x20	x10/x25	x10/x20
RGBYRGB displays	Yes	Yes	Yes	Yes	Yes	Yes	RGB only	Yes
DC restore	Back porch	Back porch	...	Back porch	Back porch	Back porch/sync	Back porch/black	Back porch/sync
VITS line select	5860H	5870/5872A	No	Yes	Yes	Any line	Any line	Any line
Programmable	No	Yes	...	Yes	Yes	No	Yes	No
Remote control	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Composite inputs	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Component inputs	No	No	Yes	Yes	Yes	No	Yes	No
Line strobe pulse	5860H	No	...	No	No	Yes	No	Yes
Vectorscope function	No	Yes	Separate model	Yes	Yes	Yes (w/SC-H φ)	Yes:2	No
AF stereo phase mode	No	No	No	No	No	No	No	No
Waveform comparison	No	Yes	Parade	Yes	Yes	Yes	Overlay	Yes
Reader Service No	825	826	827	828	829	830	831	832

⁷5860H does not include Linearity response or 1-line H or 1-line V timebase. 5860D digital unit for D2/D3 parallel or serial. ⁸5870 performs SC/H measurement simultaneous A/B signal displays and full line select; Model 5872 has similar specs but without features of Note 1. ⁹Also accepts Betacam inputs; Star mode, Gamut, RGB out.

Manufacturer	System Video			Tektronix				
Model	1258	2207 Combo	1485R series	1710B series	1730 (1730-HD/-D2) ¹⁰	1740A series	1750A series combo	1780R series combo
Display size	10x10cm	8x10cm	8x10cm	8x10cm	8x10cm	8x10cm	8x10cm	2 8x10cm
Graticule	Int.	Int.	Int/ext	Int.	Int.	Int.	Int.	Ext/Int/Int/elect
Standards supported	NTSC/PAL-M	NTSC/PAL	NTSC/PAL	NTSC/PAL	NTSC/PAL (multistd)	NTSC/PAL-M	NTSC/PAL	NTSC/PAL
Internal calibrator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vertical response	Flat/LP/Lin	Flat/LP/Lin	Flat/chroma/LP	LP/flat	Flat LP chroma (30MH)	Flat/IRE/luma	Flat/IRE/Luma	Chr LP Flat Luma
	Chroma	Chroma/parade	IRE:δG		z 2-trace (ftr)	Chroma	Chroma	Diff step ¹²

Manufacturer	System Video				Tektronix				
	Model	1258	2207 Combo	1485R series	1710B series	1730 (1730-HD/-D2) ¹⁰	1740A series	1750A series combo	1780R series combo
Time bases	H/V 2H/V 5H/V 10H/V	H/V 2H/2V MAG	H/2H/2Hm V/2V/2Vm	2H 2Hm 2V 2Vm	H 2H/2Hm 2V 2Vm ¹¹	H 2H/2Hm V 2V/2Vm	H/2H/2Hm V/2V/2Vm	H/2H/2Hm V/2V/2Vm	
Time base magnification	....	25.6x	5 10 20 25 50	10	10	20	25	10 20
DC restore	Yes	Yes	Back Porch Sync tip	Back porch	Back porch	Bk porch sync tip	Bk porch sync tip	Bk porch/sync tip	
VITS line select	Yes	Yes	1L & 15L	None	Any (& 14-line)	Internal jumper set	8-23 6-21 319-334	1H or 15H	
Programmable	Yes	...	No	No	Yes	All functions	All functions	Yes	
Remote control	Yes	Yes	Yes	No	Yes	Yes	Yes	RS-232/422	
Composite inputs	A B	A B C	A B Aux	A B	A B	A B	A B	A B1 B2 B3 ¹³	
Component inputs	...	No	...	No	3 each A B	No	No	A B1 B2 B3	
Line strobe pulse	...	...	Yes	No	Yes	...	Yes	Yes
Vectorscope function	No	Simultaneous	No	Burst phase	No	δφ in R-Y mode	ω SC/H φ	Yes	
AF stereo phase mode	No	No	No	Yes	No	No	No	Yes	
Waveform comparison	Overlays	No	Overlay	parade	No	Parade	overlay	Parade display	
Reader Service No	833	834	835	836	837	838	839	840	

¹⁰ D-2 model for use with digital D-2 has all same features. ¹¹ 10ns/div and 1-1/2-3-line for -HD. ¹² SC/H polar display. Diff Phase. Diff Gain. ¹³ Auxiliary in/out.

Manufacturer	Tektronix			Videotek		
	Model	WFM 300A	TSM-50 ¹⁵	TSM-61	TVM-621 Combo	TVM-710
Display size	8x10cm	8x10cm	8x10cm	8x10cm	8x10cm	
Graticule	Elect 1% accuracy	Internal	Int.	Int.	Internal	
Standards supported	525/60 625/50 RGB ¹⁴	NTSC PAL -M	NTSC PAL -M	NTSC PAL -M	NTSC/PAL	
Internal calibrator	Yes	Yes	Yes	Yes	Yes	
Vertical response	Lightning/Bowtie, LP	Chroma LP/Flat	Chroma LP Flat. Diff Gain	Chroma LP Flat	3 filtr./input	
Time bases	H/2H/2V/2Vm/Driftstep	2H/2Hm/2V/2Vm	H 2H/2Hm 2V 2Vm	H 2H 2Hm V 2V 2Vm	Standard sweeps	
Time base magnification	x20	x20	x20	x5V x10H	...	
RGBYRGB displays	Yes	No	Yes	Yes w R-Y Overlay	Yes	
DC restore	Back porch	Back porch	Back porch	Back porch	Back porch	
VITS line select	Any line	No	Yes	No	3 selections	
Programmable	...	No	No	Yes	Yes	

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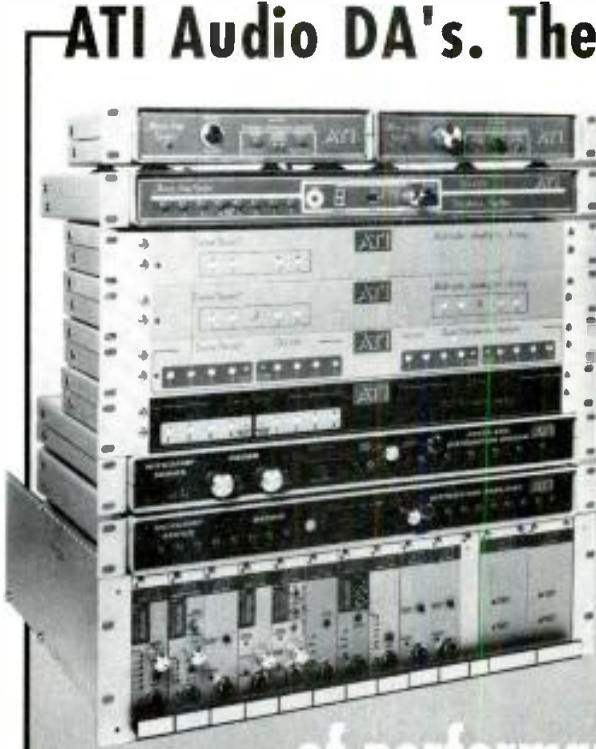
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Manufacturer	Tektronix			Videotek		
Model	WFM 300A	TSM-50 ¹⁵	TSM-61	TVM-621 Combo	TVM-710	
Remote control	Yes	No	No	No	Yes	
Composite inputs	Yes	Yes	Yes	3	4 inputs	
Component inputs	RGB/YCrCb1	No	No	No	No	
Line strobe pulse	Any 2/any 15	No	No	Yes	...	
Vectorscope function	Yes	No	No	Yes	w/ 3D display	
AF stereo phase mode	No	No	No	No	SC/H phase	
Waveform comparison	Overlay, parade	No	No	Yes	Parade	
Reader Service No	841	842	843	844	845	

¹⁴ Transcoders for YIQ, YCrCb available. ¹⁵ Similar unit TSM-51 does not include 1H sweep or differential gain features.

TV Demodulators

Manufacturer	Barco Industries	Philips Test & Measuring	Richard Hirschmann	Rohde & Schwarz		Tektronix	Videotek
Model	VSD 1000 ¹	PM 5560 ²	PME 350	AMFS	EMFT & EMFD	1450-1	DM-141S
Serviceband	VHF/UHF	VHF UHF IF	40MHz-865MHz	45MHz-960MHz	V/UHF IF CATV	IF	VHF
CCIR designations	CCIR I-IV	Band I/III/IV/V	PAL I-V/D2-MAC	...	CCIR I-V	CCIR I/III/IV/V	...
Channel select	Xtal or PLL	PLL synthesized	Synthesized	Synthesized	Xtal/PLL/D/C	Fixed & tunable	Synthesized
RF input impedance	75/50 opt.	50	50	50/75	50/75	50	75
Direct input range	-30/+30dBmV	3V max	-65dBm/+10dBm	0.5-100mV	0.5-100mV	80µV-5V	...
Offair input range	300µV-30mV	>100mV	-65dBm/+10dBm	0.5-100mV	0.5-100mV	80mV-5V	100µV-630mV
IF input range	0-40dBmV	70mV 3dB	-45dBm/+8dBm	5-100mV	5-100mV	80µV-22mV	...
Input level indicator	4-LED ladder	Analog meter	RF/IF/BB-MAC	LED	Yes	LED display	No
Intercarrier input	...	Yes	No	Yes	Yes	50	...
Split carrier mode	...	Yes	No	Yes	Yes	Yes	Yes
Zerocarrier reference	Yes	Int/Ext	...	Internal	Internal	Int	ext
Envelope detector	Yes	Yes	...	Yes	Yes	Yes	No
Synchronous detector	Yes	No	Yes	Yes	Yes	Yes	Yes
Quadrature detection	...	Yes	...	Yes	Yes	Yes	No
Aural signal reject	Yes	Yes	Yes	Yes	Yes	Yes	No
SAW filter design	Yes	No	Yes	Yes	Yes	Yes	Yes
# video outputs	2	3	2-MAC/3-PAL	1	1	2/75	2
Aural deviation out	Yes	75kHz	30kHz +6dBm	Yes	25kHz	50mV/kHz 600	No
Audio line out	2-line	0-6dBm var.	Stereo	Yes	Yes	...	+4dBm
Speaker out	2-speaker	...	Headphones	Yes	Yes	Yes	Yes
Video clamp position	...	Backporch/sync	...	Backporch	Backporch	Sync	blank
Carrier failure alarm	Yes	Yes	No	Yes	Yes	...	No
Modulation fail alarm	Yes	No	No	Yes	Yes	...	No
Stereo audio type	Dual channel	BTSC/dual aural/Nicam	Dual channel	Dual sound	BTSC & dual sound	BTSC system	BTSC
Reader Service No	846	847	848	849	850	851	852

¹ Available for I and BG (dual carrier stereo). ² Accepts BTSC, dual aural and Nicam type signals for stereo audio.

Automated Video Test Systems

Manufacturer	Marconi	PESA	Rohde & Schwarz		Systems Video	Tektronix	Videotek
Model	2924 video analyzer	SWAT 2000	Model TIF ¹	Model UAF ²	WATCHDOG 2000 ³	VM700 set	TVM-730 ⁵
Standards supported	NTSC/PAL/SECAM	NTSC/PAL-B	NTSC/PAL/SECAM	NTSC/PAL/SECAM	NTSC/PAL dual	NTSC/PAL	NTSC/PAL
Control computer	2 - 80188	Proprietary	Prop. transputer	Proprietary	Proprietary	Motorola 68020	...
Manual control mode	Yes	Yes	Yes	(Tests 3 inputs	Yes	Yes	Menu-driven
Programmable control	Yes	Yes	Yes	(simultaneously	9-/15-way D	Yes	Yes
Video test signal source	PM 5654 generator	Video	Integrated generator	Integrated generator	Ext 2360/2461 units	No	Ext source
Measurements per spc	FCC/RS-170 NTC-7	EIA CCIR	Var. agencies	Var. agencies	EBU/CCIR/FCC	RS170A/NTC7 RS250B	NTC7
Line(s) used for test	Any line	Full field	...	Selectable	Various	Any line (Picture mode)	Any line

Manufacturer	Marconi	PESA	Rohde & Schwarz		Systems Video	Tektronix	Videotek
Model	2924 video analyzer	SWAT 2000	Model TIF ¹	Model UAF ²	WATCHDOG 2000 ³	VM700 set	TVM-730 ⁵
Automatic logging	Yes	Possible	Yes	Yes	EX800 Epson	via RS-232C	No
Waveform displayplot	on VT100 terminal	CRT/LCD display	External	No	# 2207 display ⁴	Raster scan display	w Vectors
Data storage	Ext/int	Printout or PC	Memory cards	Memory cards	Yes	Int/ext	To PC
Set parameter limits	3 upper/3 lower	Yes	Yes	Yes	All adjustable	User programmed	Yes
Outoftolerance alarm	Yes	LED/ext/video	Yes	Yes	Alarms	On-screen messages	...
Carrier failure alarm	Yes	Yes	...	...	...	No	No
Modulation fail alarm	Yes	Yes	...	...	...	No	No
Reader Service No	853	854	855	856	857	858	859

¹ Test period of 1s for measurement of 26 video timing parameters of video signals. ² Test period of 1s for measurement of 25 video level and signal quality. ³ Auto identification of standard. ⁴ Dual vector/waveform display unit. ⁵ TVM-730 includes Auto-Measure feature: four composite inputs.

Audio Test Systems

Manufacturer	Amalgamated Wireless Australasia	Amber Electro Design		ASACA ShibaSoku		Audio Precision		Consultronics	Hewlett-Packard
Model	F242A	5500 ¹	7000 ³	AM50B	AM51A	Portable One (Plus)	System One	PC 3000	HP 8903E analyzer
Auto level set	Yes	Yes	Yes	2-channel	Yes	Yes	Yes	Yes	Yes
Auto null set	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
μ P-control	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto ranging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
XY display output	No	Option	CRT	...	...	No	No	Yes	No
Printer/plotter output	No	Option	Yes	Option	Option	Yes	Yes	Yes	Yes
Automation bus port	No	Yes	GP/RS-232	GP-IB	GP-IB /memory card	Yes	Yes	...	HP-IB
Audio recorder tests	No	Yes	Wow/flutter	...	...	No	Yes	...	Non-specific
Transmit/receive units	No	Yes	No	No	No	Yes	Yes	Yes	No
Portable unit	...	Yes	No	No	No	Yes	No	Relative	No
AF range (fundamentals)	20-20kHz	10-100k	8.5->500kHz	10Hz-330kHz	10-100kHz	10-100kHz	10-200kHz	20Hz-20kHz	20Hz-100kHz
Range (on harmonics)	10-100kHz	10-500k	...	...	to 330kHz	...	10->500k	...	1-Hz-500kHz
Input level range	-30/+30dBm	-30/+40dBm	-100/+40dBV	36mV-100Vrms	-26.8+42.2dBm	-800 μ V	<21 μ V, -90dBu	-50, +21dBm	50mV-300V
Input impedance	600 Ω	100k Ω	100k Ω	200k Ω /100k Ω	200k Ω /100k Ω	100k Ω	100k Ω	600 Ω	100k Ω
Input connection	B/Unb	AB/AU	B/Unbal	2-ch Bal/unb	Bal/unb	Bal/Unbal	Bal/Unbal	Bal.	B/Unb
Fundamental rejection	...	>100dB	>120dB ⁴	>100dB	>85dB	...	...	...	...
THD minimum	<0.005%	0.001%	30mV/-30dBV	-54dB (0.2%)	-120dB	0.0025%	0.001% 20-20k	0-99.99%	-80dB, 17 μ V
THD accuracy	\pm 0.5	\pm 1%	\pm 2dB 10Hz-100kHz	...	...	\pm1dB	\pm 0.5dB to 120kHz	0.05%	\pm 2dB to 100kHz
IMD measurements per	N.A.	SMPTE ²	SMPTE 4:1	...	70kHz/7kHz	SMPTE ⁵	SMPTE ⁵	[Tests circuits	...
IMD accuracy	N.A.	\pm 1%	...	...	...	\pm1dB	\pm 1dB	[under operation	...
IMD minimum	N.A.	0.001%	<0.003%	...	0.001-100%	<0.0025%	0.0018% SMPTE	[with short	...
AC voltage range	-110/+32dBm	10 μ -100V	Yes	30 μ V-100V	0.1 μ V-100Vrms	<10mV-140V	300 μ V-160Vrms	[test bursts	.3mV-300V
Audio noise range	to <2.5 μ V	<1 μ -100V	to <-112dBm	...	-100dB/+40dB	...	75 μ -160Vrms	-50, 21dBm	0-99.99dB
Signal generator range	Model G232	<-80/+30dBm	Yes	Yes	Yes	10Hz-120kHz	10Hz-204kHz	PG3000	Yes
Generator output	B/Unb	TB/TU	B.Unbal Act	B/U	Bal/unb	Bal/Unbal Xfmr	Bal/Unbal Xfmr	B/150/600 Ω	600 Ω or 50 Ω
Frequency counter range	No	to 500kHz	Yes	Yes	to 500kHz	10-200kHz	10Hz->500kHz	...	Yes
Meters, display.	Vrms/dBm meter	LED	Windows 3.0	Digital	LCD display	LCD panel	CRT	640x200 pixel	7-seg LEDs
Reader Service No	860	861	862	863	864	865	866	867	868

¹ AudioCheck package allows control from PC for automated measurement system. ² also DIN 45045 & CCIF. ³ PC based using Windows 3.0 interface. ⁴ Greater than 120dB or 10dB below highest harmonic. ⁵ IMD also per DIN 45045/45043; measurements also per CCIR IEC 2683 IHF A202.

Manufacturer	Neutrik	Rohde & Schwarz		Schmid Telecomm	Sound Technology		Tektronix		
Model	A1 System	SUN-2 system	UPA series	SIAT SZ 346/316 ⁶	1510A ⁷	3200B/3100B ⁸	AA5001	AA501	VM700A opt 40 ⁹
Auto level set	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto null set	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
μP-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto ranging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
XY display output	Yes	Yes	Yes	...	Yes	Opt	Yes	No	CRT display
Printer/plotter output	Yes	Yes	Yes	Thermal printer	Yes	Yes	Yes	No	RS-232
Automation bus port	RS-232	Yes	Yes	RS-232	Opt	Yes	Yes	No	...
Audio recorder tests	Possible	Yes	Yes	Possible	Yes	Yes	No	No	...
Transmit/receive units	No	Yes	No	Xmt 316/Rcv 346	Yes	Yes	No	No	Yes
Portable unit	Yes	Yes	Yes	Yes	Yes	Yes	No	No	...
AF range (fundamentals)	20Hz-40kHz	10-100kHz	10-100k	30Hz-20kHz	20-40kHz	1-102.39kHz	10-100kHz	10-100kHz	>20-20kHz
Range (on harmonics)	to 130kHz	...	300k	...	315Hz-1kHz	10Hz-300kHz	to 300kHz	to 300kHz	...
Input level range	10mV-200V	-84/+32dB	12mV min	- 44dBm/+21dBm	100μV-40V	10mV-100V	60mV-200V 100kΩ	60mV-200V 100kΩ	>- 60dBu/+26.5dBu
Input impedance	100kΩ	1MΩ	1M/20k/600kΩ	600/10kΩ	100kΩ	100kΩ	100kΩ	100kΩ	50kΩ
Input connection	Act bal	B/Unb	B/Unb	2 bal	AB	...	AB	AB	Mini XLR TY3F
Fundamental rejection	...	>85dB	...	...	...	...	10dB ¹¹	10dB ¹¹	...
THD minimum	0.0025%	0.06%	0.0001- 100%ge	>0.1%	0.05%	0.001%	0.0025%	0.0025%	<0.01%-33%
THD accuracy	...	±0.1dB	±2dB to 100kHz	...	5%	10%	±10%	±10%	...
IMD measurements per	...	per DIN 45405	...	Opt SMPTE	...	SMPTE	CCIF/DIN/SMPTE	CCIF/DIN/SMPTE	...
IMD accuracy	...	...	N.A.	...	...	1.0%	±10%	±10%	...
IMD minimum	...	...	N.A.	...	...	0.002%	0.0018%	0.0018%	...
AC voltage range	10μV-200V	-84/+32dBm	10μV-300V unbal	- 70dBm/+21dBm	300μV-40V	30μV-100V	-108/+48dBm ±2% fs	-108/+48dBm ±2% fs	275μV- 16.4Vrms
Audio noise range	-111dBu residual	Yes	<3μV	-70dBm/+1dBm	-92/-10dBV	<4μV	-108dBm	-108dBm	...
Signal generator range	Yes	SUN-2/S 10- 100k	Opt 10-100k	Yes	-80,+30dBm	-90/+30dBm	10-100k 28dBm	10-100k 28dBm	Multitone
Generator output	<0.2Ω bal	B Unb	Bal	unbal	Bal<5/600Ω	AB	AB	28dBm Bal	28dBm Bal
Frequency counter range	...	...	8-250k	...	20Hz-40kHz	10Hz-500kHz	No	No	No
Meters, display	LCD	LED displays	LCD displays	LEDs	CRT	LED	LED displays	LED displays	CRT
Reader Service No	869	870	871	872	873	874	875	876	877

⁶SIAT Short Interval Audio Testing is a signal generator and receiver for operation of wired or radio links; complete set of measurements made within 5-sec interval.
⁷ Audio signal and recording test system; measures 2nd, 3rd harmonics separately. ⁸ Two unit package for programmable transmission path tests; transmission package is 3100B programmable generator with LED metering displays. ⁹ Value is below specified residual THD & noise or actual THD, whichever is greater.
¹⁰ Option for VM700A video measurement system.

The products shown in these comparison tables generally represent only a portion of a manufacturer's line. We invite you to contact the manufacturers for information on other products that may fit your requirements.

The information appearing in this *Equipment Reference Manual* is based on material provided to the staff of **Broadcast Engineering** by the manufacturers. If a company does not appear in the directory section of this publication, either **BE** was unaware of the company, was provided with erroneous contact information or the questionnaire initially mailed in June was simply not returned.

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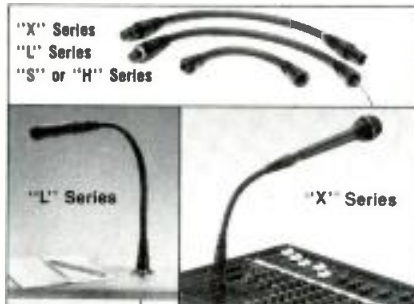
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