

Broadcast Engineering

THE JOURNAL OF DIGITAL TELEVISION

SPECIAL REPORT: HD WORKFLOW

- Building an HD edit platform (p. 74)
- Capture, edit, post HD — in the field (p. 93)

SHOWCASES

- Ascent Media's new Digital Media Data Center
- NBA's new SGI-based media center

NAB UPDATE

- The latest products from NAB

THIS IS NOT AN AUDIO CONSOLE

D-9



IT'S A DIGITAL CONTROL SURFACE

THE D-9 interfaces to WHEATSTONE's router-based BRIDGE MIXING SYSTEM—a digital network that lets multiple control surfaces share common audio resources, accessing signals and sending mixes throughout your facility.

Production



OTHER SURFACES can share common audio resources

Studio 2



I/O CONNECTIONS can be at point-of-use and accessed by any control surface

DEDICATED DSPs and controls, redundant automatic failover CPUs, mix engines and power supplies are all integral to the system. Components interconnect via CAT5 or fiberoptic cables for single-wire system integration.

A traditional intuitive surface layout gets your operators up and running FAST—even in full 5.1 surround mode.

TRUE RELIABLE mixing power; ease and clarity of operation—take ADVANTAGE of the WHEATSTONE BRIDGE Network System!

CENTRAL FRAME can control a 1024 x 1024 mixing based router



Engineering

Engineering




Talk to your **STATION ROUTER** bi-directionally for smooth integration

 **Wheatstone**

sales@wheatstone.com / tel 252-638-7000 / www.wheatstone.com

Copyright © 2005 by Wheatstone Corporation



Howard L. Lance
Chairman, President and Chief Executive
Harris Corporation

"We're building the industry's strongest portfolio of content delivery solutions to drive our customers' strategic success."

Managing Content. Delivering Results.

Harris surrounds your team with the most complete set of content delivery solutions in the industry. Whether you need post production, graphics, video servers, routers, signal processing, test and measurement, traffic, automation, ingest software or transmitters for mobile TV, Harris has the solutions you need. Selected as one of "Forbes' Platinum 400" best managed companies in America, Harris is driving technical innovations that help you generate new revenue streams, reduce operating costs, and achieve new levels of productivity. We're the one source for integrated, open-source solutions designed to help you move content to your consumers.

HARRIS

assuredcommunications™

Broadcast • Microwave • RF • Government Systems

www.harris.com

INTERPLAY™



You'll never work with media the same way again.

Experience it first at NAB Booth SL701

Avid.
do more™

© 2006 Avid Technology, Inc. All rights reserved. Product features, specifications, system requirements, and availability are subject to change without notice. Avid, do more, and integrate are either registered trademarks or trademarks of Avid Technology, Inc. or its subsidiaries in the United States and/or other countries. All other trademarks contained herein are the property of their respective owners.

Broadcast Engineering

THE JOURNAL OF DIGITAL TELEVISION

CONTENTS

FEATURES

74 HD editing workflows

By Scott Murphy

How to build an HD workflow in an existing SD environment

82 Multi-image video displays

By Goran Stojmenovik and Jim Durant

A guide to using multi-image video displays in control room and QC environments

93 HD at any given latitude

By Thomas Strodel

The author and his crew travel around the world with new HD equipment to produce a vibrant travel show.

109 Color control in the camera

By Alan Roberts

Understanding the two elements of color control: taking characteristics and transfer characteristics

116 NAB product highlights

By Broadcast Engineering staff

The newest products on the show floor



ON THE COVER:

The machine room at Ascent Media Group's new Digital Media Data Center has more than 450 equipment racks that support 150 individual bays. Photo courtesy John Benson.

BEYOND THE HEADLINES

Download

14 CPR redefined

FCC Update

20 Second round DTV channel conflicts

DIGITAL HANDBOOK

Transition to Digital

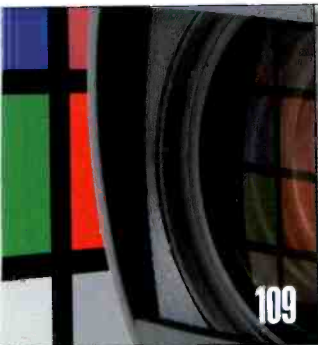
22 MPEG editing

Computers & Networks

30 Gigabit Ethernet primer

Production Clips

34 A guide to monitoring 5.1 sound



(continued on page 8)

Come and see us at NAB2006:
Booth SU4141



Give everybody the power to See and Solve. Close the case of video compliance.

Tektronix video solutions with exclusive See and Solve™ features help everybody in your operation solve problems faster and easier. Video compliance doesn't need to be complicated. Provide understandable information, not just data, and more members of your team can visualize and troubleshoot the source of problems. Editors, operators, technicians, and engineers can all use Tektronix tools to identify and address potential problems with gamut, audio, MPEG compression, and more with simplicity. You need to see it for yourself.

Give people the power of real information, not abstract data.
www.tektronix.com/seeandsolve



Tektronix[®]
Enabling Innovation

Broadcast Engineering

THE JOURNAL OF DIGITAL TELEVISION

CONTENTS

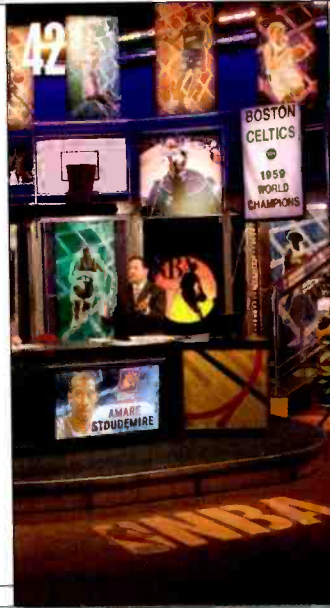
SYSTEMS DESIGN & INTEGRATION

Systems Design Showcases

- 42 NBA Entertainment builds media management environment with SGI
- 54 Ascent Media Group's new Digital Media Data Center

Transmission & Distribution

- 64 A practical guide to encoders



FreezeFrame

Consider an RGB signal, representing red, green and blue. It requires ___ channels for transport; ___ percent represents pure black and ___ percent represents pure white. *Note: This question comes from Al Kovalick's new book, "Video systems in an IT environment," chapter 11.*

Readers submitting winning entries will be entered into a drawing for *Broadcast Engineering* T-shirts. Enter by e-mail. Title your entry "FreezeFrame-April" in the subject field and send it to: editor@prism2b.com. Correct answers received by June 1, 2006, are eligible to win.

December FreezeFrame

Q. What does recommendation H.262 compare to?
 A. The H.262 recommendation is identical to the video specification of MPEG-2.

Winners:

Tim Costley, John Mills, Patricia Yates

NEW PRODUCTS & REVIEWS

Applied Technologies

- 224 Sony's XDCAM HD system
- 226 NHK pushes surround to 22.2 channels
- 228 Scopus' DSNG encoder extends mobile newsgathering

Field Reports

- 479 NEP selects Vinten pan and tilt heads
- 480 WSYR implements centralcasting
- 482 NFL Films at the Super Bowl

Technology in Transition

- 484 Video storage

DEPARTMENTS

- 10 Editorial
- 12 Reader Feedback
- 487 Classifieds
- 492 Advertisers Index
- 494 EOM



54



226



MAXIMUM PERFORMANCE BROADCAST PRODUCTS

For over 30 years, Maxell's innovative technologies have provided broadcast professionals with the highest levels of quality, stability and reliability. That's why we're one of the leading blank media brands for television commercial duplication and playback-to-air, as well as acquisition, editing, post-production and archiving. Moreover, all of our products are backed by Maxell's superior customer service and unsurpassed product warranties. So when you choose Maxell, you've chosen maximum performance products from the maximum performance brand.



Behind the VEIL

The Motion Picture Association of America (MPAA) and your best buds, Congress, are hard at work again trying to prevent you from enjoying all that content you thought you purchased. Excuse me, did I say *purchased*? I misspoke; I meant *licensed*. After all, we no longer own entertainment; we merely rent it.

Just before the politicians fled Washington for their six-week winter vacations, Congressmen James Sensenbrenner (R-WI) and Jon Conyers (D-MI) introduced HR 4569, which they claim will plug the last crack in Hollywood's wall against evil piracy: the dreaded ana-



log hole. The congressmen's action must have been the best stocking stuffer Hollywood's had in years — maybe even better than the Recording Industry Association of America's success in suing actual CD customers.

The entertainment community — broadcast networks included — sounds like a pack of angry cats. They howl for protection from those one-eyed, black-jacketed, peg-legged pirates (you and me) stealing them blind.

Hollywood claims that some — no, make that most — of us are thieving their high-value content (you know, programs like "Mister Rogers' Neighborhood," "Bewitched" and other really hot shows, maybe even

"Gilligan's Island," and passing these videos on to our buddy lists). Were this true, the Los Angeles power brokers, who are already rich, would be — uh, well — less rich.

The problem (from Hollywood's perspective) is that their high-priced digital content, which is easily copy-protected, can be converted into an analog version that is not copy-protected. The process is often as easy as passing the program through a D/A converter, such as a set-top box or computer with a YC/composite output.

Now a new technology rides to Hollywood's rescue. It's called *VEIL*, or Video Encoded Invisible Light. VEIL was introduced by Warner Bros. and Mattel, the company with the Batman toys that respond to signals received from TV screens. I'd tell you more about how VEIL works, but the company refuses to provide any information. When one technology writer asked for some specifications, he was told that he'd have to pay \$10,000 and sign a licensing agreement first.

What is obvious is that HR 4569 must have been written by the MPAA itself. The law could prevent any analog signal without the needed permissions from being recorded or transported between newer consumer equipment. You could be prevented from recording a TV show on your VCR, DVR, PVR, computer or iPod. Or, even if the TV show has a copy-once permission, say for TiVo use, the MPAA-generated legislation will require your show to be *automatically erased* 90 minutes after it's recorded! So much for time shifting.

The bill appears to have no exemption for professional equipment. How broadcast equipment makers would go about implementing this, I'm not sure.

Surely, there must be some upside for the consumer, right? After all, we elected these politicians, right? Uh, no. To quote one blogger, "This bill means we will have to pay through the nose again and again."

So, if you'll excuse me, I have to go erase anything still on my TiVo. I don't want to get caught in Hollywood's latest war against its paying customers. **BE**



Brad Dick

Editorial Director

Send comments to: • editor@prismb2b.com • www.broadcastengineering.com

video /
16 Channel
audio processing

DOLBY™
metadata
insertion

automatic
CROSS
conversion

automatic
ASPECT RATIO
AFD

VBI
conversion

5.1 to 2.0
downmix

automatic
UP / DOWN
conversion



One HD card does it all.

Miranda's **XVP-811i** Up/Down/Cross converter provides frame accurate aspect ratio control, using embedded signaling based on the Active Format Descriptor (AFD) standard. This powerful card also offers 5.1 to 2.0 downmixing, Dolby™ Metadata insertion, and Dolby™ E decoding (optional card). There's also



frame synchronization, video proc amp, and audio processing with mux/demux. The **XVP family** also includes simpler interfaces which can be easily upgraded in the field, thereby minimizing inventory costs. So if you're looking for smarter HD interfacing, call Miranda. We'll help you make it happen.

Miranda

Tel.: 514.333.1772 | ussales@miranda.com
www.miranda.com

HDTV: MAKING IT HAPPEN



Lower the visual volume

Dear editor:

First, I agree 100 percent with your editorial "Lower the visual volume" in October 2005.

A colleague at the office complains after every NASCAR race that he misses parts of the on-screen action because of the additional information displayed throughout the race.

I advised him that it seems to be that way with all sports and news programming. Personally, I also find it distracting.

Second, in the article "UTP: Using Cat cable for video" that same month, Steve Lampen of Belden asks, "So why the rush to UTP?" He proceeds to answer, "Because it is cheap, readily available and easy to install. A couple of well-trained cavemen could easily install it."

Well, speaking as a caveman, I can only reply, "That is not cool man."

LARRY COX
PROFESSIONAL PRODUCTS

Steve Lampen responds:

I assume you've seen the TV ads for GEICO featuring some insulted cavemen. Perhaps they are simply structurally challenged (live in caves instead of homes). Obviously, they are good with tools and are really focused on what they do, so I think they would make great network installers. Hard to

attach the 110-block to the rock face? Maybe, but glue would work.

Standards

Michael Robin:

The February 2006 article on standards is a real saver. As my first video teacher said, "The most important thing about standards is that there are so many from which to choose."

I'm aware that the Betacam and MII Y,Pb and Pr signals are different. Do either of them match today's consumer equipment Y,Pb and Pr or is that yet another different standard?

BYRON SMITH

Michael Robin responds:

The answer to your question is yes, no or maybe. In other words, there is no standard.

Essentially, Y,Pb and Pr are the consumer equipment manufacturers' translation of the EBU N10/ITU-R-BT601 E'y,E'cb and E'cr terms. For a 100/0/100/0 color bar signal, this would result in 700mV p-p amplitude for each of the three component signals and no black setup.

Some organizations have carried out comparative tests of the outputs of several DVD players and found variations among them as well as with Betacam signals. In many of these comparative tests, there is no mention of the type of color bars signals used in

the comparisons, so the results are essentially meaningless except to indicate that there is no standardization.

The comparison is further complicated by the fact that color bar test signals used with Betacam equipment are essentially 75/7.5/75/7.5, with the color difference signals raised to 100 (714mV) and an additional 100 (714mV) white bar added to the 75 white bar.

To uninformed people, this would appear to be a 100/0/100/0 color bar signal, which it is not. Using it in such tests would increase the ambiguity. Essentially, the component analog signals of consumer equipment should meet EBU N10 specifications, which does not appear to be the case.

A disconnect

Dear editor:

Each month I peruse your magazine and marvel at the diversity of technologies and the plethora of tools behind television programming.

There is a disconnect, however, between what I see in your publication and the final product I see and hear as a television viewer.

I am puzzled with the gimmicky and the copycat nature of production by almost all but a few programmers.

Are the technologies described in your magazine the reason for my boredom and the rut in which my fellow broadcasters find themselves? They seem to be laboring (and programming) from within the confines of a trench!

TOM H. JONES
KNXR
ROCHESTER, MN

Test Your Knowledge!

See the FreezeFrame question of the month on page 8 and enter to win a Broadcast Engineering T-shirt.

Send answers to editor@prismb2b.com

More HD programming.
More dramatic imagery.
More reasons to choose Canon.

FIELD

(Sports, Entertainment
 Special Events)



DIGI SUPER100xs
 DIGI SUPER86TELExs
 DIGI SUPER86xs
 DIGI SUPER75xs
 DIGI SUPER60xs

SD

DIGI SUPER62
 DIGI SUPER62TELE

STUDIO

(Drama, Sitcom, News,
 TV Game Shows)



DIGI SUPER 22xs
EXCLUSIVE! COMPACT LENS

DIGI SUPER25xs
 DIGI SUPER23xs

PORTABLE

(News, Documentary
 Sports, Reality TV)



NEW! ENG/HD
HJ17ex7.6B SERIES

HJ17ex7.7B SERIES
 HJ11ex4.7B SERIES
 HJ21ex7.5B SERIES
 HJ22ex7.6B SERIES
 HJ40x14B IASD-V
 HJ40x10B IASD-V

Maximize Your Camera's Performance.

HDxs

Find out more at canonbroadcast.com

1-800-321-HDTV (Canada: 9C5-795-2012)

See Us At NAB Booth #SU131

Canon

*image*ANYWARE

©2006 Canon U.S.A., Inc. All rights reserved. Canon is a registered trademark of Canon Inc. in the United States and may also be a registered trademark or trademark in other countries. IMAGEANYWARE is a trademark of Canon.

CPR redefined

BY CRAIG BIRKMAIER

Remember the NBC series "Sanford and Son," which enjoyed a highly successful run in the mid '70s? Actor and comedian Redd Foxx played the role of Fred G. Sanford, a cantankerous widower living with his grown son, Lamont, in the notorious Watts section of Los Angeles. The trademark routine of the series occurred when Fred feigned a heart attack by clasp his chest in mock pain. Whenever things didn't go his way, he would start staggering and calling out to his late wife, "This is the big one! I'm coming to join you, Elizabeth!"

It seems like the highly successful U.S. content industry, which still calls the Los Angeles area its home, has taken its strategy for the continued global dominance of mass media straight out of a script from "Sanford and Son." Each time emerging technologies threaten its dominance

of the markets for the creation and distribution of entertainment for the masses, the group runs to Washington feigning the need for CPR.

In "The 3-minute guide to the broadcast flag," the Electronic Frontier Foundation (EFF) notes that the entertainment companies don't like tools that give you more control. Article author Cory Doctorow writes, "The movie studios boycotted TV because they thought it would clean out the movie theaters. Then they complained that the remote control would make it too easy to skip commercials. Then they freaked out over the VCR, saying it was the 'Boston Strangler' of the American film industry." The entertainment conglomerates were also not fond of audio- and video-capture cards and sued a personal video recorder company into bankruptcy. And the list goes on and on.

For a recent example, Sony BMG

started selling music CDs with digital rights management (DRM) software developed by First4Internet XCP and SunnComm MediaMax. Problems with the Sony BMG CDs surfaced when security researchers discovered that XCP and MediaMax installed undisclosed and, in some cases, hidden files on users' Windows computers, potentially exposing music fans to malicious attacks by third parties. The infected CDs also communicated back to Sony BMG about customers' computer use without proper notification.

Named the Sony BMG Rootkit Fiasco, the DRM CDs gave the media conglomerates yet another black eye. The EFF successfully sued Sony BMG, forcing the company to withdraw the technology from the market and to compensate affected consumers with DRM-free versions of the CDs or legal download alternatives.

As this column is about to relate, this has not slowed the efforts of virtually every industry that touches mass media content to portray the transition to networked digital media distribution as life threatening. Now, HDTV is the latest cause for trauma.

Once again, the media conglomerates are warning the politicians that their constituents cannot be trusted — that we are little better than common thieves. While they feign a Sanford-like heart attack and beg politicians for CPR, the reality is that in this case, CPR would be more accurately defined as the Content Protection Racket.

Acronym soup

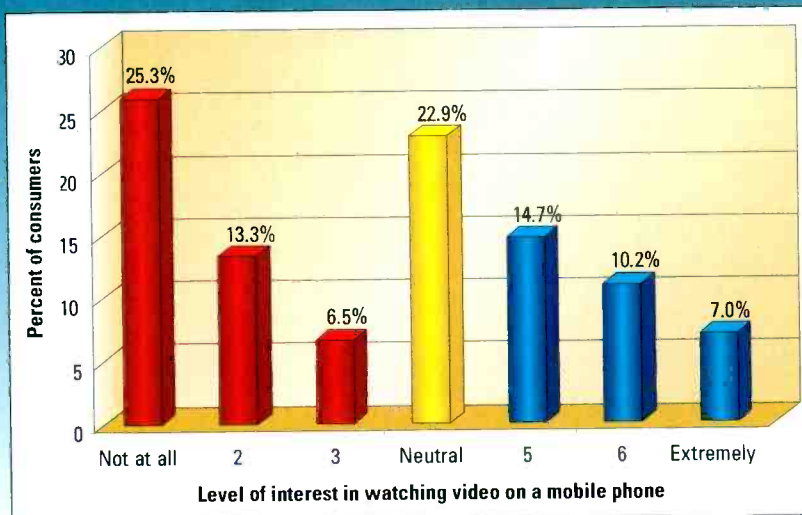
Welcome to the new digital wonderland, as envisioned in the script from Hollywood. A world filled with seemingly innocuous acronyms: AACs with ICT and DOT, DTCP, HDMI, DVI with HDCP, CGMS-A with RAM, and



FRAME GRAB A look at the issues driving today's technology

Interest in watching video on mobile phones

Almost 32 percent of consumers would watch cell phone videos



Source: TDG Opinions

www.tdgresearch.com

Next-generation HDTV meets its perfect match. Dolby® Digital Plus.

Here's multichannel surround sound that's perfectly matched to H.264 and completely compatible with any Dolby® Digital equipped A/V receiver. So you can immediately deliver more HDTV programming over your existing spectrum. Does that sound like a match for your business model? Get the technical specs and a lot more sound for your HDTV dollar at www.dolby.com

Experience Dolby Digital Plus at NAB.
LVCC South Hall, Upper Level, Booth SU2923



DCAS to mention a few.

At least broadcasters are less veiled with their DRM demands; they're waving broadcast flags, now available in two flavors: audio and video. Let's explore the new acronym soup of DRM.

If you have already purchased one of those new HDTV-capable receivers or monitors, you may have learned recently that it may not deliver the full HDTV viewing experience from many potential sources, unless it has a High-Definition Multimedia Interface (HDMI) connector. HDMI is an outgrowth of Digital Visual Interface (DVI) with High-Definition Content Protection (HDCP). It will be the interconnect of choice for the next-generation Blu-ray and HD-DVD formats and will also be used with HD cable and DBS boxes.

If your set has analog component inputs, you may not get the full benefit

of these new HD-DVD formats because of a feature within the Advanced Access Content System (AACCS), which will be common to both competing next-generation DVD formats. That feature is the Image Constraint Token (ICT), which, when invoked by a studio, requires that the resolution

to the interim AACCS Adopters Agreement, this token is not to be used until the terms for its use are resolved in the final AACCS agreement.

Did you catch the recent announcement from Sony that the PlayStation 3 with its integrated Blu-ray DVD drive is being delayed six months? One of

AACS uses revocable security keys, which allow players to be disabled if it is suspected that they have been compromised.

of the analog component outputs be constrained to 960 x 540 pixels (progressive). Starting in 2011, these analog outputs must be constrained to interlaced SD outputs only. Then at the end of 2013, analog outputs must be eliminated altogether.

And then there's the Digital Only Token (DOT), which turns off the analog outputs in any player. According

to the reasons behind this setback is the delay in reaching the terms for the final AACCS agreement. To learn more about AACCS or to download a copy of the Interim Agreement, visit the AACCS Licensing Administrator Web site. (See "Web links" on page 18.)

And AACCS uses revocable security keys, which allow players to be disabled if it is suspected that they



Scientific Atlanta has helped deliver FIFA World Cup matches and Summer and Winter Olympic Games coverage to sports fans around the globe for over 20 years.

Innovation Never Stops

Competition for viewers is greater than ever.

MPEG-4 AVC encoding from Scientific Atlanta delivers a winning performance.

- Superior video coding/quality — 50 percent improvement over MPEG-2.
- Bandwidth efficiency — More channels over existing bandwidth.
- Reliability — Maximum service availability.
- Bandwidth use — CBR and VBR encoding.



HDTV MPEG-4 AVC Encoder — Model D9054™

Live Simply. Launch Simply.
Scientific Atlanta @ NAB 2006 —
Booth 1608 South Hall
www.scientificatlanta.com/compete

**Scientific
Atlanta**

A CISCO COMPANY

Come and see us at
NAB2006 Booth #SL3791

Blackmagicdesign



Now with Multibrige Extreme it's easy to edit in SD, HD and 2K film quality



Multibrige Extreme is the first bi-directional converter featuring built-in PCI Express. Connect to the new Mac G5 or PCIe Windows computers for the world's highest quality broadcast editing, effects and paint solution.

Connect to any Deck, Camera or Monitor

Multibrige Extreme supports standard and high definition SDI 4:2:2, SDI 4:4:4 and analog YUV, as well as NTSC/PAL video in and out. Work with any deck, camera or monitor. Multibrige Extreme also features 8 channels of sample rate converted AES audio and analog stereo XLR audio in and out, combined with two channel RCA audio outputs, great for low cost HiFi monitoring.



Advanced Digital Monitoring

Multibrige Extreme includes built-in dual link DVI-D and HDMI monitoring. With dual link DVI-D, Multibrige Extreme can even support 2K digital film editing on Apple's 30 inch Cinema Display, or use HDMI for connecting to the latest big screen televisions and video projectors.



World's Highest Quality

Multibrige Extreme works natively in 4:2:2, RGB 4:4:4 or 2K digital film resolutions. Featuring the industry's only true 14 bit analog conversion – there's no higher quality solution.

Converter or a Capture Card

When not connected to your Mac G5 or PCIe Windows computer for editing, Multibrige Extreme works as a bi-directional video and audio converter. Only Multibrige Extreme is two products in one, always adapting to your changing needs.



Multibrige Extreme
US\$2,595

Learn more today at www.blackmagic-design.com

have been compromised. Playing a new DVD that carries the blacklisted codes can revoke keys, or, if there is a networked connection to the player, it can be turned off via a remote network command.

The Blu-ray group is considering additional security layers that would require a back channel connection to the player. And then there is the

more power, adding new layers of DRM to virtually every product that can touch the bits that deliver mass media entertainment. In an election year, it will be difficult to push this legislation through; however, there's always next year.

While the courts have derailed the broadcast flag for digital television broadcasts, it is far from dead. Bills in

The consumer electronics and computer industries have been demanding a solution that does not require the expensive smart cards, which are not used in the boxes that the cable industry deploys. They want the ability to download the security capabilities into a device that will support full two-way cable services, including video on demand (VOD).

The FCC is currently conducting a proceeding on downloadable security. The solution proposed by the cable industry is a proprietary micro-processor, which it would license and control. This processor would be in addition to the general-purpose CPUs in personal computers and consumer electronics devices.

As stated early in this column, the list goes on and on and on. There is no way to buy digital media products today with the confidence that they will work properly in a few years. Meanwhile, the marketplace is filled with proprietary DRM solutions that already limit the rights associated with our use of content. Microsoft's Windows Media products include proprietary DRM tools that are limiting the ability to copy video files downloaded via the Internet or distributed via CD and DVD. Apple's iTunes/iPod success story is built atop proprietary DRM services that limit the ways in which you can use the music purchased from the iTunes music (and video) store.

In most cases, these DRM solutions are designed to keep you locked into the hardware and software from one vendor or a small group of vendors. If this sounds all too familiar, it should come as no surprise. The goal of the Content Protection Racket gang members is to keep you locked into their world, to limit your rights associated with content you have paid for, and to protect themselves from competition. **BE**

Craig Birkmaier is a technology consultant at Pcube Labs, and he hosts and moderates the OpenDTV forum.

There is no way to buy digital media products today with the confidence that they will work properly in a few years.

reality that many of the interactive features of both new HD formats will require a connection to the Internet. We will explore this aspect of the war between the next-generation DVD formats next month when we look at the current state of interactive TV.

Another veiled threat?

Good thing it's an election year, as Congress is considering several pieces of legislation that would give the Content Protection Racketeers even

Congress would give the FCC authority to require downstream devices to honor the flag in DTV broadcasts, as well as adding an audio flag to digital radio broadcasts. It seems the music conglomerates are concerned that we might record music off the air — a fair use right we have enjoyed for decades — and stop buying CDs or legally downloading the bits.

Another bill is attempting to close the analog hole by requiring the use of Copy Generation Management System Analogue (CGMS-A) with a Rights Assertion Mark (RAM) developed by VEIL Technologies. The cable DBS and broadcast industry already use CGMS-A to protect analog broadcasts. The bits asserting the level of rights that you have are contained on line 21 of the vertical interval along with the closed-captioning bits. It is easy to defeat CGMS-A with a little signal processing. The RAM is a watermark contained in the video that downstream devices would be required to look for in addition to supporting CGMS-A. (See "Web links.")

Downloadable security

And then there's the cable industry, which has been dragging its feet for more than a decade with respect to Congressional and FCC mandates to open up their set-top-box monopoly. Today, you can buy third-party products that support one-way cable security via the use of a smart card.

Web links

"The 3-minute guide to the broadcast flag"

www.eff.org/broadcastflag/three_minute_guide.php

Digital rights management and copy protection schemes

www.eff.org/IP/DRM

Advanced Access Content System (AACSS) Licensing Administrator

www.aacsla.com/what/overview

Overview of Copy Generation Management System Analogue (CGMS-A)

<http://en.wikipedia.org/wiki/CGMS-A>

Overview of VEIL Rights Assertion Mark

www.veilinteractive.com/VCP

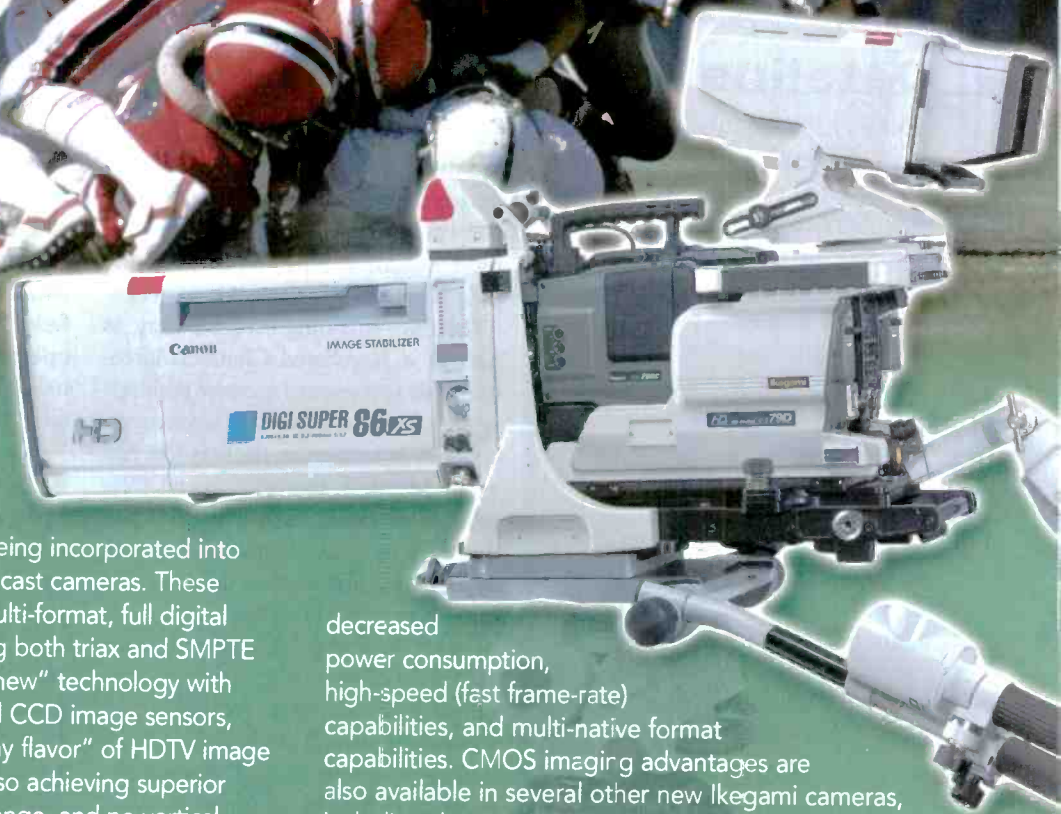
H.R. 4569 analog hole legislation

<http://judiciary.house.gov/media/pdfs/analprotectintro121605.pdf>

Ikegami's HDK-79EC CMOS Camera: SHOOT TO THRILL In Any HD Format.



HD



CMOS image sensors are now being incorporated into many of Ikegami's popular broadcast cameras. These include the new HDK-79EC, a multi-format, full digital HDTV camera system, supporting both triax and SMPTE fiber camera cable. CMOS is a "new" technology with many advantages over traditional CCD image sensors, including the ability to create "any flavor" of HDTV image (progressive or interlace) while also achieving superior picture quality, a wide dynamic range, and no vertical smear. Each pixel of the CMOS sensor has its own amplifier so it can perform amplification on a pixel basis. CMOS sensors allow for smaller camera size (with drive, amplification and 14-bit A/D inside the sensor itself),

decreased power consumption, high-speed (fast frame-rate) capabilities, and multi-native format capabilities. CMOS imaging advantages are also available in several other new Ikegami cameras, including the new HDN-X10 EditcamHD, a tapeless HDTV camcorder, and the new HDL-40HS High-Speed HD box style camera, which can produce images at 1080/60p and 720/120p for slow-motion applications in conjunction with an EVS server.

See Us At NAB Booth #C3226

Ikegami Electronics (USA), Inc. 37 Brook Avenue, Maywood, NJ 07607
East Coast: (201) 368-9171 West Coast: (310) 297-1900 Southeast: (954) 735-2203
Southwest: (972) 869-2363 Midwest: (630) 834-9774 www.ikegami.com

Ikegami

Tapeless • Wireless • Seamless

Second round DTV channel conflicts

BY HARRY C. MARTIN



In February, the commission issued guidelines for resolving the few situations (involving a total of 30 licensees) in which interference conflicts remain unresolved after the second round of channel elections were made last November. Those guidelines afford the affected licensees more latitude than they previously may have expected.

Guidelines

As originally contemplated, the conversion plan called for licensees to make

Dateline

June 1 is the deadline for TV stations, LPTVs, Class A stations and TV translators in Arizona, Idaho, New Mexico, Nevada, Utah and Wyoming to file their license renewal applications.

TV stations must file biennial ownership reports with their renewals. TV stations, Class A stations and LPTVs that originate programming must also file their EEO program reports (Form 396) along with their renewals.

June 1 is the start date for pre-filing renewal announcements for TV stations in California, in anticipation of the filing of their renewal applications by August 1.

June 1 is the deadline for TV stations in the District of Columbia, Maryland, Virginia and West Virginia to file biennial ownership reports.

June 1 is the deadline for TV stations in Arizona, the District of Columbia, Idaho, Maryland, Michigan, New Mexico, Ohio, Nevada, Utah, Virginia, West Virginia and Wyoming to place their EEO public file reports in their public files and on their Web sites.

their second round elections, and then, if conflicts still remain, the conflicted licensees would be limited to requesting the contingent channel specified in their Form 384's (i.e., their second round election forms). The contingent channels would then be evaluated based on the licensees' certified coverage areas. The commission did not plan to give licensees the opportunity to propose reduced operating facilities in order to resolve engineering conflicts.

Due to the limited number of conflicts that remain, those licensees must file, by April 3, a second round conflict decision form (Form 385), in which they indicate how the conflicts identified thus far will be resolved. In their submissions, licensees may propose reducing their operating facilities for their proposed elected channel, but then they must include a Schedule B specifying their proposed operating parameters.

The few remaining licensees may, as part of a Negotiated Channel Agreement, also propose to increase their operating facilities to serve a larger coverage area. In such cases, the licensees had to, by March 3, formally amend their pending proposals so that the proposed coverage contours would not extend beyond the coverage contours of the currently certified facilities.

Under the new policy, affected licensees may also propose any in-core channel as their contingent channel, but those doing so will not be afforded any additional opportunity to resolve any conflicts in the second round. If a conflict arises, the licensee will be required to participate in the third round.

LPTV, Class A and translator digital filing

The FCC has announced that the window for LPTV, TV translator and Class A stations to file for a digital

companion channel will be from May 1-12, 2006. To accommodate these digital filings, the FCC will impose a freeze on the filing of LPTV, TV translator and Class A analog and digital minor change, analog and digital displacement, and digital on-channel conversion applications. The freeze will begin April 3 and end May 12, 2006.

Unlike full-power television stations, however, LPTVs, Class A stations and TV translators were not automatically given a second channel for DTV operations during the transition period. Instead, LPTVs and TV translators could either implement an on-channel digital conversion of their analog channel (sometimes referred to as flash-cutting), or they could seek a second companion channel that may be operated simultaneously with their analog channel (much as full-powered stations simultaneously operate their analog and DTV channels). That is the opportunity afforded in the May 2006 window.

For Class A, LPTV or TV translator licensees who are contemplating using a digital companion channel rather than on-channel flash-cut conversion, this may be the only chance to get the companion channel that best suits the stations' needs. Operation on such companion channels will have to protect the authorized analog or digital facilities of TV broadcast stations; the authorized analog facilities of TV translator, LPTV and Class A television stations; and 700MHz public safety and commercial wireless licensees. **BE**

Harry C. Martin is the immediate-past president of the Federal Communications Bar Association and a member of Fletcher, Heald and Hildreth.



Send questions and comments to: harry_martin@prism2b.com

Looking for the perfect fit?



The new VTM™ Series of multi-format test instruments — the final piece of the puzzle.

Processors

Routers

Servers

Editing

Graphics

Digital Signage

Test & Measurement

Monitoring & Control

Master Control & Branding

Management Software

Networking Equipment

TV & Radio Transmission Systems

H-Class™ Content Delivery Platform

Introducing the world's first fully customizable, multi-format test and measurement console. The all new VTM™ Series contains standard features like waveform monitor, vectorscope, gamut, audio, picture monitor and the patented Q-See™ adjustable display. But, it's the unrivaled modular construction that empowers. *You* decide which options you want — and every piece is a perfect fit.

CUSTOMIZABLE INPUT CONFIGURATION — HD/SD, SD, and Composite Analog input boards available. Monitor up to four input sources simultaneously.

VIDEO OPTIONS — Add features like Eye Pattern with Jitter meter.

AUDIO OPTIONS — Audio monitoring options featuring Do by® decoding.

Create your solution today with the Videotek® VTM Series. www.broadcast.harris.com/videotek

See the VTM Series in booth# SU2929 at NAB!

Canada +1 800 387 0233 | USA +1 800 800 5719 | Latin America +1 305 512 0045

MPEG editing

BY MICHAEL ROBIN



The original development of analog television was based on the concept of direct, real-time, on-air transmission of live programs and, occasionally, films. Today's television production is unthinkable without the editing of original picture sequences. With the exception of sports and news, there are few live programs going on-air.

Generally speaking, there are several types of operations that fall under the category of editing, including live switching, cross fading (mixing), various types of DVE operations, caption insertions and nonlinear editing. The transmission-oriented analog television standards are quite inadequate for editing and multigeneration signal processing.

Originally, video was edited by physically cutting tape, a process that today we would call linear editing. The later introduction of electronic

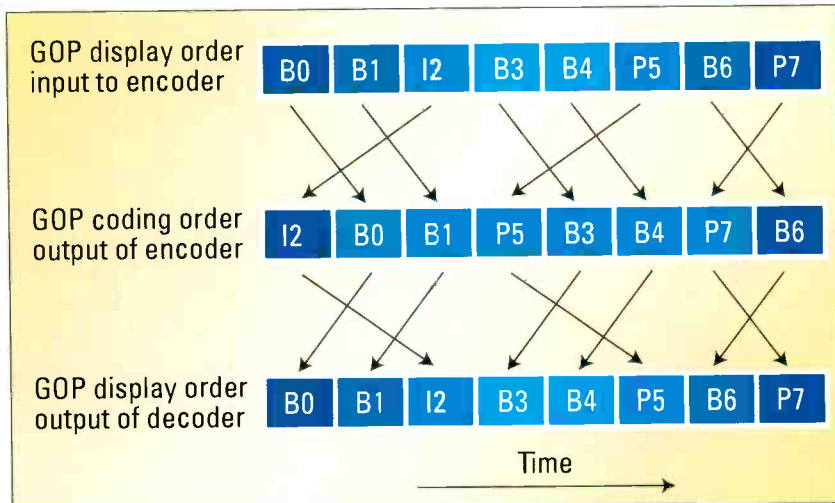


Figure 1. Relative timing of IPB frames

linear editing depended on copying rather than cutting the material. Early VTR editing techniques often resulted in unacceptable chroma shifts at the splicing point. The appearance of digital time-base correctors removed

some of the splicing irregularities but produced horizontal picture shifts at the splice point, resulting from the time base corrector trying to maintain chrominance subcarrier continuity in a four-field sequence (NTSC) or eight-field sequence (PAL).

In North America, the problem was identified and solved by updating the NTSC standard to SMPTE 170M and introducing the SCH concept. For a while, everything seemed to work just fine. Along the way, the old 2in QUAD and 1in Helical VTRs were replaced by component analog VTRs, such as Betacam and MII. This helped remove certain tape editing difficulties as no subcarrier was recorded, but the multigeneration accumulation of impairments remained.

Beginning the transition

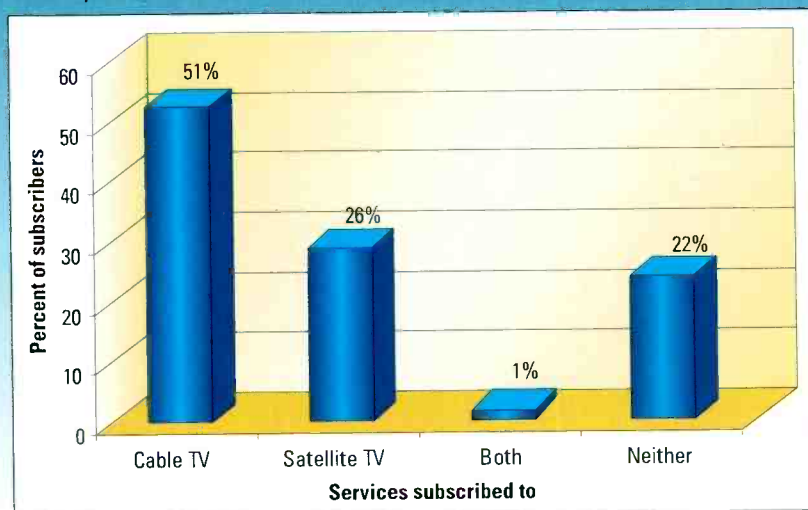
In the 1980s, the component digital standard known as 4:2:2 made its inroads, and the first, and most expensive, digital VTR — the D1 — appeared on the market. Peripheral digital equipment proliferated with the standardization of the 270Mb/s

FRAME GRAB

A look at tomorrow's technology

Cable TV and Satellite TV subscribers

Twenty-six percent of American consumers subscribe to satellite TV



Source: Ipsos

www.ipsos.com

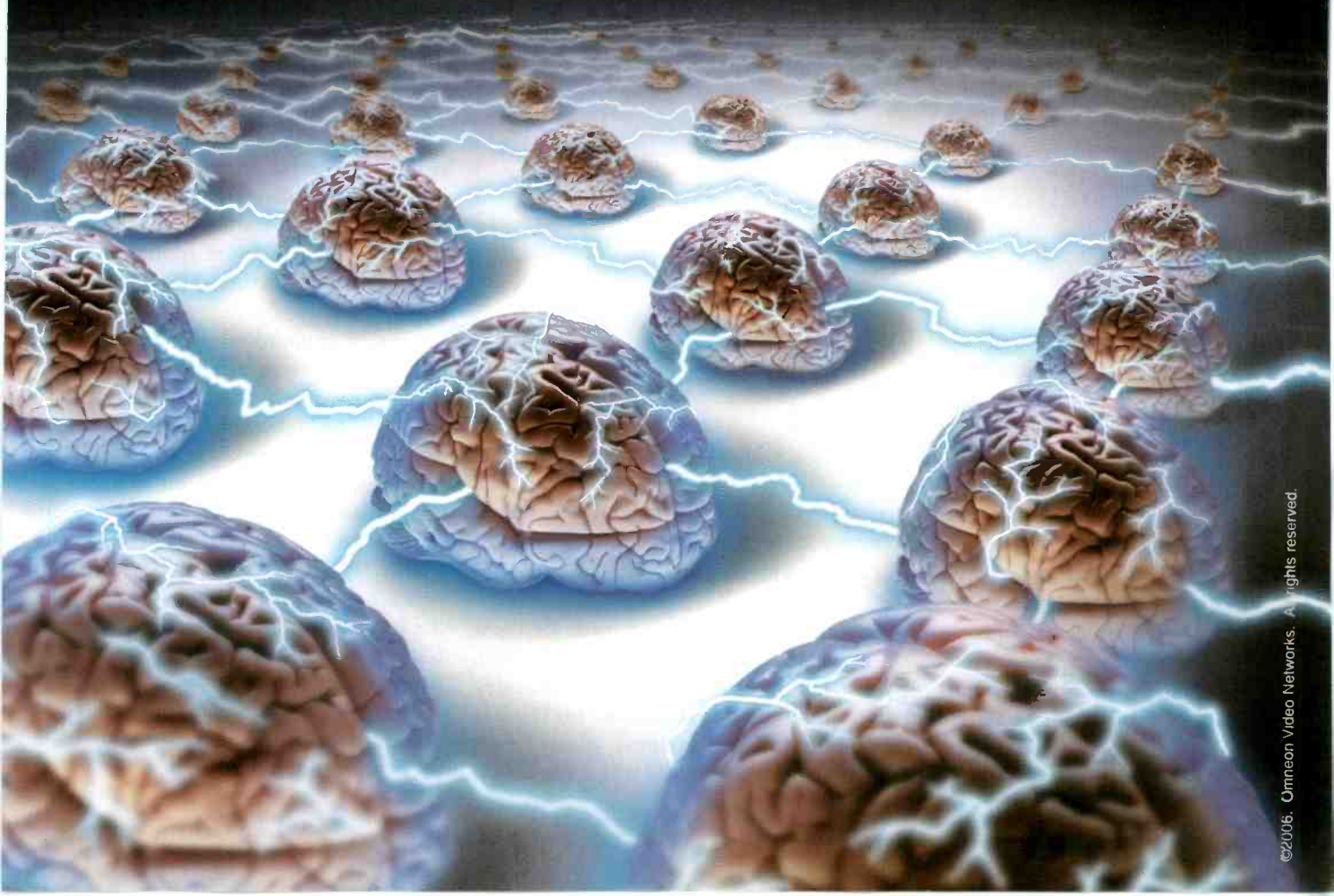
Imagine the productive power of the world's most advanced storage solution.

Engineered after nature's own ultimate active storage system, the Omneon MediaGrid™ content library truly does think for itself. Self-monitoring, self-healing and media-aware, MediaGrid may be more than you ever thought possible from a storage system. With intelligence that helps you access content more quickly, create and work with multiple formats simultaneously and even adapt system bandwidth automatically for high-demand content, MediaGrid delivers breakthrough workflow productivity.

With the introduction of MediaGrid, Omneon unveils the world's first "active storage." Now your content, the processing power to act on it, the network bandwidth needed to access it and the broadcast applications doing the work can all coexist in the same platform. And thanks to an ingenious modular design, future expansion is easy and virtually unlimited. If you've been imagining the world's most advanced storage and processing platform, we'd say great minds think alike.

*Talk to one of our systems experts today.
Call +1 866.861.5690 or visit omneon.com.*

 **OMNEON**



bit-serial digital signal distribution known as SDI.

Competitively priced digital studio production equipment gradually replaced analog video production equipment. Studio-type digital equipment can operate at the full bit rate of

using compression.

- *Using portable newsgathering equipment.* Portability and miniaturization requirements dictate the use of compression.

The same technology that made possible the digital processing of full-

process in mind and not for multi-generation processing and editing.

The nature of the problem

MPEG data streams are characterized by three types of pictures:

- *Intra-frame encoded (I).* I frames are independent and need no information from other pictures. They contain all the information necessary to reconstruct the picture.
- *Predicted (P).* P frames contain the difference between the current frame and a previous reference I or P frame. If the earlier reference frame is removed as a consequence of editing, the P frame cannot be decoded. P frames contain about half the information of an I frame.
- *Bidirectionally predicted (B).* B frames use differences between the current frame and earlier and later I or P reference frames. B frames contain about one fourth the information of an I frame.

Bidirectional coding requires that frames be sent out of display sequence to allow the decoder to reconstruct the later B frames. For display, the IPB sequence has to be rearranged in the decoder. Figure 1 on page 22 shows the relative timing of the IPB frames making up a group of pictures (GOP) at the input of the encoder, the output of the encoder and the output of the decoder. B frames need to be reordered so that future frames are available for prediction. This causes a delay.

Different applications use different GOP structures to achieve the desired compression ratio. The longer the GOP, the higher the compression ratio; hence, the long GOPs are found in MPEG-2 applications for transmission and distribution. The maximum permitted length of a GOP is 15 frames. IPB GOPs end with a B frame, which has the previous P frame and the future I frame as references. IPB GOPs are, therefore, referred to as open GOPs.

Signal manipulations of MPEG transmission streams are generally limited to switching of signal sources in a

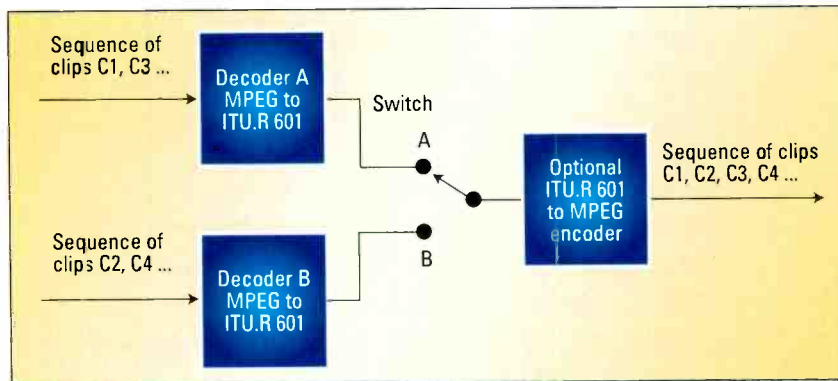


Figure 2. Conceptual block diagram of naive editing

270Mb/s with few, if any, constraints. Full bit-rate (D5 format) or lossless compression (Digital Betacam) VTRs became entrenched and provided high-quality editing and transparent multigeneration recording.

In this environment, compression is a choice, not a necessity. There are,

quality video also made compression techniques practical and affordable. The MPEG-2 compression concept, with its toolkit approach, is the answer to these constraints.

It uses interframe encoding for the high compression ratio required by the reduced transmission bandwidth

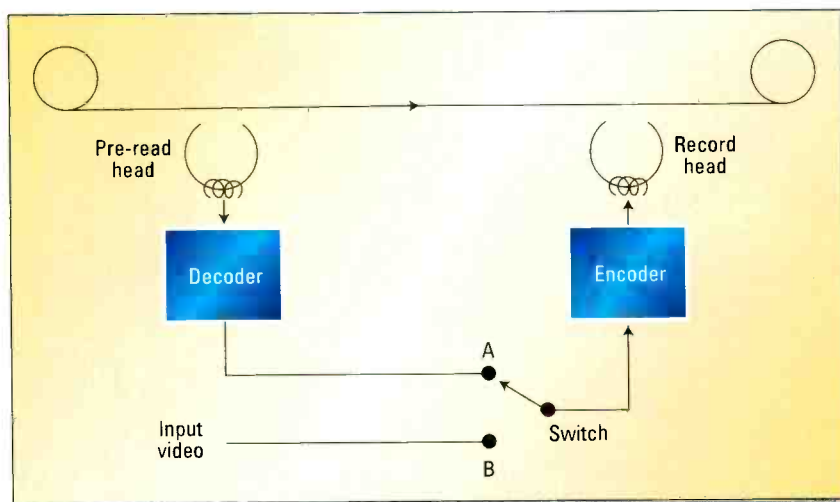


Figure 3. Conceptual block diagram of restricted MPEG-2 insert editing system

however, two cases where compression needs to be considered:

- *Distributing or transmitting the signals out of the studio.* Here spectrum availability and cost impose constraints that can only be addressed by

or low compression with excellent signal quality for post production. Like its early predecessors, the analog transmission standards, MPEG-2 is transmission-oriented, which means that it was designed with a single-pass



Largely
covered by
water

master control room and are referred to as splicing. VTR or disk server handling of MPEG production streams is referred to as editing. Editing consists of replacing a recorded sequence on tape with another sequence (clip) coming from an alternate source. The new sequence is inserted, starting with its own reference I frame substituting the original I frame. This creates a

performing the required operation in the uncompressed domain and subsequently re-encoding back to MPEG-2. The intermediate processing might be a switch or some other effect. The frame has to be fully decoded in order to have access to the basic pixels.

Figure 2 on page 22 shows the conceptual block diagram of naive editing

Each B frame is the result of a forward prediction (from the previous I frame) and a backward prediction (from the next I frame). It is, therefore, dependent on both surrounding I frames. If, as a result of editing, one of the reference I frames is substituted by a new I frame, the B frame cannot be completely reconstructed.

To avoid this effect, the B frame immediately preceding the newly inserted I frame, at the edit point, is reconstructed using only the information from the previous I frame. It effectively becomes a P frame, which Sony calls a B_U (unidirectional) frame.

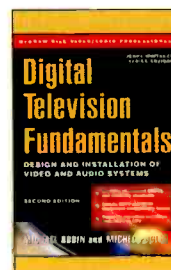
The original open GOP is effectively replaced by a closed GOP. This is achieved by using a pre-read playback head whose output is decoded and used to generate a B_U frame that is switch selected and recorded on tape, replacing the originally recorded B frame.

After the B_U frame is inserted, the switch returns to the input video source. The result is a seamless edit. Figure 3 on page 22 shows the conceptual block diagram of the insert editing process. Figure 4 shows the original IBIBIB sequence recorded on tape. Figure 5 shows the edited sequence. The newly created frame is referred to as the B'_U3 and all new frames are identified with a prime sign. **BE**

Michael Robin, a fellow of the SMPTE and former engineer with the Canadian Broadcasting's engineering headquarters, is an independent broadcast consultant located in Montreal. He is co-author of "Digital Television Fundamentals," published by McGraw-Hill and translated into Chinese and Japanese.



Send questions and comments to: michael_robin@prism2b.com



The second edition of Michael Robin's book may be ordered directly from the publisher by calling 800-262-4729. The book is available from several booksellers.

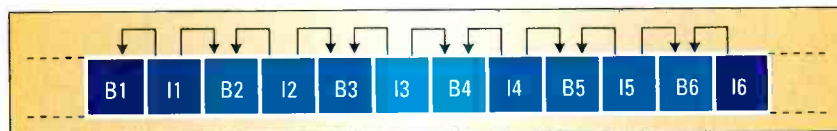


Figure 4. Original BIBIBIBI sequence recorded on tape

problem with IPB open GOPs. Because the B frame is the result of a forward as well as a backward prediction, substituting the I frame with a new I frame unrelated with the B frames disrupts the sequence.

Two simple solutions

Seamless frame-accurate editing of compressed video is most easily accomplished with the use of short and closed GOP structures. A closed GOP does not contain frames that

as used in some disk-based servers. Each output channel has two MPEG decoders, each with its own buffer. While Clip 1 is being played out of Decoder A, Clip 2 is being decoded by Decoder B and stored, ready to be played on demand. The switching of clips is made in the digital video domain, resulting in seamless cuts.

While switching problems are eliminated, the decoding and encoding process introduces a certain amount of picture degradation. In a typical

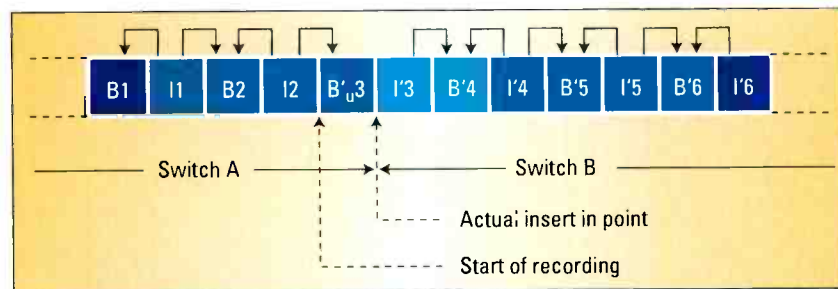


Figure 5. Edited BIBIBIBI sequence showing unidirectional B'_U3 frame followed by inserted signal

make reference to frames in the preceding GOP. Longer GOP structures can be edited by decoding and re-encoding or by transcoding to shorter GOP structures. There are two relatively simple solutions to the MPEG editing problem: naive cascading and restricted MPEG-2.

The naive cascading process consists of decoding the MPEG-2 compressed signal to the ITU.R 601 level,

operational configuration, there are likely to be several cascaded decoding and encoding processes resulting in a concatenation effect.

With restricted MPEG-2, the concatenation problem is avoided by restricting the compression process to a limited subset of MPEG-2 so frame-accurate editing can be performed. A typical case is the Sony SX system, which records an IBIBIB GOP struc-

 **SENNHEISER**

Reality TV

Broadcast

West End, London

Broadway, NY

Live Concerts

Shows Theaters

Sports Events

Reliably covered by Sennheiser RF wireless

You can always rely on Sennheiser wireless microphone systems, wherever you are in the world, whatever task you face, even under the most hostile conditions. As one of our customers puts it, "Sennheiser RF works where others fail". So call on Sennheiser for the most comprehensive RF wireless product portfolio worldwide—with microphones of every sort, a wide range of accessories and custom-made "specials". Get assistance from our global RF support team and find complete system solutions for every broadcast, stage or theater production, including the only true solution for multichannel applications. Our equipment is upward and downward compatible, ensuring that Sennheiser always remains a worthwhile investment. www.sennheiser.com



Go to extremes - Ever captured the Iditarod in the frozen Alaskan tundra? P2 has. When rain, wind and humidity played havoc with tape-based cameras during the Gulf Coast hurricanes, P2 performed flawlessly. P2 products offer you the greatest reliability, whatever the weather conditions.



Shake things up - When breaking news hits, don't let it knock you for a loop. P2 withstands shock up to 1,500 G and vibration up to 15 G - ensuring you'll get the shot no matter how bumpy the ride.

Speed editing - The portable AJ-HPM100 records/plays DVCPRO HD, DVCPRO50, DVCPRO and Mini-DV. For nonlinear editing with a laptop, P2 cards plug directly into the PCMCIA card slot; no digitizing. With data transfer at up to 640 Mbps, you'll be producing at the speed of IT.



when reliability counts.

DVCPRO HD P2 is the only high definition recording technology with no moving parts to wear out. Impervious to shock and vibration, it offers the highest reliability, especially in challenging newsgathering situations. Upgradable capacity, random access to footage, laptop field editing and ultra-fast transfer combine to make P2 solid-state memory recording the unmatched choice for news production today and tomorrow.

For more information visit www.panasonic.com/broadcast or call 1.800.528.8601

DVCPRO HD P2

Panasonic ideas for life

AJ-HPC2000

DVCPRO HD P2 Camcorder

Outfitted with three full 2/3" HD CCDs and 14-bit A/D processing, this news camera offers exceptional dynamic range and low light recording in the 720p or 1080i HD and 480i SD formats. Uses widely available pro-quality lenses and accessories.



AJ-HPS1500

P2 DVCPRO Studio Recorder

It's a highly versatile, solid-state recorder/player for the broadcast or production facility, with G-bit Ethernet, USB 2.0, IEEE 1394 (AVC), HD-SDI and SD-SDI input/outputs. The recorder offers five P2 card slots and slots for two industry-standard, removable hard disk drives.

AJ-HPM100

Mobile DVCPRO HD P2 Recorder

Fully equipped with a six-slot P2 drive, a 9" widescreen LCD monitor with built-in stereo speakers, a jog/shuttle dial and function buttons, and an SD card slot, it operates on either AC or DC power.



© 2006 Panasonic Broadcast

Gigabit Ethernet primer

BY BRAD GILMER



Networked professional A/V applications need bandwidth and lots of it. It is no surprise, therefore, that we are always pushing the limits of networking technology. Gigabit Ethernet (GigE) is becoming common, and this month, we will look at some of the details behind this technology.

The GigE standard

GigE is standardized by the Institute of Electrical and Electronic Engineers (IEEE). It is described in a single standard, IEEE std. 802.3-2005. Before 2005, GigE was described in two separate standards.

The first standard, 802.3z, described the upper layers (media access control and coding) of GigE as well as three physical interfaces — a shielded copper wire interface (not compatible with existing 10Base-T and 100Base-T) and two fiber interfaces. This standard was completed in 1995.

The second standard, 802.3ab, defined the coding and physical layer for 1000Base-T, which is compatible with 10Base-T and 100Base-T. Clearly, there was a lot of demand for this standard, which was completed in 1998. Some specifications for these standards are shown in Table 1.

Gigabit interface converter

1000Base-X fiber technology introduced the gigabit interface converter (GBIC). The GBIC is an optical-to-electrical interface that plugs into the back of a switch or device. Different GBICs support different types of fiber, laser frequency and fiber modes. If you want to purchase fiber-based equipment, you can decide on a particular fiber technology today. Later, if your requirements change, you can repurpose the switch by only replacing the

	Media type	Maximum distance
1000Base-CX	Shielded copper	25m
1000Base-T	Unshielded twisted pair Cat 5e	100m
1000Base-LX	62.5µm multi-mode fiber	550m
	50.0µm multi-mode fiber	550m
	10.0µm single-mode fiber	5000m
1000Base-SX	62.5µm multi-mode fiber	275m
	50.0µm multi-mode fiber	550m

Table 1. 802.3ab specification standards. Note that the figures in this table are simplified. There are more combinations of cable type, laser frequency and operating modes than are shown here.

GBIC. This could be useful if you purchased an expensive switch for short-haul applications but later want to use it over a long-haul fiber network.

Encoding and duplexing

1000Base-T requires more complicated signal coding than previous Ethernet implementations. Five signal levels can be represented on each of the four pairs in a Cat 5e cable. Signals are coded using phase amplitude modulation. Thus, the coding is known as four dimension phase amplitude modulation (4-D PAM-5).

As with fast Ethernet, GigE over UTP supports half and full duplex modes. The full duplex mode allows the simultaneous transmission of 250Mb/s on each of four pairs in both directions. (See Figure 1.)

Duplexing gives 2Gb of overall bandwidth across the link, 1Gb in each direction. It does something else as well; it eliminates the requirement for any collision detec-

tion and handling circuitry. Because it is OK to talk in both directions at the same time, there is no such thing as a collision. This increases effective throughput across the link.

Fiber vs. UTP

One of the decisions you will face

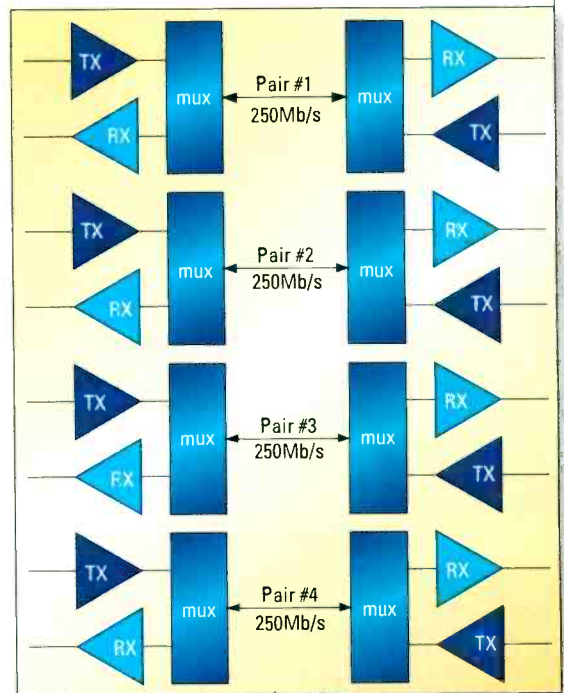


Figure 1. GigE allows the transmission of 250Mb/s in each direction on four pairs at the same time using UTP.

16X WIDE

ver·sa·til·ity:
turning with ease from
one thing to another;
having many aptitudes;
Fujinon's new 16X lens.



**WIDE ANGLE TO
16X ZOOM ALL
IN ONE LENS.**



- 16X zoom range
- 6.3mm wide angle
- 2X extender
- 0.4 meter close focusing
- Digi Power servo

DIGI POWER
FUJINON
HD
DIGITAL

FUJINON

 **FUJIFILM**

Broadcast and Communications Products Division

FUJINON INC. 10 High Point Dr., Wayne, NJ 07470-7434 Phone: (973) 633-5600, FAX: (973) 633-5216
FUJINON CORPORATION 1-324 Uetake, Kita-Ku, Saitama City, Saitama 331-9624 Japan Phone: 81-48-668-2152

www.fujinon.com

Visit us at
NAB Booth
SU149.

sooner or later is whether you will stick with UTP copper wiring or change to fiber. Of course, UTP provides backward compatibility with existing 10Base-T and 100Base-T installations. But it appears that the end of the UTP road is coming with 10GigE. We will not be able to use UTP forever.

Fiber has a number of advantages. It travels farther, you can get more fibers in a limited space, and it appears that some fiber types will be compatible with speeds beyond 10GigE. But fiber is harder to work with, it is less forgiving of physical abuse, and it works much better if you use support hardware that is specifically made for fiber-optic cable, both in racks and at the desktop.

There are several fiber types and operating modes engineers will need to become familiar with, especially in the 10GigE standard. That said, fi-

ber has one important characteristic, especially for the broadcaster: Fiber provides electrical isolation between interconnected devices. This can be valuable in situations where lightning or high RF fields make copper an undesirable interconnection medium.

Cat 5 cable compatibility

There is some confusion within the broadcast community about whether you can use your existing Cat 5 cable with 1000Base-T.

Cat 5 cable manufactured prior to 1995 may not meet the technical requirements for GigE. This can result in unreliable operation. Cable manufactured in 1995 may work, depending on whether it meets the revised Cat 5 specifications that were standardized in that year. Cat 5 cable manufactured after 1995 should work just fine. Cat 5e (the "e" stands for extended) will work fine regardless of the year it was

manufactured, and of course, cables with a higher Cat designation will also work fine. If in doubt, you should contact the cable manufacturer.

Backward compatibility

There are several important things to know about 1000Base-T and backward compatibility. First, the cabling and topology limitations for 1000Base-T are identical to those of 10Base-T and 100Base-T.

Second, you should know that almost all 1000Base-T cards will automatically sense the capabilities of cards they are connected to. Specifically, a 1000Base-T card will match the speed and duplexing capabilities of the other card. In other words, a 1000Base-T card will interoperate with a slower 100Base-T or even 10Base-T card just fine, but at the slower rate.

Third, 1000Base-T uses all of the pairs in a UTP cable. If you are using existing wiring that previously was used for 10Base-T or 100Base-T and you cannot get things to work, check to be sure that all pairs are correctly wired. This will not be a problem for wires that are terminated in RJ-45 connectors, but I have seen patch panels where installers failed to punch down all of the pairs because they thought they would never be used.

10GigE

It seems appropriate to mention a few things about 10GigE in this column. Our drive for higher speed networking is insatiable. Work is well under way on a new standard that will deliver 10Gb/s connectivity. For those of you who are interested, the relevant standard is 802.3-2005. 10GigE not only provides high speeds, but also it travels long distances as well — up to 40km over fiber-optic cable. One important thing to know is that UTP is not currently supported in this standard and probably never will be. **BE**

Brad Gilmer is president of Gilmer & Associates, a technology consulting firm.



Send questions and comments to:
brad_gilmer@prism2b.com

Satellite Video Distribution Can be Easy



See us at
NAB
April 24-27, 2006
Booth #5U 4175



And that's exactly how we make it. Scopus Intelligent Video Networking (IVN™) solutions center on Scopus' dedicated DSNG encoder platform line and on its best-selling, reliable, widely deployed professional decoders.

WIN WITH SCOPUS SATELLITE SOLUTIONS:

- Enjoy turnkey, end-to-end video delivery solutions
- Reduce bandwidth usage by up to 30%
- Benefit from the most comprehensive distribution systems
- Profit from flexible video and data solutions



www.scopusamericas.com • info@scopusamericas.com

UE 9217/8 DSNG Encoder

- DVB-S2 support
- S/W upgrade to H.264 (UE-9218)
- Simultaneous L-Band, ASI and IP outputs

IRD -2900

- DVB-S2 support
- Satellite to IP conversion
- MPEG-2 4:2:2 / 4:2:0 SD decoding

Roam Free!



Finally, a wireless system that lets you roam free. **CellCom 10** digital wireless intercom. The first stand-alone wireless to offer small group person-to-person conversations among beltpacks. You don't have to be tied down to just one spot anymore!

Now *everyone* has a reason to smile.

NAB

NAB 2006, Booth #C5119D,
April 24-27, 2006,
Las Vegas, NV.

 **Clear-Com**

© 2006 Vitec Group Communications • www.clearcom.com

Americas and Asia: 4065 Hollis Street • Emeryville, CA 94608, USA • Tel: 510-496-6600 • Fax: 510-496-6699

Europe, Middle East, and Africa: 7400 Beach Drive, Cambridge Research Park • Cambridge CB5 9TP, UK • Tel: +44 (0) 1223 815000 • Fax: +44 (0) 1223 815099

A guide to monitoring 5.1 sound

BY JIM HILSON

Monitoring surround sound is often a confusing concept for television broadcasters. The ability to properly hear the program audio goes well beyond the basic two-speaker arrangement typically found in stereo broadcast facilities and often competes with the ability to see the picture on video monitors.

Between program monitors, automation system monitors and other necessary displays, finding room for extra speakers is often deemed to be a low priority, especially in important areas like master control centers. However, as viewers grow more adept at understanding high-definition technologies, they are demanding surround sound to complement the video.

To properly monitor program audio for surround sound, broadcasters need to be able to hear the full 5.1 channels through an adequate speaker system. Proper speaker placement and bass management will make this a relatively simple task. At the same time, broadcasters also need to have the ability to hear other common listening configurations so they can monitor how a consumer who isn't using a 5.1 system will hear the same program. There are tools available today to provide this capability.

Speaker placement

First, a system capable of reproducing the full bandwidth of sound from the very low frequencies to the very high frequencies is necessary. There are a few ways to meet this requirement. If there is plenty of space, a matched set of full-range speakers and a subwoofer is ideal. If full-range speakers are not practical for the main channels, then smaller matched speakers and a bass-managed sub-

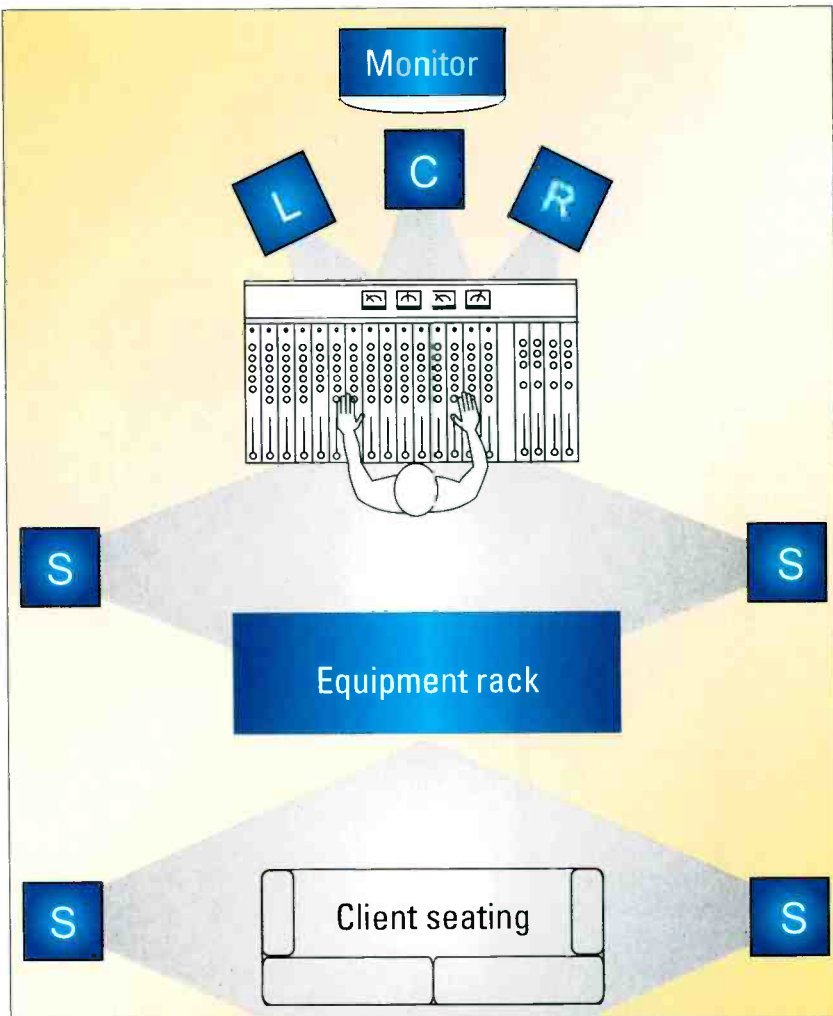


Figure 1. Proper speaker placement

woofer to handle the low end would be an acceptable alternative.

In this type of system, the low-frequency content from the main channels is filtered and sent to the subwoofer, along with the LFE information. This allows for smaller main channel speakers where needed, yet maintains the full bandwidth reproduction of the program audio.

Second, the speakers need to be placed correctly within the room. The left and right speakers should be somewhere

between 22 and 30 degrees from each side of the center of the listening position, and the center speaker should be centered in front of the operator. (See Figure 1.) The speakers should all be at the same height or as close as possible within the constraints of the other monitors vying for the same space. When working around traditional CRT video monitors, shielded speakers will be required.

The location of surround speakers allows for some variance, but they

Continued on page 39

See
them at NAB
Booth # SU-2906

Grass Valley production switchers.
Raising the bar—once again.



Grass Valley World-Class Switchers.

For decades, broadcast and production professionals around the world have turned to the most trusted name in switchers to reach their creative vision. And for good reason. Grass Valley™ switchers are designed to be an extension of the operator. Their award-winning performance and easy operation never get in the way of the creative spirit.

Expect more

As content production demands grow in complexity, Grass Valley is there to meet the challenge—and exceed your expectations. All of our switchers provide highly intelligent toolsets to create the most sophisticated content—and do it fast. They bring greater flexibility to your operation by working in multi-format environments of any size and configuration. And, they prove themselves by doing so in mission-critical, no-compromise, live productions every day. Grass Valley: for high performance, high quality, and world-class results that no one matches.

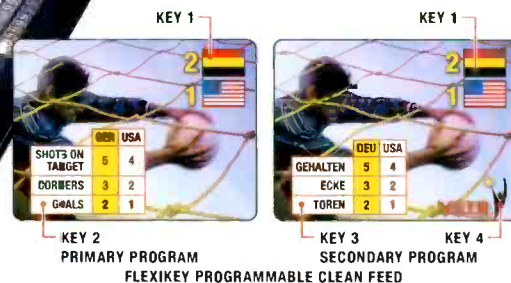
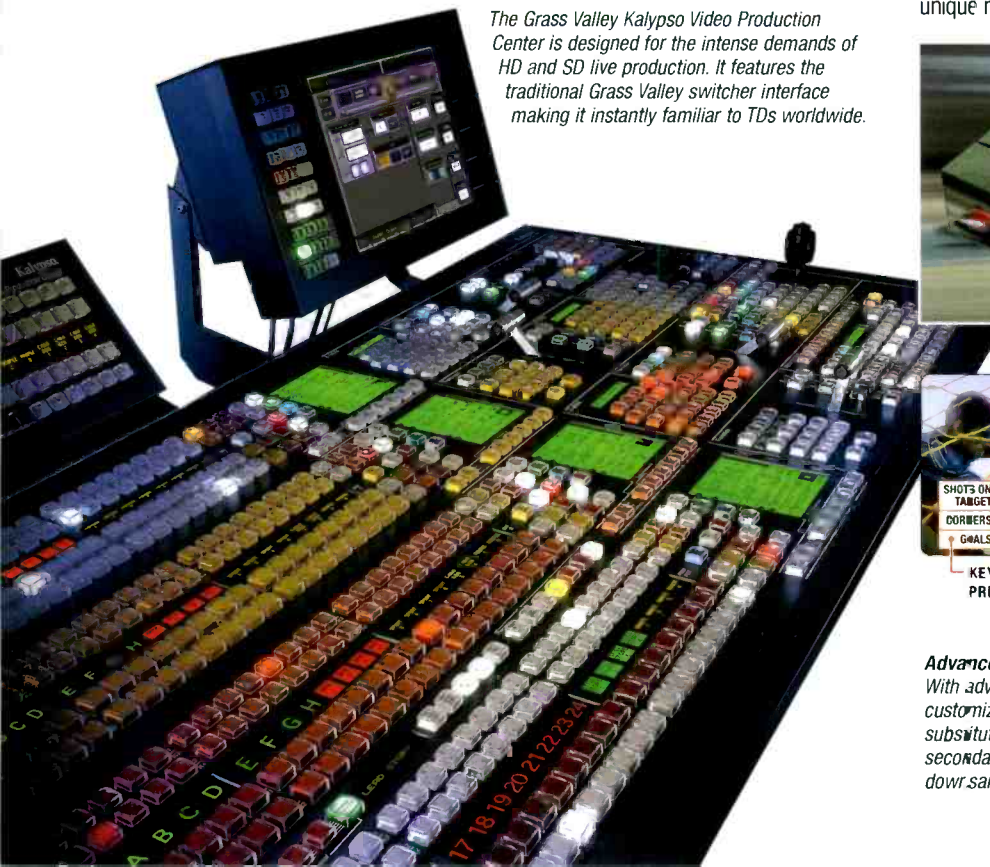
The cornerstone of your workflow

- Live events
- Edit suites and post production
- Studio production
- Mobile production
- News production
- Corporate communications

Grass Valley switchers have the right combination of power, size, and cost-effectiveness for any workflow. They integrate seamlessly with your existing infrastructure to provide the highest level of hands-on control over all your resources.

Every production and workflow has a unique set of demands. We don't offer just one line of production switchers but three—with a model specifically designed for the way you want to work. Whether it's effects-intensive high-end compositing, versatile multi-format production, simulcasting, or powerful portability, Grass Valley has a switcher that meets the unique needs of your production workflow.

The Grass Valley Kalypso Video Production Center is designed for the intense demands of HD and SD live production. It features the traditional Grass Valley switcher interface making it instantly familiar to TDs worldwide.



Advanced M/Es Help Expand Your Market

With advanced technologies like FlexiKey™, you can automate a customized secondary program with sophisticated key substitutions tailored for the market. Use this power for a secondary language broadcast or as a clean feed that's downsampled for mobile or Web-based deployment.

The new Grass Valley Kayak HD Digital Production Switcher family

An affordable, yet extremely powerful production switcher—ideal for those working in SD, moving to HD, or dealing with both.

The latest addition to the Grass Valley switcher line up is the new Kayak™ production switcher family. The Kayak switcher family combines the best from Kalypso™, Zodiac™, and XtenDD™ in several powerful and cost-effective packages. It is a sophisticated production switcher ideal for today's diverse needs. With superior digital production quality in a compact package, the Kayak HD™ switcher is in a class by itself.



Kayak SD

Our Kayak SD switchers offer an array of high-end features for standard-definition production in highly affordable packages. They are ideal for live studio and mobile environments to small corporate studios and editing applications. Kayak SD features a compact design, superior image quality, and a number of advanced features not found in any other manufacturers' products. Kayak SD offers seven configurations that are field-upgradeable to Kayak HD when you're ready to make the move.

Kayak HD

Our new Kayak HD switcher is a truly universal production switcher offering support for SD and HD input sources. Ideal for all production environments, it has the ability to use mixed-format sources simultaneously with our optional MatchDef™ input scalars. This allows operators to match SD sources into a HD production, HD sources into a SD production, or cross match 720p and 1080i into one production.

Like all Grass Valley switchers, the Kayak HD switcher provides powerful tools for dynamic effects—with up to four internal digital picture manipulator (iDPM) channels, two main wipe generators, and four keyer wipe generators on every M/E. Each system provides 24 multi-format inputs and 12 outputs per M/E, usable throughout the switcher. The I/Os are easily expandable to meet your needs.

Kayak HD switcher is easy to use, configure, and connect. The control panel is intuitively familiar and comes with your choice of white or colored keycaps. It offers a user-friendly touch-screen display menu to control and program the switcher. Kayak HD switcher communicates with all popular devices, protocols, and control systems—so there's never a worry about compatibility. It is easy to expand by simply adding modules and control panels.



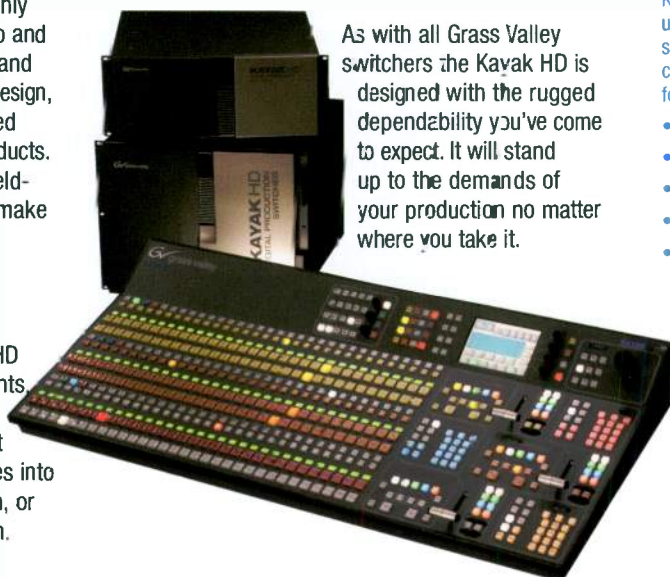
The extensive Kayak HD switcher family ensures that you have the right tool for the job:

- Two SD only configurations (1 and 2 M/E)
- Seven SD upgradeable to multi-format HD/SD (1 to 3 M/E—in half-M/E steps across 4 RU and 8 RU frames)
- Seven multi-format, HD/SD switchable configurations (1 to 3 M/E—in half-M/E steps across 4 RU and 8 RU frames)
- Compact 4 RU and 8 RU chassis using common board sets and control panels

Kayak HD switcher is a true universal production switcher that can operate in any of the following formats:

- 1080i/50, 59.94, 60
- 1080p/24, 25, 29.97
- 720p/50, 59.94, 60
- 625i (576i/50)
- 525i (480i/60)

As with all Grass Valley switchers the Kayak HD is designed with the rugged dependability you've come to expect. It will stand up to the demands of your production no matter where you take it.



Kayak HD and HD-Ready Switchers

The Kayak HD and Kayak SD switchers are redefining what a production switcher is and what it does. With 14 models spanning 1 M/E to 3 M/E models in 1/2 M/E increments, there's a Grass Valley Kayak HD switcher that's perfect for your production budget.



Kayak HD and Kayak SD Switchers

	Kayak HD Kayak SD 100C	Kayak HD Kayak SD 150C	Kayak HD Kayak SD 200C/200	Kayak HD Kayak SD 250C/250	Kayak HD Kayak SD 300
Mix/Effect buses	1	1 plus half M/E	2	2 plus half M/E	3
Inputs (standard)	24	24	48	48	72
Outputs (standard)	12	1	24	24	36
Inputs (expandable to)	48	48	48/96	48/96	96
Outputs (expandable to)	24	24	24/48	24/48	48
Optional I/O expander modules	1	1	0/2	0/2	1
Full function keyers	4	4	8	8	12
Linear/luminance DSKs	0	4	0	4	0
Background busses	4	4	8	8	12
Standard 2D planar iDPM	1	1	2	2	3
Total Optional Internal frame-based iDPM channels	4	4	8	8	12
Total Optional MatchDef source scalar inputs without I/O Expander	4	4	8	8	12
Total Optional MatchDef source scalar inputs with I/O Expander	8	8	8/16	8/16	16
4 RU compact chassis	X	X	X	X	
8 RU expandable chassis			X	X	X

Headquarters Thomson Worldwide Headquarters

17 rue du Petit Albi – BP 8244
95801 Cergy Pontoise Cedex
FRANCE

Switchers

Thomson Broadcast & Media Solutions

400 Providence Mine Road
P.O. Box 599000
Nevada City, CA 95959-7900
USA
Tel: 530 478 3000
Fax: 530 478 3755

Grass Valley, Thomson Group

Brunnenweg 9
D-64331 Weiterstadt
P.O. Box 1165
D-64320 Weiterstadt
Germany
Tel: +49 6150 104 0
Fax: +49 6150 104 300

www.thomsongrassvalley.com

Sales and Technical Support Numbers

North America

Sales/Support +1 800 547 8949
+1 530 478 4148
Fax +1 530 478 3347

Latin America

Sales +1 305 477 5488
Support +1 530 478 4148
Fax +1 305 477 5385

Pacific

Sales +852 2531 3000
Support +852 2531 3056
Fax +852 2802 2996

Rest of the World

Sales +33 (0) 1 34 20 70 00
Support +800 80 80 20 20
(West/North Europe only)
+33 (0) 1 48 25 20 20
(East Europe, Middle East, Africa)
Fax +33 (0) 1 34 20 70 47

Copyright 2006 Grass Valley, Inc. All rights reserved. Printed in U.S.A. Grass Valley, XtenDD, Kayak HD switcher, Kalypso, Zodiac, MatchDef are trademarks of Grass Valley, Inc. All other tradenames referenced are service marks, trademarks, or registered trademarks of their respective companies. Specifications are subject to change without notice.

Continued from page 34

should be placed slightly behind the listening position and aimed towards the operator. Ideally, they are between 90 and 110 degrees relative to the center speaker. In some cases, due to physical room limitations, they can be located on the back wall or on the sidewalls. (See Figure 1 on page 34.)

Balanced sound

Another important consideration for the speakers is that they are properly level balanced to each other. It is critical that all of the speakers reproduce the same sound pressure level (SPL) when fed with a given reference signal or monitoring level.

A simple noise generator allows consumers to adjust their decoder systems

with professional equipment, a consumer system in places like the front lobby gives you the ability to hear your programming on equipment that your viewers might have at home. It also shows visitors what you are doing and lets them know that they could have something like this in their homes without having to buy professional equipment.

Know the downmix

Once all of the 5.1 channel audio monitoring is in place and properly calibrated, subjective assessment of the audio program can proceed. However, it is a given that some of your listeners won't be listening to the full 5.1 channel discrete program as you are.

The need for proper monitoring also exists in the ingest room, the audio production room, and even in the lobby or green room.

for uniform level reproduction from their speakers. The professional application depends on the equipment in use for how the calibration is done.

Regardless of what system is employed, the goal is to get the same SPL from any channel that is given the reference noise signal, with the exception of the LFE channel. When bass-managed systems are used, this will require an audio spectrum analyzer to set both the overall level and the bass-managed level reproduced by the subwoofer. For full-range systems, a simple SPL meter will usually suffice.

Additional setups

A proper 5.1 channel monitoring environment is not limited to the master control center. The need for proper monitoring also exists in the ingest room, the audio production room, and even in the lobby or green room, where off-air signals may be delivered.

Each of these areas needs to be capable of reproducing the full-range audio, and the solution for each may be slightly different. Although all of the production areas should be equipped

Some may be listening through a Dolby Surround Pro Logic or Pro Logic II decoder, in stereo or mono audio.

The ability to hear all of these downmixes is certainly necessary at content creation and desirable in the quality control and ingest areas as well. Products such as the Dolby DP570 multi-channel audio tool were designed for making the proper downmixes and metadata emulations of the Dolby Digital consumer delivery coding system in production and quality control areas.

At some point in the facility, the ability to hear an off-air signal through a consumer system is a definite plus. Hearing the actual off-air signal as a consumer is the final test to ensure that your audio signal is making it all the way home, sounding as you intended it to.

Beyond hearing, there are other monitoring considerations: 5.1 channel metering, proper dialog level, metadata parameters and errors are all things that should be monitored. Several companies have solutions for looking at this information and making sense of it.

For metering, find a meter that displays audio signal levels, such as Wohler's AMP2-E8MDA. The inputs

to these metering devices are tailored to virtually every application possible. Many of these devices include confidence speakers to hear the sound and are perfect for listening in difficult areas such as transmission where a 5.1 channel system is impractical but the sound needs to be heard to verify its presence.

Dialog level can be properly measured and monitored with the Dolby LM100 loudness meter. This meter will also show metadata parameters within Dolby E and Dolby Digital streams and count errors. Several networks are now specifying this meter for all tapes submitted to them for airing.

Tektronix makes a test and measurement set in the WVR7000 series that allows for measuring items from many sources based on the options purchased, including metadata, errors, level and Dolby E or Dolby Digital decoding. This box also includes video monitoring needs, making it a nice package of tests in one display.

Videotek's VTM-450E HD/SD on-screen monitoring system is popular with satellite uplink trucks for monitoring the signals going to and returning from the network operations center during live remotes.

Conclusion

Regardless of the size of your broadcast or production facility, the ability to properly monitor your audio program is necessary. Without proper audio monitoring, passing on the signal from the network or server is analogous to only having a black-and-white monitor for your program output video monitor.

As more and more consumers buy DTV systems and begin watching your DTV service with 5.1 surround sound systems, viewer complaints will decrease due to fewer transmission problems. Having the ability to monitor and fix audio problems before they are transmitted to your viewing audience will lead to happier customers. **BE**

Jim Hilson is a senior broadcast audio specialist at Dolby Laboratories.

HD, IPTV, mobile TV – the broadcast digital media world is rapidly evolving with new formats and new ways of creating, packaging and delivering “content everywhere.”

Increasing consumer choice means new opportunities for broadcasters and content owners to put their pictures to work and generate extra revenue.

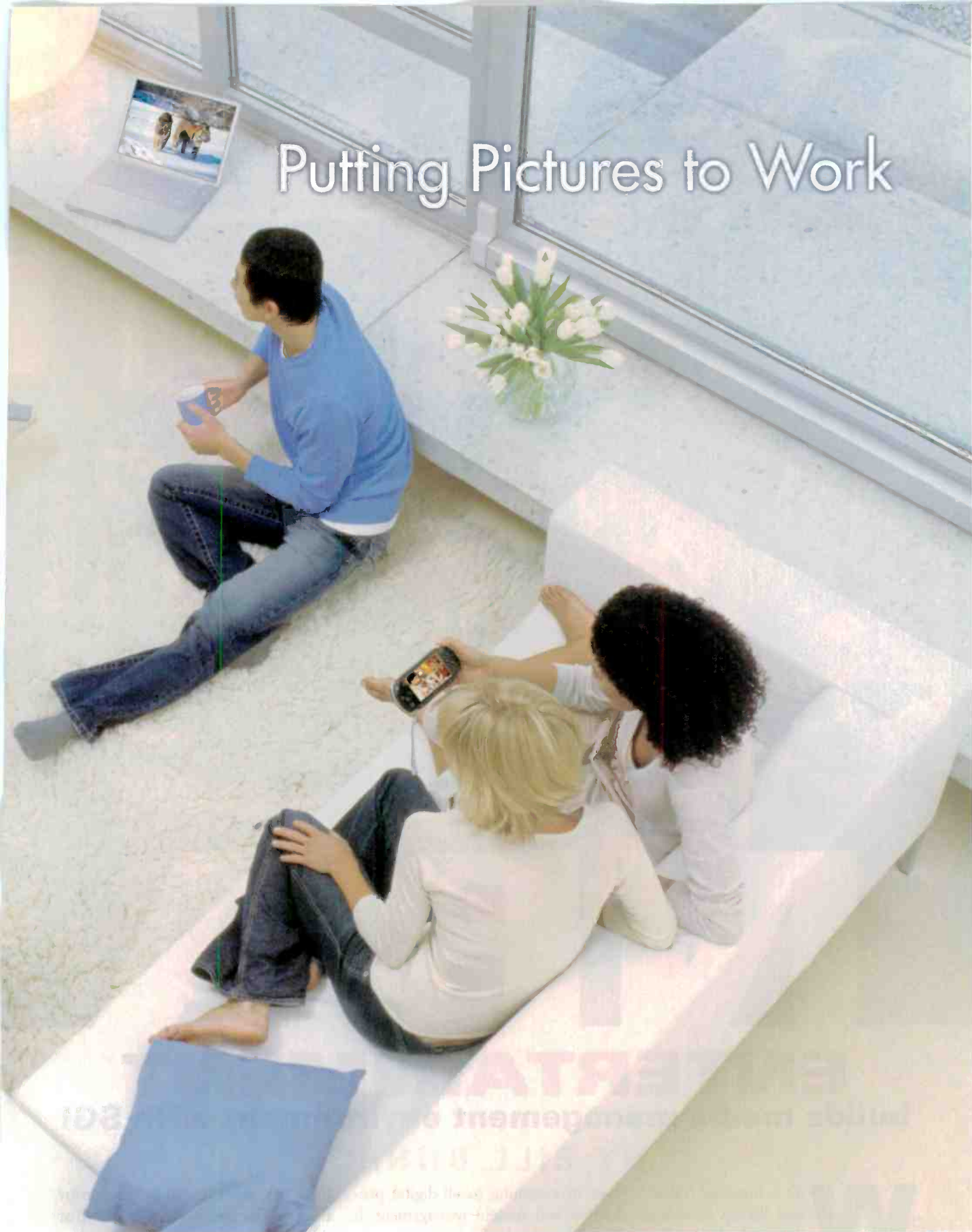
The challenge is to make evolving technology work for you profitably and in harmony with your existing plant.

At NAB we’re demonstrating how you can meet that challenge – with new, cost-effective solutions for live production, playout and mastering and repurposing.



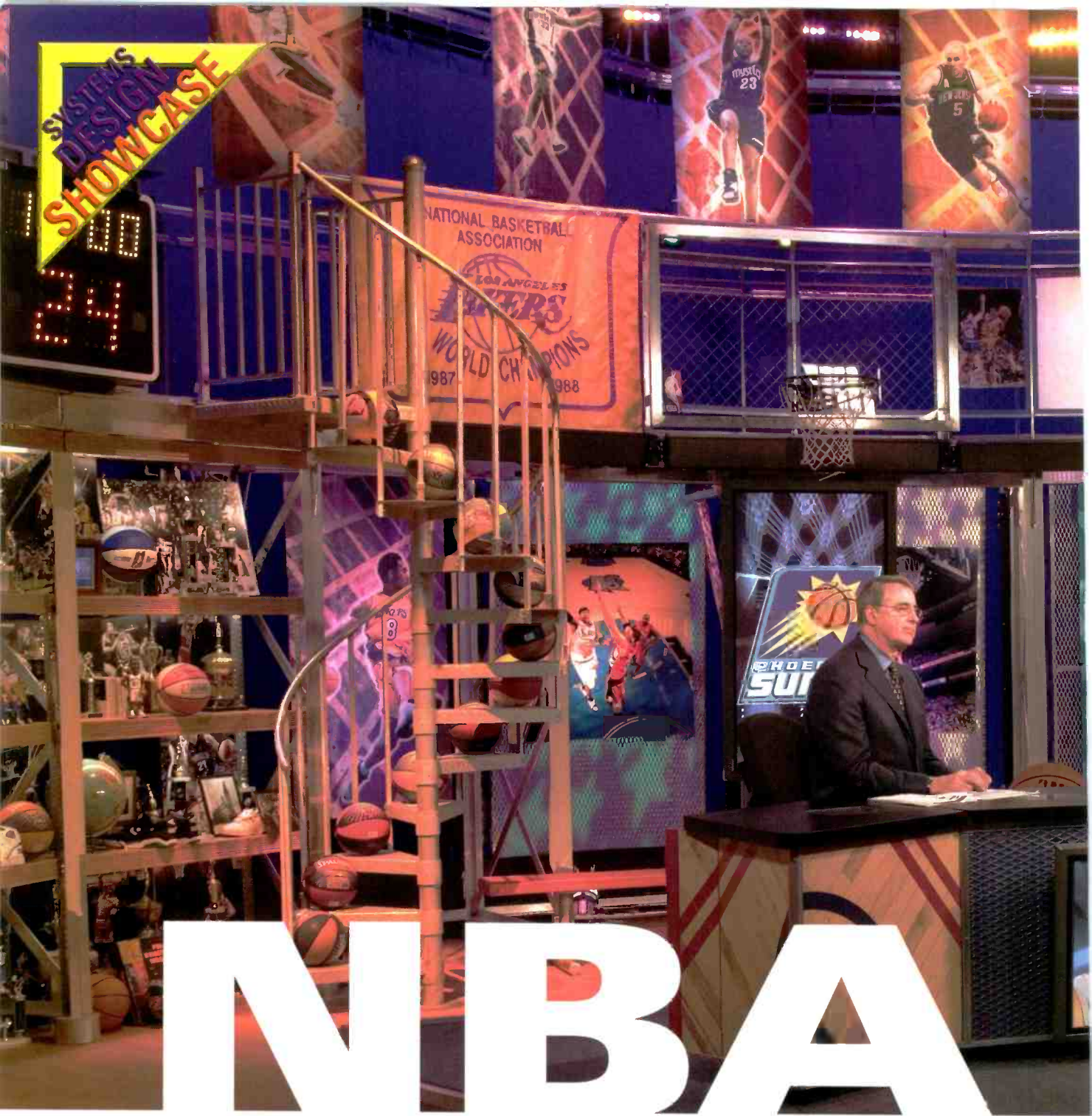
Watch us putting pictures to
work on Booth **#SU156** at NAB
and find out more at
www.snellwilcox.com/nab

Putting Pictures to Work



Putting Pictures to Work

SNELL & WILCOX



NBA

ENTERTAINMENT builds media management environment with SGI

BY BILL BUHRO

With a historical videotape library, including film reels of the first National Basketball Association (NBA) game in 1946, NBA Entertainment (NBAE) has a lot to store and protect. Several years ago, NBAE began the first

stage of switching to all-digital production and content management. It started by introducing NLE systems in a centralized environment at production and transmission headquarters in Secaucus, NJ. A year ago, low-resolution browse, search and retrieve capa-

bility was added. And online storage for the ingest process, which captures all of the NBA games directly into the storage environment, as they happen in real time, is currently in the final stages of operational testing. Online storage allows the organization to steadily trans-



NBA TV's Bruce Beck (right) and NBA Hall of Famer Gail Goodrich (left) at work on the set of "NBA TV Insiders" at NBA Entertainment's transmission and all-digital production facility in Secaucus, NJ. Photos by John Berson, NBA Entertainment.

fer historical material from decades of videotape, digitize it and make it easily available to producers.

Throughout the digital transition process, NBAE has worked with SGI toward one goal: implementing a complete media management environment that would allow the NBA to utilize all of its assets efficiently, especially as they pertain to video. As the production arm for the league, the organization repurposes and creates content for NBA TV, the league's 24-hour

cable channel; numerous NBA interview and magazine shows; and countless highlights packages, promos and spots for network and cable distribution and video on demand. It also runs the league's Web site, NBA.com, which features extensive video clips of games through NBA TV Broadband, in addition to providing content for other Web sites and wireless devices. Having everything in digital form and making it searchable by any of NBAE's internal and external clients sets the stage for

any type of digital distribution available today and into the future.

Phase one: NLE systems

From the beginning, NBAE looked at the transition to an all-digital workflow as a process it would build towards until the facility could be completely linked together. The first required step was converting a linear editing and a sneakernet production environment to a file-based multi-station environment, where media is shared amongst users.

Implementation of an SGI InfiniteStorage NAS 3000 system allows the more than 100 producers involved in various productions to share materials and processes. Production staff can easily access their work at numerous stations, saving time.

Phase two: browse, search and retrieve capabilities

For the second stage, NBAE wanted the means to make material available in a version other than the high bandwidth and resolutions required for post production, but in a form that the staff could access without adversely affecting the business network infrastructure. The facility introduced the Virage low-resolution browse, search and retrieval capability, an application created specifically for NBAE. Preparing for the low-res addition meant updating databases, library references and a general data cleanup and consolidation from years of growth and changes.

It was also important to ensure that moving forward, everything was lined up properly so the facility could migrate to the third step. All the references and data structures were verified and aligned to meet the requirements of today's technology.

Phase three: online storage in real time

NBAE partnered with SGI to design and install the final piece that would include live ingest and introduce the

TECHNOLOGY AT WORK

NBAE

Queue Manager
Discontinuous Time Code Restoration

Pinnacle

Liquid Blue NLEs

SGI

Digital Mass Storage Engine

InfiniteStorage system

NAS 3000

SAN server

CXFS shared filesystem

Data Migration Facility

Origin 350 servers

Snell & Wilcox Asteroid SD/HD MPEG-2 MXF encoders

StorageTek StreamLine SL8500 tape library with LTO Gen 3 drives

Sundance Digital Intelli-Sat automation

DESIGN TEAM

NBAE

Steve Hellmuth, sr. vp, operations and technology

Mike Rokosa, sr. dir., engineering

Keith Horstman, sr. dir., broadcast information technology

Dana Stone, dir., digital media management

SGI

Bill Buhro, media solutions architect

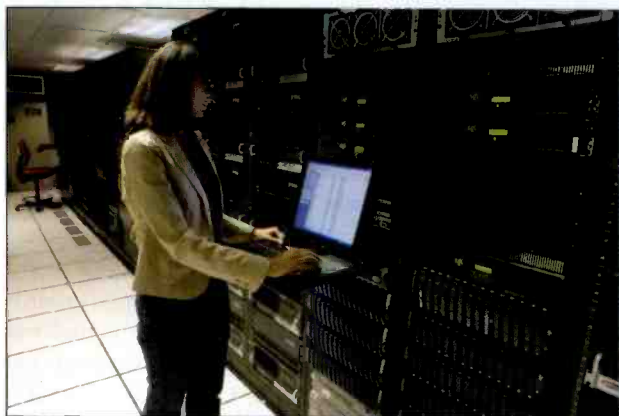
Tony Karam, program mgr.

Dale Brantly, systems solutions architect

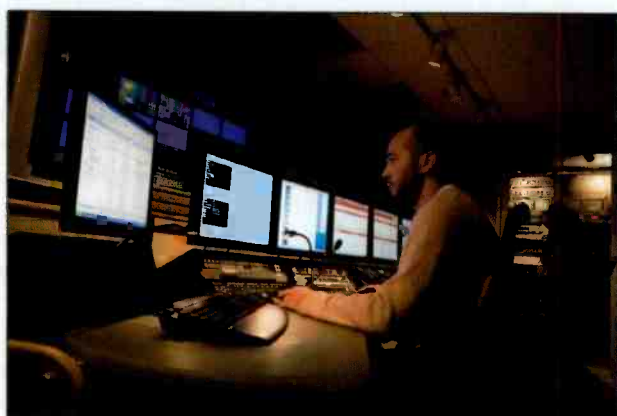
process of archiving an extensive videotape library. Engineers from the two organizations began the collaborative effort when it became apparent that major elements and the talent for the implementation existed.

First, SGI provided the essential hardware and software that would integrate the existing islands into an online SAN. The SGI NAS 3000 was migrated to an SGI InfiniteStorage SAN based on SGI


InfiniteStorage CXFS shared filesystem, which provides the real-time storage for the 17 Pinnacle Liquid Blue systems currently online. The Virage low-resolution library was also migrated to an SGI CXFS storage system with multiple clients. Four SGI Origin 350 series servers provide the server infrastructure for the filesystem. The addition of SGI Data Migration Facility (DMF) software to the SAN enables the capability



SGI InfiniteStorage SAN with CXFS shared filesystem provides real-time storage for 17 online Pinnacle Liquid Blue NLEs and storage for Virage low-res browse and retrieval.



NBA games are captured directly into the InfiniteStorage environment in real time. SGI Data Migration Facility software allows speedy and efficient archiving and retrieval.



During the last mission by Discovery, audio engineers, Royce Bowie and Greg Wiseman (standing, l-r), with John Stoll, senior audio engineer and audio engineer Beth Weissinger (seated, l-r), in the Johnson Space Center Audio Control Room, handled all the communication and media feeds as well as NASA TV broadcast audio from the System 5-B.

NASA Lifts Off With Euphonix

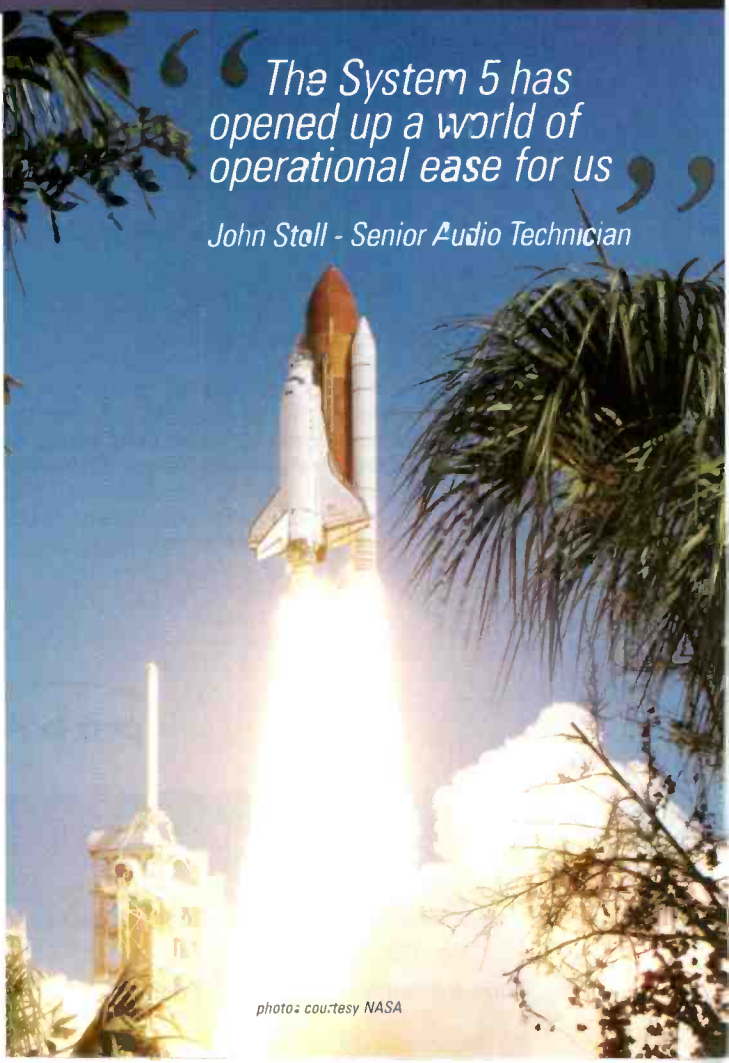
NASA has installed a 64 fader System 5-B audio mixing system to handle audio from the shuttle and space station communications, mission commentary, media feeds, Presidential and VIP hookups, and audio from the various NASA operations centers together with audio for NASA TV.

euphonix.com

 **Euphonix**

digital entertainment

©2005 Euphonix, Inc. All rights reserved • 220 Portage Avenue • Palo Alto, CA 94306
Phone (650) 855-0400 • Fax: (650) 855-0410



“The System 5 has opened up a world of operational ease for us”

John Stoll - Senior Audio Technician

photo: courtesy NASA

to do all of the archiving and retrieval in an efficient and expedient manner.

From the beginning, the NBAE insisted on the capability to retrieve specified segments or clips from larger files, or partial file restoration. One basketball game can run between two to three hours and producers typically

need only fractions or highlights of the game. The ability to bring only the required segment back from the data tape archive is a huge savings in time and online storage resources. To allow producers to retrieve partial video files from the archives, software developed by SGI engineers in Germany, called Mass Storage Engine, was integrated.

Real-time ingest, direct to data

The SGI online storage and CXFS infrastructure, which is backed by a 3000-slot StorageTek 8500 data tape library, captures all NBA games directly to the storage environment as they happen in real time. The ingest facility is designed around 16 Snell & Wilcox Asteroid encoders, capturing the high-resolution video as compressed digital files. As games are recorded in the digital format, the files are pushed to the data tape library, which acts as the primary repository for all the digital media for NBAE.

The organization tapped Sundance Digital to provide the automation software that manages the process of capturing live games from their source, including satellite, fiber feeds and microwave. Sundance Digital takes the NBA schedule and assigns resources to ingest those elements. The process of transferring historical video has also been automated, reducing errors while maintaining a high degree of productivity.

NBA applications development engineers designed specialized software and managed the integration of NBAE databases and business applications. Two applications, Queue Manager and Discontinuous Time Code Restoration, were among the work-specific products developed.

Queue Manager prioritizes the delivery of assets to the edit environment based on business rules and deadlines. It also manages the ingestion of historical material by marrying the logging data accumulated over the past years with the new digital asset.

Some of this logging data was generated with start and stop time codes. Breaks in time code presented a problem to the encoding hardware and to partial file restoration accuracy. To solve this issue, the engineers created a process, Discontinuous Time Code Restoration, that in effect re-stripes the material as it is encoded and replaces the database references with the corrected information.

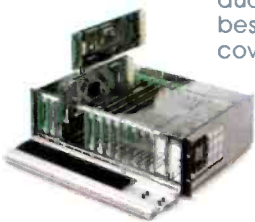


Your HD infrastructure is in reach

with Vistek from Pro-Bel

If you're worried about how to implement HD in your facility - **STOP!** The Vistek range from Pro-Bel has everything you need.

The most advanced up, down and standards converters in the industry, synchronizers, DA's, audio processors, multiplexers and lots more besides, if you need HD (or SD) we've got it covered. **So relax,** reach for your mouse, click on pro-bel.com and contact your regional Pro-Bel representative.



HD is at your fingertips.

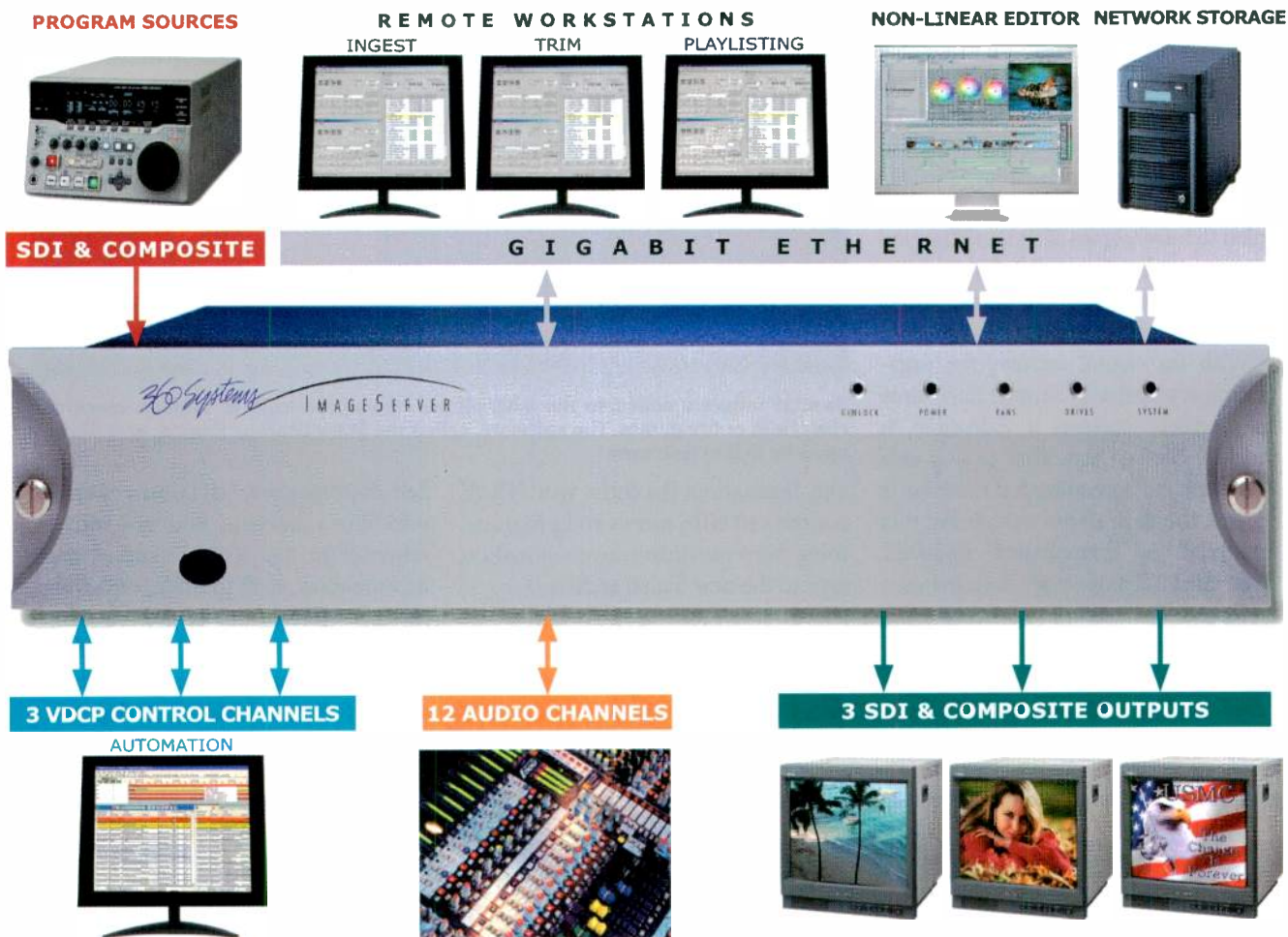
- Automation
- Master Control
- Modular Infrastructure
- Routing
- Control & Monitoring



www.pro-bel.com

Engineering The Broadcast Future

Talk about intelligent design...



- MPEG-2 CODECS
- DV CODECS
- EMBEDDED AUDIO
- AES/EBU AUDIO

- +4 ANALOG AUDIO
- 170 HOUR CAPACITY
- 4-DRIVE RAID ARRAY
- CLOSED CAPTIONING

- TARGA GRAPHICS
- INPUT FRAME SYNC
- HEAD & TAIL TRIMMING
- AS-RUN LOGS

360 Systems is delivering a new class of Image Servers.

Take a close look and you'll find new features that enhance workflow speed and content quality. New Remote Workstation software lets you create work areas for ingest, trimming, playlisting or review—and place them anywhere you need them. New network transfer tools move content fast, to and from popular NLEs. And now, Image Servers import and export more forms of video and audio than ever before.

Whether you're running a network, mid-market station or cable access channel, the new Image Servers with Advanced Playlisting, accurate As-Run logs, and easy editing functions may be everything you'll need to get to air.

Today's intelligently-designed Image Servers deliver a new generation of capabilities, yet are incredibly affordable—which may explain why they've become today's best-selling broadcast servers.

360 Systems
BROADCAST

See us at NAB
Booth SU-2993.

**SYSTEMS
DESIGN
SHOWCASE**

**Transferring the
tape library**

NBAE's transition to a digital workflow for ingests and archive solves another problem: the reclamation of an aging magnetic videotape library. Videotape has an average shelf life of 15 years. The organization needed a plan to move copies of its vast library to newer managed material that was less susceptible to aging and garner workflow improvements in the process.

With the digital archive, the organization's plan was simple: Each time a producer accesses a videotape, it will be the last time that tape is ever touched. As a request for material is made, the entire tape containing that material is immediately digitized. The SMPTE time code is used as a reference for the low-res search and browse proxy, and the asset is put into the digital library system. Along with digitizing the new games as they hap-



Special software added to the SAN allows news producers to retrieve specified clips from entire games. The software, called the Mass Storage Engine, was developed by SGI in Germany.

pen, throughout the entire year, NBAE converts all NBA games and programming from previous seasons stored on tape to the new digital archive.

Process improvement

Prior to the deployment of this system, the process for the creation of a

half-hour magazine-style show entailed searching a database, finding a textual reference to the desired material and its warehouse shelf location, retrieving the tape (often from off-site storage), reviewing the actual material on a Beta tape machine and monitor, finding the segment of that material needed, and

MegaPixel Resolution

V-R842P-AFHD
2.4 TFT-MegaPixel™
Dual 8.4" LCD Monitor
Price: \$ 5999.00



V-R72P-2HDSDI
1.2 TFT-MegaPixel™
Dual 7.0" LCD Monitor
Price: \$ 2999.00



V-R653P-HDSDI
1.2 TFT-MegaPixel™
Triple 6.5" LCD Monitor
Price: \$ 3999.00



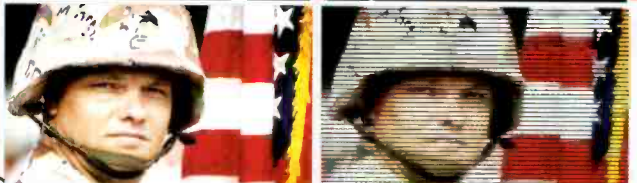
V-R44P-HDSDI
1 TFT-MegaPixel™
Quad 3.5" LCD Monitor
Price: \$ 3995.00



**Rack Mount Ready
TFT-MegaPixel™
High Definition Monitors**

Marshall's 1.2 TFT-MegaPixel

Competitor's 480x234 resolution



Only Marshall Electronics offers **30** different models of rack mount ready, multiple screen High Definition monitor sets. Each features our TFT-MegaPixel™ system with Hyper-Process™ for interlaced images and Match Color Conversion™ CRT emulation. All models accept 1080i, 1080P, 720P and 480i digital signals to provide full flexibility for any application.

infoComm booth #3927

NAB
booth #
SU4355

Marshall Electronics

Tel.: 800-800-6608 / Fax: 310-333-0688

www.LCDracks.com

BROADCAST | FILM

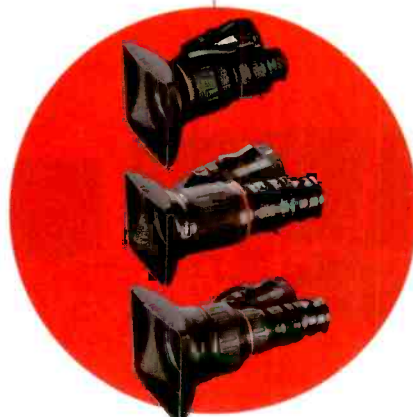
HIGH DEFINITION OPTICS

A higher standard, now within reach

THALES



HD-e Now the exceptional performance of Thales Angenieux HD lenses is in your range. Our new HD-e series offers the same superlative optics and engineering quality of our Emmy Award winning line of HD broadcast lenses – at a new economical price. Making it possible to raise the level of your productions without breaking your budget. And the new HD-e series measures up in every way to our established reputation for optical and technical excellence in both the film and television industries. With our long history of innovation and leadership, Thales Angenieux makes it easy for you to make the move to a new level of HD performance.



19x7.3 AIF HD-e
Zoom ratio: 19x
Focal length: 7.3-139 mm
MOD: 2'
Weight: 3.7 lbs

10x5.3 AIF HD-e
Zoom ratio: 10x
Focal length: 5.3-53 mm
MOD: 1'
Weight: 3.4 lbs

26x7.8 AIF HD-e
Zoom ratio: 26x
Focal length: 7.8-203 mm
MOD: 3'
Weight: 4 lbs

973-812-3858 • angenieux.com

angenieux
images

SYSTEMS DESIGN SHOWCASE

then ingesting that segment into an editing system.

The process would be enacted for virtually every clip required and a typical half hour production might be in excess of 1000 clips.

With DMF, producers do all of their research with the low-res search engine, selections can be made and storyboards created for content review, and the resultant requests fulfilled to the craft editing environment with the high-resolution assets. All of this happens effectively under the covers and without further operator intervention.

The system is designed so that by the time the producer sits down at the edit system, all the clips are ready and available. Assuming all those clips are in the digital library, the producer can present a finished show within a few hours, saving significant time.

Moving forward, everything goes directly into the digital archive. As new



Snell & Wilcox ingest decoders capture high-resolution compressed digital video of NBA games, which are recorded directly into the StorageTek data tape library in real time.

media enters the building, it is directly ingested and then logged with the low-resolution proxy.

In an effort to maintain a clean archive, the system introduces a process referred to as chunking, whereby material ingested but deemed to be of no production value (e.g., having color bars, black, inadvertent swish pans)

can be isolated and removed prior to storage in the archive.

Everything that NBAE and SGI worked together to deploy is designed to handle HD bandwidth, providing more capabilities as HD-produced content becomes the norm. **BE**

Bill Buhro is media solutions architect for SGI.

quantel.com

'low-cost, risk-free and it works'

**Newsbox – the big integrated news system in a little box
...from just \$199K**



Now every broadcaster can match the look and speed of even the largest stations. Newsbox is a complete pre-packaged system. It can be up, running and on air in just a few hours; oh yes, and every Newsbox comes with a 5 year QCare warranty. It's time to think inside the box, Newsbox.

Newsbox is News to Go™





WHAT KIND OF SIGNAL DO YOUR LABELS SEND?

RhinoPRO™ 5000 keeps your facility as professional as you are. Connections are everything. But marking them clearly and securely reflects a commitment to excellence you can share. Advanced RhinoPRO 5000 won't challenge your people. Instead, it will speed their efforts in studios, control rooms, OB vans – anywhere you need to identify and organize assets.

Easy operation keeps your operation moving. RhinoPRO 5000's full-featured command set includes one-touch "hot keys" and memory storage for instant labeling of cable ends, patch panels and stand-alone equipment. With back-lit display and impact-resistant rubber bumper, RhinoPRO 5000 is just as useful behind equipment racks.

RhinoPRO labels leave a lasting impression. Our easy-to-load, all-in-one cartridges hold easy-peel labels that resist heat, UV, moisture and smearing. Think of RhinoPRO 5000 as the latest labeling technology – to identify the fast-changing technology you provide and maintain.

Get **RhinoPRO 5000** and get your labeling up to speed.

Visit www.rhinolabeling.com for details.

Available at Milestek

A1969_02



5000

Features:

- 1** RhinoPRO labels stick and stay stuck
- 2** Back-lit display for low-light environments
- 3** One-touch Hot Keys for cable/wire wraps, patch panels, terminal blocks, fixed length and vertical labels, eliminate guesswork and complicated menus
- 4** Separate save and recall keys for quick access to label memory
- 5** Durable rubber bumper for added protection

Visit us at our NAB Booth #N2133

RHINO
PROFESSIONAL LABELING TOOLS
HOW DO YOU SIGN YOUR WORK?™



SONY®

HDdevelopment

“Our HD Select™ system helps grow
our ministry.” — Pastor Joel Osteen, Lakewood Church

“When we renovated the former Compaq Center,
we created a 16,000 seat sanctuary,” says Lakewood
Church Pastor Joel Osteen, whose broadcasts reach
100 countries. “Sony showed us the advantage of
high definition: better quality in today’s standard
definition world, plus a path to the HD future.”

“Sony quality and service after the sale make them
an easy choice. We’ve got a long-term relationship
with Sony. Our relationship is not just a sales
transaction; it’s a partnership to help us grow our
ministry. There is a tremendous difference.”

Practical, affordable HD Select systems... that’s the
new way to share the Word.

*Discover special system pricing and a six-month
extension* on the Sony limited parts warranty at
www.sony.com/HDSelect1*

Select eligible products purchased between 12/01/05 and 6/30/06 qualify for an extension on their limited parts warranty when registered online by 11/30/06.
© 2006 Sony Electronics Inc. All rights reserved. Features and specifications are subject to change without notice. Reproduction in whole or in part without written permission is prohibited. Sony and HD Select are trademarks of Sony. The New Way of Business is a service mark of Sony.

THE NEW WAY OF BUSINESSSM





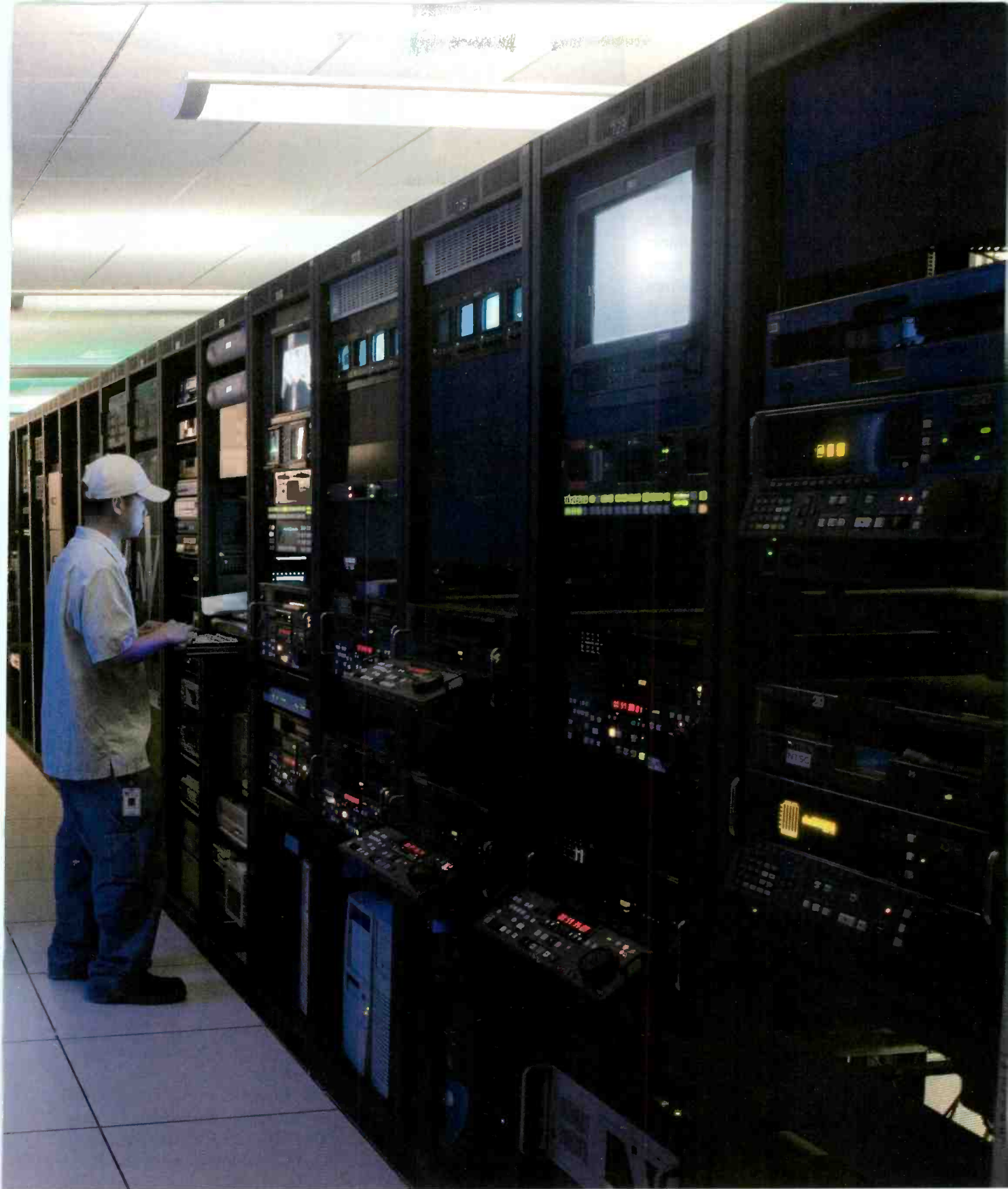
Ascent Media Group's new Digital Media Data Center

BY KEVIN SANDERS

Ascent Media Group (AMG) launched a technologically advanced 100,000sq-ft

facility that manages and delivers file-based and traditional media services. The facility, dubbed the Digital Media Data Center (DMDC), came about as

a direct response not only to the company's clients' needs, but the rapidly evolving landscape of electronic media technology.



The machine room has more than 450 equipment racks that support 150 individual bays. Photos courtesy John Benson.

Consolidating eight existing facilities under one new roof also led the company to create an extensible and interoperable environment. At the new facility, file-based nonlinear workflows are supported with a secure infrastructure that streamlines production, enhances collaboration across all related departments and ultimately collapses the time-to-market



A Barco projector is paired with the first installation of a 4K Quantel with Pablo control surface for film restoration and digital source mastering.



At any given time, there are more than 300,000 elements vaulted or in production at the DMDC.



The 4K DI suite is equipped with a Barco projector and a film projector, which allows side-by-side viewing of the two media.

windows for customers while reducing the risk of piracy.

The new facility allows AMG to more efficiently service clients' file-based and traditional media needs, with an emphasis on managing the convergence of the two. By consolidating a comprehensive list of services within one location, physical security is maintained and supported by advanced digital technologies. Workflows have improved by 75 percent to 300 percent in the new parallel file-based environment.

The highly secure production network ensures client content is protected throughout the life cycle, from the time of ingest to final delivery. Moreover, by adhering to global interchange standards with harmonized metadata dictionaries and MXF, AAF and GXF industry standard wrappers, content can easily move across the various production platforms.

Design

Ascent Media Systems & Technology Services, AMG's systems integration unit, provided project management, engineering and installation services for the facility and helped manage design changes driven by technology developments during the implementation of the on-site installation.

More than 600 system drawings for cabling, racks and consoles were produced for the project. Every cable in

the facility was identified with a unique cable number label to allow for more than 2 million ft of coax, audio, control and network cable to be installed and tracked within one database.

The physical layout of the facility is articulated by the location of departments, personnel and equipment to maximize space and enhance the organization of workflows. This ensures technical areas are more readily configurable to future products or business model processes that the company may implement.

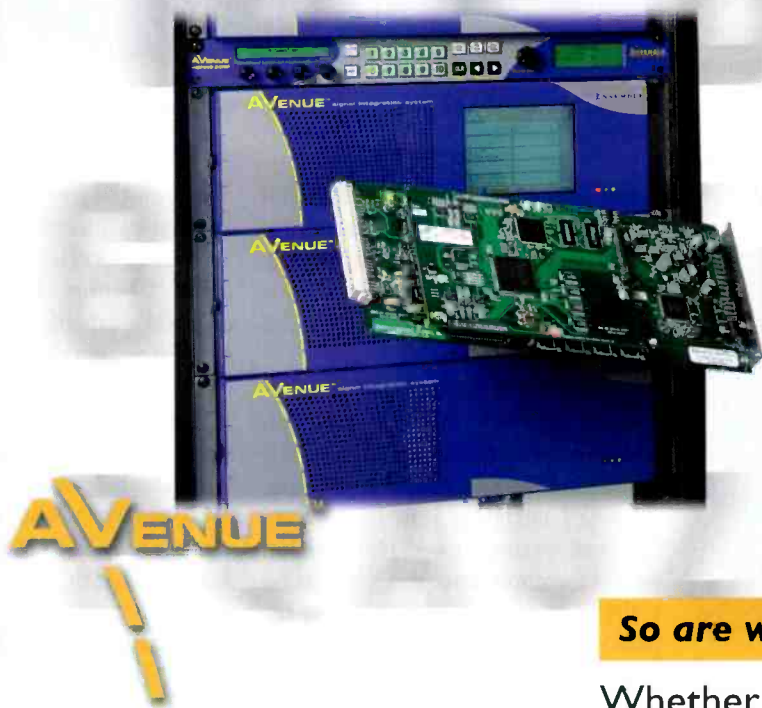
Equipment

The DMDC works in tandem with Atlas, a digital asset management solution created by Ascent Media Group and HP. This integration enables the ingest, transformation and creation of post-theatrical and broadcast elements and provides physical fulfillment and file-based distribution capabilities all the way through to DVD authoring, VOD or any other client-specified deliverable.

The facility features a Quantel iQ and Pablo control surface with 4K capability. The suite is used exclusively for feature restoration and digital source mastering, which are all supported by file-based digital intermediate (DI) workflows and managed through the company's ProdNET and Agility solutions.

AMG expands its offering in this space with considerable expertise,

You're focused on signal processing and infrastructure.



So are we. That's all we do.

Whether upgrading your broadcast facility to digital, or converting to HD, Avenue will take you there.

- **HD up/down/cross conversion**
- **HD/SD Dual rate modules**
- **New optical I/O**
- **Best control system plus SNMP**

NAB Booth SU 2997

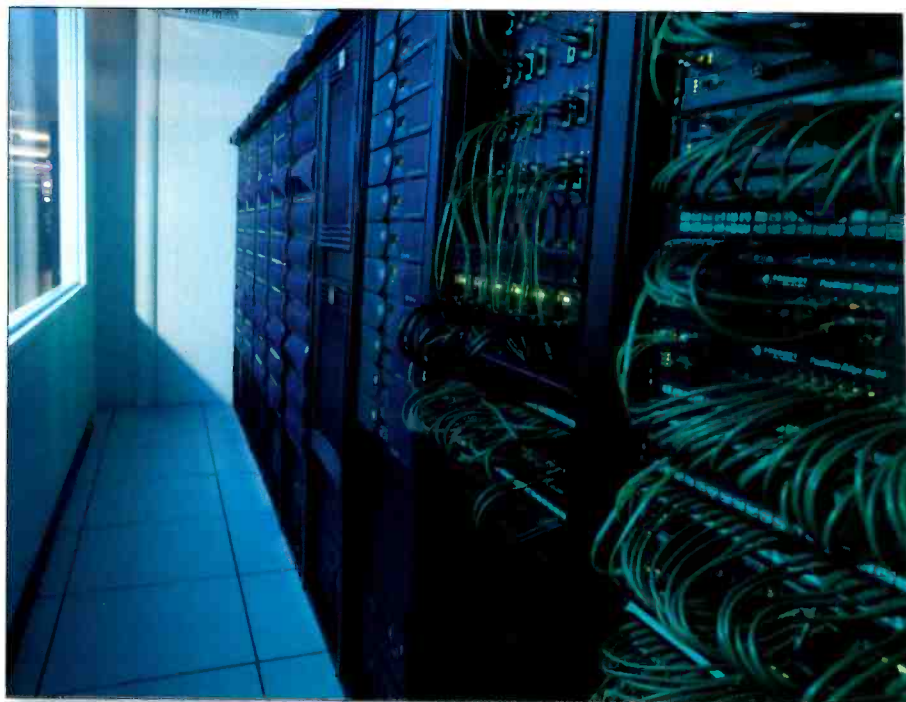
ENSEMBLE

D E S I G N S

Tel +1 530.478.1830 ▲ Fax +1 530.478.1832
www.ensembledesigns.com ▲ info@ensembledesigns.com
PO Box 993 Grass Valley CA 95945 USA

having already invested in multiple 2K and 4K DI suites at the company's post-production boutiques: Company 3 in Santa Monica, CA, and New York, and Encore in Los Angeles. As DI workflows explode into the marketplace, many companies have struggled to provide a solution, most of them adapting legacy equipment or adding new gear to an existing post-production pipeline. At AMG, DI suites are built from the ground up, with a new file-based infrastructure that maintains the master in the highest possible resolution and color space. The file-based master can then be moved through the network and repurposed based on client specifications.

In addition, services include editing, mastering, audio and video restoration, quality control, audio mix-



ProdNET is physically disconnected from the outside world to ensure the security of clients' content.

ing, digital conversion, subtitling and closed captioning, data translations, watermarking, versioning for region, data asset management and distribution, and vaulting of both physical and digital assets.

At the heart of the facility is the production network, dubbed ProdNET, which serves as the foundation for all parallel workflows and processing. ProdNET currently stores up to 368 hours of uncompressed HD content, with all components designed to be scalable in order to increase that capacity as projects warrant. The system can rapidly move that content, relying on a robust network bandwidth capable of moving data at 1.2Tb/s.

The DMDC integrated technologies to build the foundation of ProdNET and then fortified it with a proprietary suite of software tools — all within an application named Agility. The tools provide customers and personnel visibility and real-time monitoring into the status of their work across multiple operational disciplines. Layered across the scope of the facility's business lines, this environment allows users to drive large-scale projects, monitor job status, estimate delivery dates and anticipate potential issues that may impact timely execution.

Enabling technologies forming the

backbone of ProdNET and supporting Agility include more than 100TB of enterprise class, high-performance, Fibre Channel SGI InfiniteStorage TP9500's capable of being allocated from one department to another as needed. SGI Origin 350 metadata servers facilitate the I/O control system, deployed through redundant Brocade SilkWorm 24000 Director switches. The network features a storage capacity of 180TB plus additional HP-based ADIC storage.

Security and collaboration

One driving factor in the creation of the facility was industry-wide concerns over revenue losses due to piracy. AMG factored in security requirements of both studio clients and industry initiatives.

ProdNET's secure environment stands among the facility's most important features. The entire facility is monitored 24 hours a day by a file-based video surveillance system, which includes 32 high-res video cameras. Shipping and receiving departments are strictly monitored and controlled. All assets are bar coded and logged into the system upon acquisition and stored in a secure library vault when not in use.

Those assets are constantly tracked



Brocade SilkWorm switches were used to create a storage networking infrastructure for the mission-critical SANs.



Parallel processing and workflows are enabled by SGI CXFS-based metadata servers designed to power the heart of the I/O and SGI TP9500 storage.

Bridge the 3D Gap to Real-Time HD Broadcast Graphics

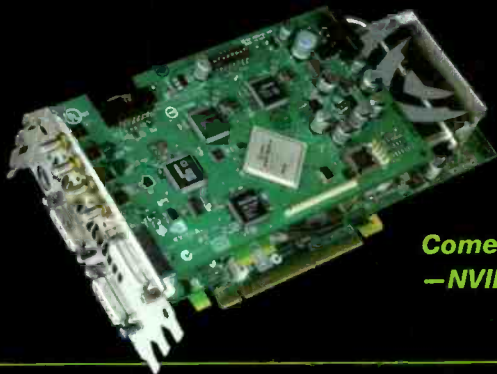


NVIDIA Quadro® FX 4500 SDI by PNY, featuring NVIDIA® PureVideo™ technology, is THE INDUSTRY LEADING graphics-to-video solution for broadcast and video professionals DELIVERING THE HIGHEST QUALITY uncompressed SDI video, enabling direct connection to broadcast equipment.



Key Features:

- Fully programmable NVIDIA Quadro graphics board
- Uncompressed 8-bit, 10-bit, or 12-bit SDI
- SD, HD, and 2K Support



**Come see this solution at NAB2006
—NVIDIA booth #SL591**

For more information and where to buy NVIDIA Quadro by PNY, visit www.pny.com/quadro

PNY
TECHNOLOGIES

during operations, using bar code scans to and from all locations. To handle this media management load and seamlessly transition physical media entering the facility into the network's secure data environment, the company designed a real-time tracking system for physical assets, file-based assets and work in progress. This system assures strict security around client material at all times. To house the tremendous volume of finished file assets, AMG also built its proprietary Atlas DAM system technology directly into the facility's server room as a core component of the file-based, end-to-end solution.

Just as important, the company has strategically designed ProdNET to allow seamless collaboration across all departments within the facility, while simultaneously unplugging the entire infrastructure from the outside world. Therefore, no department can access the Internet; the facility has multiple intrusion detection systems; real-time



HP StorageWorks tape libraries are used to power Atlas, AMG's digital asset management solution.

heuristics map all normal production use; and access to functional areas is monitored and strictly based on login profiles.

Among the network's other protection protocols:

- the SGI server and storage environment is Unix-based to mitigate virus distribution;
- separate user names and passwords are required to distinguish operator logins from corporate logins;
- advanced environmental monitoring is online around the clock;
- and encrypted backups of client material for work in progress is standard procedure.

Such stringent measures, including adherence to strict user authentication procedures — every person logging onto any part of the network must be authenticated at least twice — makes ProdNET a secure post-production environment.

Design team

Ascent Media Management Services

Kevin Sanders, CTO, VP eng.

Doug Mountain, dir. of operations

Rick Gross, dir. of eng.

Nick Mairose, eng.

Jeff Quinn, eng.

Ascent Media Systems & Technology Services

Dan Keenan, project mgr.

Randy Silverman, project eng.

Jim Redovian, design eng.

Jerry Stalder, design eng.

Larsen Cottrell, project leader/supervisor

Technology at work

Ascent Media

Agility suite

Atlas DAM

MediaXpress store and forward

ProdNET production network

Barco DP100 digital projector

Brocade SilkWorm 24000 Director SAN

Cintel C-Reality telecine

Cisco corporate LAN

da Vinci 2K color correctors

Digi-Delivery store and forward

Digidesign Pro Tools HD DAW

Digital Vision Valhall suite HD color corrector

DMDC Atlas archive interface

Doremi DMS 2000/DCP2000 digital cinema packagers

Evertz router and modular gear

Foundry

M8 BigIron production LAN

FastIron Edge switches

HP

ADIC storage

Server

StorageWorks E-Series tape libraries

Lasergraphics Producer 3 film recorders

NEC HD6K digital projector

Northlight II scanners

NVISION router, modular gear

Philips Spirit Datacine telecine

Quantel

4K Pablo surface suite color corrector

iQ digital intermediate

Qube QubeMaster/XP-D digital cinema packager

SGI

InfiniteStorage

Origins 350 metadata server

TP9500 and TP9300 storage

Smart Jog store and forward

StorageTek SL500 data archive

Telestream store and forward

WAM!NET store and forward

My production.
My NEC flat-panel displays.

Get the most from your digital IT infrastructure with the industry-leading technologies and support of NEC Display Solutions. Transitioning from a CRT-based environment doesn't have to be complex. Count on NEC for display expertise, proven solutions and the right LCDs for your critical control room applications. The NEC MultiSync® Large-Screen LCD Series and Professional Series feature a range of screen sizes, exceptional scaling, superior color accuracy and black level adjustment. Our Professional Series even includes digital CableComp™ for no-hassle long-cable runs, a 12-bit LUT for better color gradations and ColorComp™ for consistent white uniformity levels. What's more, you'll soon be able to upgrade the Large-Screen Series to SDI for even more cost-effective versatility.

Yet another way we're working to be your display solutions partner. Learn more at www.necdisplay.com or call 866-NEC-MORE.



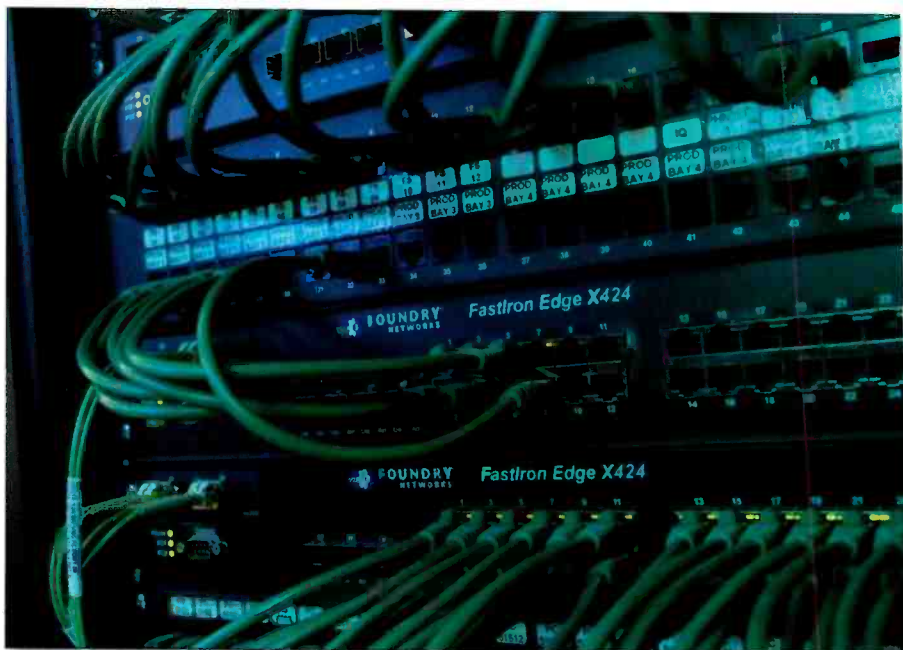
MultiSync is a registered trademark, and CableComp and ColorComp are trademarks of NEC Display Solutions of America, Inc. © 2006 NEC Display Solutions, Inc. All rights reserved. Simulated images in monitors.

NEC
NEC Display Solutions

SYSTEMS DESIGN SHOWCASE

In addition to a BigIron MG8 switching system, Foundry contributed real-time network management controls in the form of sFlow network logging and monitoring technology. It provides complete visibility into the use of the network and enables performance optimization by creating and managing detailed data usage logs of any file movement, viewing or editing work anywhere in the facility, at any time, for any reason.

AMG engineers also carefully built into the facility a host of backup power options. Each server room has two independent power supplies, and the



Foundry's FastIron Edge switches help manage ProdNET.

entire building is fed by two different power grids.

The scalability factor

The production network is scalable in virtually all respects — a necessity for any comprehensive media services facility.

Clients can securely distribute their content outside of the facility, using either their own preferred vendors or by capitalizing on the capabilities and capacity of Ascent Media Network Services' Global Interconnect.

This international hybrid satellite and fiber network provides guaranteed quality of service and the reliable two-way transport of both real-time and non-real-time content between the company's North American, European and Southeast Asian facilities. It also enables seamless external connectivity by providing Ascent's clients the means to move content into and within the network using a variety of methods. **BE**

Kevin Sanders is the senior vice president and chief technology officer at Ascent Media Management Services.



Ascent Media's senior colorist David Bernstein uses the 4K Quantel iQ and Pablo control surface in the DI suite.

network



Simplicity rules

Need Hi Def? We've got it.

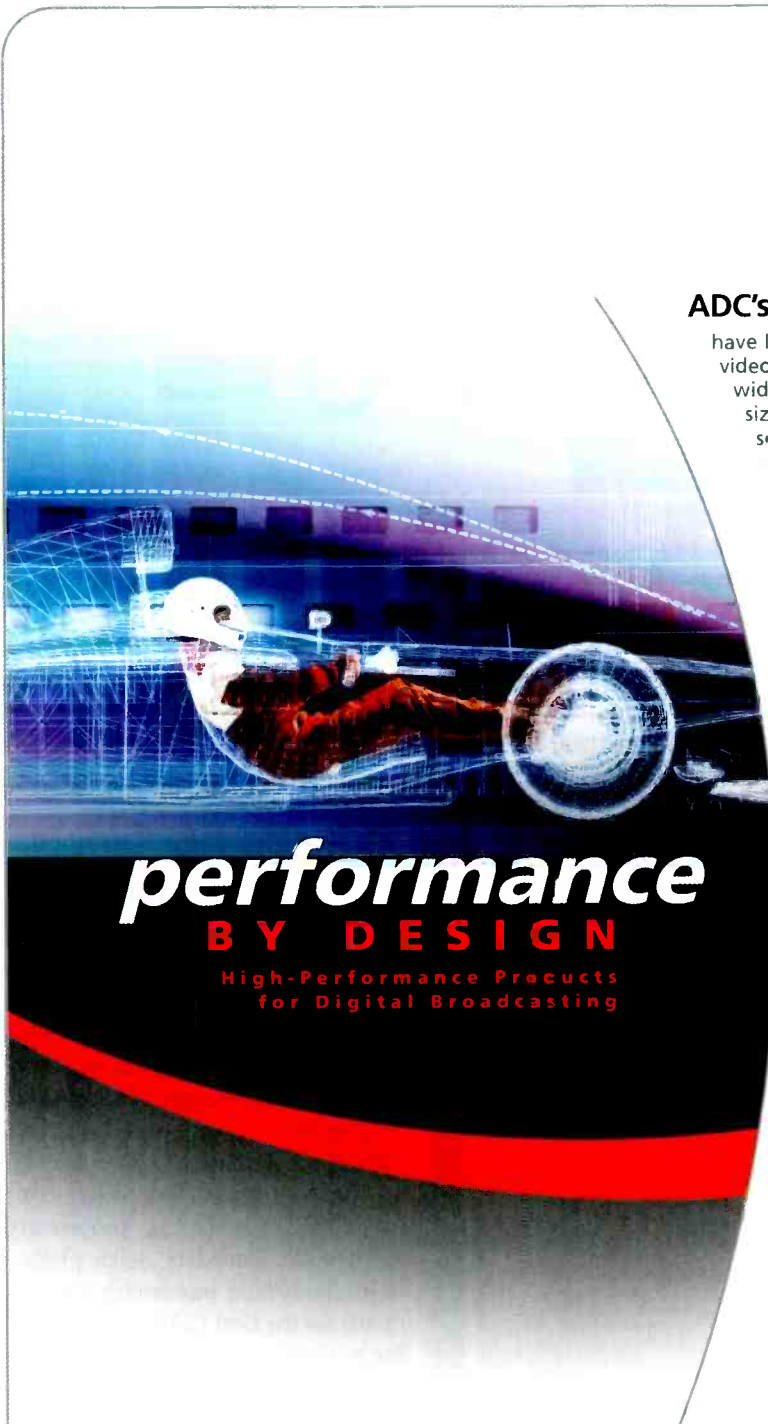




Network Electronics US
800-420-5909
ussales@network-electronics.com

Visit us at NAB 2006 Booth# SU199

network-electronics.com



performance

BY DESIGN

High-Performance Products
for Digital Broadcasting

ADC's Pro Patch™ video panels

have long been recognized as the leader in video patching. Panels are available in a wide variety of configurations for rack sizes, jack types, and color options. The PPI series panels are the ideal choice for demanding professional environments:

- Durable welded-steel frames prevent bent, cracked and broken ears
- Widest variety of jack types available including standard, midsize, and MUSA standard
- Exclusive snap-over designations keep cards and windows in place and make changes easier
- Durable molded ABS inserts prevent stripped screws and cracked inserts

Whether it's copper or fiber, ADC's audio, video and data products are built to provide unmatched performance and reliability, and all ADC products are backed by outstanding pre/post-sale engineering support as well as the industry's best warranty.

Contact us today and find out why ADC means "performance by design."



2x32 Midsize PPI Series Super Video Jack Panel

Call today for fast delivery!

For a free copy of ADC's 13th edition broadcast product catalog, call 1.800.366.3891 ext. 20000. Or visit adc.com/broadcast.



A practical guide to encoders

BY DAVID SHORT

The most obvious engineering goal of an encoder is to get the best picture and audio quality per bit used. The other significant objective is to keep down the total cost of ownership. Factors that can affect the latter are the upfront cost, ease of use and maintenance, reliability, rack density, and power consumption.

Bandwidth comparisons

There is always a trade off between good and cheap. Operators will make their choices based on how they value their bandwidth.

Cable companies have traditionally seen their bandwidth as cheap, though HD may change that. Satellite operators can usually put a tangible cost on their bandwidth. Terrestrial and DSL operators have hard limits on their total bandwidth, and it's no coinci-

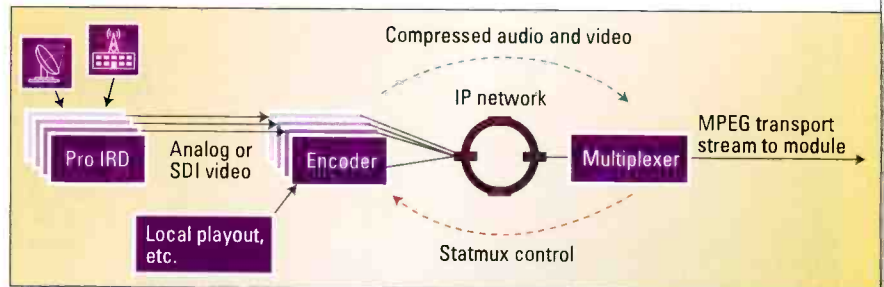


Figure 1. Encoding for broadcast. The encoder and multiplexer system generate an MPEG transport stream for terrestrial, cable and satellite broadcasting.

dence that they often lead the way in coding efficiency. Although ATSC will be MPEG-2-based for the foreseeable future, many of the terrestrial systems being launched use MPEG-4. Some of the more mature terrestrial operators are upgrading to MPEG-4, for example France and Spain, to allow HD and multiple streams on one line.

Interfaces

It is often useful to think about the interfaces of a system. The inputs to an encoder went from baseband video supplied as analog NTSC to SDI and now HD-SDI.

On the output side, IP transport is taking over from ASI, mainly driven by the lower hardware costs. (See Figure 1.) IP transport allows head-ends to be physically distributed. For IPTV networks, encoders do not usually work through a mux but provide a complete single program transport stream at their output. (See Figure 2 on page 66.)

Another important interface is statistical multiplex (statmux) control. This is always a proprietary mechanism. Encoders make predictions about their bandwidth requirements for the next GOP and send it to the statmux controller. The controller then sends out bandwidth allocation messages to all the encoders in the group.

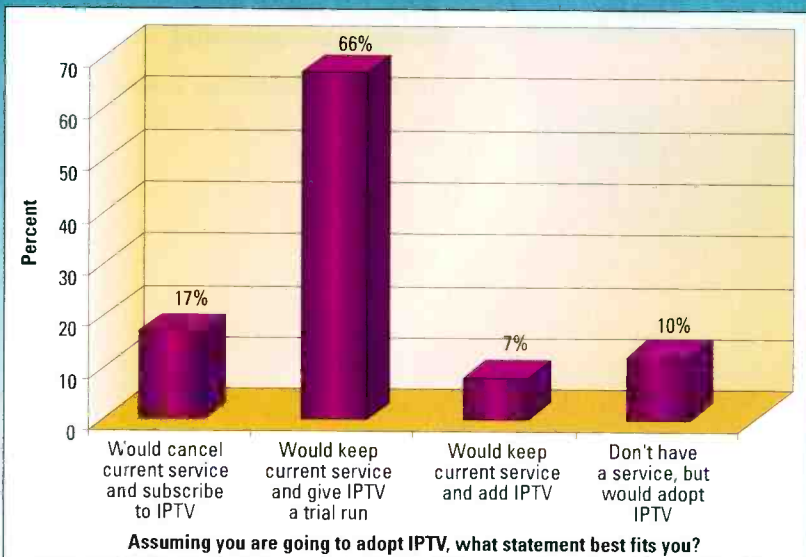
Some vendors combine the statmux controller with the mux. This might be a factor to keep in mind if you want to choose compression and mux vendors separately.

Statmux can make a significant contribution to coding efficiency, but not all network topologies support it.

FRAME GRAB A look at the consumer side of DTV

IPTV's effect on satellite and cable TV services

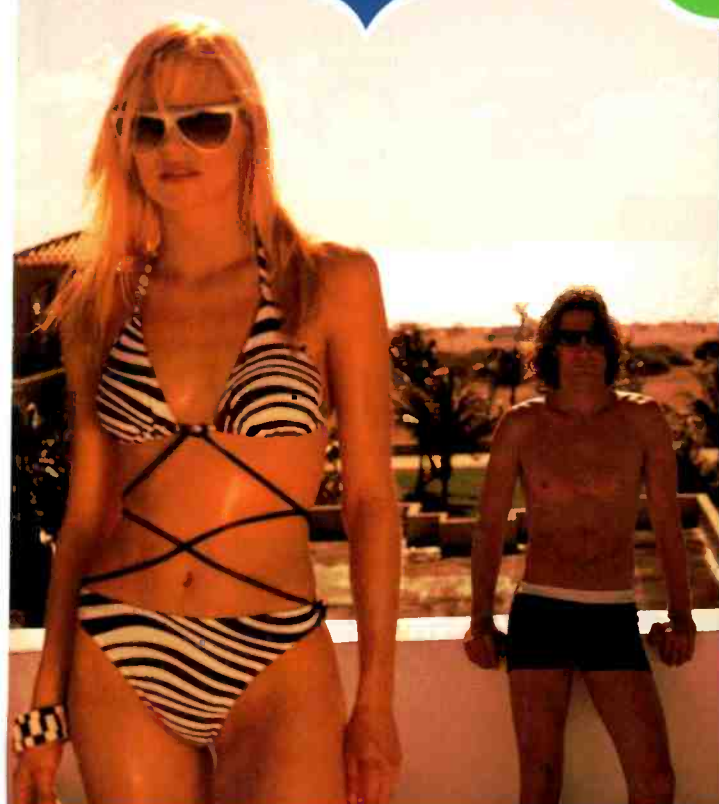
17 percent of IPTV subscribers would cancel cable or satellite



Source: Harris Interactive

www.harrisinteractive.com

ENCODING CAN MEAN THE DIFFERENCE BETWEEN CANNES & CANNED



DETAILS MATTER.

Your genius flowed into every frame. but what will flow out after encoding?

Inlet's advanced VC-1 encoding solutions provide control over the encoding process, preserving the details of your creative vision. Our Fathom™ encoder combines the power of hardware with the finesse of analysis tools, for frame-accurate encoding, in real-time. That means you hit your deadlines, with no frame left behind. Fathom gives you speed, control and, most importantly – quality. Quality, after all, defines your work.

Do you have an eye for detail? We should talk.



Come see us at NAB
Booth #SL3803

Learn more:
Call: 919-256-8145
www.inlethd.com

NEW!

Fathom Pro for SD
Only \$9,999.00

INLET
HIGH-DEFINITION

The Channel to Digital Media

Typical Rates (Mb/s)		
	MPEG-2	MPEG-4
525	2.5Mb/s to 3Mb/s	1Mb/s to 1.5Mb/s
720p	12Mb/s	6Mb/s to 8Mb/s
1080i	16Mb/s	8Mb/s to 10Mb/s

Table 1. Typical MPEG-2 and MPEG-4 rates. These will depend on many factors and should be treated with caution.

For example, a DSL only carries one stream. In this case, variable bit rate can be used, and the troughs can provide space for time-insensitive data, such as e-mail.

In the United States, audio has mainly been Dolby AC-3. In markets influenced by DVB, MPEG Layer II has been more dominant. MPEG-4 includes the Advanced Audio Coding (AAC) standard, which gives about a 50 percent improvement over Layer II.

Trends

The most important trend in the industry is that the huge base of

MPEG-2 STBs is not going away anytime soon, so most DTV signals will use this standard in the future. The exceptions to this are where there are green

field developments — mainly HD and IPTV.

Many operators are upgrading their MPEG-2 systems with the most modern encoders to free up bandwidth, often for new HD services. Since the first generation of MPEG-2, there

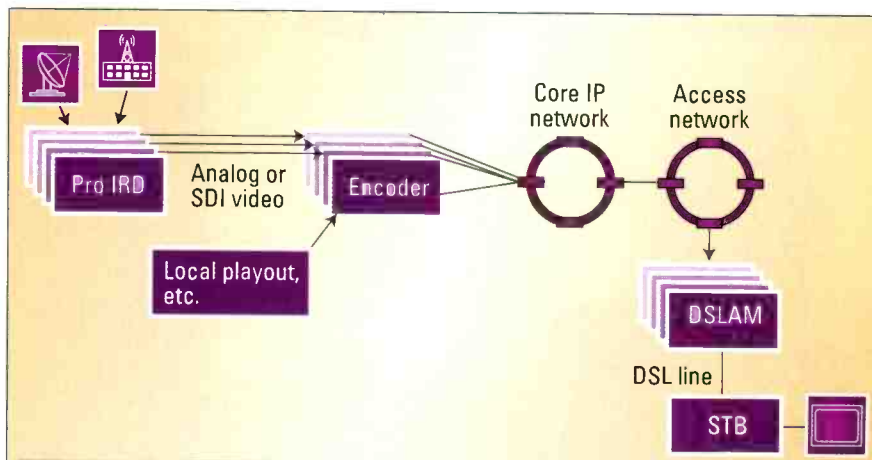


Figure 2. Encoding for IPTV. There is no multiplexer or statmux because each encoder produces its own single transport stream (SPTS).

INTELLITRAC®

1.888.console | tbconsoles.com

pcr | mcr | acr | noc | toc | sat ops | ingest | edit | digital newsroom

eXtreme performance

The new XR video modulators and demodulators offer wild capabilities.

DM240 XR DVB-S/S2 Modulator

- 30% Bandwidth Savings
- 1-250 Mb/s QPSK/8PSK/16QAM
- Gigabit IP/HISSI/ASI/G.7C3
- Upgrades to S2 and higher speeds



DD240 XR DVB-S/S2 Demodulator

- 30% Bandwidth Savings
- 1-250 Mb/s QPSK/8PSK/16QAM
- Gigabit IP/HISSI/ASI/G.703
- Upgrades to S2 and higher speeds



HE4000 HD and SD Encoder

- HD & SD Encoding Simultaneously
- Up to 5 Stereo Audio Pairs
- Available internal DVB-S2/S Modulator
- 1-160 Mb/s with built-in color Monitor



HD4000 HD and SD Decoder

- Selectable HD or SD 4:2:2 or 4:2:0
- Supports BISS and Embedded Audio
- Available internal DVB-S2/S Demodulator
- Color Video Confidence Monitor

Visit Us at NAB Booth # SU2033.

Phoenix: 602-437-9620
San Diego: 858-805-7000
UK: 44-1420-540233
Singapore: 65-6225-4016
Beijing: 86-10-65831975
Latin America: 561-487-7972

RADYNE

TIERNAN
Radynex
Company

www.radn.com
NASDAQ: RADN

has been a significant and steady improvement in encoding technology — about 50 percent since 1999.

MPEG-4 currently offers a 30 percent to 50 percent improvement over MPEG-2, and we can expect improvements at a faster rate than MPEG-2, as there is now a greater body of knowledge in the industry. (See Table 1 on page 66.)

The main areas of improvement have been:

- *Better coding decisions.* An example is knowing which algorithm to use under particular conditions.
- *Better video preconditioning.* An example is softening the picture during high-speed motion.
- *Statistical multiplexing.* An example is the improved bandwidth requirement prediction to allow better bandwidth allocation decisions. The bandwidth allocation algorithms have also been improved and now treat low-rate

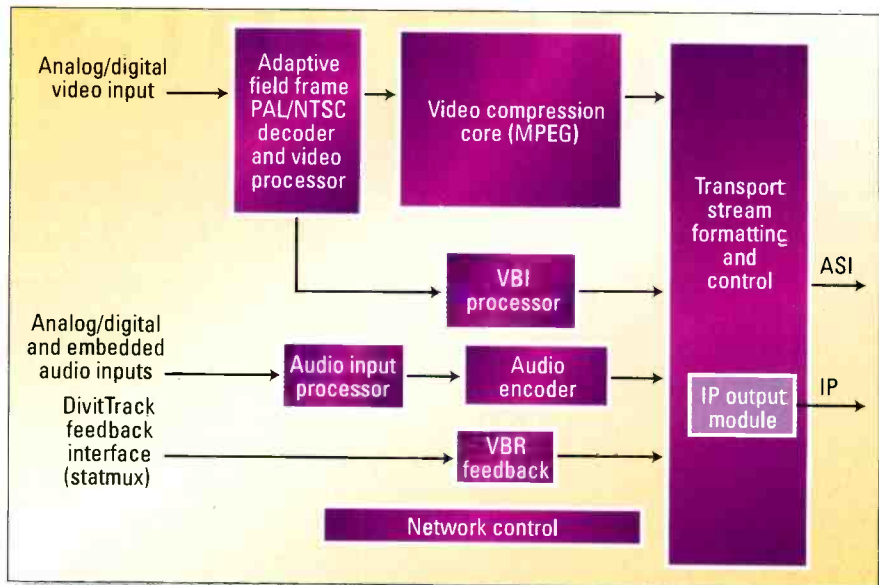


Figure 3. The general architecture of a Harmonic MV100 encoder, which represents the general approach to encoders

encoders less harshly in percentage terms. This follows the observation that viewers' perception of quality is based on the worst quality and not

the average quality.

Some MPEG-4 research has fed back into MPEG-2 developments. One example is adaptive GOP. In



relocate with the latest

Technology

Nucomm is ready to help you navigate through the 2 GHz transition

Experience the Nucomm difference, with products optimized for the 2 GHz relocation.

Nucomm's proven, comprehensive set of solutions feature:

- :: Equipment designed for high data rate HD applications
- :: Software based multiple modulation formats for maximum flexibility
- :: High performance ultra linear low noise RF components
- :: Optional 10 Watts digital RF output
- :: Enhanced ease of use through quick keys and dedicated presets
- :: Expanded high quality manufacturing capability with Comtech/EF Data



:: ChannelMaster TX1/RX1



:: Newscaster CR6D



:: Newscoder RX3



:: Newscaster VT2

Make Nucomm your choice for upgrade or replacement 2 GHz systems.



Visit Us At NAB2006, Booth #C320

101 Bilby Road, Hocketsburg, New Jersey 07840 USA - Phone: 800.968.2666 - Fax: 908.813.0399 - www.nucomm.com/2ghz



DMT makes a world of difference in your digital capabilities

Proven Television Transmitters & Antenna Systems



Digital Multimedia Technologies

One Company • One Mission • Quantum Results

(888) 912-TEAM (8326) • www.dmtonline.us

1224 Forest Parkway • Unit 140 • West Deptford, NJ 08066



White Sands

Engineering
A TWC COMPANY

One-Piece BNC Digital Video Connector

BNCFPSLC (Compression)



BNCFP (Hex Crimp)



- ♦ $75\Omega \pm 1.5\Omega$ Impedance
- ♦ Meets SMPTE standards for HDTV
- ♦ High Return Loss
- ♦ Compatible with 23 AWG solid Precision Video Cables (YR46940)
- ♦ Terminates in 15 seconds
- ♦ 100% Nickel plated brass body
- ♦ 40 lb (min) pull retention

Our innovative design securely captures the conductor inside the fixed, gold-plated center pin—similar to the BNC plug-jack interface.

And, in addition to the clear advantage of working with one piece rather than 2 or 3, our connectors can be tested prior to crimping. Think about what that'll save you!

Need variety? One-piece mini connectors are also available in RCA, F, SMB, SMZ, and 1.0/2.3 plugs & jacks. Plus, we have standard RG-59 and RG-6 BNC, F and RCA connectors—all one-piece and all compatible with Belden CDT precision video cables.

See us at NAB!
Booth C739

Belden CDT



1-800-JUMPERS (586-7377)

www.whitesandsengineering.com

most MPEG-2 systems, the GOP structure was kept as IBBP. During MPEG-4 work, it was discovered that B frames do not work well during high-speed motion. This is because they are largely based on motion vectors, which become large during high-speed motion. The solution is to change the GOP structure to IPPP during high-speed motion. This is possible because MPEG-2 does not mandate the GOP structure, so MPEG-2 STBs will decode alternative structures.

In the VC-1 versus MPEG-4 debate, most DTV operators have stuck to the open standard and gone with MPEG-4. The consensus now seems to be that both standards offer similar performance. This is not surprising because the fundamental algorithms are similar.

Architecture

Most encoder manufacturers use digital signal processors or general-purpose microprocessors, with field programmable gate arrays to support hardware acceleration. (See Figure 3 on page 68.) Algorithms are downloadable. This means, for example, that a VC-1 encoder can be converted into an MPEG-4 encoder by a download. Processing power is a constraint, of course, so it is not

**In the VC-1 versus MPEG-4 debate,
most DTV operators have stuck to the
open standard and gone with
MPEG-4.**

usually possible to change an MPEG-2 encoder into an MPEG-4 encoder by download alone. Most vendors supply encoders in a 1RU package, though some vendors use a blade architecture to give high rack densities.

Quality assessment

There are several tools on the market that offer objective picture quality assessment. These tools can be useful for monitoring trends where a baseline has been established, e.g. automatic monitoring of output.

It is harder to find evidence that these tools can help in the selection of encoders. What matters is the viewers' perception of the audio and video quality. The ITU-R suggests a subjective test, such as using a panel of viewers in recommendation BT.500. This involves the viewers rating compressed video against the uncompressed source. The sequence is randomized so the viewers don't know which is which. In practice, other factors such as price, quality of support and ease of integration are also significant in the choice

BE

David Short is a technical architect working on the design of new DTV systems. He also is a member of BroadcastProjects.com, an alliance of independent consultants.

When only the best will do:

HD by Fortel DTV

- Automated Up/Down/Cross Conversion
- Aspect Ratio Conversion
- Dolby E embedding, synchronizing, and de-embedding
- HD Synchronization
- HD Color Correction
- HD Legalizer
- Support for up to 16 channels of audio
- Optional QuadraComb™ conversion for A to D
- Full VBI Support



MAKE EVERY SHOT COUNT

Based on its patented digital signal processing, Integrity delivers to HD the same uncompromised signal quality you have come to expect from Fortel DTV. Available in 1RU or modular configurations, Integrity HD can be tailored to meet any user need. Our comprehensive range of conversion products are controlled by the full-featured Integrity Control System — a responsive, easy to read, and intuitive interface for operator control. *When only the best will do: HD by Fortel DTV.*

Find Out More on Fortel DTV Products
Tel: +1 631.912.1301 / salesteam@pesa.com
www.pesa.com or www.fortelDTV.com

See Us at NAB Booth # SU1370.



Integrity HD 1RU frame supports the full line of feature-rich signal processing cards



Rugged, easy to read Control Panel



Integrity HD frame holds up to 18 cards in 4RU



3CCD: 1440 x 1080 EACH.
HD-SDI OUT: SMPTE 292M.
SMPTE TIME CODE IN/OUT.
20x HD VIDEO LENS.
AND BUILT-IN GENLOCK.
FOR UNDER \$9,000?*

THE CANON XL H1 HD CAMCORDER.

Whether you're a broadcast ENG producer, documentary, feature or commercial videographer, your HD camcorder has arrived. Here are just a few of its unparalleled litany of features. The Canon XL H1 is built around a 3CCD system with separate native 16:9 CCD's. Each 1/3" CCD has 1440 x 1080 pixels, resulting in high resolution, accurate color reproduction and a wide dynamic range with virtually no color noise. For pristine image quality, the XL H1 features uncompressed digital HD-SDI output (SMPTE 292M). And multi-camera shoots are no problem, thanks to SMPTE time code input and output and Genlock synchronization. The features and innovations continue as you also get Total Image Control which includes 3 color matrixes, 2 cine gammas, and adjustable: knee, black stretch, setup level, master pedestal, horizontal detail, coring, sharpness, 2 noise reductions, color gain, hue, and master color setup adjustments. Since each adjustment is individual, you can create your own custom look and store it on an SD memory card. The XL H1 delivers 1080i HD resolution, along with three different frame rates of 60i, 30 Frame and 24 Frame – so no matter what your production, the XL H1 has you covered. There's also the optional 60i / 50i Video Mode Option, which means that you can record in both NTSC and PAL. You can even take photos with the XL H1 either in video or camera color space. And in keeping with Canon's Open Architecture approach, optional CONSOLE Image Control & Storage software delivers unprecedented flexibility and versatility. Proving, of course, that the XL H1 is truly high definition's highest expression. You'll find so much more about this amazing, affordable HD camcorder at www.canondv.com.

HD editing WORKFLOWS

BY SCOTT MURPHY

Designing an effective HD workflow for any department in a news organization can be challenging. A news editorial staff always wants everything yesterday with no compromise in quality. Once you introduce the staff members to a new technology, they will use it to an extent you may not have even realized was possible.

One area that is no exception is creative services, which is becoming more and more integrated into the news process. Promos are needed faster than ever, and custom opens for breaking news situations are used all the time. This adds to the challenge of creating an HD workflow.

The creative services department takes its source material from different places and in all different resolutions. And, frankly, no one cares what it takes to get the job done; they just want it done. Because of the speed with which these projects need to be completed, we need to move away from signal flow to a more data-centric workflow. As many more broadcast facilities around the world are adopting Final Cut Pro, I'm going to focus on an Final Cut Pro-centric HD workflow.

Setting up an HD workflow

I am going to assume right off the bat that you have already implemented a central routing system, especially one that is capable of handling HD-SDI. In this article, we are going to set up a total of five workstations: one for ingest and layout, three for multipurpose and



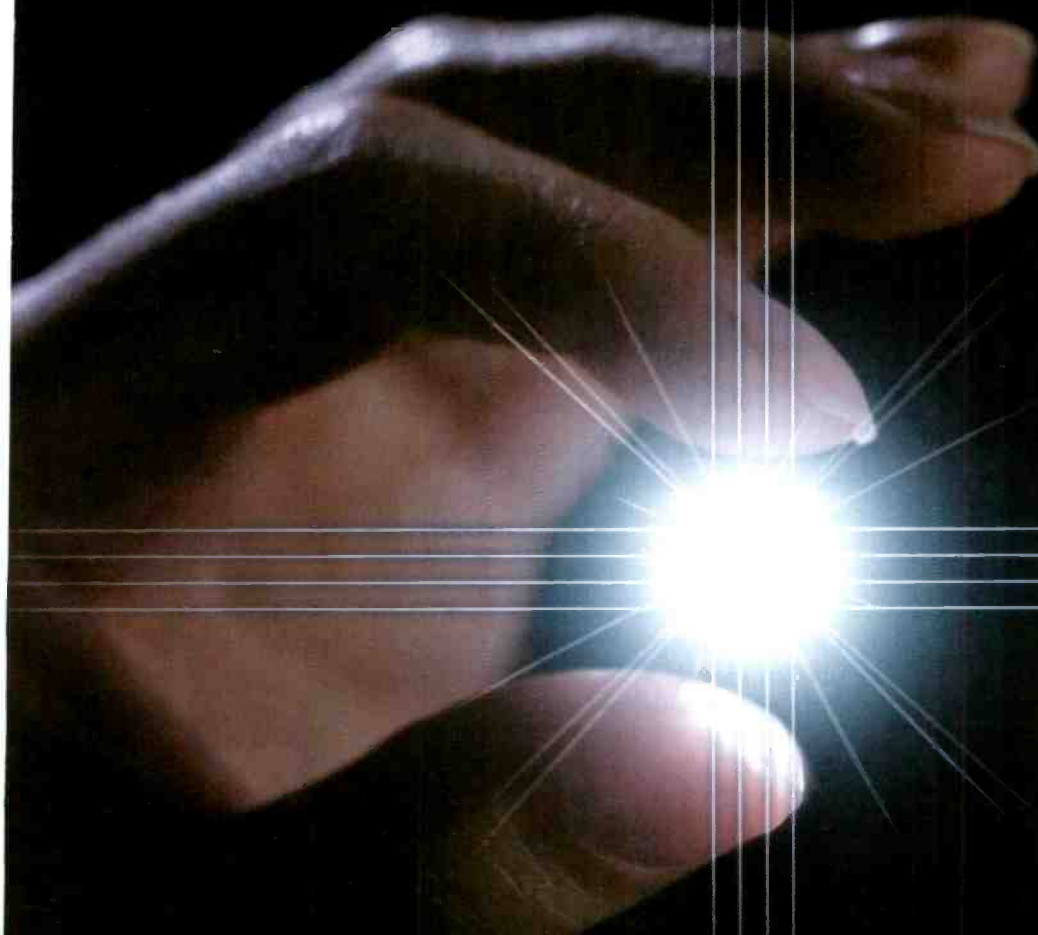
Proper mounting, cooling and monitoring systems ensure reliable operation of server hardware.



bluefin

HIGH DENSITY SIGNAL PROCESSING

POWER AT YOUR FINGERTIPS



DOUBLE THE POWER IN A FRACTION OF THE SPACE

www.calrec.com

AUDIO MIXING FOR HD

Contact: Calrec Audio Ltd, Nutcrough Mill, Hebden Bridge, West Yorkshire, HX7 8EZ UK
Tel: +44 (0) 1422 842 59 Email: enquiries@calrec.com Web: www.calrec.com



A typical Final Cut Pro workstation

one that will be used for live playback. (See Figure 1 on page 78.)

Now, I'm sure some of you are saying, "What good will five standalone Final Cut Pro workstations do me?" They will do you no good if they are standalone. That's why the next thing we are going to implement is Xsan.

Xsan is Apple's Storage Area Net-

ilities where the mere fact that fiber was involved was the final deciding factor against moving to a SAN environment, Xsan or otherwise.

Let's take a moment and talk about fiber, as it is key to this system. First of all, it is not as expensive as it used to be. You can pick up a stock 25m cable (that's optical cable) for about

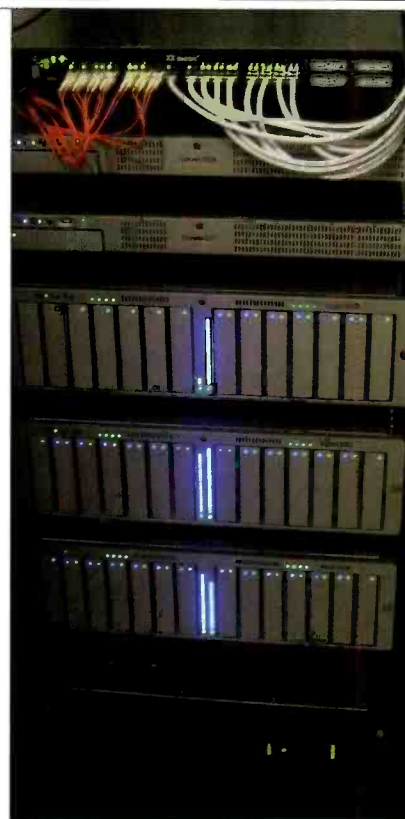
Fiber-optic cable is delicate stuff, but you won't need a team of 10 guys in bunny suits to install it.

work (SAN) solution. It opens up a number of exciting options for news creative services teams. I know at this point a lot of broadcast engineers are cringing. Yes, your perfectly calibrated video signal will be handed over to the brutes in the IT department, who will stick it into the computer and then push it out over — dare I say it — fiber-optic cable. I have been involved in several proposed implementations in broadcast fa-

\$200. Secondly, fiber is not as delicate as it used to be or as it has been purported to be. Don't get me wrong, Fiber-optic cable is delicate stuff, but you won't need a team of 10 guys in bunny suits to install it. Now that we've handled your fiber fears, let's get down to business.

Ingest station

The key to this whole thing is collaboration to increase productivity



This system utilizes redundant meta data controllers for maximum uptime.



A workstation dedicated to SAN administration makes troubleshooting easier.

SPEEDBALANCE

Video 20 SB
Payload 7-25 kg

Video 18 SB
Payload 2-18 kg

Video 15 SB
Payload 1-16 kg

DV 12 SB
Payload 1-14 kg

DV 8/100 SB
Payload 1-12 kg

DV 8 SB
Payload 1-12 kg

DV 6 SE
Payload 1-10 kg



- + IDEAL FOR EVERY CAMERA
- + TOUCH & GO® CAMERA PLATE
- + SELF-ILLUMINATED TOUCH BUBBLE
- + COUNTERBALANCE WITHIN SECONDS
- + FINER COUNTERBALANCE GRADUATION

NEW!

NEW!

= THE NEW FLUID HEAD GENERATION

SPEEDBALANCE

Visit Us at NAB Booth # C5119B.

www.sachtler.com

sachtler - New York Office
709, Executive Blvd.
Valley Cottage, NY 10989
USA
Phone (+1) 845 268 2113
Fax (+1) 845 268 9324
Email sales@sachtlerusa.com

sachtler - Burbank Office
2701 N. Ontario St
Burbank, CA 91505
USA
Phone (+1) 818 8-5 4446
Fax (+1) 818 8-5 4572
Email sales@sachtlerusa.com

sachtler - Headquarters
Erfurter Straße 16
85386 Eching
Germany
Phone (+49) 89 321 58 200
Fax (+49) 89 321 58 227
Email contact@sachtler.de



sachtler

set your ideas in motion!

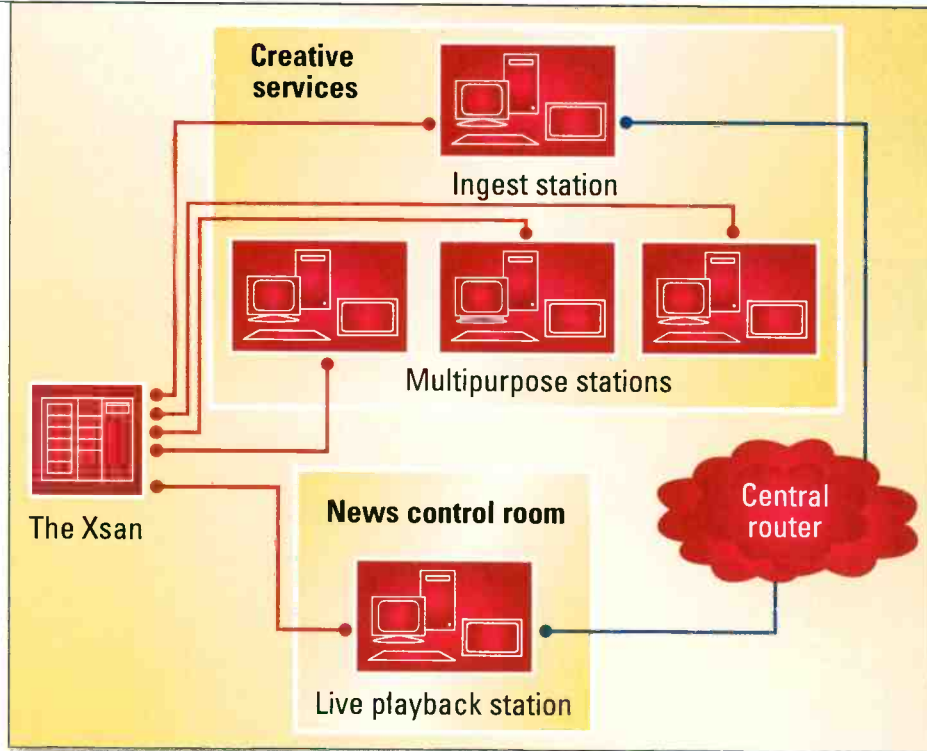


Figure 1. A typical HD editing workflow

and overall speed of project completion. The first workstation to implement is the ingest system. This is the place where all of the needed material is placed on the SAN. It should consist of a well-equipped Mac with an HD and SD capture card — something like AJA's Kona LHe (with KL-Box) or Blackmagic Design's Decklink HD Pro PCIe with Multibrige. Both of these devices handle HD and SD in

projects for archiving.

This station should include Final Cut Studio and whatever other applications your creative services team uses. It should also have a copy of an application called PictureReady. PictureReady, from Gallery, allows you to capture video on one workstation while editing it on others — before the capture is completed. This is especially helpful in

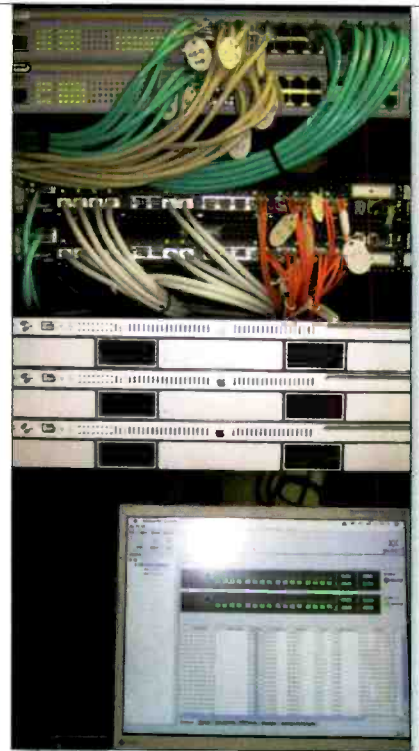
News directors are going to love that they can crank out custom breaking news opens and promos while the media is being fed live.

component and composite analog and SDI. They are both capable capture devices with similar features.

No matter which device you go with for the ingest station, it will need to have access to a multitude of sources. This is accomplished by connecting it to your house routing system. I also recommend that the ingest station have an in-suite VTR in your native acquisition format for quick ingest of field material and layoff of completed

breaking news situations when you are capturing live material — say from a feed from one of your ENG or satellite trucks — while someone else is editing that material and turning it into a custom open or promo for the next newscast.

When you present this option to the news directors and executive producers at your stations, you better have a mop and bucket ready for all of the drooling. They are going



Many fiber channel switches can be linked together to expand size. This system also includes redundant metadata controllers.

to love the fact that they can crank out custom breaking news opens and promos while the media is being fed live from the field.

Live playback station

The live playback station is probably going to be in your news control room. It should be connected to the SAN and have a comparable capture card to the ingest and layoff station. It will also need to be connected to the central router, which will help with speed of delivery. It's going to eliminate that pesky step of having to print back to tape.

Using a utility like AJA's Kona TV, you'll be able to load up the material you want to play out to air directly from the SAN and play it live off of the machine. As an added bonus, the capture devices I've mentioned have built-in downstream keyers for that live payout.

Multipurpose workstations

Okay, onto those multipurpose workstations. They should also be



Total visual provider for broadcast applications

Barco provides innovative visualization and display solutions for broadcast applications such as outdoor marquee, indoor lobby, TV show studio, news studio, broadcast and distribution monitoring room, screening or training room and post production. Barco's commitment to this exciting market, its continuous high-quality R&D effort and proven flexibility towards customers' needs offer the best guarantee for your future-proof investments.

NAB2006
THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

Come and see Barco's products at
NAB, Las Vegas, Nevada, United States,
Convention Center, Booth# SL3738,
24 - 27 April 2006

Barco Visual Solutions LLC, USA
3059 Premiere Parkway
Duluth, Georgia 30097-4905
Phone: +1 678 475 8000
Fax: +1 678 475 8100
Email: sales.controlrooms@barco.com

BARCO

Visibly yours

www.barcocontrolrooms.com

well-equipped Macs with an inexpensive capture card that will be used simply for broadcast monitoring. These systems don't need to be connected to the central router because they are connected to the SAN and have real-time access to all of the material that has been ingested. They should also include copies of all of the creative applications that the creative services team needs — Final Cut Studio, After Effects and Adobe's Creative Suite 2. These will be the real workhorses of the department. This is where, once the material has begun to be ingested, the creative process begins.

Why have I included three workstations? Because there are three main components to every promotion. First there's the video, of course, then the audio and finally the graphics. We won't dedicate any one of these stations specifically to any one

of those tasks so no one will have to wait to create.

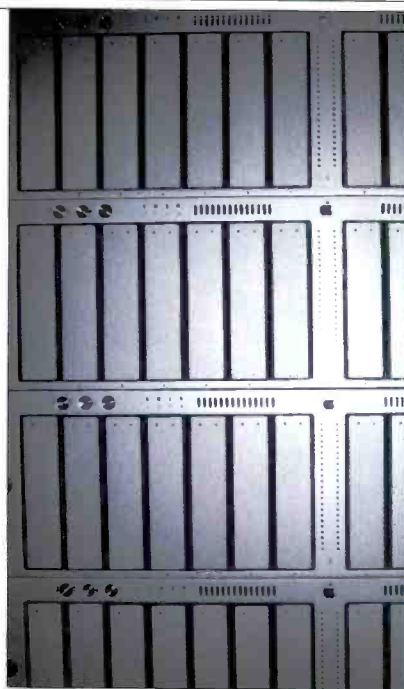
Once the project has been completed, a finished QuickTime movie can be placed in a specific area where the live playback person will know to look. Then, it's ready for air.

Conclusion

A well-designed HD workflow like this one can make the jobs of creatives that much easier and increase the overall productivity of the department — not only in critical breaking news situations but also in day-to-day operations. Collaboration is becoming the norm: It allows more work to get done in a day and also allows more creative work to be done more quickly.

BE

Scott Murphy is partner at Meta Media Creative Technologies.



Apple's Xserve RAID provides the high speed reliable storage needed for a critical system like this.

Keepin' It Real

Our HD and SD converters consistently score a hole in one, working flawlessly 24/7 to deliver perfect signal and image quality at breakthrough prices. No worries. Now enjoy that doughnut.

HD and SD Converters boast solid performance. Rigorously tight specs. Unsurpassed reliability. That's precisely why they're the products of choice for major professional sports events. From miniature stand-alones to rackmount interface cards and frames, we offer a full range of digital/analog models. Built by video pros for video pros, they deliver top-of-the-line quality at a can't-beat-it price.

Prepare for the ultimate reality. Check out our product line, call 530.274.2048 or visit www.aja.com for details.

AJA VIDEO SYSTEMS INC

Visit Us in Booth N2406 at NAB 2006

Make Your Move to DTV With
An ERI Broadcast System

The Clock is Running Out!

Filter and
Combining Systems



Antennas



Transmission
Line



Broadcast Towers
and
Structural Products



ELECTRONICS RESEARCH, INC. ERI

Your Single Source for Broadcast Solutions™
Call 877 ERI-LINE • Visit www.eriinc.com

What you see on the screen of rear projectors, like this Barco OverView display that the London Stock Exchange uses, depends on the projection engine, screen type and ambient light.



Multi-image VIDEO displays

BY GORAN STOJMOVNIK AND JIM DURANT

Anyone interested in information displays, from home flat-panel TV users to professional broadcast markets, knows the terms brightness, luminance and contrast and knows that these should be as high as possible for the display to be any good. Naturally, the same brightness and contrast values are included in typical marketing

materials and sometimes offer key differentiations between products. But, there are many more things that make the display what it is, and these can depend on the application and the ambient used.

Basic display specs

Brightness is a subjective quality, a perception of some object that hu-

mans express in terms of dark, dim, bright and so on. So, what are all these numbers in nit or cd/m^2 that marketers use? Well, in a strict sense, this is called luminance. Luminance, unlike brightness, can be measured with objective instruments and, also unlike brightness, can be expressed in absolute numbers. Luminance is the technical term expressing how much light

Unlock Your Imagination

FOR.A[®]
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY



Imagination to Creation

www.for-a.com

Introducing the low cost addition to the Hanabi family of switchers:
The HVS-500HS multi-format HD/SD switcher.

HVS-500HS "1M/E HANABI Portable" **NEW**

This versatile new switcher can handle everything from editing and in-house studio applications to outside broadcasts and live productions. The main chassis and control panel have been combined into a compact self-contained unit, making it ideal for small trucks and fly packs. But, best of all, the surprising low cost of the HVS-500HS makes it an easy choice for multi-format productions.

- Functional in HD and SD format modes
- Analog and SDI input/output options can be selected
 - Analog component/RGBs (PC)/composite I/O board
 - HD/SD SDI I/O board
- Up to 8 HD/SD SDI inputs are possible; up to *2 total inputs possible
- PGM/PVW/AUX output available
- One DSK comes standard, and one keyer is available as an opt on
- Optional up conversion and frame synchronization card



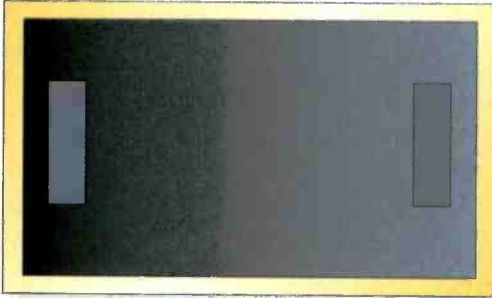


Figure 1. Brightness is subjective and relative. These two rectangles illustrate the difference between brightness (which is subjective) and luminance (which is measurable). The rectangle on the left appears brighter against the darker background. However, the measurable luminance of these two rectangles is the same.

falls on how much area. This is a key item for rear-projection and flat-panel displays. It doesn't directly depend on the surface it falls on (whether it is white or black, flat or grainy). You can think of luminance in light den-

sity or density of light rays in the ambient. It is measured in lux (lx).

Brightness is not only subjective; it is also relative. It depends on the surroundings of the object we are looking at. For example, look at the two vertical rectangles in Figure 1. The rectangle on the left is brighter. But which one has a higher luminance? The one on the left? No. They are the same gray rectangles, copied and pasted on different places of the changing gray background. Even though the rectangles have the same luminance, the perception of their brightness is relative.

Keeping all other factors equal, such as the background color and ambient light, and changing only the luminance, there is a one-to-one correspondence between the measured luminance and

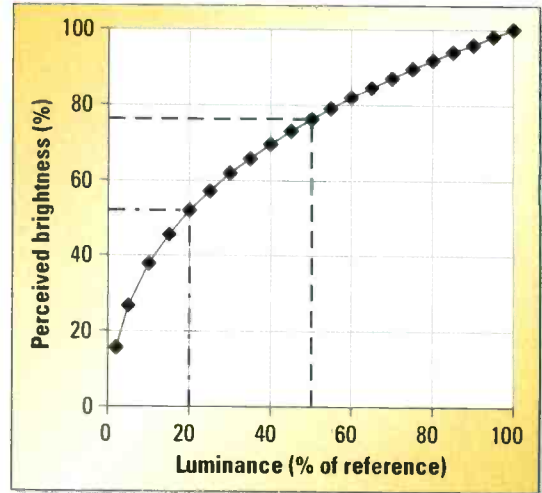


Figure 2. Translation between luminance and perceived brightness

what we perceive as brightness. A display will look brighter if we increase its luminance. Scientists have spent a great deal of time translating perceived brightness into numbers, and Figure 2

RTS[®] Intercom Series

Innovating the Future of Communications



RKP-4

- Wireless Intelligent Matrix Keypanel
- UHF Frequency Agile
- Digital Encryption



CRONUS

- VoIP Card on Display at NAB!
- Advanced DSP
- Modular Architecture

Visit our booth at NAB!
Booth# C4535

In Broadcast,
every moment is critical.
You need an intercom system
that is up to the challenge.

Telex Communications, Inc. | 12000 Portland Avenue South | Burnsville, Minnesota 55337 | Phone: 1-800-392-3497 | Fax: 1-800-955-6831 | www.rts.intercoms.com

TELEX
COMMUNICATIONS
BE HEARD



Pushing The Boundaries of Technology...



9900- SERIES FREQUENCY CONVERTER

- Supports expandable NSU 1:N Switchover Series
- Amplitude slope adjust
- Two monitor and control ports
- RF, IF and LO monitor ports
- Automatic switching to external 5/10 MHz reference and electronic adjust of internal reference frequency



1:1, 1:2 and 1:N REDUNDANT SWITCHOVER SYSTEMS NSU- SERIES

The MITEQ Redundant Switchover Unit (NSU) Series is designed to improve reliability and increase the availability of satellite links and is available in three configurations:

- The NSU1 emulates the operation of the older RSU- series, but also has the ability to communicate settings between the online unit and backup unit. This allows the backup path to be used for low priority traffic. This is an optional feature, and can be accessed via a front panel key command.

- The NSU2 is a fully integrated 1:2 system, with a four-port transfer switch matrix located on the rear panel.

- The NSU consists of up to 12 Redundant Switch Modules (RSM) with one controller. Each switch module is located in the rear panel of each converter.

SATCOM EQUIPMENT



www.miteq.com
631-436-7400 • FAX: 631-436-7431
100 Davids Drive, Hauppauge, N.Y., 11788



MT3200A RACK MOUNT MEDIUM POWER TRAVELING WAVE TUBE AMPLIFIER

C-BAND: 400W
X-BAND: 400W
Ku-BAND: 400W
DBS-BAND: 270W
DUAL C-/Ku-BAND: 325W, 400W

MT2300 ANTENNA MOUNT LOW POWER TRAVELING WAVE TUBE AMPLIFIER

Ku-BAND: 125W
200W



MT3600 ANTENNA MOUNT TRAVELING WAVE TUBE POWER AMPLIFIER

Ku-BAND: 120W
150W
175W
250W
350W



Other frequencies and powers available. Contact MCL.

POWER AMPLIFIERS



www.mcl.com
630-759-9500 • FAX: 630-759-5018
501 S. Woodcreek Drive, Bolingbrook, IL, 60440-4999

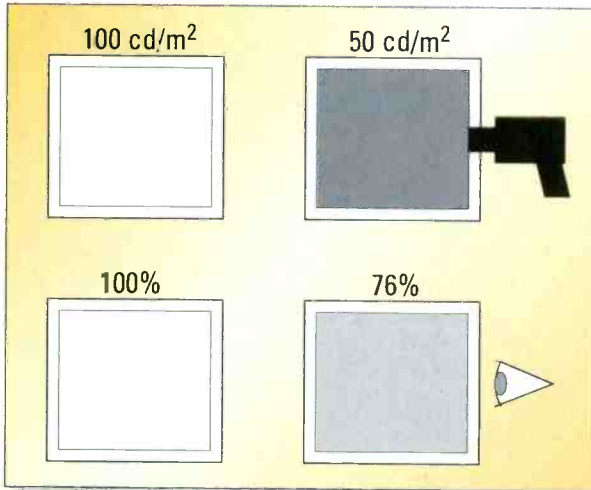


Figure 3. Measured luminance vs. perceived brightness

shows a satisfactory model that links luminance and perceived brightness. The tricky part is that the perceived brightness cannot be expressed in absolute units, but only relative to a reference. The reference is the brightest white object in the visual field, which the eye uses to establish a black-gray-white scale under the prevailing illumination.

When you have two displays with different luminance levels, the brighter display is the reference (for example, the 100cd/m² box in Figure 3). The

model in Figure 2 illustrates that if the other display has 50 percent less luminance than the reference to the human eye, it is only 24 percent less bright. Or, a display has to have more than 5X less luminance (18 percent) in order for us to perceive it as twice as dark.

Lumens

The lumen is a unit that measures the total amount of light that comes out of a projector. This is used for projectors, not for flat-panel displays like LCDs and plasmas. However, in rear-projection displays, the lumen is not a

suitable unit.

A front projector projects light (in the form of pixels that carry information) on a white matte screen. That light reflects and reaches our eyes. But so does ambient light, which is more or less homogeneous, and thus diminishes the contrast of the projected image. It is necessary for front projectors to be much brighter than any ambient light levels in the room, and lumens are a suitable measure for this "brightness."

In rear-projection systems, however, the light is projected from the rear and is transmitted through a transparent screen toward the viewer. The whole lumen story is, therefore, a legacy of front projectors. In rear-projection technology, what matters is what you see on the screen, and this depends

jection displays, the lumen is not a



Figure 4. Reflection mechanisms: a) Lambertian or diffuse, in which incident light is reflected in all directions, b) the mirror-like specular reflection and c) haze, with fuzzy circles around the reflected image.

on the projection engine, as well as screen type, ambient light and so on. It is expressed in terms of onscreen contrast and luminance, not lumens.

Ambient light

Ambient light will fall on your display screen. It will reflect and mix with the light that is coming out of your display and carrying useful information. The different reflection mechanisms are shown in Figure 4. They are:

- *Diffuse or Lambertian reflection.* Every ray of the incident light reflects in all directions so there is no image of the light source. (See Figure 4a.)
- *Specular reflection.* A mirror-like reflection on the screen where you see the exact image of the light source. (See Figure 4b.)
- *Haze reflection.* This falls somewhere in between the other two. It's that fuzzy circle around the reflected image. (See Figure 4c.)

The type of reflection you have depends on your screen. The majority of screens are called diffusive and reflective.

Contrast

The ratio between the brightest white and the darkest black that a display can produce in a completely dark room is called the full-field contrast ratio. Being defined this way, the contrast ratio is anywhere between one (with white and black being equal, meaning no contrast at all) and infinity (a very, very large number if the black is very low or the white very high, or both). Contrast refers to the ratio between the difference and the sum of the brightest white and darkest black.

Projector contrast measures the ratio of the white and black produced by the projector. But this measurement still has to be translated to onscreen contrast, which, as previously stated, depends on the screen type and on the inevitable ambient light.

Transmitted light

In rear-projection displays, the light is projected on the screen from behind. In order to make the light

THE AZDEN 1000 BROADCAST PERFORMANCE, UNIQUE INTEGRATED UHF RECEIVERS

Whether you use the Anton-Bauer Gold Mount®, a v-mount battery, or have a Panasonic or Ikegami camera which takes a "slot-in" receiver, there's an Azden 1000 designed specifically for your use, giving you broadcast performance with no additional batteries needed.



Gold Mount
1000URX/AB



IDX "V" Mount
1000URX/VM



1000URX-Si
"Slot-In"

Features include:

- 121 UHF channels (723-735MHz) user-selectable, with LCD readout
- True diversity system with 2 complete front-ends and high-gain antennas
- Proprietary DLC (Diversity Logic Control) circuitry for reduced dropouts
- State-of-the-art dielectric filters throughout, for improved image rejection and superior diversity isolation
- High 5th order filters for improved S/N ratio
- Multi-function LCD shows channel number and frequency, battery info, AF level, and diversity operation
- Ultra small, lightweight, switchable, Earphone-out w/level control



Bodypack transmitter (1000BT) with reduced current-drain for improved battery life, is available with Azden EX-503H, Sony ECM-44H.



Plug-in XLR transmitter (1000XT) works with dynamic mics.



P.O. Box 10, Franklin Square, NY 11010 • (516) 328-7500 • FAX: (516) 328-7506
E-Mail: azdenus@azdencorp.com Web site: www.azdencorp.com

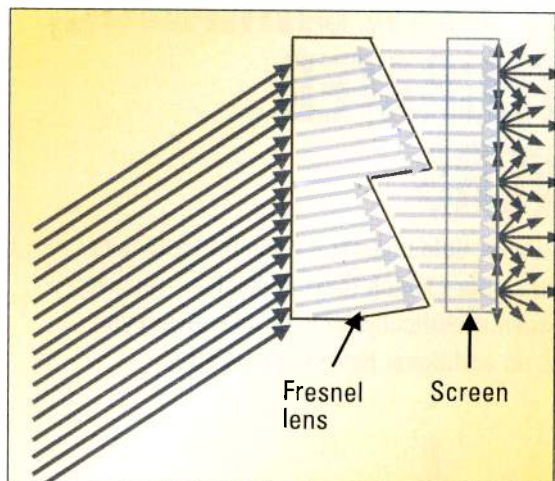


Figure 5. Rear-projection screen layers

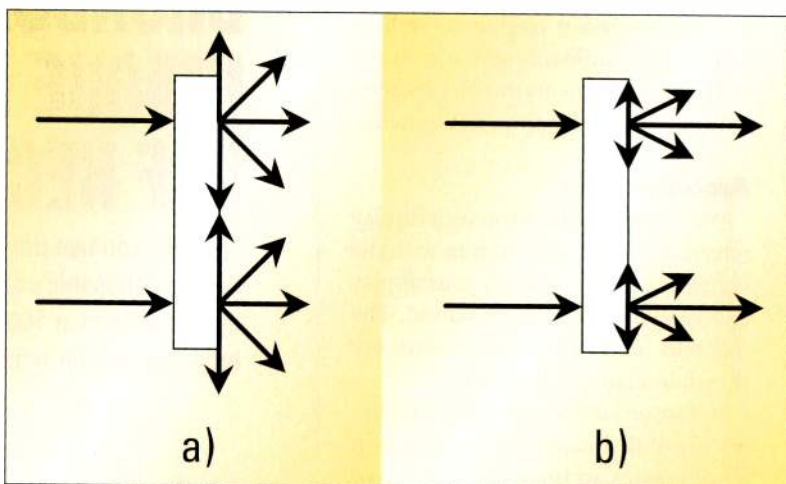


Figure 6. Rear-projection screen types: a) diffuse screen and b) gain screen

coming from the projector parallel, a Fresnel lens is used. This parallel light then goes through a screen, which can be built in such a way that the light coming out of it radiates equally in all directions. (See Figures 5 and 6a.) Other kinds of screens can introduce some angle distribution of the transmitted light.

The screen gain is the ratio between the light that the screen transmits in the perpendicular direction (see Figure 6b) and the light transmitted in this direction if the screen were completely diffuse (shown in Figure 6a). By definition, a perfect diffuse screen has a gain of one.

Viewing angle

Because of the angular distribution, at some point the luminance will become half the on-screen value. This

angle is the half-gain angle. Values found in industry vary between 6 and 40 degrees. These values should be optimized depending on the application.

To perceive a display 50 percent darker, its actual luminance has to be 18 percent of the reference display luminance. Translating this to the angle dependence of luminance in projection displays, we can define a 1/5 gain viewing angle, at which the luminance is 5X (20 percent) lower than in the perpendicular direction, but the perceived brightness is only half of the brightness in the perpendicular direction. This angle is much wider than the half-gain angle and yet still meaningful with respect to screen visibility.

When talking about flat-panel displays, we meet the specification viewing angle. This is not to be confused with the half-gain angle specified for

rear-projection displays previously stated. In LCD and plasma display specs, the viewing angle varies from 160 to 180 degrees. In these displays, luminance also has an angular distribution from the perpendicular viewing direction.

However, the viewing angle in flat-panel displays is defined as the angle span within which the dark room contrast ratio remains above 10:1. Remember, a contrast ratio of 10:1 is needed for good visibility (readability). So, this is really what the viewing angle spec says: Outside this angle span, the display readability is very poor. For example, if a display specifies a viewing angle of 176 degrees, that means that the contrast ratio falls below 10:1 when you look at the display from an angle larger than 176:2, or 88 degrees. This angle means you are looking almost parallel to the screen.

FURTHER READING

VESA Flat Panel Display Measurements Standard Version 2.0, June 1, 2001

Fundamentals of Vision and Color Science, a short course given by Louis Silverstein for the Society of Informational Display (SID)

"Videowalls: The book of the big electronic image" by Robert Simpson, Focal Press, 1997

"Projection displays" by Edward H. Stupp and Matthew S. Brennesholtz, Wiley, 1999

"Liquid crystal displays: Addressing schemes and electro-optical effects" by Ernst Lueder, Wiley, 2001 (part of the SID series on display technology)

Conclusion

Display specs are not exactly what you might think they are. There are many other important issues to take into consideration when building a good information display. Because the perceived brightness and luminance are different items, increasing the gain of a screen offers more disadvantages than advantages.

BE

Goran Stojmenovik is product manager and Jim Durant is market development manager for Barco's control rooms division.

Demand More.



Demand More. Expect More. Get More.



BAMS
Broadcast Automated Modeling System

Demand More.

First, we took some of the brightest minds in meteorology, and put them in the same room with supercomputers. Once the numbers were crunched and the models were run, hyper-local forecasts of unprecedented accuracy became available to the broadcaster. BAMS' 96-hour model runs are the most accurate, credited with saving countless lives during the 2005 hurricane season. Along with the wealth of forecast data BAMS delivers, there's also our exclusive Air Quality model. This kind of technology should be in your weathercast. And BAMS is the only place you'll find it.



BARON
RADAR

Expect More.

Speed. Agility. Performance. While these are words more typically associated with fast Ferraris or the latest jet fighter, we find they work for Baron Doppler radar, too. Because it's time to expect more from this weather center workhorse. To that effect, no other vendor offers the leadership in Doppler design that our radar division does. Field-proven in broadcast television, overseas markets and the US military, Baron's live radar systems come backed with years of design experience. Superior accuracy and speed are at your command. We'll blow your expectations away.

Call 256-881-8811 for an analysis.
Find out how much money Baron can save your station.



BARON

Weather Solutions



Get More.

Why did heavyweights like Garmin, Rockwell Collins, Cessna and XM Satellite Radio choose to work with us? Because they knew they could get more with WxWorx, our mobile weather company. But there's more to the story than that. After all, it was our innovations in the broadcast arena that opened the doors for WxWorx. Now, your trust in us is repaid in the form of unprecedented value. In fact, some clients have saved literally hundreds of thousands of dollars. Funny how things always come full circle.

WxWorx



Demand More. Expect More. Get More.

It's time to expect more from your weather vendor. But we bet you didn't expect this. Baron Services is the only complete weather company, providing winning weather solutions like the all-encompassing VIPIR system—a one-box solution for 365 days of weather, whatever they bring. Sensors, radar, forecasting, storm tracking—everything comes to you from one vendor, at an unprecedented value, and supported with exceptional service. Your viewers deserve this. You have the right to demand it for them. Do you want to win weather? Then this is where you have to be.



The Only Complete Weather Company
Visit us at NAB - C7407

www.baronservices.com



Four Companies in One

More than just the biggest weather company.

It's not that we don't enjoy being the biggest guys on the block. But the most important thing about Baron Services' unique "Four Companies in One" structure is how it lets you beef up your weather presence while saving money.

Our live graphics and sensors, instant alerts and storm tracking are simply the best in the industry. Then there's Doppler radar, advanced forecast modeling, mobile weather - you name it. Only Baron Services provides the only Complete Weather Solution.

It's more than the convenience of getting all your weather from one trusted source. Over the past few years, we have helped our customer stations save literally hundreds of thousands of dollars.

Superior technology. Superior value. It's finally okay to expect more from your weather vendor.

The Only Complete Weather Company



WxWorx



Call 256-881-8811 for an analysis.
Find out how much money Baron can save your station.

HDP at any given latitude



BY THOMAS STRODEL

In March 2005, development began on a new high-definition travel show that would combine culture, adventure and a bit of luxury. My team and I at 24fps Productions created "Any Given Latitude" for FINE LIVING TV NETWORK, which broadcasts to more than 30 million homes in the United States.

We created 13 episodes, traveling across the globe, in a little more than 10 months. Because I was on location for all of the shots, it was important from the beginning to develop systems and workflows that allowed for remote reviewing of program roughs and for the efficient ongoing maintenance of the production process. We also needed the technology to be rock solid, as it was important to travel with a limited crew and equipment.

Steve Miller used a Sony HVR-Z1 and Amphibico Pnenum housing to capture coral underwater in Curaçao. Photo by Markye Kolenousky.

During the course of the series, we traveled to Austria, Belize, Croatia, Curaçao, the Czech Republic, the Dominican Republic, Iceland, Portugal, Puerto Rico, St. Vincent and the Grenadines,



Cameraman Jon Fordham worked with Mike Ryan (left) to shoot a nighttime scene of show host Joanne Colan in Prague, Czech Republic.

Singapore, Thailand and Vietnam. We explored an awe-inspiring variety of places, including rural farmlands, bustling cities and underwater landscapes. We tried all kinds of local recipes. Most importantly, we met wonderful people who let us into their homes and lives.

Pre-production

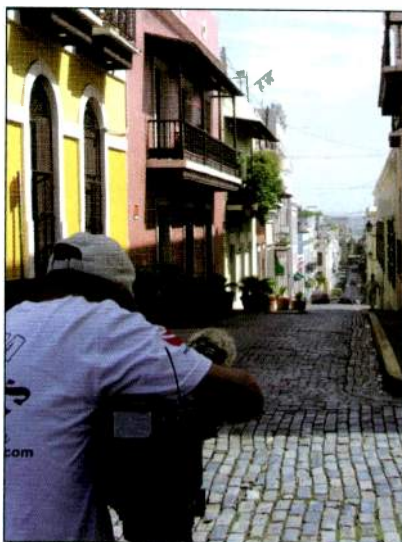
Although the network broadcasts its signal in SD, we shot and mastered in HD for future network use. Cameraman Steve Miller and I chose Sony's HDCAM format, shooting at 60i, because its imaging capabilities were ideal for the travel genre. Our primary camera was the Sony HDW-700A HDCAM, using the Canon HJ 15X8 HD lens and, occasionally, the Fujinon HA13x4.5 BERM/BERD — all rented as a package from Liman Video Rental (LVR) in New York. When possible, I monitored the action using a Panasonic BT LH900P 8.4in LCD HD/SD monitor.

I also wanted to integrate the new Sony HVR-Z1 HDV camera into the show. We used it for low-light conditions and as a second camera in cooking demonstrations. I was most excited about using it for shooting our underwater segments. In the past, shooting HDCAM underwater meant shipping and transporting the large Amphibico

Amphibico housing. It produces amazing images, but its size was prohibitive for our shooting style and schedule. At the time, Amphibico had just released the prototype of its Phenom housing, made specifically for the Z1 and FX1 cameras. This was a great opportunity to test both the HDV format and the new underwater housing.

Production

Shooting remotely, sometimes thousands of miles from home, can be rife with challenges. It can also be incredibly rewarding. With few exceptions, the equipment performed flawlessly and made the shoot even more enjoy-



Steve Miller, the main cameraman on "Any Given Latitude," used the Sony HDW-700A HDCAM to capture Old San Juan, Puerto Rico.

able. We had the occasional humidity warnings (especially when shooting in Southeast Asia in late summer), but we always made it work.

The Z1 performed well. The only drawback was that because it was much smaller than the 700A, handheld shots weren't as steady. We're looking into steadying systems for future productions.

Near the end of the series, we introduced the use of the Ambient SMPTE time-code clapper for situations where we used both cameras at the same time. To synch the two cameras, we simply pointed the HDV at it from time to time. This provided the neces-

sary visual time-code reference back in the edit. On average, we shot 12 40-minute HDCAM tapes and four 63-minute HDV tapes per episode shooting schedule.

Post-production

Back in New York, the crew worked on prepping the HDCAM masters for the editors who would be working in Final Cut Pro 5 (FCP). This required converting the two different acquisition formats (HDCAM and HDV) into either DV or a similar resolution. We chose DV because one of the deliverables — a 20-second promo of each show — would never need to be converted or converted back to HD. By using DV, the promo could be easily output directly from the SD edit.

We dubbed each 40-minute HDCAM master to a 40-minute DVCAM tape. It's always easier having a one-to-one relationship between the masters and dubs. To make these, we connected the firewire out on the Sony JH-3 HDCAM deck (with firewire interface) into the Sony DSR-25 DVCAM deck using the onboard letterbox conversion from HD to SD. The DSR-25, like most lower-priced Sony decks, allows the time-code signal carried on the firewire to transfer correctly onto the dubs. For added confidence and to allow for a visual



The travel show took the crew from the warm waters of Curaçao up to the Vatnajökull Glacier in Iceland.

reference, we set the JH-3 to export superimposed visual time code into the bottom letterbox area. This placement is important, as it allows you to later use the visual content in the DVCAM dubs.

PLATINUM.

The dawn of a new era in routing.

PLATINUM



Platinum.™ The router you've been waiting for.

Processors

Routers

Servers

Editing

Graphics

Digital Signage

Test & Measurement

Monitoring & Control

Master Control & Branding

Management Software

Networking Equipment

TV & Radio Transmission Systems

H-Class™ Content Delivery Platform

Large routing was due for a shake up, and Platinum delivers. High-density, compact systems – 256x256 in 15RU, 512x512 in 28RU. Routing of any signal – video and audio, from analog to HD, all in the same frame. Exceptional serviceability. Extraordinary pricing. The latest technology.

Then Platinum goes a step further:

Unprecedented Reliability

- Distributed control system that eliminates potential single point of failure
- Eight signals per I/O module limits number of signals affected by any one module
- Redundancy that extends from power and control all the way to complete signal paths

Superior Control & Monitoring

- Multi-level access security and customizable alarm management
- Support for real-time CCS™ and SNMP protocols and our new NUCLEUS™ user-configurable, real-time control panel



And that's just the beginning. Platinum's innovative, future-proof design anticipates feature additions that will render traditional core routers obsolete. So revolutionary, it's almost unfair to call it a router.

Enter the new era in routing. Learn more at broadcast.harris.com/platinum.

See Platinum in booth# SU2929 at NAB!

Canada +1 800 387 0233 | USA East +1 800 231 9673 | USA West +1 888 843 70C4 | Latin America +1 305 512 0045



assuredcommunications™

Broadcast • Microwave • RF • Government Systems

www.harris.com

All the editor need do is mask off the letterbox to hide the visual time-code reference.

We also hooked-up the analog output from the DSR-25 into Pyro's A/V Link analog-to-DV video converter, which outputs through a standard firewire connector. The firewire output connected to an edit system set up to use FCP's capture now feature as a small 320 x 240 clip. This happened at the same time the DVCAM dubs were made. It was a bit of a challenge to get this all working, but in the end, it yielded not only the DVCAM dubs for the editors, but also the mini reference movies, which proved invaluable during post.

HDV in post

The HDV tapes were another matter. We wanted to provide these to the



In Ha Long Bay, Vietnam, cameraman Steve Miller and his Sony 700A went aboard a pod boat to capture a scene for "Any Given Latitude."

editors in an easy-to-use format that didn't require rendering for simple cuts. Because the main footage was now in DV format, it made sense to develop a solution to convert the HDV footage to DV as well. Unlike HDCAM, none of the HDV cameras or decks allowed for the transfer of

matching time code to the DVCAM dubs. There's probably a high-end solution out there, and you can certainly make nice looking DVCAM dubs right from the onboard downconverter on the Z1. But without time-code reference back to the HDCAM masters, they can't be used in the edit.

Over the course of the project, we devised two solutions to handle the HDV footage. The first involved digitizing each HDV tape into one of our FCP systems (making sure to turn off the default "make new clip with each shot" in the capture settings of FCP.) When you digitize HDV footage into FCP it does, as one would expect, retain matching time code. Once the tapes were digitized, we laid them out in a new FCP sequence and applied a time code

Fair and Balanced Color



It's true. Kino Flo's telegenic ParaBeam 400 studio fixture delivers 3,000 Watts worth of tungsten soft light on 2 Amps—without the heat and without compromising your picture's color quality! The ParaBeam's cool brilliance owes to

a special parabolic reflector that practically turns light waves into projectiles.

As for image quality, the fixture uses Kino Flo designed True Match® lamps that display professional tungsten and daylight balanced illumination (CRI 95). A center mount lets you rotate between a horizontal and vertical beam. Slide in your choice of focusing louvers to spot the beam down to a 90°, 60° or 45° pool of light. DMX, analog and manual controls can dim the light to black. Like all Kino Flos, the ParaBeam is flicker free and dead quiet.

If you think the ParaBeam looks good on paper, wait 'til you see how it looks on video.

ParaBeam



4K, 2K, HD, HDV, DV, DVD, WMV, QT, OMF, MXF... Acronym Soup?



Whatever the next acronym is, no problem. Let MESoft SELECT™ Software and IBM® Enterprise Hardware solutions deliver Your Media. Secure. On Demand.

All aspects of the media life cycle are included within the MESoft SELECT solution including Avid™ and Final Cut Pro™ integration for our editorial base. Together with IBM, MESoft is bringing Enterprise Solutions to market for the feature film, television and broadcast industries.



CREATIVE MEDIA PARTNERS
MESOFT PLATINUM RESELLER
WWW.CREATIVEMEDIAPARTNERS.NET
TEL: 818.842.5700

Join us at NAB 2006 April 24-27, 2006

Booth Locations: SU 2976 IBM Booth • SL 1513 Avid Developer Community
For a Private Demo at our LV Hilton Suite call 818.260.0858 or email sales@mesoft.com

MESoft is an IBM® Business Partner who has demonstrated success in delivering solutions to meet the enterprise needs of entertainment industry and corporate customers. SELECT runs on IBM on demand infrastructure including WebSphere® and xSeries®. This proven technology is tailored to address the business and IT needs of entertainment companies like yours. To find out how you can leverage IBM's on demand technology for success in the entertainment industry, visit: www.ibm.com/industries/media.



The IBM logo and the IBM Business Partner emblem, WebSphere and xSeries are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

reader filter visually overlaying the accurate time code from the HDV masters. Next, we exported the large HDV files into more manageable QuickTime-based DV files. Unfortunately, these exported files did not include matching time code, so the editors needed to manually change the time code to match the visual reference. Sounds simple. It wasn't. There were many errors and issues along the way, mostly that the time code often did not match up once the conform started. We needed another solution.

After looking into several options, we decided to give the editors the raw digitized HDV footage. This meant that they would need to render every frame of HDV footage they used, because the base edit was in DV. The simplest solution turned out the best in this case.



Cameraman Steve Miller consulted with these curious monkeys during a shoot on the Krabi Islands in Southern Thailand.

My wish is that manufacturers would offer HDV cameras and decks with firewire output that includes matching time code. My ancient GV-D300 Mini-DV deck can record time-code matched output from our DSR-20 DVCAM deck. Why can't the HDV camera do the same?

Rough edits

Once the DVCAM dubs were made, we logged the tapes using our TimeCodeLogger database program, which allows for deck control of the logging process and the generation of thumbnail pictures of the in-point of each log entry (a very good thing). Every shot corresponded to a separate record in the database. Each had an automatically generated filename. The database permitted us to search using a wide range of criteria. Time-

CodeLogger also allowed us to generate a batch import list for FCP, which greatly decreased the time it took for the editors to load in the footage.

With the logs and the mini video reference movies, our writer Bill Kearney and I completed script coverage, integrating into the script time-code

Showcasing Featured Integration with Valued Partners



VISIT US AT
NAB 2006!
BOOTH #SL 1835

KONAN DigitalArc — The NEXT Generation of Media Asset Management

© 2006 Konan Digital Inc. All rights reserved.



konandigital.com
+1 818 649 8655

Centralization of Media General streamlines, minimizes costs

Integrated systems from Florical, Scientific-Atlanta, Grass Valley, Leitch and others create environment based on central control

A functional solution to a key issue facing most TV operations: how does a TV operation minimize capital investment costs and reduce overall operational expenses? **Media General Broadcast Group** addressed that issue when they centralized operations of 10 CBS stations and 1 UPN station from a common hub in Spartanburg, SC.

The Team

Media General's technical team selected **Florical Systems** to provide the hardware, software and guidance to achieve these goals. The design team from Media General Broadcast Group included **Ardell Hill, Sr.** VP of Broadcast Ops, **Mark Turner**, IT Director and **Matt Heffernan**, GM/Central Broadcast Ops.

The Plan

Their simple strategy was based around these overall goals: A central control solution to standardize and centralize traffic and master control duties while distributing workload among stations. Although centralcasting was considered, the team chose a central control model based on market size of the spoke sites and to limit the cost of network connectivity present in centralcasting models.

The Rollout

Here's how their plan was executed successfully and quickly:

1. Centralizing traffic ops improved efficiencies. This includes standardized reporting, quicker access to avails info for sales, and faster

customer service.

2. Centralizing master control of 10 stations from a single hub and WAN based in Spartanburg, SC. The automation systems at the stations are monitored and controlled by the hub over a partial T1 network. The hub can modify any channel's schedule right until the next event to air, and controls each local station's automation system, video servers, switchers and logo inserters. The WAN handles typical system functions and the network features three separate backup circuits. If an unlikely WAN failure occurs, each local station can quickly switch to local mode and maintain automated operations until the WAN is restored.

3. Program acquisition is controlled at the hub by Florical's **Multi-Site ShowTimer** system which prepares the master and each station's daily recording schedule. It sends commands over the WAN to control each station's device servers which control local equipment to position dishes, tune receivers and record satellite feeds used by the stations across multiple time zones. Each spoke station retains a copy of the daily recording schedule for use by a local backup controller in the event of loss of hub connectivity. The local controller also allows the remote station to

add recordings to the master record schedule.

4. Program timing can be handled by one person who then updates all sites with synchronized start times for all program recordings using Florical's **MediaTimer**. Even though each station may be assigned programs to segment and time, all timing data is stored in a central media database available to all stations. Because all program recordings start at the same universal time, there is no need for any start time



reconciliation adjustments. Human effort to time the program segments is significantly reduced and the resulting timings are distributed across all stations.

The results: substantial improvements in operational efficiency with no loss in reliability, low interconnection costs and minimal capital outlay. This ambitious plan was completed in early 2005.

Equipment List

Automation: Florical's AirBoss and AirBoss Editor
Asset ingest and timing: Florical's MediaFiler and MediaTimer
Satellite receivers: Agile-Omni's 830 and 930, Tandberg's Alteia, Scientific-Atlanta's DSR 4810
Satellite record scheduler: Florical's ShowTimer
Dish & receiver control: Satelink
Video Servers: Thomson Grass Valley's iDVR, SeaChange MediaClusters
Switchers: Saturn MC, GVG 2100 MC and Utah's MC-500 MC
Logo inserters: Leitch's Logomotion I and II
Routers: Panacea and Quintech RF
Microcontroller: Microfirst's 1610

What IS centralization?

Centralized television operations designed by Florical uniquely combines the customer's business model with its technical capabilities. This creates a customized, central infrastructure based on the geography and market sizes of the stations in the group. Centralization can be configured as either a centralcasting or central control model.

Control can be centralized at the hub, local at the regional station or shared. Storage can be at the hub, the regional station or at both sites.

Centralization consists of four elements:

- 1. Interconnection between the hub and each spoke station** must be established with the necessary broadband connection ranging from a partial T1 to an OC3, with sufficient bandwidth to support all control and monitoring requirements.
- 2. Automation system capabilities must be sophisticated** enough to handle centralization functions and up to 20 regional stations per control room across multiple time zones. Flexibility should allow adaptation to multiple operational models to offer significant growth advantages.

3. Asset and archive management insures that scheduled materials will be available for air when needed, reducing or eliminating routine tasks. This improves system efficiency and eliminates costly human errors while lowering operating expenses. *The more an asset management system can do unattended, the greater the savings in operational costs.*

Workflow process updating allows people in traffic, programming and sales to overcome the resistance to change in status quo at the hub and spoke stations. This is achieved by changing human focus from "execution" of the program stream to "preparation" of the material to be aired. All Florical systems are designed with this process in mind, focusing attention on accuracy in preparation which creates maximum efficiency in automated on-air playback. Today's environment requires a change from a technical solution in a traditional broadcast environment to an IT-based infrastructure.

Keep options open. Some broadcast groups may consider a central control model to reduce expenses, but may later wish to repurpose existing automation to the centralcasting model if network costs drop.

Florical clients include **Groupe TVA** in Canada, **Emmis Group**, and all of the O&O stations of the **NBC Television Network**.

Discuss your options for centralization with minimal capital outlay and maximum business process efficiency. Contact Florical Systems, the experts in centralization, quietly creating custom solutions for group owners since 1995.



FLORICAL
SYSTEMS

Over two billion dollars in commercial revenue delivered through Florical automation.

Based on published 2004 revenue of US TV broadcasters served by Florical automation.

See us at NAB booth SU2941

www.florical.com
1-800-372-4613

The leader in TV automation.

reference marks, filenames and notes, and generating a batch capture list. The editors then took these materials and other media elements (photographs, map graphics, etc.) and worked toward a rough cut. We usually received the rough cut within two weeks delivered via FTP as small, visually time-code-referenced 320 x 240

QuickTime movies. Initially, the movies were super compressed with a low frame rate (15fps). This proved problematic, as dissolves and cuts looked too short. So the editors exported the mini movies as 29.97fps. The entire 20-minute show was around a 100MB file — somewhat big, but small enough to download remotely.



Steve Miller's underwater work proved an excellent testing ground for the new Sony HVR-Z1 HDV and the prototype for Amphibico's Phenom housing. Photo by Markye Kolenousky.

Review

Kearney and I reviewed these roughs and entered comments into a customized FileMaker Pro database. This database, hosted from our server, allowed everyone on the production team to access and respond to each issue.

This review process worked great in the field for the first half of the episodes. However, as shows started stacking up back in New York, it became problematic. One of the requirements of producing a travel show in the field is being able to respond to all the unforeseen situations that arise. There simply wasn't the time necessary in the field to give thorough reviews (which often required reviewing the camera master mini movies, music selections, the script and the TimeCodeLogger database). What might take several hours over a few days to do in the field takes usually only one long day back home. Somewhere near the eighth episode, I decided that all future reviews would be in-house, in person. Once the roughs were ready, we posted them as mini QuickTime movies on the FINE LIVING FTP server and on a special page of our Web site for online review.

Conform

After making any requested changes, we started the conform process.

GET THE COMPLETE PICTURE...



Zandar
TECHNOLOGIES

...WITH ZANDAR TECHNOLOGIES

Zandar Technologies is a world leader in the provision of multi-window display solutions – with everything from simple screen splitters to advanced visual display systems. The virtual monitor wall concept is proven – don't be left with an outdated monitor stack, when you can have a display wall that is configurable, dynamic, and controllable. We have product to match your specific input sources, for display devices from CRT to rear projection, with extensive control options & interfaces. With Zandar you can be sure of excellent image quality, unsurpassed system flexibility and genuine value.

- Fusion Series:** Modular 3RU (26 inputs) and 1RU (8 inputs) racks; input cards for composite video/Y/C, SDI, HD SDI and VGA sources; high resolution RGBHV output.
- Predator Series:** Fixed configuration solutions for 4, 12 or 16 video inputs; select from composite video, Y/C, SDI or HD-SDI inputs; RGBHV output.
- DX Series:** For 4, 8, 12 or 16 composite or SDI video inputs (auto-detecting); high quality composite, component, SDI and VGA outputs.
- MX Series:** For 4, 8, 12 or 16 NTSC or PAL inputs; composite, component or VGA outputs; preset layouts or custom layouts on request.

Think Zandar for:

- Master Control Rooms
- Command & Control
- Security & Surveillance
- Broadcast Multi-video
- Mosaic & Interactive Channels
- Audio Visual Presentations
- Audio Monitoring & Audio Monitoring
- Video-conferencing



FusionPro



DX



Predator

HEADQUARTERS:

Bracken Court, Bracken Road,
Sandyford, Dublin 18, Ireland.
Tel: +353 1 2938 966 Fax: +353 1 2936 955
E-mail: sales@zandar.com

US OFFICE:

1970 E. Osceola Parkway, No. 330,
Kissimmee, FL 34743, USA.
Tel: 321 9390 457 Fax: 321 9390 458
E-mail: advancedms@msn.com

WWW.ZANDAR.COM

Visit us at NAB Booth #SU1033

Conforming an SD show to HD can be a complicated process, with more than 100 steps. It is so detail-specific that we wrote an HD conform bible that we'll use on future HD projects. The basic procedure for our show:

- Finalize the show in the SD edit so it is cut to time. (Ours was 19:50.)
- Run Media Manager in FCP, targeting it toward the appropriate HD capture card (AJA Video's Kona 2 10-bit, 1920 x 1080, 29.97fps).
- Move the new HD file (with any necessary photos or music) to the HD edit system (a Mac G5 with Apple's Xserve 5.6TB RAID and Kona 2 card).
- Open the HD file and start batch-capturing the tapes.

The keys to a successful conform are having a systematic approach for each of the main steps and a constant and repetitive quality assurance plan to confirm that those steps were implemented correctly. For the most part, the load-in process worked fine. At least once though, in every edit, a few clips needed to be reloaded. We also had some issues with clips that had speed modifications assigned to them in the SD edit. Many times, they ended up in the HD media managed file as a one-frame clip. These were easily fixed.

Each of the HDV clips (which were brought in using the Z1), needed to be modified, because HDV is 1440 x

1080 and we were conforming in 1920 x 1080. We normally upped the resolution by 133 percent, sometimes as much as 144 percent (in the case where we needed to remove the vignetting from the underwater housing.) It's important to also adjust the aspect ratio as well as the scale. We set ours to -33.33 in the motion tab of FCP.

The Kona 2 does a great job with the HDV upconvert. However, on our HD monitor, the HDV is not quite as sharp as the HDCAM material. This difference is less noticeable on an SD monitor. In the beginning, we were concerned that meshing these two formats would create a jarring difference in looks. This was not the case.



Cameraman Jeffrey Fisher captured Iceland's Golden Circle for the new travel show "Any Given Latitude."

NAB booth # SU5193

fischer broadcast connectors



New

TELEVISION BROADCAST

TOP INNOVATION AWARD 2005

The 2005 HDTV connector line received the editor's award for TECHNOLOGY INSIGHT FOR THE BOTTOM LINE at the 2005 NAB show.

Triax 1051/1052

- For American and International Standards
- Compatible with 3/8" and 1/2" cables
- Superior shielding
- Waterproof rugged design with corrosion-resistant finish
- Ideal for multiplex signal transmission
- Precision self-locking connector for low contact resistance and long life

HDTV 1053™

- No Epoxy - No Polish
- Truly field install-able
- Incorporates Corning® UniCam® Fiber-Optic technology
- Outstanding increase in connector simplicity and convenience
- Fast and easy cable termination
- Significant decrease in assembly labor costs

Fischer Connectors, Inc.
1735 Founders Parkway
Alpharetta, GA 30004
Tel: 800.551.0121
Fax: 678.393.5401
mail@fischerconnectors.com
www.fischerconnectors.com





In the past, underwater shots required shipping and transporting a large Amphibico Amphibicam housing. To avoid this, the crew used Amphibico's Phenom, a new, smaller housing, with a Sony HVR-Z1 HDV camera.

The HDV was good enough not to call attention to itself as a different format or shooting style. With the underwater segments, it performed well. Because the underwater environment is inherently in slow motion, the difference in

resolution was not a factor.

After all the media was brought in and the show graphics were relinked (from a shared folder on the RAID drive), we recorded and integrated the VO and uploaded the OMF and video reference files to Mike Ryan, our on-location and mix-down sound engineer. He used ProTools to mix down the shows, and then we sent the final audio mixes to us via FTP. We laid them into the edit and were then ready for the layoff. As mentioned before, every step along this process also included a complete review session. The more eyes and ears that you have reviewing something, the better.

Delivery

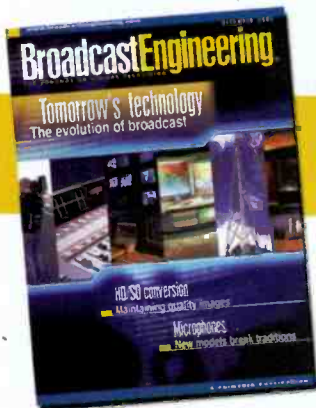
The delivery requirements were texted and textless HDCAM and D-Beta masters. We layed off the HDCAM masters using the complex Sony HDW-F500 HDCAM deck. It was a struggle for non-engineers (like most

of our editors and myself) to figure out all of the settings and to troubleshoot problems that kept coming up. By the 13th episode, we had mastered the deck's operation deck, as well as documented and photographed the proper setups for the conform bible. The D-Beta deliverables were made by simply dubbing the HDCAM masters using the standard letterbox downconvert.

Throughout this whole project, we continually tuned and tweaked the production process. It's important to have a foundation for your process but to also stay flexible with it. We certainly know a lot more about the HD workflow than we did before. And we'll use this knowledge to great advantage on our other productions. To see "Any Given Latitude," tune in to FINE LIVING, Saturdays at 10 a.m. EST. **BE**

Thomas Strodel is an independent producer and director, as well as the owner of 24fps Productions.

TRUST



SUBSCRIBE

to the **Trusted Technology Leader**
and **Stay on Top of the Industry!**

For over 45 years, readers have learned to **TRUST**
Broadcast Engineering editors to bring them timely, reliable
and indispensable technical information.

You can **TRUST** *Broadcast Engineering* to deliver the best: It is ranked #1 most authoritative global source of technology information in the industry.*

Stay on top of the latest technology developments, new players, products & decision-makers.

SUBSCRIBE to *Broadcast Engineering*.

To start your **FREE** subscription, go to www.broadcastengineering.com
and click on **SUBSCRIBE NOW**.

*2003 Paramount Research Study



Celebrating 45 years
as the Technology Leader.

TRUSTED, Technology Industry Leader

Moving pictures and sound around,
perfectly.

NVISION®



Why broadcasters and studios are

Ascent Media
Verizon
ABC NMT
ESPN
Corplex
Pixar NASA
Imagica
FOX
CBS ILM
Discovery
Modern VideoFilm
Moving Picture Company
NBC LaserPacific
KDDI
Game Creek
Comcast
NFL Films
PBS



BROADCAST NETWORKS

Are all your eggs in one basket? A centralized broadcast operation center (BOC) improves efficiency. Yet it significantly increases the impact of a system failure. The NV8256-Plus, with patented redundant crosspoint technology, provides affordable, error-free video routing that protects you from single point failures. Major networks worldwide depend on NVISION synchronous audio and HD-SDI routers in their BOCs for 100% reliability and proven performance. Built-in system features such as integrated video encoders and decoders, MADI, and audio mono routing add significant value. With the NV5128-MC Master Control you have a complete, integrated path for program play-out in any format – analog, digital, SD or HD. You can easily upgrade by simply replacing modules. Rest easy. Your eggs are secure with NVISION.

Simplify HD with the ultimate in precision routing and master control.

For broadcast networks and post production facilities, error-free video and audio signal processing and distribution means faster installations, lower operations cost, and a nonstop HD viewing experience for audiences. NVISION pioneered, and continues to set standards for, serial digital HD-SDI routing and multichannel, multi-format master control. We provide flexible control of all your program material, including Dolby E and Dolby Digital Audio. Dolby compatibility and well-managed signal flow ensure low-cost, robust video payout. Format independence and modular systems maximize plant flexibility and give you room to grow.



The *smallest*
big router in the world.

NVISION[®]

***NEW NV8288:
the studio router
built to go.***

Size matters when it comes to mobile video production. As trucks get larger and more complex, the number of signals you must manage multiplies. Increasing the physical size of the routing system is not an option. So NVISION invented the smallest large scale router, two and a half times as dense as other routers. It offers the same high level of performance you've come to expect from NVISION's full studio routers. Yet we fit 288 x 576 in 10RU and 576 x 576 in only 20RU. Available configured with SD and HD I/O and Composite Outputs or any mix, these routers guarantee trouble-free operation day or night, even in the harsh environment of a mobile truck.

Test drive the new NV8288.
Call us for a demo at
1-800-719-1900
Or visit
www.nvision.tv
to learn more.

Corplex's mobile unit Platinum uses NVISION to route HD broadcasts of the Masters and PGA Championship golf tournaments for CBS Sports.

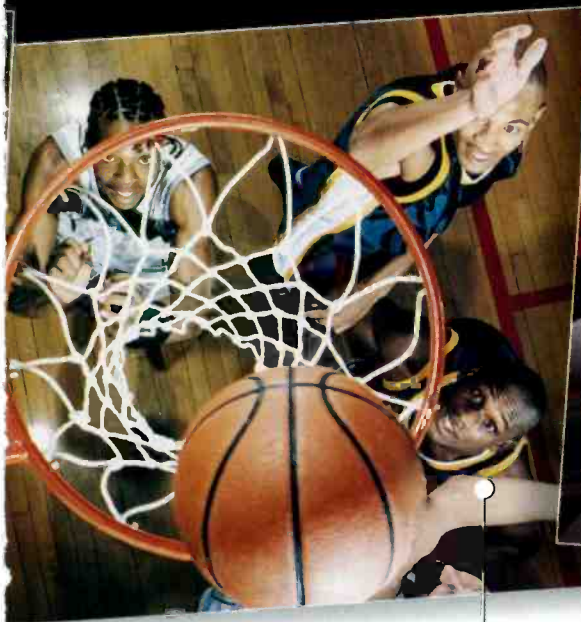


NVISION
*Moving pictures and sound
around, perfectly*

125 Crown Point Court
Grass Valley, CA 95945

Dolby E
PARTNER

round the globe depend on us to keep the wo



LOCAL STATION GROUPS

How much will it cost for your transition to digital? Even if you think you can't afford it, DTV is now a legal requirement. NVISION will help you make the transition while protecting your investment in analog equipment. The NV5128-MC Master Control Switcher provides flexible support of analog audio and video, AES, SDI and HD-SDI input and output signal formats. It simplifies integration of analog and digital formats by combining routing and conversion in the same frame. Upgrade to HD-SDI or increase the number of channels of master control by simply adding modules to the frame. Multi-channel control and flexible panel delegation increase plant reliability, simplify distributed facility design, and reduce service and support costs. It's also the only master control system offering fully integrated Dolby E decoding with delay management for seamless handling of full 5.1 channel audio.

POST PRODUCTION

Your demanding post production schedules require efficient, multiformat, signal management. Join Ascent Media, ILM, Laser Pacific, Modern VideoFilm and a long list of prestigious studios that choose NVISION. The gold standard in routing systems and router control, NVISION helps you manage signals flawlessly and securely, regardless of complexity. Our video routers handle any data rate from 3 Mb/s to 1.5 Gb/s and manage all digital video formats inside one frame, simultaneously. With N-on-1 crosspoint redundancy, NV8256-Plus is a bulletproof 256 x 256 video router, field expandable to 512 x 512. Our digital audio routers handle AES, analog, and MADI signals, with a host of advanced features like full mono channel routing. For the ultimate in system power and flexibility, add the NV9000 router control system. Plug-in modules make upgrading and expanding easy – without the cost and pain of rewiring and recabling.



System longevity lowers your total cost of ownership.

Installing the intelligent and innovative NVISION routing and master control platform in your facility today paves an upgrade path for the future. Our philosophy is that DA cards are disposable, facilities are not. Our forward-looking designs leverage your investments and help you avoid costly replacements, recabling, or ground-up installations. You can expand capacity or upgrade capability quickly and cost-effectively with simple, front-plane module replacement. High product quality and strict control of manufacturing at our US headquarters ensure NVISION products continue running reliably, year after year.

ork flowing flawlessly.

NVISION®



MOBILE TRUCKS

Does size matter? For mobile video production it's critical. That's why NVISION offers any size router, for any size mobile truck, in any format you need. NVISION builds the most reliable routers in the world, so even in the harsh environment of a mobile truck, you can depend on trouble-free operation when the pressure is on. And we protect your capital investment. To scale up, simply add more feeds or capability with front-serviceable modules. For the ultimate in truck routers, test drive the new NV8288. The smallest big router in the world, it houses an ultra high density 288 x 576 system in a 10RU frame just 12 inches deep. It supports HD and SD and expands to 576 x 576 in only 20RU. Low power consumption and front-to-back forced air cooling make it the perfect fit for your truck.

TELECOMMUNICATIONS

IPTV is challenging cable and satellite for a share of the pay TV market. Telecommunication leaders, like Verizon and KDDI in Japan, are ramping up for IPTV with NVISION's NV8256-Plus router. Its redundant crosspoint technology, recognized for high reliability and superior quality, is the obvious choice for backbone signal transmission and bandwidth provisioning. NV8256-Plus and NV5128 routing systems deliver error-free signal distribution for SDI, HD-SDI and composite video. They protect your installed equipment base and enable a cost-effective upgrade path that extends the life of capital investments. The NV9000 system provides a unified command and control environment with a uniform control layer distributed over secure VPN links. Deliver a quality viewing experience with precise and reliable transmission of content.

Count on local service and rapid response from real people.

Routing problems are like people: each one is unique. NVISION's customer service, support team, and world-class, third party system integrators are committed to helping you solve your technical problems, and getting you back on the air or in production as soon as possible. Located across three continents, we're ready with local support worldwide. At our Grass Valley, California headquarters, the service and support groups are located with engineering and manufacturing, giving you ready access to new product developments, the latest upgrades, and our in-house knowledge base.

For detailed product information and technical specifications, visit our website. Then let us help you plan your next installation. Call our toll free number and talk to a real person who understands routing. Put NVISION behind the scenes and you'll always be ahead of your time.

1-800-719-1900
www.nvision.tv



**Behind
the scenes.**

Ahead of our time.

If your business depends on managing large numbers of quality video and audio signals, you've come to the right place. NVISION is the leader in HD, SD, and digital audio routing systems. By specializing in routing, we've developed the most innovative products and systems to flawlessly manage signals from point to point. And we do it more efficiently, reliably, and cost effectively than anyone else.

Since 1989, the biggest names in TV broadcast, entertainment and post production have trusted NVISION award winning technology behind the scenes to keep them years ahead of the times. NVISION's history of industry breakthroughs include:

THE FIRST synchronous AES router for audio, 1992

THE FIRST time code router with digital signal processing (US patent awarded), 1992

THE FIRST bidirectional machine control router with dynamic port management (US patent awarded), 1996

THE FIRST large-scale HD-SDI router (US patent awarded), 1998

THE FIRST integrated multichannel master control switcher and multiformat router, 2003

THE FIRST large scale digital video router small enough for mobile trucks, 2005

We firmly believe that the key to our success, and the high satisfaction of our customers – large or small – depends upon our understanding of each facility's unique needs and budget. We always create a best-in-class routing solution that achieves your goals, even when others say it's impossible.

COLOR CONTROL

in the camera

There are two important issues in the camera:
taking characteristics and transfer
characteristics.

BY ALAN ROBERTS

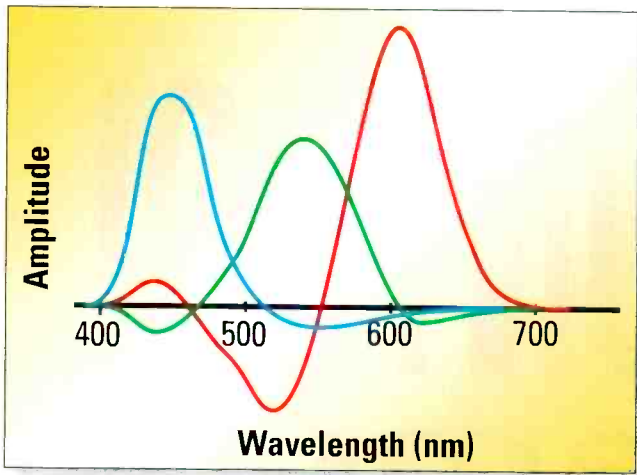


Figure 1. Taking characteristics should be the color-matching functions of the system primaries, mathematically defined across the visible spectrum (380nm to 760nm).

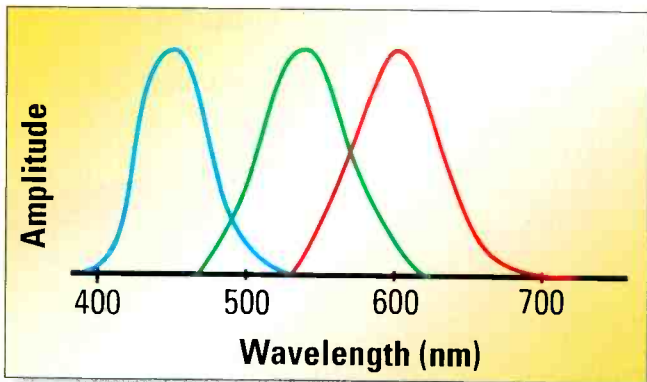


Figure 2. The response of a typical camera

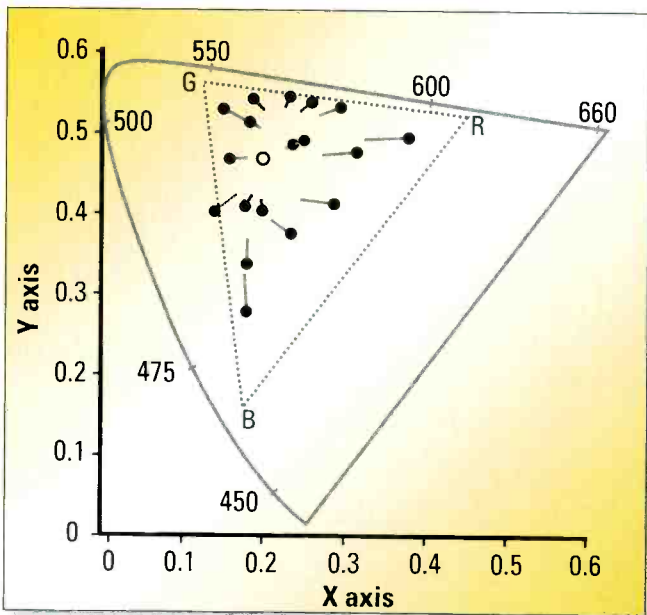


Figure 3. This chromaticity diagram shows the color reproduction of a GretagMacbeth ColorChecker chart. The horseshoe shape is the spectrum focus, and the triangle marks the color gamut of HDTV.

First, we will address the taking characteristics of a camera. Taking characteristics are the spectral responses of the camera sensors, the wavelength-by-wavelength color response. The user has no control over them because they are a feature at the time of manufacture. Ideally, they should be the color-matching functions of the system primaries, mathematically defined across the visible spectrum (380nm to 760nm). (See Figure 1.)

In practice, cameras can only produce positive outputs to light stimulus. Figure 2 shows the response of a typical camera.

The chromaticity diagram in Figure 3 shows the color reproduction of a GretagMacbeth ColorChecker chart. Each color is represented by a blob with a vector pointing to the reproduced color. Clearly, not very good. Although the color errors all seem to be in saturation only, the vectors all point towards the white point, marked as an open circle.

Fortunately, the negative-going responses can be emulated in the camera by using an optimized linear matrix. This does far more than just change saturation; it corrects hue and lightness errors as well, sharing the errors within practical limits.

HDTV cameras usually offer several matrices. ITU.Rec.709

The negative-going responses can be emulated in the camera by using an optimized linear matrix.

(ITU709 with Sony, SMPTE274 with Panasonic) is always the best choice because it was optimized for HDTV primaries. The matrix does not do a perfect job — that isn't possible — but it can reduce errors to an acceptable minimum. (See Figure 4.)

The chromaticity diagram in Figure 5 on page 112 shows that all the error vectors are shorter now but that some hue errors have been introduced as part of the trade-off in reducing overall errors.

Many camera users may be familiar with the effects that the matrix can have. Often it is adjusted for effect, but this will always make the color rendition of the camera less accurate.

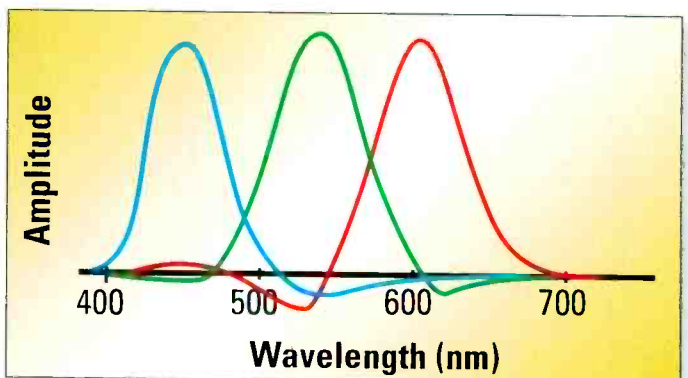
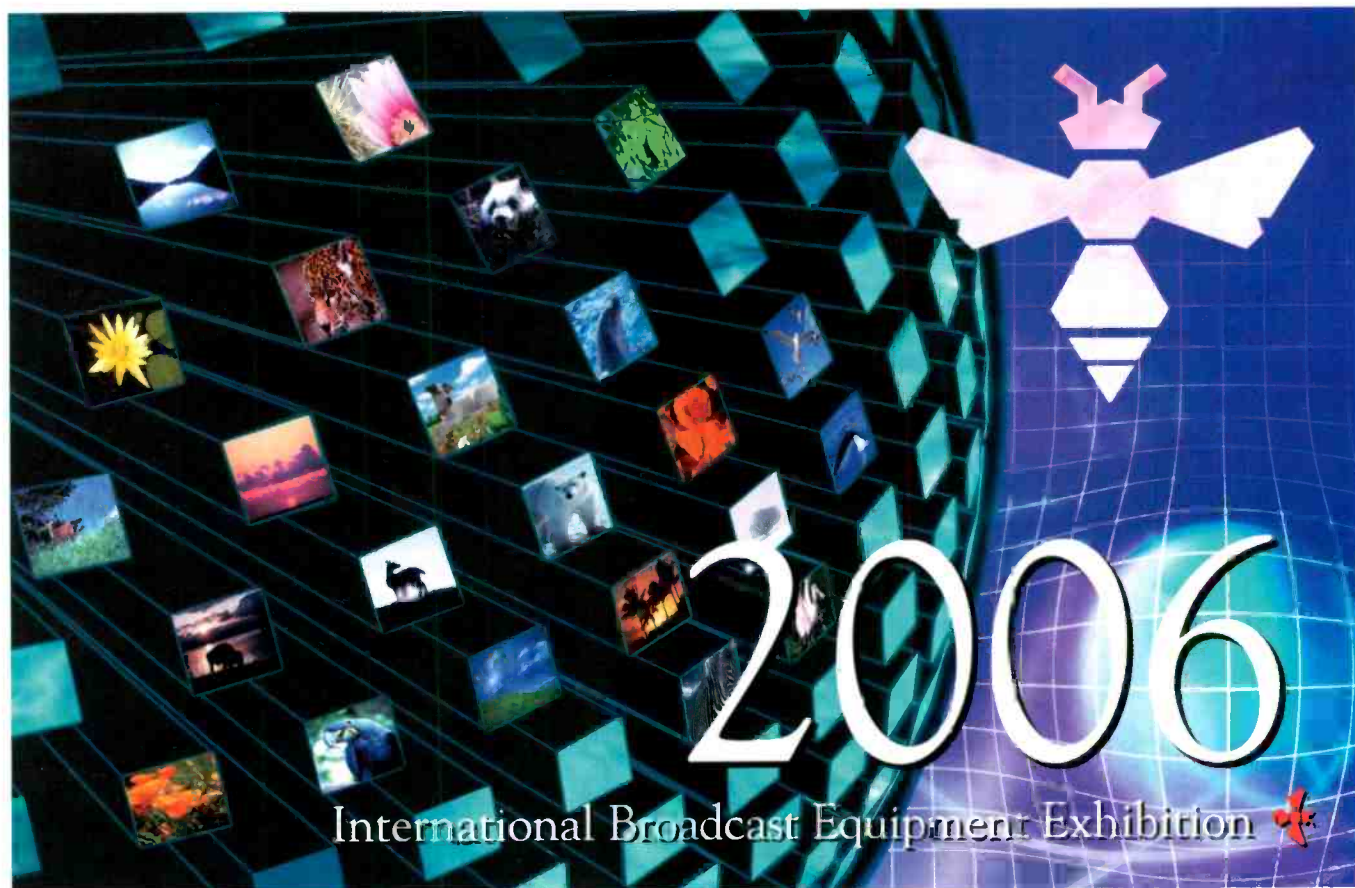


Figure 4. ITU.Rec.709 reduces errors to an acceptable minimum.

Inter BEE 2006

International Broadcast Equipment Exhibition 2006

November 15-17, 2006 Makuhari Messe, Japan



Making New Waves in Broadcasting

What shapes will broadcasting and communications take in the future? Professionals in broadcast, video, and audio technologies will encounter the latest perspectives at this year's International Broadcast Equipment Exhibition (Inter BEE).

One of the signal events of the year, Inter BEE 2006 promises the largest response in our 41-year history, with more than 700 exhibitors and 33,000 industry members participating from around the world. Symposiums and seminars by prominent producers, software and hardware developers, and production and communications/network engineers, as well as opportunities for marketing and networking make this an essential forum for new ideas and technologies such as digital terrestrial broadcasting.

Join Inter BEE 2006 to experience the new waves in broadcasting. See where you fit in the changing shape of broadcasting. Bring your message and image to the world. Position yourself for the arrival of new opportunities and inspiring possibilities.

For more information on Inter BEE 2006, contact:

Japan Electronics Show Association

Sumitomo Shibadaimon Bldg. 2 Gokan, 1-12-16, Shibadaimon, Minato-ku, Tokyo 105-0012, Japan
FAX: +81-3-5402-7605 E-mail: bee.info@jesa.or.jp URL: <http://bee.jesa.or.jp/>



Exhibition Categories

- Audio Equipment
- Cameras and Related Equipment
- Recording Equipment
- Editing and Production Equipment
- Electronic Displays
- System Conversion Equipment
- Output Systems
- Relay Systems
- Transmission Systems
- Lighting Equipment
- Measuring Equipment
- Transmission Cables
- Electric Power Units
- HDTV Systems
- Satellite Broadcasting Systems
- Virtual Systems
- CG Production Systems
- DVD Systems
- Multimedia Systems
- Software
- IT/Streaming Related
- Multiplex Broadcasting Systems
- Others

Exhibition Application Deadline

Monday, May 8, 2006

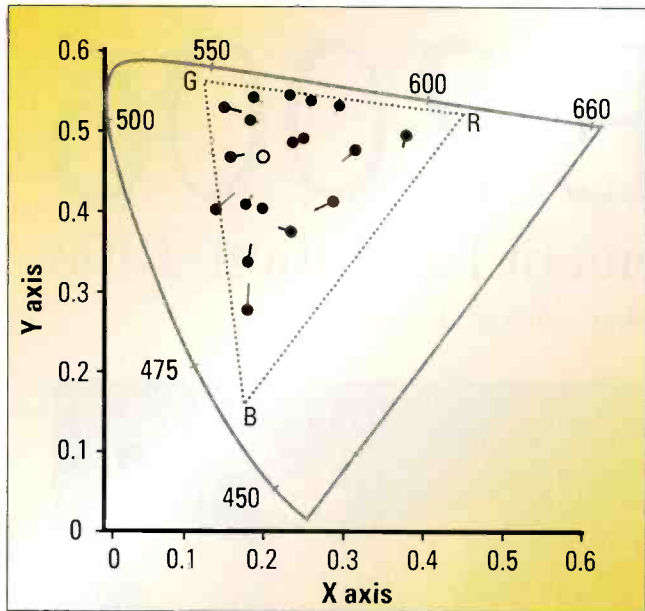


Figure 5. This chromaticity diagram shows that while all the error vectors are now shorter, some hue errors have been introduced.

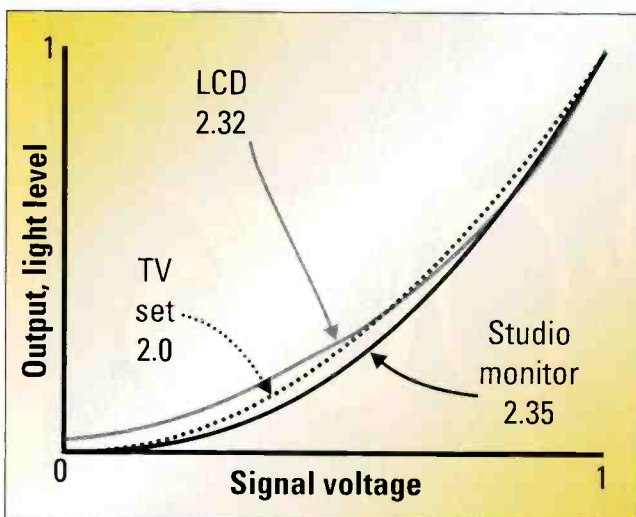


Figure 6. Comparison of gamma for a studio monitor, LCD and TV set

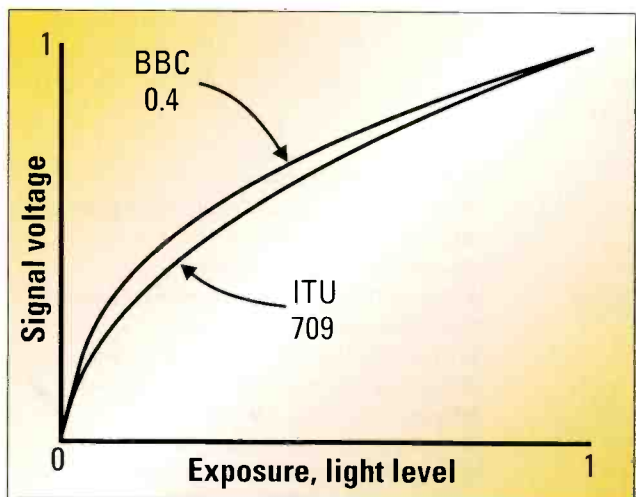


Figure 7. The two best curves for color performance are the ITU.709 curve and the BBC 0.4 curve.

The second element to consider is the camera's gamma transfer characteristics. Strictly speaking, *gamma* refers only to the display where it describes the relationship between applied signal voltage and light output. For the normal cathode ray tube in a TV set, this is a power law:

$$L = kV^\gamma$$

In studio monitors, the value for gamma (γ) is usually around 2.35, but consumer displays generally have a lower value closer to two for economic reasons. LCD and plasma displays are a different matter, but they should emulate this property of the CRT if

In order to get an overall linear performance, the camera must apply a correction for display gamma.

they are to be acceptable as television displays. (See Figure 6.)

In order to get an overall linear performance, the camera must apply a correction for display gamma, and so it has a *gamma-corrector*. It is this function in the camera that has the greatest effect on color performance. Again, HDTV cameras offer several curves to choose from, but the two best curves for color performance are the ITU.709 curve (#5 in HDW900, #3 in 750/730/730S, Video Rec with Panasonic) and the BBC 0.4 curve (#6 in HDW900, #4 in 750/730/730S). (See Figure 7.)

In practice, neither curve fully corrects for the display; a power law of $1/2.35$, or about 0.43, has infinite slope near black and would be unusable in a camera because it would grossly amplify electronic noise. The standard curves have a maximum slope near black of 4.5 and five, which is good enough for most purposes.

The chromaticity diagrams in Figure 8 illustrate how important this is. They show the color performance of an ideal camera (one having perfect color-matching functions) feeding a monitor with a gamma of 2.35 when trying to reproduce the colors of a

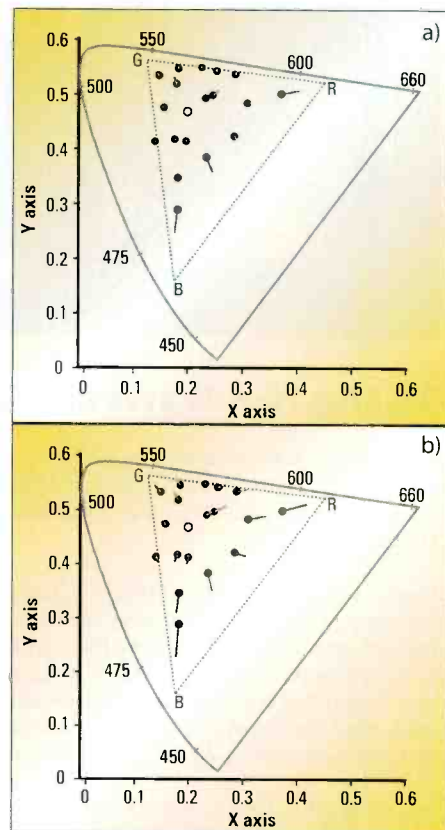


Figure 8. The BBC 0.4 curve (a) produces less color errors than the ITU.709 curve (b). This is mostly because the slope near black is 5X rather than 4.5X in the 709 curve.

The shape of things to come...

ELIPZ™



anton bauer

Visit us at NAB Booth #C5119A

There should always be choices. It makes it easier to recognize the best.™

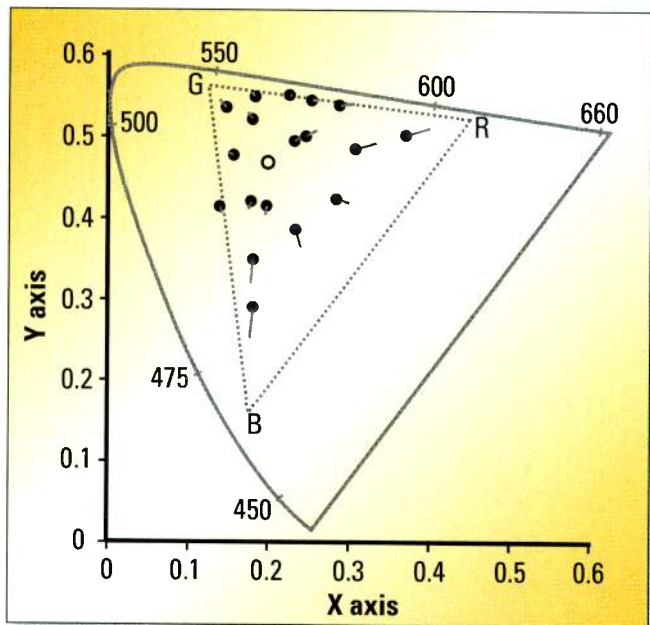


Figure 9. This figure illustrates an ITU.709 gamma curve with black stretch.

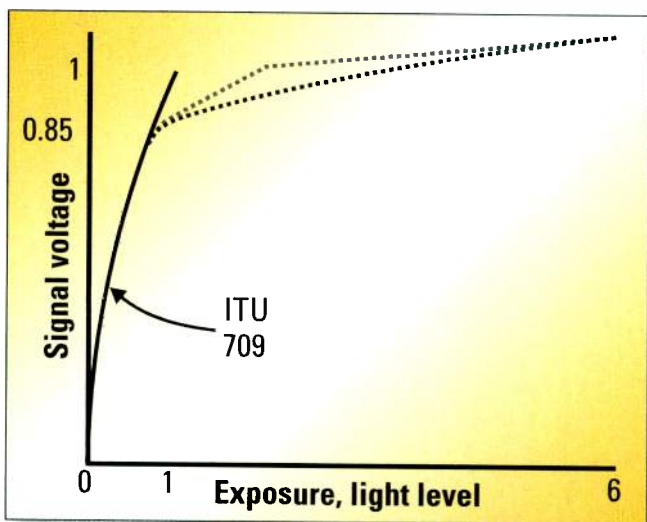


Figure 10. Shown here is the curve that the Panasonic Varicam and Sony HD cameras supply.

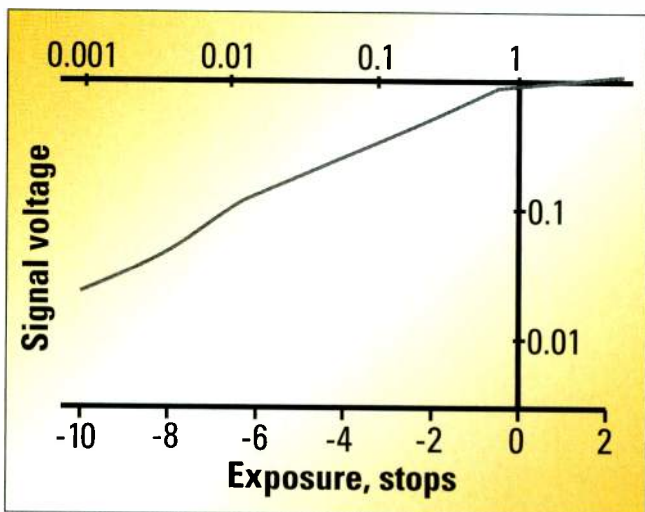


Figure 11. Much HDTV drama is shot using a curve like this.

GretagMacbeth chart.

Clearly, the BBC curve produces different color errors, lesser overall. This is mostly because the slope near black is 5X rather than 4.5X as in the ITU.709 curve.

Contrast handling

The standard curves can comfortably cope with a contrast range of about 7.5 stops (180:1), but real scenes contain far more than that. The challenge is to capture more scenic contrast without compromising color fidelity. Top-end cameras have two helpful features:

- *Black stretch.* This expands contrast handling near black by increasing the slope of the curve a little. Typically, the slope can be increased up to about eight times, which effectively adds a stop of contrast handling and improves the accuracy of color reproduction. Trying to do more will make the picture noisy, but that might be acceptable, depending on the program genre. Figure 9 modifies an ITU.709 curve, raising the slope to eight times; clearly the color errors are significantly smaller for the saturated colors (those furthest from white).
- *Knee.* This is a far more powerful tool. It expands contrast handling near white without affecting darker colors. Camera sen-

Standard curves can comfortably cope with a range of about 7.5 stops, but real scenes require more than that.

sors don't clip at peak white; they can often cope with much more than that. HDTV cameras can easily cope with 600 percent (where 100 percent is normal peak white level) and more in some cameras. Normally, this is an overload condition, prevented by clipping, but it is possible to bend the gamma-corrector curve to capture this range.

A *knee point* is the point below where normality rules but above where the curve is compressed in such a way that it can capture the roughly 600 percent of contrast range that the sensors deliver. This means that highlights such as clouds, speculars and practicals can be included without clipping. This doesn't necessarily improve the color handling, but it grossly increases the believability of the pictures. The Panasonic VariCam and later Sony HD cameras do this very well, mimicking film performance in many ways. Figure 10 shows the sort of curve that these cameras can supply. Sometimes there are two knees. The less sharp the knee, the better the overall color rendition.

Interestingly, if these curves are plotted logarithmically, they look rather like the famous "S" curves so admired in film stocks. Not surprisingly, much HDTV drama is shot using a curve like this. (See Figure 11.) This is when the DoP wants a specific film look, such as capturing up to 12 stops of contrast rather than the seven of a normal camera.

BE

Alan Roberts consults on HDTV, cameras and color science.

**HD
DIGITAL**

CHECK IT OUT



NAB 2006
THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

**VISIT US AT
SU4164**

HFO Camera Cable Checker

Compact and easy to use

Measures optic loss

Verifies electrical continuity

Features Canare HF connector design

Backlit LCD display for easy reading

STAR 2005
TV TECHNOLOGY
Superior Technology Award Recipient

Government Video **SALUTE**
2005

TELEVISION BROADCAST
TOP INNOVATION AWARD 2005

Visit us on the web: www.canare.com

Check out all our New Products at NAB '06

- South Hall **SU4164**, adjacent to Miranda
- **New** Mid-size Video Jacks
- **Low Profile** SMPTE FO Cable
- **Expanded** Optical Links Line
- **Exclusive** SFF Optical Transceiver
- **Low-cost** HD BNC Connectors

California: 531 5th Street, Unit A San Fernando, CA 91340
Tel: 818.365.2446 • Fax: 818.365.0479

New York: 60 E. 42nd Street, Suite 2306 NY, NY 10165
Tel: 212.682.9661 • Fax: 212.682.9480

Affordable, compact, Simple and Smart Solutions

CANARE www.canare.com

NAB

PRODUCT HIGHLIGHTS

THE TREASURES AT NAB2006!!

If the March issue wasn't big enough for you, how about this 494-page behemoth April issue! In addition to the more than 300 new products announced in the March issue, we've totally outdone ourselves with the April issue.

Over the next 80 pages, you will find more than 400 new products! This is the most any magazine has ever highlighted for an NAB show.

Whatever you need, whatever you want (well almost whatever you want) is listed within in this special new product section. Transmitters, editing equipment, master control switchers, IPTV routers, cameras or audio products — it's all here.

So grab a cool beverage, find a comfortable chair, and read on. And we'll see you on the show floor.

You expect more from your channel branding.

WE KNOW.



With optional VxScaler
HD/SD conversion
module

VertigoXG

Channel branding has never been more critical to your broadcast ratings. You need a flexible, powerful branding engine that delivers everything your GM demands: automated promos and snipes, headline crawls, weather and stock tickers, EAS, Amber Alerts, sponsor logos, school closings... But your current channel branding engine isn't up to the task. Take the VertigoXG challenge and change what you expect from a branding engine.

Key Features	Your System	Vertigo XG	Vertigo XG
Video Formats	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SDI or HD/SDI inputs with A/B switching in a single or dual channel configuration
Format Conversion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	HD/SD cross conversion with VxScaler module
Audio	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AES - 16 embedded and 8 discrete stereo channels
Graphics Layers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unlimited layers for multiple animations, tickers, crawls, and DVEs
Clip & Graphic Formats	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Support for MOV + alpha, AVI + alpha, WMV, MPEG, DV, DivX, plus over 150 image file formats
Video Bypass	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Auto-detect bypass on hardware, power, or software failure
Station Integration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Integration with MOS newsrooms, station automation, and traffic with full as-run logging
Data Support	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Drag & Drop data linking from databases, spreadsheets, web & live data feeds
Reliability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Up to 1 TB internal RAID with redundant power, networking & fans
Future	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SD-HD field upgradeable

VERTIGO X MEDIA
we know graphics

NAB2006
THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

South Hall, Lower Level Booth 4726

info@vertigoxmedia.com

www.vertigoxmedia.com

Tel: 1.514.397.0955

VertigoXmed

X

GFX Engines



Content Editing



Real-Time Data Management



Playout Control



Authoring



Asset Management



Work Order Management



AUDIO PATCH BAY ADC TELECOM LONGFRAME

A long frame version of the company's Pro Patch Programmable audio patch bay; features a high-density 2 x 32 configuration without having to use special patch cords; a standard density 2 x 24 version is also available; features fully WECO-compliant springs with gold crossbars and self-cleaning action; the seven-position dual in-line package switch allows the user to change circuit normals and grounds without Berg straps or jumpers.

800-366-3891; www.adc.com

BOOTH: C6526



AUDIO TEST SYSTEM Prism Sound dScope

New software includes the Acoustics 1 package, which offers transducer and room test support with dB SPL units, measurement mic sensitivity and frequency-response calibration, impulse response by MLS and swept-sine method (also useful for electronic/DSP EUTs), dynamic LS impedance measurement by use of an external ballast resistor in series with EUT and analogue I/O; will run optionally at 48kHz, 96kHz and 192kHz.

973-983-9577; www.prismsound.com

BOOTHS: N2524, N1327

AUTOMATED MONITORING SYSTEM SNELL & WILCOX HYPERION

Provides comprehensive content monitoring for multiple channels; operates along intuitive processes that mimic the eyes and ears of a human, effectively forming an educated opinion as to whether content — video, audio, or metadata — is meeting the quality standards of viewers as well as the legal and contractual requirements necessary for revenue generation.

212-481-2416; www.snellwilcox.com

BOOTH: SU156

HD AUDIO EMBEDDER/ DE-EMBEDDER NETWORK ELECTRONICS AV-HD-XMUX

Offers multiformat SD/HD support; features both optical inputs and outputs as options; embeds four AES streams with selectable sample rate conversion, allowing sampling rates from 8kHz to 216kHz; offers embedding of one RS-422 serial interface with up to 115,200Kb/s baudrate; features audio processing functions with group swap, channel shuffle, L/R inversion and variable delay.

800-420-5909; www.network-electronics.com

BOOTH: SU199



AUDIO MONITORING UNIT TSL AMU2 8HD

Offers eight channels of HD/SD embedded audio; Dolby E and Dolby Digital signals can be accurately monitored in a wide variety of system applications.

+44 1628 676 200; www.tsl.co.uk

BOOTH: SU1433

CEILING DIFFUSER Acoustics First Model C Art Diffusor

A binary array, 2-D, five-octave diffusor; is wall-mounted; can be easily installed using construction adhesive; the C-CM model is designed to fit into your ceiling exactly the same as a regular ceiling panel; the C-DL model installs the same as the CM, but allows space within the diffusor to provide for lighting or sprinklers.

804-342-2900; www.acousticsfirst.com

BOOTH: 2924

AUDIO METER DK Technologies MSD600M

MSD audio meters; connects directly to a PC to transfer of data for logging signal parameters, opening new applications for automatic monitoring of audio signal levels in playout areas and transmission links and by acceptance testing of program material; features a new extended loudness measurement, which shows the loudness graphical as a function of time.

+45 44 85 02 55; www.dk-technologies.net

BOOTH: C2044



DIGITAL AUDIO CONSOLE CALREC AUDIO ALPHA SYSTEM PLUS

Designed for live production and on-air use; assignable control minimizes screen use, enabling direct access to the majority of console functions; features up to 96 faders, 226 equivalent channels, comprehensive surround panning and monitoring with an optional motorized joystick.

+44 142 284 2159; www.calrec.com

BOOTH: N917



MULTI-APPLICATION CONTROL SURFACE EUPHONIX MC INTELLIGENT APPLICATION CONTROLLER

Serves as a standalone product as well as the centerpiece of the System 5-MC console surface; has four levels of control; includes a keyboard and trackball and 56 LCD Smart-Switches that can be programmed to send out keystroke commands; features HUI and Mackie Control protocol and EuCon.

650-855-0400; www.euphonix.com

BOOTH: N1002



MIX-MINUS GENERATOR Soniflex RB-MM1

The unit generates a suitable mix-minus to send to a telephone hybrid or codec; takes stereo output from a mixer, together with a post fader output from the mono telephone fader on the mixer; removes caller audio from the mixer signal and send this to the telephone hybrid; has analog inputs and outputs, output level control, two null cancellation control pots and a switch for a bandpass filter to condition the signal for the telephone hybrid.

+44 1933 650700; www.soniflex.co.uk

BOOTH: N4507



DIGITAL TV AUDIO PROCESSOR Linear Acoustic AEROMAX-TV

A dynamics unit for two-channel main, SAP audio with front-panel display and controls, and Ethernet remote control; four-channel unit can be configured as 2+2 or 2+1+1 (stereo plus two mono channels); CrowdControl Dialog Protection Processing is provided for the main program audio.

717-735-3611; www.linearacoustic.com

BOOTHS: C2507B, C2507D



CONSOLE Lawo mc²66

Broadcast and production console has a lightweight construction, low-power consumption and compact dimensions; in combination with the routing matrix integrated in the core, it offers maximum flexibility for I/O interfaces and DSP resources; has a matrix capacity of 8192 mono inputs and outputs as well as up to 512 DSP channels; includes parallel IT track summing, integrated monitoring and console split with doubled PFL/AFL summing and isolated bank/layer switching.

+49 7222 1002 0; www.lawo.de

BOOTH: N3808

DIGITAL AUDIO WORKSTATION Merging Technologies Pyramix version 5.0

A DAW that offers instant and unlimited fades and X-fades, across 128 tracks; major advances to the systems' firmware has expanded its capability from 64 I/O to 128 I/O; existing users can install the new V5.0 software; features a new interface that can be fully customized to the operator's specific needs.

+44 1606 892788; www.merging.com

BOOTH: SL3755

WIRELESS SPEAKER AZDEN APS25B

Powered by a rechargeable battery that can operate the speaker for six to eight hours between recharges; can also be powered via AC; operates while being recharged; includes mic and line-level inputs, as well as user-installable wireless microphone receiver modules for UHF, VHF and infrared; inputs have individual volume controls; a line output is available for multi-speaker operation; includes a mounting bracket.

516-328-7500; www.azdencorp.com

BOOTH: N4218

AUDIO NETWORKING SYSTEM CALREC AUDIO HYDRA SYSTEM PLUS

Provides a powerful network for sharing I/O resources and control data between Calrec digital mixing consoles; uses a scalable, flexible architecture tailored to the requirements of each installation; features remote I/O units with up to 96 inputs or output (analog or digital) that may be connected onto the same network, providing remotely located sources and destinations that can be used by any or all mixing consoles.

+44 142 284 2159; www.calrec.com

BOOTH: N917

AUDIO MONITORING UNIT TSL AMU HD

Includes a built-in monitoring quality aspect ratio converter; HD video signals, at any standard resolution, can be downconverted and then displayed on a 4:3 SD or composite monitor.

+44 1628 676 200; www.tsl.co.uk

BOOTH: SU1433

ROUTER UTAH SCIENTIFIC UTAH-400

A router with the ability to expand seamlessly from 64 x 64 to 1152 x 1152 and more; includes HD and SD digital video switchers and a digital audio switcher; all SD switchers are fully upgradeable to HD operation by means of a simple board exchange.

801-575-8801; www.utahscientific.com

BOOTH: C4507

MULTICHANNEL AUDIO ENCODER/DECODER DOLBY E DP571/ DP572

Encodes up to eight channels of digital audio and metadata for use in DTV program production and broadcast distribution; decodes Dolby E bit streams for use in DTV program production and broadcast distribution infrastructure.

415-558-0200; www.dolby.com

BOOTH: SU2923

AUTOMATED VIDEO INTERFACE Crispin Digital Transfer Agent (DTA)

An intuitive, fully automated interface that seamlessly moves programming from third-party content delivery systems to a video server in preparation for play-to-air; eliminates the need for manual tasks in the program acquisition process; no dubbing or segmenting of programs is required.

919-845-7744; www.crispincorp.com

BOOTH: SU608



DIGITAL AUDIO CONSOLE WHEATSTONE D-10

A digital audio console based on the feature set and dimensions of Wheatstone's D-9; offers an array of operator enhancements including programmable individual channel delay adjustments.

252-638-7000; www.wheatstone.com

BOOTH: N1815



MIC AMP MODULE Solid State Logic Xlogic SuperAnalogue Mic Amp

Designed for the X-Rack system; all circuits of the mic amp are directly copied from the XL 9000 K Series console and deliver the same audio performance and functionality; features

an electronically balanced, ultra-high-bandwidth mic input with variable gain from -5dB to +75dB and variable impedance to allow matching of input to different output stages; includes instrument and line inputs, as well as variable high (18dB/octave) and low (12dB/octave) pass filters with individual I/O switches.

212-315-1111; www.solid-state-logic.com

BOOTH: N822

DIGITAL ARCHIVE AND CATALOG SYSTEM

Crispin NewsCat

Enables the news department to store, index and later locate and quickly retrieve news stories aired from a video server; organizes and manages the content so operators can find what they need on the fly; digitally archives stories after airing and provides a method to easily locate material at a later date; archived video clips are linked to a database containing all script information from the newsroom computer system.

919-845-7744; www.crispincorp.com

BOOTH: SU608

VOD CONTENT CREATION SOLUTION

Anystream Agility VOD

A cable VOD content creation tool that features Nielsen audience measurement technology integration; provides automated schedule-based advertising and promotional spot rotation within cable VOD content; features pre-built configurations that define and enforce package requirements for all major U.S. cable systems.

202-661-4665; www.anystream.com

BOOTH: SL2944

AUDIO ROUTER

NTP Technology NTP625

A multinorm audio routing matrix; can be installed either as a master control room matrix system or associated to user surfaces and/or control panels for use in studios.

+45 44 53 11 88; www.ntp.dk

BOOTH: TBA

MEDIA MANAGEMENT

AVOCENT EMERGE SERIES

The EWMS1000 broadcasts high-quality, full-motion streaming video from virtually any source to multiple display devices up to 1000ft without wires; can be deployed in either a point-to-point (extension) or point-to-multi-point (broadcast) configuration; the EMS1000P and EMS1000 extend stereo audio and analog video from point to destination up to 500ft over Cat 5 cabling; the ECMS1000 allows PS/2 and USB keyboard, video and mouse peripherals to work from up to 1000ft from the server; the receiver can be mounted to a rack, desk or back of a monitor.

800-275-3500; www.av.avocent.com

BOOTH: SU4572

MONITORING SYSTEM

BARCO NETWORKED BROADCAST MONITORING SYSTEM

Allows facility-wide distribution of video sources, supported audio and associated metadata over a standard IP network; unlimited sources can be networked to an unlimited number and type of displays, with each display's graphical layout customized to accommodate each user's dedicated requirements.

678-512-6100; www.barco.com

BOOTH: SL3738

ANALOG AND DIGITAL

AUDIO TRUNKING

TELECAST FIBER SYSTEMS ADDER II BOOTHPAK

Successor to the Adder 162 and 322; is a single-box solution for larger point-to-point audio applications; can handle analog and digital AES audio while converting between them; features factory-configurable modules.

508-754-4858; www.telecast-fiber.com

BOOTH: SU4717



PATHFIRE INTERFACE

Digital Transaction Group Xe System

Provides a hands-off, automated ingest and playback process for Pathfire-delivered syndicated programs; with the Xe Pathfire interface, syndicated programs are automatically transferred to the station's play-to-air server; creates the program segments, barter spots and ads with accurate timing information using Pathfire's metadata; automates everything from ingest to payout.

512-837-3737; www.dtgtv.com

BOOTH: C11031



X-RACK MODULE Solid State Logic Xlogic Channel EQ

Adds additional SuperAnalogue processing from Solid State Logic's XL 9000 K Series console to the X-Rack package; features full parametric mid bands (gain, frequency and Q); high and low bands are switchable

between shelving and fixed Q bell curves; mid bands are switchable between the SSL E (bandwidth constant with gain) and G Series (bandwidth increases as gain is reduces) characteristics; allows up to eight modules in a 4RU, 19in, rack-mount enclosure with total recall capability.

212-315-1111; www.solid-state-logic.com

BOOTH: N822



TBC CONTROL SYSTEMS ENSEMBLE DESIGNS TC400D AND CP10

Controls video, chroma, setup, hue and timing of digital and analog VTRs, TBCs and frame syncs; offers built-in networkability; any size system can be achieved with control of any VTR from any control panel; TC400D provides control of the proc-amp functions of four VTR TBCs; features hands-on control of levels and timing.

530-478-1830; www.ensembledesigns.com

BOOTH: SU2997



MASTER CONTROL AND BRANDING HARRIS ICON SUITE

The SD/HD master control and branding products include IconMaster, IconStation and IconLogo; based on the Leitch NEO modular platform, IconMaster combines critical master control functions with multilayer integrated branding and can be used with other advanced applications to create a plug-and-play system all in the same frame; IconStation combines logo insertion with multiple real-time data-fed crawls and a squeezeback DVE; NEO-based IconLogo offers modular branding for such applications as time and temperature, still and animations, audio clip playback and text crawls for breaking news.

513-459-3400; www.harris.com

BOOTH: SU2929

OFF-AIR LOGGING AND MONITORING Transmedia Dynamics MediaTraX

The off-air compliance logging and media monitoring system is designed for the off-air recording of multiple channels; allows broadcasters and media monitoring companies and departments to do away with tape-based methods; can be delivered in either Windows Media 9 format or MPEG-1, both in time-code frame-accurate streams; uses industry standard servers and commodity disks.

+44 1296 745080; www.tmd.tv

BOOTH: SU186H

PLAYOUT SYSTEMS ON-AIR Systems playKast

Part of the K Series of channelKast products; offers a simple way of integrating systems together; features simple integration capabilities into traffic, billing and archive systems.

+44 20 7663 3663; www.on-air-systems.com

BOOTH: SL5158



NEWSROOM COMPUTER SYSTEM OCTOPUS Newsroom OCTOPUS5

All incoming information, such as wires, Web feeds, media, faxes and e-mails, are organized and ready to be used as ideas for last-second news coverage; offers a global search engine, keyboard shortcuts for frequently used actions and saved screen layout recall; features a new service for transferring stories and whole rundowns, allowing channels to share their assets between offices around the world.

+420 221 181 511; www.octopus-news.com

BOOTH: C5416

MONITORING AND LOGGING SYSTEM Volicon Observer Uno

Part of Volicon's Observer family of broadcast monitoring and logging systems; designed specifically for single-channel environments; offers monitoring, storage, search and retrieval features at an entry-level price.

781-221-7400; www.volicon.com

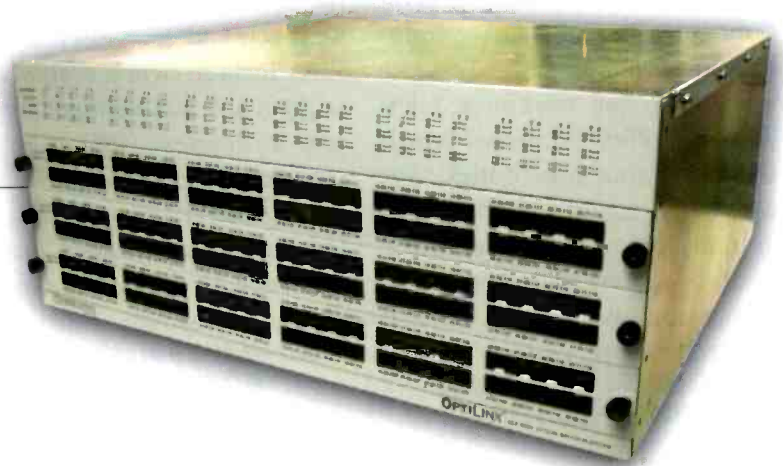
BOOTH: C2316

It's time to switch.

OptiLinx™ OLX-3000 Optical Switching Made Easy



LinxView™
Remote Management Suite



Opticomm's OptiLinx™ OLX-3000 is a versatile, multi-purpose fiber optic switch that provides high-speed switching between ports. The OLX Series is capable of switching signals up to 4.25 Gb/s with each of its 144 ports, all in a compact 4RU chassis, using swappable SFP modules.

The OLX-3000 is ideal for applications involving broadcast media conversion, multicasting one signal to many displays, or switching any video, audio or data input to any display output. Opticomm's LinxView™ software enables you to remotely perform these functions at the touch of a button.



800.867.8426 | www.opticomm.com

Visit us at NAB | Booth SU4183
April 24-27 | Las Vegas, NV

ASSET AND WORKFLOW MANAGEMENT **OBOR DIGITAL ZEUS**

For physical asset management, tracks equipment using such identifiers as name, description, location, type, cost, serial and model number, manufacturer, service history, current status and user-defined fields; for technical workflow management, provides ticket generation and management, automatic routine ticket generation, interdepartmental communications, shift notes and service scheduling; for workforce management, offers personnel scheduling, assignment of duties, time card management and safety integration; for overall management, offers budgeting tools, key performance indicators, safety reports and training overviews.

407-352-6501; www.obordigital.com

BOOTH: C11012



AUTOMATION **SUNDANCE DIGITAL FASTBREAK NXT XPRESS**

The automation solution is ideal for operator-supervised program playback and spot insertion; features include switch events, clock triggers and automatic or manual Join-in-Progress (JIP) cues; base configuration provides two Sundance workstations: Media Prep for ingest and content management and Air Control to supervise the actual layout.

972-444-8442; www.sundancedigital.com

BOOTH: SU1425



BROADCAST MONITORING AND LOGGING SYSTEM **Volicon Observer 2.0**

New features include closed-caption display, Exportview for scheduled archiving, support for Front Porch Digital archiving and Sundance automation solutions, and multi-rate streaming for simultaneous coding of channels running at multiple bit rates; provides multiple channels of content on demand, live or archived, from any desktop; allows users to search, retrieve, view, analyze, annotate, share and export video from the desktop.

781-221-7400; www.volicon.com

BOOTH: C2316



MANAGEMENT SOLUTION **SinterMedia OnAir**

Manages airtime sales, traffic operations, content acquisition, broadcast rights, long-term and detailed schedule planning, and promotion planning; features real-time, interactive report and graphical analysis tool for revenue and inventory management with analysis at the individual channel level or consolidated across multiple channels in the organization.

866-746-8321; www.sintecmedia.com

BOOTH: SL4979



AUDIO REMOTE CONTROL SYSTEM **Merging Technologies Isis**

System consists of a comprehensive edit controller and a fader controller has large, dedicated machine control keys, high-resolution jog, shuttle and scrub functionality and advanced jog-wheel editing capabilities; a range of user-assignable keys, positioned around a large LCD screen, enables multi-functional key operation, allowing the user to custom define the key labeling.

+44 1606 892788; www.merging.com

BOOTH: SL3755



ENCODER/LOGGER **VideoBank VB Live**

System combines live video capture with data tagging in one interface; has a touch screen, video capture automation and user-configurable data models; archives live events that are instantly searchable and viewable, even while the encoding is still in progress; features instant replay, jog and scroll, and transcoding.

201-767-2002; www.videobankdigital.com

BOOTH: SL606

ADVERTISERS SHOWN IN GOLD

APRIL 2006



CONTENT MANAGEMENT CONTROL SYSTEM **Wegener MediaPlan**

Allows operators digital asset management in an end-to-end environment, supporting ingest of analog and digital assets and management of archived digital assets as well as remote tracking, updating or deleting of individual assets on the company's iPump media servers, targeting the company's receiver groups, regions or individual sites.

770-814-4000; www.wegener.com

BOOTH: SU1376



PRODUCTION CONTROL SYSTEM **Ross Video OverDrive version 4.0**

Production control system has control interfaces for Avid Deko and Vizrt graphic systems; features an enhanced RundownControl GUI and a MOS interface to Autocue's QNews NCRS; hot-standby backup operation is now included with redundant server packages.

613-652-4886; www.rossvideo.com

BOOTH: SU1356

UMD AUTHORIZING SUITE **SONY MEDIA SOFTWARE UMD COMPOSER 2**

Provides film studios and production houses with the tools to format video-based UMD discs; new features include the addition of a new standalone multiplexer, which provides concurrent multi-project functionality by allowing multiplexing and encoding procedures to operate on separate workstations.

800-577-6642; www.sony.com/mediasoftware

BOOTHS: CW10300, SU107



INTEGRATED ENCODER **Axon Digital Design DDE51**

Hot-swappable modular Dolby Digital encoder contains 18 encoders in a 4RU enclosure; features dual redundant supply.

+31 13 511 6666; www.axon.tv

BOOTH: SU1414A



NETWORK MANAGEMENT SOFTWARE **Controlware Communications Systems NetSwitch and EasySwitch**

Part of the OpenBroadcast software suite; modular software platform enables broadcasters to switch video and data connections via telecommunication network; networks can be based on different technologies, such as PDH, SDH, ATM, DTM or IP; allows users to connect and disconnect video and data connections manually or based on a schedule.

732-919-0400; www.cware.com

BOOTH: SU1653

HD WIRELESS CAMERA SYSTEM **Aerial Video Systems (AVS) Link HD wireless**

An HD wireless camera system that delivers wireless images; has a low delay (42ms total system latency); is genlockable; can be used with AVS' proprietary fiber-optic antenna system; features a simple and easy set up.

818-954-8842; www.aerialvideo.com

BOOTH: TBA

SHARED MEDIA SOLUTION **Bright Systems BrightDrive**

Offers sharing capabilities across Ethernet and Fibre Channel networks; allows concurrent users simultaneous access to files across multiple platforms in any format; is scalable to meet the requirements of each application and can be integrated with existing infrastructures.

888-477-3700; www.4bright.com

BOOTH: SL3800



NEWSROOM INTEGRATION SYSTEM Masstech Group MasStore News Interface

Integrates a newsroom automation system with the media life-cycle management infrastructure; searches and retrieves material from the archive directly from within the newsroom's automation system; backs up content and projects it to any standard tape library system; allows access to material directly from within the news environment.

905-886-1833; www.masstech.com

BOOTH: SU1642



VIDEO SERVER JustEdit vsnmatic

Multiformat playout and video server has the capacity to reproduce videos in the same playlist, regardless of the compression format; can also control external devices, such as switchers, VTRs and GPI; includes automation software; can create remote playlists and rundowns.

+34 902 35 37 39; www.vsn-tv.com

BOOTH: SL1240

HDTV WIRELESS SOLUTION Lightpointe FlightStrata

A high-bandwidth, easily deployable wireless solution for meeting HDTV requirements, including the delivery of real-time, remote HDTV-quality broadcast video and audio feeds; supports bandwidth-intensive HDTV point-to-point wireless communications while surpassing fiber-optic cable and low-speed radio frequency connectivity in terms of capacity, ease of use, portability and cost.

858-643-5200; www.lightpointe.com

BOOTH: TBA



CONSOLE PLATFORM CALREC AUDIO SIGMA SYSTEM PLUS

Based on the highly scalable Alpha operating platform; provides high levels of redundancy and a range of cost-effective operating packages; offers up to 64 faders, 120 equivalent channels, comprehensive surround panning and monitoring with optional motorized joystick and up to 12 auxiliary outputs; all channels have four-band equalization, two-band filters, compressor and expander/gate.

+44 142 284 2159; www.calrec.com

BOOTH: N917



PLAYLIST PLAYOUT AND ON-AIR AUTOMATION BACKUP SYSTEM

DNF Controls As-Run Log option for the 3040P/DLO

Option allows for logging of playout time and duration as well as playout errors; can be uploaded from the 3040P/DLO to the user's computer via a Windows-based download utility; provides a versatile and flexible means to download a playlist, edit it and get it on the air fast.

818-898-3380; www.dnfcontrols.com

BOOTH: SU2955



PRODUCTION SUITE VideoBank VB Lite

Production system is available in several configurations and can handle remote-collection management; ranges from still-image management through DV FireWire capture; field collection is automated through the transfer of elements from traditional digital capture equipment via smart card, USB and FireWire capture.

201-767-2002; www.videobankdigital.com

BOOTH: SL606

Affordable 4 CHANNEL HD VIDEO SERVER

MCS

MULTI-CHANNEL SERVER

Broadcast Time Delay
Commercial Insertion
Live to Air Playback
Sports Slow-Mo
VTR Replacement



MCS-HD Multi-Channel HD Video Server
2 record & 2 play independent video channels

System Compatibility

- HD-SDI, SDI input and output
- P2, VDCP, Odetics and GPI control
- Compatible with leading automation systems
- Automated playback via our ListMaker software

Reliable and Upgradeable Design

- Lower cost 2 channel configuration available
- Dedicated video hardware platform
- External RAID5 storage
- Redundant power supply

Multi-Channel HD Video Servers start at \$30,900
Multi-Channel SD Video Servers start at \$9,900



Video Servers - HD MPEG2 Encoders and Decoders - SDI / DVI Converters - HD Video Test Generator
Doremi Labs, Inc. | tel. 818 562-11C1 | info@doremilabs.com | www.doremilabs.com

doremi

REAL-TIME 3-D GRAPHICS SOLUTION **Beehive Wasp 3-D**

Features multiple functionalities in a single software package, including real-time 3-D, chroma keying, virtual sets, channel branding, 3-D compositing and digital video effects; features Programmable Palette Technology, which allows designers to create infinite materials and textures by mixing and blending four texture types with each other in a variety of ways.

+91 120 430 8888; www.beesys.com

BOOTH: SL5355

PLAYOUT SYSTEM **OmniBus Systems K2 Inception**

An entry-level, one-to-six playout system; designed and delivered in partnership with Grass Valley; combines the benefits of the Grass Valley K2 server and other Grass Valley products with the OmniBus Colossus automation software.

704-319-2231; www.omnibus.tv

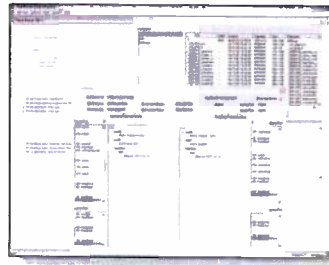
BOOTH: SU2983

FOUR-CHANNEL SERVER **Dayang VIPS 2000**

Four-channel server can be assigned to simultaneous input or output, or be deployed in dual-channel in/out mode; can perform ingest and playout of files in DV, MPEG-2I, MPEG-IBP and GXF formats in NTSC, PAL or ASI; VDCP and SNMP networking protocols are supported.

+44 1234 271 053; www.dayang.com

BOOTH: SU4209



GRAPHICS AUTOMATION **PIXEL POWER CONTROLCENTRE**

An open standards-based solution for browsing, searching, ingesting and synchronizing graphics content; offers enhanced performance and capabilities for graphics automation in MOS-compliant or iNews ControlAir newsrooms.

954-943-2026; www.pixelpower.com

BOOTH: SU4359

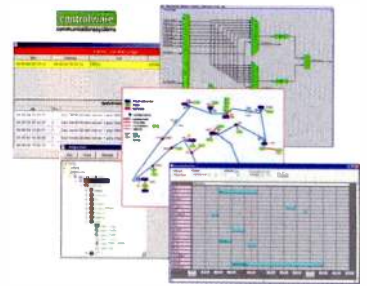


CONNECTORS **FISCHER CONNECTORS 1051 SERIES**

Precision self-locking connectors feature low contact resistance and enable a long life; waterproof and rugged design assures a reliable transmission between camera and control unit in studios or broadcast vehicles; have an endurance of 5000 mating cycles.

+41 21 800 95 95; www.fischerconnectors.com

BOOTH: SU5193



ASSET MANAGEMENT **Controlware OpenBroadcast**

The software suite offers management, monitoring, scheduling, switching and billing solutions for media networks; NetSwitch and EasySwitch network management software help move video and media between locations; enables broadcasters to switch video and data connections via a telecommunication network; the networks can be based on different technologies, such as PDH, SDH, ATM, DTM or IP.

732-919-0400; www.cware.com

BOOTH: SU1653

IDENTIFIER **eyeheight TB-12**

Multichannel source identifier is operated via a panel of 2 x 12 user-legenable pushbuttons; can be used with an eyeheight playout system or to control a third-party crosspoint matrix; channel names can be edited, saved and uploaded to an eyeheight MW-3E switcher module, enabling the system to recall and display the correct source identities whenever the panel acquires a different channel.

+44 1923 256 000; www.eyeheight.com

BOOTH: SU147



EDITING SERVER QUANTEL SQ

A complete server-based product available in SD, HD and resolution transparent versions; users can update from SD to HD by adding HD I/O cards to the existing unit; for maximum flexibility, resolution transparent I/Os add the ability to up-res or down-res any content stored in the sQ, in real time, as the story is being played out of the system.

703-448-3199; www.quantel.com
BOOTH: SL1544

WORKFLOW DESIGN TOOL Marquis Broadcast Operal version 3.0

New software will provide workflow modelling and graphics-based process tools, enabling users to more easily identify potential workflow bottlenecks; also supports additional industry-standard interfaces for seamless integration with business process management systems for use in larger broadcasting operations using form-driven process monitoring.

+44 118 984 4111; www.marquisbroadcast.com
BOOTH: C807, SU2959

CONTENT MANAGEMENT OmniBus Systems OPUS News and Sports Logging

Enables fast and intuitive logging of live and recorded events; includes capabilities for recalling, sorting and accessing content across multiple systems; features intuitive on-screen control of live and prerecorded feeds.

704-319-2231; www.omnibus.tv
BOOTH: SU2983



AUTOMATION SYSTEM Telestream Flip4Mac WMV Components 2.0

Allows Mac OS X users to play, import and export Windows Media video and audio files within native QuickTime-based media applications such as QuickTime Player, iMovie and Final Cut Pro; new features include first-time, full-playback of HD Windows Media content within QuickTime Player on Macs, expanded preset encoding profiles and the ability to save custom encoding profiles.

530-470-1300; www.telestream.net
BOOTH: SL2781



AUTOMATION Pebble Beach Neptune

An automation system for large multichannel systems with complex functional requirements, such as archive control, low-resolution media browsing and complex secondary events; there is no limit to the number of playlists, clients or devices; a full range of fault tolerant options are available.

+44 1932 333 790; www.pebbletv.com
BOOTH: SU244



MONITOR CIRCUIT VIDEO PATCHBAYS Switchcraft MVPM

Monitor circuit video patchbays that offer performance in high-density panels; a single row of isolated single jacks allows for the monitoring of signals without interrupting the signal path; panels are available in 1RU, 1.5RU and 2RU versions; all panels meet SMPTE 292 specifications.

773-792-2700; www.switchcraft.com
BOOTH: C9316

NEWS PRODUCTION SYSTEM **BITCENTRAL PRECIS**

Provides total integrated management of all video assets from acquisition to air; the all file-based workflow improves speed-to-air and video quality while reducing operating costs; the system is browser-based, making it fully scalable to as many individuals as required, regardless of where they're located; requires no changes to a station infrastructure; is designed with an easy and affordable HD upgrade path.

800-214-2828; www.bitcentral.com

BOOTH: SL2158

TEST AND MEASUREMENT SYSTEM **Hamlet VidScope-vx**

A test and measurement system running entirely in software; is supplied and run from a USB memory stick, instantly giving any Windows computer comprehensive waveform monitoring, vectorscope and color gamut error checking; versions are available for DV, HDV, SDI and HD-SDI; can be used to automatically process content that arrives as a file over IP rather than as baseband video.

+44 1494 729728; www.hamlet.co.uk

BOOTH: C9319

DIGITAL FILM SCANNER **Imagica Imager HSX**

Scans 35mm film to 4K/2K; includes a CMOS area sensor/camera and LED illumination light source; runs at 1fps for 4K and 3fps for 2K.

310-306-4180; www.imagica-la.com

BOOTH NUMBER: SL1826

CHANNEL-IN-A-BOX **VERTIGOXMEDIA XSTATION**

Provides everything needed to create, schedule, automate and air info-channels and DTV subchannels incorporating national, local and hyper-local content; controls long-form clips, promos, commercial spots, data tickers and crawls, sponsor logos and local weather and branding elements using fully automated playback.

514-397-0955; www.vertigoxmedia.com

BOOTH: SL4726

CAMERA TRANSMITTER **NUCOMM CAMPAC**

A miniature 2GHz COFDM wireless camera transmitter; designed to deliver full broadcast quality in a small, lightweight and rugged aluminum case that fits on the back of a portable video camera; transmitter mounts to professional cameras using a standard Anton Bauer Battery clip or Sony V-Clip.

908-852-3700; www.nucomm.com

BOOTH: C320

MEDIA ASSET MANAGEMENT SYSTEM **Pharos Communications Pharos Mediator Enterprise**

Integrates media asset management, browsing and workflow control; the tools necessary to complete each operation are presented in task-specific order on a Web-based GUI; based on a scalable J2EE enterprise-class server environment; performs automated ingest and transfer, automated transcoding and low-resolution previewing under Web browser control.

+44 118 950 2323; www.pharos-comms.com

BOOTH: UK PAVILION



CAMERA **ARRI ARRIFLEX D-20**

Film-style digital camera has an optical viewfinder and accepts 35 format lenses; features ARRI FlashMag 112, a solid state recording device that can be mounted on the D-20 for cable-free operation.

845-353-1400; www.arri.com

BOOTH: C6926

SYSTEMS CONTROLLER **UTAH SCIENTIFIC SC-4**

Controls any of the current or legacy Utah routing switchers; provides interface capability to many third-party control and switching systems; features a modular design and advanced software that allows it to easily adapt to any application; matrix switching is executed using the advanced UCP and SCP series control panels, the earlier CSP/4 series control panels, or a wide array of computer, remote, custom or networked control capabilities.

801-575-8801; www.utahscientific.com

BOOTH: C4507



Screen Service

february, 2006

Our **new MIAMI OFFICE** is now open

We couldn't be closer to you.

SCREEN SERVICE AMERICA LLC

6095 NW 167th Street, Suite D-10
Miami, FL 33015

Phone +1 (305) 826-2212

Fax +1 (305) 826-2290

USA Toll Free 1-888-522-0012

info@screenservice.net - www.screenservice.net



MICROWAVE LINKS

- QPSK, QAM, COFDM MODULATION
- FROM 1 to 24 GHz
- FIXED and MOBILE
- COFDM CAMERA RADIO LINK



TRANSPOSERS & GAP FILLERS

- DVB-H CITY-FILLER
- DUAL MODE with AUTOMATIC ANALOG/DIGITAL SWITCHING
- AUTOMATIC DIGITAL ECHO CANCELLER



DIGITAL TRANSMITTERS

- DUAL MODE ANALOG/DIGITAL
- SFN & HIERARCHICAL MODULATION
- DVB-T, DVB-H, ATSC



ENCODING & MULTIPLEXING

- ENCODER
- MULTIPLEXER
- REMULTIPLEXER
- MIP INSERTER
- DECODER

SCREEN SERVICE BROADCASTING TECHNOLOGIES S.p.A.
Via G. Di Vittorio, 17 - 25125 - BRESCIA - ITALY
tel. +39 030 358 2225 - fax +39 030 358 2226
info@screen.it - www.screen.it

NAB2006
THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

Come and visit us at
NAB SHOW 2006
at Booth #C333.



ENG/EFP LENS FUJINON HA16X6.3ERM

The 2/3in HD lens combines wide-angle of 6.3mm and high magnification (16x zoom ratio), enabling production crews to carry just one lens for a range of shooting environments, including handheld production; features a telephoto focal length of 202mm with the 2x extender; the minimum focusing distance is 0.4m.

973-633-5600; www.fujinonbroadcast.com

BOOTH: SU149



FIBER-OPTIC HD CAMERA IKEGAMI ELECTRONICS HDL-40 WITH FIBER EXTENSION

Integrates the HDL-40 one-piece full-digital box-type HDTV camera with Telecast Fiber Systems' HD/POV fiber-optic video, audio and two-way data transceiver module; offers 1080i/60i or 720/60p image capture; uses fiber optics for transmission distances of three miles or more; offers one-connector operation for HD-SDI camera output, as well as all camera controls and genlock.

201-368-9171; www.ikegami.com

BOOTH: C3226



CABLES Belden Brilliance Shipboard

Line is comprised of Brilliance DataTwist and Classic Design cables that have low smoke, zero halogen jackets; includes a selection of all-dielectric fiber optic cables; cables fully comply with all applicable industry standards; provide easy installation using standard connectors and established installation techniques; carry a 10-year warranty.

800-BELDEN-4; www.belden.com

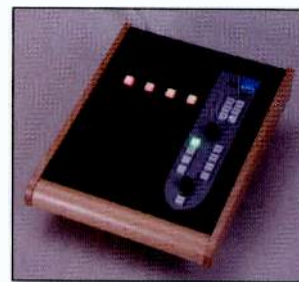
BOOTH: C1655

MEDIA ASSET MANAGEMENT KONAN DIGITAL DIGITALARC

Manages media life cycle and controls the entire process of media flow, from ingest to archiving; an embedded workflow engine provides advanced status management for all assets; users can subscribe to automatic notification services to track media and story status across every step of the workflow; integrates seamlessly with related systems to simplify the workflow; makes the enterprise digital assets available to facilitate faster content creation and multipurposing.

626-579-0943; www.videssence.tv

BOOTH: C7116



DIGITAL MINI MIXER Lawo z4

Broadcast mixing console; features four stereo channel strips with 100mm faders, pan and balance, PFL and display; high-quality signal processing is included in the four channels; features four freely configurable summing buses with limiters; channel modes include stereo, mono, left or right signal; has an integrated PPM with correlation ratio meter; can monitor via headphones and loudspeakers with separate volume setting.

+49 7222 1002 0; www.lawo.de

BOOTH: N3808

AUTOMATION SYSTEM PRO-BEL MORPHEUS

Manages everything from server playout to complex channels where schedules are changing regularly and unpredictably; at the core is Pro-Bel's Mediaball concept, a package of media and data elements that are brought together at transmission time to create a virtual asset; now includes a media browse facility, which provides effortless access to media across a facility or facilities.

925-735-9269; www.pro-bel.com

BOOTH: SU4347

CAMERA SYSTEM GRASS VALLEY HD WIRELESS CAMERA SYSTEM

Given a bandwidth of 55Mb/s to 75Mb/s, high-quality HD images can be transferred using JPEG 2000 with a latency of just one frame; ideal for intercutting HD images with cabled cameras in studio situations; offers reception across the sort of spaces required for typical sports and even coverage — up to 3280ft, with an optional roaming kit; is dockable with existing LDK 6000 series of HD cameras and the LDK 8000 HD camera.

503-526-8150; www.grassvalley.com

BOOTHS: SU3500, SU2906

CONVERTER Brick House Video Proteus HD

Standards converter offers an optional aspect ratio conversion function; has a fully integrated audio delay and synchronization up to several seconds; performs up-, down- and crossconversion.

+44 1962 777733; www.brickhousevideo.com

BOOTH: SU230

TRIPOD BROADCAST MICROWAVE SERVICES FIELD- CODER II

A portable, modular tripod is mounted to the COFDM transmitter's base unit; includes a 1W digital transmitter and encoder with full COFDM DVB-T specifications; an optional external 4W PA and weatherproof power supply is available to allow the tripod to provide long distance links.

858-391-3050; www.bms-inc.com

BOOTH: C2326



MATTEBOX 16x9 Chrosziel HDV Mattebox

An HDV Mattebox kit for 4 x 4 and 4 x 5.650 filters; complements the Canon XL-H1 HDV camcorder; covers both 16:9 and 4:3; features a filter stage for two filter holders, a full-size French flag, a 16:9 insert mask and 110mm to 72mm screw-in adapter ring; comes complete with center bracket and lightweight support rods to provide a secure mount.

818-972-2839; www.16x9inc.com

BOOTH: SU2917

KA-BAND TWTA MITEQ/MCL MT3600

Outdoor TWT amplifier is available for 125W, 150W, 175W and 250W applications; includes an event log, remote, computer interface and auto power control and status; can be customized to include an L-Band block upconverter, an internal linearizer or an internal Ethernet interface; redundancy is achieved through a 1:1, 1:2 or phase combined system.

630-759-9500; www.mcl.com

BOOTH: C5145

HDTV CAMERA Hitachi DK-H31S

A compact, two-piece full HDTV camera built for demanding environments; provides full HDTV resolution in either 1080i or 720p formats due to the use of 2/3in CCDs; the small head is typically used for increased magnification optics (larger lens) inside robotic assemblies.

516-921-7200; www.hitachikokusai.us

BOOTH: C3926



CAMERA ZOOM LENS Band Pro Film & Digital Carl Zeiss Telephoto DigiZoom

Camera zoom lens; focuses to 22in from the image plane, 11in from the front of the lens; has the ability to focus tightly on objects as small as 66mm x 117mm, bringing them fully into frame in precise focus; industry standard-pitch zoom, focus and iris gears and brightly marked, oversized windowed cine scales are employed for ease of use and optimal compatibility with cine lens accessories.

818-841-9655; www.bandpro.com

BOOTH: SU2917



CAMERA MOUNT Innovision TerraScope

A rolling camera platform that allows operators to track from a near-ground-level point of view with freedom of movement and maneuverability; enables panning and rolling; is designed to carry a camera with an attached tubular lens pointing downward; the rig can be configured to offer unique moves that are valuable for rapid-paced miniature work.

310-453-4866; www.innovision-optics.com

BOOTH: SU193



WIDE ANGLE LENS CONVERTER Schneider Optics Century

An HD compact .8X wide angle converter; features universal screw-on threads for easy installation; fits DV/HDV cameras, such as the Sony HDR-FX1 HDV/HVR-Z1U, Panasonic AG DVX100A/B and Canon XL-2; measures 1.14in x 3.54in at its broadest point; weighs 10oz; comes with a rectangular sun shade.

818-505-9865; www.centuryoptics.com

BOOTH: SU4122



AUDIO ROUTER Lawo Nova73 HD

Router is scalable up to 8192 mono channels; synchronous system has defined latency of few samples; features a variety of interfaces and direct ATM link; is 96kHz and Dolby-E compatible with integrated signal processing; features STAR2 architecture and redundancy options; operation during servicing or refitting is not interrupted; service, equip and reconfigure when the system is in operation; hot-plugging is no longer restricted.

+49 7222 1002 0; www.lawo.de

BOOTH: N3808

MONITORING AND ANALYSIS SYSTEM Controlware Communications Systems ASI Recording Server/Logger (ARS)

A multiport DVB/ASI recorder and analyzer designed for quality assurance, preservation of evidence and as a run log; up to eight DVB/ASI streams can be recorded simultaneously onto a flexible and scalable RAID storage platform (up to 32TB); recording of the entire transport stream (MPEG-2, MPEG-4/AVC) can be triggered manually, based on a configurable schedule or continuous schedule.

732-919-0400; www.cwars.com

BOOTH: SU1653



BOOM POLE M. Klemme Technology Avalon Traveler

A boom pole that is designed to fit into a standard equipment case; minimum length is 20in; stores quickly for easy, hassle-free transportation; six-section pole extends to a reach of 79in; constructed of lightweight, durable aluminum tubing; the pole's coupling system provides maximum holding power and minimum torque; the company's proprietary captive collet ensures jam-resistant coupling.

760-727-0593; www.mklemme.com

BOOTH: N4011



BROADCAST DIGITAL CONSOLE CALREC AUDIO ZETA SYSTEM PLUS

Available with 24, 32 or 48 faders and 88 or 96 equivalent channels; features A and B layers of control with two main output faders, tabletop or floor standing mount and eight mono or four stereo auxiliary outputs; all channels have four-band equalization/filters, compressors/limiter and expander/gate.

+44 142 284 2159; www.calrec.com

BOOTH: N917

UTAH-400

It Just Keeps Getting Better...and Better

The UTAH-400 High-Density Digital Routing Switcher, already the world's most advanced switcher, now offers even more:



Automatic crosspoint redundancy in all matrix sizes
The UTAH-400 allows you to protect your critical signal paths against interruption with *AUTOMATIC* internal redundancy.

Three Frame Sizes -- 64x64, 144x144, and 288x288
You can use the UTAH-400 for any digital router application from the smallest utility router to the largest central matrix.

In any size, all UTAH-400 systems offer the same set of world-class features -- and the industry's lowest prices:

- Full time Input / Output Signal Monitoring
- Reduced Power Consumption and Rack Space Requirements
- SD/HD Compatibility
- Fiber Optic I/O Option



**US UTAH
SCIENTIFIC**

New Directions in Digital Switching

4750 Wiley Post Way, Suite 150, Salt Lake City, UT 84116 USA
Ph: 801.575.8801 • Fax: 801.537.3099 • Email: sales@utahscientific.com

DIGITAL AUDIO WORKSTATION Merging Technologies Pyramix Native

A DAW that includes an enhanced configuration called the Native Media Bundle; features extended track capability and includes CD mastering, video playback integration and synchronization as standard using the company's Virtual Transport technology; now provides four inputs and outputs; the more advanced Native Media Bundle gives eight inputs and outputs; both versions have 24 track editing, mixing and processing.

+44 1606 892788; www.merging.com

BOOTH: SL3755

HDTV ZOOM LENS CANON HJ18EX28B IASE

A lightweight, compact Super Telephoto portable HDTV zoom lens; features Canon eDrive technology; designed for portable cameras and aircraft, robotic camera mounts, TV trucks and anywhere else that needs telephoto performance, small size and light weight; weighs 5.7lb.

516-328-5000; www.canonbroadcast.com

BOOTH: SU131

CAMERA STABILIZING SYSTEM SACHTLER ARTEMIS DV PRO

A MiniDV, DV Cam, HD DV camera stabilizing system; optimized design adds just the right amount of inertia to professional lightweight cameras; enables a dynamic balance and gives operators full control of every movement.

+49 89 321 58 200; www.sachtler.com

BOOTH: C5119B



HD CAMCORDERS SONY XDCAM HD PDW-F330 AND PDW-F350

Part of the XDCAM HD Series and Professional Disc system; both offer true 24P recording in SD or HD, interval recording and slow shutter; the same Professional Disc media used in the SD version of the XDCAM system is also compatible with the new HD version; users can record up to two hours of HD content on the versatile optical media.

800-686-SONY; www.sony.com/professional

BOOTH: C9618



BOOM POLE M. Klemme Technology Avalon Graphite

Boom poles constructed from high-quality graphite tubing; are durable and lightweight; five telescoping sections lock together via a captive collet for maximum holding power with minimum torque; each unit is fitted with

the company's proprietary pole top equipped with cable retaining slots and a replaceable stainless steel threaded mounting stud.

760-727-0593; www.mklemme.com

BOOTH: N4011

BITSTREAM AUDIO PROCESSOR Linear Acoustic MetaMAX

A 5.1-channel DTV audio processor that operates completely in the compressed domain; protects dynamic range while controlling loudness; located at the point of transmission; enables audio to be transmitted the way producers intended while protecting consumers from loud commercials and programs.

717-735-3611; www.linearacoustic.com

BOOTHS: C2507B, C2507D

PROFESSIONAL SOFTWARE AUDIO CODEC DOLBY MEDIA PRODUCER

Supports all Dolby audio codecs used in mastering DVD video, DVD audio, HD DVD and Blu-ray formats; supports multichannel non-real-time encoding and file decoding of Dolby Digital Plus, Dolby Digital, Dolby TrueHD and MLP Lossless formats via a user interface; suite comprises three separate software products: Dolby Media Encoder, Dolby Media Decoder and Dolby Media Tools.

415-558-0200; www.dolby.com

BOOTH: SU2923

IMAGE PROCESSING AND RESTORATION SYSTEM Digital Vision DVNR 2k

Provides full aperture 2000 RGB processing at 15fps over HSDL links and real-time processing in the video domain; supports Digital Vision's film grain and electronic noise reducer and automated film dirt, dust and random scratch concealment system.

818-769-8111; www.digitalvision.se

BOOTH: SL517



DIGITAL REMOTE BROADCAST SYSTEM Media 3 BureauCam

Incorporates all functions necessary for local or remote operation via network or dial-up; features an intuitive touch screen interface, interactive help screens and user prompts; its precision robotic camera positioning and shot control system, integrated camera control unit and extensive audio and video routing and distribution capabilities achieve smooth on-air shots.

212-983-5200; www.liveshots.com

BOOTH: C4815

SDTV LENS CANON YJ13X6B SERIES

A long zoom portable 2/3in lens; weighs 2.58lb; uses the Canon three-group internal focus system; features a maximum relative aperture of f 1.8; offers a wide focal length of 8.5mm, a high zoom ratio of 20x and a fast servo zoom speed of 1.2 seconds; offers a horizontal field of view of 54.7 degrees; achieves a good MTF profile over the entire image plane, minimization of chromatic aberrations and maximization of image contrast.

516-328-5000; www.canonbroadcast.com

BOOTH: SU131

ROBOTIC PAN AND TILT HEAD

Shotoku Broadcast Systems TG-19

Supports a maximum payload of 154lb; allows large lens, camera and prompter combinations to be controlled smoothly and reliably; is capable of manual control and has the ability to learn the movements of its operator for replay; high-resolution, intelligent optical encoders allow virtual reality outputs without modification to the head itself.

866-746-8658; www.shotoku.tv

BOOTH: C7336

PROMPTING SOFTWARE QTV/Autocue WinCue suite

Includes the WinCue LT for in the field, WinCue Pro for advanced studio scrolling, WinCue Pro News for newsrooms; all offer run order management, TrueType font support, help screens, spell check and word count.

203-406-1400; www.qtv.com

BOOTH: SU4167

AUDIO ROUTER Lawo Nova 17

Routing system has compact matrix for up to 384 x 384 mono signals and integrated signal processing; control via Ethernet and RS422; interfaces are designed as plug-in cards to be inserted directly into the system rack; up to four MADI interfaces are available; can connect operating modules from keyboards or rotary controls, either directly or remotely via Ethernet; has remote surveillance via an integrated Web server.

+49 7222 1002 0; www.lawo.de

BOOTH: N3808



HD CAMCORDER MINIDV CAMCORDER PANASONIC AG- DVC20 3-CCD

A shoulder-mount MiniDV camcorder; weighs 4.4lb; is equipped with three 460,000-pixel CCDs and has an optical 10x zoom with Electric Image Stabilizer to compensate for jitter and vibration; other key features include an IEEE 1394 DV interface for PC-based NLE systems, "Color Night View" that permits viewing at a minimum illumination of 0 lux, and a six-language menu.

201-392-4127; www.panasonic.com/broadcast

BOOTH: C2518

NEAR-LINE STORAGE Crispin Archive Manager

Provides broadcasters with near-line storage of media that is integrated into the automation system; allows users to manage disk space on their video servers more effectively, yet keep important media clips nearby to be restored (automatically or on demand) to their playout server; integrates Hierarchical Storage Management (HSM) designed specifically for the broadcaster.

919-845-7744; www.crispincorp.com

BOOTH: SU608

BROWSE SYSTEM Pharos Communications Pharos Reflection

Designed to operate in tandem with a video server; creates MPEG-4 copies of all stored clips and any new incoming video files; clips can be viewed by as many as 20 users simultaneously on existing desktop PCs running on Mac or Windows operating systems; is compatible with video servers handling MPEG-2, DV25, DV50 and uncompressed signal formats.

+44 118 950 2323; www.pharos-comms.com

BOOTH: UK PAVILION



AUDIO/VIDEO CONVERTER Convergent Design SD-Connect

Version 1.1.217 features improved RS-422 to RS-422 and RS-422 to 1394 deck control; supports broadcast and NLE applications; includes all-in-one support for component, composite and SDI I/O, and four-channel digital and analog I/O; includes broadcast features such as video proc amp, comprehensive video and audio test-pattern generation, time-base corrector and frame synchronizer; uses 12-bit A/D and D/A video converters; rack-mount unit includes a 128 x 64 graphic LCD for display of configuration and error messages.

719-661-3388; www.convergent-design.com

BOOTH: C10845



TAPELESS HD DNG IKEGAMI ELECTRONICS HDN- X10 EDITCAM HD

Features a non-tape-based recording system and 2/3in 2.1 megapixel CMOS sensors for superior picture quality and wide dynamic range; uses the Avid DNxHD mastering codec to deliver HD-resolution full-raster (1920 x 1080) images that can be edited in real time; features a data rate of 145Mb/s to capture images in the 1980/60i, 1080/24p and 720/60p HD formats on Ikegami's FieldPak2 recording media.

201-368-9171; www.ikegami.com

BOOTH: C3226

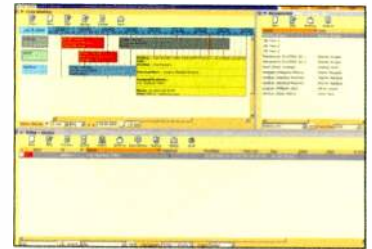


PEDESTAL Shotoku Broadcast Systems TP-90

A compact three-stage, minimum-height pedestal with a column stroke reach of 37.2in; accommodates a wide range of cameras configurations; has a payload of 132lb; located under the carriage, the cable guards can easily be height adjusted by turning a knob located at the side of carriage; safety features include an improved column lock and a brake ring placed within reach of the cameraman while in operation.

866-746-8658; www.shotoku.tv

BOOTH: C7336



NEWSROOM COMPUTER SYSTEM MODULE OCTOPUS Newsroom TRACK

A module for OCTOPUS Newsroom system; features precise resource planning and costs tracking for newsdesk or management purposes; allows the ability to track people and equipment usage, placement and costs; includes location and resource collision warning system.

+420 221 181 511; www.octopus-news.com

BOOTH: C5416

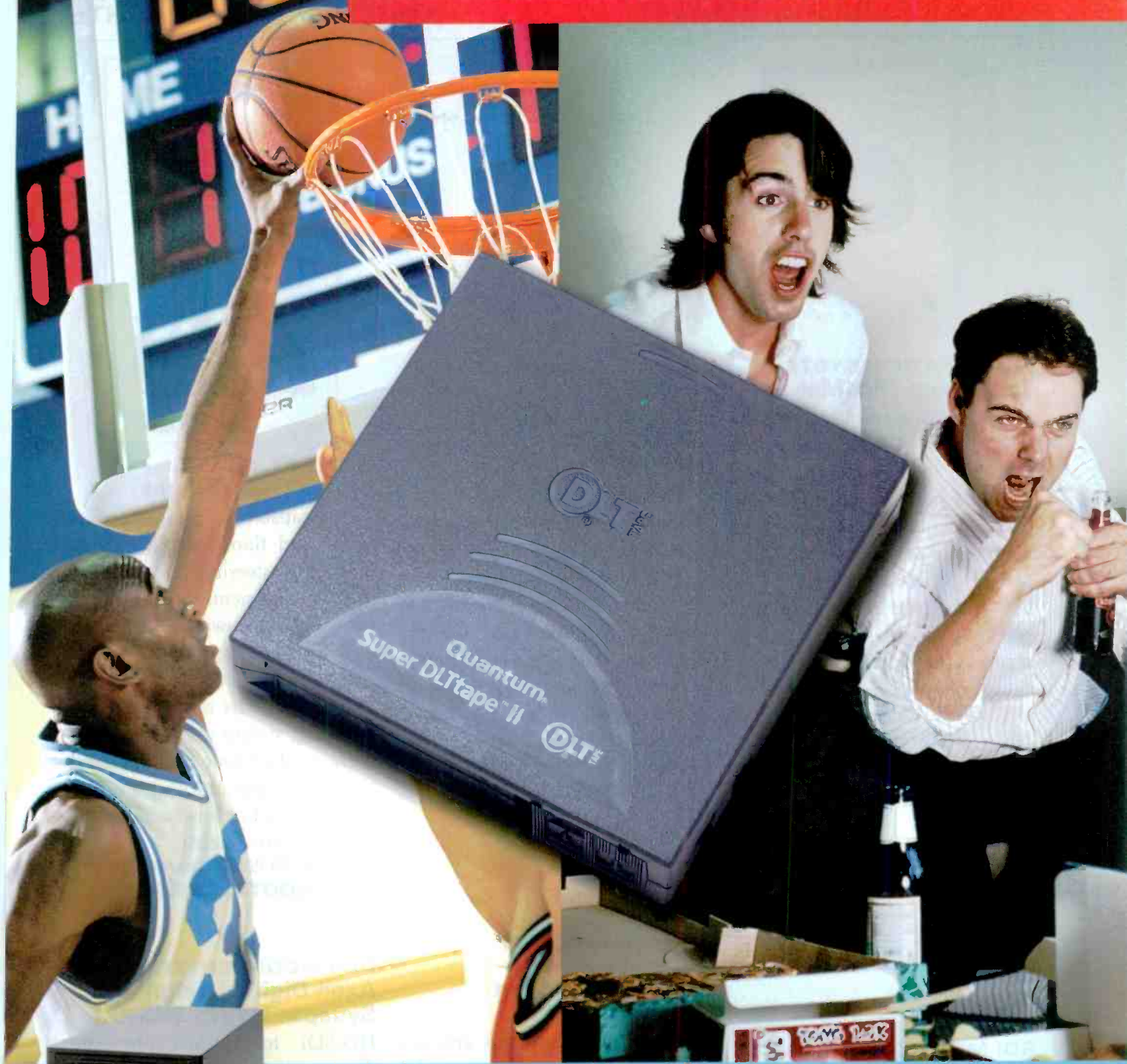
POWER SUPPORT SYSTEM ANTON/BAUER STASIS

A lightweight shoulder mount that redirects the geometry of a MiniDV camera to the body; improves the ergonomics and performance of a professional MiniDV handheld; the frame supports the camera weight; its adjustable front plate comfortably takes weight off the operator's hand; the rear battery mount counters the forward weight of the camera; using a Gold Mount battery, it delivers extended runtimes up to 10 hours.

800-422-3473; www.antonbauer.com

BOOTH: C5119A

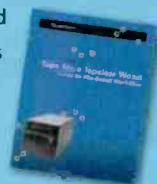
FILE-BASED WORKFLOW. NO TIMEOUTS.



With its directly accessible, network-attached, MXF-aware tape-based file system, the SDLT 600A for professional video helps you beat the buzzer every time.

Today, the name of the game in the broadcast and video industry is file-based workflow.

The Quantum SDLT 600A is your team's top pick to seamlessly integrate and automate your workflow — from ingest to archive. With MXF-aware performance that accesses valuable metadata, built-in Gigabit Ethernet and faster-than-real-time transfer rates of up to 288Mb/sec, the SDLT 600A will help you run the fast break to a pure digital workflow. To develop a game plan, [get your free Guide to File-Based Workflow at www.quantum.com/tape4tapelessworld](http://www.quantum.com/tape4tapelessworld)



Quantum

BACKUP. RECOVERY. ARCHIVE. IT'S WHAT WE DO.™



AUTOMATION SYSTEM Telestream Flip4Mac FCP

Offers file compatibility and direct file transfer of MXF media into Final Cut Pro systems from Sony XDCAM and Ikegami Editcam digital acquisition tools; provides file transfer of GXF and MXF media between Grass Valley K2, Profile, Turbo and M-Series servers and Final Cut Pro systems; enables seamless media and metadata exchange between these systems.

530-470-1300; www.telestream.net

BOOTH: SL2781



HDTV SDI AND SDI MONITORING CONVERTER Oxygen DCT OxBox 9B11DA-C

A standalone, multifunction tri-level sync generator and digital-to-analog converter; works at 1080 progressive and interlaced standards, 720p at 50Hz, 60Hz and 59.94Hz and 1250/50i.

+44 8707 462 062; www.oxygendct.com

BOOTH: TBA



TRIPODS MILLER CAMERA SUPPORT SPRINTER II

ENG tripods feature Miller Sprint-Loks — dual, side-action leg locks that let both stages of a two-stage tripod be adjusted independently using one hand; each leg has two Sprint-Loks, co-located on the upper leg clamp; features patented transport clips and a mid-level spreader, with adjustable center hub and telescopic extensions.

973-857 8300; www.millertripods.com

BOOTH: C5736

CAMERA MOUNT SYSTEM Panther Broadcast Multi Mount Kit

Mounts cameras, lamps and accessories; features three powerful suction pads; achieves a payload of up to 80kg, depending on the application; the base plate allows users to mount a camera (3/8in), fluid head or a remote head; users can also attach a Euro mount, which makes it compatible to many of the Panther accessories.

+49 89 613 900 01; www.panther.tv

BOOTH: C6136



LIGHT PEDESTAL Vinten Osprey Light

A 40kg capacity pedestal; improves wheel and floor interface, using crab-only steering for creative shot development; has the ability to be broken down into skid and column modules; is easy to transport; can be pressurized in any location with its manual integral pumping system and also comes with standard four-bolt interface, allowing simple attachment of any flat base head or bowl adapter for spherical-based heads.

+44 1284 752121; www.vinten.com

BOOTH: C5119C

DOWNCONVERTER Axon Digital Design Synapse TWINS 2HS10

HD-SDI to SD-SDI/composite downconverter features two channels on one card; includes optimized scaling and filter algorithms to ensure broadcast-ready pictures from a native HD source; can simulcast SD signals from a native HD infrastructure; is a dual-channel card fitting 36 channels in a 4RU 19in frame.

+31 13 511 6666; www.axon.tv

BOOTH: SU1414A

Some evolutions are irresistible.

Instant Tapeless Technology



www.evs.tv

As a partner to the world's leading broadcasters, EVS has redefined the way events are produced with our unique, reactive solutions. EVS instant tapeless technology utilizes reliable hardware and software components to deliver unmatched digital workflow solutions for broadcasters. The XT server, which operates as the heart of the system, fully supports SD or HD production requirements for both live and post-production applications. EVS is at home in any environment, including outside broadcast or studio production. EVS' solutions allow you to react immediately whether your content is sports, news, or entertainment. EVS tapeless solutions work today, and will continue to work and evolve far into the future. Be part of the revolution.

IP Director is an integrated suite of software tools running on an intuitive Windows-based workstation that controls XT Series servers. IP Director allows you to turn a production around - from shooting to playout - in the minimum amount of time. With the EVS engineered XT Series servers, IP Director enables the user to ingest, log, manage, search and track, edit, create clips and highlights, browse and finally play out any AV content within seconds.

EVS Broadcast Equipment
Phone: +1 973 575-7811 Fax: +1 973 575-7812
Email: usa@evs.tv



(IP) Director



VISIT US AT NAB - LAS VEGAS
22 TO 27 APRIL - BOOTH 3230



EVS: The Architects of Instant Tapeless Solutions

At the core of every successful business lies a solid and reliable foundation to build upon. In the new world of digital broadcast television and motion pictures, EVS Broadcast Equipment builds products that constitute this foundation. With its roots in sports television, EVS redefined live broadcasting with tapeless solutions based on advanced production and playout servers, along with their related software applications.

After several generations of development originally started in Liège, Belgium, the core EVS server, known as the XT, has developed into the fastest (reactive), most reliable, and most utilized broadcast tool for live production and now completely dominates the sports production marketplace. The intimate partnerships developed between the EVS team across the globe (with offices now in Belgium, France, Italy, the United Kingdom, Hong Kong and the United States) and the world's leading broadcasters have led to significant development around its core foundation. Empowering the XT series server with a multitude of software applications has given broadcasters the ability to manage, control, browse, edit (non-linear of course), and orchestrate the ingest and playout of digital media across a complete network of interconnected XT servers.

The EVS' tapeless technology has driven OB trucks, studios, broadcast networks and virtually all content production to new heights, leading the path for newly embraced technologies such as high-definition television. With the advent of HD television, EVS has been one of the rare manufacturers whose foundation is so strong, the leap from standard definition to high-definition has been seamless.

Today, EVS offers a wide range of hardware and software solutions dedicated to production markets in outside broadcast (live sport events, entertainment shows, stadium, concerts, etc.) and in studio environments (sport-news, live-shows, series, reality TV, theaters, etc.):

- Highlight Editing
- Live Slow & Super Slow Motion
- Video Delay & Playout Control
- Non-Linear Editing
- Multi-channel Playout
- Logging & Browsing
- File Format Conversion
- Storage, Archiving & Backup

EVS' addition of XNet, a simplistic yet lightening fast network (1.5Gb/sec.), allows for a scalable system from a 2 hour studio production to a multi-week event such as the US Open Tennis tournament or the Olympics games - all utilizing XT servers for its production. EVS' advanced software development, such as their new suite of IP Director, is changing the landscape of broadcasters' workflow by providing tools that access the full power of the XT platform.

With digital technology streamlining the broadcast workflow process and enabling dramatic cost-reductions, the only thing that has not changed are broadcasters' expectations of performance. EVS' youth, vibrancy, and focus on support gives their unique and dynamic products the ability to meet these expectations. Their strong sales and support network includes subsidiaries in Asia and the USA along with many devoted distributors that facilitate worldwide marketing and efficiency in post-sales services.

EVS branded products are being sold actively in more than 60 countries. The company is publicly traded on the Euronext stock exchange and maintains a staff over 140 strong - located across a dozen different sites around the world. EVS welcomes your contact in order to bring its world-class tapeless technology to your broadcast facility.



TOUCH SCREEN

e-mediavision.com POINT-HD

Draws onto a TV picture in real time; control surface can be either a touch-sensitive LCD (or plasma for in-shot use) screen or Holo screen with a graphical interface; incorporates Nitro-Pfx, a full 3-D graphics and animation tool.

+44 208 755 2014; www.e-mediavision.co.uk

BOOTH: TBA



CAMCORDER SHOULDER SUPPORT PAG Orbitor

Supports and counterbalances the weight of the camcorder, enabling hours of shooting without fatigue; allows camera operator to pan, tilt and roll smoothly; designed to make control of the camera's movement effortless, requiring only a light touch.

818-760-8285; www.paguk.com

BOOTH: C8515

CAMERA BATTERY IDX Technology NP-L50/NP-L50

Li-Ion battery; weighs less than 1lb; lasts nearly twice as long per use as typical NiCd batteries and never needs a discharge.

310-891-2800; www.idx.tv

BOOTHS: C4235, SU143



CG VIDEO AND AUDIO CLIP PLAYER PIXEL POWER CLARITY5000

A dual-channel HD/SD switchable character generator; features a new video and audio clip player option that supports up to two streams of uncompressed HD video and key; the video clips can be used as full frame backgrounds or passed through the internal 2-D DVE channels and composited with other graphic elements; up to 576Gb of storage can be fitted internally (for compressed HD video); external storage can be used to deliver uncompressed streams or expand the capacity.

954-943-2026; www.pixelpower.com

BOOTH: SU4359

WIRELESS INTERCOM SYSTEM CLEAR-COM CELLCOM 10

Digital wireless intercom system now has the FCC Grant of Equipment Authorization for Part 15 Unlicensed 1920MHz to 1930MHz; includes local route programming, cross-point level control, assignment of IFBs, groups and full non-blocking mixing facilities; features high-quality 7kHz audio, full-duplex operation and low-power microwave technology.

510-496-6600; www.clearcom.com

BOOTH: C5119D



CAMERA CONNECTOR FISCHER CONNECTORS AND CORNING 1053 SERIES

Fiber-optic HDTV broadcast camera connector combines Fischer's broadcast triax connectors with Corning's UniCam fiber-optic contacts; SMPTE-compliant; employs two single-mode fiber contacts, two high-voltage contacts and two low-voltage signal contacts; eliminates unnecessary optical connections throughout the signal path to provide for fewer contacts to clean and a lower signal loss.

+41 21 800 95 95; www.fischerconnectors.com

BOOTH: SU5193

AUTOMATION Pebble Beach Systems Anemone

A simple, entry-level system that offers device control and multi-channel capabilities; provides a maximum of four playlists (four channels) and four clients; can control routers, video servers, VTRs and CGs; has the option of an SQL database, which has a rich set of search and sort functions to find media quickly.

+44 1932 333 790; www.pebbletv.com

BOOTH: SU244

CHARACTER GENERATOR OPTION VERTIGOXMEDIA VXSCALER

Field-upgradeable module for the VertigoXG character generator; provides high-quality upconversion and downconversion; enables simultaneous HD and SD output from a single box; with the module, VertigoXG can downconvert an HD source to SD, upconvert SD to HD, capture and SD source as an HD clip for inclusion in an HD project, and capture an HD source as a clip in SD or a different standard; uses a three-step process that includes motion estimation, de-interlacing and scaling at 10-bit YUV 4:2:2.

514-397-0955; www.vertigoxmedia.com

BOOTH: SL4726



WORKSTATION GRAPHICS SYSTEM NVIDIA QUADRO FX 4500 SDI

Graphics system has 512MB memory, 256-bit memory interface, a graphics memory of 33.6GB/s, PCI bandwidth and express graphics bus; features a rotated-grid FSAA and High-Precision Dynamic-Range Technology; has improved pipeline color compression and early z-culling to increase effective bandwidth and improve rendering efficiency and performance; the high-definition enabled VPE provides the highest-quality video with record low CPU use.

408-486-2000; www.nvidia.com

BOOTH: SL591

WIRELESS KVM EXTENDER AVOCENT LONGVIEW

The keyboard, video and mouse extender wirelessly connects VGA, SVGA and XGA monitors, keyboards, mice and audio device to any computer up to 100ft away; based on the 802.11 standard and AES to provide secure connections; connects directly to target devices; serves as the radio interface link so the computer can transmit secure audio and high-resolution video data through a wall without VGA cables.

800-275-3500; www.av.avocent.com

BOOTH: SU4572



DIGITAL AUDIO MIXERS EUPHONIX MAX AIR V1.4 AND SYSTEM 5-B V2.8.1

Software and hardware upgrades for the on-air digital audio mixing systems include live control surface module resynchronization, configurable aux sends, Image Video TSI-1000 integration, ergonomic improvements to the surface and faster embedded processors; individual control surface modules can be removed and re-introduced without the need to reboot and without loss of audio; can be configured with 24 aux send busses or the original 16.

650-855-0400; www.euphonix.com

BOOTH: N1002



COLOR CORRECTOR QUANTEL PABLO

The suite is comprised of turn-key software, hardware workspace and user interface single vendor responsibility; available in HD, 2K or 4K configurations; features the company's new TimeMagic technology, 40TB of online workspace and high-speed background connections to SAN and NAS; brings together hardware- and software-based color correction technologies in one system.

703-448-3199; www.quantel.com

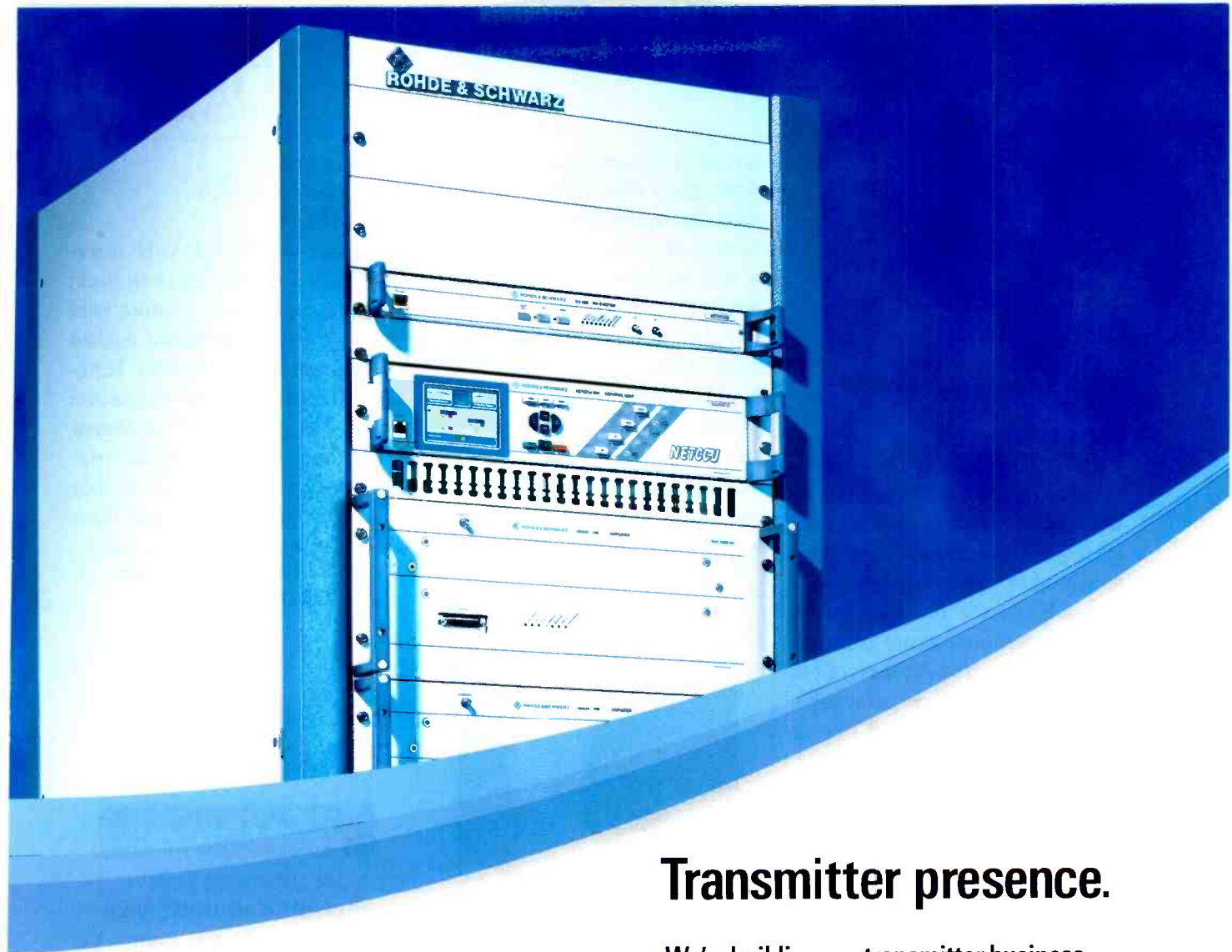
BOOTH: SL1544

GRAPHICS PROCESSOR MIRANDA TECHNOLOGIES IMAGESTORE INTUITION

An SDI channel branding processor; features a new MPEG video and audio clip playout capability that improves the output of multi-level graphics over moving backgrounds; the MPEG clip playout can also be used for backup material in emergency situations; the automated character generator has been enhanced with multi-language support and soft shadows; the CG offers playout of text crawls, rolls and dynamic text layers.

561-400-3320; www.miranda.com

BOOTH: SU1341



Transmitter presence.

We're building our transmitter business with performance, reliability, and service.

Our installed transmitter base is large and growing. There are many reasons:

- Both air-cooled and liquid-cooled, solid-state technology for exceptional reliability
- VHF and UHF, Analog and Digital
- Small footprint, low noise, high efficiency
- Responsive US-based service
- Unbeatable support

We've sold more digital television transmitters than anyone in the world. Like so many others, you stand to benefit from our technical excellence, comprehensive US service infrastructure and proactive support. Find out more at test-rsa.com/TVTrans/BE

Come see us at NAB 2006
April 24-27, Las Vegas
Booth #C830



ROHDE & SCHWARZ

rohde-schwarz.com/USA • 1-888-837-8772



HEADSET HME COMLINK

Wireless digital 2.4GHz headset allows users to work in dark or small locations without the risk of snagging headset cables on other equipment; frequency hopping spread spectrum ensures secure communication through 64-bit encryption; no license required; is compatible with HME's portable DX100 or rack-mounted DX200 systems.

800-848-4468; www.hme.com/proaudio.cfm

BOOTH: C9335



TEST AND MEASUREMENT CONSOLE HARRIS VIDEOTEK VTM SERIES

The fully customizable, multiformat, multifunction test and measurement consoles enable users to pick from a list of video and audio options to create the ideal precision test instrument for their specific environment; features 1RU chassis, tactile-feel lit controls and intuitive navigation; outputs to any VGA monitor with Videotek Q-See customizable display.

513-459-3400; www.harris.com

BOOTH: SU2929

STOCK FOOTAGE Artbeats electric effects collections

Royalty-free stock footage that is shot in conjunction with kVA; features such high-voltage effects as lightning in clouds and single bolts striking telephone poles, satellite dishes, towers and a stunt person; also includes electric effects from a variety of equipment, including Jacob's ladders, tube coils and plasma generators.

541-863-4429; www.artbeats.com

BOOTHS: SL3758; C2055



WIRELESS INTERCOM Anchor Audio's PortaCom Pro

A wireless communications and portable PA system; the use of the patent-pending Omni Point Expandable Network allows an unlimited number of users to share the secured system simultaneously without the need of base station repeaters or active antennas.

800-262-4671; www.anchoraudio.com

BOOTH: N1322

INTERCOM CLEAR-COM ECLIPSE

1RU four-way VoICE VoIP interface frames operate back to back; provides up to four remote user panels intelligently linked backed to the matrix with all the functionality of a locally connected panel; has up to four intelligent trunk lines between remote matrix systems; features up to four four-wire audio pairs and four asynchronous RS-422 data links.

510-496-6600; www.clearcom.com

BOOTH: C5119D

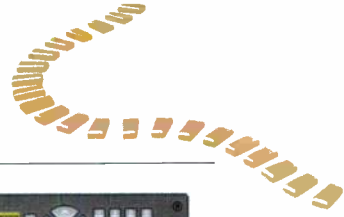


COLOR CORRECTOR eyeheight canalettoMDi

High-quality digital color corrector is designed for 1920 pixel x 1080 line television signal formats; features 1.5Gb/s input/output HD-SDI SMPTE-274 with SDI auto-sensing; each R, G and B channel has individually controllable gain, lift and gamma; adjustment of luma, chroma gain and black level is also provided together with hue correction.

+44 1923 256 000; www.eyeheight.com

BOOTH: SU147



WIRELESS INTERCOM SYSTEM HME PRO850 UHF

Version 3.10 of the intercom system now features an AC850 battery charger that charges up to four BAT850 NiMH rechargeable battery packs simultaneously in three hours; includes a new setup wizard; features frequency agility, a PC and PDA interface, simultaneous dual-channel interface, individual belt pack volume control and belt pack channel lockout.

800-848-4468; www.hme.com/proaudio.cfm

BOOTH: C9335



IP NETWORK ACCESS SYSTEMS Controlware Communications Systems TVG410 and TVG420

The compact video gateways sends broadcast-quality video via IP networks; adapt uncompressed (SDI) or compressed (DVB/ASI — MPEG-2; MPEG-4/AVC) to IP; up to 16 DVB/ASI ports per rack unit can be used either to transmit or to receive video over selectable Fast and Gigabit Ethernet network interfaces.

732-919-0400; www.cware.com

BOOTH: SU1653

LIGHTING SYSTEM Videssence Power Key

The system's reflector focuses the light where it is needed, eliminating the need for additional accessories to capture and focus the intensity of the light beam; beam adjustability is provided with a simple adjustment mechanism that moves the lamp placement within the fixture, allowing for easy field adjustments; an adjustable mounting yoke allows rotation for ease of focus and may be locked into place; the 110W unit uses two 55W Biax lamps.

626-579-0943; www.videssence.tv

BOOTH: C7116

DIGITAL AUDIO MATRIX TELEX COMMUNICATIONS ADAM

Employs an AIO-16 input/output card, which offers 16 channels of audio and an individual VOX option per port; the card is also equipped with one data driver per port and can be operated with individual data drivers or in the existing multi-drop mode; with the card, it is possible to implement ADAMs with 272 ports in a single 7RU frame, 512 ports in two frames or 720 ports in three frames; other features include two new master controllers, two clock masters and two specially designed power supplies.

952-884-4051; www.rtsintercoms.com

BOOTH: C4535



INTERCOM SYSTEM CONNECTOR RIEDEL CONNECT SOLO

Designed for connection of intercom systems to the public telephone network; combines two analog POTS telephone hybrids in one-half rack unit; allows for two simultaneous connections; is fully compatible with all intercom systems; can be operated directly from the artist control panels or via the integrated keypad and the large graphic display; features include auto-answer, automatic gain control and echo canceling.

818-563-4100; www.riedel.net

BOOTH: C8507



HMI LIGHT ARRI ARRIMAX 18/12

Light combines the variable beam spread of a Fresnel and the light output of a PAR; uses a unique reflector concept for beam control that eliminates the need for spread lenses; optical system has 22.8in diameter specular; flatted reflector is adjustable; provides continuous focus from 15 to 50 degrees.

845-353-1400; www.ari.com

BOOTH: C6926



AUTOMATION SYSTEM OmniBus Systems iTX

Replaces the functions of a broadcast master control and playout chain in a single software application; ideal for both SD and HD content; acts as a video server, master control and graphics and logo inserter with automation, ingest, editing and basic content management; integrates with video or IT storage to manage video files.

704-319-2231; www.omnibus.tv

BOOTH: SU2983

PANASONIC AJ-HPC2000

A P2 DVCPRO HD 2/3in camcorder; is equipped with three HD-resolution 2/3in CCDs and 14-bit A/D processing; offers dynamic range and low-light recording in 720p, 1080i HD or 480i formats; the CCD imager allows the use of widely available professional-quality lenses and accessories.

201-392-4127; www.panasonic.com/broadcast

BOOTH: C2518



IPTV OPERATIONAL MONITORING SENCORE IPTV STARTER KIT

Pre-packaged solution for measurement and monitoring; addresses existing network and streaming services needs; helps determine suitability for IPTV services.

800-SENCORE; www.sencore.com

BOOTHS: SU3009, C3810

PORTABLE LIGHTS Panther Broadcast Romy Series

A series of small and extremely light camera lights; have a working voltage of 12V; are focusable and powered either directly off the camera, from an external battery or from the mains transformer; Romy 75 and Romy 100 are dimmable; features an integrated diffusion filter and either a four-pin XLR plug or an Anton Bauer plug.

+49 89 613 900 01; www.panther.tv

BOOTH: C6136

WIRELESS MICROPHONE AZDEN 100LT

Offers 63 user-selectable channels in the 794MHz to 806MHz band; includes the 100UPR receiver and 10BT body-pack transmitter, both of which are housed in small, 3 7/8in x 2 3/8in x 13/16in cases, ideal for smaller digital cameras.

516-328-7500; www.azdencorp.com

BOOTH: N4218

CAMERA LIGHT 16x9 Lux-DV

A camera light that works with Sony camcorders of any size; is compact and low-profile; weighs less than 8.8oz when fully equipped with two barn doors, flip-out 5600°K dichroic filter and power cord; features 20W bulbs with built-in mirrors and diffusers; employs IRC technology for 30 percent more efficiency.

818-972-2839; www.16x9inc.com

BOOTH: SU2917

VIDEO NETWORKING SOLUTION SCOPUS VIDEO NETWORKS IP-BASED VIDEO NETWORKING

Allows broadcasters and service providers to leverage a unified network infrastructure and, as a result, simplify network operations; based on a superior product portfolio that performs satellite reception, real-time encoding and headend video processing through IP networking.

609-987-8090; www.scopus.net

BOOTH: 4175



HEADSET AND CONDENSER MICROPHONE Beyerdynamic MMX1

Features a closed headphone and cardioid microphone; provides good noise cancellation and high-quality speech reproduction, as well as switchable gain of 20dB, which can be activated or deactivated via the PC; headset has a USB plug; compatible with Windows 98 SE, ME, 2000 and XP and Mac OS 9 and OS X.

631-293-3200; www.beyerdynamic-usa.com

BOOTH: N2412

2 GHz Relocation Solutions

Come See the Latest in ENG Technology

You Spoke, We Listened, and made the Product Better!



IP Addressable

Simple Operator Interface

Configure using a Simple Web Browser

Two 6 MHz Signals in a 12 MHz Channel

P2 File Transfer while Transmitting Live News Feeds

Take Us Up On Our Challenge!

*Put a Truck-Coder II next to a competitors product
and compare the performance for yourself.*

BMS
Broadcast Microwave Services

Broadcast Microwave Services

www.bms-inc.com • (800) 669-9667 • (858) 391-3050

Fax: (858) 391-3049 • dept800@bms-inc.com

Visit BMS at

NAB 2006

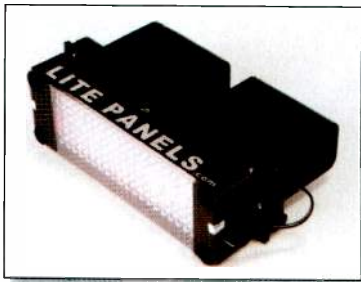
Booth C2326

DIGITAL WIRELESS TRANCEIVER Eartec STx 1000

A full duplex wireless that allows up to four people to communicate simultaneously; is not voice activated and doesn't have buttons to push; to operate, users turn the units on and talk through the headsets, just like on a wired intercom; features a range of up to 1/4mi, rechargeable batteries and an eight-hour capacity; no base station or FCC license is required.

800-399-5994; www.eartec.com

BOOTH: C9912



DV BATTERY ADAPTER PLATE Litepanels DV Adapter Plate

A self-contained lighting source capable of running off of two standard Panasonic, Canon or Sony DV camera batteries; attaches easily to the Litepanels Mini head; snaps on to the back of the Mini Flood or Spot head; once the plate is secure, two batteries fit easily in place to power the fixture for up to eight hours.

818-752-7009; www.litepanels.com

BOOTH: C9618

RECORDER SONY XDCAM HD PDW-V1 MOBILE DECK

A compact, lightweight unit; a solution for playing back Professional Discs and AV and data files recording through an Ethernet network interface or i.LINK interface; features a built-in 3.5in type color LCD screen; allows users to view recordings at any time and without the need for an external video monitor; equipped with an analog RGB output capability that allows users to view recordings on standard computer displays.

800-686-SONY; www.sony.com/professional

BOOTH: SU107



SWITCHER FOR-A HVS- 500HS HANABI

A compact and self-contained switcher that accepts HD, SD, HDV and DV formats; comes with 10-bit, 4:2:2 internal; features a variety of input/output interfaces, including HD/SD SDI, HD/SD analog, VGA and HDV/DV; connects to HDV cameras or PCs; is multiformat in HD for 1080/60i, 50i and 720/60p.

714-894-3311; www.for-a.com

BOOTH: C3210

DMX LIGHTING KINO FLO MEGA4BANK DMX SYSTEM

Can harmonize light levels in a fixture array or switch tubes independently of one another from a DMX control board; the system includes a fixture, mounting plate, extension cable and Mega4Bank DMX Ballast; the Ballast operates 4Bank fixtures, double fixtures, single fixtures and the company's Blanket-Lite; is designed to run on high output 8ft and 6ft True Match lamps.

818-767-6528; www.kinoflo.com

BOOTH: C6633

LIGHTING CONTROL SYSTEM

Matthews Studio Equipment ROAD FLAGS

Duplicates studio lighting effects on location or in the studio; consists of two easy-to-assemble frames, a single scrim, silk diffusion and solid flag packed into a lightweight case; its breakdown component design allows users to switch out light modification fabrics easily.

818-843-6175; www.msegrip.com

BOOTH: C10435

FLUORESCENT LIGHT Videssence V168-442TT V-Beam

A 168W unit that produces 2.4X more light using 25 percent less wattage and one-third fewer lamps than the previous V192-632TT V-Beam; is 99.9 percent aluminum with 95 percent reflectance; focuses the light of four 42W triple-tube fluorescent lamps to provide a more powerful, even beam for key lighting in studio applications.

626-579-0943; www.videssence.tv

BOOTH: C7116

ADVERTISERS SHOWN IN GOLD

APRIL 2006



HEADWORN MICROPHONE Audio Technica AT892 MicroSet

A subminiature, omnidirectional condenser headworn microphone; designed to provide versatility in situations where the microphone needs to blend in seamlessly and unobtrusively; now available in new cocoa color; uses a capsule with a 2.5mm diameter; offers an ergonomic, flexible, ultra-lightweight, under-ear design that is both comfortable to wear and highly secure; includes two windscreens, two element covers, a cable clip and a protective carrying case.

330-686-2600; www.audio-technica.com

BOOTH: N3218



PORTABLE WIRELESS RECEIVER Lectrosonics UCR401

The UHF receiver has a digital hybrid wireless design that overcomes channel noise by combining digital audio with an analog FM wireless link; features Smart-Squelch technology that adjusts squelching behavior; a DSP-generated ultrasonic pilot tone from the transmitter controls the receiver audio muting and eliminates thumps, pops and other transients.

800-821-1121; www.lectrosonics.com

BOOTH: N3225

TIME DIVISION MULTIPLEXER/ DE-MULTIPLEXER NETWORK ELECTRONICS SDI-TD-MUX-4

Capable of time division multiplexing four SDI, DVB-ASI or SDTI signals into one HD signal; multiplexes in accordance with the SMPTE 346M-2000 standard; allows usage of a standard HD infrastructure for transport and switching of the multiplexed signal; both SDI and DVB-ASI are accepted synchronous or asynchronous and will be format-detected automatically.

800-420-5909; www.network-electronics.com

BOOTH: SU199

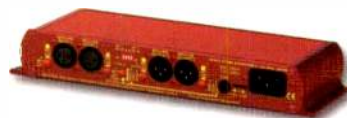


PREPOLARIZED CONDENSER MICROPHONE SENNHEISER ELECTRONIC EVOLUTION 912

A boundary condenser mic designed for vocals, acoustic instruments and piano; a companion piece to its Evolution 901 boundary bass drum mic; offers a full-frequency range of 20Hz to 20,000Hz with a maximum SPL of 136dB; features include integrated preamplifier electronics and a vibration-insulated, low-profile design.

860-434-9190; www.sennheiserusa.com

BOOTH: N1822



STEREO MICROPHONE AND LINE LEVEL LIMITER Soniflex RB-ML2

Can operate in stereo or dual mono mode and can be used as a stereo line limiter or dual mic limiter; offers assistance with level control, protection of mixer inputs and distortion prevention; two mic/line inputs have independent gain, filtering and phantom power selection; the VCA limiter circuit can operate jointly on the signals (stereo mode) or independently (mono mode) and the characteristics of the limiter can be set via level threshold presets.

+44 1933 650700; www.soniflex.co.uk

BOOTH: N4507



HD CAMERA PANASONIC AK-HC1500

A compact, 1080i/720 switchable HD camera; compatible with all international HD standards; the multifunction camera weighs 3.3lb; features a variable frame rate functionality and cine gamma curve, which is key to many special effects and sports-related applications.

201-392-4127; www.panasonic.com/broadcast

BOOTH: C2518



DIGITAL WIRELESS MICROPHONE TRANSCEIVERS Zaxcom TRX900 and TRX990

Wireless microphones provide integrated audio recording, IFB receivers and time code transmission; record up to six hours of audio directly to a Flash memory card and then transfer the .WAV files to either a PC or Mac for post-production.

973-835-5000; www.zaxcom.com

BOOTH: N4227



GRAPHICS FOR MOBILE DEVICES Vizrt Viz|3G

Based on Vizrt's Viz|Engine renderer and Adactus' MPEG-21 standards-based multimedia delivery platform; an integration of a graphics engine for mobile phone video viewing applications; graphics are sent as a separate stream from the video, producing clear graphics; available as part of a package installed on phones or can be downloaded and installed after purchase.

212-560-0708; www.vizrt.com

BOOTH: SL1323



24P CAMCORDER SONY HDW-F900R

Features a compact and light chassis, HD-SDI outputs and new accessory boards for slow shutter, image inversion and downconversion with 3:2 pulldown; can take advantage of the optional video cache feature of Sony's HDW-730/750 camcorder series; features three 2.2 megapixel CCDs, 12-bit DSP; has the same optical axis as its predecessor model with virtually identical image-making capabilities.

800-686-SONY; www.sony.com/professional

BOOTH: C9618



TELEPHONE HYBRID Soniflex DHY-03

Offers universal line compatibility, input and output gain adjustment, input and output metering, conferencing, RS232 serial control, local and remote line hold switching, integrated auto-answer, a balanced mic and line input, balanced line output and an average line rejection figure of 75dB to 80dB.

+44 1933 650700; www.sonifex.co.uk

BOOTH: N4507



MICROPHONE Beyerdynamic TG-X 48

Features a supercardioid polar pattern, an integrated pop shield to reduce pop noise associated with close vocal milking and high gain-before-feedback characteristics; rugged metal housing is coated with a soft lacquer on the barrel for optimal handling; comes with a microphone clamp and pouch.

631-293-3200; www.beyerdynamic-usa.com

BOOTH: N2412



DIGITAL CONSOLE Solid State Logic C300

Designed for fast and efficient sweetening and mix creation; addresses the requirements of non-linear film and TV production; features more than 500 mix inputs and 80 mix busses, with DSP from a single Centuri processor; offers 128 input, multiformat surround monitoring, including compatibility checking; process linking and stacked channel grouping puts stems and groups under one fader; MoXY controller provides real-time, cross-parameter control.

212-315-1111; www.solid-state-logic.com

BOOTH: N822

Exclusive Test Instruments For Your MPEG, IPTV, & HDTV Needs

Signal Analyzing

Sencore provides a wide variety of comprehensive signal analyzers designed to provide the insite needed to isolate video problems, digital or analog. No matter which format or interface you are using, MPEG-2, H.264/VC-1, QAM, 8-VSB, or QPSK. We have a solution for you.



Receiving And Decoding

We offer several options for you, including the new Atlas MRD 3187A Modular Receiver Decoder, that allows you to design the receiver decoder for your specific needs. You can choose from a wide range of Inputs or Outputs including: ASI/S-310M, 10/100/1000, DVB-S, DVB-S2, COFDM, H.264 (4:2:2), 8-VSB, or QAM.



Signal Monitoring

Today's video services run 24/7. Service interruptions are not acceptable by, or your customer. We can simplify your life by monitoring the system's performance 24/7. Sencore offers a full line of instruments designed to monitor MPEG-2, H.264, 8-VSB IP Video, as well as other types of RF transmissions or network content.



*Plan To Visit Us At NAB2006 In One Of
Our Locations: **South Hall - SU3009**
Central Hall - C3810*

SENCORE

Innovative Video Solutions Since 1951
3200 Sencore Drive Sioux Falls, SD 57106
1-800-SENCORE(736-2673) www.sencore.com

**New Product
Announcements
Coming At NAB2006
Be Sure To Check
Them Out!**

ANTENNA Radio Frequency Systems (RFS) 611-CP

Top-mounted, circularly polarized omnidirectional antenna; supports the low VHF band; features corrosion-resistant stainless steel elements, excellent radiation pattern circularity and a comparatively low wind-load; can be supplied with single- or dual-feed line systems for redundancy.

203-630-3311; www.rfsworld.com

BOOTH: C1217

DIGITAL SNAKE HEAD FIBERPLEX LIGHTVIPER VIS-4832

Features 16 AES3 inputs (32 audio channels) via two 25-pin D connectors and four AES3 returns (eight audio channels) via one 25-pin D connector, with simultaneous line level analog outputs via a second 25-pin D connector; will pass 96KHz digital data natively; by syncing the unit with a 48KHz Word Clock, the system will pass 48KHz digital data as well; capable of passing both RS-422 and 10/100 Ethernet control data with optional accessories.

301-604-0100; www.lightviper.com

BOOTH: N2031

WIRELESS MICROPHONE SYSTEM

Lectrosonics Digital Hybrid Wireless 400 series Wideband UHF

Uses new design (patent pending) that combines digital audio with an analog FM radio link; offers users a high quality of digital audio and an extended range of analog wireless systems.

800-821-1121; www.lectrosonics.com

BOOTH: N3225

ROBOTIC CONTROL SYSTEM Shotoku Broadcast Systems TR-8B

The control system offers 10-shot storage per camera; up to eight cameras available at one time; allows quick and easy positioning of robotic functions, including height, with a combination of swoop mode, auto on-air and automation interfaces.

866-746-8658; www.shotoku.tv

BOOTH: C7336



FIBER-OPTIC TRANSPORT SYSTEM MultiDyne RGB-5000

Single-fiber, single wavelength, digital, RGB and UXGA fiber-optic transport system now offers CWDM support; provides 10BASE-T Ethernet and bidirectional data, daisy-chain and star capability for point-to-multipoint configurations, and 1600 x 1200 pixel resolution supported over one optical fiber.

516-671-7278; www.multidyne.com

BOOTH: SU1729

HD/SD NLE HARRIS VELOCITYHD

The latest version of the post-production HD/SD NLE includes support for the HDV high-definition format and variable frame-rate processing for content from Panasonic's AJ-HDC27 VariCam camcorder and expanded IEEE-1394 I/O support; delivers full-quality, real-time HD playback and editing of multiple video and dynamic graphics streams.

513-459-3400; www.harris.com

BOOTH: SU2929

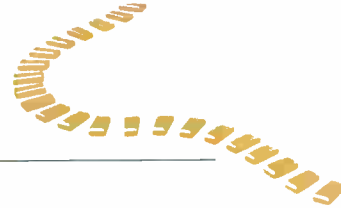


MULTI-IMAGE DISPLAY ZANDAR TECHNOLOGIES FUSIONPRO+

A signal monitoring system supporting all common formats including composite video, SDI, HD-SDI, as well as RGBHV and DVI computer sources and audio; is highly modular with a range of plug-in interface cards enabling users to combine formats in one system; includes support for UMDs, tallies, clocks and time code; also includes video, audio and system fault detection, alarms and optional dual redundant power supplies.

321-939-0457; www.zandar.com

BOOTH: SU1033



FIELD MIXER **AZDEN FMX-32**

The portable three-channel, battery-operated mixer is targeted toward mobile professional videographers; offers three balanced XLR inputs with individual level controls and +48V DC phantom power; measures 1.96in x 6.69in x 4.33in; mixer can be attached directly to the camera with supplied hook-and-loop mounting tape.

516-328-7500; www.azdencorp.com

BOOTH: N4218



SUNSHADE SYSTEM **16x9 Sunshade System**

A compact, lightweight Chrosziel 4x4 clamp-on Sunshade System for JVC's GY-HD100; attaches directly to the front of the standard 16X lens; features include a 16:9/4:3, housing, full-size French flag, filterstage for two filter holders and a 104:85 step-down ring; an optional center bracket and lightweight support system are also available.

818-972-2839; www.16x9inc.com

BOOTH: SU2917

DISPLAY PROCESSORS

Avitech International **MCC-8004**

Series of multi-image display processors feature auto-detect HD-SDI/SD-SDI/analog (PAL/NTSC); auto-detect aspect ratio is between 16:9 HD-SDI and 4:3 SD-SDI and composite; includes analog/AES/embedded audio support for audio VU meters; capable of up to 120 images per display.

425-885 3863; www.avitechvideo.com

BOOTH: SL3011

FIBER CHARACTERIZATION SOFTWARE

JDSU OPTICAL **FIBERCABLE V4**

Enables complete qualification of fiber infrastructure as required to deliver the highest-quality triple-play services via multi-wavelength and FTTx delivery mechanisms; designed to provide fast and efficient post-analysis of testing carried out in the field; integrates the latest fiber characterization test documentation (loss, reflectance, fiber bend detection, dispersion analysis, multi-wavelength analysis) for higher capacity fiber build-out programs.

317-788-9351; www.jdsu.com

BOOTH: SU4201

TAPELESS WORKFLOW SOLUTION

Anystream Agility **Broadcast**

Streamlines media production for version exchange and on-air play-out; features software-based real-time HD encoding; leverages new grid encoding architecture; high-quality, real-time HD encoding leverages the economy and efficiency of IT-based all digital workflows.

202-661-4665; www.anystream.com

BOOTH: SL2944



FLUID HEAD Shotoku Broadcast Systems CrescentM

The lightweight mid-size fluid head is capable of mounting a wide range of small to large size cameras; launches with the same smoothness as the Crescent and uses the same balancing technology.

866-746-8658; www.shotoku.tv

BOOTH: C7336



PORTABLE DIGITAL PROCESSING CAMERAS

IKEGAMI ELECTRONICS HC- D57 AND HC-D57W

Use a new 12-bit digital processing integrated circuit; compatible with the TA/BS-45 triax system; maintain flexibility for studio and field productions; offer both broadcast-grade picture quality and studio system expansion; all processing pre-knee is digitized, providing stable, high-quality pictures.

201-368-9171; www.ikegami.com

BOOTH: C3226





HDTV LENS CANON DIGI SUPER100XS

The Advanced Focus version of the DIGI SUPER100xs HDTV long field lens; enables camera operators to instantly achieve exact focus at all times; provides full HDTV image quality while implementing control of focal length from 9.3mm to 930 mm (1860mm with extender).

516-328-5000; www.canonbroadcast.com

BOOTH: SU131



MONITOR FLORICAL SUPERVISORY MONITOR

Monitor enables centralized operations to have a dashboard view of up to 10 channels per monitor in a moving timeline display; the operator can control channels and troubleshoot problems using SNMP.

352-372-8326; www.florical.com

BOOTH: SU2941

ALARM MONITORING SYSTEM Pharos Communications Pharos Exception

Designed for use in television production studios, MCR environments, post-production facilities and playout centers; provides notification of alarm monitoring signals from third-party equipment; incoming signals can be grouped, time-masked and forwarded to a pre-definable list of users at their workstations or via the Web-based Pharos information center.

+44 118 950 2323; www.pharos-comms.com

BOOTH: UK PAVILION



MULTI-IMAGE DISPLAY PROCESSOR MIRANDA TECHNOLOGIES KALEIDO-ALTO HD

Features multiple new HD monitoring capabilities; now offers advanced video and audio probing, including signal black, freeze and luminance too high, audio presence, overload, mono and out of phase alarms; the alarms can be reported on-screen, or via SNMP to other monitoring devices; can be combined with the new Allegro RGB real-time MPEG-4 streaming encoder to provide 10-channel remote monitoring and production over IP.

561-400-3320; www.miranda.com

BOOTH: SU1341

MAM SYSTEM Transmedia Dynamics Mediaflex Version 3

Supports Windows Media 9 and simultaneous parallel ingest from multiple systems; offers scene change recognition in both high- and low-resolution formats and Web capabilities for searching and streaming media; quickly and accurately inserts subtitles into file-based media content; the new add-on subtitle insertion application is compatible with Softel's insertion software and Omneon's video server.

+44 1296 745080; www.tmd.tv

BOOTH: SU186H

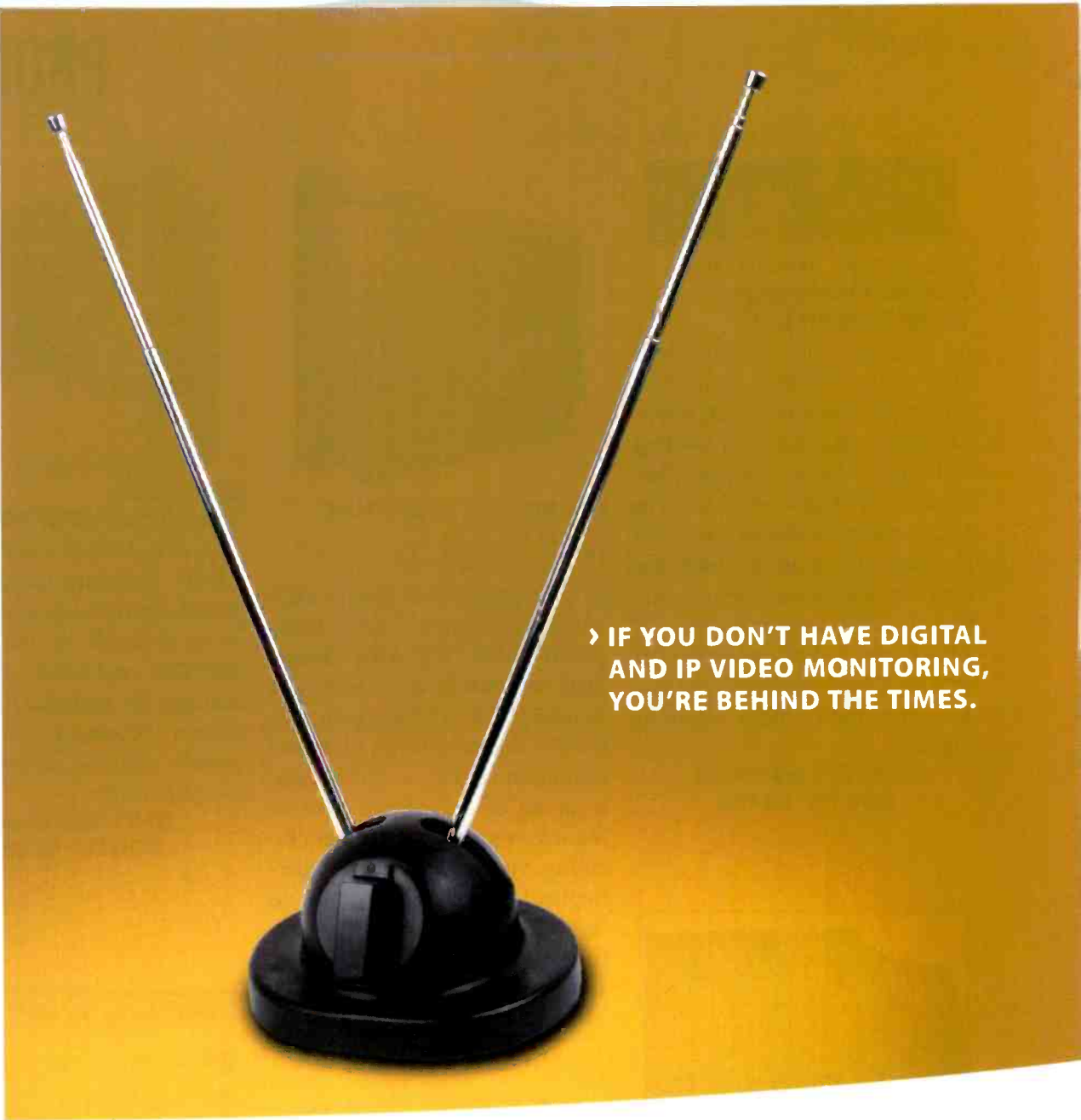


MULTIVIEWER FOR-A MV-16S

A 16-channel, multiviewer; supports analog composite and SD-SDI mixed inputs; the viewer can be set to divide the screen in many ways, such as 4, 5+1, 8+1, 9, 12, 12+1 or 16 sections; enables the combination of small and large images; an optional UXGA or DVI output is available, which is well-suited for displays on large-sized screens.

714-894-3311; www.for-a.com

BOOTH: C3210



> IF YOU DON'T HAVE DIGITAL AND IP VIDEO MONITORING, YOU'RE BEHIND THE TIMES.

WITH JDSU'S NEW DIGITAL AND IP VIDEO SERVICE MONITORING SYSTEM, YOU GET THE INDUSTRY'S MOST IN-DEPTH AND ACCURATE MONITORING SOLUTION.

The JDSU monitoring system immediately pinpoints problems and isolates faults, saving hours and even days finding and fixing problems. It keeps on-air errors off the air with proactive monitoring at full line rate and advanced alarming. You get simultaneous monitoring of all MPEG streams within a GigE link as well as comprehensive QAM, QPSK, COFDM, 8VSB, ASI signal verification and analysis.

The real-time digital transport stream generation, capture, and analysis capabilities of JDSU's award-winning DTS-200 and DTS-330 combined with the new QT-1100 Digital Video Service Monitor gives you the industry's first centralized, automated digital and IP video management system. Keeping you ahead of the times.

To learn more, please visit www.jdsu.com/QT-1100.



The QT-1100 Digital Video Service Monitor – part of JDSU's TruStream™ product family – automatically and continuously monitors IPTV, digital cable, satellite, and DTTV signals from ingest point to the edge.



Enabling Broadband & Optical Innovation

WWW.JDSU.COM/ACTERNA

NORTH AMERICA 1 866 228-3762

LATIN AMERICA +55 11 5503 3800

ASIA PACIFIC +852 2892 0990

EMEA +49 7121 86 2222



Acterna Test & Measurement Solutions



LCD VIDEO MONITOR Wohler Technologies Touch Screen LCD

A 12-input dual touch-screen LCD video monitor and mini router that monitors multichannel video and provides routing and multi-screen output; features dual high-resolution 7in LCD panels; can monitor up to 12 channels of composite video; the dual 7in widescreen high-resolution touch-screen monitors 12 1.8in thumbnail images on the left with touch-screen selection of image appearing on right screen at full size.

510-870-0810; www.wohler.com

BOOTH: C5132



CONSOLE EUPHONIX 5-MC

Designed for audio post applications, the console interfaces directly to digital audio workstations, such as Steinberg's Nuendo and Merging Pyramix, using the EuCon high-speed control protocol; control surface can be fitted with eight to 48 channel strips; has eight knobs per strip, a moving fader and TFT screen, and an MC Intelligent Application Controller for master console functions; includes integral control of the DAW.

650-855-0400; www.euphonix.com

BOOTH: N1002



HD/SD LCD MONITOR PANASONIC BT-LH2600W

A 26in production-quality LCD monitor; features a true wide-screen panel, one-piece design, high resolution, low delay and standard HD-SDI/SDI with embedded audio; features increased resolution (1366 x 768), pixel mapping of any of five areas of the screen for superior camera focusing, audio level meters superimposed and translucent (up to eight channels), and an 80 percent (of 4:3) safe-area frame marker in 16:9 mode.

201-392-4127; www.panasonic.com/broadcast

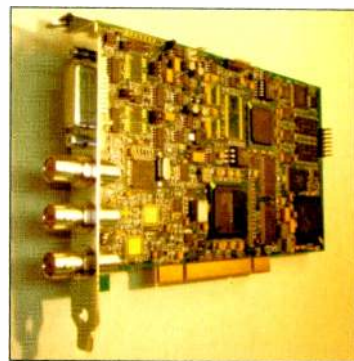
BOOTH: C2518

MONITOR ERG HDM-EV30D

A 6in LCD monitor; has two systems of video input, HD-SDI and analog HDTV or SDTV; active LCD area has a 960 x 540 resolution and can display 16.77 million colors by having 8 bits per RGB; displays images when receiving signals from the HDTV 1080; has a large-size tally signal light placed on the frontal upper region of the monitor; color temperature controls are at 6500K and 9300K; features a wide variety of marker indicators.

949-263-1640; www.erg-ventures.com

BOOTH: SU2231



ENCODER Vela Argus 200/250

Supports MPEG-2 and MPEG-4 (ASP) encoding profiles; both boards encode a variety of resolutions, from SIF to full-resolution MPEG-2 and MPEG-4 formats; features an embedded hardware stream processor, resulting in system resource savings and increased efficiency.

727-507-5367; www.vela.com

BOOTH: SL2936



DIGITAL NEWSROOM SYSTEM

JustEdit vsnnews

News management system allows text and video to be edited in the same application; integrates the rundown planning and assigning of resources, text editing, material ingest, storage and cataloging, archive integration, and shared editing of video and audio with voice-over from journalist workstations, graphics in real time and the automatic publication of news on the Web; integrates with most NLEs.

+34 902 35 37 39; www.vsn-tv.com

BOOTH: SL1240

ADVERTISERS SHOWN IN GOLD

APRIL 2006

ARCHIVE SYSTEM Masstech Group MassLogger Gateway

Archival system provides management and control interface for external devices, such as a DVD library, tape archive or NAS; multiple users can view and share logged content; database automatically manages the transfer of logged material to archival devices while simultaneously harvesting material from anywhere within the workgroup.

905-886-1833; www.masstech.com

BOOTH: SU1642

RECEIVER/DECODER RADYNE TIERNAN TDR4022

DVB MPEG-2 integrated receiver and decoder has BISS, embedded audio and AC3 decoding; operates at 4:2:2 and 4:2:0; Web browser includes QPSK with 8PSK and DVB-S2 as options; features full front-panel control with power switch; broadcasts video and two stereo audio pairs.

602-437-9620; www.radynecomstream.com

BOOTH: 2033

INTERFACE Autodesk Incinerator

Web interface uses computing cluster technology to provide real-time Lustre capabilities for primary and secondary color correction; includes real-time visual effects processing at HD and 2K resolutions and accelerated 4K processing.

800-551-1490; <http://usa.autodesk.com>

BOOTH: SL3719

ADVERTISERS SHOWN IN GOLD

APRIL 2006



MODULAR RECEIVER DECODER SENCORE ATLAS MRD 3187

Is a 1RU chassis that supports up to two decoders; with eight available I/O slots, it can be configured either as a single eight-slot or as two independent four-slot modular receiver decoders; is available with a wide range of interfaces, including QAM/8-VSB, DVB-S2, COFDM, 10/100/1000 Ethernet, SD/HD-SDI, NTSC and PAL; features a Web-based client and multicast unit management system.

800-SENCORE; www.sencore.com

BOOTHS: SU3009, C3810



LARGE APPLICATION MULTIFORMAT ROUTING SWITCHERS HARRIS PLATINUM

The high-capacity, small-footprint routing switchers provide high-quality signal routing up to 256 x 256 in 15RU and 512 x 512 in 28RU; support a mix of video and audio signals from analog to HD; built for reliable 24/7 operation; designed to offer flexibility to incorporate future feature additions; redundant, load-sharing power supplies and fans, along with front-loading, hot-swappable modules, ensure that systems remain online even during upgrades.

513-459-3400; www.harris.com

BOOTH: SU2929

DECODER RADYNE TIERNAN HD4040

HD and SD decoder offers simultaneous HD/SD, 4:2:2 or 4:2:0; is available in several different configurations; offers video audio front-panel confidence monitors; has up to eight audio channels with analog and digital outputs; includes QPSK as standard with 8PSK and DVB-S2 as options; includes Web-browser control and front-panel video display; upgradable to HD if bought with SD only.

602-437-9620; www.radynecomstream.com

BOOTH 2033

HD MONITOR MARSHALL ELECTRONICS TFT-MEGAPIXEL

Provides high-pixel density for 10.4in to 3.5in displays in one-, two-, three- and four-screen configurations; newly developed proprietary technology delivers a completely digital image process onto each screen; features improvements in brightness, contrast ratio and viewing angles; configurations are available with HD-SDI, SDI, DVI, component HD/SD and composite video inputs; all models feature screens calibrated to SMPTE/IBU standards for color gamut and color temperature.

310-333-0606; www.lcdracks.com

BOOTH: SU4355



ENCODER Adtec Digital adCode

A media ingest station for MPEG-2 standard-definition encode, review and approval of commercial and program material from FireWire (DV25), SDI, analog composite or YC sources; includes control of professional VTRs over serial RS-422 or FireWire for accurate selection of acquisition material; live feeds from satellite or newsroom sources can also be recorded on command.

615-256-6619; www.adtecinc.com

BOOTH: SL2961

ENCODER Vela Argus

HD transport stream encoder; captures high-definition SDI video and embedded audio for encoding video; allows operators to create and store HD content with a single board; features frame-accurate 4:2:0 and 4:2:2 encoding, HD-SDI input, Dolby Digital audio and DVB/ASI support; works in real time.

727-507-5367; www.vela.com

BOOTH: SL2936

ENCODER/DECODER INTERFACES MIRANDA TECHNOLOGIES PICOLINK SERIES

Line of 12-bit miniature interfaces, including the ENC-291p SDI-to-composite encoder and the DEC-291p composite-to-SDI decoder; are lightweight and offer high-quality conversion for a wide range of monitoring and conversion applications.

561-400-3320; www.miranda.com

BOOTH: SU1341

SH/HD MPEG-4 ENCODER SNELL & WILCOX MEMPHIS

The compression scheme is made through the company's Ph.C phase correlation motion estimation and Prefix compression pre-processing; a new 3RU version is available; can be initially integrated as a conventional encoder into a traditional ingest-for-playout environment and later upgraded into a fully configured ingest workstation for use in an IT-based infrastructure.

212-481-2416; www.snellwilcox.com

BOOTH: SU156

WEB-BASED PUBLISHER Anystream Agility Web

Features load-balanced batch encoding capabilities, supporting numerous format versions and content volume; supports mobile formats and network distribution profiles, including Nextstreaming and AMR narrowband audio for new-generation handsets and turn-key distribution profiles that deliver media to mobile service providers; supports consumer devices through high-quality video playout on Sony PSPs and Apple iPods; supports next-generation Web formats from QuickTime 7 to Flash 8.

202-661-4665; www.anystream.com

BOOTH: SL2944

FIBER-OPTICS SYSTEM Telecast Fiber Systems CopperHead G2

A camera-mounted fiber-optics system; this modular fiber-optic system supports virtually any professional camera or camcorder; provides full triax-like functionality via a single lightweight tactical fiber-optic cable, or via SMPTE hybrid cable.

508-754-4858; www.telecast-fiber.com

BOOTH: SU4717



CAMERA BATTERIES IDX Technology ENDURA

The four new Li-Ion V-Mount battery packs include the 98Wh E-10 (with PowerLink) and E-10S, as well as the 71Wh E-7 (with PowerLink) and E-71S; the PowerLink system allows two E-50/E-80/E-10 V-Mount batteries to be stacked together on a camera back, allowing for longer run times and on-camera lights without a battery belt; fit directly onto cameras with the wedge style V-Mount already built in or may be affixed directly to other cameras by adding an IDX V-Mount plate.

310-891-2800; www.idx.tv

BOOTHS: C4235, SU143

DECODER/ DEMODULATOR Microwave Radio Communications MRX4000

When connected to an existing CodeRunner 4 central receiver, the integrated demodulator/decoder leverages existing technology to provide integrated functionality; supports new and old FCC band plans for both analog and digital transmission; full BAS enhancements are available for CodeRunner 2 ENG transmitters.

800-490-5700; www.mcrbroadcast.com

BOOTH: C2007

ETHERNET CONTROL INTERFACE Extron Electronics IPLT S1

A member of the company's IP Link series; designed for extending network capabilities to an A/V device using an existing RS-232 serial port; includes the company's IP Link technology, an integrated Web server, full Ethernet compatibility and e-mail capability; the IP Link technology enables remote monitoring and troubleshooting of projectors, flat-panel displays, switchers and other serially controlled products.

714-491-1500; www.extron.com

BOOTH: TBA



PORTABLE STREAMING MEDIA ENCODER ViewCast GoStream

Uses ViewCast's Osprey video capture cards to convert SD video content to multiple streaming media formats for delivery to Internet audiences; EZStream buttons allow users to pre-define encoding profiles for a specific event and simply select the button, followed by the Start button, to begin a streaming session.

972-488-7121; www.viewcast.com

BOOTH: SL2840

SDI-TO-IP GATEWAY NETWORK ELECTRONICS SDI-IP-GTW

Allows for the transmission of uncompressed SDI over IP networks, as well as the real-time contribution and distribution of SDI over WAN, where access to dark fiber or wavelengths is limited; provides standard compliant SDI-over-IP transport in accordance with Pro-MPEG Code-of-Practice #4.

800-420-5909; www.network-electronics.com

BOOTH: SU199



Under CONTROL and it shows.



Engineered for Broadcast

"The Avocent solution gives us the connectivity we need and has allowed us to put our hardware in a centralized rack room, allowing user access throughout the building."

Jeff Lovetinsky, Director of IT
KHOU-TV

The broadcast environment is unforgiving and there is no room for downtime. Whether you need remote control of production servers and systems, or centralized management, Avocent keeps you on air with KVM switching and extension solutions engineered for broadcast.

Keep your broadcast staff smiling!

Download one of our case studies to learn how Avocent can help you stay on air at www.av.avocent.com



Visit us at Booth #SU4572

800.275.3500, Ext. 7110

Avocent and the Avocent logo are registered trademarks of Avocent Corporation. All other marks are the property of their respective owners. © 2006 Avocent Corporation.





POWER CONVERTER 16x9 Coco-DVL

A compact and cost-effective method of drawing voltage from Sony NPF970 batteries to simultaneously operate the camera and professional 12V accessories, such as a light, on-board LCD monitor or audio receiver; snaps on in place of the camera's existing 7.2V NPF battery; transfers 7.2V of power and Info-Lithium data from the battery directly to the camera while converting 7.2V to 12V for accessories.

818-972-2839; www.16x9inc.com

BOOTH: SU2917

DVB ASI-TO-IP ENCAPSULATOR DVEO/Computer Modules IP Caster

Real-time, end-to-end, Linux-based MPEG-2 transport stream over public or private WANs (offering 6Mb/s to 270Mb/s bandwidth); for low-cost delivery of single or multiprogram transport streams to distant locations over networks offering QoS priority via IGMP routing; the transport stream may be SD or HD; features auto detection of transport stream and network packet sizes, Web-based remote management and error recovery.

858-613-1818; www.dveo.com

BOOTH: SU1205

ROBOTIC HEIGHT- CONTROL PEDESTAL Shotoku Broadcast Systems TI-12 i-Height

Allows a variety of shooting angles to be achieved from a single camera position; offers fast, smooth and consistent height adjustment up and down from 2.5ft to 4.4ft; supports camera payloads up to 154lb; is driven directly from the CMC and needs no further interfacing; operator control is achieved using the existing rotary controls of the Shotoku Robotic Control Systems.

866-746-8658; www.shotoku.tv

BOOTH: C7336

SWITCHER OPTION GRASS VALLEY MATCHDEF

Provides a series of internal high-quality video input scalars; allows users to work in mixed formats while creating a consistent look for their productions; gives Kayak HD and Kayak SD operators the ability to seamlessly insert SD sources into and HD production, HD sources into and SD production and/or to cross-match dissimilar HD formats into either an HD or SD project.

503-526-8150; www.grassvalley.com

BOOTHS: SU3500, SU2906

QUAD BATTERY HOLDER ANTON/BAUER QBH-HD

An HD quad battery holder that provides dual voltage outputs of 14.4V and 28.8V simultaneously; bridges the power gap between HD and film production equipment; features three 14.4V outputs and one 28.8V output, capable of handling loads up to 10 amps.

800-422-3473; www.antonbauer.com

BOOTH: C5119A



UNINTERRUPTIBLE POWER SUPPLY Staco Energy Products FirstLineUPS

For 10kVA, 15kVA and 20kVA sizes; has a standard battery run-time of more than eight minutes, with optional batteries for virtually unlimited run time; front-end harmonic correction eliminates the need for additional filtering; double-conversion technology protects the connected load from sags, swells, harmonics, noise and voltage imbalances without going to battery operation.

937-253-1191; www.stacoenergy.com

BOOTH: C107

BATTERY ADAPTOR IDX Technology A-E241

The ENDURA V-Mount dual battery adaptor offers more power, higher current-draw and longer run time for HD and cinematographers; allows up to four ENDURA V-Mount batteries to be mounted at once for up to 392W of power using IDX's PowerLink; its slim design reduces the camera's profile; its durability ensures a solid connection between the equipment and batteries; can be fitted to cameras of any manufacturer, using different battery mounting systems.

310-891-2800; www.idx.tv

BOOTHS: C4235, SU143

ADVERTISERS SHOWN IN GOLD

APRIL 2006



POWER AND LIGHT PACKAGE PAG Power

Designed for the JVC HD100 camcorder; extends run time by enabling the use of 12V to 14.8V PAGlock ENG batteries; PAGlok power adaptor is fitted to the rear of the camcorder; incorporates a built-in DC adaptor and a power output port suitable for the 12V PAGlight M or other 12V accessories.

818-760-8285; www.paguk.com

BOOTH: C8515

SD/HD PRODUCTION SWITCHER VIDEO EFFECTS SNELL & WILCOX IMPAKT

A 3-D DVE option for the company's Kahuna production switcher; Kahuna now offers up to four twin-channel 3-D DVEs that users can apply in either SD, HD or both; work in source-based or bus-based modes; allows background and fill-and-key manipulation; provides a variety of powerful effects, including spheres, slabs, zooms, warps, tiling, ripples, rolls and peels, fragmentation, lighting effects, and corner pinning.

212-481-2416; www.snellwilcox.com

BOOTH: SU156



CHARACTER GENERATOR HARRIS INSCRIBER G3

Part of the G-Series, the HD/SD-selectable character generator offers MOS and automation interfaces, real-time animation and 3-D FlyBy, multiple-format clips and OverLay, which enables elements like clocks, timers, tickers and time/temperature bugs to remain visible while messages and pages are being changed; customized and third-party applications, such as news tickers and school closings, can also run simultaneously on the system.

513-459-3400; www.harris.com

BOOTH: SU2929



HD MEDIA SERVER OMNEON VIDEO NETWORKS SPECTRUM HD

Features integrated capability for the simultaneous playback of SD and HD content on either the same channel or independent channel; HD MediaPort playout modules can support one or two channels of HD MPEG playout of 4:2:0 and 4:2:2 material at bit rates up to 78Mb/s.

408-585-5109; www.omneon.com

BOOTH: SU2959

MULTI-CHEMISTRY BATTERY CHARGER IDX Technology VL-4Si

Advanced battery charger system handles up to four Li-Ion, NiCd or NiMH batteries simultaneously; LCD display monitors battery condition; direct USB PC interface; charges NP-style batteries with A-E2NP adapter; quick charge at 3A for one to three channels or 2.3A for four channels.

310-891-2800; www.idx.tv

BOOTHS: C4235, SU143

MULTI-IMAGE DISPLAY PROCESSORS e-mediavision.com X-View Series

Processors start from four-input quads to 32-input display systems; monitor and view input signals, such as composite video, SDI, HD-SDI, computer and IP streams, on large-screen display walls; integrate with the X-Com remote management and control plug-in to enable remote management via IT network infrastructure for local or remote sites.

+44 208 755 2014; www.e-mediavision.co.uk

BOOTH: TBA

DIGITAL DIONIC BATTERY ANTON/BAUER DIONIC 160

A digital dionic battery with a RealTime display; is constructed with specialized Li-Ion cells; can be used to power lighting loads and other accessories with a total output of up to 10 amps; weighs 30 percent less than the company's HyTRON 120 and has 30 percent more capacity; will run a typical camcorder for more than six hours.

800-422-3473; www.antonbauer.com

BOOTH: C5119A

SOUNDTRACK CREATION PLATFORM **SONY MEDIA SOFTWARE CINESCORE**

Delivers power, customizability and flexibility to videographers and broadcasters looking to create professional music scores for video and cinematic productions.

800-577-6642; www.sony.com/mediasoftware

BOOTHS: CW10300, SU107



SIGNAL INTEGRATION SYSTEM **ENSEMBLE DESIGNS AVENUE**

An expandable, modular tray-based signal integration system; housed in a 1RU or 3RU frame; allows any combination of HD video, SD video, DVB-ASI and audio modules in the same frame; modules include embedders, synchronizers, converters, routers, sync gens, protection switches and more.

530-478-1830; www.ensembledesigns.com

BOOTH: SU2997

KEYER

Eyeheight keyEyesMDi

HD downstream linear keyer features background, fill and key inputs; incorporates all the facilities required for generating HD matte overlays; fill and key inputs with adjustable horizontal timing are provided; includes matte generators, wipe, independent main and preview keyers, and EDH re-insertion for the main output.

+44 1923 256 000; www.eyeheight.com

BOOTH: SU147

ANALOG MATRIX SWITCHERS **AVOCENT AMX MATRIX KVM SWITCHES**

Supports consolidated control of multi-user, multi-rack server environments; provides end-to-end Cat 5 connectivity for access from the server to the desk; features full-system management with a Java-based administration tool, optimal video resolution and a patented OSCAR on-screen graphical interface; the switching solution includes four KVM switchers and three user stations.

800-275-3500; www.av.avocent.com

BOOTH: SU4572



VISUALIZATION SYSTEM **Silicon Graphics (SGI) Prism**

Based on 64-bit interactive Linux visualization platform with flexible blade configurations; combination of blades includes CUPs, coprocessors, memory, storage, I/O and graphics; features PFRestore, the Pixel Farm's new digital restoration system for 4K digital cinema remastering.

800-800-7441; www.sgi.com

BOOTH: SL3764

DUAL-CHANNEL ON-CAMERA UHF RECEIVER **AZDEN 200UPR**

The 63-frequency UHF receiver operates in the 794MHz to 806MHz band; records sound from two subjects simultaneously; is available in three pre-packaged systems, which include the receiver and two mic/transmitters; features a crystal-controlled PLL synthesis and a two-channel, 3mm, -58dB balanced mic-level jack; each channel has on and off switches, LEDs, group frequency selectors, and dual high-gain antennas.

516-328-7500; www.azdencorp.com

BOOTH: N4218

LOUDNESS METER **DOLBY LM100**

Enables users to continuously log short- and long-term speech loudness values in real time, while storing the loudness history data for later analysis; the remote application also includes an event log that allows users to monitor and log several types of input status, alarm and error conditions.

415-558-0200; www.dolby.com

BOOTH: SU2923

SD SWITCHER **GRASS VALLEY KAYAK SD**

Designed for organizations that want to create SD content today and HD in the future; features all the power of a Kayak HD system; can be made HD-capable via an easy software upgrade.

503-526-8150; www.grassvalley.com

BOOTHS: SU3500, SU2906

PRODUCT HIGHLIGHTS

CLIP MANAGER OMNEON VIDEO NETWORKS PROBROWSE

Creates and displays low-resolution (proxy) versions of full-resolution material contained within the server system; offers simplified identification and viewing with automatic proxy generation, as well as user-selectable thumbnail images and metadata searching; monitors content directories within several networked Omneon Spectrum servers; automatically generates 1Mb/s low-resolution versions of all material.

408-585-5109; www.omneon.com

BOOTH: SU2959

HD/SD EMBEDDER/ DE-EMBEDDER ENSEMBLE DESIGNS 7600

Part of the Avenue integration system, the module is an eight-channel audio embedder/de-embedder for 1.5Gb/s HD or 270 Mb/s SD video signals; configurable mux or demux; when configured as a multiplexer, it has one serial digital video input and four AES audio inputs embedded into the HD or SD video stream and sample-rate converted, allowing the use of asynchronous audio; when configured as a demultiplexer, audio signals present in the incoming video signal are extracted and delivered as standard AES digital audio streams.

530-478-1830; www.ensembledesigns.com

BOOTH: SU2997

TECHNICAL FURNITURE SYSTEM TBC CONSOLES INTELLITRAC

Front and rear device tracks allow unlimited lateral positioning of critical monitors; rack bay turrets may be easily upgraded or relocated, allowing quick, user-friendly modifications; a full range of articulating arms for distance, height and tilt control may be used for mounting flat-panel monitors, speakers, phones and task lighting.

631-293-4068; www.tbconsoles.com

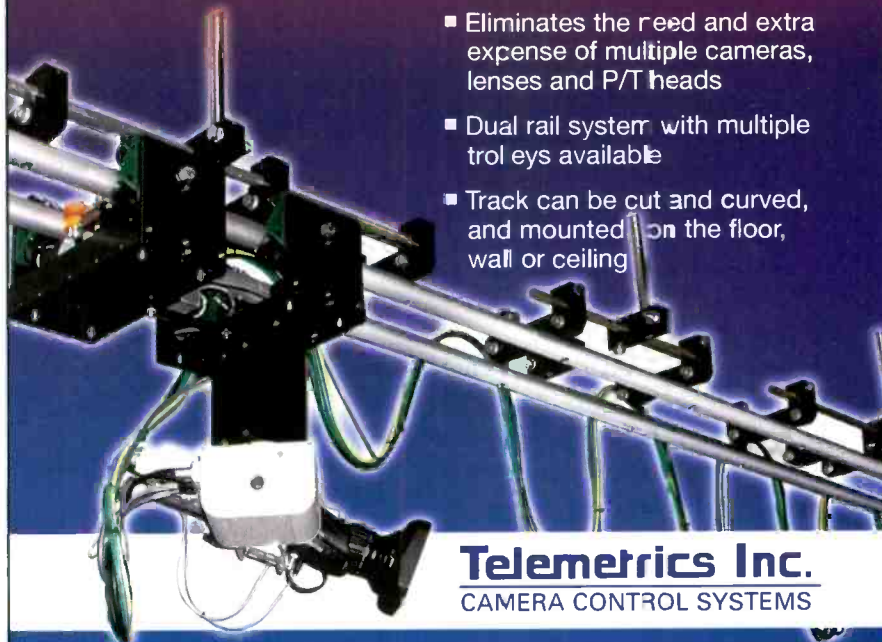
BOOTH: SU1390



get on the
right track

TeleGlide Camera Trolley System

- Smooth, quiet and fast camera trolley operation
- Eliminates the need and extra expense of multiple cameras, lenses and P/T heads
- Dual rail system with multiple trolleys available
- Track can be cut and curved, and mounted on the floor, wall or ceiling



Telemetrics Inc.
CAMERA CONTROL SYSTEMS

www.telemetricsinc.com



CAMERA PEDESTAL Vinten Vision Ped Plus

The successor to the company's Vision Pedestal; new features include camera balance developed from the Osprey range of pedestals, an increased payload of 30kg, and a manual pump and an inlet for use with an external supply; also features a pressure gauge for clear and reliable setup, a new detachable skid for improved overall stability and a revised wheel braking system that ensures a smooth rolling base at all times.

+44 1284 752121; www.vinten.com

BOOTH: C5119C



CHARACTER GENERATOR PIXEL POWER CLARITY3000

Single-channel HD/SD switchable character generator; the graphics platform is housed in a compact 3RU chassis; offers rich HD functionality, including real-time 3-D animation, a video and audio clip player and dual input 2-D DVE squeezeback capability; the preview and main outputs can be switched between SD and HD in all the established formats.

954-943-2026; www.pixelpower.com

BOOTH: SU4359

SD/HD VIDEO PRODUCTION SWITCHER SNELL & WILCOX KAHUNA

New features include compact versions of the 1M/E, 2M/E and 3M/E control panels, as well as a micro control panel; the new compact 2M/E and 3M/E panels enable users to integrate the switcher in space-constrained environments; the new 1M/E and micro panels provide the ability to have a specialist operator control the output from larger systems during a live event or to operate specialized equipment such as the Kahuna IMPAKT DVE.

212-481-2416; www.snellwilcox.com

BOOTH: SU156

INTERCOM INTERFACE RIEDEL CONNECT IP

Provides intelligent and seamless intercom interfacing to IP-based networks; 19in, 1RU unit allows for matrix-to-matrix connections from matrix to control panels and distribution of audio lines over IP; converts one AES3-stream; can be configured to individual bandwidth needs; bandwidth is scalable, resulting in audio quality up to 20kHz at 230Kb/s; supports remote user control key panels.

+49 202 292 90; www.riedel.net

BOOTH: C8507

FIBER-OPTIC TRANSMITTER AND RECEIVER Meridian Technologies DigiView

A DVI/RGsb/RGBHV fiber-optic video transmission system; features real-time video transmission over one multimode fiber; DVI, RGBHV and RGsb available in the same module; auto-select resolution and refresh rates up to 1600 x 1200 at.

516-285-1000; www.meridian-tech.com

BOOTH: TBA



DIGITAL PRODUCTION SWITCHERS

Ross Video Synergy SD

Version 16 of the switcher includes additions to the array of device control interfaces, operational enhancements and support for the latest version of the Ross OverDrive; added device interfaces include Avid Airspeed and EVS maXS servers, and Canon and Sony robotic cameras; operational enhancements include features in the custom control macro system, independently mappable auxiliary busses and CCU override latch mode.

613-652-4886; www.rossvideo.com

BOOTH: SU1356



WORKSTATION DVS CLIPSTER

Real-time workstation has multi-resolution, zoom and pan, conforming, color-correction, cropping, and versioning capabilities; software supports workflows for dailies and various compressed formats, such as JPEG2000, WM-9 and QuickTime; employs such technologies as 64-bit CPU, operating system architectures and multicore processor support.

818-846-3600; www.dvs.de

BOOTH: SL2964



HD CHROMA KEYSER Crystal Vision Safire HD

Modular chroma keyer works with all HD formats as well as SDI; features additive and multiplicative keying; allows areas of the final picture to be a mixture of both foreground and background; control options include the Safire Controller 2RU control panel and the Statesman PC control system.

954-788-3334; <http://crystalvision.tv>

BOOTH: C7912

MATRIX SWITCHER Extron Electronics MVX Plus 128 VGA A

A 12 x 8 matrix switcher for VGA and stereo audio; combines the performance of a wideband matrix switcher with the convenience of 15-pin HD VGA-style connectors; is equipped with the company's Plus series matrix switcher feature set, including audio input gain and attenuation and audio output volume control; features technologies that correct and restore a sync signal as it passes through the switcher, verify active input sources and enable the switcher to be proactively monitored and managed over a LAN, WAN or the Internet recording media.

714-491-1500; www.extron.com

BOOTH: TBA



VIDEO DISK RECORDER DOREMI LABS V1-HD

Records and plays back HD video, SDI and HD-SDI video I/O; employs high-quality JPEG 2000 video compression at up to 300Mb/s; drop-in replacement for HD VTRs; features an independent record and play option for time delay and sports slow-motion applications; optional dual-channel playback for applications such as video and key.

818-562-1101; www.doremilabs.com

BOOTH: C5712

ROUTING SWITCHERS PESA SWITCHING SYSTEMS CHEETAH

The 128NE offers a 128 x 128 routing matrix requiring one power supply of less than 600W to drive the compact 7RU system; supports PESA's Matrix WatchDog redundant crosspoint matrix; the 11RU 128XE is designed to offer broadcasters the flexibility to select between a 128 x 128 configuration with output options or output expansion up to 128 x 256 without option slots; the 128WE, also in 11RU, supports a 128 x 128 configuration with all output options available and support for Matrix WatchDog.

800-328-1008; www.pesa.com

BOOTH: SU1370

VIDEO PROCESSOR Axon Digital Design HXT10

Video processor is an HD combined frame synchronizer, 16-channel embedder and ultra-high-quality downconverter; enables simultaneous feeding of HD and SD with embedded audio and composite transmissions in the transmission output module.

+31 13 511 6666; www.axon.tv

BOOTH: SU1414A

SWITCHERS Brick House Video Callisto

SDI/composite switchers feature a new audio module that provides silent audio switching with cross fade options; Callisto-F incorporates push-button controls on the front panel as well as a standard control interface to allow direct operation without the need for a remote control panel.

+44 1962 777733; www.brickhousevideo.com

BOOTH: SU230

REMOTE SATELLITE NEWSGATHERING SYSTEM

Stratos Global Stratos Mobile Media System

Based on Inmarsat's Broadband Global Area Network (BGAN) mobile satellite service; includes a low-cost and lightweight BGAN satellite terminal/antenna, handheld video camera, voice handset, power adapters, batteries, cables and laptop PC; offers IP data speeds of up to 492Kb/s; offers broadband data with simultaneous voice through a single, portable device.

708-457-2508; www.stratosglobal.com

BOOTHS: SU3006, C9843





ADVANCED MEMORY SOFTWARE

Broadcast Pix Scripts

Designed for Broadcast Pix's line of production switchers, which features a built-in graphics system and clip store; scripts take advantage of this tight integration by recalling key settings as well as the exact clips, titles and animations to fill the keys; can be extended to control camera position and lens, as well as video servers.

781-221-2144; www.broadcastpix.com

BOOTH: SL2400



HDTV STUDIO LENS

FUJINON HA27X6.5ESM

Features a long focal length and an extremely wide viewing angle magnification up to 27X and the widest angle at 6.5mm; features high optical performance, reduced flair, improved color balance, a reduction in operating noise, and a smaller size and weight than previous models; is available with Fujinon's Precision Focus Assist, which automatically corrects for minute focus errors.

973-633-5600; www.fujinonbroadcast.com

BOOTH: SU149

PROMOTIONS CRAFT EDITOR HARRIS VELOCITYNX

A comprehensive editing and effects toolset for NEXIO server environments; ideal for broadcast production environments that need high-end post features along with true shared storage, sports applications that need editing and slow-motion server output or news operations that require additional compositing capability.

513-459-3400; www.harris.com

BOOTH: SU2929

HD RECORDER PANASONIC AJ-HPS1500

A P2 DVCPRO HD recorder; serves as a bridge between HD and SD, with the capability of optional up- and downconverting between SD and HD recorded material; provides upgradable capacity using five P2 card slots; offers two slots for adding removable hard disk drives.

201-392-4127; www.panasonic.com/broadcast

BOOTH: C2518



MODULATOR RADYNE TIERNAN DM240XR

Digital video broadcast modulator has data rates up to 120Mb/s for DVB-S2 and up to 238Mb/s for DVB-S; offers QPSK, 8PSK and 16QAM operation; features built-in ASI; new FPGA device is included for quicker and simpler engineering design; features a built-in M&C for field upgrades.

602-437-9620; www.radynecomstream.com

BOOTH: 2033

SWITCHER Laird Telemedia LTM-DV4X1A

Accepts DV IEEE 1394 inputs from up to four DV devices, such as VTRs, cameras or NLEs; will lock and switch any of the four sources glitch-free; devices used do not have to be genlocked or synchronous; allows insertion of external audio in to the DV stream from either a line level or microphone source.

845-339-9555; www.lairdtelemedia.com

BOOTH: SL3769

MULTIFORMAT, DUAL-CHANNEL HDTV PROCESSOR TV ONE C2-7300

Features full HD-SDI multichannel audio processing; supports most bi-directional analog-to-HDTV conversions; fits within a compact 1RU enclosure; provides 32 channels of stereo audio processing, which allows for simultaneous embedding of eight stereo audio channels for each of the two HD-SDI inputs and de-embedding of eight stereo audio channels from each of the two independent HD-SDI outputs.

800-721-4044; www.tvone.com

BOOTH: C347

MASTER CONTROL SWITCHER PRO-BEL MASTERPIECE

Offers HD and SD switching, advanced audio processing, and flexible keying and DVE options; upgrades include an HD DVE, installing Dolby E decoders and logo storage; features four keyers and can handle audio mixing.

925-735-9269; www.pro-bel.com

BOOTH: SU4347

PRODUCT HIGHLIGHTS

SURROUND MICROPHONE Holophone H4 SuperMINI

Features an integrated multichannel pre-amplifier, monitor and encoder; based on patented Holophone Surround Audio capture technology; offers six microphone elements with a bandwidth of 20Hz to 20KHz, a matrix-encoded stereo analog output and six line-level analog outputs that are available at one per channel from three stereo 3.5mm female jacks.

416-362-7790; www.holophone.com

BOOTH: N3931

CONDENSER MICROPHONE Beyerdynamic MC 840

A compact, large diaphragm studio-class microphone; features a gold vaporized double diaphragm and five selectable polar patterns: omnidirectional, wide cardioid, cardioid, hypercardioid and figure eight; equipped with an improved low-noise preamplifier and an impedance transformer without transducer.

631-293-3200; www.beyerdynamic-usa.com

BOOTH: N2412

CABLE CONNECTOR Neutrik OpticalCon

Enables up to four copper wires to run power or data signals through fiber-optic systems; A special SMPTE-version1 has been optimized for broadcast applications, which provides an additional ground-shell contact.; comes pre-assembled with a choice of three mobile field cables, which can be ordered at almost any length.

732-901-9488; www.neutrikusa.com

BOOTH: C6033

LCD DISPLAY Oxygen DCT Evolution 24

A 24in high-definition LCD display; inputs all analog and digital formats, including HDTV and DVI; features a brightness of 500Cd, contrast ratio of 1000:1 and a native resolution of 1920 x 1200.

+44 8707 462 062; www.oxygendct.com

BOOTH: TBA



ENGINEERED FOR PRECISION AND PERFORMANCE, GEPCO CABLE AND CONNECTIVITY PRODUCTS DELIVER PROVEN SOLUTIONS FOR A DIVERSE RANGE OF INTERCONNECT FORMATS. FROM LEADING EDGE AUDIO AND VIDEO DESIGNS TO SPECIALIZED NETWORKING AND AUTOMATION CABLES, GEPCO ACHIEVES THE PERFORMANCE AND DEPENDABILITY REQUIRED FOR DEMANDING PROFESSIONAL APPLICATIONS.

Innovative Designs Interconnect Solutions



AUDIO
VIDEO
NETWORK
HYBRID FIBER
AUTOMATION
LIGHTING

TOLL FREE 1-800-966-0069 www.gepco.com



MPEG-2 VIDEO PROCESSING PLATFORM SCIENTIFIC-ATLANTA DIGITAL CONTENT MANAGER (DCM)

Addresses new demands for digital applications, including advanced processing, bandwidth maximization and management, HDTV and on-demand digital service, local program insertion, and security; enables the ability to simultaneously process from one to 2000 video streams, including processing, DVB simulcrypt scrambling and digital program insertion.

770-236-6609; www.scientificatlanta.com

BOOTH: SU1608

TECHNICAL FURNITURE FORECAST CONSOLES MASTRAIL

Designed to offer infinite potential layouts and design configurations; universal mounting system allows for random placement of all monitors, EIA rack boxes, speakers, script stands and special-purpose devices anywhere along the length of the console.

800-735-2070; www.forcast-consoles.com

BOOTH: SU146



REMOTE MONITORING AND CONTROL HARRIS NUCLEUS

The next-generation, user-configurable, real-time control panel is designed to centralize the operational control of processing, branding and routing products; offers improved access to device control parameters, a user-friendly display and a higher degree of user customization.

513-459-3400; www.harris.com

BOOTH: SU2929



LCD DISPLAYS BARCO LC-42 AND LC-47

LCD displays feature full high-definition resolutions (1920 x 1080) and large display sizes (42in and 47in diagonal); are compatible with a wide variety of signal sources; are capable of showing analog and digital video, as well as data content, in sequence or picture in picture; feature a fanless design for low noise, frame lock and low-power consumption; accepts 1080p signals.

678-512-6100; www.barco.com

BOOTH: SL3738

CONTROL PANEL Videoframe VTECS VF0054

An intelligent knob-per-function frame sync or proc amp control panel for master control splash or QC positions; controls interface and processing equipment from multiple vendors using VNODE interface; interfaces with router to follow the X-Y panel or to cause monitors at the QC station to follow this panel; panel allows multiple pages of controls per router source or processing channel.

530-477-2000; www.videoframesystems.com

BOOTH: SU5164



VIDEO DIGITAL RECORDER Fast Forward Video VDR 200

The compact industrial and professional VDR offers simple operation in broadcast-quality video applications, including video assist, location recording and video analysis, as well as for use in inspection systems and in sports and hazardous environments; features an AC/DC power option; records to a removable 2.5in IDE drive; can serve as a direct replacement for tape-based recording systems.

949-852-8404; www.ffv.com

BOOTH: C1851

PRODUCT HIGHLIGHTS

FULL DUPLEX TRANSPORT STREAMBOX SBT3-7400 ACT-L3

The bidirectional, full-featured, low-latency encoding and decoding conferencing solution uses Streambox's ACT-L3 codec with advanced IP networking capabilities; features 24/7 plug-and-connect real-time transport capabilities that deliver high-quality full-motion, full-frame interlaced broadcast video and audio; the full duplex encoder/decoder system enables the user to send and receive video and audio simultaneously.

206-956-0544; www.streambox.com

BOOTH: SL581

ROUTER CONTROL SYSTEM NVISION NV9000-SE

Features a new Java-based, easy-to-use client interface; portable configuration editor allows users to develop configurations off-line and upload to the server; new optimized wizards provide a flexible means of adding devices and tasks; bulletproof redundancy assures uninterrupted 24/7 operation.

530-265-1000; www.nvision.tv

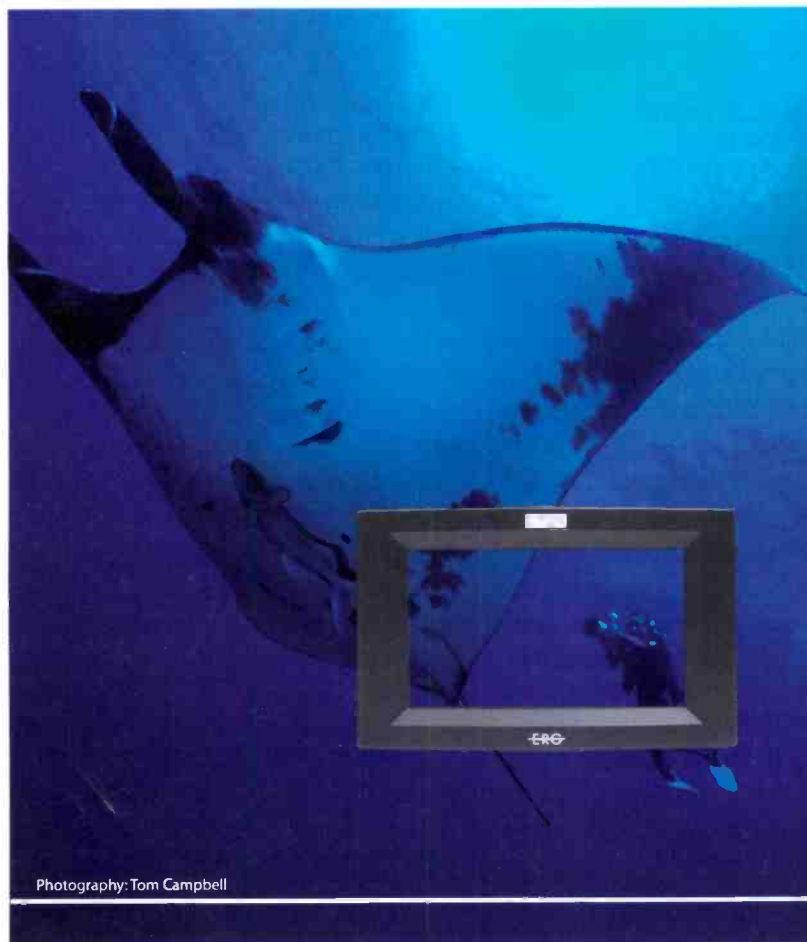
BOOTH: SU1414

SERVER Silicon Graphics (SGI) Altix 4000

Platform is comprised of modular blades: interchangeable compute, memory and I/O blades, as well as special purpose blades for plug-and-solve configuration flexibility; the blade-to-NUMA-link architecture enables users to mix and match eight standardized blade choices; is socket-compatible with upcoming single- and dual-core Intel Itanium 2 processors; offers the ability to upgrade or expand the CPU, memory, I/O or virtualization capabilities.

800-800-7441; www.sgi.com

BOOTH: SL3764



Photography: Tom Campbell

Takes you below the surface.

Discover a whole new world with ERG high-resolution HD monitors. With ultra-sharp images and vibrant colors, they'll let you see things you've never seen before. ERG offers you an entire range of award-winning HD monitors to suit your needs, from rack-mounted monitors with four convenient inputs and easy-to-read data displays to portable monitors with rugged design and low power consumption, like the new ERG HDM-EV85. No matter which HD monitor you choose, you'll find yourself immersed in the image. NAB Booth #SU2231, erg-ventures.com, contact@erg-ventures.com U.S.: +1-949-263-1630, Japan: +81-3-3760-8161

ERG HD Monitors



MONITOR STAND AND MOUNT TecNec Distributing DELV-LCD1

The collapsible stand and VESA bracket allows up to 20in LCD monitors to be used in the field or studio for professional video production; extends to 80in; made of rugged, lightweight aluminum; rated for 40lb of steady weight; the DELV-LCDPKG includes the DELV-LDC1 as well as a Norcent LT-2023 LCD TV with a high-resolution 800 x 600 pixel and 500:1 contrast ratio; an optional DELV-PED provides a table base for quick removal of the mounted LCD from the collapsible stand.

845-246-0428; www.tecnec.com

BOOTH: C5541

OPERATIONS MANAGEMENT ScheduALL Media Connection Services

Allows bi-directional API access for strategic third-party companies with industry-standard media partners; designed for use in the asset management, traffic, automation, rights management and content management areas of broadcasting, cable and satellite operations.

303-399-5454; www.scheduall.com

BOOTH: SL1955



STUDIO MONITOR JBL Professional LSR4300 Series

With supplied Control Center software, users can address system settings, create custom EQ presets, and store and recall system configurations from the computer desktop; a wireless remote control allows control of all features from anywhere in the room.

818-894-8850; www.jblpro.com

BOOTH: N2426

PORTABLE DISC RECORDER SENNHEISER ELECTRONIC ROSENDAHL BONSAIDRIVE

A miniature, lightweight, extremely portable hard disc recorder; captures both high-quality video and multitrack audio; simultaneously handles 4:2:2 PAL or NTSC video signals alongside 10 audio channels; allows users to specify their choice of standard IDE drive, which neatly slots into the unit itself; video is handled in either composite, S-video or component formats.

860-434-9190; www.sennheiserusa.com

BOOTH: N1822



NEWS PRODUCTION SERVER QUANTEL NEWSBOX

A news production server with the ability to ingest material, view rushes, choose shots, edit stories, review finished pieces and play them out to air; features common progressive user interface and tool-set, the same as all the sQ systems from Quantel.

703-448-3199; www.quantel.com

BOOTH: SL1544



MICROPHONE Lectrosonics SM (Super Mini)

A small, professional audio wireless transmitter; when used in its native Digital Hybrid mode, it performs without the hindrance of an analog compandor or the headroom-limiting pre- and de-emphasis found in most analog systems; delivers 107dB signal-to-noise ratio and flat frequency response to 20kHz; uses both 24-bit digital audio and analog FM signal transmission methods to encode a digital signal into a robust analog format for transmission over a UHF FM carrier.

800-821-1121; www.lectrosonics.com

BOOTH: N3225

HIGH-RESOLUTION MONITOR SPLITTER Dayang MagicWall 5000 Series

Monitor splitter has auto-sensing analog/SDI inputs and switchable dual 1600 x 1200 pixels DVI outputs with integral de-interlacing; supports 16 or 32 channel SDI video with embedded audio; two- or four-channel audio level can be displayed alongside each image; features network/GPS-sourced time and countdown display, under-monitor display with automatic ID prompt, and a hard disk recording function.

+ 44 1234 271 053; www.dayang.com

BOOTH: SU4209



DUAL-HEAD DISPLAY FOR MULTIVIEWERS ZANDAR TECHNOLOGIES ZDH

Provides support for multiple inputs of any format and in any combination; has the ability to drive two displays as one virtual monitor wall; any of the inputs, up to 26 on the FusionPro+, can be viewed on either display, including horizontally spanning the displays.

321-939-0457; www.zandar.com

BOOTH: SU1033

AUDIO LOUDNESS ANALYSIS AND CORRECTION SYSTEM DOLBY DP600 PROGRAM OPTIMIZER

Allows terrestrial, cable and satellite broadcasters to automatically normalize the loudness of all of file-based programming and commercials without affecting the original dynamic range; programs can be normalized either by correcting metadata values or scaling the audio signal itself to a target loudness level.

415-558-0200; www.dolby.com

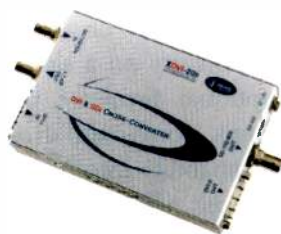
BOOTH: SU2923

OPERATIONS MANAGEMENT ScheduALL EDGE Rollout

Created for ScheduALL's boutique and smaller post users; is a complete solution in a box; provides an easy migration path to ScheduALL.

303-399-5454; www.scheduall.com

BOOTH: SL1955



VIDEO CONVERTER DOREMI LABS XDVI

Multiformat converter for DVI, SDI, VGA and HD-SDI; converts any input to any output; converts computer DVI (or VGA) output to HD video; provides high-quality HDTV upconversion and HDTV crossconversion by converting between any SD or HD format to its HD-SDI video output.

818-562-1101; www.doremilabs.com

BOOTH: C5712

TECHNICIAN SUPPORT Meta Media Creative Technologies Xsan Technician Support

Provides focused and relevant support for the active Xsan integrator or administrator; allows users access to Meta Media's knowledge base of Xsan integration and troubleshooting expertise; is purchased as a yearly package; provides unlimited e-mail and two hours of telephone support per month to a single user.

800-305-2163; www.metamediatech.com

BOOTH: TBA

DISTRIBUTION AMPLIFIER Laird Telemedia LTM-DVDA5P

Is a two-input, five-output DV distribution amplifier; is ideal for multiple NLE downloads or producing multiple copies of edited media, as well as for applications requiring split DV signal monitoring, DV duplication, DV mastering or hard-drive cloning; operates with PC and Mac systems and with DV VTRs and DVCAMs.

845-339-9555; www.lairdtelemedia.com

BOOTH: SL3769

AUDIO ANALYZER ROHDE & SCHWARZ UP350

Offers a frequency range up to 80kHz; provides digital audio interfaces; features the capability to measure the digital audio protocol and digital sampling rate.

410-910-7800; www.rohde-schwarz.com

BOOTH: C830

REMOTE MONITORING FRONT PORCH DIGITAL DIVAMONITOR

Enables real-time, remote monitoring of DIVArchive and all connected storage devices; accessed through the DIVAmirror portal, hardware and software in the archive layer is monitored by a team of support professionals working at the 24/7 network operations center.

303-440-7930; www.fpdigital.com

BOOTH: SU2236



BIDIRECTIONAL CONVERTER BLACKMAGIC DESIGN MULTIBRIDGE EXTREME

Bi-directional A/D and D/A converters allow editor to switch seamlessly between HD and SD material; supports dual-link HD-SDI 4:4:4; converts analog equipment to SDI-based systems by simultaneously converting from D/A and A/D at the same time; supports Windows XP and Mac OS X.

702-257-2371; www.blackmagic-design.com

BOOTHS: SL3791, SL3985

SDI-TO-ANALOG CONVERTER WITH GENLOCK ENSEMBLE DESIGNS BRIGHT EYE 15

SDI video input signal is converted to analog composite and then synchronized to the reference signal; analog composite output is timed with respect to the reference, including Sch phase.

530-478-1830; www.ensembledesigns.com

BOOTH: SU2997



SD/HD FRAME SYNCHRONIZERS LYNX Technik AG P VD 5600 Series

Includes a range of multiformat SD/HD frame synchronizer products; offer single- or dual-channel functionality on a single card with optional firmware plug-ins to add up-, down- and cross-conversion capability into each frame synchronizer; offer programmable video delay, full video and audio proc with support for embedded and external AES; fit into existing LYNX 2RUs and are fully compatible with the LYNX control system.

+49 6150 18170; www.lynx-technik.com

BOOTH: C9246

WIRELESS MONITOR SYSTEM SENNHEISER ELECTRONIC 3250 SERIES

An upgraded version of its 3000 series wireless monitor system, the new SRSR3254-U single-channel transmitter, SR3256-U dual-channel transmitter and EK3253-U body-pack receiver are compatible with the company's Evolution series wireless G2 monitor series; offer higher RF output levels and extended tuning capability.

860-434-9190; www.sennheiserusa.com

BOOTH: N1822

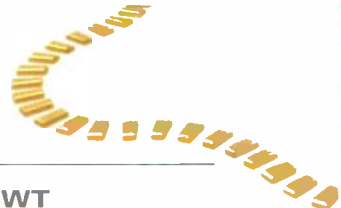


VIDEO PLAYER/RECORDER SYSTEM Merging Technologies VCube HD-2K

A hard-disk-based video player/recorder system; can be used as an HD VTR replacement, a dual-link 4:4:4 recorder, a frame store for graphics or animation houses, an SD/HD digitizing station for network servers, or as a 24fps screening system for film dubbing, screening or digital cinemas; is capable of uncompressed 1920 x 1080 high-definition video resolution and more than 30 different SD/HD video formats.

+44 1606 892788; www.merging.com

BOOTH: SL3755



SPORTS CONTROLLER DNF Controls DMAT-O-EZ

Controller allows users to mark and save cues quickly and recall cues with minimal keystrokes for slow-motion instant replays; features an easy-to-read display; use of the T-Bar ensures maximum and precise speed control.

818-898-3380; www.dnfcontrols.com

BOOTH: SU2955

DVB-ASI INPUTS VERTIGOXMEDIA VXASI

An option for the VertigoXG character generator; provides four DVB-ASI inputs with real-time demuxing and decoding of MPEG-2 video and audio streams; the decoded video and audio streams are sent to the VertigoXG rendering and compositing engines as standard SDI or HD-SDI video inputs and can be fully branded, DVE'd, mixed and output as either SDI or HD-SDI signals.

514-397-0955; www.vertigoxmedia.com

BOOTH: SL4726



INTEGRATED RECEIVERS/ DECODERS SCOPIUS VIDEO NETWORKS IRD-2900

Supports a wide range of front-end options, including ASI transport-stream input and output supporting rates over 155Mb/s, up to four QPSK L-Band inputs and up to four pairs of balanced outputs; features a dual decoder for decoding two programs within the same transport stream, as well as built-in full transport stream descrambling capability.

609-987-8090; www.scopus.net

BOOTH: 4175

CONTROLLER ESE ES-700 SERIES

Programmable event controllers provide several contact closure outputs at predetermined times; compares SMPTE, IRIG and ESE time code depending on model; are available with thumbwheel, keypad or PC interface; stand-alone clock or timer comparators are also available.

310-322-2136; www.ease-web.com

BOOTH: C1639

INDEPENDENT ENCODER OCTOPUS Newsroom Video Twister

Encodes and transcodes high-resolution media files and live media feeds into a low-resolution format for proxy browsing, Web pages or wireless broadcasting; can be used as a standalone system or with OCTOPUS Newsroom System as a low-resolution media source.

+420 221 181 511; www.octopus-news.com

BOOTH: C5416

OUTDOOR TWT AMPLIFIER MITEQ/MCL MT2300

Weights less than 32lb; is available for Ku-Band applications at 125W; 200W version will be available in the future; features an event log and continuous attenuator adjustment in dB; can be customized to include such options as an L-Band block upconverter and an internal linearizer; redundancy is available in 1:1 and phase combined configurations.

630-759-9500; www.mcl.com

BOOTH: C5145



SATELLITE NEWSGATHERING SCOPIUS VIDEO NETWORKS DSNG E-1720

The encoder modulator with integrated L-Band upconverter features modulation and upconversion in 1RU; provides broadcast quality of 70/140 IF and 950MHz to 2150MHz L-Band outputs as well as a separate L-Band monitoring output; supports various satellite modulation schemes in the form of QPSK/8PSK/16QAM.

609-987-8090; www.scopus.net

BOOTH: 4175





A/D AND D/A CONVERTER **Soniflex RB-ADDA2**

The 192kHz converter is 24-bit compatible; has all of the features of the existing RB-ADDA unit, as well as an extended frequency range to 192kHz, an optical input and output, front-panel push-button controls, and separate AES/EBU and Word Clock synchronizing inputs so that the A/D and D/A sections can be used independently.

+44 1933 650700; www.soniflex.co.uk

BOOTH: N4507

HD/SD CROSS CONVERTER **ENSEMBLE DESIGNS 7900 SERIES**

Provides HD up-, down- and cross-conversion, eight-channel audio option with channel shuffling and audio mixing; supports multiple formats; accepts software upgrades for signal monitoring and alarms.

530-478-1830; www.ensembledesigns.com

BOOTH: SU2997

VIDEO TRANSPORT **STREAMBOX SBT3-7500 ACT-L3**

The encoder solution is built on Streambox's ACT-L3 codec and advanced proprietary video compression technology; is integrated in one compact portable device that features a lower power requirement to flexibility of mobility without sacrificing broadcast-quality video; matches MPEG-2 video quality at a 75 percent lower data rate and is up to 50 percent more efficient than MPEG-4.

206-956-0544; www.streambox.com

BOOTH: SL581

CONVERTER **FOR-A MC-10AD**

Converts HD or SD analog component signals into SDI signals, with a DC drive supported by the unit's portable size; supports 1080/59.9i, 1080/50i, 1080/60i, 720/59.94p, 720/50p, 720/60p and NTSC/PAL; can be used by all HDV users for live production, newsgathering and production recording.

714-894-3311; www.for-a.com

BOOTH: C3210

DTV CONVERTER **Teranex Mini**

Handheld, portable DTV format converter converts SD video to and from HD in real time; enables HD field monitoring and conversion of SD camera and graphics sources to HD; has SD/HD-SDI inputs and outputs along with optional DVI, analog component and HDMI outputs; may be used to feed a VTR, display or video projector.

407-858-6000; <http://teranexlive.dimentians.com>

BOOTH: SU4983

HD AVC VIDEO ENCODER **Telairity Semiconductor TVM264 ClarityHD**

The H.264 video encoding solution is easily integrated with off-the-shelf or proprietary audio, control and infrastructure hardware and software; allows OEMs to deliver flexible broadcast and post systems with differentiating features and capabilities; supports full 1920 x 1080 HD resolution and delivers high-quality compressed video that conforms to the MPEG-4 part 10/AVC (H.264) standard while achieving a low bit rate of 8Mb/s to 10Mb/s.

408-764-0270; www.telairity.com

BOOTH: SU1639

MULTI-IMAGE DISPLAY PROCESSOR **MIRANDA TECHNOLOGIES KALEIDO-K2**

Features new monitoring capabilities, including the ability to decode Dolby Metadata information, such as channel line up and the dialog normalization value, for on-screen display; advanced new aspect ratio control features include on-screen reporting of the Advanced Format (AFD), with automatic video window aspect ratio reconfiguration from the AFD information.

561-400-3320; www.miranda.com

BOOTH: SU1341



700MHZ ANTENNAS **DIELECTRIC COMMUNICATIONS 7C, 7P AND 7S SERIES**

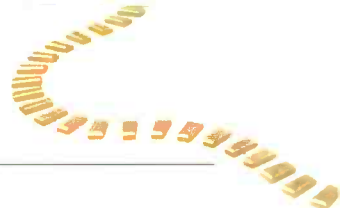
Antennas can be horizontally, vertically or circularly polarized; 7C series consists of slotted coaxial antennas designed for applications requiring a lightweight, 6MHz or 10MHz solution in the 700MHz band; the 7P series meets both omnidirectional and unique pattern requirements with either horizontal or vertical polarization; the 7S series is designed for applications requiring a horizontally polarized, omnidirectional broadband solution.

207-655-8100; www.dielectric.com

BOOTH: C2020

ADVERTISERS SHOWN IN GOLD

APRIL 2006



HD VIDEO DELAY Crystal Vision ViViD HD

Video delay provides more than half a second of delay in HD and three seconds in SD, with a minimum setting of a few microseconds; adjust delay in time steps; board measures 4in x 10.5in.

954-788-3334; www.crystalvision.tv

BOOTH: C7912



CONVERTER Teranex XMR

Standards converter integrates with Grass Valley's Kameleon media processing system, Newton modular control system and NetCentral SNMP-based remote monitoring application; allows noise reduction on SD and HD formats; converts from 480i/59.94 to 576i/50 and vice versa.

407-858-6000; <http://teranexlive.dimentians.com>

BOOTH: SU4983



VIDEO CAPTURE CARD AJA KONA 3

An uncompressed video capture card for SD, HD and dual-link 4:4:4 HD for PCI Express (PCIe) Apple G5 Power Macs and Final Cut Pro; features a 4-Lane PCI-Express bus interface with integrated QuickTime drivers; captures and plays back uncompressed 10-bit and 8-bit digital video and 24-bit 48kHz digital audio.

530-274-2048; www.aja.com

BOOTHS: SL4913, SU5125

Time to Celebrate



35 Years of Precision Timing

Broadcasters have counted on ESE precision master clocks and timing-related products for over 35 years. ESE products accurately synchronize broadcast operations using a choice of GPS, WWV, Modem, Crystal or line frequency for affordable, reliable, perfect time.

Spend a few seconds on www.es-web.com to discover a brilliant display of timing systems that are designed for easy installation, set-up and operation.



142 Sierra Street
El Segundo CA 90245 USA
Tel: (310) 322-2136
Fax: (310) 322-8127
www.es-web.com

DECODER OMNEON VIDEO NETWORKS MULTIPOINT 4000 SERIES

HD MPEG decoders for integrated playback of HD material ingested into an Omneon Spectrum media server; provides one or two independent channels of HD playback.

408-585-5109; www.omneon.com

BOOTH: SU2959

MICROPHONE Holophone H2-PRO

Capable of recording up to 7.1 channels of discrete surround sound; now features enhanced low-frequency effects (LFE); with the enhanced LFE, it effectively permits a higher output level of deep bass information without imposing on the performance or levels of the rest of the system.

416-362-7790; www.holophone.com

BOOTH: N3931



SIGNAL PROCESSOR FOR-A FA-9000

HD/SD signal processor supports all formats, including HD, SD, analog, digital and audio; uses 12-bit internal processing for high-quality images; functions include an up- and downconverter and color corrector; median-based noise reduction, a logo generator and a Dolby-E decoder are provided in 1RU.

714-894-3311; www.for-a.com

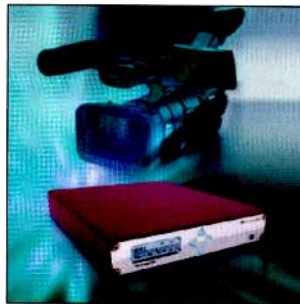
BOOTH: C3210

LED LIGHTING Litepanels Mini 32

LED technology that offers 3200°K of warm, projected soft output; offers optimal illumination for any interior shot; the unit is fully flicker- and heat-free, with zero to 100 percent dimming and virtually no color shift; measures 6.75in x 2.25in x 1.25in and weighs 9.6oz; works well on or off camera, on a stand or for lighting any tight spot.

818-752-7009; www.litepanels.com

BOOTH: C9618



HDV TO HD-SDI INTERFACE MIRANDA TECHNOLOGIES HD-BRIDGE DECDXC

New HD-Bridge HDV to HD-SDI interface with ASI input, Genlock and 24p support; the ASI to HD-SDI conversion capability allows long-range monitoring during HDV newsgathering, as well as easy recording and transmission, when it is combined with Miranda's ASI-Bridge CAM HDV-to-ASI converter; features a genlock input for broadcast applications, as well as 720p24 HDV to 1080p24 HD-SDI conversion for native 24p production and editing.

561-400-3320; www.miranda.com

BOOTH: SU1341

UP-, DOWN-, CROSSCONVERTER SNELL & WILCOX IQDC

A synchronizing HD/SD-SDI up-, down- and crossconverter that converts SD-SDI signals to HD-SDI and vice versa and crossconverts HD-SDI signals of the same frame rate; features a fixed-mode aspect ratio converter and closed-caption support for analog line 21 formats; completes the transition between analog and HD video; provides SD/HD flexibility for handling multirate broadcast operations or variable I/O situations.

212-481-2416; www.snellwilcox.com

BOOTH: SU156



HD LINEAR KEYS Crystal Vision LKEY HD

Keys graphics over HD video streams; works with all common HD formats as well as SDI; can fit six HD linear keyers in 2RU; can mix between the foreground and background inputs; includes eight simple wipes.

954-788-3334; www.crystalvision.tv

BOOTH: C7912

STANDARDS CONVERTER PRO-BEL CIFER

A joint development with Digital Vision; converts between all the primary HD standards (regardless of frequency), any SD standard, and from SD to HD or vice versa with no loss of picture quality.

925-735-9269; www.pro-bel.com

BOOTH: SU4347

ADVERTISERS SHOWN IN GOLD

APRIL 2006

PRODUCT HIGHLIGHTS

INTERCOM SYSTEM RIEDEL ARTIST

Matrices allow all frame sizes to use the same type of controller and client cards, which reduces expansion costs and the need for spare pooling; other enhanced features include increased memory for complex, multi-node installations, optimized cooling concept for quiet operation, and a flexible fiber option that enables users to easily change from multimode, single-mode or high-power.

818-563-4100; www.riedel.net

BOOTH: C8507

SOLID-STATE MEMORY DRIVE PANASONIC AJ-PCD20

A five-slot P2 solid-state memory drive; the P2 internal/external drive is designed for high-speed file transfer of 25Mb/s DVCPRO or 50Mb/s DVCPRO50 video into nonlinear editing systems and servers; users can mount five 8GB P2 cards at the same time and have access to the contents on all five cards for continuous editing of recorded clips in sequence.

201-392-4127; www.panasonic.com/broadcast

BOOTH: C2518

FILE CONVERTER Pharos Communications Pharos Transcoder

Enables video files to be converted quickly and easily between a wide range of file formats; source files are displayed on a browser-driven control screen; transcoding is activated by dragging and dropping files between source and destination format folders; files can be converted in any order between MPEG-1, MPEG-2, MPEG-4, DV, 4:2:2, 4:2:0 and uncompressed.

+44 118 950 2323; www.pharos-comms.com

BOOTH: UK PAVILION

If you had
Zeus
you'd be
home by
now.



Solutions to Power Your Business

Obor Digital is proud to unveil Zeus, an integrated physical asset and technical workflow management system that provides full control over your business model and processes. Created by broadcasters for broadcasters, Zeus helps maximize your resources while saving you time and money.

- *Physical asset tracking*
- *Work order management*
- *Automated communications*
- *Service scheduling*
- *Wireless access*
- *Contact management*
- *Flexible group-based hierarchy*
- *Document management*
- *Scheduling system*
- *Location management*
- *Safety Integration*
- *Training tools*



Power your business at
www.obordigital.com

Visit us at the NAB Conference—Booth C11012



TEST SIGNAL GENERATOR LYNX Technik AG Testor

The small, handheld device provides two simultaneous SD/HD test signal outputs; users can select from large internal pattern library or load their own patterns from CompactFlash; features an integrated AES audio test generator with embedded and external AES capability, IRT dynamic synchronization pattern for audio timing, genlock capability with cross lock support, and one frame of adjustable timing.

+49 6150 18170; www.lynx-technik.com

BOOTH: C9246



TEST GENERATOR DOREMI LABS HDG-20

A palm-sized portable HD video test generator; features still patterns and moving test patterns in SD and HD formats at full broadcast quality; outputs audio tone, time code and closed-caption characters; offers a dual-link HD-SDI 2k resolution video output; new features include sync input to genlock the unit to an external sync source, a PC and Mac software GUI for serial remote control and new video patterns.

818-562-1101; www.doremilabs.com

BOOTH: C5712



NLE HARRIS VELOCITYX

The cost-effective, standalone, software editing solution shares the Velocity editing interface with Leitch's hardware-based editing solutions, VelocityQ and VelocityHD; includes a new effects engine, enhanced performance and more; also works for users of VelocityQ or VelocityHD who need a laptop editor for field editing or for customers looking to expand their operations with additional low-cost editing seats.

513-459-3400; www.harris.com

BOOTH: SU2929

MPEG-4 ENCODER GRASS VALLEY VIBE MPEG-4 ENCODER

Part of the ViBE line; is currently implemented in a DSP-based architecture; will eventually be implanted in a single chip, which will enable dual-pass encoding with low latency at bit rates down to 4Mb/s for HD; this approach will enable broadcasters to deliver HD in the same space as today's SD services, with five or six channels in a single satellite transponder.

503-526-8150; www.grassvalley.com

BOOTHS: SU3500, SU2906

MPEG-2 PROCESSOR Pharos Communications Pharos Rewrapper

Enables MPEG-2 metadata to be matched precisely between different video servers; initial configuration can be performed quickly and easily via a standard Web browser; operation is then fully automatic, including file format recognition, rewrapping and registration; vertical blanking interval data is fully preserved.

+44 118 950 2323; www.pharos-comms.com

BOOTH: UK PAVILION



AUDIO CONVERTER Merging Technologies Sphynx 2

A combined eight-channel AD-DA audio interface for PCM, DSD and DXD; includes audio interfaces: four channel D/A, AES/EBU, S/PDIF, TDIF, ADAT, and PT Mix 24, SDIF3 and MADI; handles a wide range of sample rates for the PCM, DSD and DXD formats; comes with a MADI interface for single cable connection to Pyramid.

+44 1606 892788; www.merging.com

BOOTH: SL3755

PRODUCT HIGHLIGHTS

VIDEO SCALER

Extron Electronics IN1502

A two-input video scaler that provides high-performance scaling of composite video and S-video signals; features input source auto-switching, comprehensive picture controls, a user-friendly LCD menu display and RS-232 control; ideal in situations where simple conversion of standard-definition NTSC and PAL video to high-resolution RGB video is desired.

714-491-1500; www.extron.com

BOOTH: TBA



DEMODULATOR

RADYNE TIERNAN DD240XR

Digital video broadcast demodulator offers DVB-S and DVB-S2; features data rates up to 144Mb/s for DVB-S and up to 80Mb/s for DVB-S2; offers QPSK, 8PSK and 16QAM operation; has built-in M&C for field upgrades.

602-437-9620; www.radynecomstream.com

BOOTH: 2033

OPTICAL SWITCHING PLATFORM

OPTICOMM OPTILINX OLX-3000

Is capable of switching digital signals up to 4.25Gb/s with any of its 144 ports, all housed in a 4RU chassis; designed to accept up to three modular port cards with up to 48 Small Form Pluggable (SFP) transceiver modules per port card; each SFP transceiver module provides the physical ports for one input-output pair; features include complete optical transparency and full duplex switching capacity up to 612Gb/s.

858-450-0143; www.opticomm.com

BOOTH: SU4183

SD VIDEO CAPTURE CARD

AJA KONA LSE

A new PCI-Express version of AJA's solution for quality analog and digital SD video capture and playback; provides video capture and playback for Power Mac G5 PCI-Express Line; has the same feature set as the KONA LS, but with the new high-performance, four-lane PCI Express (PCIe) bus interface.

530-274-2048; www.aja.com

BOOTHS: SL4913, SU5125



LightViper In The Real World

Katrina Relief Concert • Red Rocks Amphitheater, CO • Production by HDReady

September 2005: Hours after Hurricane Katrina ravaged the Gulf Coast, a benefit concert was scheduled into Red Rocks to provide much needed funds for the victims of America's worst natural disaster. One of the world's top bands was enlisted and the event was recorded in HD. LightViper over-nighted two VIS-4832 bi-directional fiber-optic AES-3 digital audio snake systems (64-channels) to production company HDReady.



Jim Wolande, Chief Operating Officer, HDReady: "The LightViper performed flawlessly. All our cameras are on fiber so why not all the audio? It takes only a fraction of the normal time allotted to deploy the fiber audio runs. To me, that's as significant as the performance benefits. I can't imagine doing these large, high profile assignments any other way now. I'm very happy with the LightViper technology."



Mike Czaczwicz, Audio Engineer, HDReady: "One of the big advantages of the LightViper is the complete elimination of ground loops. With fiber optic signal routing, the sound is completely isolated from hum, crackles and pops too. This gig's sound was extremely clean and quiet. Another huge advantage to using the 'Viper' system is how easy and fast it was to run 1,200 feet of multi-channel cable up to the stage. I can't begin to tell you how good that is when you're huffing and puffing at 6,000 feet!"



MADE IN THE USA BY:
fiberplex inc.
www.lightviper.com • 301.604.0100
sales@lightviper.com

sound@the speed of light
LightViper
FIBER OPTIC AUDIO SNAKE

CONVERSION EQUIPMENT SNELL & WILCOX HELIOS

A software-based conversion platform; a combination of the company's Ph.C motion estimation and FormatFusion technologies; runs open-standards IT hardware; converts video, audio and metadata to the required format in a single pass; creates interoperability; distribution module enables content to be repurposed and distributed across multiple delivery platforms, such as iPods and mobile phones.

212-481-2416; www.snellwilcox.com

BOOTH: SU156

CONTENT DELIVERY PLATFORM HARRIS H-CLASS CONTENT DELIVERY PLATFORM

Offers platform-based advantages, including content management and sharing, intra-application messaging, increased security and scheduling functionality; management of content assets, associated metadata and content relationships enables the delivery of rich media across multiple distribution channels.

513-459-3400; www.harris.com

BOOTH: SU2929

MEASUREMENT DEMODULATOR Z Technologies DM1010

Features NIST traceable RF measurement of signal strength, spectrum display with a new direct readout of shoulder energy for compliance with the FCC mask, ATSC modulation measurements for transmitter setup, and a new transport stream viewing option for DTV data content monitoring.

503-614-9800; www.ztechnology.com

BOOTH: C2039



MEDIA CONVERTER Laird Telemedia LTM-6000D

Functions as a standalone audio and video signal converter; delivers video conversion for SDI, DV, component, S-Video, composite, AES/EBU digital audio and balanced analog audio, with simultaneous outputs; control is through a Web-style menu system; features include time-code insertion and a new operating menu system.

845-339-9555; www.lairdtelemedia.com

BOOTH: SL3769

UP-, DOWN-, CROSSCONVERTER MIRANDA TECHNOLOGIES XVP HD

Features new XVP-811i HD/SD up-, down- and crossconverter; new interface features sophisticated aspect ratio conversion using the soon-to-be-standardized Advanced Format Descriptor (AFD); offers 5.1 to left/right downmixing for easy audio monitoring of downconverted HD signals; a Dolby E Metadata insertion capability provides efficient distribution of audio information across a plant, including dialog level and dynamic range control information.

561-400-3320; www.miranda.com

BOOTH: SU1341

VIDEO RECORDER Imagica Imager HSR

High-speed film recorder performs at 3fps in 2K motion picture data to Kodak 5242 intermediate film for digital interpositive or internegative films.

310-306-4180; www.imagica-la.com

BOOTH: SL1826

HD CONTROL ROOM SYSTEM GRASS VALLEY IGNITE HD

Designed to allow broadcasters and video production studios to efficiently and cost-effectively migrate from SD to HD production, leveraging Grass Valley's Kayak HD video production switcher frame; is available with one to four M/Es and up to 32 control ports; is scalable from 24 to 93 video inputs and 24 to 96 audio inputs.

503-526-8150; www.grassvalley.com

BOOTHS: SU3500, SU2906



8VSB ANALYZER Modulation Sciences msi 4400

Offers results interactively with a laptop computer or PC, enabling remote access via the Web; functions include tap weight equalizer graphs, eye pattern diagram, constellation display tenability, SNR/MER/EVM strip charting, signal strength metering, bit error rates, data logging, user-configurable alarms and capability for zeroing or freezing the tap weights.

800-826-2603; www.modsci.com

BOOTH: C118

SIGNAL GENERATOR Leader LT428

A compact 1/2RU PAL/NTSC signal generator with three independent black burst outputs; the outputs are independently phase-adjustable, ideal for synchronizing digital devices requiring individual phase timing; can be genlocked to incoming component video, black burst or composite sync.

+31 40 2645345; www.elqip.com

BOOTH: C7332

ADVERTISERS SHOWN IN GOLD

APRIL 2006

MPEG-4 ENCODER SCIENTIFIC-ATLANTA D9054

Equipped to support the delivery of IP video streams; provides encoding capabilities for delivering IP video in twisted pair/DSL environments; supports multiple applications, including IPTV, contribution, DVB-T and xDSL; using AVC, operators can maintain high video quality, even at bandwidth-saving low bit rates.

770-236-6609; www.scientificatlanta.com

BOOTH: SU1608



ARCHIVE MANAGEMENT FRONT PORCH DIGITAL DIVAWORKS

Combines a dual CPU server, 2TB of near-line storage and a 10-cassette data tape library, all operating under control of DIVArchive software; tape externalization is available, allowing the customer to expand the capacities far in excess of the internal capacity of the library; tape import/export functionality allows for easy transport of content between systems located at different facilities on a tape-by-tape basis.

303-440-7930; www.fpdigital.com

BOOTH: SU2236

HD UP-, CROSSCONVERTER EVERTZ 7710XUC- AES4-HD

Is reconfigurable to provide high-quality conversion of SD signals with noise reduction to common 1.5Gb/s HD video formats, high-quality conversion of HD signals to other common 1.5Gb/s HD video formats, or HD to SD downconversion with detail enhancement and gamma correction; features 10-bit processing, two HD serial digital outputs and one OSD output and external genlock.

905-335-3700; www.evertz.com

BOOTH: SU170



ANALYZER K-WILL VP21P

Video quality evaluation system analyzes the 720p HD format on a fully automated and real-time basis; uses double-stimulus system that performs detailed, pixel-by-pixel measurement, reference comparisons and copies videos; debugs encoder/decoder operations; has automatic dubbing, DVD authoring and DVD playback.

310-512-6979; www.kwillcorporation.com

BOOTH: C6936



VOIP ANALYZER SENCORE MIP 1860

MPEG-over-IP cross-layer analysis system tests solution for design and verification of all MPEG-over-IP-equipment, systems or networks; provides an acquisition device that will record and analyze hundreds of MPEG/IP streams at full Gigabit Ethernet speeds; has an embedded TAP function for non-intrusive network analyzing; live-video decoding of any transport stream for complete confidence monitoring is available.

800-SENCORE; www.sencore.com

BOOTHS: SU3009, C3810

MONITORING AND ANALYSIS

Controlware ARS

A multiport DVB/ASI recorder and analyzer designed for quality assurance, preservation of evidence and as a run-log; can record up to eight DVB/ASI streams simultaneously onto a flexible and scalable RAID storage platform (up to 32TB); recording of the entire transport stream can be triggered manually, based on a configurable or continuous schedule.

732-919-0400; www.cware.com

BOOTH: SU1653



CABLE CHECKER CANARE CABLE CHECKER FCT-FCKIT

Allows fast, easy confirmation of HFO cables in the field; features the company's HFO connector design for reliable transmission and easy cleaning; the compact design features a backlit digital display to measure optic loss and electrical continuity; its small build and light weight help make mobile installs smooth, secure and constant.

818-365-2446; www.canare.com

BOOTH: SU4164

DIGITAL LINE CHECKER Leader LT292

Digital line checker detects, displays and logs transmission errors in HD-SDI and SD-SDI signals; all major high-definition production and transmission video formats are supported, including three variants of 1080i, six variants of 1080p, five variants of 1080Ps and two variants of 720p; is fully compatible with 625i/50 and 525i/59.94 SD.

+31 40 2645345; www.elquip.com

BOOTH: C7332

DIGITAL AUDIO CONSOLE WHEATSTONE D-12

Delivers the same feature set of the much larger D 5.1 television console but in a smaller package; features include 5.1 surround inputs, outputs and monitors; internal signal routing puts any source to any fader.

252-638-7000; www.wheatstone.com

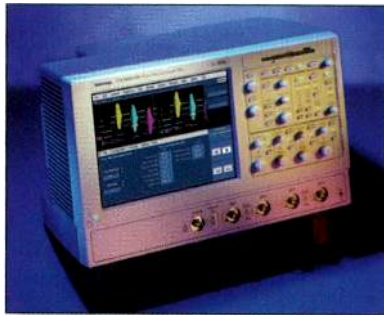
BOOTH: N1815

LOSSLESS AUDIO TECHNOLOGY DOLBY TRUEHD

Designed to take advantage of high-definition optical disc formats; features end viewer performance equal to high-resolution recording studio masters; allows viewers to experience multichannel surround sound as the codec provides support for all of the new speaker locations designated by SMPTE for digital cinema applications.

415-558-0200; www.dolby.com

BOOTH: SU2923



AUTOMATED VIDEO SIGNAL ANALYZER TEKTRONIX VM5000

Analyzer features new VGA option that automates video signal analysis and VESA standards compliance testing for analog RGBHV signals communicated via VGA, DVI-I or DVI-A interfaces; speeds product verification and compliance testing for PC graphics devices and components; delivers in-depth performance feedback for PRC graphics R&D.

800-833-9200; www.tektronix.com

BOOTH: SU4141



WAVEFORM, VECTOR AND AUDIO MONITOR Hamlet Flexiscope

A multiformat, multistandard handheld waveform, vector, audio, picture monitor; using a built-in 3.5in diagonal high-quality TFT display; shows the picture in 4:3 or 16:9 formats; displays conventional waveform, vector and audio displays together with data analysis; easy to plug-in input option modules allow operation in all current formats and enables future standards to be accommodated.

+44 1494 729728; www.hamlet.co.uk

BOOTH: C9319

AUTOMATION SYSTEM Telestream FlipFactory Pro 4.0

Allows users to transcode and move files between video servers and all the other networked digital devices in their facilities; automates streaming media production directly from the video server; eliminates digital-to-analog conversions.

530-470-1300; www.telestream.net

BOOTH: SL2781

PRODUCT HIGHLIGHTS



TEST SIGNAL GENERATOR DK-Technologies PT8612

An HD/SD test signal generator; is a new option for the PT5300 HD/SD VariTime sync generator; offers a test pattern to check lip-sync; the test pattern is based on the EBU Tech 3305 standard and extended to all common HD formats; outputs four independent test signals in 270Mb/s and 1485Mb/s SDI formats with individual formats and timing.

+45 44 85 02 55; www.dk-technologies.net

BOOTH: C2044



HDTV VIDEO AND AUDIO MONITORING ZANDAR TECHNOLOGIES PREDATOR HD8

HDTV video and audio monitoring multiviewer system; features Zandar's new Z-Configurator user software and ZdH Zandar dual-head display facility; comes in a compact 1RU system; has eight auto-sensing inputs, allowing both HDTV 720p and 1080i formats and legacy SDI (270Mb/s) signals to be used together, bridging the migration to HDTV signal formats.

+353 1 293 8966; www.zandar.com

BOOTH: SU1033

COAX PATCHING SYSTEM ADC TELECOM SUPER HIGH-DENSITY COAX

A high-density patching system designed for AES audio, 5.1 and 7.1 audio applications where coax medium is preferred but space is critical; the 1.5 rack space panel features 4 x 48 coax ports (96 circuits) with a patent-pending switchable termination feature that allows the user to select or de-select a 75Ω termination function on each circuit pair.

800-366-3891; www.adc.com

BOOTH: C6526

Plan your 2GHz Relocation... For the HD Future

The Choice is CLEAR!



Convert Your FM ENG to D-ENG Today



Digital-ENG Mobile VAN SD Capable



Configurable Messenger Transmitter

Upgrade Your D-ENG to High Definition - Anytime



Digital-ENG Mobile VAN SD/HD Selectable Operation

Discover the **C**onfigurable **M**essenger **T**ransmitter. The world's first firmware - configurable C-OFDM wireless platform supporting both Standard and Hi-Definition Transmission. Now you get to select the Definition for your 2GHz Relocation... When You want it! A Single wireless platform with incredible flexibility at an unbeatable price. A wise investment for your HD future.

The **CMT** - available now and only from the leader in wireless broadcast innovation - GMS!

www.gmsinc.com

888.880.9339

The Path to High Definition Wireless has never been Clearer!

Visit GMS at NAB2006 in booth#C8528





LCD COLOR ANALYZER DK-Technologies PM5639/06

An LCD color analyzer that checks color temperature and luminance levels; features a smart RGB bar graph display with zoom function that makes white balance alignment easy and intuitive; its color probe has already been adopted by Tamuz for a world first auto-alignment of its LCD monitors.

+45 44 85 02 55; www.dk-technologies.net

BOOTH: C2044

AUTOMATION SYSTEM Telestream FlipFactory HD

Automates SD-to-HD and HD-to-HD conversions, including transcoding, batch processing and file-based media and metadata exchange; offers HD encoding support for MPEG 720p, 1080i and 1080p; supports Grass Valley, Omneon and Pinnacle HD server output formats, as well as MPEG VOD HD and Windows Media HD; eliminates the need for a hardware upconverter, baseband signal routing and operator intervention.

530-470-1300; www.telestream.net

BOOTH: SL2781

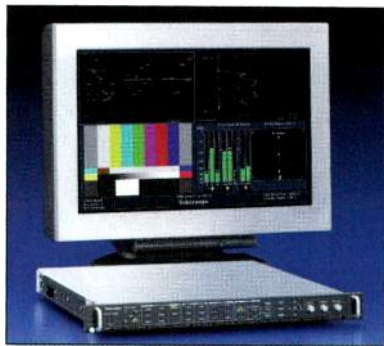
AUTOMATED REAL-TIME CONFORMANCE ANALYZER

MiraVid TeleSight

Supports all MPEG video standards; offers unparalleled performance with real-time decoding, displaying and analysis for all MPEG streams with support for TS conformance including STD verification, video and audio bit-stream conformance, video quality, video bitrate, and audio level monitoring.

905-927-7724; www.miravid.com

BOOTH: TBA



RASTERIZERS TEKTRONIX WVR7100 AND WVR6100

Enhancements to the rasterizers include eye pattern display, jitter measurements and cable length measurement for HD-SDI and SD-SDI signals; can display eye patterns in three-eye, 10-eye (SD), or 20-eye (HD) mode; display includes numeric readouts of timing and alignment jitter amplitudes.

800-833-9200; www.tektronix.com

BOOTH: SU4141

DIGITAL VIDEO TRANSMITTER

Hitachi Sinelink series

RF license-free transmission systems for use in the transport of video over TCP/IP networks; transmits digital signals wirelessly from place to place where physical or environmental obstructions exist; Sinelink-24 operates in the 24GHz band and delivers a 56Mb/s bidirectional payload; Sinelink-60 operates in the 60GHz band, delivering a bidirectional payload of 1.485Gb/s.

516-921-7200; www.hitachikokusai.us

BOOTH: C3926

HD SLOW MOTION CAMERA SYSTEM SONY HDC-3300

A multiformat HD slow-motion camera for high-end studio and sports broadcasting; achieves 3X speed slow-motion effects in full HD resolution; can output normal speed signals simultaneously for live feeds through separate digital signal processing; includes three 2/3in high-speed progressive CCDs; enables recording at 1920 x 1080/180i or 150i, as well as 1280 x 720/180p or 150p.

800-686-SONY; www.sony.com/professional

BOOTH: C9618

MONITORS AND SUBWOOFERS Genelec 8200 and 7200 DSP Series Monitors

Built on Genelec's 8000 MDE and 7000 LSE Series products; the new 8200 Series bi-amplified active monitors and 7200 Series active subwoofers are designed for end-users who want a network speaker system that can be set up, measured, analyzed and calibrated quickly.

508-652-0900; www.genelecusa.com

BOOTH: SL4791

ADVERTISERS SHOWN IN GOLD

APRIL 2006

PRODUCT HIGHLIGHTS

PORTABLE SDTV LENS CANON YJ20X8.5B SERIES

A wide angle of view portable 2/3in Pro-Video lens; weighs 3.39lb; the wide angle allows a cost-effective compromise for moving between 16:9 and 4:3 aspect ratios; offers a wide focal length of 6mm, a high zoom ratio of 13X and a fast servo zoom speed of 1.2 seconds; offers a horizontal field of view of 72.5 degrees.

516-328-5000; www.canonbroadcast.com

BOOTH: SU131



GRAM AMPLIFIER Soniflex RB-PA2

Is a dual stereo phono RIAA gram amplifier for converting pick-up cartridge signals on a turntable to a line input level; has adjustable output gain using preset potentiometers; the frequency response is held to within 0.5dB of the RIAA equalisation curve.

+44 1933 650700; www.sonifex.co.uk

BOOTH: N4507

ANALYSIS/ PREDICTION TOOLS Weather Central ESP:LIVE

Features ESP:LIVE, 3D X-Vision, Storm Vitals and TelePATH storm analysis and prediction tools; gives users the ability to alert, forecast and report severe weather, revealing threatening elements and identifying the exact location of damaging winds, hail, flooding and tornadoes; is available with serial digital video outputs; runs on a turnkey, Windows XP system; uses nVIDIA and DVS graphics and video hardware.

608-274-5789; www.weathercentral.tv

BOOTH: C6014

AMPLIFIER Oxygen DCT OxBox Midi 9B11DA-6

A standalone six-output universal HDTV/SDI distribution amplifier; detects the input signal standard and equalizes the signal for output, whether HDTV (1.485Gb) or SDI (270Mb) standards.

+44 8707 462 062; www.oxygendct.com

BOOTH: TBA

Smart Call.

With Sundance Digital automation software, good broadcasting also means improved business results — more efficiency, greater accuracy, increased productivity and higher profitability. Now, how smart is that?

The secret lies in managing digital workflow. By integrating digital television and information technologies, our automation software handles the core operations of your broadcast business. This Digital Workflow Management helps you perform the same complex tasks you're already doing. Only with greater speed, more control and unprecedented flexibility.

That not only improves your on-air product, but also your bottom line. Just the kind of thinking that makes Sundance Digital the smartest call in the business.

SUNDANCE
DIGITAL

BROADCAST AUTOMATION SOLUTIONS

www.sundancedigital.com

972.444.8442

Visit us at NAB Booth #SU1425

broadcastengineering.com

191



PORTABLE TEST SIGNAL GENERATORS Hamlet Protean Series

Family of test signal generators; the Protean Axiom supports all HD signal formats, with the convenience of a built-in alphanumeric character generator, which can be burnt into any test pattern.

+44 1494 729728; www.hamlet.co.uk

BOOTH: C9319

UHF ANTENNA ERI TRASAR UHF

Dual-channel transmitting antenna; allow stations with N+1/N-1 or adjacent DTV assignments to share a single antenna; can be top- or side-mounted, or used as a structural member in the company's STACKER optimized antenna structure solution; offers 12 azimuth patterns to choose from; features a maximum of 6MHz per channel for NTSC.

708-570-0663; www.eriinc.com

BOOTH: N2406

MONITOR TVLogic LVM-460W/D

A 46in monitor that features 1920 x 1080 native resolution, dual link capability, a Gennum VXP image processing chip, HD/SD SDI inputs, DVI connection, analog component/composite/SVideo/RGB inputs and wide viewing angles (178 degrees).

770-557-0881; www.dandesmet.com

BOOTH: TBA

VBI KEYSER EVERTZ 7725VBI-K-HD

A multi-function VBI keyer; provides the capability to store different VBI configurations as presets and recall them from the card edge control or via two opto-isolated GPI inputs.

905-335-3700; www.evertz.com

BOOTH: SU170

ANTENNA COMBINER SENNHEISER ELECTRONIC ASA3000

The 1RU active antenna splitter for multichannel wireless microphone systems combines up to 16 channels of Sennheiser 3000 series receivers, configured as eight EM3031 single-channel, eight EM3032 dual-channel or EM3532 dual-channel diversity receivers; operates across the entire UHF range from 470MHz to 870MHz or with selective filtering for more focused, narrowband operation across a micro-frequency input range.

860-434-9190; www.sennheiserusa.com

BOOTH: N1822



AUDIO ANALYZER ROHDE & SCHWARZ UP300

Offers a frequency range up to 80kHz, includes all conventional audio engineering measurements and generates the required test signals; its analog inputs and outputs are dual-channel in design.

410-910-7800; www.rohde-schwarz.com

BOOTH: C830



SD ENCODER SCIENTIFIC- ATLANTA D9034

An MPEG-4 SD encoder; supports both MPEG-2 and MPEG-4 part 10 (H.264) video together with MPEG-4 picture-in-picture video services in the same chassis; features adaptive motion compensated temporal filtering with PreSightPlus noise reduction and an integrated frame synchronizer.

770-236-6609; www.scientificatlanta.com

BOOTH: SU1608



UHF ANTENNA Jampro JUHD

The UHF panel antenna can be configured to provide various azimuth and elevation patterns; by using optional beam tilt and null fill, the elevation patterns can be shaped to maximize coverage; designed as either a side-mount or a top-mount horizontally polarized antenna, it can be configured to include varying levels of vertical polarization, with results ranging from small amounts of elliptical polarization to full circular polarization; radomes enclose and protect the panels from rain and ice.

916-383-1177; www.jampro.com

BOOTH: C1517

ADVERTISERS SHOWN IN GOLD

APRIL 2006

PRODUCT HIGHLIGHTS

TRANSMITTER

Fox Electronics QoIP Cue over IP Transport System

Provides primary and/or backup transport of network cues and GPI switching commands; a cost-effective point-to-point or point-to-multipoint system that transports six independent network DTMF cue commands and six relays over IP; GPI relays can be tied to the DTMF cues or can be transmitted separately, providing up to six independent switches for equipment at one or more remote sites.

800-604-0301; www.foxelectronics.net

BOOTH: TBA

MEDIA INTERFACE ADAPTORS

OMNEON VIDEO NETWORKS MULTIPOINT 4100 SERIES

Line of media interface adapters available for Omneon Spectrum media server systems; can support simultaneous playback of both SD and HD MPEG-2 material; features integrated capability for the simultaneous playback of HD and SD content on either the same channel or independent channels; includes connectors to allow for the use of external up- and down-conversion equipment.

408-585-5109; www.omneon.com

BOOTH: SU2959

AUDIO CONTROL ALGORITHM

Junger Audio Level Magic

The range incorporates automated gain control, transient processing and peak limiting for continuous unattended control of any program material.

+49 30 6777210; www.junger-audio.com

BOOTH: N3200

ADVERTISERS SHOWN IN GOLD

APRIL 2006

MULTIFORMAT HD/SD-SDI ON-SCREEN MONITOR VIDEOTEK VTM SERIES

A user-configurable, field upgradable, multiformat test and measurement console; available with HD/SD, SD-only or composite analog input modules; includes a robust array of test and measurement functions such as waveform, vector, gamut, audio, picture and timing displays.

800-231-9673; www.videatek.com

BOOTH: SU2929

STORAGE SYSTEM

Silicon Graphics (SGI) InfiniteStorage 6700

The 4Gb Fibre Channel storage system provides 2.5GB/s throughput; ideal for digital cinema mastering applications; meets the media requirements for SAN-based digital content infrastructure.

800-800-7441; www.sgi.com

BOOTH: SL3764



DIGITAL SFN REPEATERS Elti HALO

Digital SFN repeaters feature an echo canceller to guarantee optimized transmission and low degradation in signal quality; automatic mode detection allows the SFN network cell to be switched instantaneously; compact designs up to 50W, an output power range up to 250W and no required measurement during installation.

+386 02 564 32 00; www.elti.com

BOOTH: N3631

INTERCOM INTERFACE RIEDEL CONNECT DUO

Combines an ISDN S0 interface, allowing two simultaneous connections using two ISDN B-channels and an analog POTS telephone hybrid in a 1/2RU device; ideal for mobile units; fully compatible with all intercom systems; easily integrates to Riedel's Artist matrix intercom system; capable of remotely controlling panels via ISDN; can be configured directly from Riedel's Director software or optional Windows configuration software.

818-563-4100; www.riedel.net

BOOTH: C8507



UHF IOT TRANSMITTER Acrodyne (Ai) Quantum Depressed Collector

A UHF IOT transmitter for 8-VSB and COFDM digital applications; features power levels up to 120kW average ATSC 8-VSB and DVB-T COFDM; plug-in technology and tube removal allow easy exchange of IOTs using a built-in IOT hoist assembly, without circuit assembly disconnection; the IOT is cooled by clean, safe de-ionized water; all glycol is eliminated from the cabinet environment.

888-881-4447; www.acrodyne.com

BOOTH: C6207

TRANSMITTER BMS TRUCK-CODER II

COFDM digital transmitter has 100 available presets that can be entered through front panel controls or downloaded through a front-panel Ethernet port; indoor component is a single unit, rack-mounted controller; outdoor component is an antenna-mounted RF unit configured to operate in the 2GHz frequency band.

858-391-3050; www.bms-inc.com

BOOTH: C2326

CONVERTER Convergent Design HD-Connect LE

Integrates video, audio, time-code and deck control into one box; the portable unit offers the features of conversion to HD or SD, allowing users to output to a wide variety of formats; features two modes of deck control: RS-422 to 1394 and 1394 to RS-422.

719-661-3388; www.convergent-design.com

BOOTH: C10845

TRANSMITTER Axcera Innovator LX Series

A low-to-medium power transmitter line; uses the latest LDMOS devices for broadband operation across the entire UHF band; allows users to minimize spare parts stock, which is especially important to group owners and networks; enables simple and inexpensive channel changes for users with channels out of the core or expected to be displaced in the future.

800-215-2614; <http://broadcast.axcera.com>

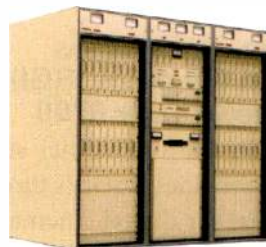
BOOTH: C8519

EXCITERS Screen Service Italia SCT 100U/S 10W

UHF stereo transmitter has a modular construction; conventional cooling and AGC and ALC controls; features three-slope linearity pre-correction and can program the local oscillator from front panel; has a pre-set for precision offset; features a soft-start circuit, low-power consumption, a SAW vestigial filter and sync restore.

+39 30 3582225; www.screen.it

BOOTH: C333



VHF TRANSMITTER LARCAN M Series

Includes a full range of TV broadcast transmitters, from 250W to 80kW; features highly linear solid-state broadband PA modules, high-power stripline combining techniques and rugged linear power supplies; versatile pull-through cooling system design is engineered to simplify installation.

303-665-8000; www.larcam.com

BOOTH: C4119

GPI TALLY PROCESSOR DNF Controls GTP-32

Processes and distributes GPIs and tallies between mobile trucks, production facilities and broadcast facilities; offers an event log option for logging all GPI or GPO events; events are time-stamped using a real-time clock or LTC time code; can change configuration tables between shows quickly.

818-898-3380; www.dnfcontrols.com

BOOTH: SU2955

WIRELESS MIC TRANSMITTER SENNHEISER SK 5212

A wireless microphone body-pack transmitter; features infrared wireless synchronization with the company's new NET 1 Network System multichannel wireless hub; can also be used with all of the company's 3000 and 5000 series components; a sturdy metal housing keeps the mini transmitter safe from tough conditions.

860-434-9190; www.sennheiserusa.com

BOOTH: N1822

HIGH-SPEED DATA TRANSFEROR BMS DIGITAL MEDIA TRANSPORT

Transferor offers extended network capabilities to mobile ENG field units using the BMS Truck-Coder II digital microwave system; transmits recorded video files back to the studio while on the air; sends pre-recorded program segments as files to the studio over the digital radio link; these files can be sent simultaneously with live video and audio using unused bandwidth capacity.

858-391-3050; www.bms-inc.com

BOOTH: C2326

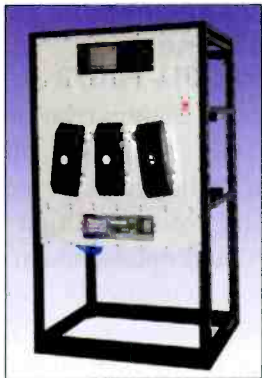
TRANSMITTERS AND REPEATERS DMT TRANSMITTERS AND REPEATERS

Range includes digital and digital-ready analog models in VHF and UHF bands, with air or liquid cooling; offer 0.1W to 40kW output power; compatible with all types of digital terrestrial TV networks.

856-423-0010; www.dmtonline.com

BOOTH: C316

PRODUCT HIGHLIGHTS



RF MONITOR SYSTEM Radio Frequency Systems (RFS) MS Series

Provides a complete range of monitoring functions for RF equipment; features 50 configurable inputs; can support up to 16 transmitters plus an antenna system with four main feeders; ideal for monitoring forward and reflected transmitter power and displaying switch configurations; analyzes and stores a wide range of collected data for up to three years; its microprocessor-based system enables it to independently evaluate nonlinear multi-channel systems.

203-630-3311; www.rfsworld.com

BOOTH: C1217

MEDIA ASSET MANAGEMENT SOLUTION EOS Web Media

Organizes and makes available for searching and ordering tapes, cassettes, reels, clips, keyframes, audio, transcripts and digital media assets in a collaborative, secure environment, enabling the re-expression and repurposing of materials regardless of repository or media type.

800-876-5484; www.eosintl.com

BOOTH: SL1833

ADVERTISERS SHOWN IN GOLD

APRIL 2006

Broadcasters Trust Telecast Fiber for ALL their Fiber Optic Needs.



ADDER and ADDER II

Whether you need analog audio, AES, intercom or even A-D and D-A signal conversion, there is an Adder system ready to handle any audio challenge. Up to 256 channels per fiber, at 24-bit resolution, with optical redundancy for quiet, reliable sound.



SHED/HDX and COBRA

For Triax and hybrid cabled cameras, we have solutions to liberate you from your heavy copper. SHEDs eliminate your costly hybrid cables on HD cameras, while Cobras replace triax on HD or SD camera systems...with ten times the distance.



VIPER I / SIDEWINDER

For 14 years the Viper and Side-winder have supported ENG/SNG applications around the globe. The reel-mounted Side-winder and Viper Mussel Shell are immediately familiar as the workhorse systems that have proven themselves in the most extreme conditions...day in and day out.



VIPER II

With small "throw down" modules that can be converted to rack mount, the Viper II is an expandable system that grows with your facility. Modules range from video/audio to Ethernet to robotic HD/POV, for incredible flexibility using simple building blocks.



COPPERHEAD HD/SDI

Our camera-mounted Copper-head makes light work of a wide range of applications, from news coverage to digital cinematography. Turn your ENG camera into a remote production camera, and avoid the cumbersome, expensive triax backs and base stations.



DIAMONDBACK II

Picking up where its predecessor left off, the DBII now offers 8 channels of broadcast-quality NTSC/PAL video on each wavelength. With optional audio and CWDM technology a huge backbone can be implemented on a single optical core.



Save time on your event production schedule. On a single lightweight cable we support all your broadcast signals from the field and the booth to the truck. From Telecast, the leader in fiber for television broadcast production.



Telecast
Fiber Systems, Inc.

(508) 754-4858

All products mentioned herein are trademarks of Telecast Fiber Systems

www.telecast-fiber.com

Visit us at NAB Booth #SU4717

AUTOMATED ROBOTIC CART SYSTEM **SONY XDCAM HD** **PDJ-C1080 CART**

An automated robotic cart system; accommodates up to four PDW-1500 units and up to 80 discs to store AV material; ideal for ingesting, archiving and on-air playout applications; is equipped with a standard VCC control protocol, allowing easy integration into existing systems; the total storage capacity using 80 discs is 1.8TB; PDJ-CS10 Cart Interface Software is available to interface with MXF-compliant systems.

800-686-SONY; www.sony.com/professional

BOOTH: SU107

DIGITAL TRIAX TRANSMITTER **Hitachi TU-CX-Z4**

Provides uncompressed digital transmission of audio and video between camera and camera control unit, as well as fully digital returns and intercom; applies to all currently manufactured broadcast and professional cameras; ideally suited for SDTV cameras that currently use triax cable.

516-921-7200; www.hitachikokusai.us

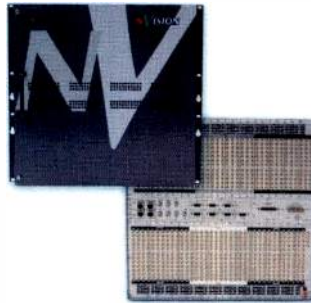
BOOTH: C3926

ROUTER NETWORK ELECTRONICS **VIKINX SUBLIME**

Offers a range of matrix sizes (8 x 8 to 64 x 64); covers signal formats from analog video and audio to HDTV; features include re-clocking and non-re-clocking SDI and HD-SDI, programmable button configuration and a 2in frame depth that allows for front and rear rack mount.

800-420-5909; www.network-electronics.com

BOOTH: SU199



DIGITAL VIDEO ROUTER **NVISION NV8288**

Designed for use in video production trucks and other applications where space is limited; built for HD; supports all standard SD data rates; is ASI-compliant; can be configured for systems ranging in size from 12 x 12 up to 288 x 576; all modules, including power supplies and cooling fans, are front-serviceable and hot-swappable; runs at data rates up to 1.5Gb/s; engineered to be 3Gb/s-capable for future signal formats such as 1080p HD.

530-265-1000; www.nvision.tv

BOOTH: SU1414

MASTER CONTROL SWITCHER **PESA SWITCHING SYSTEMS MCLITE**

A compact, multichannel SDTV master control switcher available with a wide range of processor and control options; features a flexible and open architecture; multiple processors and control panels can be arranged in any combination, with up to eight channels being controlled from a single control panel or from station automation.

800-328-1008; www.pesa.com

BOOTH: SU1370

TALLY MAPPER **Videoframe** **96-FlexGPI VF0073**

Tally router features relay outputs; routes GPI tallies for different venues, studio setups or technical directors; creates multiple maps on a PC and uploads them to the unit to reconfigure; PC connects via RS-232 serial or over TCP/IP 100Base-T Ethernet; includes an SNMP agent for monitoring the optional redundant power supply.

530-477-2000; www.videoframesystems.com

BOOTH: SU5164

DSNG PLATFORM **SCOPUS VIDEO NETWORKS** **UE-9218**

All-in-one universal encoder platform features simultaneous MPEG-2, MPEG-4 SD encoding with built-in DVB-S2 modulation and upconversion; comes ready with DVB-S2 modulation as well as MPEG-2 and MPEG-4 hardware, which enables a quick and easy software upgrade for H.264 requirements.

609-987-8090; www.scopus.net

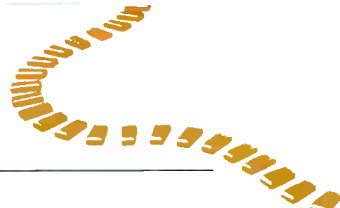
BOOTH: SU4175

OPERATIONS MANAGEMENT **ScheduALL for the Web**

Provides API interface and .NET support to clients for Web-supported areas of operations, as well as IE browser-development support for new applications coming online; new browser-based solutions include ScheduALL's WEBVIEWER and WEBSCHEDULER.

303-399-5454; www.scheduall.com

BOOTH: SL1955



COMPACT ROUTER SYSTEMS NVISION CR SERIES

Consists of the 1RU CR1616 (16 x 16) and 2RU CR3232 (32 x 32); both offer HD, SD and AES formats in self-contained units, each with a chassis depth of less than 2in, including rear-panel connectors; both models offer redundant power supplies, front-panel control and interchangeable front-button panels; can be controlled by an NV9000 control system for integration into large routing systems.

530-265-1000; www.nvision.tv

BOOTH: SU1414



VIDEO COMPRESSION TOOL INLET TECHNOLOGIES FATHOM

Enables advanced encoding of SD and HD content in real time; software is optimized to integrate with the existing workflow infrastructure of VOD and off-line content creation applications in the post-production market, facilitating the transition to HD; facilitates content creation and distribution with smaller file sizes and higher-quality output in a short amount of time.

919-856-1080; www.inlethd.com

BOOTH: SL3803

DIGITAL ARCHIVE SYSTEM FRONT PORCH DIGITAL DIVACOMplete

Includes archive layer workflow analysis, infrastructure assessment, specification, designs, hardware procurement, installation and commissioning; offers 24/7 real-time reporting of operational performance data, centralized management of archive layer support and maintenance, and overall project management of archive implementation.

303-440-7930; www.fpdigital.com

BOOTH: SU2236



DUAL-LINK CAPTURE CARD BLACKMAGIC DESIGN DECKLINK HD PRO PCIE

The dual-link HDTV 4:4:4 12-bit SDI card offers high-quality 14-bit analog video monitoring for Mac and PC computers; features twin HD-SDI inputs and outputs for 4:4:4 high-definition connections; can instantly switch to 4:2:2 HD-SDI or SD-SDI; supports all SD and HD standards; offers SPDIF/unbalanced AES audio input and SPDIF/unbalance AES audio out, word clock out, tri-sync/black burst reference input and a built-in RS-422 remote control port for broadcast deck control.

702-257-2371; www.blackmagic-design.com

BOOTHS: SL3791, SL3985

STORAGE ATTO Technology FastStream 5300

Storage appliance adds instant data protection; RAID levels are at zero, one, five and 10; storage may be added as needed with minimal or no downtime; is OS-independent; can host Fibre Channel and iSCSI connections; supports SCSI and Fibre Channel storage devices.

716-691-1999; www.attotech.com

BOOTHS: SL537, SL1513W

PRODUCTION AND PLAYOUT SOLUTION Dalet Digital Media Systems News Suite

The integrated system offers cost-effective, scalable, tapeless newsroom operation; the DaletPlus NewsWire, a newsroom computer system, features customizable metadata forms, a single cross-media database, integrated video browse and journalist editing; the DaletPlus MediaCutter allows users to browse, log and edit clips from any desktop.

212-825-3322; www.dalet.com

BOOTH: SL1132

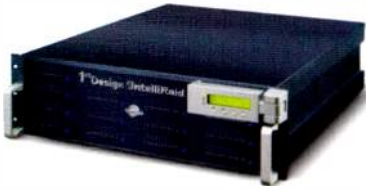
PRODUCTION SERVER EVS XT2

A multichannel, multiformat, SD/HD video server; features HD architecture and SD compatibility; allows users to perform multicamera recording, slow-motion and super slow-motion replays, on-the-fly editing, clip-store, playout, program turnaround, video delay, and archiving.

973-575-7811; www.evs.tv

BOOTH: C3230





FIBRE CHANNEL STORAGE 1 Beyond IntelliRaid FC

High-performance direct attached Fibre Channel-based storage system; features dual 4Gb Fibre Channel connections; built with SATA2 drive technology to maximize storage power and cost efficiencies; works in real-time; features easy-to-use graphical user interface and a built-in LCD read out.

887-663-2396; www.1stdesign.com
BOOTH: SL942



PROFESSIONAL VIDEO DRIVE QUANTUM SDLT 600A

The data tape system is enhanced for professional video; features a tape-based file system and network-attached storage that is MXF-aware; each tape carries its own file system directory, allowing direct drag and drop access by applications on the network without the need for other software.

719-536-5263; www.quantum.com
BOOTH: SU783

STORAGE Software Generation (SGL) FlashNet v6.0

Offers a scalable solution with unlimited storage capacity and full redundancy; available on the Windows Microsoft SQL platform; is fully scalable to an infinite number of server configurations; the Storage Manager extension allows the user to move, copy and delete data within the archive and to defragment the archive in order to free up media space that contains obsolete data.

303-665-0909; www.sgluk.com
BOOTH: SL1513E



STORAGE JustEdit vsnstorage

Shared storage for the entire network supports all the workstations working at full capacity; each video server supports various users editing simultaneously in high-resolution; is equipped with Ethernet Gigabit or Fibre Channel; storage capacity ranges from 100 hours to 2600 hours in high-resolution; maximum data security has RAID 0, 0+1, 5 and 6 support, backup power supplies and hot-swappable drives.

+34 902 35 37 39; www.vsn-tv.com
BOOTH: SL1240



DISK RECORDERS DVS Pronto2K and ProntoHD

Recorders provide instant access, playout and capture of uncompressed 2K, HD and SD; combine a disk-based recording system with a workstation to offer VTR emulation, computer-video interfacing and networking integrated in a single device; supply conforming capabilities with transitions; support several compressed image formats.

818-846-3600; www.dvs.de
BOOTH: SL2964



HDTV VIDEO/ AUDIO EDITOR Dayang D3-Edit HD8

Video and audio editor supports compressed HD and uncompressed video formats, including 8-bit to 10-bit YUV, MPEG-2I and DVCPRO HD; incorporates all the operating modes and most functions of the existing D3-Edit family; hybrid HD and SD editing is also supported; features hardware-accelerated real-time 3-D page turn, reshaping, graphic pasting and particle effects based on Flex 3-D and Power of X technology.

+ 44 1234 271 053; www.dayang.com
BOOTH: SU4209



VIDEO ANALYSIS SOFTWARE INLET TECHNOLOGIES SEMAPHORE

Video analysis tool that supports both SMPTE standards for advanced encoding; new customizable parameters and alerts allow for a higher level of automated control in the encoding process; prior to encoding, a user can set job-specific parameters with alerts that will warn them if any part of the encode goes outside of these settings.

919-856-1080; www.inlethd.com

BOOTH: SL3803

ARCHIVE SYSTEM Video Technics NewsFlow v4.0

A highly scalable tapeless newsroom production, play-to-air and archive system; features reliable digital and analog Apella servers integrated with Mac- and PC-based nonlinear editors networked within NAS and SAN storage devices; can streamline the media ingest from Sony's XDCAM system to Adobe Premiere Pro; with plug-in technology, users seamlessly ingest XDCAM files to the NewsFlow centralized database, without transcoding.

404-327-8300; www.videtechnics.com

BOOTH: SU3014

LIVE MOBILE INDEXING SOLUTION Lanterna Magica Liberty

A portable, live indexing solution; lets users index as the action unfolds using lightweight equipment such as a laptop; ideal solution for in-the-field productions and outdoor shoots; feature portable, in-the-field, real-time indexing, video and audio capture and time-code support, and full text indexing and flexible keyword support.

514-807-5296; www.lanternamagica.com

BOOTH: SL208

C2-7300

HD UP/DOWN/CROSS CONVERSION WITH MOTION COMPENSATION IS JUST THE TIP OF THE ICEBERG.

Multi-Format Genlock • Internal Logo Storage • Single Window P-P • Dual Window P-P
 Digital or Analog TV Standards Conversion • PC Cross Conversion • Luminance Keying
 (SD/HD) SDI-DVI Up/Down Conversion • Video Transcoding • 11 Video Inputs
 Multi-Format Up/Down Conversion • Multi-Format Seamless Switching
 32 AES3 Stereo Channel Processing • (SD/HD) SDI Audio Extraction
 (SD/HD) SDI Audio Embedding • (SD/HD) SDI Audio Compensation
 Audio Parameter Adjustment • Analog-DVI Up/Down Conversion
 Two Independent Channels • Chroma Keying/Logo Insertion
 Multi-Channel Video Proc. Assg. • PC-Video Up/Down Conversion
 Dynamic Motion Compensation • PC-Video Lp/Down Conversion
 PC-HDTV Up/Down Conversion • SD/HD-SDI Cross Conversion
 Aspect Ratio Conversion • Frame Rate Conversion
 Frame Synchronization

The new C2-7300 is the most significant product available to assist the transition from analog to digital HDTV. At home in the analog domain, the digital HDTV realm or bridging the divide during the transition years, no other product has more power to get the job done.

"Nothing else comes close."

NAB BOOTH C347

www.tvone.com • sales@tvone.com • tel. 800-721-4044

AIR-DIELECTRIC COAXIAL CABLE Radio Frequency Systems Heliflex

Available in sizes from 3/8in to 9in; minimizes discontinuities and achieves low return loss over the entire UHF bandwidth; with dual feeder lines, facilitates phase matching and eliminates the need for inherent temperature compensation.

203-630-3311; www.rfsworld.com

BOOTH: C1217



DIGITAL MASTERING SUITE

da Vinci Systems Resolve

Features color enhancement toolset and nonlinear conforming tools; Resolve FX offers an entry-level solution for studios wanting to process and match short clips in a less-demanding digital workflow; Resolve DI is for digital intermediate projects with a substantial volume of color-look creation and conforming; Resolve RT is optimized for studios requiring speed, flexibility, efficiency and high-volume throughput by addressing the specific needs of true real-time image processing in film, digital intermediate and video finishing applications.

954-688-5600; www.davsys.com

BOOTH: SL713



VIDEO SERVER DOREMI LABS MCS-HD

HD video server with four independent record and play channels; features two record and two play independent HD video channels with shared storage and selectable compression rates; ideal for applications such as live-to-air playback; commercial insertion, broadcast time delay, VTR replacement and sports slow-motion.

818-562-1101; www.doremilabs.com

BOOTH: C5712



VIDEO SERVER Video Technics Apella LCS

An all-inclusive 3RU scalable server; saves rack space and provides a simple, low-cost method for digital ingest and playout that offers new software designed to record SDI or analog feeds in a user-defined endless loop; ingested content can then be easily browsed, logged, edited and exported in an AFE, MXF, AVI or QuickTime format to almost any NLE or server system including Apella; for faster production, it offers three bi-directional channels for ingest and playout supporting a mixed database of DV and MPEG-2.

404-327-8300; www.videntechnics.com

BOOTH: SU3014

SURROUND SOUND ANALYZER Modulation Sciences SpiderVision

A complete audio analysis solution; features a built-in, full-color display; in a half-rack wide case, it has the same form factor as a standard waveform monitor for easy mounting; features a simple push-button or remote screen selector; important user selectable features include operating level adjustment, VU, peak or PPM metering standards and SpiderVision or standard XY display modes.

800-826-2603; www.modsci.com

BOOTH: C118



HOLOGRAPHIC OPTICAL RECORDING TECHNOLOGY MAXELL CORPORATION OF AMERICA HOLOGRAPHIC MEDIA

A joint venture with InPhase Technologies; features 300GB storage capacity and a 160Mb/s transfer rate; uses a laser beam to form and store data in a number of 3-D hologram images of data pages into the same location; each location can hold hundreds of pages of data; an entire 5¼ in-diameter optical disc can store millions of pages; each piece of optical media is capable of custom encryption.

201-794-5900; www.maxell.com

BOOTH: C6932

PRODUCT HIGHLIGHTS



DIGITAL MEDIA SERVER Adtec Digital Soloist 4111 HD

A digital media server for MPEG-2 HD and SD file playback and IP stream decoding; can automatically scale the content to match a user's output target up to 1080i60 for HD playback with multichannel Dolby Digital AC-3 audio; media can easily be loaded, managed and scheduled for play-out using the included mediaControl software.

615-256-6619; www.adtecinc.com

BOOTH: SL2961

RECORDER SONY XDCAM HD PDW-1500 COMPACT DECK

A half-rack size recorder; suitable for nonlinear and linear editing; offers high-speed data transfer capability between compatible nonlinear editing devices; equipped with an RS-422A nine-pin interface; fits well in linear editing systems as a feeder; brings added benefits of nonlinear disc recording into linear editing environment; features MPEG IMX/DVCAM and Proxy AV Data recording, as well as high-speed file transfers.

800-686-SONY; www.sony.com/professional

BOOTH: SU107

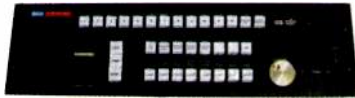
SPRINTER II

1/2 setup time!

Find out how... call for
a demo (973) 857 8300

MILLER

www.millersprinter.com



ROBOTIC CONTROLLER Vinten Radamec

Sits behind the current user interfaces and enables operation of all of the current Radamec and Autocam branded products; is programmed through the control panel to perform the required moves; data is then transferred and held in the device and is recalled by the controller as and when required.

+44 1284 752121; www.vinten.com
BOOTH: C5119C

MEDIA SERVERS Video Technics Apella SDS and Apella HDS

Multichannel, multiformat media servers that support a mixed database of DV, MPEG-2, HDV, DVCPRO100, HDCAM and uncompressed 10-bit 4:2:2 video; any video format can be played out back-to-back from a single channel or playlist; flexible codecs allow mixed format flavors for improved video quality, reduced storage requirements and faster production performance.

404-327-8300; www.videotechnics.com
BOOTH: SU3014



WEATHER SYSTEM BARON SERVICES VIPIR

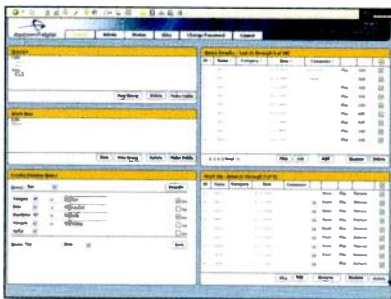
Incorporates severe weather tracking, 96-hour forecast modeling and weather graphics in one package; renderless, real-time presentation makes it quicker and easier to get on-air with only the latest information; features optional aerial mapping and live sensor integration.

256-881-8811; www.baronservices.com
BOOTH: C7407

HD-SDI ANALYZER Leader LV7700

A rasterizing HD-SDI analyzer; employs almost the same front-panel controls as the portable LV5750 and studio-optimized LV5700A; waveform monitor and vectorscope functions are provided, including cursor measurements, filters, gain and timing control; line-select capabilities allow detailed signal examination.

+31 40 2645345; www.elquip.com
BOOTH: C7332



CONTENT MANAGEMENT APPLICATION FRONT PORCH DIGITAL DIVADIRECTOR

Enables active tracking of all assets in the DIVArchive system, frame-accurate EDL generation and export, and robust metadata search and management capabilities; integrates proxy content, allowing for Web-based viewing of assets as well as EDL generation.

303-440-7930; www.fpdigital.com
BOOTH: SU2236

HD RASTERIZER TEKTRONIX WVR7100

HD rasterizer that allows the combination of HD, SD and composite video, as well as analog, digital, Dolby Digital and Dolby E audio inputs to all be monitored from a 1RU form factor; features Dolby E and Dolby Digital (AC-3) capabilities; includes new upgrades such as eye pattern display and jitter measurements for SDI signals.

800-833-9200; www.tektronix.com
BOOTH: SU4141



HD DVC TAPE TDK HDV Pro Grade High Definition DVC

Designed for HD footage acquisition; incorporates TDK's Dual Layer Metal Evaporation bonding technology and Diamond-Like Carbon tape formulation for high recording and playback accuracy; combines low drop-out rates with value for cost-conscious professional users; provides 63 minutes of recording time.

858-450-0143; www.opticomm.com
BOOTH: SU4183

PRODUCT HIGHLIGHTS

HDTV UPCONVERTER SNELL & WILCOX QUASAR

An HDTV upconverter that integrates motion estimation technology; uses motion estimation techniques based on the company's Ph.C technology to produce clear and sharp HD outputs from a variety of SD inputs; combines three Snell & Wilcox technologies in a single compact 1RU package, including Ph.C motion estimation, premium HD upconversion and Prefix compression pre-processing for noise reduction and dropout filtering.

212-481-2416; www.snellwilcox.com

BOOTH: SU156

VIDEO CONTENT MANAGEMENT AND DISTRIBUTION BITCENTRAL MEDIAPIPE

Integrates broadcast, satellite-over-IP and MPEG file technologies; a robust software platform that facilitates the management and distribution of video via satellite in commonly accepted digital file formats such as MPEG-1 and MPEG-2.

800-214-2828; www.bitcentral.com

BOOTH: SL2158

ARCHIVE MANAGEMENT FRONT PORCH DIGITAL DIVANET 2.0

Allows customers to leverage the core power of DIVArchive to provide advanced content replication, disaster recovery and business continuance functionality across multiple facilities; provides a fundamental toolset for advanced content lifecycle control for effective multi-site archive management; designed for users who have multiple DIVArchive site installations.

303-440-7930; www.fpdigital.com

BOOTH: SU2236

innovation never gets old.



At Dielectric, you'll find the same spirit of innovation that inspired "Doc" Brown to build a better radio antenna in 1942 alive and well in our full range of broadcast solutions:
**TV & FM Broadcast Systems • Tower Lighting
Mobile Media • M2M Solutions**

Convergence is poised to change our industry more in the next five years than the previous sixty years combined. Working together — the possibilities are boundless.

Dielectric
COMMUNICATIONS

*Innovative Engineering
for a Digital World™*

www.dielectric.com

TRIAx CONNECTOR BACKSHELL ADC TELECOM PROAX UNIVERSAL SERIES

A new universal backshell for all U.S. format triax connectors; is more than 1in shorter than other products; is easier to terminate than the standard backshell; compatible with the Global weather protection boots.

800-366-3891; www.adc.com
BOOTH: C6526



STORAGE SYSTEM 1st Design IntelliRaid FC

SATA2 RAID storage system features dual 4Gb Fibre Channel connections; controller can automatically inform users of status changes by e-mail; SATA2 disks have up to 1.2 million hours MTBF at 100 percent duty cycle, a cable-less backplane, dual-power input, and redundant hot-swappable power and fans.

877-663-2396; www.1stdesign.com
BOOTH: SL942

PROXY BROWSING SOFTWARE SONY XDCAM HD PDZ-1

Supplied with all XDCAM products as standard; is used for browsing Proxy AV Data, simple and quick cut editing and registration of metadata on an intuitive GUI; runs on a Window-based compact laptop PC; allows users to storyboard material on-location for better efficiency; supports Ethernet and i.LINK interfaces.

800-686-SONY; www.sony.com/professional
BOOTH: SU107



DIGITAL CAPTURE AND PLAYBACK SOLUTION Bluefish444 Symmetry v3.0

A multi-resolution, multiformat digital intermediate acquisition solution that features a new UI, playlist for clip assembly, XML-based project saves, batch and export lists import and export, and extended file format support; an Avid-certified DI solution for 4:4:4 DPX 10 bit RGB I/O; supports Adobe via the Production Studio.

866-314-7785; www.bluefish444.com
BOOTH: SL778

GRAPHICS SYSTEM Weather Central 3D:LIVE

Turnkey computer weather system with MagicTRAK system allows talent control of graphics while in chroma-key; on-camera presenters interact with high-resolution mapping; is available with serial digital video outputs in SD or HD; runs on a turnkey, Windows XP system; uses nVIDEO and DVS graphics and video hardware.

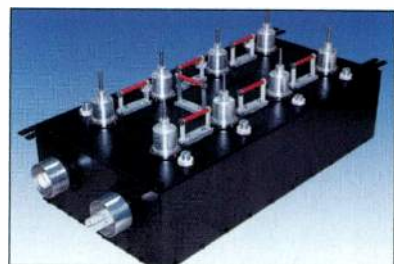
608-274-5789; www.weathercentral.tv
BOOTH: C6014



D12 CONNECTORS GEPCO G37 SERIES

Twelve-channel DT12 connectors feature a new hard anodized aluminum backshell that locks in place with two set screws into a series of castellations; the set screws and castellation prevent accidental loosening of the connector shell, therefore extending the operating life; the male connector shell is constructed from stainless steel to prevent damage and keyway wear.

847-795-9555; www.gepco.com
BOOTH: C5733



COAXIAL RF FILTERS Radio Frequency Systems 8PX series

Available in 50mm, 100mm and 200mm sizes; feature eight-pole cross-coupled filters that achieve a selectivity of 9dB at 4.2MHz from the center frequency for 8MHz channels; tunable over the UHF band; 50mm and 100mm coaxial cavities are configured inline; 200mm version has a folded construction to maximize compactness.

203-630-3311; www.rfsworld.com
BOOTH: C1217

PRODUCT HIGHLIGHTS

HD UP-, DOWN-, CROSSCONVERTER EVERTZ 7710XUDC-AES4-HD

Provides simultaneous crossconversion and downconversion; features two SD serial digital outputs and two composite analog video outputs; accepts two groups of SMPTE 299M embedded audio on the input or optionally external four AES audio and re-embeds them into the serial video output, providing four AES audio output mirroring the embedder.

905-335-3700; www.evertz.com

BOOTH: SU170

DATA ROUTER NETWORK ELECTRONICS SL-D32P

A 32-port, configurable data router; designed to provide a flexible solution for machine control routing; ports can be configured as controller or tributary either via software or a GP that is available on each port; features redundant power supplies with front indicators and interoperability with the VikinX modular range of routers.

800-420-5909; www.network-electronics.com

BOOTH: SU199

NEWSROOM PRODUCTION SYSTEM Solid State Logic MediaWAN

Complete newsroom production system; designed for demanding environments; multiple inputs including HD; preview and job allocation interfaces, editing software for journalists and management tools for producers; asset management database; supports third-party NLE applications including Sony Vegas and Apple FCP.

212-315-1111; www.solid-state-logic.com

BOOTH: N822

FIRST FOR HD WIRELESS

AVS HD

The AVS/Link HD System

Best picture quality with the lowest delay
42 ms total system latency – genlockable
Proprietary fiber optic antenna system

Lowest Delay - Lightest - Most Compact

Monday Night Football • Super Bowl XL • NBA All-Stars
Academy Awards • World Baseball Classic

AVS

Aerial Video Systems

Where the extraordinary is ordinary.

HD RF • SD RF • POV • Aerials • Microwave • Communications
www.aerialvideo.com 818-954-8842





BRAIDED COAXIAL CABLES

Radio Frequency Systems RGFLEX

The series of braided coaxial cables and connectors provides interconnection between low-power RF equipment; composed of three series of cables (RG, RGC and RF); available with impedances of 50Ω or 75Ω in diameters of up to 1/2in, optimized for use between 1MHz and 2400MHz.

203-630-3311; www.rfsworld.com

BOOTH: C1217

HIGH-CAPACITY CABLE REEL

TecNec Distributing JACKREEL-3

The steel-frame cable reel features a cushion-grip carry handle for easy carrying and quick dispensing of cables; features a high-impact plastic core that holds 300ft of Rg59 coax or Quad Star microphone cable and more than 400ft of Cat 5 cable; measures 15in high with a 11.625in diameter.

845-246-0428; www.tecnec.com

BOOTH: C5541

CABLE STRIP TOOL

WHITE SANDS ENGINEERING CPT-7538

Strip tool for used for ASFP, ASFPF, BNCFP and RCAFPP connectors; gives the cable a 1/4in x 1/4in strip; strips Mini RG59, Belden 1855A, Belden 7787A, Belden 7789A, Belden 7791A, ComScope 7538, WS940, WS941, WS942, WS943, WS164, WS193 and WS172.

623-581-0331; www.whitesandsengineering.com

BOOTH: C739



BNC ADAPTORS

Pomona Electronics BNC Adapter Kit

Includes 19 of the most frequently used 75Ω adapters that allow direct adaptation without the need for intermediate couplers; are precision machined — not die-cast — with tarnish resistant nickel plating and high-density PTFE insulation material; the male center pin contacts are gold-plated brass; the female center contacts are gold-plated beryllium copper for connectivity and reliability; the kit comes housed in a pistol-grip case.

425-446-5483; www.pomonaelectronics.com

BOOTH: C6636

IPTV VIDEO QUALITY MEASUREMENT

TEKTRONIX SPECTRA2IVQM

A portable monitoring solution for the diagnosis and analysis of streaming video transmitted over IP; helps users identify the causes of poor digital image quality, such as packet loss, delay or data corruption in the IP transport network; monitors video streams transported over RTP and MPEG-2TS protocols; supports measurement of multiple concurrent SD and HD video streams.

800-833-9200; www.tektronix.com

BOOTH: SU4141



TWO-CHANNEL CHARGER

PAG V2

Designed for PAG and Sony V-Mount Li-Ion batteries; features a tough but lightweight molded-construction; fits easily into a camera bag, making it ideal for location use; offers PAG ACS software, which is designed to extend the battery cycle life.

818-760-8285; www.paguk.com

BOOTH: C8515

PRODUCT HIGHLIGHTS

SIGNAL PROCESSING AND CONVERSION EQUIPMENT

SNELL & WILCOX KUDOS PLUS SERIES

TBS time base synchronizer and CVR converter and synchronizer; equipped to handle embedded audio; choice of external audio I/O options; six of the new Kudos Plus products include a FireWire interface for DV input or output; all 12 products feature composite, component and Y/C video inputs and outputs; the 1/2RU products perform signal stabilization and standards conversion on video.

212-481-2416; www.snellwilcox.com

BOOTH: SU156

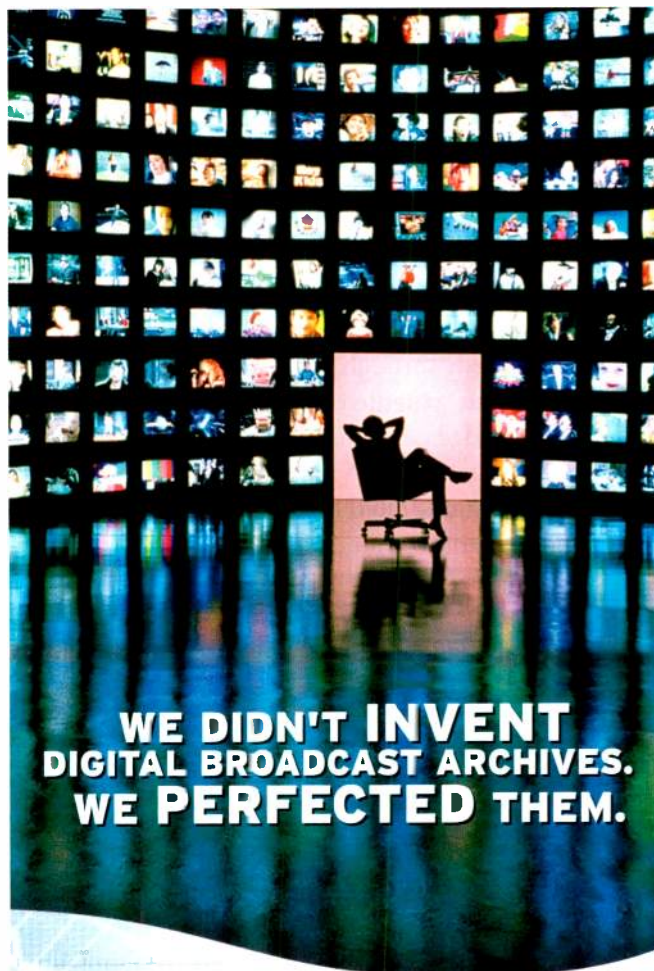


CONNECTORS FISCHER CONNECTORS 1052 SERIES

Triax connectors are compatible with 3/8in and 1/2in in 75Ω cables; protect sensitive signals from RFI interference with integral shielding within the connector body; route signals through contacts plated with a minimum of 1μm of gold.

+41 21 800 95 95; www.fischerconnectors.com

BOOTH: SU5193



WE DIDN'T INVENT DIGITAL BROADCAST ARCHIVES. WE PERFECTED THEM.

More RESOURCES. Broader SOLUTIONS. Deeper EXPERTISE.

Front Porch Digital and StorageTek have accelerated the evolution of integrated archive systems, with custom DIVAcomplete installations at more than sixty facilities worldwide. Now that Sun has joined forces with StorageTek, the team that perfected digital archives is even stronger.

Together, we manage mission-critical archiving in the world's leading broadcast, cable and satellite facilities. We'll tailor-fit each system to your specific requirements. With unparalleled design, delivery, and support for our custom-fit software and storage hardware solutions, we make sure you have the archive system that's perfect for your facility.

Our customers are names you know and respect, and no other archive management vendor can match the quality of our references. Call us today to see here why your company should be on this list, too, and why nothing less than perfection will do.

For more information, call Front Porch Digital today, or visit us online at www.fpdigital.com.

US: 936.520.6042, International: +33 4 50 88 37 70
DIVAcomplete@fpdigital.com

See us at NAB booth #SU 2236



PATCHING SYSTEM ADC TELECOM UNIPATCH GIGE

A professional grade normal-through gigabit patching system; features a high-density 32-port normalled through card frame system to patented ADC-Krone Direct-Edge LSA plus termination system; uses a Mil Spec switching contact and is rated for 30,000 insertions and withdrawals.

800-366-3891; www.adc.com

BOOTH: C6526

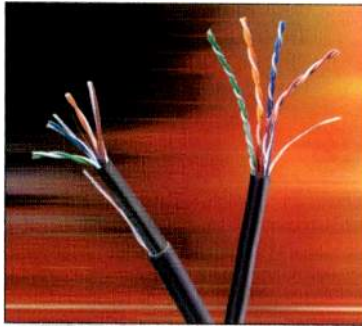


HYBRID FIBER DISTRIBUTION RACK GEPKO HDRA

An angled 2RU hybrid fiber distribution rack; reduces connector protrusion and cable strain; provides a simplified solution for the on-site installation of SMPTE hybrid fiber interconnections; each hybrid fiber connector is broken out to separate single-mode fiber ST connectors and an electrical five-pin connector; this allows the camera interconnect to be run over separate fiber optic and electrical cable elements.

847-795-9555; www.gepco.com

BOOTH: C5733



CABLES Belden Brilliance CatSnake

Tactical field-deployable Cat 5e audio and video cables designed for use in patching Ethernet or other Cat 5e digital audio/video formats; AES/EBU-compliant; features Belden's Bonded-Pair unshielded twisted pairs with 24 AWG stranded bare copper conductors and polyolefin insulation; a heavy jacket wall version for medium-duty use and an upjacketed version for the harshest heavy-duty applications are available.

800-BELDEN-4; www.belden.com

BOOTH: C1655

OSCILLOSCOPES TEKTRONIX DPO7000 SERIES

Oscilloscopes with Digital Phosphor technology; verify, characterize, debug and test electronic designs; speed up day-to-day tasks with signal acquisition and analysis; feature a large-screen display of 12.1in; feature 500MHz to 2.5GHz; up to 10 GS/s sample rate on four channels.

800-833-9200; www.tektronix.com

BOOTH: SU4141



PROMPTING EQUIPMENT Vinten Vision iScript Systems

A portable prompting system; uses the Vinten Vision iScript pan and tilt head; reduces the time and effort associated with the attachment of a conventional prompting system; includes a pre-set counterbalance system; features the Autoscript GoPrompt 12 solution, offers a newly designed speed mount hood/bracket that slips into the head platform and is securely locked off.

+44 1284 752121; www.vinten.com

BOOTH: C5119C

OPERATIONS MANAGEMENT ScheduALL Microsoft Outlook and Exchange Interface

Delivers a simple interface with MS Outlook and Exchange, providing unidirectional functionality; detailed schedule information created can be sent to Outlook calendars, PDAs and mobile text messaging.

303-399-5454; www.scheduall.com

BOOTH: SL1955



CABLES

Belden Brilliance Low Cap Speaker cables

Performance gains are achieved through the use of high-conductivity, oxygen-free, copper conductors that are inherently free of impurities; use low-capacitance polyolefin dielectric; are available with 10-, 12-, 14- or 16 AWG bare copper conductors; feature round, brightly colored and satin-finished PVC jackets.

800-BELDEN-4; www.belden.com

BOOTH: C1655



VIDEO PATCHBAYS

Switchcraft MidSize RGB Series

RGB series of video patchbays; offer high performance in high-density panels; for use when component video signals need to be separated into their own; the jacks are conveniently grouped into RGB, RGBS and RGBHV layouts; panels are available in 1RU, 1.5RU and 2RU versions.

773-792-2700; www.switchcraft.com

BOOTH: C9316

WIRELESS MICROPHONE SYSTEM

Lectrosonics 200

Includes a rack-mount diversity receiver, two compact receivers and two belt-pack transmitters; a handheld wireless mic is also available in Europe in limited quantities; ideal in situations where RF interference is a problem, such as more urbanized areas; the group's receivers are small enough to mount on DV camcorders; features a dual-band compandor for improved audio and tracking front ends with advanced diversity reception to minimize RF interference and maximize range.

800-821-1121; www.lectrosonics.com

BOOTH: N3225



DIGITAL AUDIO WORKSTATION PATCHBAYS

Switchcraft Studiopatch

Digital audio workstation patchbays; new additions include a 9625 version consisting of 96 patch-points to DB25 rear connections and the 96DL version, which offers 96 patch-points to Cannon DL rear connections; all three versions use the EZ Norm jack, which allows for quick normalizing changes from the front of the patchbay.

773-792-2700; www.switchcraft.com

BOOTH: C9316

AUDIO/VIDEO SYNC

PRO-BEL VALID8

Quickly and accurately diagnoses and rectifies audio and video sync problems; works with any HD or SD standard; can be compressed, recorded, replayed and standards-converted, with the VALID8 signal then measured for video and audio delay.

925-735-9269; www.pro-bel.com

BOOTH: SU4347

CHANNEL RECEIVER

Modulation Sciences PRO-3

Offers three independent solutions to correct delay introduced by the advent of digital ENG; includes selective calling, main channel push-down and antenna diversity, front-panel tenability, four user presets, a DELcor channel and the DELiminate squelch.

800-826-2603; www.modsci.com

BOOTH: C118

WAVEFORM MONITOR

Leader LV5100

A compact waveform monitor that occupies 215mm x 42 mm x 132mm space; incorporates a 150mm rectangular high-intensity P4-phosphor CRT, which can be used to display Y or G chroma components as a television image; the positional relationship between a video signal and its corresponding image can be checked using the intensity-modulated display of a selected image line.

+31 40 2645345; www.elquip.com

BOOTH: C7332



12-CHANNEL DT12 CONNECTOR **GEPSCO G37**

Features a hard anodized aluminum backshell that locks in place with two set screws into a series of castellations; the set screws and castellation prevent accidental loosening of the connector shell, thereby extending the operating life; male connector shell is constructed from stainless steel to prevent damage and keyway wear; is completely weather-tight, allowing for use in remote and hostile environments.

847-795-9555; www.gepco.com

BOOTH: C5733



BROADCAST RACK **APWMayville Stantron**

Features thin profile power strips for space savings in high-density wiring applications; a wide variety of cooling fans and devices ensure temperature control; standard and customizable filler panels plug open spaces; heavy-duty shelves accommodate non-rack-mountable units with larger weight load capacities; top and rear-mountable fan panels assist airflow through the rack system.

800-558-7297; www.stantronracks.com

BOOTH: SL2132



TRANSLUCENT CODING RING **Neutrik XX-series**

Allows individual customized labeling, branding and coding; an individual colored and/or lettered paper or tape can be placed inside the ring.

732-901-9488; www.neutrikusa.com

BOOTH: C6033

CROSSCONVERTERS **EVERTZ 7710XC-HD AND 7710XC-AES4-HD**

The 7710XC-HD is designed to provide high-quality conversion of HD (SMPTE 292M) signals to other common 1.5Gb/s HD video formats; features 10-bit processing, two HD serial digital outputs, one OSD output and external genlock; the 7710XC-AES4-HD with external AES provides high-quality conversion of HD signals to other common 1.5Gb/s HD video formats.

905-335-3700; www.evertz.com

BOOTH: SU170

GRAPHICS OPERATING SYSTEM

Chyron Lyric Pro

Uses Chyron's new interFuse Technology; creates graphics in pieces; users simply merge individual elements to create the final on-air graphic seconds before going on-air.

631-845-2000; www.chyron.com

BOOTH: SU2964

BATTERY POWER SYSTEM

ANTON/BAUER QR-JVC 7/14HDV

A Gold Mount power system to be used with the JVC GY-HD100 camcorder; supplies the proper regulated operating voltage to the camera while providing the ability to use standard 12V video accessories all powered from the same battery; the mount features a Real-Time interface to the camera that displays the battery's remaining runtime directly in the viewfinder of the camera.

800-422-3473; www.antonbauer.com

BOOTH: C5119A

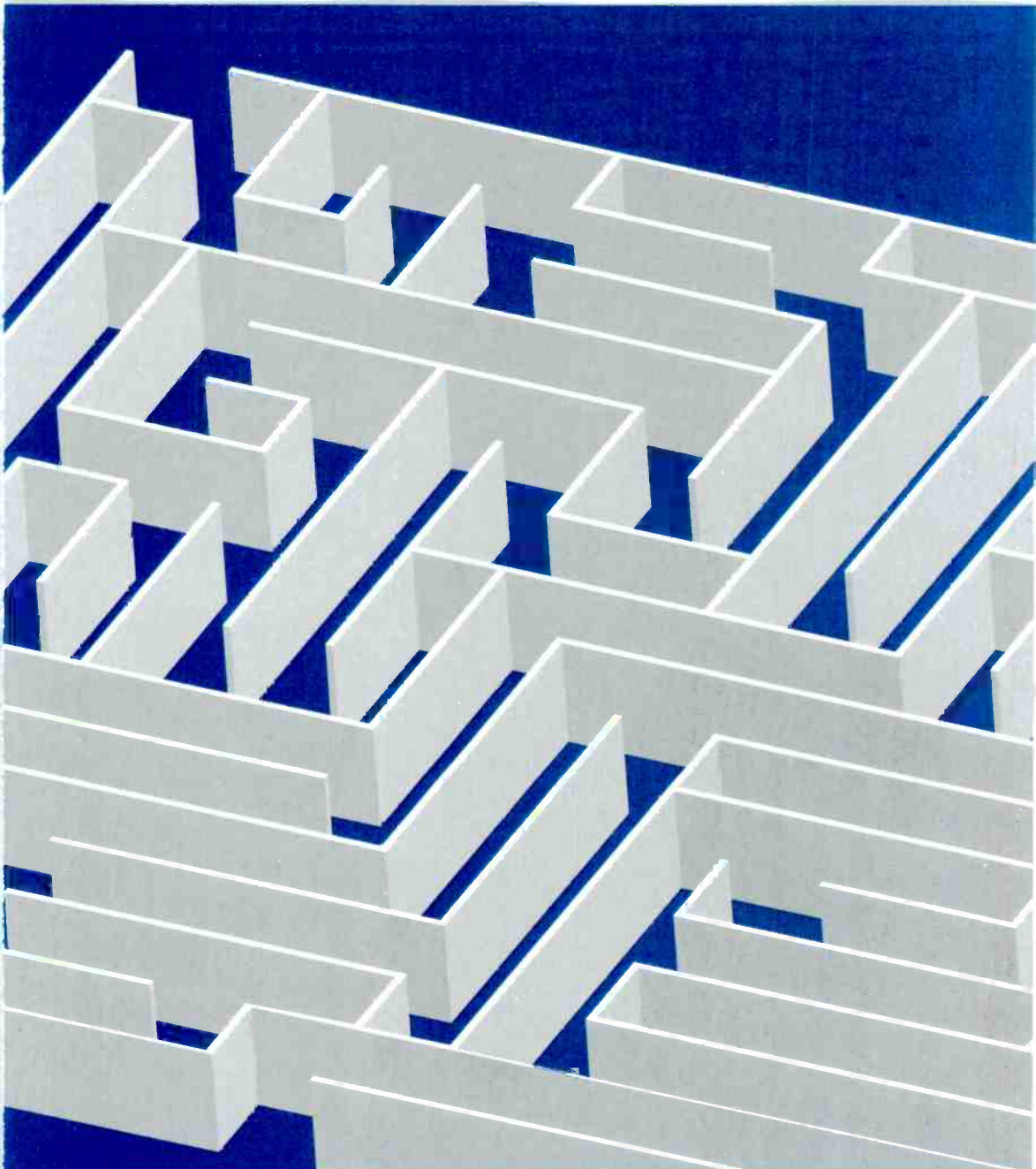
IPTV TEST AND MONITOR PLATFORM

Pixelmetrix DVStation-IP

New features include a service view display for viewing the summary of all components of a service including video, audio, CA, data carousels, etc.; presents all broadcast services within all SPTS IP connections in a single consolidated view; audio alarms for silence and tone allow customers to monitor audio integrity on all channels.

954-943-2026; www.pixelpower.com

BOOTH: SU4359



OVERWORKED NEWS WORKFLOW

Simplify with Précis

Entirely new way to contribute, create, and archive your News



"We thoroughly surveyed the market and found no other competing product to be as comprehensive, easy to install, or attractively priced as the Précis solution from BitCentral."

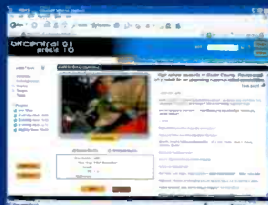
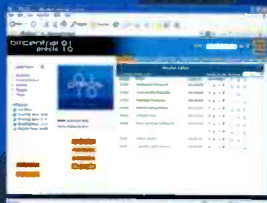
Dan Billings, Director of Engineering and Technology,
Waterman Broadcasting

"Précis doesn't just digitize the workflow,
It redefines the workflow."

Craig Porter, Chief Engineer Channel 4, San Francisco



Straight to Précis



Should You Be Next?

These stations have already gone straight to

Précis

KRON WRAL

KDRX KVAL

KTMD KPIK

WBBH KCBY

WZVN WMCN

WTAP WVIR

KECI KMTR

KATU KVDA

and many more.

Are you overworking an old workflow? Forget the complicated and proprietary workflow altogether. Précis, the end-to-end news production solution enables your creative people to submit their stories ready to air without all the steps in-between.

Précis

Operates from within ENPS or iNews
Submit stories from the field over broadband
Non-proprietary and format agnostic
High Definition and Standard Definition
Cost effective online archive

Précis is all about eliminating the workflow and enabling entirely new efficiencies in your station. Précis is one of the best selling news production solutions today because creating news does not need to be complicated. See why so many others have chosen Précis to simplify their news operations.

NAB Booth #SL 2158

www.precis.tv

OASIS*

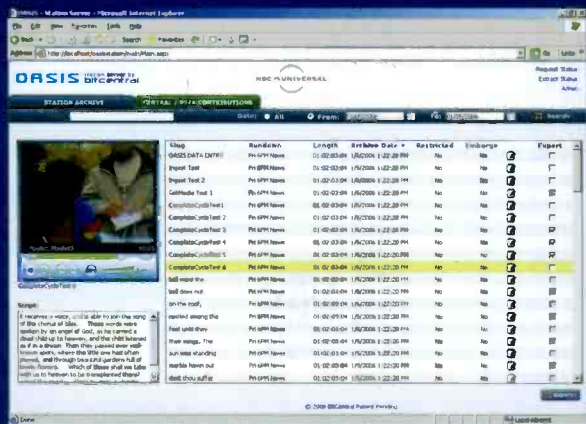
Video Archive and Sharing Solution

- Cost effective online archives for Avid
- Cost effective online archives for Grass Valley
- Cost effective online archives for just about any other news system

BitCentral's OASIS enables proprietary formats from various vendors to be archived at a cost less than broadcast tape stock. No need for expensive proprietary storage systems that restrict you going forward. Your video is automatically archived with scripts etc. and is immediately searchable and viewable through a browser interface.

Cost effective content sharing among stations

BitCentral's OASIS also enables news broadcasters to easily share and repurpose their content. OASIS enables news operations utilizing systems from various vendors to easily share content with only a click of a mouse. This ideal solution positions local station's current and archive media to be instantly searchable and retrievable.



* Patent Pending



Call BitCentral today to find out how your newsroom can perform with Precis and OASIS.

Call 800-214-2828
www.bitcentral.com

RECEIVER BMS CENTRAL DECODER II

Stable analog and digital central receive site system is easily integrated and operated with a wide variety of central receive site and mobile antenna configurations; enables a continuous operator-free existence while remaining a fully functional remote receive site; features an integrated receiver decoder; automatically detects and adjusts both COFDM and MPEG-2 transmission parameters, data rate and modulation.

858-391-3050; www.bms-inc.com

BOOTH: C2326



MEDIA WALL Custom Consoles Media Wall

Designed to accommodate large or small arrays of flat-panel monitors and ancillary equipment; incorporates height-adjustable horizontal beams suspended between 2000mm high silver-anodised aluminium supports; the beams are available in 1500mm, 2000mm and 2500mm widths and are structured to allow easy attachment of large and small panels using pivoting VESA and plasma-mount fittings.

+44 1525 379 909; www.customconsoles.co.uk

BOOTH: TBA

AUDIO CODEC APT WorldNet Oslo

An audio codec for multiple channel audio applications; transports high-quality content over both synchronous and packetized data links; features enhanced apt-X coding; delivers real-time, near lossless quality audio on up to 24 channels; new option transports audio over IP in addition to E1/T1 links for STL/TSL and studio-to-studio networking applications.

+028 9037 1110; www.aptx.com

BOOTH: N1217

ASSET MANAGEMENT AND ARCHIVE SYSTEM Dalet Digital Media Systems News Library

The turnkey asset management and archive system archives, indexes and distributes news material to broadcasters using MOS-compliant newsroom computer systems, such as Dalet OpenMedia, Associated Press ENPS or Avid iNews; the system's InterWeb option enables remote bureaus and journalists to fully leverage content and source materials.

212-825-3322; www.dalet.com

BOOTH: SL1132

STORAGE SYSTEM Archion Synergy Plus

A full-featured SATA II to FC RAID storage unit designed for networking digital video systems; compatible with Avid's Unity system, including the latest version MediaNetwork 4.1; comes in units from 4TB to 8TB and more, with two ports of 2GB FC; is compatible with Windows, Mac OS 9, X and Tiger, Linux and UNIX.

888-655-8555; www.archion.com

BOOTH: SL1006

HANDLE BRACKET TecNec Distributing DELV-G 1080-1

The pro-machined, rugged, lightweight aircraft aluminum handle bracket adds four threaded mounts and a cable strain relief system to a Sony HD Handycam for additional mics, lights, transmitters, jib arms, Steadicams and LCDs; cables stay plugged in with integral strain relief system; supports up to 75lb; won't interfere with camera controls.

845-246-0428; www.tecnec.com

BOOTH: C5541



HD CABLES Comprehensive XHD cables

Designed specifically for HDTV and high-definition source and display technologies; provide video definition and high-res video performance for HDTV and high-res signals; include composite video, S-Video, component video, VGA, DVI, HDMI, digital audio and others.

800-526-0242; www.comprehensiveinc.com

BOOTH: SL2919

FILE SYSTEM

Sanbolic Melio v.2.0

A symmetrical 64-bit clustered file system designed for high availability and clustered computing environments; enhancements and new functionalities include up to a 4X increase in file system performance and support for virtually unlimited file system size.

617-833-4242; www.sanbolic.com

BOOTH: TBA

WIRELESS PROMPTING SYSTEM

Autoscript GoPrompt-15

Features a 15in high-brightness screen designed to bring studio-standard readability to field operations; prompting can be done in the field without the need for laptop computers; is capable of field editing via USB or PS-2 keyboard.

203-338-8356; www.autoscript.tv

BOOTH: C7415

PRODUCTION TOOLS

EVS IP DIRECTOR

A complete software suite; built around dedicated software modules, which feature a fully configurable user interface; combined with the EVS XT server network, it unifies key elements of the production environment and accelerates the migration to a truly tapeless workflow; includes ingest and playout control, logging, asset management, editing, and highlights functions and advanced browsing features.

973-575-7811; www.evs.tv

BOOTH: C3230

IPTV NETWORKED VIDEO SOLUTION

Arroyo OnDemand

Powers the delivery of new and emerging personalized television services, including networked VOD, nPVR and time-shifted television; operates on IBM's eServer; features 10GigE support, unparallelled streaming density and unlimited numbers of streams, ingest channels and hours of storage.

925-225-2111; www.arroyo.tv

BOOTH: TBA

3-D COMPOSITING AND MOTION GRAPHICS SOLUTION

Boris FX Boris Blue

A standalone application that provides 3-D creativity with real-time performance to accelerate users' workflow; based on the company's Boris Red plug-in; the initial release will support Windows only.

888-772-6747; www.borisfx.com

BOOTH: SL2596



ENCODER

EGT HEMI

A high-density encoder for off-site insertion of hyper local channels specific to the MDU or closed community; enables cable operators to cost-effectively convert local analog channels to digital; provides an integrated and scalable solution that encodes, multiplexes, modulates and converts up to nine community channels, such as security cameras, community programming or events calendars.

404-591-4800; www.egtinc.com

BOOTH: TBA

NEWS AUTOMATION SYSTEM

Comprompter NewsKing NewsRoom System

Built on a foundation of Microsoft Windows, SQL and Word featuring easy point-and-click, drag and drop operation; XML Rundown provides instant access to assignments, scripts, wires and archives.

608-785-7766; www.comprompter.com

BOOTH: C9818

FIBER-OPTIC TRANSMITTER/RECEIVER

Communications

Specialties Pure Digital Fiberlink

A 7240/7241 transmitter and receiver pair that supports a combination of high-resolution RGB, stereo audio, 10Base-T and two-way data transmitted over one single-mode or multimode fiber; works with any type of display device that supports VGA, SVGA, XGA and WXGA (640 x 480 up to 1366 x 768), plus HDTV resolutions of 480p, 720p and 1080i (RG-BHV format only).

631-273-0404; www.commspecial.com

BOOTH: SL2958

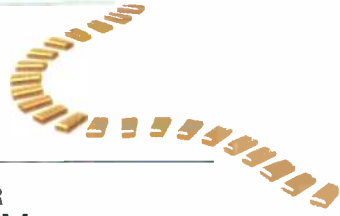
LIGHTING SUPPORT SYSTEM

Matthews Studio Equipment MINI MAX

Operates on a 105in (265cm) maximum arc from a height of 14ft (427cm) to below the horizontal; supports a 15lb (6.8Kg) fixture at a 9ft (274cm) extension and can parallel up to a 9ft (274cm) ceiling; features two rocky mountain legs and an adjustable main column leg for leveling on almost any uneven surface including stairs.

818-843-6715; www.msegrp.com

BOOTH: C10435



HD FRAME RATE CONVERTER FOR-A FRC-7000

Uses motion compensation processing by motion vectors to convert field frequencies; enables conversion between different HD frame rates; ideal for converting the frame rate prior to transmitting at international sporting events; can convert frame rates between 1080/59.94i and 50i, and between 720/59.94p and 50p.

714-894-3311; www.for-a.com

BOOTH: C3210



CARDIOD STUDIO MIC Neumann TLM 49

A large diaphragm, cardioid, studio microphone; features the K47 capsule used in the M 49 and U47 Microphones; the capsule has a linear frequency response up to the upper mid-range; above 2kHz there is a gentle presence boost up to 3dB; the capsule is enclosed by a large, acoustically open, neutral sounding head grille.

860-434-5220; www.neumann.com

BOOTH: 1822

CONVERTER DVEO FireBridge

An HDV to DVB-ASI converter with FireWire input; designed for broadcasters and content providers; converts high-definition 1394 output from the new generation of HDV cameras to DVB-ASI; when used with the JVC GY-HD100U camcorder, it converts the camera's 1394 FireWire output from 720 30p to 720 60p, making the output fully compatible with standard broadcast 720 60p equipment.

858-613-1818; www.dveo.com

BOOTH: SU1205

ARTIST NEXT GENERATION

RIEDEL
The Communications People

The Advanced Communications Platform
Decentralized master-less intercom architecture, matrix size 1,024 x 1,024, full summing, non-blocking, redundant dual ring fiber optic network, AES3 audio, intuitive configuration software, ...

What's new?
Enhanced scalability, speed boost, increased memory, flexible fibre option, quiet operation, fully compatible with former Artist systems, ...

More News at NAB?
Connectivity solutions for analog PSTN, ISDN & IP, ...

Riedel Communications Inc. • 3605 W. Pacific Avenue • Burbank, CA 91505 • USA • Phone: +1 818 563 4100 • Fax: +1 818 563 4345 • www.riedel.net



AUTOMATION ETERE

An integrated automation system able to share information with all the TV infrastructures; controls all devices that are normally used in any station, such as video servers, audio and video routers, master control/video mixer, logo generators, titlers, cart machines for automatic caching and VTRs; runs on Windows XP computers.

+39 0733 9564; www.etera.com

BOOTH: SU129



CONTROLLER TV ONE CC-300 CORIO CONSOLE

A hardware-based controller for the C2 series of video processor and switching products; features two rows of input selection buttons, a large LCD display and extensive use of both dedicated switches and soft-key switches; features enhanced functions that set up and execute long, complex macro sequences.

800-721-4044; www.tvone.com

BOOTH: C347



AUDIO CONSOLE Fairlight DREAM Constellation-ANTHEM

A multi-configurable digital audio console that allows users to record, mix and edit functions on one console; the configurations resemble traditional split recording consoles, classic in-line mixing consoles and advanced audio post-production consoles.

+61 2 9975 1777; www.fairlightau.com

BOOTH: SL2923



DIGITAL SOLID-STATE UHF TRANSMITTER LARCAN Magnum

Users can choose between 2.5kW, 5kW, 10kW, 15kW or other options; features versatile air-cooling and multiple regulated power supplies; includes intuitive advanced diagnostics and an extensive monitoring system designed to simplify maintenance; fits in 10kW of power in 25sq ft of space.

303-665-8000; www.larcan.com

BOOTH: C4119

EDITING AND SHARED MEDIA STORAGE SYSTEM EditShare

EditShare version 4.0 available; features support for uncompressed HD, faster hardware and larger hard drives, and a new scalable architecture; allows large groups of editors to capture into and share a common pool of media files, while guaranteeing that unauthorized individuals can never interfere with, damage or erase media once it has been shared.

617-782-0479; www.editshare.com

BOOTH: SL1410

ARCHIVE MANAGEMENT SOFTWARE FRONT PORCH DIGITAL DIVARCHIVE 5.10

Enables interoperability between large digital media storage devices, video servers, editing systems and digital media workflow applications; upgrades include broader interoperability with Front Porch Digital's key partners, enhanced performance for network-based API clients, file system interface refinements and enhanced error messaging

303-440-7930; www.fpdigital.com

BOOTH: SU2236



ANALOG TELEPHONE LINE INTERFACE JK Audio Four IFB

A four-position analog telephone line interface; provides flexible listen-only IFB for television field production use; each IFB output, and the monitor input/output jacks, may be separately connected to one of the four analog phone lines; a telephone handset may also be connected for communication with the monitor phone line.

815-786-2929; www.jkaudio.com

BOOTH: N4215

NLE ROUTER Laird Telemedia LTM-ER4HD

Allows users to switch and control up to four external digital or analog video devices to and from a NLE system or post-production switcher; features include the ability to select audio, video, or RS-422 independently to or from the NLE and built-in 1:1 machine-to-machine override for dubbing functions.

845-339-9555; www.lairdtelemedia.com

BOOTH: SL3769

ALL HAZARDS DIGITAL ALERT SYSTEM Global Security Systems GSSNET

An alert and notification system that uses the existing nationwide FM broadcast infrastructure to provide target area coverage messaging coverage and a proprietary messaging system that allows secured and encrypted data with layered and targeted messaging to personnel.

228-255-7220; www.gssnet.us

BOOTH: N2733



ASSEMBLY KIT Neutrik

Designed for Neutrik's EtherCon D-Series chassis connectors; IP54 protection is achieved by replacing the frontplate and pushing lever with the kit components.

732-901-9488; www.neutrikusa.com

BOOTH: C6033

CONTENT MANAGEMENT SOLUTION GlobeCast WING

A suite of IP-based services and applications for broadcast, enterprise and digital retail signage; features WING Content Exchange for content contribution and exchange; WING Store & Broadcast for tapeless playout and channel management; and WING Captive Audience for the delivery of retail advertising and digital display.

305-887-1600; www.globecast.com

BOOTH: C1530



TRAFFIC MAP GRAPHICS Curious Software Traffic Flow

A combination of Curious Traffic Producer and Curious Map Presenter; offers broadcasters a complete solution for the design, production and on-air presentation of their traffic maps; Traffic Producer's interface allows both graphics and non-graphics professionals to quickly focus on the area of interest, add storytelling details and create still or animated maps that are ready for air instantly.

+44 20 7428 0288; www.curious-software.com

BOOTH: SL1323

SYNCHRONIZER/ DECODER SNELL & WILCOX IQDEC

Features video decoding, frame synchronization and powerful noise reduction; modules pack a 12-bit Golden Gate premium decoder, synchronizer and audio embedder with noise reduction on a single compact card; advanced 3-D decoding algorithms, powered by Golden Gate technology, extract information from analog picture sources; provides a bridge between analog legacy operations and digital environments.

212-481-2416; www.snellwilcox.com

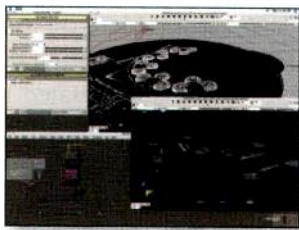
BOOTH: SU156

DIGITAL VIDEO MEASUREMENT SYSTEM **ROHDE & SCHWARZ DVM 400**

Monitors, analyzes, records and re-plays MPEG-2 transport streams; comes equipped with an integrated, high-res color display so users do not need a laptop or external monitor to operate the system; is operated by means of its keys and rotary knob or via the supplied USB mouse; an external monitor and keyboard can be connected; includes various interfaces and space for three plug-in cards.

410-910-7800; www.rohde-schwarz.com

BOOTH: C830



COMPOSITING AND EFFECTS SYSTEM **D2 Software Nuke v4.5**

Features an advanced 3-D compositing workspace, 32-bit floating point rendering, open EXR support including 64 channels of image data, as well as a new image-based keyer and UI mode; available for Linux, Irix, Windows and Mac OSX platforms.

310-314-2976; www.d2software.com

BOOTH: SL1513U

NONLINEAR HD AND SD EDITOR **Media 100 HD**

Features an easy-to-use traditional interface that makes it easy to work in the hybrid environment of mixed formats and codecs; new hardware and improved integration with the Boris FX plug-ins.

800-922-3220; www.media100.com

BOOTH: SL2596

REAL-TIME STORAGE SOLUTION **MESOFT SELECT**

Used to store, manage and access media; features a client interface on the front-end and MESoft's patent-pending server technology on the back-end; delivers reduced production process costs and increased post-production speed.

818-260-0858; www.mesoft.com

BOOTH: TBA

NONLINEAR DISC RECORDER **SONY PROFESSIONAL DISC MEDIA PFD23**

A single-sided, optical disc that uses blue-violet laser technology to enable large-capacity recordings; the 12cm disc provides a storage capacity of 23.3GB, made possible using a 405nm blue-violet laser, an objective lens with a .85 numerical aperture and a specially developed recording layer.

800-686-SONY; www.sony.com/professional

BOOTH: SU107

PORTABLE TESTER **JDSU 40/43G**

An all-in-one portable tester for 40/43G networks; combines 40/43G optical and electrical interfaces with jitter and wander in JDSU's ONT-506 and ONT-512 testers; technical features include concatenated and fully structured signals for SONET OC-768/ SDH STM-256, OTN OTU-3 (G.709 FEC) with bulk or SONET/SDH client, unframed 39.813Gb/s and 43.018Gb/s BER testing, and complete alarm, error, overhead, and pointer generation and analysis for SONET/SDH and OTN.

317-788-9351; www.jdsu.com

BOOTH: SU4201

DV CAMERA TRIPOD **MILLER CAMERA SUPPORT SOLO DOLLY**

Features a 729mm width dimension for safe maneuverability through standard doorways; a collapsed length of 552mm and aluminum construction weighing only 2.5kg enhances portability; the ergonomically designed carry handle is molded into the dolly's reinforced die-cast center bracket for optimum carriage strength.

973-857 8300; www.millertripods.com

BOOTH: C5736

IMAGE SERVER **360 SYSTEMS IMAGE SYNC**

Operates two Image Server 2000s as a redundant pair; features no loss of playout, ingest, stored content, or file management when off-line; all program content is completely redundant; the loss of either server has no effect on broadcast operations.

818-735-8221; www.360systems.com

BOOTH: SU2993

SIGNAL MONITOR **EVERTZ VIP**

Based on the company's MVP architecture; provides a signal monitoring and display solution for up to four and 12 auto-sensing video HD/SD and NTSC/PAL inputs with support for embedded and discrete digital or analog audio; new VIP8 version features three-slot module that conveniently fits into the Evertz 3RU 7700FR-C frame.

905-335-3700; www.evertz.com

BOOTH: SU170

PRODUCT HIGHLIGHTS

HD IP VIDEO BACKHAUL SOLUTION T-VIPS TVG430

Using JPEG2000 compression, it reduces the bit rate required of an HD-SDI signal from 1.485Mb/s to between 50Mb/s and 200Mb/s; maximizes video quality for HD post production and features high resilience to packet loss.

+47 22 88 97 50; www.t-vips.com

BOOTH: C9544



VIDEO SERVER LEIGHTRONIX TCD/NX

A multichannel video player and recorder with digital video messaging capabilities; controlled by the company's TCD/IP Network Managed Video System Controller; up to 16 servers can be configured under one TCD/IP for automated control of up to 32 channels of digital video playback and 16 channels of recording.

800-243-5589; www.leightronix.com

BOOTH: SU4593



MPEG RECORDER TEKTRONIX MTX100A MPEG

3RU recorder and player uses PC components and a Tektronix-designed platform architecture; has a large internal storage and DVD-ROM; Ethernet download capabilities help users store, download and play outtest patterns.

800-833-9200; www.tektronix.com

BOOTH: SU4141

DVR Pace Micro Technology Vegas TDC575 SD-DVR

An all digital, dual-tuner SD-DVR; includes advanced connectivity, DOCSIS/DSG and a processor powerful enough to support both current and future technology requirements; supports CableLabs OpenCable Application Platform (OCAPT™) and has also been integrated with the latest electronic program guide and VOD applications.

+44 1274 532000; www.pacemicro.com

BOOTH: TBA

CONTENT SECURITY AND DATA MANAGEMENT SOLUTION THOMSON NEXGUARD

Protects, traces and monitors digital content in the professional media environment from production to post production through distribution; includes watermarking, encryption, controlled access and forensic data solutions that manage and secure the storage, transfer and viewing of digital content.

818-260-4951; www.thomson.net

BOOTH: SU844

P R O 8 5 0

Get more power and flexibility from your wireless intercom system.

- > Powerful and cutting-edge features allow the system to support virtually any wireless system requirement
- > PC and PDA interfaces provide quick and easy set-up, configuration, and system monitoring
- > Exceptional operating range, sound quality, and proven reliability

Call us today at **866-352-8569** or visit www.pro850.com for more details.



HME



AUDIO PLATFORM Symetrix SymNet Designer version 6.0

A drag-and-drop Windows application for the company's SymNet Network Audio platform; includes new Acoustic Echo Cancelling feature that makes it viable for boardroom applications requiring tele- and video-conferencing capabilities.

425-778-7728; www.symetrixaudio.com

BOOTH: N2414

TRANSMITTER RF CENTRAL RFX-PHT

A portable 2GHz digital transmitter with either 5W or 10W power output; designed to use the company's camera mount transmitter; provides a means to make any news van live; can be used in a standalone mode for temporary transmit application.

717-249-4900; www.rfcentral.com

BOOTH: C820

DSNG ENCODER MODULATOR SCOPUS VIDEO NETWORKS E-1720

The encoder modulator with integrated L-Band upconverter features modulation and upconversion in a 1RU, offering a compact platform for the DSNG mobile news market; provides broadcast-quality of 70/140 IF and 950MHz to 2150MHz L-Band outputs as well as a separate L-Band monitoring output.

609-987-8090; www.scopus.net

BOOTH: 4175

PORTABLE TV ANALYZER ROHDE & SCHWARZ FSH3-TV

Offers all the functions and features of a spectrum analyzer, combined with the functions and features of an analog and digital TV test receiver; comes equipped with a preamplifier, tracking generator and TV module that permits the analysis of analog and digital TV signals and their demodulation; the demodulated video signal, which is made available at an output that can be used either as an analog TV or as a digital output, can be routed to an external monitor or an MPEG-2 decoder.

410-910-7800; www.rohde-schwarz.com

BOOTH: C830



STEREO AUDIO DELAY SYNCHRONIZER Soniflex RB-DS2

Resynchronizes audio to video following such delay processes as standards conversion and transmission delay; features balanced analog and AES/EBU digital audio inputs and outputs on three-pin XLR connectors; can act as a combined A/D and D/A unit, with analog inputs delayed and output as AES/EBU and vice-versa.

+44 1933 650700; www.soniflex.co.uk

BOOTH: N4507

TRANSMITTER GLOBAL MICROWAVE SYSTEMS HDMT

The high-definition messenger transmitter accepts HD-SDI video signal and embedded audio or analog stereo audio inputs (mic or line level); video is compressed according to MPEG-2 specifications.

760-496-0055; www.gmsinc.com

BOOTH: C8528

HDV videocassette RECORDERS SONY HVR-M25 AND HVR-M15

Capable of 1080i recording and playback; support both standard and mini-size DV cassettes; are switchable between 50Hz and 60Hz (PAL/NTSC) and offer, HDV-TM, DVCAM and DV SP recording and playback capability, providing users with an easy migration from SD to HD production.

800-686-SONY; www.sony.com/professional

BOOTH: C9618

ENCODER MODULE DOLBY CAT. NO. 561

Offers real-time, multistream and multichannel encoding of both Dolby Digital and Dolby Digital Plus formats; allows high-quality transcoding of Dolby Digital to Dolby Digital Plus bit streams; a comprehensive integrated audio solution that saves rack space.

415-558-0200; www.dolby.com

BOOTH: SU2923

ROUTER PESA SWITCHING SYSTEMS CHEETAH 1024XR

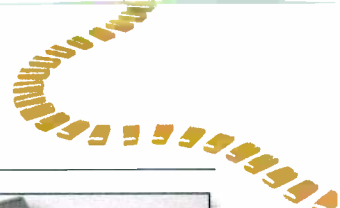
A 1024 x 1024 system in two equipment racks; the two-rack system is achieved by adding an on-board distribution circuit into each 1024 x 512 frame; each 41RU frame allows for low-power consumption, N+1 power and dual internal control; systems support high-quality signal routing for SDI, HD and ASI in either coax or fiber I/O.

800-328-1008; www.pesa.com

BOOTH: SU1370

ADVERTISERS SHOWN IN GOLD

APRIL 2006



DRIVE-AWAY SATELLITE SYSTEM SWE-DISH DA150K Compact

A small sized, vehicle-mounted antenna system for worldwide Ku-band uplink operation; features a high-performing elliptical 1.5m Gregorian offset antenna that gives up to 80 percent gain efficiency when transmitting.

703-476-1826; www.swe-dish.com

BOOTH: OE314

TIME REFERENCE AND TEST SIGNAL SOLUTION Trilogy Mentor XL

An SPG/TSG combination that fulfills a wide range of timing reference and test signal requirements; analog, SD and HD test signals, in 525 and 625, are all handled simultaneously, with an option for multiple tri-level sync outputs; has the ability to choose any mix of SD and HD signals, catering for both current and future needs.

800-372-3198; www.trilogyus.com

BOOTH: C4743

LCD MONITORS NEC MULTISYNC 90 SERIES

LCD desktop displays that feature in-plane switching and vertical alignment LCD module technology; the "i" models, which use IPS-based modules, address color critical needs and include the 19in MultiSync LCD1990SX_i, the 20in (20.1 viewable) MultiSync LCD2090UX_i and the 21in (21.3 viewable) MultiSync LCD2190UX_i monitors.

866-NEC-MORE; www.necdisplay.com

BOOTH: C9811

ROBOTIC CAMERA CONTROL PANELS TELEMETRICS CP-R-2A/CP-D-2A

Dual proportional joysticks allow simultaneous smooth and variable speed pan/tilt and zoom/focus control; include camera select buttons 1-4; the panels also allow 32 pre-settable shots P/T/Z/F in four banks of eight to be entered for later recall; tally contact closure inputs flash camera select buttons.

201-848-9818; www.telemetryinc.com

BOOTH: C4141

DISC DRIVE UNIT SONY XDCAM HD PDW-D1 DRIVE UNIT

An XDCAM disc drive unit; designed for use in nonlinear editing systems; the drive unit supports the i.LINK interface supporting DV I/O and File Access Mode protocols, allowing connection with a variety of nonlinear editing systems; features a highly compact and lightweight design.

800-686-SONY; www.sony.com/professional

BOOTH: SU107



CODEC SYSTEM XVD TX100

A micro-size codec system that weighs 1lb, with low 5 watt power consumption from AC/DC sources; provides NTSC/PAL composite or S-video input with 10/100 Ethernet output for LAN or Internet links; encodes video under 1Mb/s for 1/2 D1 and under 300Kb/s for 1/4 D1 resolution with motion characteristics.

408-325-8806; www.xvdcorp.com

BOOTH: TBA

VOD SOLUTION THALES SAPPHIRE VOD

A VOD offering for IPTV projects; enables the delivery of MPEG-2 and MPEG-4 AVC video streams over broadband networks; based on an Intel-based architecture; combined with the SmartVision TVmanagement system, it enables services providers to build a complete set of VOD services: Subscription VOD, Rental VOD, True-VOD, Near-VOD, DVD-like VOD, etc.

413-569-0116; www.thales-bm.com

BOOTH: SU2970



Sony's XDCAM HD system

BY BOB OTT

Sony Electronics' XDCAM HD line of products is designed to fill an important marketplace void. The system delivers an affordable mid-range high-definition production solution to professionals who either need more than an entry-level HDV option or can't afford or don't quite need the full functionality and image quality of a higher-end system such as the HD-CAM SR.

This is Sony's second generation of the XDCAM Professional Disc system. Broadcast, cable and other organizations have adopted XDCAM for their ENG and operations.

Now with the introduction of an HD version of XDCAM technology, broadcasters as well as cinematographers and video professionals can combine the benefits of an IT-based optical production chain with high-definition resolution, providing a pathway as the demand for HD content increases.

The new XDCAM HD system includes two camcorders and two decks. The same Professional Disc media used in the standard-definition version of the XDCAM system is also used in the new HD version, providing up to two hours of HD MPEG-2 Main Profile Long GOP content.

The system offers a choice of 18Mb/s and 35Mb/s variable bit-rate recording and 25Mb/s constant bit-rate recording, similar to the HDV tape system. Recording times are approximately 120 minutes (18Mb/s), 90 minutes (25Mb/s) and more than 60 minutes (35Mb/s). The system also records four channels of uncompressed, 16-bit/48kHz audio. At these data rates, the XDCAM HD system is able to work within many existing 25Mb/s DVCAM systems.

Both camcorders in the XDCAM HD



Sony's XDCAM HD system includes two camcorders, the PDW-F350 and PDW-F330, as well as two decks, the PDW-F70 and PDW-F30.

line-up — the PDW-F350 and PDW-F330 — share several key features, including true 24p recording, interval recording, slow shutter and SD/HD

of proxy A/V and high-resolution data using the MXF file protocol.

Another familiar feature is the use of proxy A/V data. The system records a

The same Professional Disc media used in the standard-definition version of the XDCAM system is also used in the new HD version.

recording. Both camcorders also feature three 1/2in, 1.56 million pixels, as well as Power HAD HD CCDs. In addition, both are capable of recording 1080i video at multiple frame rates. The PDW-F350 and PDW-F330 both shoot at 24p, 25p and 30p in addition to 50i and 60i.

The new camcorders also build upon several features that have been XDCAM staples from the start. Among these are immediate random access to data in the field; the ability to easily browse footage as thumbnails and preview content on the camcorder's LCD screen; and high-speed transfer

lower resolution, frame-accurate version of high-res content that can be transmitted or FTPed, allowing editors to begin compiling EDLs without having to wait for the discs to arrive from the field.

Within the new XDCAM HD camcorder, users can perform time-lapse recording without the need for an external intervalometer. For example, shooting 1fps can portray a fast-paced lifestyle, and shooting one frame per day condenses timeframes that in real time stretch out over days or months into mere seconds.

The PDW-F350 adds variable frame

rate recording, which allows users to perform slow and quick-motion functions at a range of frame rates from 4fps to 60fps in one-frame increments.

This is similar to overcranking and undercranking with a film camera and allows the shooting frame rate to be different from the playback frame rate. The

News or documentary shooters often need to work with pool feeds, where a single clip might run for more than an hour. To make finding a point within a clip easier and faster, the expand function indexes a clip into 12 even time intervals, with 12 instant-access thumbnails showing the first frames of each of these 12 time divi-

sions. These clips can be further indexed into 1,728 evenly spaced time intervals with thumbnail pictures. News crews have limited or no control over the conditions they're shooting in, and that often translates to low light. To overcome this challenge, the slow shutter feature acts essentially as super gain, accumulating from two to 64 frames at a time and recording the results. By accumulating several frames, it's possible to emphasize motion with added blur; group more frames to create a fantasy or ghost-like effect; and effectively turn night into day and reveal noise-free color and detail in a scene with no visible light.

For commercial program producers who need to match frames, the freeze mix function enables a previously recorded frame of video to be superimposed over a live image in the viewfinder. This way, users can adjust the camera's position to get the same framing for the next shot.

The new camcorders accept an assortment of 1/2in HD lenses available from Canon and Fujinon. The PDW-F350 and PDW-F330 camcorders also accept 2/3in lenses via an optional adaptor.

BE

Bob Ott is vice president, optical and network systems, for Sony Electronics.

The freeze mix function enables a previously recorded frame of video to be superimposed over a live image in the viewfinder.

ability to perform this function directly through the camcorder means that in post, for example, additional steps or external frame-rate conversion is not required. Shooting at 4fps for 24fps playback produces motion six times faster than real time, and shooting at 60fps for 24fps playback produces motion at 40 percent real-time speed.

sions. These clips can be further indexed into 1,728 evenly spaced time intervals with thumbnail pictures.

News crews have limited or no control over the conditions they're shooting in, and that often translates to low light. To overcome this challenge, the slow shutter feature acts essentially as super gain, accumulating from two to 64 frames at

RFTM
extreme

**HDTV
Transmitter**



**HDTV Camera-Mounted Transmitter
with integrated camera-control**

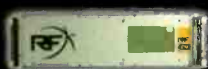
Buy or Rent Our COFDM Products



Portable High-power
Transmitter (RFX-PHT)



ENG Package (RFX-ENG)
transmitter, amplifier, controller



6-Way Diversity Receiver
(RFX-RMR-X6)



Rack-Mount Receiver (RFX-RMR)

2 GHz RELOCATION

RF Central is your best choice for 2 GHz BAS relocation equipment. Our RF Extreme™ products are the highest-quality COFDM digital microwave equipment available to the industry, and they're backed up with the best warranty in the business.

Choose RF Central as your preferred equipment vendor for 2 GHz BAS Relocation.

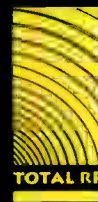
Call us at 1-717-249-4900 or go online at www.rfcentral.com.

NAB 2006
THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

VISIT US AT BOOTH C820



**99 Garden Parkway
Carlisle, PA 17013
717.249.4900
www.rfcentral.com**



NHK pushes surround to 22.2 channels

BY TIM WETMORE

NHK has devoted great resources to technology development to push audio and video systems beyond known limits. As part of its recent efforts to erase the boundaries of both audio and video resolution, the company has devised a 22.2 multichannel sound system.

This system was intended to serve as a truly immersive audio experience in support of its ultra-high-definition video technology, often referred to as Super Hi-Vision (SHV). The challenge in creating a 22.2 multichannel system laid as much in the

playback and manipulation of the signals as it did in determining how many channels were needed and where to put them.

First, a quick review of what SHV

beyond what standard high-definition offers. It has 16X the resolution of HDTV and more than twice the resolution of 70mm motion picture film. Demonstrations in Japan have

All sound effects, except for lateralization, are realized through a combination of direction control and distance control of sound images.

is. The spec calls for 4000 scanning lines, which, among other things, has the effect of broadening the viewing angle to a 100-degree horizontal

featured program content viewed on a 600in screen.

So, a top-to-bottom surround system was needed that exceeded what



The Fairlight Constellation XT console at NHK lab offers the flexibility needed for a 22.2 multichannel sound system.

was possible with conventional 5.1 and 7.1 surround systems. After a great deal of theorizing and experimentation, one solution was the 22.2 multichannel system. The system has three layers of loudspeakers, which creates a more natural three-dimensional sound field enhancing presence and the sense of reality.

The three layers include:

- an upper layer of nine channels arrayed on the front, back and sides
- a middle layer of 10 channels arrayed in similar fashion
- a lower level of three channels, situated under the screen in front, which is where the two LFE channels are as well.

It is probably obvious that producing program material for something so complex on standard equipment and using standard surround techniques would not work. Even with standard surround sound, production techniques would be too time-consuming because of the repetition of several processes. And even then, the method would still fail to create the desired sound fields for reflecting natural situations.

What it boils down to is that the engineers determined that all sound effects, except for lateralization, are realized through a combination of direction control and distance control of sound images. Furthermore, the mixing and monitoring busses on standard tools do not provide exclusive channels for lateralization effects. Thus, multi-channel sound production would be easier if the tools being used could effectively control distance and direction to a sound source.

The lower fader function works the same as a conventional fader ... and the upper fader exclusively controls the distance.

The perceived distance to a sound source is determined by three factors: loudness, tone color and reverberation. The control surface of a mixing console that could accommodate these parameters would need to have two controls on each channel strip. These double faders would not function as an in-line console.

Instead, the lower fader function works the same as a conventional fader to control the level of the input signal, and the upper fader exclusively controls the distance of the sound image. If the sound engineer wishes to put the sound image far away, he or she simply puts the fader up to the desired position where it creates the desired sense of distance. The distance fader controls these three functions for each channel.

Fairlight's Constellation XT console with its In-Line Panel (ILP) option offers advanced software flexibility

and was easily modified to handle the task. The ILP is, in effect, comprised of 72 soft knobs and displays. It is therefore relatively simple to customize software for all the busses required to accomplish the need for multiple faders per channel.

The console can be viewed with 24 additional busses or auxes for the 22.2 feeds. Because of the software, it's also relatively easy to modify the buss structure in the console to do any combination of busses desired for such multi-layered effects. This is possible because there is a macro language in the system that enables engineers to change key functions and create bussing structures that are different than a stock system.

Fairlight's soft approach to knobs and displays is serving as NHK's model for manipulating both standard fader functions and programmable channel functions, such as the distance, depth, vertical and lateralization effects needed in the 22.2 multichannel system. The end result is an impressive visual and sound experience that pushes audio and video past previous limits.

BE

Tim Wetmore is a New York City-based freelance writer covering the entertainment and communications technology industries.

Real-time Broadcast Video over IP

Encoders, Decoders, and Servers

- High Quality Video Compression
- Point-to-Point and Point-to-Multipoint Video Distribution
- Live News Gathering
- 24/7 Transmission at Low Cost and Low Latency
- Integrated Solutions
- Advanced Forward Error Correction

See us at NAB:
Booth #SL581



www.streambox.com
sales@streambox.com
+1 206.956.0544 Ext. 222

Streambox

Scopus' DSNG encoder extends mobile newsgathering

BY MARIO RAINVILLE

Call-letter stations across the United States rely on mobile trucks equipped with microwave links to bring live local news and sports events to their viewers and, on occasion, to national audiences via network news. While a microwave truck might be suitable for coverage within the city, its dependence on geographic proximity and line of sight limits broadcasters' flexibility in producing comprehensive coverage of important regional events.

For many facilities, the solution is to invest in a digital satellite newsgathering (DSNG) truck. The increased mobility of a DSNG unit allows for coverage of a broader geographic area, which in turn translates into potential for richer and more in-depth reporting throughout a designated market area. Whether it's coverage of sports events taking place in smaller surrounding towns, a storm or similar natural disaster occurring in outlying areas, or any other unusual event outside of microwave range, a well-equipped DSNG truck can help broadcasters enhance local programming significantly.

A high-quality encoding solution is a critical part of DSNG, and most broadcast stations are interested in gaining



KTBC-TV, the FOX affiliate in Austin, TX, used its new Scopus CODICO E-1720 DSNG encoder and uplink truck to gather footage of hurricanes Katrina and Rita for local and national viewers.

Maximize space

A compact platform intended primarily for installation in uplink vans, SUVs and flyaway packages, this encoder combines encoding, modulation and upconversion in a 1RU unit. It maximizes available space in the

to keep fuel costs down.

Broadcast-quality 70/140 IF and 950MHz to 2150MHz L-band outputs are embedded as well as a separate L-band monitoring output. With the L-band output and MPEG-2 codec, the encoder enables transmission of audio and video converted for 4:2:0 or 4:2:2 satellite transmission, thereby taking advantage of the small amount of available space in mobile vans.

A well-equipped DSNG truck can help a broadcaster enhance local programming significantly.

satellite transmission capability without added expenditures of training, equipment and staff. The CODICO E-1720 MPEG-2 DVB DSNG encoder from Scopus Video Networks is designed to address this demand.

smaller vehicles typically selected for their economy and fuel efficiency, as well as their ability to maneuver into tight spaces and set up quickly. Steady- and low-power consumption and a lightweight construction help

Maximizing newsgathering

Live video and audio acquired by the camera operation can be combined with prerecorded data directly into the MPEG-2 encoder. The system encodes a baseband video signal to a compressed signal and then allows

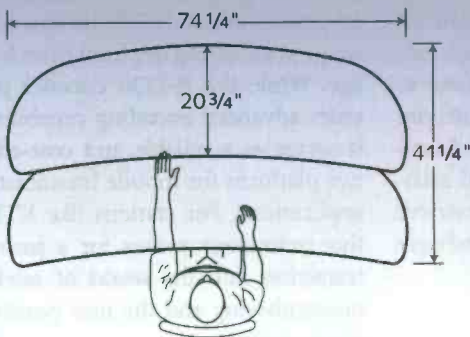
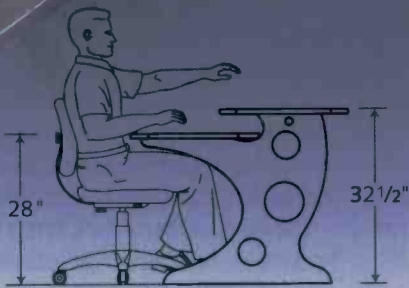
IMAGEMASTER MODEL GC1

"AFFORDABLE ELEGANCE"

The custom look without the custom price.



Unbelievable at
\$995*
* This price does not include shipping.



IMAGEMASTER Model GC-1:

- Designed and Engineered for all Professional Multimedia Applications:
- *Non-linear Editing - Graphics - Audio*
- Spacious counter surface and raised bridge for flat screen or CRT monitors
- Integral Cableway for invisible wiring
- Ergonomically designed for operator comfort
- Durable Thermofoil finish adds that "Sleek, Beautiful Look"
- Solid, Real-Furniture Construction & Materials

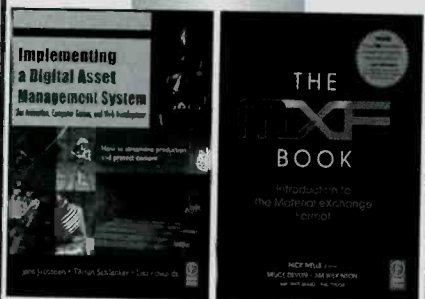
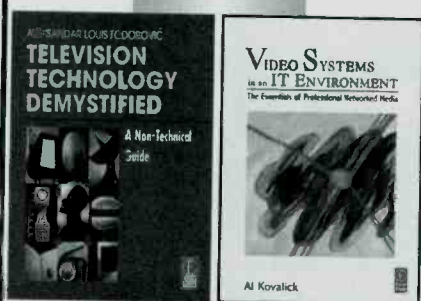
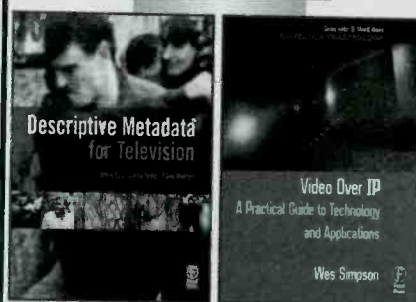
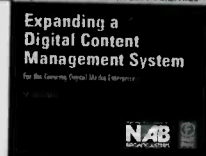
Visit us at NAB Booth #SU146.

FORECAST^{INC.}
CONSOLES
QUALITY TECHNICAL FURNITURE

For more information call **1-800-735-2070**
or visit us on the web at
www.forecast-consoles.com

*Celebrating 10 years of
partnership*

Focal Press • NAB



Maintain your competitive edge. Stop by the NAB Bookstores featuring Focal Press

• April 22-27

• 2 Locations Central & South Lobby

National Association of
NAB
BROADCASTERS



the compressed signal to be QPSK-modulated and QPSK-converted to an L-band output delivered directly to the mobile unit's power amplifier with an integral block upconverter (BUC). This can be powered by on-stream DC power supply or through external connectors.

Strict adherence to DVB-S and DVB-DSNG standards and support for QPSK, 8PSK and 16QAM satellite modulation schemes ensures transmission of high-quality images ready for professional editing, while an ultra-low-latency mode helps to minimize delay. The encoder provides for a variable GOP structure, which allows its users to create efficient coding for low-delay mode — a requirement in interview situations.

Basic Interoperable Scrambling System — Conditional Access (BISS-CA) and built-in DVB scrambling capability cut down on the number of external components required and protect the video stream from unauthorized viewing. Integrated multiplexing capabilities and integrated telemetry simplifies operation so that a TV station's journalists can manage operation without the assistance of an SNG operator on location.

Advanced multiplexing capabilities enable users to daisy-chain up to 15 encoders while equipping only the top encoder with satellite interface and scrambling capabilities, thus saving on multiplexing costs.

In addition to standard analog and digital inputs, the DSNG encoder features intuitive, menu-driven controls complete with preprogrammed setups that reduce the time required to get the cameras rolling and shots delivered to the broadcast facility. As encoder technology, formats and standards continue to evolve, the encoder software can be upgraded accordingly via CompactFlash card.

In the field

The compact size of the E-1720 encoder and the wide range of functions it performs are two of its primary benefits, and its ease of use makes for



The Scopus CODICO has allowed KTBC to extend its newsgathering range cost-effectively and reliably.

a fast transition into satellite broadcasting. The speed with which this solution can be adopted was demonstrated by FOX affiliate KTBC-TV in Austin, TX. The station ordered a CODICO E-1720 MPEG-2 DVB DSNG encoder and uplink truck from Shook Mobile Technologies, a 29-year-old San Antonio-based manufacturer of high-tech mobile vehicles, and got it on the road in August 2005. The journalists operating the new truck were able to provide local and national FOX viewers with footage as hurricanes Katrina and Rita moved through Texas shortly thereafter.

The design criteria for KTBC's DSNG truck were reliability, cost-effectiveness and user-friendliness. The easy-to-operate, earth-to-satellite transmission system has allowed KTBC to extend its range in gathering live local news footage. While the E-1720 encoder provides advanced encoding capabilities, it serves as a reliable and cost-effective platform for mobile broadcasting applications. For stations like KTBC, this technology makes for a smooth transition into the world of satellite newsgathering and the new possibilities it presents.

BE

Mario Rainville is associate vice president of product marketing for Scopus Video Networks.

BROADCAST PRODUCTS

13th Edition



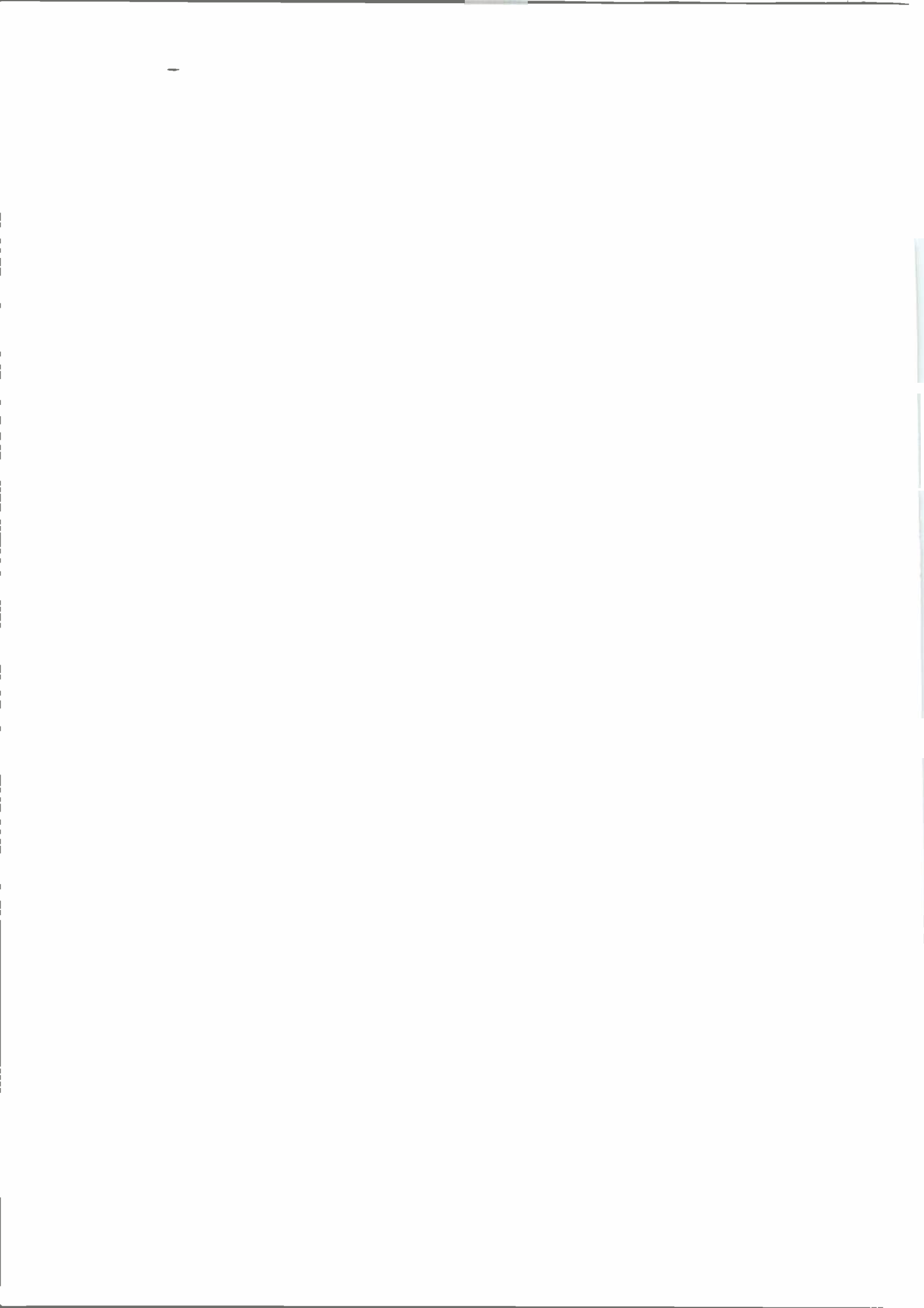




Table of Contents

Introduction	1-5
UniPatch® System	
UniPatch® System Features	8
UniPatch® Backplane Options	9
UniPatch® RS-422 Modules	10
UniPatch® Bantam Audio Modules	11
UniPatch® Video Modules	12
UniPatch® AES Balun Modules	13
UniPatch® Ordering Information	14-17
Pro Patch™ Professional Audio Patchbays and Broadcast Jackfields	
Pro Patch™ Programmable Series	20-23
Pro Patch™ Professional Audio Patchbay and Jackfield	24-25
Audio Jacks	26
QCP Termination System	27
Pro Patch™ Professional Audio Patchbays (Enclosed Chassis)	28-31
Pro Patch™ Audio Broadcast Jackfields (Umbilical Chassis)	32-34
Pro Patch™ Lite Audio Panels	36-37
Accessories for Audio	38-43
Pro Patch™ Video Patch Systems	
Video Jacks and Accessories	46-54
Pro Patch™ Video Panels	55
Pro Patch™ PPI Series Video Panels	56-58
Pro Patch™ PPE Series Video Panels	59-61
Pro Patch™ Unloaded Video Panels	62
Component Patching System (CAPS)	63-64
Video Patch Cords	65-69
Integrated Cable Organization Network (ICON®) System	
Integrated Organization Network (ICON®) System	72-73
I-W ICON® Modular Wall-Mount System	74-77
ICON® Rock Mount System	78-80
I-WS Super High-Density Wall-Mount System	81-82
Video ICON® System	83-85
Ethernet/Data Connectivity	86
Connectors and Accessories	
75 Ohm BNC Connectors	88-89
75 Ohm Precision F Connectors	90
Precision RCA Connectors	91
Ordering Information for Connectors	92-98
BNC Tools and Accessories	99-103
ProAx™ Triaxial Camera Connectors	104-115



Table of Contents

RF Signal Management

RF Worx® SignalOn® Series Overview	118-120
RF Worx® SignalOn® Series Passives	121-127
RF Worx® SignalOn® Actives	128-132
RF Worx® Reverse Path Amplifiers	133

Fiber Connectivity and Cable Management

Propatch™ Optical Normal Through Panel	136-139
FL2000 System	140-151
FPL Series	152-155
Fiber Management Tray	156-161
FL1000 Fiber Termination Products	162-166
FiberGuide® Fiber Management System	167
Fiber Optic Patch Cords	168

Drawings and Specifications	169-222
--	---------

Patents	223
----------------------	-----

Index	224-236
--------------------	---------



Introduction

The ADC Difference

For over 50 years, ADC has lead the industry in audio, video, and data patching products, a tradition that continues today in its state-of-the-art manufacturing facilities. Designing, engineering, and manufacturing virtually all of its own components, ADC has established itself as a premier builder of these critical industry products.

All of ADC's products are designed for outstanding performance in real world situations. ADC engineers understand typical industry applications and create products to solve the difficult problems other manufacturers prefer to overlook.



View onto screw-machine area at Shakopee, MN facility

It is easy to find the desired ADC product using convenient, easy-to-follow ordering information charts. The charts display all of the options available and allow for the selection of an ordering number for the product and feature sets desired. If the configuration isn't available, contact ADC for information about custom-designed products. Our Technical Assistance Center (TAC) is open 24 hours, seven days a week.

The Internet is also a fast and convenient avenue for getting more information about ADC's high-quality products. Simply go to www.adc.com and search for a desired ordering number, or browse our online products and services area where you can order specific part numbers.



ADC's state-of-the-art facility in Shakopee, MN

From our durable patchbays and jackfields to our precision jacks and connectors, consistent quality is the hallmark of everything ADC produces. And everything at ADC is built to last, from the corrosion-resistant nickel plating on our patch plugs, to the tough steel chassis of our patch panels. ADC anticipates common failure points and overcomes them using the best available materials. ADC's strict adherence to quality standards, and careful manufacturing, assures dependable, long-lasting products.





Introduction

Products You've Been Waiting For

ADC is the leader in innovative patching products because it listens to the needs of its customers. As a result, new and exciting products have been developed to enhance the performance and durability of your broadcast infrastructure.

Pro Patch™ Programmable Series

The ultimate audio patch panel is now a reality. The new Pro Patch Programmable patching system (patent number 6,875,060) combines the ruggedness and reliability of true WECO-compliant jacks with a precision DIP switch, enabling users to change normaling and grounds quickly and easily. Specifically designed for tough mobile environments, the ultra-lightweight Pro Patch Programmable panel weighs about six pounds and is only five-inches deep. It is available in both bantam and longframe styles.



ProAx™ Triaxial Camera Connectors

For years, the industry has been locked into connector designs that are difficult to terminate, and even more difficult to field repair. ADC's line of ProAx Triaxial Camera Connectors will change the way you think about this component forever. Field repairable center conductors eliminate the need to restrip. O-rings protect the signal path against moisture. The connectors have fewer parts to assemble and are compatible with the tooling you already own.



Notched BNC

An idea whose time has come, the notched BNC series from ADC makes it easy to spot BNC connectors that are not properly latched to BNC jacks. This is especially helpful with high-density coax panels such as ADC's midsize video product offering where terminations are very tight, and in the back of dark racks.



PPE Video Panels

The PPE series standard, midsize, and MUSA panels are designed to offer ADC performance on a modest budget. The PPE series is offered with the same jack options as the full-featured PPI series.



IEEE 1394a FireWire® Patch Panel

With the IEEE 1394a FireWire patch panel, patching FireWire digital video signals is as easy as regular audio and video. The panels offer a 24-port passive interconnection for industry compatible six-pin IEEE 1394a connectors.



Broadcast Products

3/06 • 102117AE



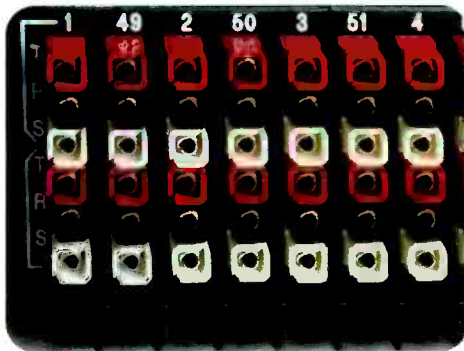
Introduction

Labor-Saving Quick Connect Punch Termination System

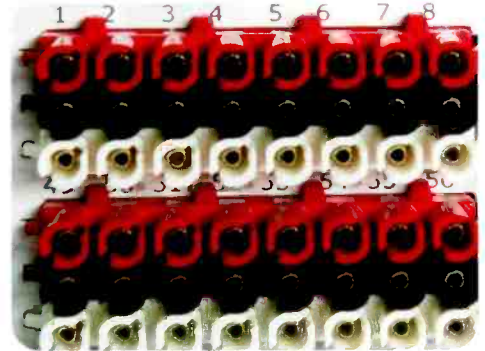
The original twisted pair QCP termination system set a new standard, making punchdown wiring fast and reliable. The QCP IV system is an even faster, more robust punchdown system compatible with existing QCP tools. The new connectors come in 1x8 blocks insulated on both sides of the panel for better short protection. Because the connectors do not require the tool to be oriented before punching, the QCP IV system punches down instantly, saving you the laborious prewiring, soldering, and crimping required for connectorized panels.

Many ADC products come with a choice of QCP II or QCP IV. Both are a tremendous improvement over solder or crimped connectorized systems, but each has its advantages. QCP II allows greater density and individual replacement. QCP IV is a more durable connector and does not require orienting the tool before punching.

Broadcast Products



QCP II



QCP IV

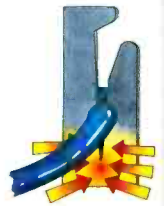
Features

ADC's exclusive, patented QCP II and QCP IV split-cylinder punchdown termination system is faster and easier to install and more reliable than any other termination system, including solder.

- Dependable, durable, split-cylinder design holds up to three stranded or solid wires, 22 to 26 gauge (0.32 mm to 0.128 mm)
- No intermittents with gastight connections. Uniform split channel width holds each wire firmly unlike telco punchdowns with V-shaped channels or soldered connections that use flux and may have unreliable solder joints
- Easy preloading makes installation faster. Color-coding prevents wiring mistakes
- Labor-saving punch terminates and cuts wire in one simple motion. New QCP IV installs even faster because you don't have to orient the tool before punching
- Faster and easier changes in circuits or normals than soldered connector systems. Rated for up to 200 insertions/withdrawals
- QCP II terminations are individually mounted and insulated for easy repair or replacement
- QCP IV terminations are mounted in 1x8 blocks insulated on both sides of the panel. This design, plus the recessed conductors, eliminates shorts



QCP



Split Beam

3/06 • 102117AE



Introduction

Best Jacks Available

When it comes to audio and video jack design, ADC makes them perform better, last longer and connect more reliably than anyone else. Our jacks and all of their working components are designed and manufactured in our own facilities under the strictest quality control. Every jack is identical and exceptional in quality and performance.

Audio Jacks

ADC audio jacks are built to perform and to last



PJ339W Longframe Wire-Wrap Audio Jack
(Exclusively used in prewired ADC Pro Patch Audio)

Features

- All ADC jacks are WECO-standard and military grade
- Absolutely reliable WECO Alloy #1 gold self-cleaning crossbar contacts wipe away debris with each use
- Solder-free wire-wrap tails prevent intermittents from cold solder joints or flux migration (prewired only)
- Solder-style jacks provide the option of do-it-yourself installation
- Tested to withstand tough applications, including vibration, temperature, moisture, and salt air corrosion
- Extended spring beams, computer-torqued screws, and precision-molded insulators ensure consistent quality, long life, and reliability
- Durable precision diecast (bantam) or stamped steel (longframe) frames

Video Jacks

True 75 Ohm jacks for today's high bandwidth services



SVJ-2 Super Video Jack

Features

- True 75 Ohm for excellent digital performance
- Gold-plated components assure signal quality and tarnish resistance
- Sealed switch prevents contamination from dust, etc.
- All-solderless construction eliminates solder-related failures
- Closed-entry BNC center conductor prevents damage and provides reliable contact
- Two-piece center conductor prevents RFI and EMI radiation leakage
- Tough, diecast body will not rust or flex
- Precision-tooled parts for consistent quality
- Captive mounting screws will not fall out

Introduction

Understanding Audio Normalling

Normalling creates a default circuit through the patch panel to connect equipment together in the arrangement you normally or most frequently use. When you plug in a patch cord, you break this "normal" circuit and create a temporary new circuit. Pro Patch™ lets you select from a variety of normalling options.

Programmable Normals (ProPatch Programmable and UniPatch only)

Selectable normals allow the user to select any typical normal configuration by setting switches on an impedance-matched dip switch located on the individual audio card.

Normals Strapped (fully normalled)

In a fully normalled configuration, the normals of each jack in the top row are internally strapped to the normals of the jack below it with the tip (T), ring (R), and sleeve (S) contacts brought out to the rear panel terminations. To break this normal connection, you insert a patch cord into either jack.

Half-Normalled

In a half-normalled configuration, the normals of the bottom jack are internally wired to the tip (T) and ring (R) connections of the top jack, and the tip, ring, and sleeve of both jacks are brought out to the rear terminations. Equipment is wired to the two jacks at the rear terminations, creating a normal circuit. Inserting a plug into the top jack monitors the circuit without breaking it, and inserting a plug into the bottom jack breaks the circuit.

No Normals

A panel without normals has jacks that are open (no normal connection) until patched. When the patch cord is inserted, the signal flows through the cord and jack to or from the equipment connected to the jack at the rear terminations. No normal patch panels require looping plugs (u-links) or patch cords to complete the circuit.

Normals Out

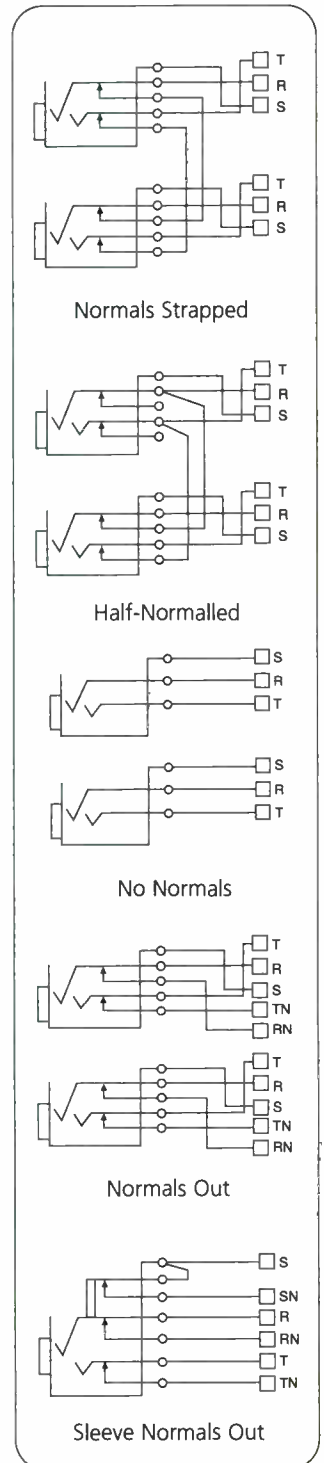
In this configuration normals are brought out to the rear terminations where you can strap them as you want them. Note that you cannot change the normalling on panels with internal normals because normalling is done at the jacks. Select the normals out option if you need the ability to change normals.

Sleeve Normals Out

Sleeve normals out are the same as normals out except that a sleeve normal is switched inside the jack in addition to tip and ring normals. The sleeve normal is also brought out and is typically used for a ground connection. Making it switchable allows grounds for different functions to be separated to prevent ground loops that produce audio hum.

Bussed Grounds

In a bussed-grounds configuration the ground connections of all jacks are brought out to the rear terminations and connected together. This provides a common ground for all jacks.





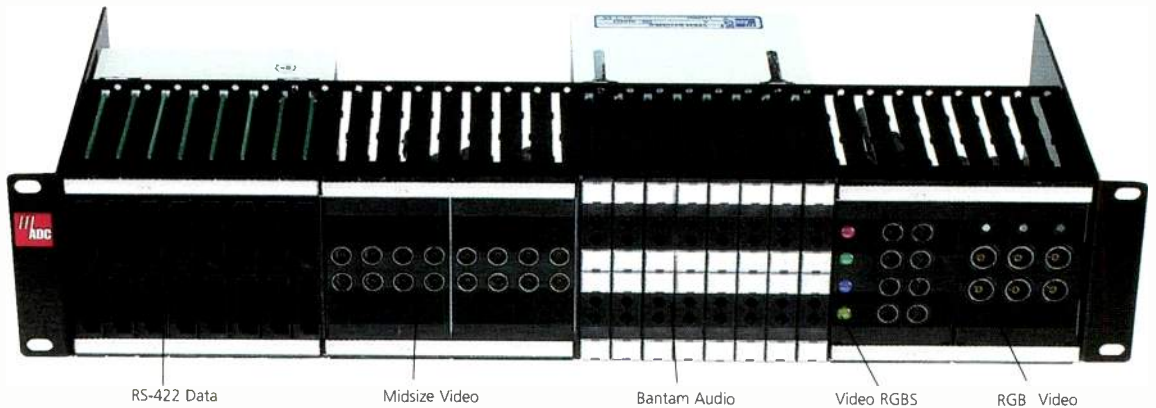
UniPatch® System



UniPatch® System Features.....	8
UniPatch® Backplane Options.....	9
UniPatch® RS-422 Modules	10
UniPatch® Bantam Audio Modules	11
UniPatch® Video Modules	12
UniPatch® AES Balun Modules	13
UniPatch® Ordering Information.....	14



UniPatch® System



Loaded UniPatch Chassis

The UniPatch® modular patching system with universal chassis allows you to combine data, audio, and video patching modules in a single two-rack-unit modular panel. Order a mix of jack and backplane modules to create a totally custom patching system, or order a preconfigured panel filled with bantam audio jacks or RS-422 data jacks. You can start with only a few modules and add or change modules as needed. The universal chassis with mix-and-match jack and backplane modules provides the ultimate in flexibility.

Broadcast Products

3/06 • 102117AE

Modular Chassis for Unprecedented Flexibility

Features

- Jacks and backplanes have a modular design and fit into the rugged high-density card cage chassis. Just plug in a module to add more jacks or backplane connectors
- Modularity lets you start small and add modules and cards as needed
- Individual circuits are easily replaced without disturbing other circuits
- Backplanes available in high-density 64-circuit bantam audio, high-density 32-port data, standard-density 24-port data, and video options
- Gold-plated card edge connectors tested to withstand heavy use and vibration
- Shallow 7" deep chassis is perfect for mobile applications

Mix-and-Match Plug-in Jack Modules

The following modules (details on following pages) may be assembled on site in mix and match combinations. Data and bantam modules may be ordered in a fully loaded preconfigured chassis.

Features

- Category 3 compliant RS-422 modules for demanding professional data patching applications
- Bantam audio modules in user-selectable norm-alized configurations
- Video modules for analog, SD, HD, and analog component
- AES 110 Ohm to 75 Ohm coaxial baluns
- BNC bulkhead feedthroughs
- Category 5, 5e and 6 data patch



UniPatch® Mix-and-Match Backplanes

Ten different backplane connector types are available, and because they come in modular units, they can be mixed and matched like the jack modules. Each backplane supports up to eight jack modules.

Features

Available modules:

- Dsub9 connectors, 32-port, high-density (shown)
24-port, standard-density (not shown)
(32-port requires thin shell strain relief, sold separately, see page 15)
- Labor-saving QCP II Ultra Patch quick connect punchdown (see page 3 for QCP information)
- AMP Champ 50-pin receptacle
- EDAC 90-pin plug
- EDAC 3-pin plug
- QCP MKII for data 20x8
- QCP MKII for audio 12x8

Broadcast Products
3 / 0 6 • 1 0 2 1 1 7 A E



VPRM-A50-W AMP 50-Pin Receptacle,
8-Circuit Rear Module
(for data)



VPRM-BAN-MKII, Rear Module,
8-Circuit
(for audio)



VPRM-E90-W EDAC 90-Pin Plug,
8-Circuit Rear Module
(for data)



VPRM-MKII-W QCP II 8x10 Circuit
Rear Module (for data)



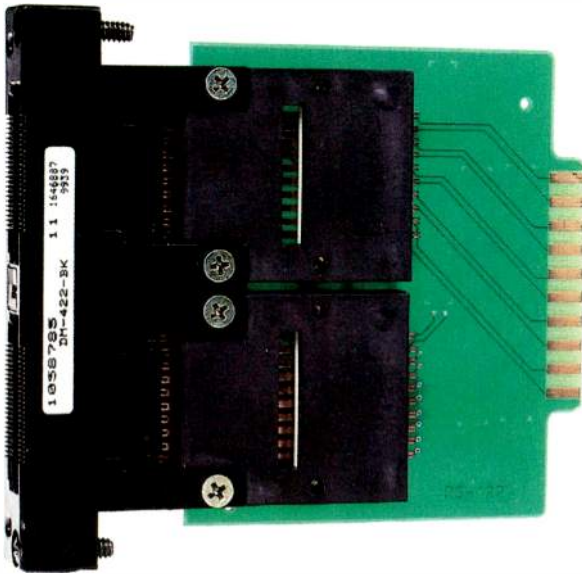
VPRM-BAN-E3 Circuit
Rear Module (for audio)



VPRM-D9-W Dsub9 Circuit, RS-422
Rear Module
(for data)



UniPatch® RS-422 Modules



The UniPatch® Category 3 compliant RS-422 module raises the standard in machine control patching with its quality and robust design. Now you can patch machine control data properly using reliable, durable, military-grade jacks rated for 30,000 insertion/withdrawal cycles. Each circuit switches all ten pins, making the module fully SMPTE 207M compliant. Compared to other systems employing light-duty RJ45 connectors rated at fewer than 500 insertion/withdrawal cycles or bantam jacks that do not switch all signal lines, the UniPatch RS-422 module is a significant advance in machine control patching.

Features

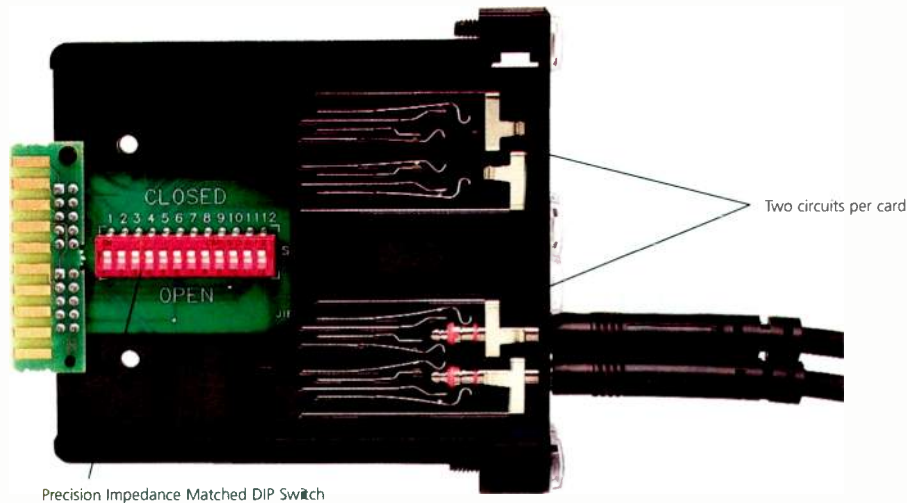
A New Standard in Professional Data Patching

- Durable military-grade switch system rated for 30,000 insertions/withdrawals. Unlike RJ45 systems, suitable for heavy daily professional use.
- Fully SMPTE 207M compliant circuits switch all ten pins, unlike bantam systems, which do not switch all ground pins, potentially causing problems
- Tough military-grade, gold-plated switch with long cantilever beam springs and unique self-wiping contacts ensures against premature wear and provides positive contact force
- RS-422 cards offer highest density available. Up to 32 modules in two rack units for 33 percent greater density
- Normalled or non-normalled cards available
- Modular termination options: DB-25, EDAC 90-pin plug, QCP II, Ultra Patch, Dsub9 standard-density, 24 per frame, or Dsub9 high-density, 32 per frame (requires thin shell strain relief)
- Keyed for proper patch cord orientation
- Category 3 compliant for 10Base-T data



UniPatch® Bantam Audio Modules

The bantam audio jack modules for the UniPatch® system are perfectly designed for professional digital and analog audio applications. Up to 32 modules plug into the UniPatch chassis to provide a 64-circuit (128 jacks) configuration when fully loaded, matching typical router configurations. Each module contains two circuits and four WECO-standard precision bantam jacks designed for long life. High-performance switches allow flexible normalling and grounds for each circuit. Large .440" x .325" designations provide enough room for three lines of text.



Features

High-Density, Selectable Normals, and Excellent Reliability

- 33 percent higher density than conventional frame-type bantam bays. Up to 32 cards in a frame with 2 circuits (4 jacks) per card for a total of 64 circuits (128 jacks)
- 32-across spacing exactly matches typical router configurations and provides larger designation area
- Switch-selectable normals and grounds for each circuit: normals strapped (NS), half-normal (HN), bussed ground (BG), or no normals (NN)
- WECO-standard jacks meet or exceed MIL-STD-202 for mechanical durability as well as corrosion, salt spray, thermal shock, and moisture resistance, and vibration
- Precision-molded housing and sturdy, integrated all metal springs rated for 10,000 insertions/withdrawals. Gold crossbar, self-cleaning contacts ensure a positive connection
- Modular termination options: QCP II, EDAC 3-pin plug, EDAC 90-pin plug, DB-25, AMP Champ 50-pin receptacle, or QCP IV with 4-foot umbilical Ultra Patch panel
- Snap-on designation holders accept individual labels without tools; conventional chassis-wide designation strips are also available. Large designations provide enough room for three lines of text
- Fully compliant 110 Ohm circuit board meets demanding AES specifications



UniPatch® Video Modules

ADC offers a full line of UniPatch® video patching modules, making it easy to assemble a custom video patch panel for any application. Modules are available for analog, SD, HD, or component video. Included in the selection of jacks are the standard size SVJ series, midsize MVJ series Super Video Jacks and SMJ-series HD MUSA jacks for outstanding performance at high-definition data rates and beyond.

Features

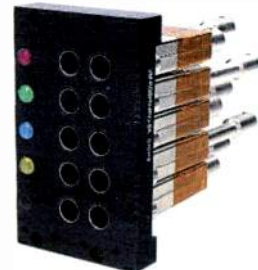
- Standard jacks mount 24 across, midsize jacks mount 32 across
- Standard-size, HD video modules contain SVJ-2x normalled-through Super Video Jacks with or without termination
- Standard size straight-through modules contain CJ2014N jacks without termination or CJ2020N-75 jacks with termination
- Midsize HD video modules contain MVJ-3 normalled-through Super Video Jacks with or without termination
- Midsize straight-through modules contain CJ3014/4014 jacks without termination or CJ3014N-75/4014N-75 jacks with termination
- MUSA modules contain SMJ-2100 HD-rated MUSA standard jacks.
- New modules are available for analog component video in the following configurations: RGB, P,P_BY, RGBS, and RGBHV
- Large designations snap on without tools providing enough space for four rows of text



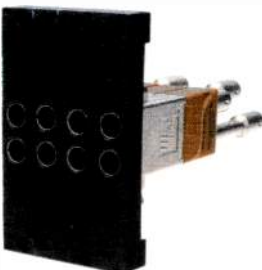
VM-2014-BK
Standard Size Video Module
also available with CJ2020N75
terminated single jacks



VM-SVJ-BK
Standard Size HD Video Module



VM-RGBHV-MVJ-BK
RGBHV Video Module



VM-MVJ-BK
Midsize HD Video Module



VM-RGB-MVJ-BK
RGB, P,P_BY HD Video Module

All modules provided with colored inserts to allow the user to customize for any use.

Broadcast Products
3706 • 102117AE



UniPatch® AES Balun Modules

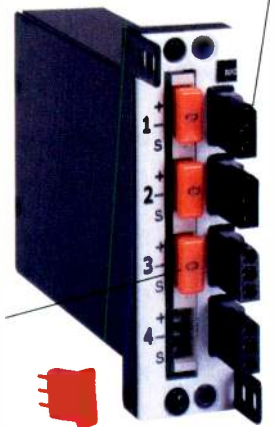
The new patented AES 110 Ohm to 75 Ohm balun modules provide precision impedance matching for interfacing balanced twisted pair AES audio to unbalanced coaxial audio. Eliminate the nuisance of XLR soldering and the mess of baluns hanging from equipment. Replace them with this clean, simple solution.

Broadcast Products
102117AE • 3/06

Features

- Mounts on side of equipment rack with velcro or can be rack mounted
- Modules contain four circuits for up to 64 circuits per 2 RU chassis
- Works with quick-to-install QCP punchdown termination modules or EDAC 3-pin plug
- 1 Vp-p plug-in pad is available for equipment that cannot accept high-input voltages. Plug-in pad feature allows each circuit to be tailored for 1 Vp-p operation in 1dB increments to -20dB
- New splitter module provides 2-in/4-out passive split/110 to 75 Ohm converter

110 Ohm: twisted pair inputs, EDAC 3-pin plug or QCP II



Plug-in pads allow padding input signal down from 0 to -20dB for nominal 1 Vp-p operation

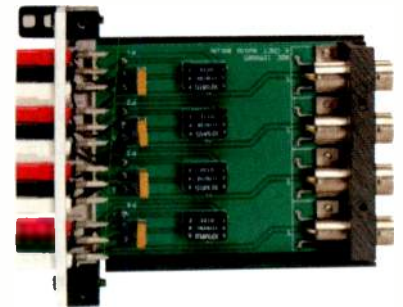
AM-411075-E3
AES 110 Ohm to 75 Ohm Converter



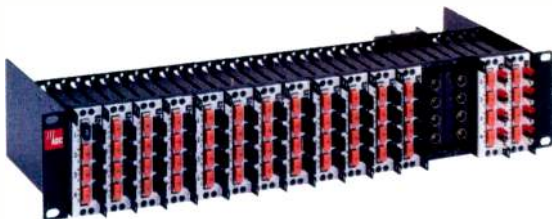
AM-411075-MKII
AES 110 Ohm to 75 Ohm Converter



AM-2110-475-E3
AES 2:4 Splitter



Precision transformers, glass epoxy circuit board, True 75 Ohm BNC connectors



Front View



Rear View

UniPatch System fully loaded with 16 AES balun modules for 64 110-75 Ohm circuits (allows modules to be mounted either way)

For in-line baluns, see page 41



UniPatch® System

Ordering Information

Description	Ordering Number
<p>Empty Chassis</p> <p>Empty UniPatch chassis, black, supplied with VP-DES-343-32 kit Empty UniPatch chassis, gray, supplied with VP-DES-343-32 kit</p>	<p>VP2232-BK VP2232-G</p>
<p>Bantam Audio Complete Systems</p> <p>64-circuit loaded system QCP II, black* 64-circuit loaded system EDAC 3-pin plug, black* 64-circuit loaded system Dsub9, black* 64-circuit loaded system, Dsub9, gray* 64-circuit loaded system DB-25, black* 64-circuit loaded system DB-25, gray*</p>	<p>VP2232-BANQCP-BK VP2232-BANE3-BK VP2232-BANDB9-BK VP2232-BANDB9-G VP2232-BANDB25-BK VP2232-BANDB25-G</p>
<p>RS-422 Data Fully Loaded Systems - normalled</p> <p>24-circuit Dsub9 normalled, gray, no backshell kits 24-circuit Dsub9 normalled, black, no backshell kits 32-circuit Dsub9 normalled, gray, no backshell kits 32-circuit Dsub9 normalled, black, no backshell kits 32-circuit Dsub9 normalled with backshell kits, black 32-circuit Dsub9 normalled with backshell kits, gray</p>	<p>VP2224-D9-G VP2224-D9-BK VP2232-D9-G VP2232-D9-BK VP2232-D9-BK-S VP2232-D9-G-S</p>
<p>RS-422 Data Fully Loaded Systems - non-normalled</p> <p>24-circuit Dsub9 non-normalled, black, no backshell kits 32-circuit Dsub9 non-normalled, black, no backshell kits 32-circuit Dsub9 non-normalled, gray, no backshell kits</p>	<p>VP2224-NND9-BK VP2232-NND9-BK VP2232-NND9-G</p>

* Normal configurations on bantam audio cards to be set by user.
 32-circuit Dsub9 systems require the use of a thin backshell kit.

The thin backshell Dsub9 provides strain relief for standard Dsub9 connectors. This shell kit is highly recommended on 32-circuit UniPatch RS-422 systems and is included where indicated.

The backshell kits are found on page 15.



Dsub9 Thin Backshell Kit
 (Does not include Dsub9 connector, included with -S only.)



UniPatch® System

Ordering Information

Separate Components Description	Required Chassis Space	Ordering Number
AES Balun Modules		
AES 110 Ohm to 75 Ohm, 4-circuit BNC to QCP II	2 spaces	AM-411075-MKII
AES 110 Ohm to 75 Ohm, 4-circuit BNC to EDAC 3-pin plug	2 spaces	AM-411075-E3
AES 110 Ohm to 75 Ohm, 4-circuit BNC to EDAC 3-pin plug, front facing	2 spaces	AM-411075-E3-FF
2:4 splitter balun module 110 Ohm to 75 Ohm	2 spaces	AM-2110-475-E3
Plug-in pad (replace "XX" with 0T to -20db)		SCAP-XX
Audio Modules		
Bantam audio, adjustable normals, 2-circuit (4 jacks), black	1 space	AM-BAN-BK
Data Modules		
RS-422 data, 10-pin, normals through, black	1 space	DM-422-BK
RS-422 data, 10-pin, normals through, gray	1 space	DM-422-G
RS-422 data, 10-pin, non-normalled, black	1 space	DM-422-NN-BK
RS-422 data, 10-pin, non-normalled, gray	1 space	DM-422-NN-G
Ethernet data, Cat 5 RJ-RJ coupler, black	4 spaces	DM-RJC5-BK
Ethernet data, blank adapter, black*	4 spaces	DM-6S-BK
Universal Blank Modules		
Blank module, black	1 space	DM-BLANK-BK
Blank module, gray	1 space	DM-BLANK-G
Video Modules[†]		
Standard, CJ2014N straight-through, 3-circuit, black	4 spaces	VM-2014-BK
Standard, CJ2014N straight-through, 3-circuit, gray	4 spaces	VM-2014-G
Standard, CJ2020N-75 terminated single, 3-circuit, black	4 spaces	VM-2020-BK
Standard, Super Video Jack SVJ-2x, 3-circuit, black	4 spaces	VM-SVJ-BK
Standard, Super Video Jack SVJ-2Tx, terminated, 3-circuit, black	4 spaces	VM-SVJT-BK
Midsized, Super Video Jack MVJ-3, 4-circuit, black	4 spaces	VM-MVJ-BK
Midsized, Super Video Jack MVJ-3T, 4-circuit, terminated, black	4 spaces	VM-MVJT-BK
Midsized, Super Video Jack MVJ-3, 4-circuit, gray	4 spaces	VM-MVJ-G
Midsized, Super Video Jack MVJ-3T, 4-circuit, terminated, gray	4 spaces	VM-MVJT-G
Midsized, MVJ-3, RGB+HV, black	4 spaces	VM-RGBHV-MVJ-BK
Midsized, MVJ-3T, RGB+HV, terminated, black	4 spaces	VM-RGBHV-MVJT-BK
Midsized, MVJ-3, RGB, P _P , Y HD module, black	4 spaces	VM-RGB-MVJ-BK
Midsized, MVJ-3T, RGB, P _P , Y HD module, terminated, black	4 spaces	VM-RGB-MVJT-BK
Midsized, CJ3014/4014N, 4-circuit, black	4 spaces	VM-CJMID2-BK
Midsized, CJ3014/4014N-75, 4-circuit, terminated, black	4 spaces	VM-CJMIDT2-BK
Midsized, CJ3014/4014N-75, 4-circuit, terminated, gray	4 spaces	VM-CJMIDT2-G
MUSA, SMJ-2100 4-circuit, nonterminated, black	4 spaces	VM-MUSA-BK
MUSA, SMJ-2100 4-circuit, nonterminated, gray	4 spaces	VM-MUSA-G

Ordering information continues on next page.

Note: Conventional XLR baluns listed on page 42.

*Accepts (4) 6000 Series Multimedia Modules (sold separately). See pages 119-121 for 6000 Series Modules.

[†]Video circuits are supplied with designations and circuit indications.

3/06 • 102117AE Broadcast Products



UniPatch® System

Ordering Information

Description	Required Chassis Space	Ordering Number
<p>Rear Modules for Audio and Data Applications Audio A50, 8-circuit for bantam audio applications Audio QCP II, 8-circuit for bantam audio applications Audio EDAC 3-pin plug, 8-circuit for audio applications DB-9, 32-circuit Ultra Patch, 3-foot umbilical, white, for audio applications Universal AMP 50-pin receptacle, 8-circuit, RS-422, white Universal DB-9, 8-circuit, RS-422, white Universal EDAC 90-pin plug, 8-circuit, RS-422, white Universal QCP II, 8x10 circuit, white, for data applications</p> <p>UniPatch Accessories Dsub9 thin backshell connector kit, 1 count Dsub9 thin backshell connector kit, 16 count Dsub9 thin backshell connector kit, 64 count Patch cord kit with two RS-422 ends, 10-pin black, no cable Bantam audio module extraction tool Rear cable management kit (mounts in rear rack rails), black Rear cable management kit (mounts in rear rack rails), gray</p> <p>Replacement Designation Strip Kits** Kit of 2 pieces, 17" x .640" full-length designation strips (includes window and mounting screws) Kit of 128 windows, .440" x .343" designation windows for bantam modules Kit of 16 windows, 2.01" x .343" designation windows for video modules Kit of 4 pieces, 4.174" x .289" designation strips for bantam, video or data modules (includes windows and mounting screws) Kit of 2 pieces, 17" x .289" designation strips for loaded bantam or data chassis (includes windows and mounting screws. Order two kits for loaded bantam systems)</p>		<p>VPRM-BAN-A50 VPRM-BAN-MKII VPRM-BAN-E3 VPRM-3DB9-W VPRM-A50-W VPRM-D9-W VPRM-E90-W VPRM-MKII-W</p> <p>DB9-TSHELL1-KIT DB9-TSHELL16-KIT DB9-TSHELL64-KIT PC-422-KIT VP-BAN-TOOL PPI-EXT-BAR-BK PPI-EXT-BAR-G</p> <p>VP-DES-680-32</p> <p>VP-DES-BAN VP-DES-VIDEO VP-DES-343-4</p> <p>VP-DES-343-32</p>

** See UniPatch Installation Guide ADCP-75-009 for additional information on selecting the correct designation kit for your UniPatch system. Designations are supplied with chassis and system configurations; kits are for replacement only

3/06 • 102117AE Broadcast Products



UniPatch® System

Ordering Information

Description	Ordering Number
UniPatch® Data Patch Cords	
UniPatch RS-422 10-pin black 2'	PC-422-2BK
UniPatch RS-422 10-pin black 3'	PC-422-3BK
UniPatch RS-422 10-pin black 4'	PC-422-4BK
UniPatch RS-422 10-pin black 6'	PC-422-6BK
UniPatch RS-422 10-pin to RJ45, black 2'	PC-422-RJ45-2BK
UniPatch RS-422 10-pin to RJ45, black 3'	PC-422-RJ45-3BK
UniPatch RS-422 10-pin to RJ45, black 4'	PC-422-RJ45-4BK
UniPatch RS-422 10-pin to RJ45, black 6'	PC-422-RJ45-6BK
Traditional RS-422 Patch Panels	
RS-422 2x12 non-normalled RJ45, black	PEM-9NCDA1-BK-NN
RS-422 2x24 non-normalled RJ45, black	S824-NN
RS-422 2x24 dual bantam to Dsub9 normalled	PPB3-5R422D9NS
RS-422 2x12 dual bantam to Dsub9 normalled	PPB3-5R422D9NS-12
Traditional Data Patch Cords	
RJ45-RJ45 1', blue	TP5ETA-BL01
RJ45-RJ45 2', blue	TP5ETA-BL02
RJ45-RJ45 3', blue	TP5ETA-BL03
RJ45-RJ45 4', blue	TP5ETA-BL04
Dual bantam to single RJ45, 72"	PAT-100904
Dual bantam to dual RJ45, 72"	PAT-100900-006



UniPatch Data Patch Cord

Broadcast Products

3 / 0 6 • 1 0 2 1 1 7 A E



Pro Patch™ Professional Audio Patchbays and Broadcast Jackfields

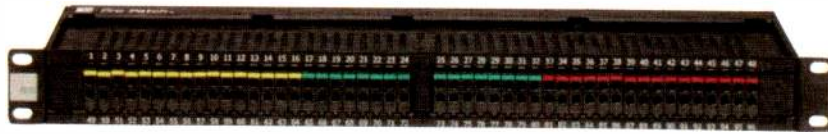


Pro Patch™ Programmable Series	20
Pro Patch™ Professional Audio Patchbays	24
Audio Jacks	26
QCP Termination System	27
Pro Patch™ Professional Audio Patchbays (Enclosed Chassis)	28
Pro Patch™ Audio Broadcast Jackfields (Umbilical Style Chassis)	32
Pro Patch™ Lite Audio Panels (Solder Style Chassis)	36
Accessories for Audio	38



Pro Patch™ Programmable Series

High-Density Patching Systems



The new patented Pro Patch™ Programmable modular system offers unprecedented reliability and flexibility in a convenient, space-saving size and lightweight package. Specifically engineered for every day use in demanding mobile trucks, the Pro Patch Programmable system is the only product in its class that passes stringent MIL-STD-202F standards for vibration and environmental requirements.

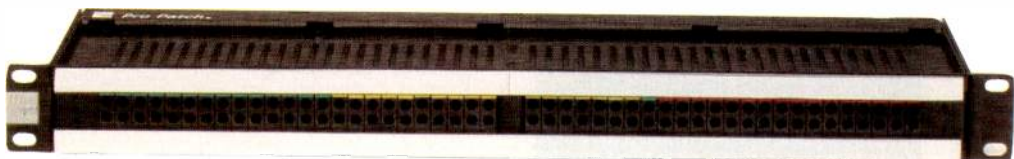
The Pro Patch Programmable bantam system is a WECCO-standard module in a high-density (2x48) one-rack space panel. The new longframe system is a WECCO-standard module in either a 2x24 or high-density 2x32 one-rack-space configuration. The modular design allows individual front jack access for circuit and ground configurations without having to take the entire panel off-line or removing it from the rack. Each module jack features WECCO gold crossbar contacts that provide self-cleaning action and maximize reliability. Jack modules are also individually sealed which prevents dust and contamination of the jacks from convection plenum action common in rack-mounted systems.

The Pro Patch Programmable series is available in several termination options including EDAC/ELCO 3-pin, 56-pin, 90-pin and AMP "champ" 50-pin connectors in both an eight-connector version for audio and a four-connector version for RTS/Clear-Comtype intercom systems. Only five inches deep and 6.2 pounds fully configured, the Pro Patch Programmable series is unmatched in the marketplace.

Using ADC's patent-pending escutcheon kit, the one rack unit panel can be converted to a 1.5 rack unit configuration. This allows the use of ADC's ultra-large designation strips, providing room for three lines of text – the largest designation on the market, plus markers.

With the introduction of the new Pro Patch high-density series, ADC continues to bring you the best performing, highest quality audio patching products in the broadcast market.

U.S. Patent 6,875,000



Broadcast Products
3706 • 102117AE



Pro Patch™ Programmable Series

High-Density Patching Systems

Broadcast Products

3/06 • 102117AE

Features:

- Industry's only bantam and longframe audio panels fully qualified to meet demanding military standards (MIL-STD 202F) for ruggedness, and MIL-J-641E for jack compliance
- High-density bantam 2x48 WECO-compliant bantam jacks on 0.312-inch centers
- High-density 2x32 or 2x24 longframe jack on .500-inch centers
- Gold plated DIP switch selectable circuit normals and grounds
- Ultra-shallow five-inch depth (127 mm)
- Fully AES/EBU 110 Ohm digital and analog compliant
- Lightweight panels weigh only 6.2 pounds (2.8 kg)
- Modular design allows individual jack access/configuration without affecting other circuits
- Grounds can be configured on an individual circuit basis for lift, chassis, sleeve, and common ground
- Modules snap into place, tabs lock into chassis
- Circuit status icons allow users to identify circuit status with colored snap-in icons in eight colors
- Designation strips cover tabs to prevent unauthorized access to circuit configuration switches
- Converts to a 1.5 rack unit panel with a patent-pending escutcheon kit
- Largest bantam designations on the market, 0.410-inch top and bottom for 1 rack unit, 0.680-inch top and bottom for 1.5 rack unit, 0.343-inch longframe with ADC exclusive snap-over windows



PPP1248-E90-HN with PPP-15-CHAS-KIT
EDAC 90-pin Chassis with 1.5 Designation Strips



PPP1248-E3-NS
EDAC 3-pin Chassis (Rear View)



PPP1248-E56-NS
EDAC 56-pin Chassis (Rear View)



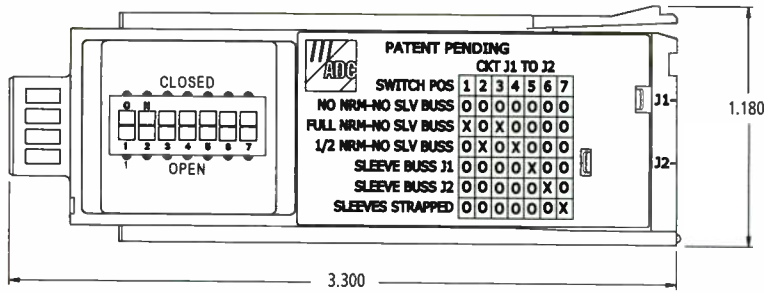
PPP1248-E90-NS
EDAC 90-pin Chassis (Rear View)



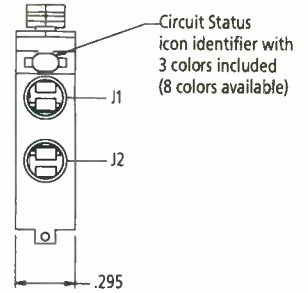
Pro Patch™ Programmable Series

High-Density Patching Systems

Broadcast Products
3/06 • 102117AE



Bantam Jack Card



Individual Jack Access

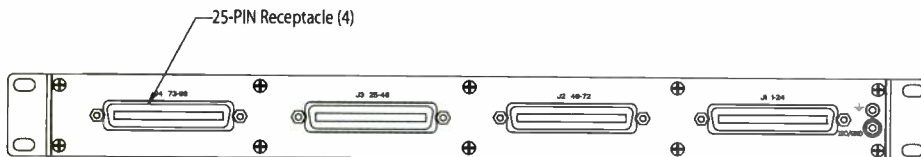
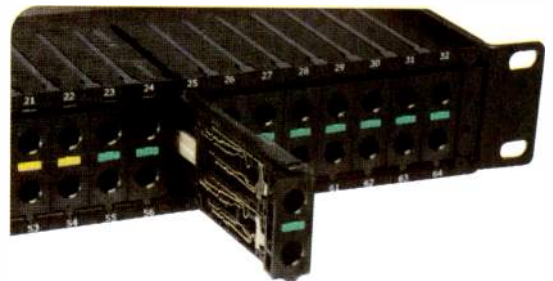
Each Pro Patch® Programmable panel features individual jack cards. Cards contain an individual circuit pair of jacks, front panel circuit status snap-in icon, and seven-position gold plated snap-in DIP switch for normals and grounds configuration. The gold-plated header card plugs and sockets contained in the chassis ensure maximum reliability.

To remove a jack, first remove the top and bottom designation strips, push down the locking tab on the jack module and slide the module out from the front of the chassis. It is not necessary to remove the entire panel from the rack, or the cover from the chassis. Unauthorized circuit changes are eliminated because switches are hidden from front panel view.

The Pro Patch Programmable system is the only product in its class that passes demanding MIL-202 environmental testing for thermal shock, resistance from moisture contamination, plating corrosion from salt fog, and vibration to simulate long-term over-the-road use.



Pro Patch Programmable panels allow individual front-panel jack access for normals and grounds without having to take the entire panel off-line. Special 7-position DIP switches allows configuration of the circuit normal and grounds without cumbersome jumpers or pins to lose. (See-through cover in photo is for demonstration purposes only.)



1 RU 48-Position Bantam/AMP 50-pin Intercom Panel, with bussed grounds (Rear View)



Pro Patch™ Programmable Series

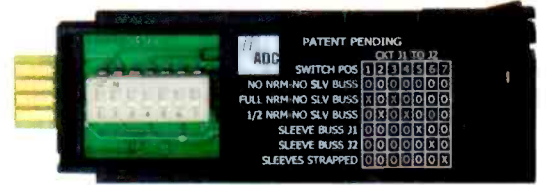
High-Density Patching Systems



PPP1248-E90-NS



PPP1248-E90-NS
(Shown with designation)



AM1-BAN



Standard panel shown with
PPP-15-CHAS-KIT

Broadcast Products

3/06 • 102117AE

Ordering Information

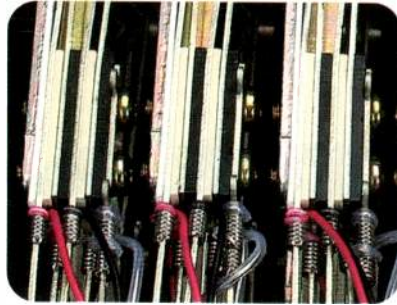
Description	Ordering Number
Preconfigured Bantam Systems	
1RU 2x48	
EDAC 90-pin, half-normalled	PPP1248-E90-HN
EDAC 3-pin, half-normalled	PPP1248-E3-HN
EDAC 56-pin, half-normalled	PPP1248-E56-HN
EDAC 90-pin, normals strapped	PPP1248-E90-NS
EDAC 3-pin, normals strapped	PPP1248-E3-NS
EDAC 56-pin, normals strapped	PPP1248-E56-NS
EDAC 90-pin, half-normalled, with backshells	PPP1248-E90-HN-S
EDAC 3-pin, half-normalled, with backshells	PPP1248-E3-HN-S
EDAC 56-pin, half-normalled, with backshells	PPP1248-E56-HN-S
EDAC 90-pin, normals strapped, with backshells	PPP1248-E90-NS-S
EDAC 3-pin, normals strapped, with backshells	PPP1248-E3-NS-S
EDAC 56-pin, normals strapped, with backshells	PPP1248-E56-NS-S
AMP 50-pin audio, half-normalled	PPP1248-A50-HN
AMP 50-pin audio, normals strapped	PPP1248-A50-NS
AMP 50-pin intercom, half-normalled, bussed ground	PPP1248-ICA50-HN
AMP 50-pin intercom, normals strapped, bussed ground	PPP1248-ICA50-NS
Preconfigured Longframe Systems	
EDAC 90-pin, half-normalled 2x24	PPP1224-E90-HN
EDAC 90-pin, normals strapped 2x24	PPP1224-E90-NS
EDAC 90-pin, half-normalled 2x24, with backshells	PPP1224-E90-HN-S
EDAC 90-pin, normals strapped 2x24, with backshells	PPP1224-E90-NS-S
QCP MKII, half-normalled 2x24	PPP1224-MKII-HN
QCP MKII, normals strapped 2x24	PPP1224-MKII-NS
EDAC 120-pin, half-normalled, 2x32	PPP1232-E120-HN
EDAC 120-pin, normals strapped 2x32	PPP1232-E120-NS
EDAC 120-pin, half-normalled 2x32, with backshells	PPP1232-E120-HN-S
EDAC 120-pin, normals strapped 2x32, with backshells	PPP1232-E120-NS-S
QCP MKII, half-normalled 2x32	PPP1232-MKII-HN
QCP MKII, normals strapped 2x32	PPP1232-MKII-NS
Accessories	
1 RU bantam audio module	AM1-BAN
1 RU Longframe audio module	AM-LF1
1.5 RU chassis conversion kit for bantam	PPP-15-CHAS-KIT
1.5 RU chassis conversion kit for longframe	PPP-15-CHAS-KIT-L
Kit for EDAC 90-pin, includes one shell, 90 crimp-type pins and hood	EDAC-90P-SHELL
Kit for EDAC 56-pin, includes one shell, 56 crimp-type pins and hood	EDAC-56P-SHELL
Kit for EDAC 38-pin, includes one shell, 38 crimp-type pins and hood	EDAC-38P-SHELL
Kit for EDAC 3-pin, includes one shell and 3 crimp-type pins	EDAC-3P-SHELL



Pro Patch™ Professional Audio Patchbays

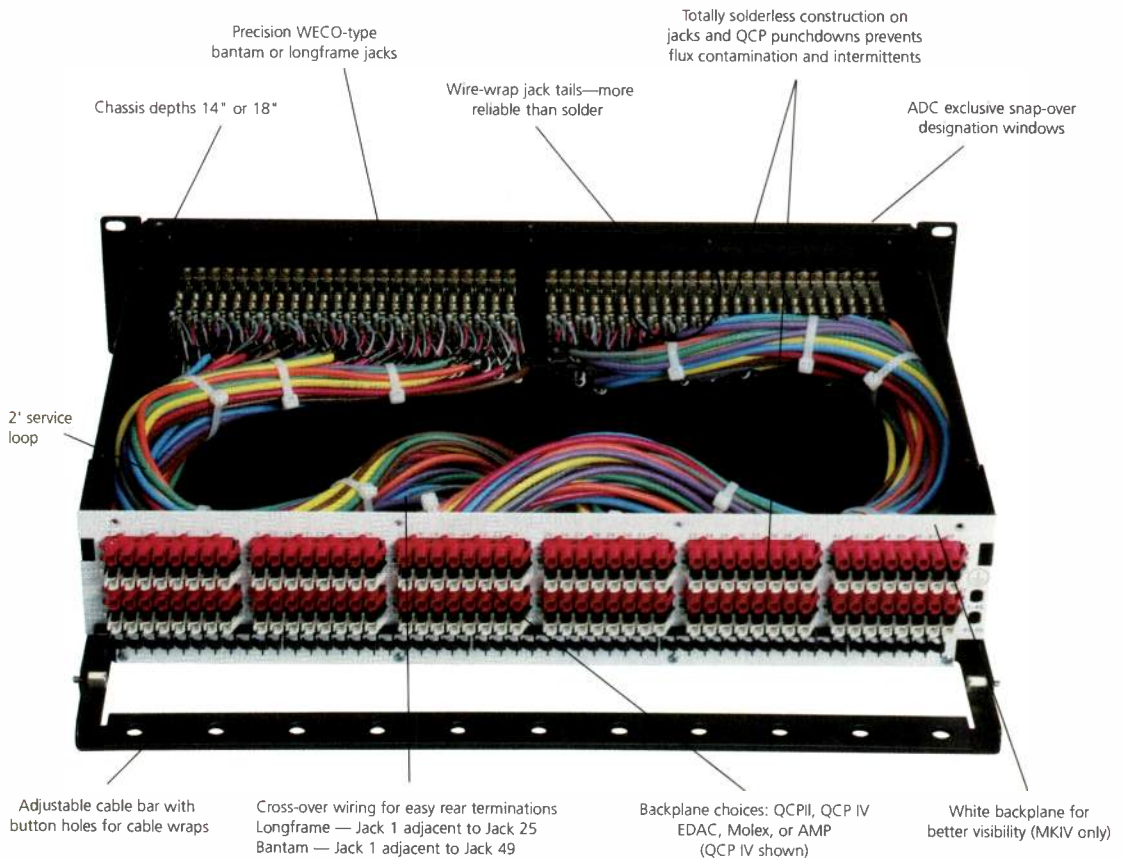
Audio Patchbays and Jackfields

Pro Patch™ professional audio patchbays and broadcast jackfields feature an extensive selection of jacks, panel sizes, normalling options, and rear terminations. Each panel contains ADC's high-quality, WECO-standard, frame-type jacks and includes a tough powder-coated chassis with built-in cable support and designation strips. Solderless internal wiring and terminations ensure completely dependable performance without intermittents. Termination options include the extremely reliable and quick-to-wire QCP II or QCP IV punchdown system as well as EDAC, AMP, and Molex connector options.



Broadcast Products

3/06 • 102117AE





Pro Patch™ Professional Audio Patchbays

Audio Patchbays and Jackfields

3/06 • 102117AE Broadcast Products

Features

Next Generation Pro Patch Audio Jackfields

- Analog and digital compatible — all wired with precision 110 Ohm low capacitance cable for extended analog frequency response and extended distance digital transmission (no need to specify type)
- Uniform faceplate design with standardized designation strip lengths provides seamless appearance when matched with video panels (over and under designation)
- New lighter one-piece chassis design
- Adjustable cable strain relief bar — tilts out of way for installation access
- High impact plastic injected molded jack inserts — more durable than phenolic materials
- Standard Bantam jackfields come with regular (even) spaced inserts — stereo (group) spacing available

Digital Wiring

- Precision 110 Ohm digital audio cable

Variety of Jack Options

- Standard longframe jacks (evenly spaced)
- High-density bantam jacks, regular or spaced (stereo-spaced option available)
- Stereo-spacing option places jacks in pairs

Standard or Custom Sizes

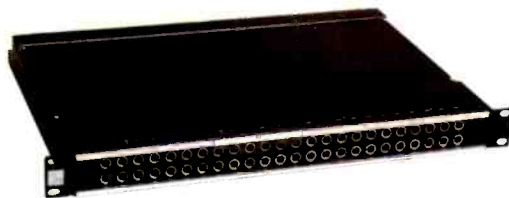
- 1 RU (1.75"/44.5 mm)
- 2 RU (3.5"/88 mm)
- Custom sizes available

Wide Selection of Terminations

- Patented QCP II or QCP IV punchdown connectors
- EDAC/ELCO 90-, 56-, 38- and 3-pin plugs
- AMP 50-pin receptacle
- Molex 3-pin plug
- Ultra Patch panel with QCP IV, prewired umbilical (broadcast jackfields only)
- Stub end cut to length

Full Range of Normaling Options

- No normals (requires looping plugs or cords for patch)
- Normals strapped (fully normalled)
- Half-normalled (monitor top row)
- Normals brought out
- Sleeve normals brought out
- Sleeves strapped
- Bussed grounds



PPA1-14MKIVNS
1 RU Longframe Evenly Spaced 2x24



PPB3-14MKIVNS
2 RU Bantam Evenly Spaced 2x48



PPA1-14MKIINS
1 RU Longframe Evenly Spaced 2x24 QCPII (Rear View)



Pro Patch™ Professional Audio Patchbays

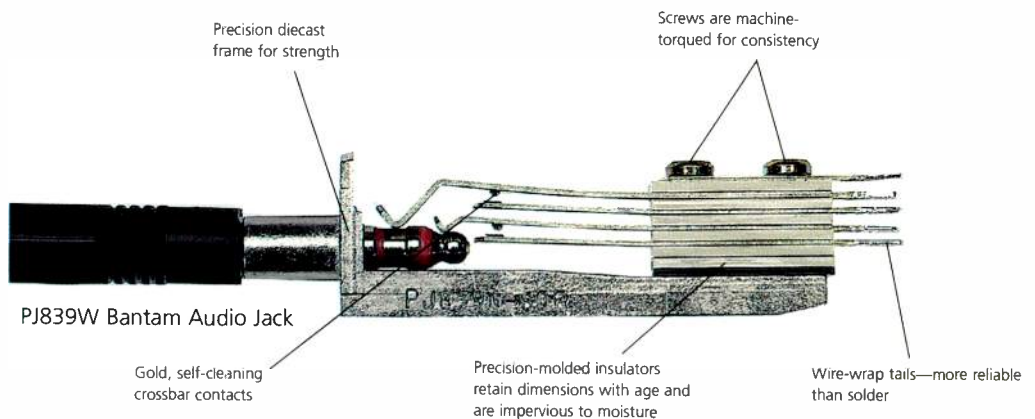
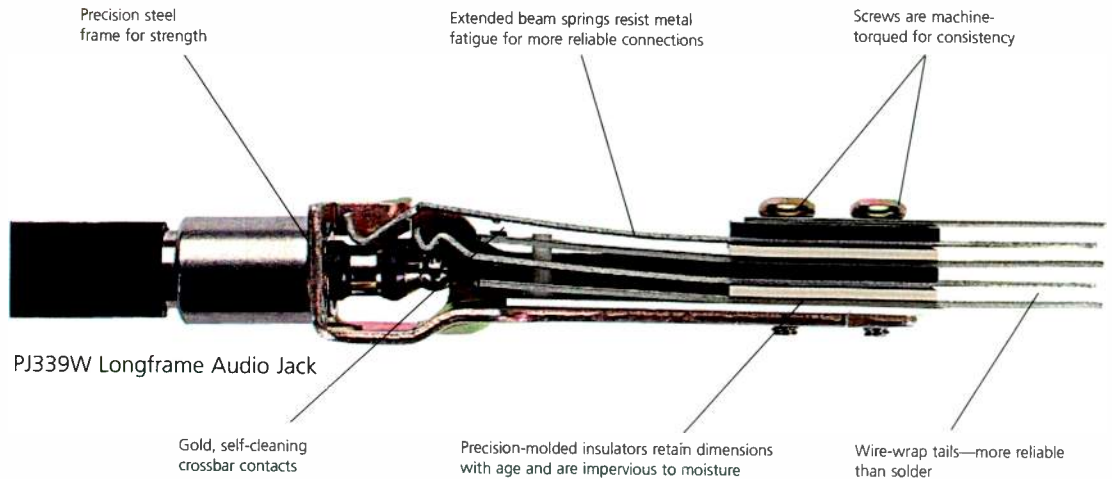
Audio Jacks

ADC's Premium Quality Audio Jacks

The quality of an audio jack is visible in the details. For example, inside ADC's jacks, the gold, self-cleaning crossbar contacts are designed to wipe across each other at an angle that removes debris with every plug insertion. Extended spring beams provide greater resilience for long life and firm contact force. Precision-molded insulators do not change dimensions even in tough environments, ensuring consistent spring torque and reliable performance.

Features

- All patch panels use WECO-standard jacks that adhere to MIL-STD-202F specifications
- Absolutely reliable WECO alloy #1 gold, self-cleaning crossbar contacts wipe away debris with every insertion
- Solder-free wire-wrap tails prevent intermittents from cold solder joints or flux migration. Far more reliable than solder
- Tested to withstand tough mobile applications, including vibration, temperature (-55°C to 85°C), moisture, and salt air



Broadcast Products

3/06 • 102117AE



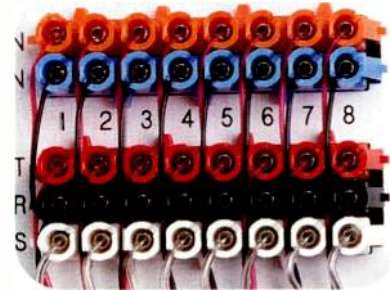
Pro Patch™ Professional Audio Patchbays

QCP Termination System

Time-saving QCP II and QCP IV Termination System

Innovative QCP connectors can really speed up an installation. No need to spend time prepping wires and laboriously soldering and crimping connector pins. Just insert the wire and punch. In one motion you have a reliable gastight connection, even with multiple wires. The unique patented design holds wire far more securely than telco-type punchdowns, preventing intermittents.

MKII panels use QCP II individual terminal insulators, which allow greater density and can be replaced individually. MKIV panels use QCP IV 1x8 terminal blocks insulated on both the front and back of the panel to prevent shorts.



QCP IV Connections

Features

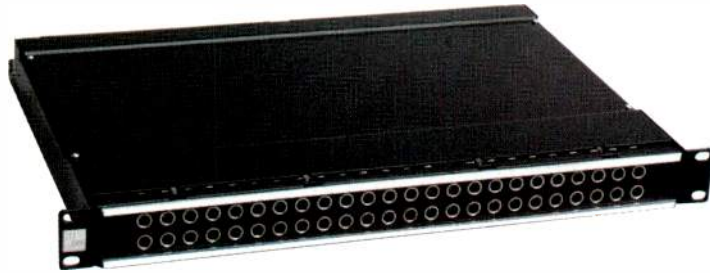
ADC's exclusive, patented QCP II and QCP IV split-cylinder punchdown termination system is faster and easier to install and more reliable than any other termination system, including solder.

- Dependable, durable, split-cylinder design holds up to three stranded or solid wires, 22 to 26 gauge (0.32 mm to 0.128 mm)
- No intermittents with gastight connections. Uniform split channel width holds each wire firmly, unlike telco punchdowns with V-shaped channels or soldered connections that use flux and may have unreliable solder joints
- Easy pre-lacing makes installation faster. Color-coding prevents wiring mistakes
- Labor-saving punch terminates and cuts wire in one simple motion. QCP IV installs even faster because you don't have to orient the tool before punching
- Faster and easier changes in circuits or normals than soldered connector systems. Rated for up to 200 insertions/withdrawals
- QCP II terminations are individually mounted and insulated for easy repair or replacement
- QCP IV terminations are mounted in 1x8 blocks insulated on both sides of the panel. This design, plus the recessed conductors, eliminates shorts

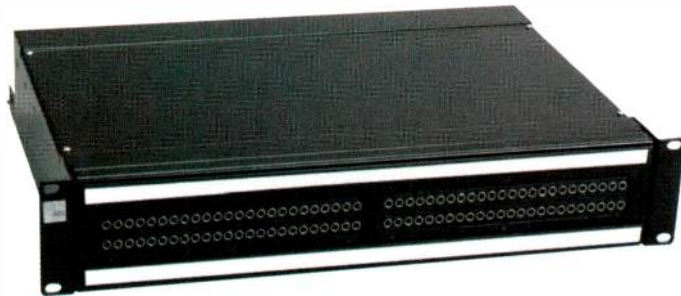


Pro Patch™ Professional Audio Patchbays

Ready to meet any analog or digital audio patching requirement, Pro Patch professional audio patchbays offer an extensive selection of options. Models are available with standard or stereo-spaced longframe jacks, bantam jacks, and a variety of backplane connector types. MKII models come with QCP II, EDAC, or AMP backplane connectors and fixed cable support bars. MKIV models include QCP IV, EDAC, or AMP backplane connectors, adjustable cable support bars and a white backplane for easier circuit visibility. All models offer a wide choice of normals, a tough powder-coated chassis, and solderless internal wiring for outstanding reliability.



PPA1-14MKIVNS
1 RU Longframe Evenly Spaced 2x24



PPB3-14MKIVNS
2 RU Bantam Evenly Spaced 2x48



Pro Patch™ Professional Audio Patchbays

Features

Choice of Panel Sizes

- 1 RU high (1.75 inches/44 mm)
- 2 RU high (3.5 inches/88 mm)
- Depths of 14 inches (350 mm) or 18 inches (450 mm)
- Custom panel sizes available

Longframe or Bantam Jacks

- Longframe jacks in 2x24 or 2x26 array stereo or regular spaced
- Bantam jacks in 2x48 array stereo or regular spaced

Wide Selection of Terminations

- QCP II or QCP IV punchdown connectors
- EDAC 3-, 38-, 56-, and 90-pin plugs

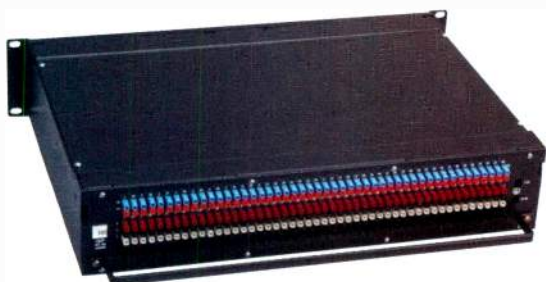
- AMP 50-pin receptacle
- Molex 3-pin plug

Full Range of Normalling Options

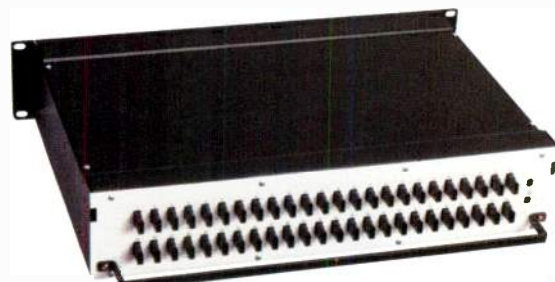
- No normals
- Normals strapped (fully normalled)
- Half-normalled (monitor top row)
- Normals brought out
- Sleeve normals brought out
- Bussed grounds

Digital Audio Cable

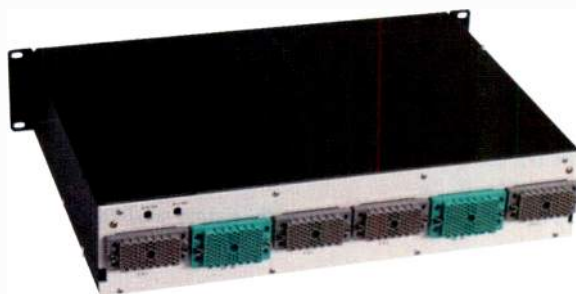
- Precision 110 Ohm digital audio cable meets and exceeds stringent AES requirements



PPB3-14MKIINO
2 RU Bantam Evenly-Spaced 2x24
(Rear view)



PPA3-14MKIV3ENS
2 RU Longframe 2x24 EDAC 3-Pin
(Rear view)



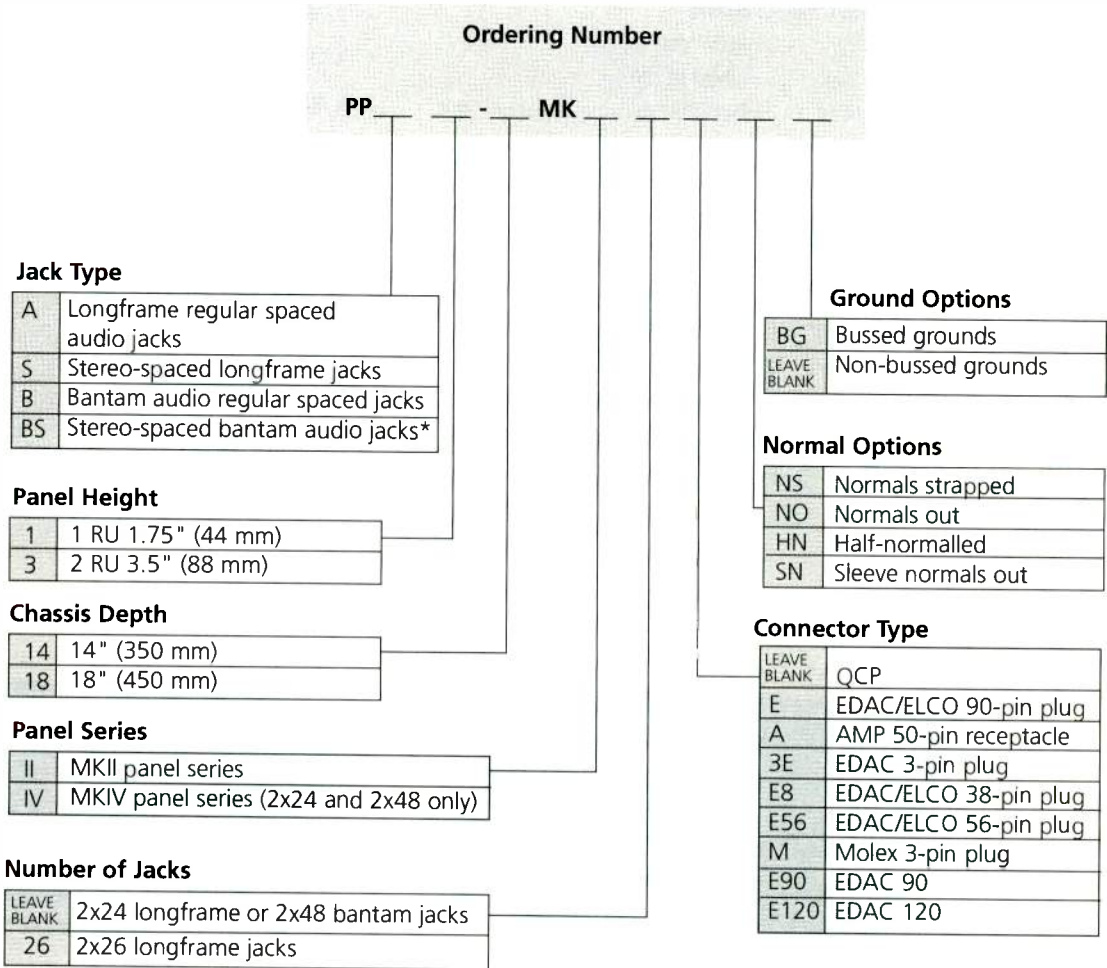
PPB3-14MKIVENO
2 RU Bantam EDAC 2x48
(Rear view)



Pro Patch™ Professional Audio Patchbays

Pro Patch™ Patchbays Ordering Information

Broadcast Products
3/06 • 102117AE



Example: PPA3-14MKII26NOBG — Pro Patch 2 RU panel, 14" deep with QCP II punchdowns, 2x26 array of longframe jacks, normals out audio normalling, and bussed grounds.

Note: For mobile applications rear chassis support is recommended. (SBK-1 and SBK02)

Digital Audio

Precision 110 Ohm digital audio patch cords are listed on page 36.

Use 110 Ohm 1% resistors on normals of unstrapped jacks (normals out version only).

* For information on this and other custom configurations, please contact ADC.

Connectorized panels are not supplied with mating shell kits (see Accessories, page 41)



Pro Patch™ Professional Audio Patchbays

3/06 • 102117AE Broadcast Products

Ordering Information

Description	Ordering Number
Pro Patch Audio Patchbays	
Normals Out	
1.75" 2x24 longframe, QCP II, 14" chassis *	PPA1-14MKIINO
3.50" 2x24 longframe, QCP IV, 14" chassis	PPA3-14MKIVNO
3.50" 2x26 longframe, QCP II, bussed grounds, 14" chassis**	PPA3-14MKII26NO
3.50" 2x26 longframe, QCP II, 18" chassis**	PPA3-18MKII26NO
3.50" 2x24 longframe, QCP IV, 18" chassis	PPA3-18MKIVNO
3.50" 2x48 bantam, QCP II, 14" chassis	PPB3-14MKIINO
3.50" 2x48 bantam, QCP II, 18" chassis	PPB3-18MKIINO
3.50" 2x48 bantam, QCP II, bussed grounds, 14" chassis	PPB3-14MKIINOBG
Normals Strapped (Fully Normalled)	
1.75" 2x24 longframe, QCP IV, 14" chassis	PPA1-14MKIVNS
1.75" 2x26 longframe, EDAC 90-pin plug, 14" chassis	PPA1-14MKII26ENS
3.50" 2x24 longframe, QCP IV, 14" chassis	PPA3-14MKIVNS
3.50" 2x24 longframe, QCP IV, 18" chassis	PPA3-18MKIVNS
3.50" 2x26 longframe, QCP II, 14" chassis**	PPA3-14MKII26NS
3.50" 2x26 longframe, EDAC 90-pin plug, 14" chassis	PPA3-14MKII26ENS
3.50" 2x48 bantam, QCP IV, 14" chassis	PPB3-14MKIVNS
1.75" 2x48 bantam, EDAC 90-pin plug, 14" chassis	PPB1-14MKIIENS
3.50" 2x48 bantam, EDAC 90-pin plug, 14" chassis	PPB3-14MKIIENS
Half-Normals (Monitor top row)	
1.75" 2x24 longframe, QCP IV, 14" chassis	PPA1-14MKIVHN
1.75" 2x26 longframe, QCP II, 14" chassis**	PPA1-14MKII26HN
1.75" 2x24 longframe, EDAC 90-pin plug, 14" chassis	PPA1-14MKII24EHN
3.50" 2x24 longframe, QCP IV, 14" chassis	PPA3-14MKIVHN
3.50" 2x24 longframe, QCP IV, 18" chassis	PPA3-18MKIVHN
3.50" 2x26 longframe, EDAC 90-pin plug, 14" MKII style chassis**	PPA3-14MKII26EHN
1.75" 2x48 bantam, EDAC 90-pin plug, 14" MKII style chassis	PPB1-14MKIIEHN
3.50" 2x48 bantam, QCP IV, 14" chassis	PPB3-14MKIVHN
3.50" 2x48 bantam, EDAC 90-pin plug, 14" chassis	PPB3-14MKIIEHN
No Normals (Requires looping plug or patch cord)	
1.75" 2x24 longframe, QCP IV, 14" chassis	PPA1-14MKIVNN
3.50" 2x48 bantam, QCP IV, 14" chassis	PPB3-14MKIVNN
Sleeve Normals Brought Out	
3.50" 2x24 longframe, QCP IV, 14" chassis	PPA3-14MKIVSN
3.50" 2x26 longframe, QCP II, 14" chassis**	PPA3-14MKII26SN

* 1 RU 2x24 normals out panel only available in QCP MKII version.

** 2x26 panels only available in QCP MKII versions.

Note: For mobile applications, rear chassis support is recommended. Order Pro Patch support bar kit (Ordering Number: SBK-1 or SBK-2); mounts on rear rack rails to support rear of panel.

Note: Bussed ground option available on all panels; please contact ADC for details.



Pro Patch™ Umbilical Audio Broadcast Jackfields

ADC broadcast jackfields simplify the task of wiring rack-mounted panels by separating the jacks from the backplane. The jack panel mounts on the front of the rack, and the Ultra Patch termination panel mounts on the rear with an umbilical connecting the two. This arrangement makes the termination wiring more accessible so you don't have to reach into the rack to make connections. In addition, the totally solderless wiring of both panels provides more reliable connections than solder, ensuring dependable service.

Options available include panel sizes, longframe or bantam jacks, choice of normalling, standard or custom umbilical length, and QCP II, QCP IV, or EDAC rear panel connectors. All BJF series panels now feature AES digital/audio with precision 110 Ohm low capacitance shielded twisted pair cable. MKII panels include fixed cable trays. MKIV panels have adjustable cable bars and white backplanes for better visibility.

Features

Choice of Panel and Umbilical Sizes

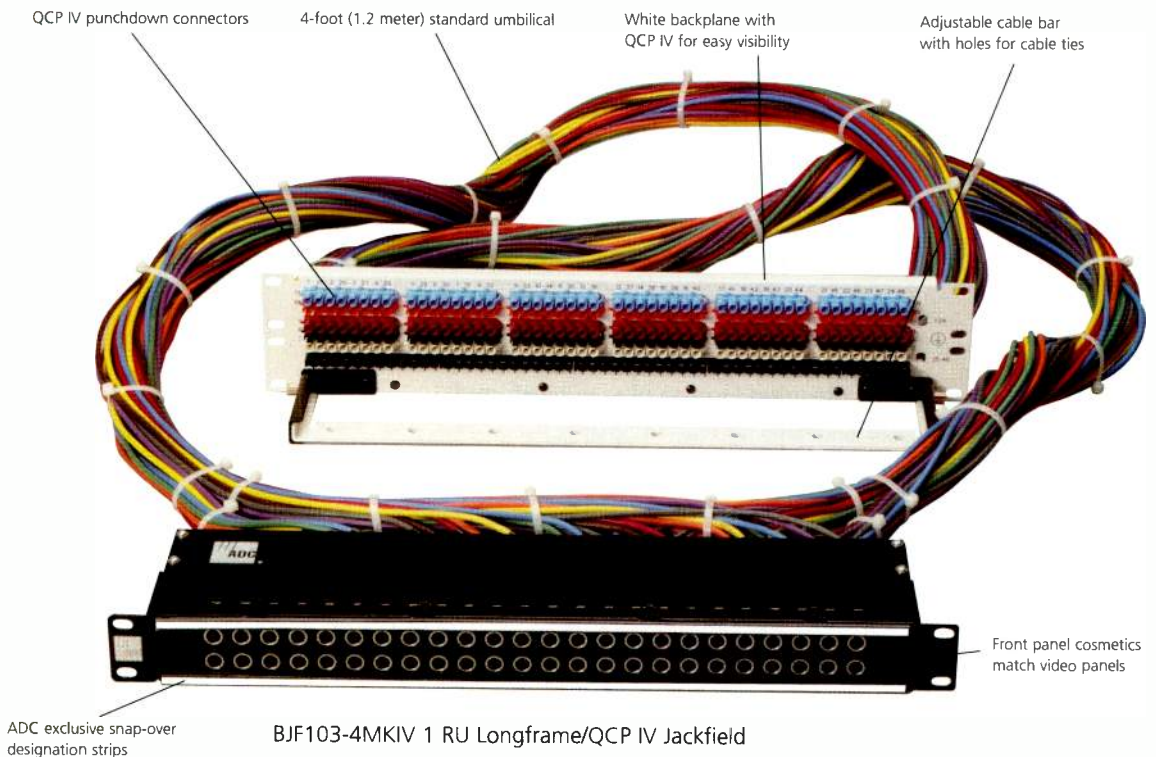
- 1 RU jack panel (1.75"/44 mm) with 2 RU (3.5"/88 mm) or 3 RU (5.25"/132 mm) Ultra Patch termination panel
- 2 RU jack panel (3.5"/88 mm) with 3 RU (5.25"/132 mm) Ultra Patch termination panel
- Standard 4-foot (1.2 meter) umbilical or custom lengths available

Longframe or Bantam Jacks

- Longframe jacks in 2x24 or 2x26 array evenly spaced
- Bantam jacks in 2x48 array evenly spaced

Digital Audio Cable

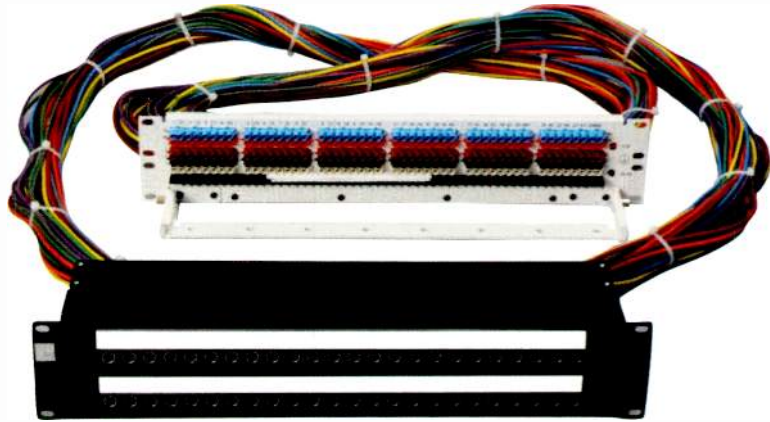
- Precision 110 Ohm digital audio cable meets and exceeds stringent AES requirements





Pro Patch™ Umbilical Audio Broadcast Jackfields

Broadcast Products
3 / 0 6 • 1 0 2 1 1 7 A E



BJF203-4MKIV
2 RU Longframe/QCP II Ultra Patch

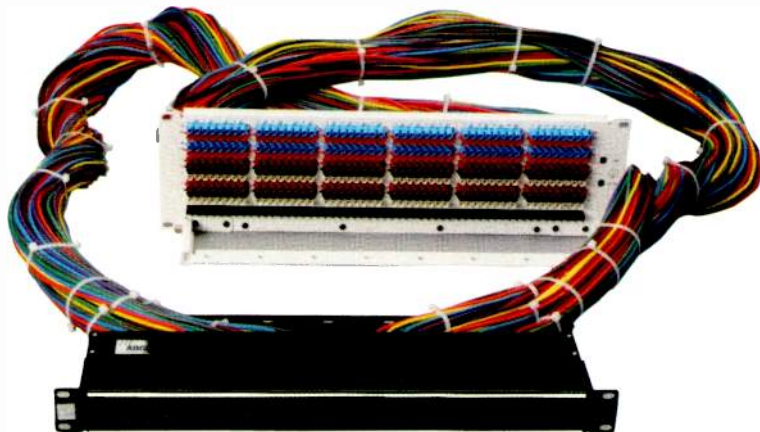
Options

Choice of Terminations

- QCP II or QCP IV punchdown connectors
- Stub end cut to length
- Adjustable strain relief cable bar included standard on Ultra Patch MKIV. Fixed tray on MKII

Full Range of Normalling Options

- No normals
- Normals strapped (fully normalled)
- Half-normalled (monitor top row)
- Normals brought out
- Sleeve normals brought out
- Sleeves strapped
- Bussed grounds



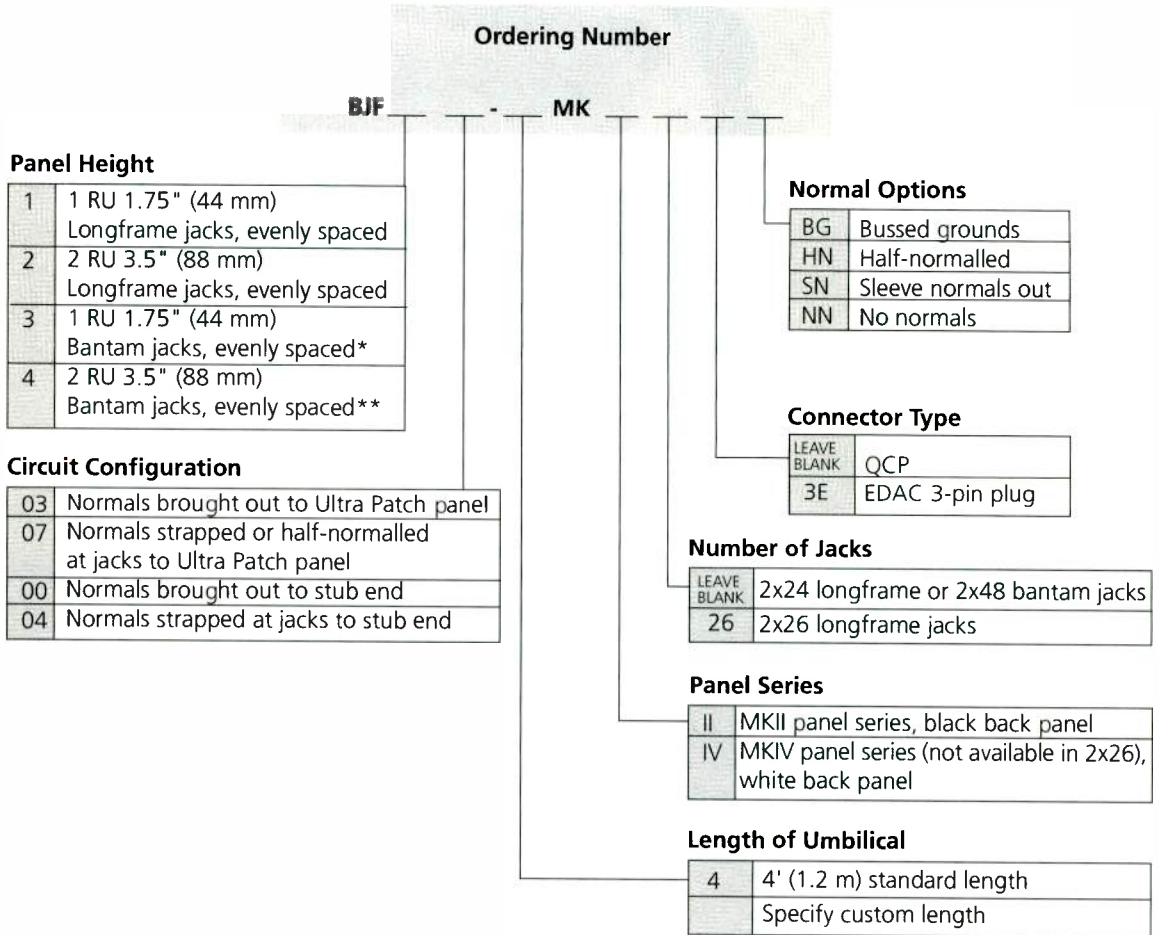
BJF303-4MKIV
1 RU Bantam/QCP IV Ultra Patch



Pro Patch™ Umbilical Audio Broadcast Jackfields

Pro Patch™ Audio Broadcast Jackfields Ordering Information

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products



*For stereo-spaced, add "S" to the catalog number (For example, BJFSXXX-)

** For information on these and other custom configurations, please contact ADC.

Note: Use 110 Ohm 1% resistors on normals of unstrapped jacks. (Normals out versions only)



Pro Patch™ Umbilical Audio Broadcast Jackfields

Ordering Information

Description	Ordering Number
Pro Patch Broadcast Jackfields*	
Normals Out	
1.75" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF103-4MKIV
1.75" 2x26 longframe, 4' umbilical, 3.5" QCP II Ultra Patch**	BJF103-4MKII26
3.50" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF203-4MKIV
3.50" 2x26 longframe, 4' umbilical, 3.5" QCP II Ultra Patch**	BJF203-4MKII26
1.75" 2x48 bantam, 4' umbilical, 5.25" QCP IV Ultra Patch	BJF303-4MKIV
3.50" 2x48 bantam, 4' umbilical, 5.25" QCP IV Ultra Patch	BJF403-4MKIV
Normals Strapped (Fully normalled)	
1.75" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF107-4MKIV
1.75" 2x26 longframe, 4' umbilical, 3.5" QCP II Ultra Patch**	BJF107-4MKII26
3.50" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF207-4MKIV
3.50" 2x26 longframe, 4' umbilical, 3.5" QCP II Ultra Patch**	BJF207-4MKII26
1.75" 2x48 bantam, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF307-4MKIV
3.50" 2x48 bantam, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF407-4MKIV
Half-Normals (Monitor top row)	
3.50" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF207-4MKIVHN
3.50" 2x26 longframe, 4' umbilical, 3.5" QCP II Ultra Patch**	BJF207-4MKII26HN
1.75" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF107-4MKIVHN
1.75" 2x26 longframe, 4' umbilical, 3.5" QCP II Ultra Patch**	BJF107-4MKII26HN
1.75" 2x48 bantam, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF307-4MKIVHN
3.50" 2x48 bantam, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF407-4MKIVHN
No Normals (Requires looping plug or patchcord)	
3.50" 2x48 bantam, 4' umbilical, 3.5" QCP IV Ultra Patch	BJF407-4MKIVNN
Sleeve Normals Brought Out	
3.50" 2x24 longframe, 4' umbilical, 3.5" QCP IV Ultra Patch**	BJF203-4MKIVSN
3.50" 2x48 bantam, 4' umbilical, 5.25" QCP IV Ultra Patch	BJF403-4MKIVSN

* Custom panel configurations are available; please contact ADC.

** 2x26 panels only available in QCP MKII versions.

Broadcast Products

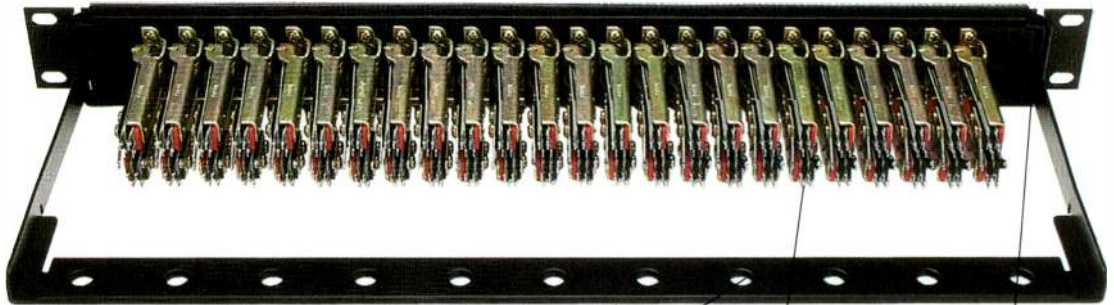
3 / 0 6 • 1 0 2 1 1 7 A E



Pro Patch™ Lite Solder-Style Audio Panels

Low-Cost Audio Panels

Broadcast Products
3 / 0 6 • 1 0 2 1 1 7 A E



PPA1 1RU Stereo-Spaced Longframe 2x24 Panel (Rear View)

Durable cable bar with large holes for cable wraps

Offset lugs for common ground

Durable molded inserts

Pro Patch™ Lite is ADC's line of low-cost, do-it-yourself audio patch bays. For ADC quality on a budget, this is the answer. Features include a steel frame with sturdy molded insert for holding jacks, a removable steel strain relief cable bar, ADC's outstanding quality WECO-standard bantam or longframe jacks with solder tails ready to wire, and choice of normalling configurations. Models are available in one and two rack unit heights with designation strips and standard jack spacing.

Features

Sturdy Construction

- Steel frame with durable molded insert for holding jacks
- Removable steel cable bar

Two Panel Sizes

- 1 RU (1.75"/44 mm)
- 2 RU (3.5"/88 mm)

Longframe or Bantam Jacks

- Longframe jacks, 2x24 or 2x26 array, WECO-standard with solder tails ready for wiring
- Bantam jacks, 2x48 array, WECO-standard with solder tails ready for wiring
- Several ground lug styles

Choice of Normals

- Normals out
- Pre-half-normalled, common ground
- Pre-normals strapped, common ground
- Sleeve normal

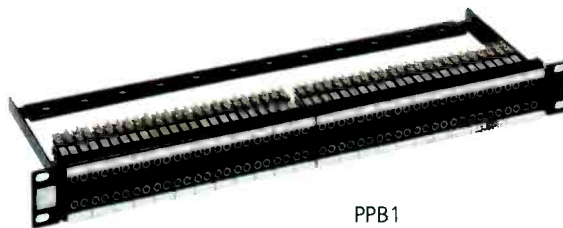


Pro Patch™ Lite Solder-Style Audio Panels

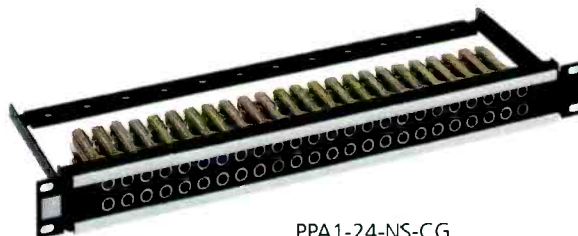
Ordering Information

Description	Ordering Number
Longframe Panels	
1.75" 2x24 longframe jacks with solder lugs, loaded with 48 PJ339 jacks (see page 40) Half-normalled, common ground Normals strapped, common ground	PPA1 PPA1-HN-CG PPA1-NS-CG
1.75" 2x26 longframe jacks with solder lugs, loaded with 52 PJ339 jacks (see page 40) Half-normalled, common ground Normals strapped, common ground	PPA1-26 PPA1-26-HN-CG PPA1-26-NS-CG PPA1-L204
1.75" 2x24 longframe solder jacks with offset ground lugs	
3.5" 2x24 longframe jacks with solder lugs, loaded with 48 PJ339 jacks (see page 40) Half-normalled, common ground Normals strapped, common ground	PPA3 PPA3-HN-CG PPA3-NS-CG
3.5" 2x26 longframe solder jacks sleeve normal, loaded with 52 PJ242 jacks (see page 40)	PPA3-26-SN
Bantam Panels	
1.75" 2x48 bantam jacks with solder lugs, loaded with 96 PJ839 jacks (see page 40) Half-normalled, common ground Normals strapped, common ground	PPB1 PPB1-HN-CG PPB1-NS-CG
3.5" 2x48 bantam jacks with solder lugs, loaded with 96 PJ839 jacks (see page 40) Half-normalled, common ground Normals strapped, common ground	PPB3 PPB3-HN-CG PPB3-NS-CG
3.5" 2x48 bantam jacks with solder lugs, sleeve normals, loaded with 96 PJ824 jacks (see page 40)	PPB3-SN

For information on this and other custom configurations, please contact ADC.



PPB1
1 RU Stereo-Spaced Bantam 2x48 Panel



PPA1-24-NS-CG
1 RU Longframe 2x24 Panel

3/06 • 102117AE Broadcast Products

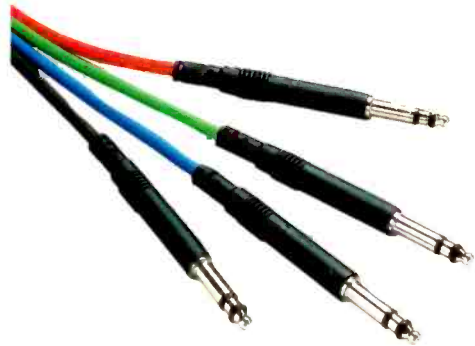


Accessories for Audio

Whatever the accessory you need for your audio patchbay, the quality source is ADC. Products available include patch cords, connectors and jacks, designation strip kits, and more.

High-Performance Audio Patch Cords

Pro Patch™ audio patch cords are engineered for flawless performance and durability. Nickel plating protects plugs against corrosion and ensures smooth insertion, and the exclusive dielectric compound between conductors provides low capacitance for the best signal performance. The flexible cord drapes neatly without kinking, and the plug is molded directly onto the cord for outstanding strain relief.

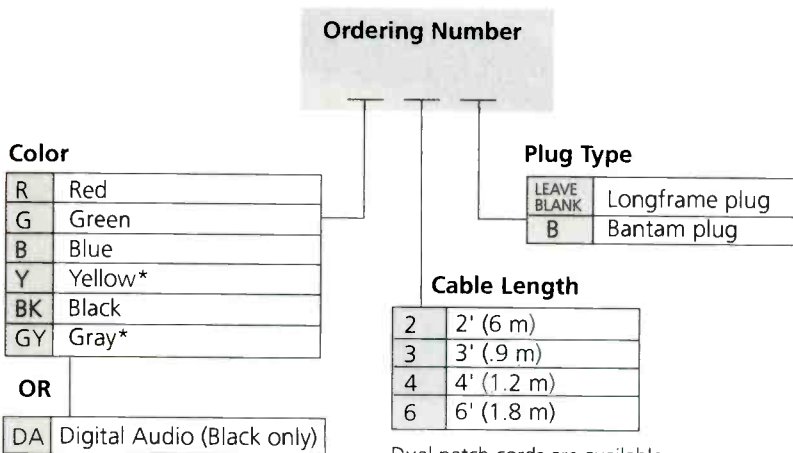


All ADC patch cords are designed to meet MIL-P642 and are machined after molding for perfect cocentricity, ensuring consistent, reliable jack operation.

Features

- Meets demanding MIL-J641 and MIL-P642 standards for plug compliance
- Precision WECO 310 (longframe) and bantam plugs assure proper jack performance
- Quad-star construction for low noise performance
- Models for analog or digital audio
- Standard lengths from 2 feet (.6 m) to 6 feet (1.8 m). Other lengths available on request
- Colors include red, green, blue, or black. Some cords also available in yellow or gray
- Conversion patch cords for RS-422 to RJ45 are found on page 16. (Conversion patch cords for longframe to bantam, single to dual, are also available. Please contact ADC.)

Audio Patch Cords Ordering Information



* Non-standard colors. Please contact ADC for these and other non-standard colors.

Dual patch cords are available. Add a "2" after length. For example, R22 = Red 2' dual longframe. R22B = Red 2' dual Bantam



Accessories for Audio

Longframe and Bantam Audio Plugs

Individual longframe and bantam plugs are available featuring low capacitance injection-molded insulators and precision-machined brass or nickel-plated conductors for smooth insertion and best signal performance. Wire connections are made via miniature screw terminals. These plugs provide the best fit and performance to match ADC patch panels.

Ordering Information

Description	Ordering Number
Longframe Plugs	
Three-conductor longframe plugs (field installable)	
Single red	PJ051R
Single black	PJ051B
Single black, nickel-plated	PJ051B-MN
Looping plug — internal connections tie together corresponding tip, ring and sleeve conductors to allow looping of jack circuits	PJ4
Hole plugs to fill unused jack positions, black	PJ29
Bantam Plugs	
Three-conductor bantam plugs	
Single plug — attachable plug; two lugs, shell mounting screw and two lug attachment screws supplied	
Red	PJ777R
Black	PJ777B
Dual plug — attachable plug; four lugs, two shell mounting screws and four lug attachment screws supplied	
Red	PJ778R
Black	PJ778B
Looping plug	PJ746
Used to "loop" or patch adjacent jack circuits; plug conductors strapped internally; wired tip to tip, ring to ring and sleeve to sleeve	
Hole plugs for bantam panels to fill unused jack positions	
Red	PJ729R
Black	PJ729B
Single bantam circuit guard plugs to identify or block entry to critical circuits; does not actuate circuit	
Red	PJ925R
White	PJ925W
Black	PJ925B



Accessories for Audio

Longframe and Bantam Audio Jacks

If anything differentiates ADC patching products from the competition it is the outstanding quality of our jacks. Consistent quality and durability are built into every jack we make. Our jacks meet WECCO and MIL-STD-202F standards and include gold, self-cleaning contacts, extended spring beams to prevent metal fatigue and poor contact, and precision-molded insulators. For a closer look at the outstanding design of our audio jacks, see the overview on page 24.

PJ339 Single Longframe Jack (2 normally closed contacts)

The PJ339 is a three-conductor, single, longframe jack with two normally closed contacts and solder tails. PJ339L has offset solder tails, and PJ339W is the wire-wrap version.



PJ339W Longframe Audio Jack

PJ242 Single Longframe Jack (3 normally closed contacts)

The PJ242 is a three-conductor, single, longframe jack with three normally closed contacts and solder tails. PJ242W is the wire-wrap version.

PJ839 Single Bantam Jack (2 normally closed contacts)

The PJ839 is a three-conductor, single, bantam jack with two normally closed contacts. The PJ839N-SDR comes with solder tails, and the PJ839WN is the wire-wrap version.



PJ839W Bantam Audio Jack
Shown with Plug Inserted

PJ824 Single Bantam Jack (3 normally closed contacts)

The PJ824 is a three-conductor, single, bantam jack with three normally closed contacts. The PJ824N comes with solder tails, and the PJ824WN is the wire-wrap version. (Note that these jacks extend beyond the periphery of a 1.75" 1 RU panel.)



Accessories for Audio

Longframe and Bantam Audio Jacks

Ordering Information

Description	Ordering Number
Longframe Jacks	
3-conductor – 2 normally closed contacts, solder tails, frame style A, stack height .531" (13.49 mm), WECO 239A equivalent	PJ339
3-conductor – 2 normally closed contacts, solder offset lug, frame style A, stack height .531" (13.49 mm)	PJ339L
3-conductor – 2 normally closed contacts, wire-wrap, frame style A, stack height .578" (14.68 mm)	PJ339W
3-conductor – 3 normally closed contacts, solder tails, frame style C, stack height .687" (17.45 mm), WECO 242C equivalent	PJ242
3-conductor – 3 normally closed contacts, wire-wrap, frame style C, stack height .687" (17.45 mm), WECO 242C equivalent	PJ242W
Bantam Jacks	
3-conductor – rear-mount bantam jack, 2 normally closed contacts, solder tails, stack height .602" (15.29 mm)	PJ839N-SDR
3-conductor – rear-mount bantam jack, 3 normally closed contacts, solder tails, stack height .756" (19.20 mm)	PJ824N
3-conductor – rear-mount bantam jack, 3 normally closed contacts, wire-wrap, stack height .750" (19.05 mm)	PJ824WN

For printed circuit board jacks, see page 41.

Accessories for Audio

Audio Accessories

ADC manufactures accessories for use with our audio patch panels. These include connectors, adapters, tool kits, designation strip kits, patch cord holders, optional cable support bars, and more.

Audio Baluns (also see page 14)

High-quality audio baluns are available for 110 Ohm twisted pair to 75 Ohm coaxial matching. Matches BNC to male or female XLR connectors.



Shown: BAL-XLR-BNC-F
BAL-XLR-BNC-M
BAL-XLR-1VBNC-F

Designation Strip Kits

ADC produces designation strip kits for all of our patch panels. For details about kits available for your particular model, please contact the Technical Assistance Center.

QCP and EDAC Tools and Accessories (Genuine EDAC, manufactured in North America)

Individual punchdown tools and complete tool kits are available for both QCP II and QCP IV connections. The same punchdown tool works for both types, but the tips are different. EDAC connector kits are also available for E120, E90, E56, E38 and E3 connectors—genuine EDAC parts.



EDAC 90-shell kit

EDAC 38-shell kit

EDAC crimp tool

Q150

SLVG-1

QB-2

QRK-25

Pro Patch™ Cord Holder

The Pro Patch cord holder accepts up to 75 video or audio patch cords and mounts on the wall or in a rack. (Note: does not hold CVPC-type patch cords.)



PPH patch cord holder



Accessories for Audio

Ordering Information

Description	Ordering Number
<p>Audio Baluns, 110 Ohm to 75 Ohm BNC to female XLR BNC to male XLR BNC 1 Vp-p to female XLR</p>	<p>BAL-XLR-BNC-F BAL-XLR-BNC-M BAL-XLR-1VBNC-F</p>
<p>QCP Tools Impact tool for MKII panels, with tip* Tool for MKIV panels, with tip* Replacement tip for QB-2 Longer replacement tip for QB-2 Replacement tip for QB-4 Manual tool for MKII panels Manual tool for MKIV panels QCP tool holder</p>	<p>QB-2 QB-4 QB-2T QB-2LT QB-4T Q115 QDF-114 Q150</p>
<p>QCP Mark II Replacement Kit Kit includes instructions and the following: 99 QCP contacts, 25 red, black and white insulators, 12 blue and orange insulators</p>	<p>QRK-25</p>
<p>QCP Mark IV Replacement Kit 2 red, white, black, blue and orange QCP IV (8x1) punchdown assemblies</p>	<p>QRK-25-MKIV</p>
<p>Sleeving Kit Kit includes 100 pieces of 2.5" (6.35 cm) clear PVC</p>	<p>SLVG-1</p>
<p>EDAC Tools (Manufactured by EDAC) and Receptacle Connector Kits (Manufactured by Paladin) Kit for EDAC 90-pin, includes 1 shell, 90 crimp-type pins, and hood Kit for EDAC 56-pin, includes 1 shell, 56 crimp-type pins, and hood Kit for EDAC 38-pin, includes 1 shell, 38 crimp-type pins, and hood Kit for EDAC 3-pin, includes 1 shell and 3 crimp-type pins Tool for crimping EDAC connector pins EDAC pin removal tool</p>	<p>EDAC-90P-SHELL EDAC-56P-SHELL EDAC-38P-SHELL EDAC-3P-SHELL EDAC-CRIMP-TOOL EDAC-EXTRACTION-TOOL</p>
<p>Pro Patch™ Cord Holder Holds up to 75 video or audio patch cords (bantam or longframe); mounts on a wall or in a rack; 14"W x 3"D (35.56 x 7.62 cm). Note: does not hold CVPC-type patch cords</p>	<p>PPH</p>
<p>Printed Circuit Board Audio Jacks PCB longframe jack, 3 conductor standard PCB threaded longframe jack, 3 conductor with nut and washer PCB longframe right angle jack, 3 conductor PCB threaded longframe right angle jack, 3 conductor with nut and washer</p>	<p>AJ238-1 AJ238-1T AJ339-1 AJ339-1T</p>
<p>Molex Kits Molex kit, 3-pin receptacle</p>	<p>MOLEX-3F-SHELL</p>

* QCP II and QCP IV tools are identical but the replaceable tips are different.

3/06 • 102117AE Broadcast Products



Pro Patch™ Video Patching Systems



Video Jacks and Accessories	46
Pro Patch™ Video Panels.....	55
Pro Patch™ PPI Series Video Panels	56
Pro Patch™ PPE Series Video Panels	59
Pro Patch™ Unloaded Video Panels.....	62
Component Patching system (CAPS)	63
Video Patch Cords	65



Video Jacks and Accessories

It may sound bold to say we have the best video jacks in the world, but we can say it with confidence. Just take a look inside one of our Super Video Jacks and you'll see why. Our jacks are loaded with features that make them work more reliably and last far longer than other jacks.

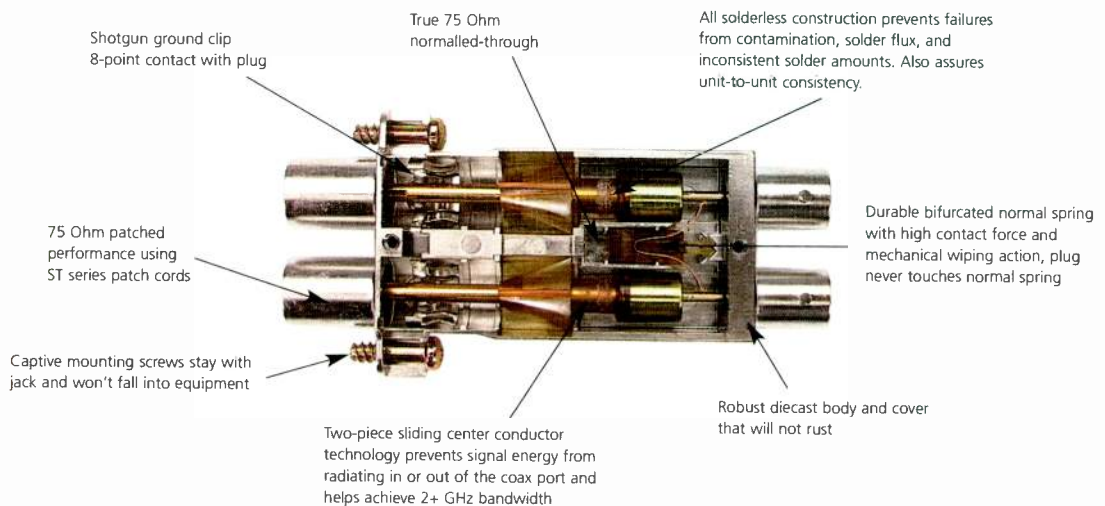
To achieve SMPTE 292M high-frequency performance and minimize signal radiation in or out, ADC standard size jacks feature a unique, patented, two-piece sliding center conductor. Also, the center conductor employs a special closed-entry design to resist insertion of a damaged connector or a test probe, preventing damage. The precision, gold-plated components preserve signal quality and resist oxidation and tarnish. Long-beam bifurcated springs ensure against spring metal fatigue, and a shotgun ground clip provides multiple contact points for a solid connection when a plug is inserted. Most importantly, our jacks provide true 75 Ohm performance when normalled or patched with ADC's patented ST series patch cords, protecting high-frequency signals from losses due to impedance mismatch.

Every component of an ADC video jack is performance designed and carefully constructed without solder for the highest reliability. You'll feel the quality in the firm contact force every time you insert a plug. All ADC video products comply with Wees and Rohs requirements.

Features

- True 75-Ohm for excellent digital performance when normalled or patched with ADC ST series patch cords
- Gold-plated components assure signal quality and tarnish resistance, minimum 50µ inch
- Sealed switch prevents external contamination
- All-solderless construction eliminates solder-related failures
- Long-beam bifurcated springs provide firm contact and prevent spring fatigue
- Closed-entry BNC center conductor prevents damage and provides reliable contact
- Two-piece center conductor prevents RFI radiation leakage
- Shotgun ground clip contacts plug at multiple points
- Tough diecast body will not rust or flex
- Captive mounting screws will not fall out
- Precision-tooled parts for consistent quality
- Meet MIL-STD-202F for environmental and mechanical reliability
- Patch plug never touches normal switch, dramatically increasing reliability

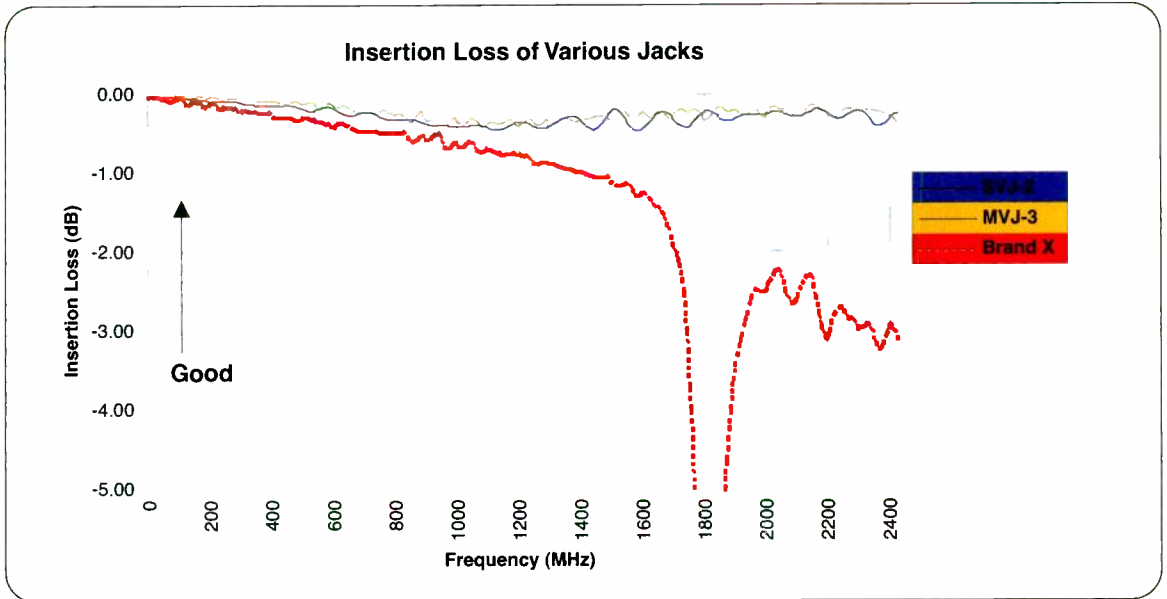
SVJ-2Tx Super Video Jack Interior View



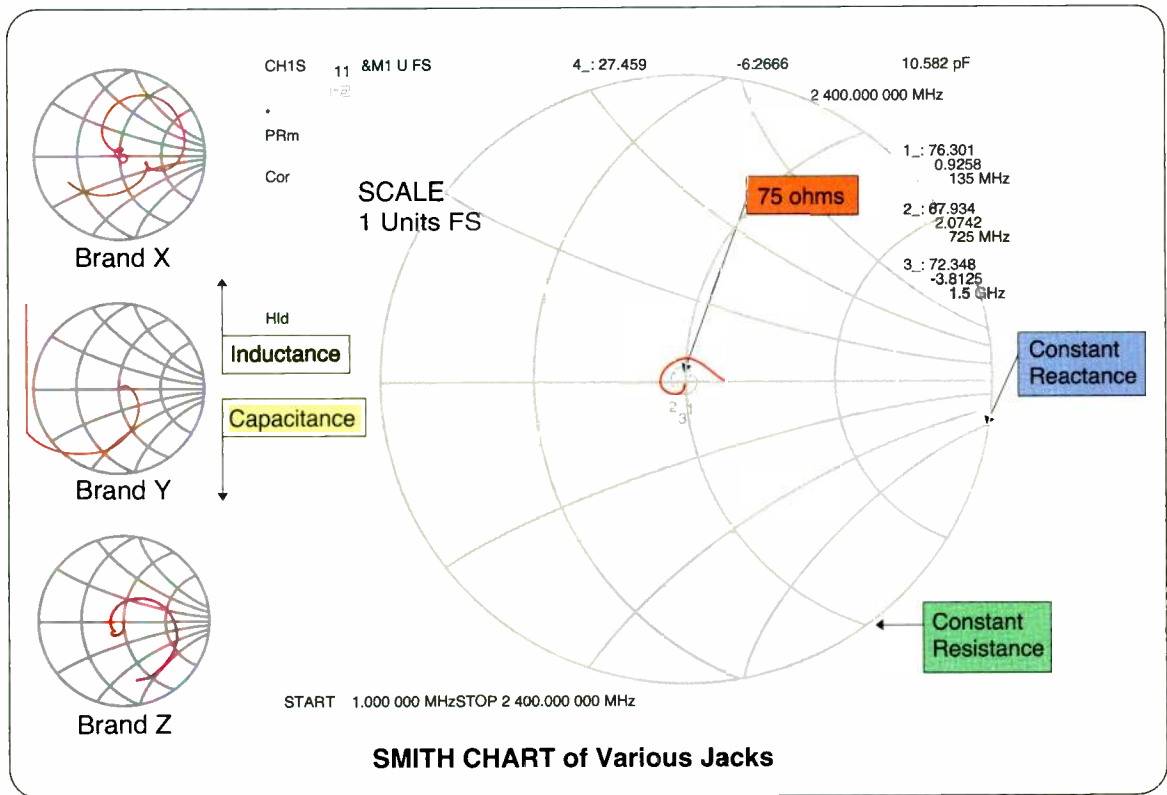


Video Jacks and Accessories

Broadcast Products
3/06 • 102117AE



Insertion loss for ADC's Super Video Jacks stays less than .5 dB to 2.4 GHz.



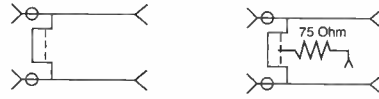
ADC's Super Video Jacks maintain 75 Ohm impedance throughout the band. Competitive jacks spiral out of control.



Video Jacks

WECO Standard Size Analog/SD Video Jacks

For analog and serial digital video applications at 270/360 Mbits, ADC's venerable SJ2000 is a logical choice. With a frequency response to 750 MHz, the SJ2000 has proven improved reliability for systems that do not require the advanced performance of ADC's super jacks.

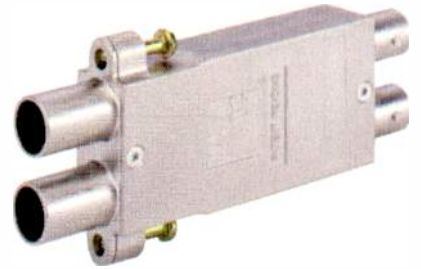


SJ2000/SJ2000N-75
Standard Size Video Jack

Standard Size HD Super Video Jacks

The new SVJ-2x standard size to BNC self-normalizing Super Video Jack family features performance matched for data rates up to and including HDTV in the full uncompressed 1.485 Gbits/second rate. The SVJ-2x combines the unique features of:

- 2.4 GHz bandwidth for the demanding HD data rates
- Sealed switch prevents internal contamination
- True 75 Ohm performance for a zero bit-error rate
- RFI shielding prevents ingress/egress
- 2x26 or 2x24 mounting in one rack space
- Unique captive mounting screws



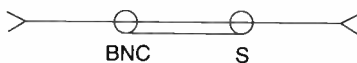
SVJ-2/SVJ-2T
Standard Size Super Video Jack

The SVJ-2x family is designed for use in high data rate applications including uncompressed HDTV, D1 digital video and all lower data rate video transmission methods.

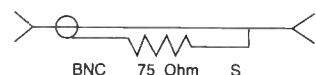
Standard Size Straight-Through Video Jacks

For applications requiring independent ground such as tie line panels, the straight-through CJ2014N and the self-terminating CJ2020N-75 jacks are the logical choice. The CJ2014N and CJ2020N-75 jacks mount on standard .625" centers and have a rated bandwidth up to 2.4 GHz for analog HDTV, L-band and S-band applications.

NOTE: The single terminating jacks cannot be installed directly adjacent to switching jacks due to interference with the terminating resistor housing. Leave one empty space between the CJ2020N-75 and switching jacks.



CJ2014N
Straight-through Standard Size Video Jack



CJ2020N-75
Straight-through Standard Size Video Jack
with 75 Ohm Termination



MUSA-Series Jacks and Accessories

With the development of the MUSA-series products, ADC becomes the first company worldwide to offer both MUSA standard and WECO standard mid-sized and standard-sized coaxial video jacks. ADC now offers a complete portfolio of MUSA-series panels and accessories including jacks, U-links, accessories, panels and patch cords. The new line of 75 Ohm HDTV-ready coaxial jacks and accessories offers superior electrical and mechanical performance as well as easier mounting options compared with current industry products.

Jack Features

- HDTV Super Video Jacks rated to 2.3+ GHz
- Return loss of -17db at 2.3 GHz
- Insertion loss of -.07db to 2.3 GHz
- Jacks rated to 10,000 insertions/withdrawls
- Patented dove-tail mounting system provides secure and easy jack replacement
- Exclusive captivated mounting screw
- Molded jack holder provides outstanding durability and isolation between adjacent jacks
- Compatible with BPO MUSA standard products



UL-SM1625
MUSA series U-Link



SMJ-2100N Jack

U-Link Features

- Ergonomically designed handle makes insertion/withdrawl easier, hole for pull chain
- Solderless construction — Wees and Rohs compliant
- Hi-performance U-Link matched for uncompressed HDTV signals (1.485 Gbit/s)
- Precision-molded insulators for truer impedance match and greater unit-to-unit consistency compared to machined plastic
- Unique closed-entry center conductor prevents damage and intermitance from misaligned male pins
- One-piece gold-plated center conductor
- Robust diecast body with insulated molded outer shell
- Transparent icon allows designation label underneath
- Plug-in color coded circuit icon available

Call an ADC distributor for more details. To find a distributor near you visit adc.com/partners

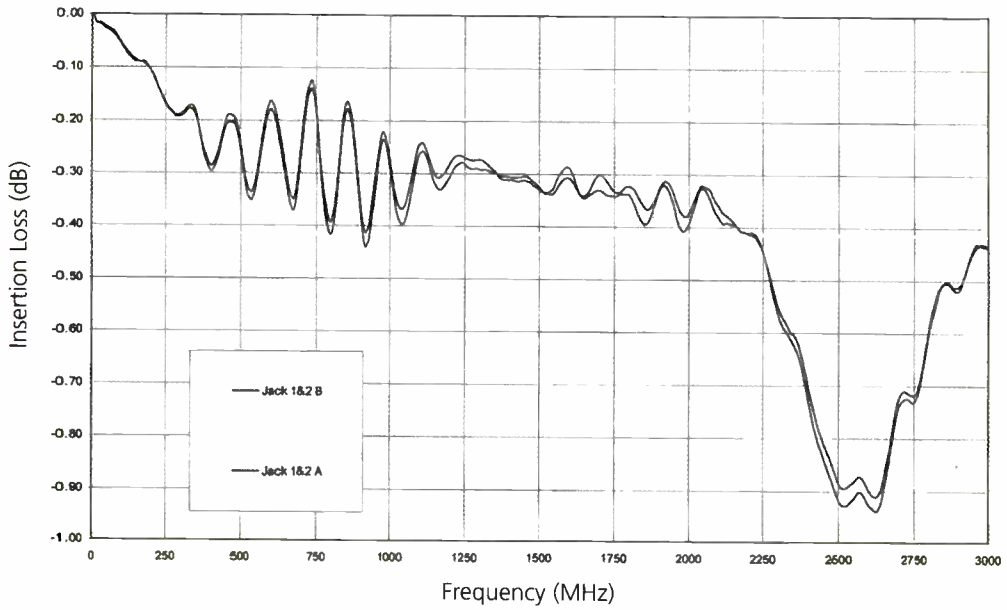


MUSA-Series Insertion and Return Loss

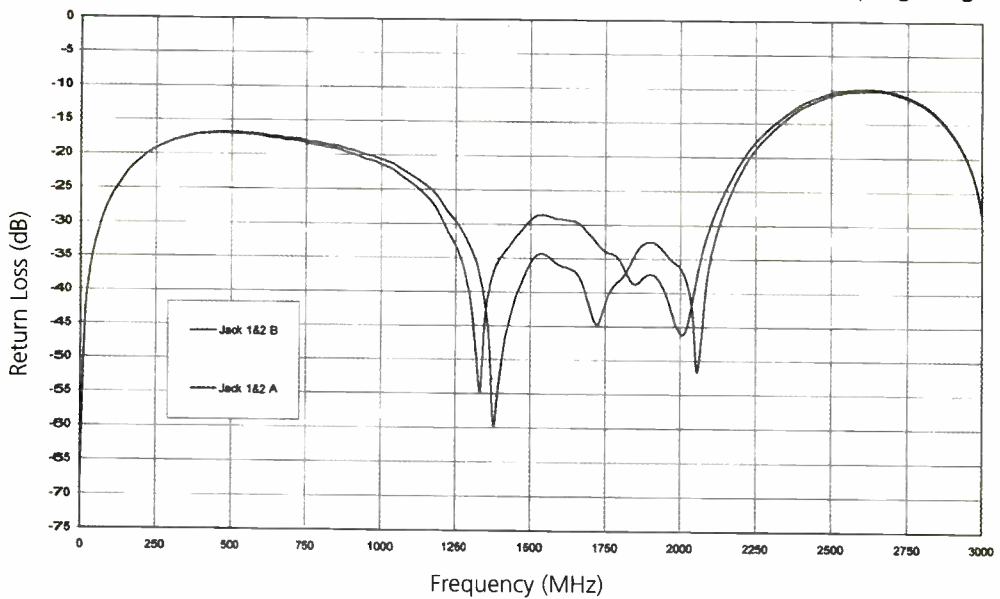
Broadcast Products

3/06 • 102117AE

Insertion Loss MUSA Video Connectors (SMJ-2100N) with Looping Plug



Return Loss MUSA Video Connectors (SMJ-2100N) with Looping Plug





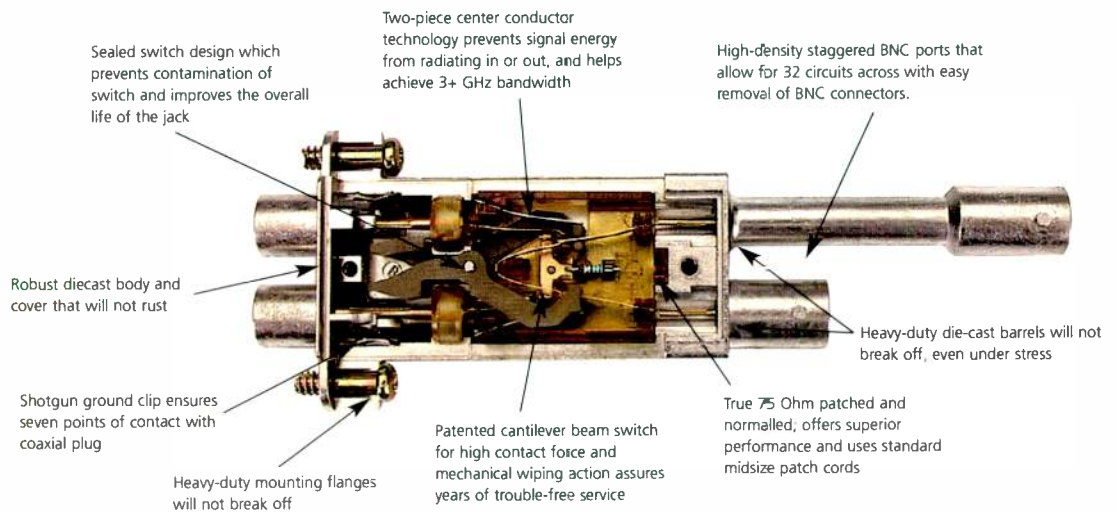
Video Jacks

WECO Midsize Video Jacks

Midsize video jacks have several advantages over standard size jacks in performance and size. All standard size video jacks observing WECO standards are, by definition, not 75 Ohm in the patched state (with the exception of ADC's SVJ-2 standard size Super Video Jack). The physical relationship of the center conductor diameter and the coaxial port diameter creates an impedance violation that causes the video impedance to drop to 58 Ohms in the patched state. In midsize video jacks, the physical relationship has been optimized, providing a constant impedance of 75 Ohm in either the normalled-through mode or the patched mode. This impedance advantage can make a considerable difference in the elimination of bit errors in digital signals especially if the circuit is routed through several patches. The midsize offers 33 percent higher density than standard size for 2x32 configurations, which match typical router decades.

Broadcast Products

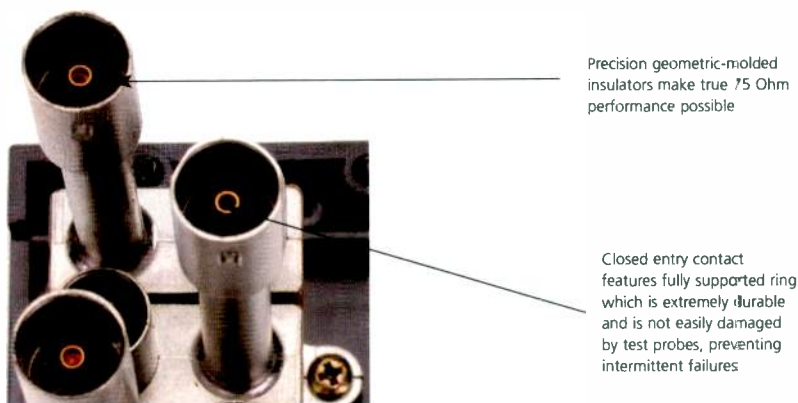
3 / 0 6 • 1 0 2 1 1 7 A E



MVJ-3 Midsize Super Video Jack Interior View

Video Jacks Offer Outstanding Performance Features

ADC video jacks feature precision geometric-molded insulators for true 75 Ohm performance. Closed-entry center contacts are designed to resist damage from damaged plugs or test probes.



Video Jacks

WECO MVJ-3 HD Super Video Jack

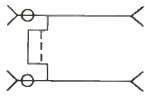
The MVJ-3 midsize to BNC self-normalizing Super Video Jack family is performance matched for data rates up to and including HDTV in the full uncompressed 1.485 Gbits/second rate. This premium jack includes a host of outstanding features highlighted in the interior view shown on the previous page.

Features

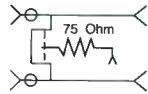
- 3.0+ GHz bandwidth
- Sealed switch
- 75 Ohm performance
- RFI shielding
- 2x32 mounting in one rack space
- Unique captive mounting screws
- Meet MIL-STD-202F for environmental and mechanical reliability



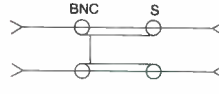
MVJ-3 Terminated
MVJ-3T Non-terminated
MVJ-3NN Non-normalled, non-terminated



MVJ-3



MVJ-3T



MVJ-3NN

Midsize Super Video Jack

Straight-through Midsized Video Jacks

For applications requiring independent ground such as tie line panels, the new straight-through CJ3014N and CJ4014N are the logical choice. The CJ3014N/CJ4014N jacks have a rated bandwidth up to 2.4 GHz for analog, serial digital, and HDTV video applications. For applications requiring self-terminating jacks, the CJ3014N-75 and the CJ4014N-75 are available.

The short body CJ3014N/3014N-75 and long body CJ4014N/4014N-75 are designed to be mounted in 32-across configurations. The jacks slide into a patented insulated holder with a dovetail joint, which provides outstanding durability and electronic isolation from adjacent jacks. The short and long bodies allow a staggered mounting pattern to provide access to the BNC connectors. A BNC insertion tool such as the BT2000 is recommended for BNC installation.



CJ3014N-75/CJ4014N-75 Terminated

A patented "dovetail" mounting device provides electrical isolation and outstanding durability as compared to tab-and-barrel mounting systems.



CJ3014N/CJ4014N Non-terminated

Jacks shown partially assembled to reveal the dovetail joint



Video Jacks and Accessories

Broadcast Products
3/06 • 102117AE

Ordering Information

Description	Ordering Number
Standard Size Jacks	
Single video jack, straight-through, non-terminated	CJ2014N
Single video jack, straight-through, terminated	CJ2020N-75
Dual self-normalling jack, non-terminated	SJ2000N
Dual self-normalling jack, 75 Ohm terminated	SJ2000N-75
Standard Size Super Video Jacks	
Dual self-normalling Super Video Jack, non-terminated	SVJ-2
Dual self-normalling Super Video Jack, 75 Ohm terminated	SVJ-2T
MUSA Standard Video Jacks	
Single Video Jack, MUSA standard HD	SMJ-Z100N
Midsize Jacks	
Single Video Jack, short body, straight-through, non-terminated	CJ3014N
Single Video Jack, short body, 75 Ohm terminated	CJ3014N-75
Single Video Jack, long body, straight-through, non-terminated	CJ4014N
Single Video Jack, long body, 75 Ohm terminated	CJ4014N-75
Midsize Super Video Jacks	
Dual self-normalling Super Video Jack, non-terminated	MVJ-3
Dual self-normalling Super Video Jack, 75 Ohm terminated	MVJ-3T
Dual non-normalled Super Video Jack, non-terminated	MVJ-3NN
Conversion Plugs and Adapters	
Standard size plug to BNC adapter	CP1051N
Standard size plug to BNC adapter, gold	CP1051G
Midsize plug to BNC adapter, short body	MBNC-3
Midsize plug to BNC adapter, long body	MBNC-3L
Standard size receptacle to midsize receptacle adapter	CAXADPT-1
Midsize plug to standard size receptacle adapter	CAXADPT-2
Standard size plug to midsize receptacle adapter	CAXADPT-3
Coax adapter MUSA plug to BNC	CAXADPT-MU/BNC
Coax adapter MUSA plug to standard receptacle	CAXADPT-MU/CPSTD
Coax adapter MUSA plug to midsized receptacle	CAXADPT-MU/CPMID
Coaxial Patch Plugs	
Standard size solder plug for 734	PGS-100016
Standard size solder plug for RG59	CP1041N
Standard size solder plug for RG59 gold	CP1041G
Midsize solder plug for RG59	CP1540N
Midsize crimp plug for RG59	CP1540N-CRIMP
Midsize crimp plug for RG59, gold	CP1540G-CRIMP
Midsize solder plug for 735	PGS-100018
Standard size HD crimp plug for Belden 1505F	CP-1045
Midsize HD crimp plug for Belden 1505F	CP-1545
MUSA HD crimp plug and boot for Belden 1505F bulk 25 units	CP-1-MU-A



CP1051N
Standard Size
Conversion Plug



CP1040N
Termination Plug



CP1540N
Midsize Plug



CAXADPT-1
Standard to Midsize
Conversion Adapter



CAXADPT-2
Midsize to Standard
Conversion Plug



CAXADPT-3
Standard to Midsize
Conversion Plug



MBNC-3
Midsize Plug to BNC Adapter



Video Accessories

Ordering Information

Description	Ordering Number
Termination and Looping Plugs Standard size 75 Ohm termination plug, nickel Midsize 75 Ohm termination plug, nickel Standard size HD looping plug, nickel Midsize HD looping plug, nickel MUSA HD-U-link, nickel MUSA 75 Ohm termination plug Circuit Guard Plugs sold in bags of 25 X = color of plug: BLACK, RED, BLUE, GREEN, YELLOW Standard size Midsize Humbucker Humbucking Coil	CP1040N CP1501N LP-S1625 LP-M1500 UL-SM1625 MUSA-TP2 CJP-S-X CJP-M-X HUM-1



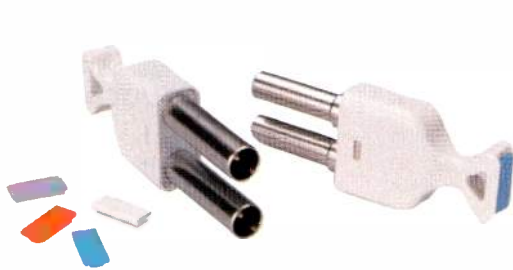
CAXADPT-MU/BNC
MUSA to BNC Adapter



CAXADPT-MU/CPSTD
MUSA to Standard Size Adapter



CAXADPT-MU/CPMID
MUSA to Mid Size Adapter



LP-S1625/LP-M1500
WECCO Series Looping Plugs



UL-SM1625
MUSA series U-Link

Humbucker

Common mode hum caused by differences in ground potential is often found in long video cables, incoming and outgoing lines, and separate power distribution systems. The ADC Humbucker eliminates 99.6 percent of a 10 Volt p-p 50/60 Hz ground-induced hum in a 200-foot (61 m) RG59 coaxial cable run. The actual amount of hum reduction depends on cable length, cable type, ground loop potential, and ground loop frequency.





Pro Patch™ Video Panels

Panel construction to meet your need and budget

Pro Patch™ video panels are available in a wide variety of panel configurations, jack types and even color options.

PPI series panels are the ideal solution when you need a rugged, full-featured panel that will stand up to the most demanding professional applications. These tough, attractive panels feature a rugged epoxy powder-coated steel weldment chassis with a durable molded ABS jack insert. The panels feature rear silk screening for port identification and an adjustable rear cable support bar for superior strain relief, and ADC's exclusive snap-over designation system that prevents cards and windows from coming loose from the panel as is common with other systems. The durable steel frame ensures against bent, cracked or broken rack ears, and the molded ABS inserts prevent stripped screws and cracked inserts common with phenolic panel inserts. The molded inserts are also available in a variety of colors to help segregate signal types such as AES audio, SDI video and HD video within a common facility. Panels are available in black or gray. PPI series panels are covered by an industry-exclusive 15 year** warranty against defects.

The PPE series panels are designed to offer ADC performance on a modest budget. The tough, attractive panels feature a rugged epoxy powder-coated steel faceplate with a durable molded ABS jack insert. The PPE series panels do not provide any rear silk screening for port identification or cable support bars, but are available with the same jack options as the full-featured PPI series panels. Designation strips are provided with clear slide-in acetate windows, upgradeable to ADC's exclusive snap-over designation system. The durable steel faceplate ensures against bent, cracked or broken rack ears, and the molded ABS inserts prevent stripped screws and cracked inserts common with phenolic panel inserts. PPE panels are covered by a one-year warranty against defects, upgradeable to 15-years (contact ADC for details).

**SVJ, MVJ, CJ, CJMID, and SMJ jacks



PPI2232-MVJ-BK
2 RU Midsize 2x32 Super Video Jack PPI Panel
(Rear View)



PPE1232-MVJ
1 RU Midsize 2x32 Super Video Jack PPE Panel
(Rear View)



Pro Patch™ PPI Series Video Panels

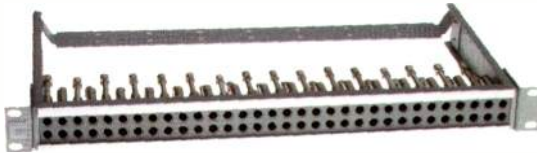
Features

Tough Professional Construction

- Welded steel chassis with high-impact ABS plastic-molded inserts
- Adjustable steel strain relief cable bar with holes for cable ties
- Highest quality, widest bandwidth, longest lasting jacks available. True 75 Ohm impedance
- Molded jack inserts come in a variety of colors and are much more durable than phenolic inserts; screws don't strip out
- Snap-on designation windows for labeling jacks
- All jack styles available
- 15 year warranty



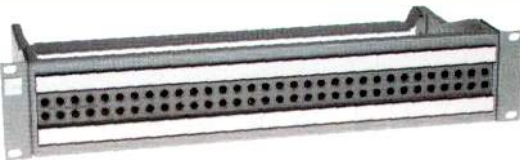
Colored molded jack inserts available as an option



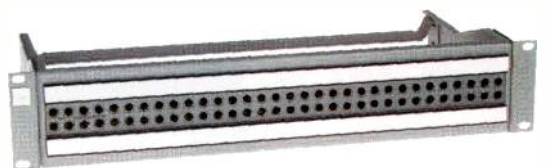
PPI1232-CJMID
1 RU Midsize 2x32 Straight-Through Jack Panel



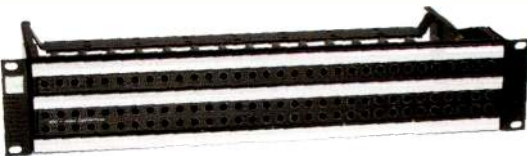
PPI15232-MVJT-BK
1.5 RU Midsize 2x32 Normal-Through Panel



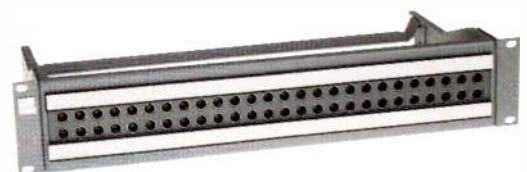
PPI2232-CJMID
2 RU Midsize 2x32 Straight-Through Jack Panel



PPI2232-MVJT
2 RU Midsize 2x32 Normal-Through Panel



PPI2332-MVJ-MON-BK
2 RU Midsize 3x32 Normal-Through with Monitor Panel



PPI2226-SVJ
2 RU Standard Size 2x26 Super Video Jack Panel

Broadcast Products

3106 • 102117AE

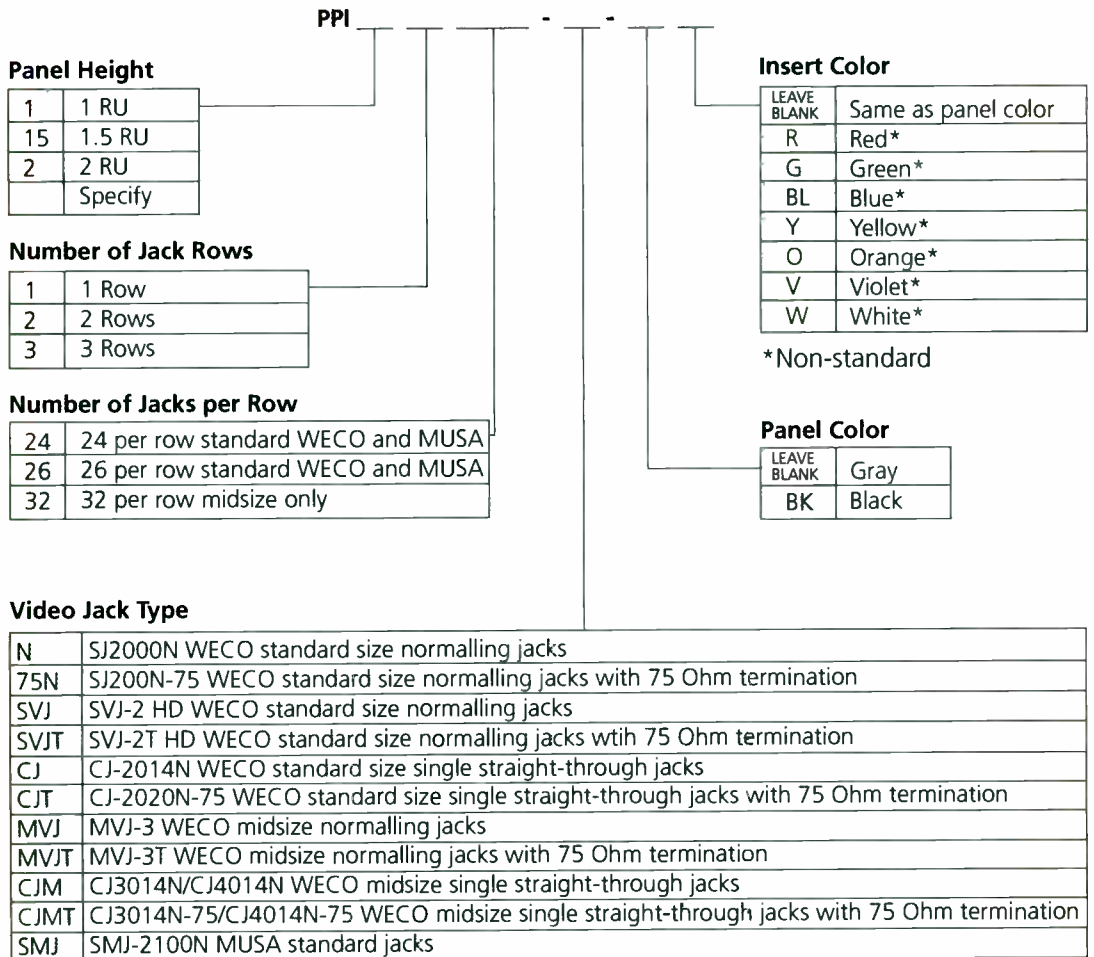


Pro Patch™ PPI Series Video Panels

With Cable Management

The information below explains the ordering numbers contained in the charts on this page and the next. Custom configurations are available; please contact ADC.

Ordering Number



*For information on this and other custom configurations, please contact ADC.



Pro Patch™ PPI Series Video Panels

3/06 • 102117AE Broadcast Products

Ordering Information

Description	Ordering Number
<p>PPI Panels, SVJ-2 Standard Size Dual Self-Normalling Super Video Jacks</p> <p>1.75" 2x24 SVJ-2 jacks, gray 1.75" 2x26 SVJ-2 jacks, gray 3.50" 2x24 SVJ-2 jacks, black 3.50" 2x24 SVJ-2 jacks, gray 3.50" 2x26 SVJ-2 jacks, black 3.50" 2x26 SVJ-2 jacks, gray</p>	<p>PPI1224-SVJ PPI1226-SVJ PPI2224-SVJ-BK PPI2224-SVJ PPI2226-SVJ-BK PPI2226-SVJ</p>
<p>PPI Panels, SVJ-2T Standard Size Dual Self-Normalling Super Video Jacks with 75 Ohm Termination</p> <p>1.75" 2x24 SVJ-2Tx jacks, gray 1.75" 2x26 SVJ-2Tx jacks, gray 3.50" 2x24 SVJ-2Tx jacks, black 3.50" 2x24 SVJ-2Tx jacks, gray 3.50" 2x26 SVJ-2Tx jacks, black 3.50" 2x26 SVJ-2Tx jacks, gray</p>	<p>PPI1224-SVJT PPI1226-SVJT PPI2224-SVJT-BK PPI2224-SVJT PPI2226-SVJT-BK PPI2226-SVJT</p>
<p>PPI Panels, CJ48/CJ52 Standard Size Straight-Through Video Jacks</p> <p>3.50" 2x24 48 single CJ2014N jacks, gray 3.50" 2x26 52 single CJ2014N jacks, gray 5.25" 2x26 CJ2011N jacks, 2x26 SJ2000N jacks, gray</p>	<p>PPI2224-CJ48 PPI2226-CJ52 PPI3426-CJ52-N</p>
<p>PPI Panels, CJ48/CJ52 Standard Size Straight-Through Video Jacks with 75 Ohm Termination</p> <p>3.50" 2x24 48 single CJ2020N-75 jacks, gray 3.50" 2x24 52 single CJ2020N-75 jacks, gray</p>	<p>PPI2224-CJ48T PPI2224-CJ52T</p>
<p>PPI Panels, MVJ-3 Midsize Dual Self-Normalling Super Video Jacks</p> <p>1.75" 2x32 MVJ-3 jacks, gray 1.75" 2x32 MVJ-3 jacks, black 2.63" 2X32 MVJ-3 jacks, black 3.50" 2x32 MVJ-3 jacks, gray 3.50" 2x32 MVJ-3 jacks, black 3.50" 3x32 MVJ-3 jacks with monitor, black</p>	<p>PPI1232-MVJ PPI1232-MVJ-BK PPI15232-MVJ-BK PPI2232-MVJ PPI2232-MVJ-BK PPI2332-MVJ-MON-BK</p>
<p>PPI Panels, MVJ-3T Midsize Dual Self-Normalling Super Video Jacks with 75 Ohm Termination</p> <p>1.75" 2x32 MVJ-3T jacks, gray 1.75" 2x32 MVJ-3T jacks, black 2.63" 2X32 MVJ-3T jacks, black 3.50" 2x32 MVJ-3T jacks, gray 3.50" 2x32 MVJ-3T jacks, black 3.50" 3x32 MVJ-3T jacks with monitor, black</p>	<p>PPI1232-MVJT PPI1232-MVJT-BK PPI15232-MVJT-BK PPI2232-MVJT PPI2232-MVJT-BK PPI2332-MVJT-MONT-BK</p>
<p>PPI Panels, CJ Series Midsize Straight-Through Jacks</p> <p>1.75" 2x32 midsize, straight-through, gray 1.75" 2x32 midsize, straight-through, black 3.50" 2x32 midsize, straight-through, gray</p>	<p>PPI1232-CJMID PPI1232-CJMID-BK PPI2232-CJMID</p>
<p>PPI Panels, CJ Series Midsize Straight-Through Jacks, with 75 Ohm Termination</p> <p>3.50" 2x32 midsize, straight-through, 75 Ohm terminated, gray 3.50" 2x32 midsize, straight-through, 75 Ohm terminated, black</p>	<p>PPI2232-CJMIDT PPI2232-CJMIDT-BK</p>
<p>PPI Panels, SMJ-2100 MUSA Straight-Through Jacks</p> <p>PPI Series HD MUSA 1 RU 2x24 SMJ-2100 with cable management, black PPI Series HD MUSA 1 RU 2x24 SMJ-2100 with cable management, gray PPI Series HD MUSA 1 RU 2x26 SMJ-2100 with cable management, black PPI Series HD MUSA 1 RU 2x26 SMJ-2100 with cable management, gray PPI Series HD MUSA 2 RU 2x24 SMJ-2100 with cable management, black PPI Series HD MUSA 2 RU 2x26 SMJ-2100 with cable management, black</p>	<p>PPI1224-SMJ-BK PPI1224-SMJ PPI1226-SMJ-BK PPI1226-SMJ PPI2224-SMJ-BK PPI2226-SMJ-BK</p>



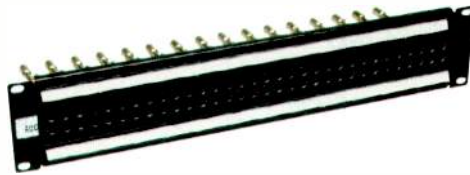
Pro Patch™ PPE Series Video Panels

Without Cable Management

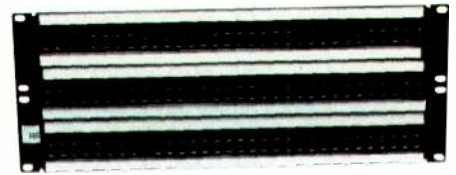
Features

- Steel chassis with high-impact ABS plastic-molded inserts
- Highest quality, widest bandwidth, longest lasting jacks available. True 75 Ohm impedance
- Acetate slide-in style designation windows
- Optional snap-over window available
- Available in all jack types
- 1 year warranty, upgradable to 15 years

The information below explains the ordering numbers contained in the charts on this page and the next. Custom configurations are available; please contact ADC.



PPE2232-MVJT-BK
2 RU 32-position



PPE4632-MVJT-BK
4 RU 32-position



PPE15224-SMJ-BK
1.5 RU 24-position MUSA panel



PPE1224-SMJ-BK
1 RU 24-position MUSA panel

Broadcast Products

3/06 • 102117AE

Catalog Number

PPE - - - - -

Panel Height	
1	1 RU
15	1.5 RU
2	2 RU
3	3 RU
4	4 RU

Number of Jack Rows	
1	1 row
2	2 rows
3	3 rows
4	4 rows
6	6 rows

Number of Jacks per Row	
24	24 per row standard WECO and MUSA
26	26 per row standard WECO and MUSA
32	32 per row midsize only

Panel Color	
LEAVE BLANK	Gray
BK	Black

Video Jack Type	
N	SJ2000N WECO standard size normalling jacks
75N	SJ200N-75 WECO standard size normalling jacks with 75 Ohm termination
SVJ	SVJ-2 HD WECO standard size normalling jacks
SVJT	SVJ-2T HD WECO standard size normalling jacks with 75 Ohm termination
CJ	CJ-2014N WECO standard size single straight-through jacks
CJT	CJ-2020N-75 WECO standard size single straight-through jacks with 75 Ohm termination
MVJ	MVJ-3 WECO midsize normalling jacks
MVJT	MVJ-3T WECO midsize normalling jacks with 75 Ohm termination
CJM	CJ3014N/CJ4014N WECO midsize single straight-through jacks midsize
CJMT	CJ3014N-75/CJ4014N-75 WECO midsize single straight-through jacks with 75 Ohm termination midsize
SMJ	SMJ-2100 MUSA standard jacks



Pro Patch™ PPE Series Video Panels

Without Cable Management

Ordering Information

Description	Ordering Number
PPE Panels, SJ2000N Standard Size Dual Self-Normalling Jacks 1.75" 2x24, SJ2000N jacks, black 1.75" 2x26, SJ2000N jacks, black 3.50" 2x24, SJ2000N jacks, black 3.50" 2x26, SJ2000N jacks, black	PPE1224-N-BK PPE1226-N-BK PPE2224-N-BK PPE2226-N-BK
PPE Panels, SJ2000N-75 Standard Size Dual Self-Normalling Jacks with 75 Ohm termination 1.75" 2x24 SJ2000N-75 jacks, 75 Ohm terminated, black 1.75" 2x26 SJ2000N-75 jacks, 75 Ohm terminated, black 3.50" 2x24 SJ2000N-75 jacks, 75 Ohm terminated, black 3.50" 2x26 SJ2000N-75 jacks, 75 Ohm terminated, black	PPE1224-75N-BK PPE1226-75N-BK PPE2224-75N-BK PPE2226-75N-BK
PPE Panels, SVJ-2 Standard Size Dual Self-Normalling Super Video Jacks 1.75" 2x24 SVJ-2 jacks, black 1.75" 2x26 SVJ-2 jacks, black 3.50" 2x24 SVJ-2 jacks, black 3.50" 2x26 SVJ-2 jacks, black	PPE1224-SVJ-BK PPE1226-SVJ-BK PPE2224-SVJ-BK PPE2226-SVJ-BK
PPE Panels, SVJ-2T Standard Size Dual Self-Normalling Super Video Jacks with 75 Ohm Termination 1.75" 2x24 SVJ-2T jacks, 75 Ohm terminated, black 1.75" 2x26 SVJ-2T jacks, 75 Ohm terminated, black 3.50" 2x24 SVJ-2T jacks, 75 Ohm terminated, black 3.50" 2x26 SVJ-2T jacks, 75 Ohm terminated, black	PPE1224-SVJT-BK PPE1226-SVJT-BK PPE2224-SVJT-BK PPE2226-SVJT-BK
PPE Panels, CJ Series Standard Size Single Straight-Through Jacks 1.75" 2x24 CJ2014N jacks, black 1.75" 2x26 CJ2014N jacks, black 3.50" 2x24 CJ2014N jacks, black 3.50" 2x26 CJ2014N jacks, black	PPE1224-CJ48-BK PPE1226-CJ52-BK PPE2224-CJ48-BK PPE2226-CJ52-BK
PPE Panels, CJ Series Standard Size Single Straight-Through Jacks with 75 Ohm Termination 1.75" 2x24 CJ2020N-75 jacks, 75 Ohm terminated, black 1.75" 2x26 CJ2020N-75 jacks, 75 Ohm terminated, black 3.50" 2x24 CJ2020N-75 jacks, 75 Ohm terminated, black 3.50" 2x26 CJ2020N-75 jacks, 75 Ohm terminated, black	PPE1224-CJ48T-BK PPE1226-CJ52T-BK PPE2224-CJ48T-BK PPE2226-CJ52T-BK
PPE Panels, SMJ-2100 MUSA Straight-Through Jacks PPE Series HD MUSA 1 RU 2x24 SMJ-2100, black PPE Series HD MUSA 1 RU 2x24 SMJ-2100, gray PPE Series HD MUSA 1 RU 2x26 SMJ-2100, black PPE Series HD MUSA 2 RU 2x24 SMJ-2100, black PPE Series HD MUSA 2 RU 2x24 SMJ-2100, gray PPE Series HD MUSA 2 RU 2x26 SMJ-2100, black PPE Series HD MUSA 4 RU 6x24 SMJ-2100, black PPE Series HD MUSA 4 RU 6x26 SMJ-2100, black	PPE1224-SMJ-BK PPE1224-SMJ PPE1226-SMJ-BK PPE2224-SMJ-BK PPE2224-SMJ PPE2226-SMJ-BK PPE4624-SMJ-BK PPE4626-SMJ-BK
Snap-Over Window Kits Window for all 1-rack unit standard WECO and MUSA 1.75" panels, 2 windows Window for all 1-rack unit midsize WECO 1.75" panels, 2 windows Window for all 1.5-rack unit and larger standard, midsize and MUSA, 1 window	VP-DES-279-A VP-DES-343-A HDW-101115

PPE Series panels are upgradeable to the 15-year warranty; contact ADC for details. Panels can be ordered without designation strips; contact ADC for details. Other configurations are available; contact ADC for details.

3706 • 102117AE Broadcast Products



Pro Patch™ PPE Series Video Panels

Ordering Information

Description	Ordering Number
<p>PPE Panels, MVJ-3 Midsize Dual Self-Normalling Super Video Jacks</p> <p>1.75" 2x32 MVJ-3 jacks, black 2.63" 2x32 MVJ-3 jacks, black 3.50" 2x32 MVJ-3 jacks, black 7.00" 6x32 MVJ-3 jacks, black</p>	<p>PPE1232-MVJ-BK PPE15232-MVJ-BK PPE2232-MVJ-BK PPE4632-MVJ-BK</p>
<p>PPE Panels, MVJ-3T Midsize Dual Self-Normalling Super Video Jacks with 75 Ohm Termination</p> <p>1.75" 2x32 MVJ-3T jacks, 75 Ohm terminated, black 2.63" 2x32 MVJ-3T jacks, 75 Ohm terminated, black 3.50" 2x32 MVJ-3T jacks, 75 Ohm terminated, black 7.00" 6x32 MVJ-3T jacks, 75 Ohm terminated, black</p>	<p>PPE1232-MVJT-BK PPE15232-MVJT-BK PPE2232-MVJT-BK PPE4632-MVJT-BK</p>
<p>PPE Panels, CJ Series Midsize Single Straight-Through Jacks</p> <p>1.75" 1x32 CJ3014N/CJ4014N jacks, black 1.75" 2x32 CJ3014N/CJ4014N jacks, black 2.63" 2x32 CJ3014N/CJ4014N jacks, black 3.50" 2x32 CJ3014N/CJ4014N jacks, black</p>	<p>PPE1132-CJM-BK PPE1232-CJM-BK PPE15232-CJM-BK PPE2232-CJM-BK</p>
<p>PPE Panels, CJ Series Midsize Single Straight-Through Jacks with 75 Ohm Termination</p> <p>1.75" 1x32 CJ3014N-75/CJ4014N-75 jacks, 75 Ohm terminated, black 1.75" 2x32 CJ3014N-75/CJ4014N-75 jacks, 75 Ohm terminated, black 2.63" 2x32 CJ3014N-75/CJ4014N-75 jacks, 75 Ohm terminated, black 3.50" 2x32 CJ3014N-75/CJ4014N-75 jacks, 75 Ohm terminated, black</p>	<p>PPE1132-CJMT-BK PPE1232-CJMT-BK PPE15232-CJMT-BK PPE2232-CJMT-BK</p>
<p>Snap-Over Window Kits</p> <p>Window for all 1-rack unit standard WECO and MUSA 1.75" panels, 2 windows Window for all 1-rack unit midsize WECO 1.75" panels, 2 windows Window for all 1.5-rack unit and larger standard, midsize and MUSA, 1 window</p>	<p>VP-DES-279-A VP-DES-343-A HDW-101115</p>

PPE Series panels are upgradeable to the 15-year warranty; contact ADC for details. Panels can be ordered without designation strips; contact ADC for details. Other configurations are available; contact ADC for details.

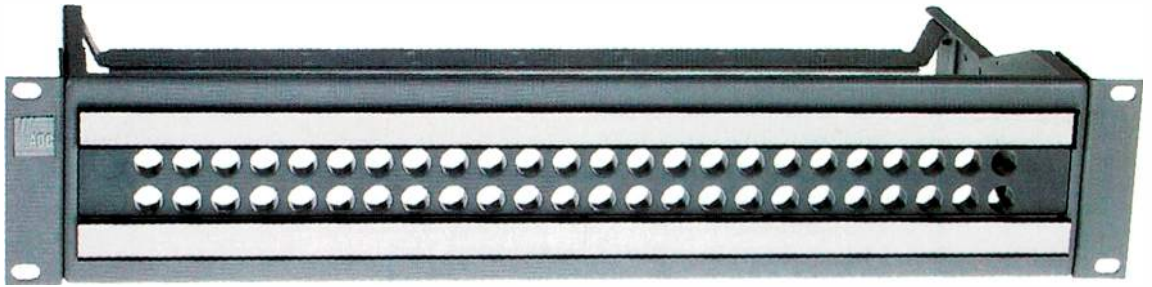
Broadcast Products

3/06 • 102117AE



Pro Patch™ Unloaded Video Panels

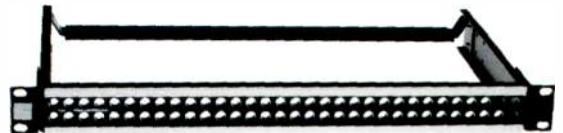
Create your own custom panel with ADC's complete line of unloaded video panels. Use the panel chassis and jack combination you want and assemble it yourself. You'll have ADC quality and reliability with your own personal design.



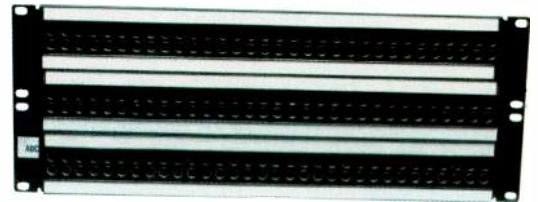
PPI2224
2 RU Standard Size 2x24 Unloaded Panel

Features

- Pro Patch™ PPI series unloaded video panels come in 1 RU and 2 RU models. They feature a tough steel weldment chassis with molded ABS jack insert and a strong, adjustable steel cable support bar with holes for cable ties.
- ProPatch™ PPE Series unloaded video panels come in 1, 2, 3 and 4 RU models. They feature a rugged steel faceplate with molded ABS jack inserts.
- Panels are available for standard size jacks in 2x24, 2x26, and 3x26 arrays. For midsize jacks, panels are available in 2x32 and 3x32 arrays. When ordering jacks, alternating short and long jacks to ease cabling.



PPI1232-BK
1 RU Midsize 2x32 Unloaded Panel



PPE4632-BK
6x32 Unloaded Panel

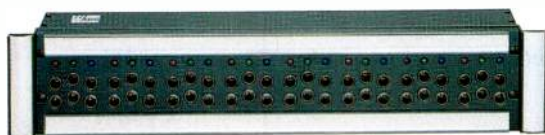


Component Patching System (CAPS)

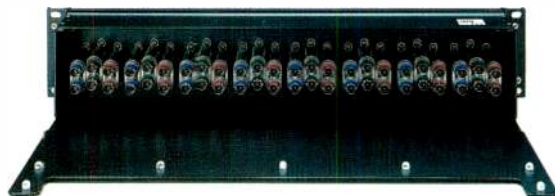
The CAPS Component Patching System for analog or digital component video provides the ideal combination of modular flexibility, durability, and preconfigurability all in one system. The steel 2 RU modular panel with cable tray can be preconfigured with a full complement of jacks, or you can order an empty panel and add easily installed jack modules as needed. Modules and preconfigured panels are available in a variety of configurations. Also, see the UniPatch® modular system beginning on page 6.



CV-M-N
RGB Module



CV-8-N
2 RU 8 RGB Group Patchbay



2 RU CV-8-N (Rear View)



CV-6-MHV-3T Component Patching System

Features

- 2 RU epoxy powder-coated steel panel, including top cover and cable tray with cable wrap holes for superior strain relief
- Order panel preconfigured, or order an empty panel and add modules as needed
- Jack groups for RGB, P_PY, RGB + Sync, or RGB + horizontal and vertical sync
- Standard and midsize jacks of all kinds: dual self-normal, straight-through singles, straight with termination, and super (high-definition) dual self-normal
- Horizontal and vertical designation strip holders included



Component Patching System (CAPS)

Broadcast Products
3/06 • 102117AE

Ordering Information

Description	Ordering Number
Loaded Patchbays	
8 RGB, P _P , Y group panel SJ2000N jacks	CV-8-N
SJ2000N-75 jacks	CV-8-N75
10 RGB + Sync group panel (jacks grouped vertically) SVJ-2T jacks	CV-10-S-SVJT
CJ2011 single jacks	CV-10-S-CJ2011
8 RGB, P _P , Y group panel CJ2011N single jacks	CV-8-CJ2011N
6 RGB + horizontal and vertical sync MVJ-3T midsize jacks	CV-6MHV-3T
Modular Patchbays	
Chassis - 3.5" x 19" (8.89 x 48.26 cm) accommodates up to 8 RGB group modules	CV-CM
One RGB, P _P , Y group module SJ2000N jacks	CV-M-N
Blank module	CPPV-B
Panels without Jacks	
8 RGB, P _P , Y group panel	CV-8-NJ
6 RGB + Sync group panel	CV-6-NJ
RGB, P_P, Y Video Patch Cords	
Black, three-conductor cable, standard size plugs	
2 ft./61 m	CVPC-2
3 ft./93 m	CVPC-3
4 ft./1.2 m	CVPC-4
6 ft./1.83 m	CVPC-6

Custom panel configurations are available; please contact ADC.

Ordering Information

Description	Ordering Number
Time Delayed Patchbay For patching of timed analog video circuits; requires use of 3' patch cord only 2x24, delayed compensated patchbay, 3.5" x 19" (8.89 x 48.26 cm), utilizes SJ1000N-75	PPV-24MKII



Video Patch Cords



ADC offers high-quality video patch cords capable of handling uncompressed high-definition digital video, serial digital video, and analog as well as AES audio. ADC patch cords feature a patented True 75 Ohm design that virtually eliminates bit errors, are made of the highest quality materials and provide excellent mechanical durability.

The digital television revolution is stretching the limits of the physical plant technology designed for analog video copper. Cable and connectors not optimized for the digital environment can seriously degrade the digital signal being transported. The problem is that all WECO-standard jacks and patch cords exhibit an impedance violation of between 58 and 62 Ohm in the patched state. This becomes a major source of attenuation and bit errors in serial digital and high-definition video signals.

Patented HD Patch Cords

ADC's ST series standard-size patch cords feature a patented design that provides a true 75 Ohm interface in the patched state when used with ADC's SVJ-2 super video jack family. ST series maintains the WECO interface for maximum industry compatibility and provides a true 75 Ohm interface.

HD Rated VX Series

ADC's VX™ standard, midsize and MUSA standard video patch cords feature a unique plug design that optimizes impedance performance during the patched state. The unique plug design is optimized for HD video applications for WECO midsize and MUSA formats. For WECO standard size HD patching, the ST series is recommended.

Both designs reduce or eliminate attenuation and bit errors in serial digital and high-definition video signals, especially in the uncompressed mode.

Features

- Patented design provides a 75 Ohm interface in the patched state
- Standard size compatible with all WECO .090 standard video jacks
- Performance matched for uncompressed HDTV signals (1.485 Gbit/s)
- Gastight crimp design. 100 percent solderless construction assures quality
- Precision-molded insulators for truer impedance match and greater unit-to-unit consistency compared to machined plastic
- HD-rated 1505F cable with matte finish
- Full-molded strain relief defeats abuse
- Gold-plated center conductors
- Available in red, green, blue, black, orange, yellow, violet, and white in 2-foot (.6 m) to 6-foot (1.8 m) lengths
- MUSA format features unique closed-entry center pin to prevent breakage.



Video Patch Cords

Ordering Information

Description	Ordering Number				
For all WECO Standard Size 2x24 and 2x26 Panels					
WECO Standard Size VX to Standard Size VX Plug	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1-VX	BK2-VX	BK3-VX	BK4-VX	BK6-VX
Red	R1-VX	R2-VX	R3-VX	R4-VX	R6-VX
Orange	O1-VX	O2-VX	O3-VX	O4-VX	O6-VX
Yellow	Y1-VX	Y2-VX	Y3-VX	Y4-VX	Y6-VX
Green	G1-VX	G2-VX	G3-VX	G4-VX	G6-VX
Blue	B1-VX	B2-VX	B3-VX	B4-VX	B6-VX
Violet	V1-VX	V2-VX	V3-VX	V4-VX	V6-VX
White	W1-VX	W2-VX	W3-VX		W6-VX
WECO ST Standard Size ST HD to Standard Size Plug	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1V-ST5	BK2V-ST5	BK3V-ST5	BK4V-ST5	BK6V-ST5
Red	R1V-ST5	R2V-ST5	R3V-ST5	R4V-ST5	R6V-ST5
Orange	O1V-ST5	O2V-ST5	O3V-ST5	O4V-ST5	O6V-ST5
Yellow		Y2V-ST5	Y3V-ST5	Y4V-ST5	Y6V-ST5
Green		G2V-ST5	G3V-ST5	G4V-ST5	G6V-ST5
Blue		B2V-ST5	B3V-ST5	B4V-ST5	B6V-ST5
Violet		V2V-ST5	V3V-ST5	V4V-ST5	V6V-ST5
White		W2V-ST5	W3V-ST5	W4V-ST5	W6V-ST5
WECO Standard Size VX to BNC	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1VX-B	BK2VX-B	BK3VX-B	BK4VX-B	BK6VX-B
Red	R1VX-B	R2VX-B	R3VX-B	R4VX-B	R6VX-B
Orange	O1VX-B	O2VX-B	O3VX-B	O4VX-B	O6VX-B
Yellow		Y2VX-B			
Blue	B1VX-B	B2VX-B	B3VX-B	B4VX-B	B6VX-B
Violet					V6VX-B
WECO Standard Size ST HD to BNC	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1V-ST5-B	BK2V-ST5-B	BK3V-ST5-B	BK4V-ST5-B	BK6V-ST5-B
Red	R1V-ST5-B	R2V-ST5-B	R3V-ST5-B	R4V-ST5-B	R6V-ST5-B
Orange	O1V-ST5-B	O2V-ST5-B	O3V-ST5-B	O4V-ST5-B	O6V-ST5-B
Yellow		Y2V-ST5-B	Y3V-ST5-B		Y6V-ST5-B
Green	G1V-ST5-B	G2V-ST5-B	G3V-ST5-B	G4V-ST5-B	G6V-ST5-B
Blue	B1V-ST5-B	B2V-ST5-B	B3V-ST5-B	B4V-ST5-B	B6V-ST5-B
Violet					V6V-ST5-B

Note: Standard patch cord colors are black, red, orange, yellow, green, blue, violet and white. These color cords are available in the standard lengths shown above; please contact ADC for additional custom lengths and leadtime.

3/06 • 102117AE Broadcast Products



Video Patch Cords

Ordering Information

Description	Ordering Number				
For all WECO Mid Size 2x32 Panels					
WECO Midsize Plug to Midsize Plug	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1V-STM	BK2V-STM	BK3V-STM	BK4V-STM	BK6V-STM
Red	R1V-STM	R2V-STM	R3V-STM	R4V-STM	R6V-STM
Orange	O1V-STM	O2V-STM	O3V-STM	O4V-STM	O6V-STM
Yellow		Y2V-STM	Y3V-STM	Y4V-STM	Y6V-STM
Green	G1V-STM	G2V-STM	G3V-STM	G4V-STM	G6V-STM
Blue	B1V-STM	B2V-STM	B3V-STM	B4V-STM	B6V-STM
Violet	V1V-STM	V2V-STM	V3V-STM	V4V-STM	V6V-STM
White	W1V-STM	W2V-STM	W3V-STM	W4V-STM	W6V-STM
WECO Midsize Plug to BNC	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black		BK2V-STM-B	BK3V-STM-B	BK4V-STM-B	BK6V-STM-B
Red		R2V-STM-B	R3V-STM-B	R4V-STM-B	R6V-STM-B
Orange	O1V-STM-B	O2V-STM-B	O3V-STM-B	O4V-STM-B	O6V-STM-B
Yellow		Y2V-STM-B	Y3V-STM-B	Y4V-STM-B	Y6V-STM-B
Green		G2V-STM-B	G3V-STM-B	G4V-STM-B	G6V-STM-B
Blue		B2V-STM-B	B3V-STM-B	B4V-STM-B	B6V-STM-B
Violet		V2V-STM-B	V3V-STM-B		V6V-STM-B
White		W2V-STM-B	W3V-STM-B		W6V-STM-B

Note: Standard patch cord colors are black, red, orange, yellow, green, blue, violet and white. These color cords are available in the standard lengths shown above; please contact ADC for additional custom lengths and leadtime.

Broadcast Products

3 / 0 6 • 1 0 2 1 1 7 A E



Video Patch Cords

Ordering Information

	Ordering Number				
For all MUSA Series 2x24 and 2x26 Panels					
MUSA to MUSA (HD)	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK300V-MU	BK600V-MU	BK900V-MU	BK1200V-MU	BK1800V-MU
Red	R300V-MU	R600V-MU	R900V-MU	R1200V-MU	R1800V-MU
Orange	O300V-MU	O600V-MU	O900V-MU	O1200V-MU	O1800V-MU
Yellow	Y300V-MU	Y600V-MU	Y900V-MU	Y1200V-MU	Y1800V-MU
Green	G300V-MU	G600V-MU	G900V-MU	G1200V-MU	G1800V-MU
Blue	B300V-MU	B600V-MU	B900V-MU	B1200V-MU	B1800V-MU
Violet	V300V-MU	V600V-MU	V900V-MU	V1200V-MU	V1800V-MU
White	W300V-MU	W600V-MU	W900V-MU	W1200V-MU	W1800V-MU
MUSA to BNC	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK300V-MU	BK600V-MU	BK900V-MU	BK1200V-MU	BK1800V-MU
Red	R300V-MU	R600V-MU	R900V-MU	R1200V-MU	R1800V-MU
Orange	O300V-MU	O600V-MU	O900V-MU	O1200V-MU	O1800V-MU
Yellow	Y300V-MU	Y600V-MU	Y900V-MU	Y1200V-MU	Y1800V-MU
Green	G300V-MU	G600V-MU	G900V-MU	G1200V-MU	G1800V-MU
Blue	B300V-MU	B600V-MU	B900V-MU	B1200V-MU	B1800V-MU
Violet	V300V-MU	V600V-MU	V900V-MU	V1200V-MU	V1800V-MU
White	W300V-MU	W600V-MU	W900V-MU	W1200V-MU	W1800V-MU
MUSA to F	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK300V-MU-F	BK600V-MU-F	BK900V-MU-F	BK1200V-MU-F	BK1800V-MU-F
Red	R300V-MU-F	R600V-MU-F	R900V-MU-F	R1200V-MU-F	R1800V-MU-F
Orange	O300V-MU-F	O600V-MU-F	O900V-MU-F	O1200V-MU-F	O1800V-MU-F
Yellow	Y300V-MU-F	Y600V-MU-F	Y900V-MU-F	Y1200V-MU-F	Y1800V-MU-F
Green	G300V-MU-F	G600V-MU-F	G900V-MU-F	G1200V-MU-F	G1800V-MU-F
Blue	B300V-MU-F	B600V-MU-F	B900V-MU-F	B1200V-MU-F	B1800V-MU-F
Violet	V300V-MU-F	V600V-MU-F	V900V-MU-F	V1200V-MU-F	V1800V-MU-F
White	W300V-MU-F	W600V-MU-F	W900V-MU-F	W1200V-MU-F	W1800V-MU-F
MUSA to RCA	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK300V-MU	BK600V-MU	BK900V-MU	BK1200V-MU	BK1800V-MU
Red	R300V-MU	R600V-MU	R900V-MU	R1200V-MU	R1800V-MU
Orange	O300V-MU	O600V-MU	O900V-MU	O1200V-MU	O1800V-MU
Yellow	Y300V-MU	Y600V-MU	Y900V-MU	Y1200V-MU	Y1800V-MU
Green	G300V-MU	G600V-MU	G900V-MU	G1200V-MU	G1800V-MU
Blue	B300V-MU	B600V-MU	B900V-MU	B1200V-MU	B1800V-MU
Violet	V300V-MU	V600V-MU	V900V-MU	V1200V-MU	V1800V-MU
White	W300V-MU	W600V-MU	W900V-MU	W1200V-MU	W1800V-MU
MUSA to WECO Standard ST-HD	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK300V-MU-STs	BK600V-MU-STs	BK900V-MU-STs	BK1200V-MU-STs	BK1800V-MU-STs
Red	R300V-MU-STs	R600V-MU-STs	R900V-MU-STs	R1200V-MU-STs	R1800V-MU-STs
Orange	O300V-MU-STs	O600V-MU-STs	O900V-MU-STs	O1200V-MU-STs	O1800V-MU-STs
Yellow	Y300V-MU-STs	Y600V-MU-STs	Y900V-MU-STs	Y1200V-MU-STs	Y1800V-MU-STs
Green	G300V-MU-STs	G600V-MU-STs	G900V-MU-STs	G1200V-MU-STs	G1800V-MU-STs
Blue	B300V-MU-STs	B600V-MU-STs	B900V-MU-STs	B1200V-MU-STs	B1800V-MU-STs
Violet	V300V-MU-STs	V600V-MU-STs	V900V-MU-STs	V1200V-MU-STs	V1800V-MU-STs
White	W300V-MU-STs	W600V-MU-STs	W900V-MU-STs	W1200V-MU-STs	W1800V-MU-STs

Note: Standard patch cord colors are black, red, orange, yellow, green, blue, violet and white. These color cords are available in the standard lengths shown above; please contact ADC for additional custom lengths and leadtime.

3/06 • 102117AE Broadcast Products



Video Patch Cords

Ordering Information

Description	Ordering Number				
Other Coax Patchcords					
F to F	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1V-F	BK2V-F	BK3V-F	BK4V-F	BK6V-F
Red	R1V-F	R2V-F	R3V-F	R4V-F	R6V-F
Orange	O1V-F	O2V-F	O3V-F	O4V-F	O6V-F
Yellow	Y1V-F	Y2V-F	Y3V-F	Y4V-F	Y6V-F
Green	G1V-F	G2V-F	G3V-F	G4V-F	G6V-F
Blue	B1V-F	B2V-F	B3V-F	B4V-F	B6V-F
Violet	V1V-F	V2V-F	V3V-F	V4V-F	V6V-F
White	W1V-F	W2V-F	W3V-F	W4V-F	W6V-F
RCA to RCA	1 ft./ .3m	2 ft./ .61m	3 ft./ .93m	4 ft./1.22m	6 ft./1.83m
Black	BK1V-R	BK2V-R	BK3V-R	BK4V-R	BK6V-R
Red	R1V-R	R2V-R	R3V-R	R4V-R	R6V-R
Orange	O1V-R	O2V-R	O3V-R	O4V-R	O6V-R
Yellow	Y1V-R	Y2V-R	Y3V-R	Y4V-R	Y6V-R
Green	G1V-R	G2V-R	G3V-R	G4V-R	G6V-R
Blue	B1V-R	B2V-R	B3V-R	B4V-R	B6V-R
Violet	V1V-R	V2V-R	V3V-R	V4V-R	V6V-R
White	W1V-R	W2V-R	W3V-R	W4V-R	W6V-R

Note: Standard patch cord colors are black, red, orange, yellow, green, blue, violet and white. These color cords are available in the standard lengths shown above; please contact ADC for additional custom lengths and leadtime.

Integrated Cable Organization Network (ICON®)

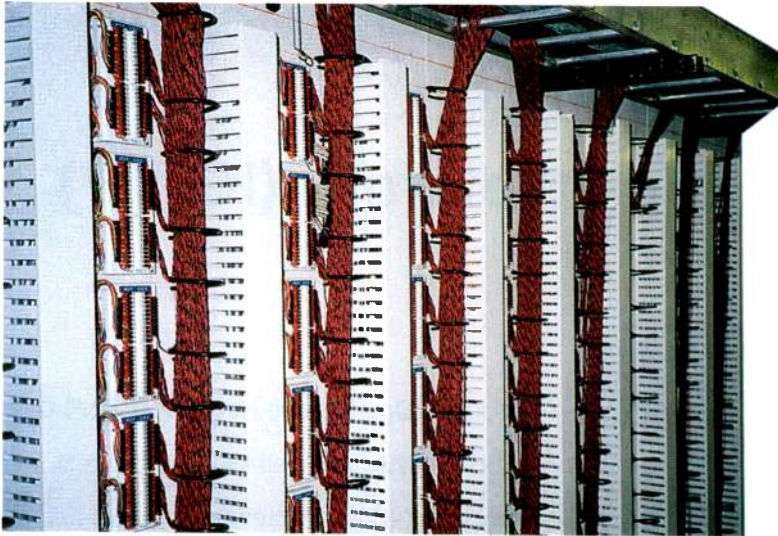


Integrated Organization Network (ICON®) Overview	72
ICON® I-W Modular Wall-Mount System.....	74
ICON® Rack-Mount System	78
I-WS Super High-Density Wall-Mount System	81
Video ICON® System	83
Ethernet/Data Connectivity	86



Integrated Cable Organization Network (ICON®)

Main Distribution Frames



A Fully Functional ICON® Twisted Pair System

Broadcast Products

3 / 0 6 • . 0 2 1 , 7 Δ F

The MDF Concept

Clean, Simple, Secure, Cable Management

Integrated Cable Organization Network (ICON®) brings clean, simple order to any professional audio/video production.

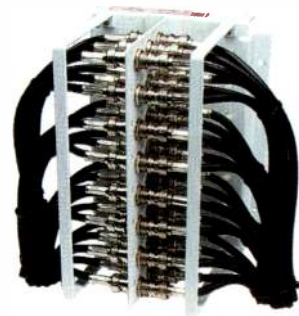
The ICON Main Distribution Frame system pulls all of your audio, video, and data cabling together into a neatly organized central termination and distribution point where interconnections are easily managed.

Compared to point-to-point cabling, this system saves time and money, reduces the number of cables and cable disorganization at the equipment, and allows you to change connections quickly, and provides critical system redundancy.

ICON systems use fast-installing and reliable QCP II or QCP IV punchdown connectors. Input connections punchdown on one side of the unit, output connections on the other side, and jumpers to interconnect them punch down on the back.

Other connector types are also available.

ADC has ICON systems to suit any application. For small jobs, we make compact rack- and wall-mount units. For facility-wide management, we offer large rack- and wall-mount systems that can grow as your facility grows.



VIW-24 Video ICON® 24-connector Wall-Mount Bulkhead Panel



Integrated Cable Organization Network (ICON®)

ICON® Models for Every Application

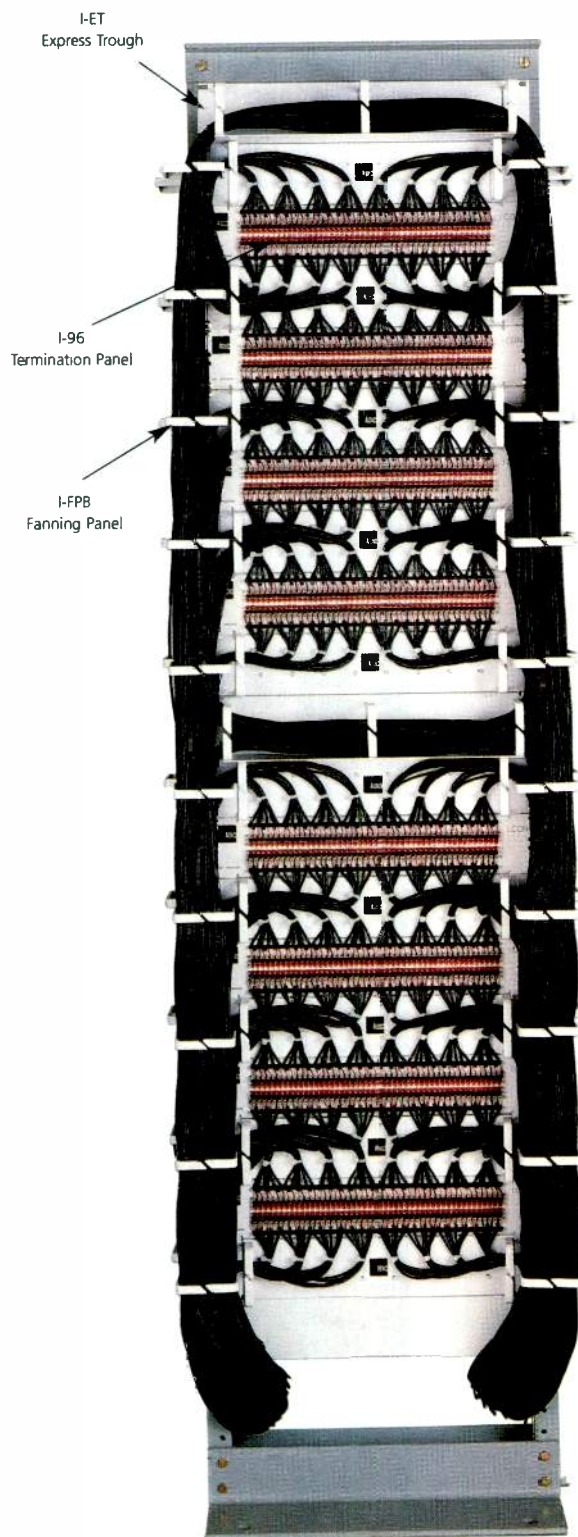
Whether your facility has abundant floor space to accommodate a rack-based ICON system or you need to fit the system into tight spaces by mounting it on the wall, ADC makes a cable management system to meet your requirements:

- I-96 series audio rack-mount system for 19-inch equipment racks
- I-W series audio wall-mount system
- I-WS space-saving super high-density audio wall-mount system
- VI Video ICON rack-mount system for 19- and 23-inch equipment racks
- VIW Video ICON wall-mount system
- Cable management hardware, such as fanning panels and cable bars and rings, are available for each ICON system to ensure all cabling is routed neatly and securely

Labor-saving, Flexible, and Reliable QCP Audio Connections

ICON audio cable management systems feature ADC's proven punchdown cable termination system for fast, efficient, and secure interconnections. QCP offers these advantages:

- Reduced installation time with fast, easy punchdown terminals
- Reliable gastight connections because of patented QCP split-cylinder design
- Reusable contacts allow easy circuit changes without disturbing adjacent contacts
- Color-coded and numbered contacts prevent wiring mistakes



Fully Loaded I-96 Rack-Mount System with Fanning Panels and Express Troughs. Handles 768 balanced audio pairs

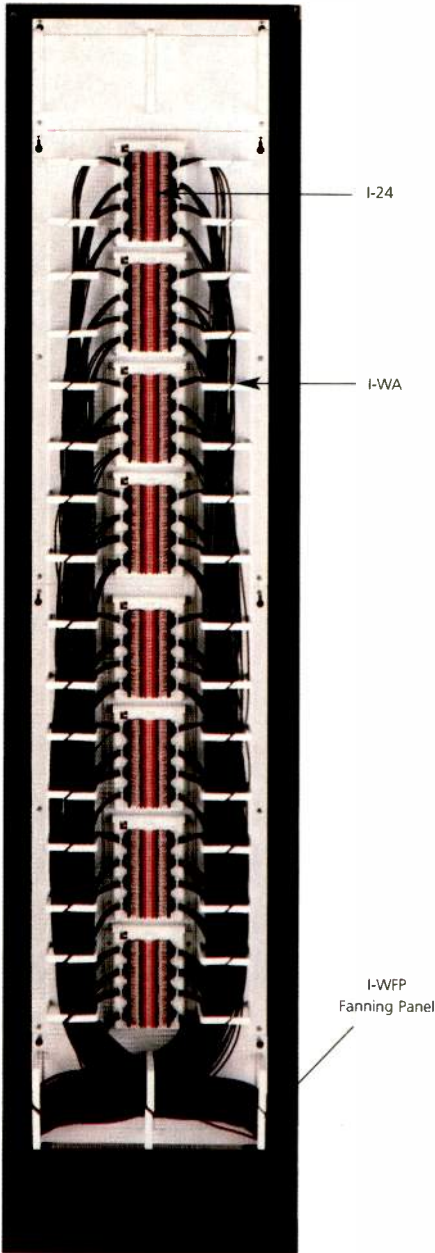


NEW!

ICON® I-W Modular Wall-Mount System

The ICON® I-W is a wall-mount audio cable management system ideally suited for use where floor space is at a premium but wall space is available. The convenient front-facing design mounts flat against the wall and provides two appearances of each circuit on the terminal blocks. Cabling to and from your equipment punches down on the right side array of contacts, and cross-connections to these circuits are made on the left side array of contacts. This makes it easy to change cross-connections without disturbing equipment wiring. Modules are available for twisted pair audio, BNC, F, DB9, and Ethernet bulkhead panels, 4 sub panels fit on each I-W Frame.

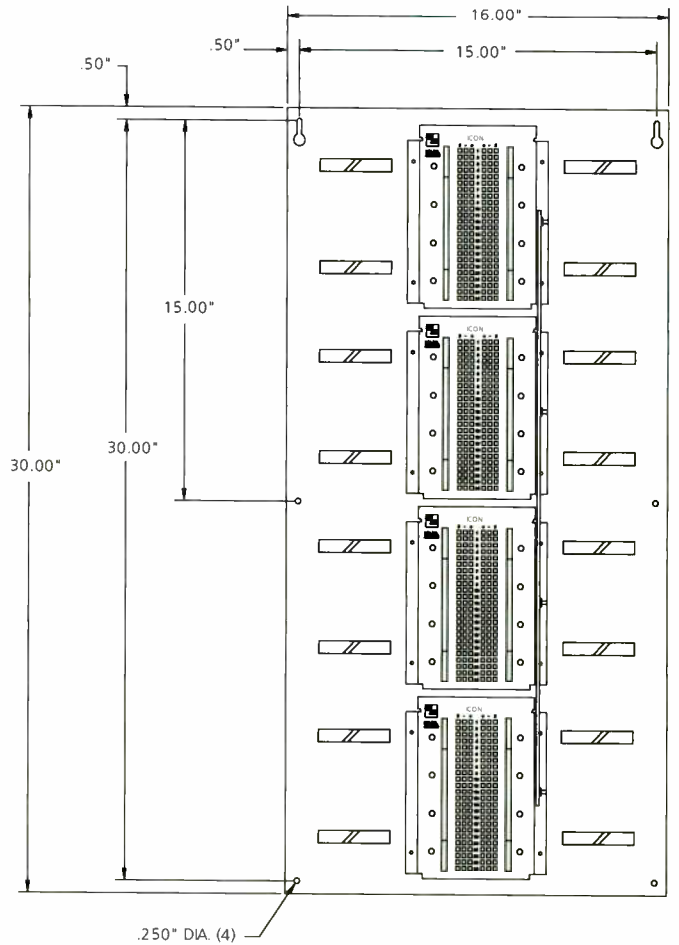
3/06 • 102117AE Broadcast Products



I-W System handles 192 balanced audio pairs in 16-inches by 5-feet

An I-W system is assembled from the following components:

- I-WA or I-WB wall-mount frame holds four I-24 QCP terminal blocks
- I-24 QCP termination block terminates or cross-connects 24 balanced audio circuits



I-W-MKII Frame Dimensions

Note: MKIV dimensions are different. See page 195 for dimensions.



NEW!

ICON® I-W Modular Wall-Mount System

The new ICON I-W Wall-Mount System offers modularity in a convenient wall-mounted system.

Broadcast Products
3/06 • 102117AE



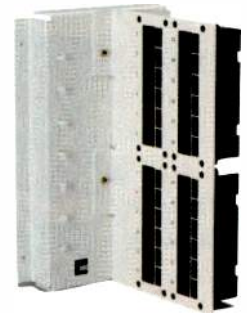
IW-MKIV-PNL Frame with IW-24-AMP-E3 (24 position E3) and IW-24-AMP-E3 (24 position, E3-AMP)



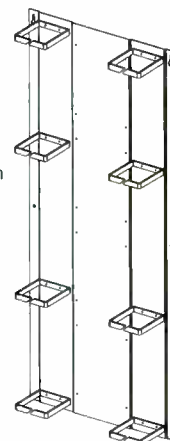
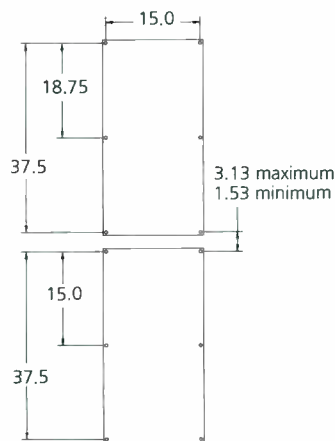
IW-VI-24 24 position, BNC, Bulkhead panel



IW-24-D9 24 position, DB9, turnaround panel



IW-5E-24 24 position, RJ45 OATSE/CAT6 Ethernet bulkhead panel



Mounting hole pattern for wall mount panels

Note: "A" denotes no rear jumpers; B denotes strapped rear jumpers, C denotes strapped rear jumpers, common sleeve

Note: MKIV dimensions are different. See page 195 for dimensions.

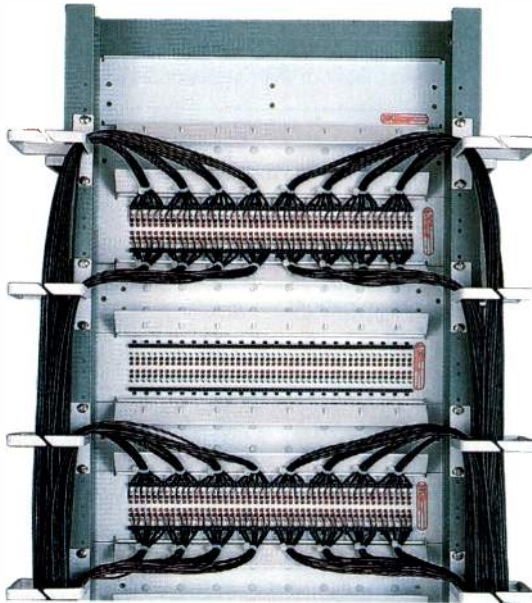


NEW!

ICON® I-W Modular Wall-Mount System



ICON® Rack-Mount System

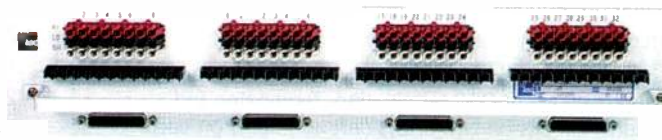


I-96 System
(Rear View)

The ICON® I-96 high-density rack-mount audio cable management system installs in a standard 19-inch (48 cm) EIA equipment rack and is engineered for easy access to front and rear connections. The rack-mounted QCP II or QCP IV punchdown panels are quick to connect, and the feedthrough design allows changing of cross-connection jumpers on the front without disturbing connections on the rear. Multiple I-96 panels can be installed for up to 768 circuits in a fully loaded 7-foot rack.



I-116-D9F
1 RU Dsub9 Feedthrough Rack-Mount Control Panel Breakout Panel



I-DB25
2 RU QCP IV/DB-25 Rack-Mount Panel



I-96-E
2 RU QCP II/EDAC 90-Pin Plug Rack-Mount Panel



I-96-AMP
2 RU AMP 50-Pin Receptacle Panel (Rear View)

Broadcast Products

3/06 • 102117AE



ICON® Rack-Mount System

Modular Rack-Mountable Components

The system is built around rack-mountable modular components that you can assemble in different combinations to create the system you require:

- The I-96 QCP II or QCP IV punchdown connection panel terminates and cross-connects 96 balanced audio circuits in 2 RU
- The I-FPB or I-FPD fanning panel dresses and provides strain relief for cables above or below the I-96 panel. Models are available in 1 RU and 2 RU
- Rack-mounted cable troughs and rings are available in various configurations to guide cables in the rack or along rack rails
- I-96 connectors available include QCP II, QCP IV, AMP 50-pin receptacle, and EDAC 90-pin plug

Broadcast Products

3/06 • 102117AE



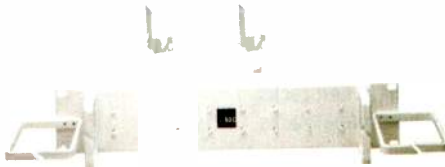
I-96B-MKIV
2 RU QCP IV Panel



I-VR
Vertical Ring



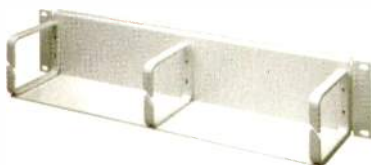
I-96B-MKIV
Rear View Showing Jumpers



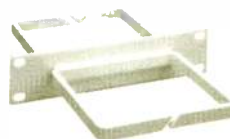
I-FPB
Fanning Panel



I-96S 3 RU QCP II Hinged Termination Panel



I-ET
Express Trough



I-FL
Fanning Panel



I-FPD
Fanning Panel



ICON® Rack-Mount System

3/06 • 102117AE Broadcast Products

Ordering Information	
Description	Ordering Number
QCP Panels - EIA Rack-Mount 19"/48 cm	
2 RU panel QCP II cross-connects, 96 balanced audio circuits	I-96
2 RU panel QCP IV cross-connects, 96 balanced audio circuits	I-96-MKIV
2 RU QCP II to ELCO/EDAC 3-pin plug, cross-connects, 96 audio circuits	I-96-3E
2 RU QCP II to AMP 50-pin receptacle, cross-connects, 96 audio circuits	I-96-AMP
2 RU QCP II to EDAC 90-pin plug, cross-connects, 96 audio circuits	I-96-E
2 RU QCP II with rear jumpers, cross-connects, 96 audio circuits	I-96B
2 RU QCP IV with rear jumpers, cross-connects, 96 audio circuits	I-96B-MKIV
2 RU QCP IV hinged left, cross-connects, 96 audio circuits, black	I-96S-MKIV-BK
3 RU QCP II for 23" rack, cross-connects, 96 audio circuits	I-96S
1 RU panel Dsub9 receptacles, 1x16	I-116-D9F
2 RU hinged panel QCP II cross-connects, 96 balanced audio circuits	I-96S-19B
1 RU panel QCP IV cross-connects, 32 balanced audio circuits	I-32-DES-W
2 RU panel QCP II cross-connects, 48 balanced audio circuits	I-48
2 RU panel QCP II to AMP 50-pin receptacle, 52 circuits	I-52-AMP
1 RU panel QCP II to EDAC 90-pin plug, 52 circuits	I-52-E
1 RU panel QCP IV cross-connects, 16 balanced audio circuit and 1 video bulkhead feedthrough	I-CS-V8
Fanning Panels - EIA Rack-Mount 19"/48 cm	
2 RU panel with cable rings for routing cables horizontally. Used with multiple racks with I-FL (listed below) mounted between racks to route cables vertically and provide additional strain relief	I-FPD
1 RU panel with cable rings for routing cables horizontally. Used with multiple racks with I-FL (listed below) mounted between racks to route cables vertically and provide additional strain relief	I-FPD-1RU
2 RU panel with rings for horizontal or vertical cable routing Includes 2 rings to vertically route cables in the rear; to be used with a standalone channel rack	I-FPB
Vertical Cable Ring/Spacers	
Functions as a spacer mounted between channel racks and routes cabling from both the front and the rear of I-FPBs	I-FL
Ring for vertical cable routing; mounts on front or rear rack rails	I-VR
Express Troughs - EIA Rack-Mount 19"/48 cm	
2 RU express trough for horizontal cable routing between racks	I-ET-3
3 RU express trough for horizontal cable routing between racks	I-ET-5
4 RU express trough for horizontal cable routing between racks	I-ET-7

All products listed above are white unless otherwise noted.



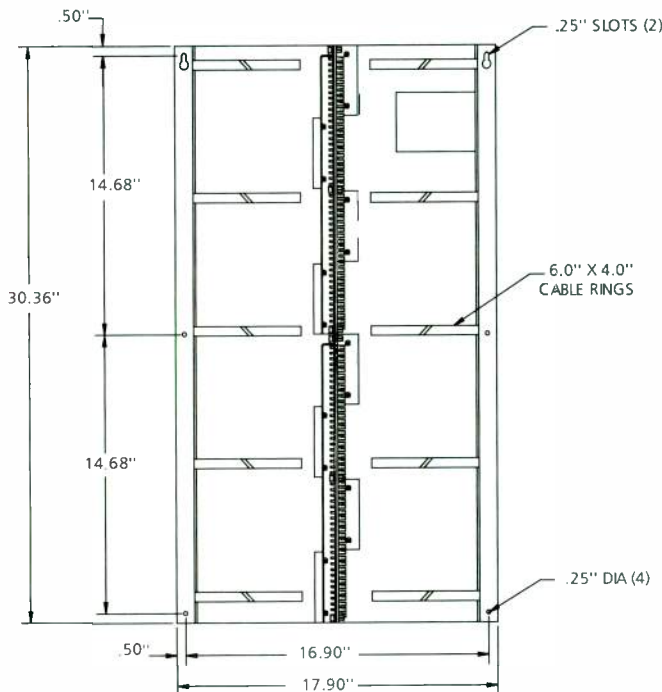
I-WS Super High-Density Wall-Mount System

The ICON® I-WS is a super high-density wall-mount cable management system engineered for maximum space efficiency. The I-WS system terminates or cross-connects up to 192 balanced audio circuits in a 31.0 x 17.9-inch (79.0 x 45.5 cm) QCP II frame or in a 34.6 x 17.9-inch (87.9 x 45.5 cm) QCP IV frame. The I-WS frame holds two 96-circuit QCP II or QCP IV punchdown panels mounted on edge, 90 degrees relative to the wall to provide access to connections on both sides, an extremely space-efficient arrangement. Cabling from your equipment connects on the left side of the panel, and the feedthrough design allows cross-connect access to those circuits on the right side without affecting the equipment wiring. Two I-WS frames can be stacked to achieve 384 balanced audio pairs in only 62-inches of vertical wall space.

I-WS System Components

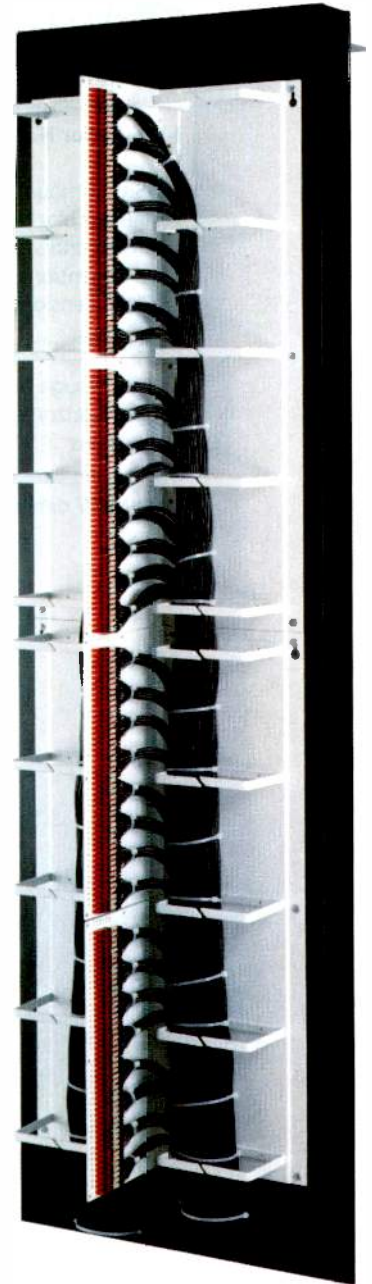
The I-WS system consists of the following main components. You can start with a single frame and panels and expand to additional frames as needed.

- I-WS wall-mount frame holds two I-WS-PANEL assemblies and includes vertical cable rings and fanning strips terminating a total of 192 circuits
- QCP II or QCP IV 96-circuit punchdown terminal block panel mounts in the I-WS-PANEL
- I-WSSET express trough mounts above or below I-WS frame and routes cables horizontally



I-WS Frame MKII Dimensions

Note: MKIV dimensions are different. See page 195 for dimensions.



Two stacked I-WS frames
Provides 384 balanced audio pairs
in 62-inches of vertical wall space

Broadcast Products
3/06 • 102117AE

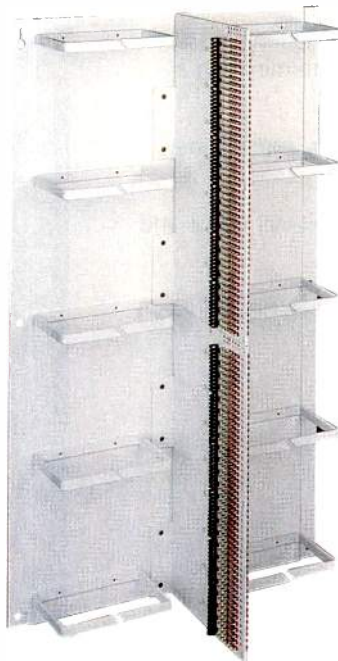


I-WS Super High-Density Wall-Mount System

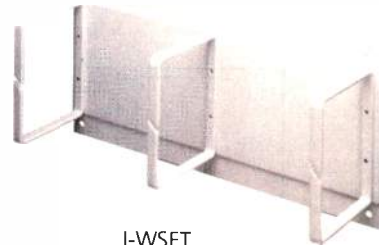
Ordering Information

Description	Ordering Number
<p>I-WS Super High-Density Wall-Mount System</p> <p>I-WS wall-mount frame includes I-WS-PANEL with QCP II or QCP IV connector blocks mounted 90° from the wall. Terminates or cross-connects 192 balanced audio circuits.</p> <p>I-WS dimensions: 31" x 17.9" (79 cm x 45.5 cm) MKIV dimensions: 34.6" x 17.9" (87.9 x 45.5 cm)</p> <p>I-WS-PANEL mounts on the I-WS frame and holds the QCP blocks.</p> <p>Express trough mounts above, between, or below I-WS and routes cabling horizontally between frames.</p> <p>Dimensions: 7.5" x 17.9" (19 cm x 45 cm)</p>	<p>I-WS I-WS-MKIV I-WS-PANEL I-WSET</p>

Note: MKIV dimensions are different. See page 195 for dimensions.



I-WS
Super Density Wall-Mount Frame



I-WSET
Express Trough

3/06 • 102117AE Broadcast Products



Video Integrated Organization Network (ICON®)

The Video ICON® Cable Management

The Video ICON cable organizational network system makes installations of coax cable cleaner and identification of cables simpler. These panels are perfect for any application where video cables need to be gathered, such as making connections between racks or organizing cables for inputs to and outputs from a router.

ADC offers a wide variety of these durable powder-coated steel video distribution panels, featuring the outstanding quality and true 75-Ohm performance of our coax bulkhead feedthrough connectors. These connectors are rated at 3 GHz performance, making them suitable for analog, SD, or HD video signals. Panels are available in 1 RU and 2 RU models as well as a wide range of wall-mount sizes with as few as eight and as many as 96 circuits, in one, F and F to BNC configurations.

Durable Rack-Mounted Bulkhead Panels

The ICON VI series is a complete line of 19-inch (48 cm) rack-mounted bulkhead video cable management panels starting from the small 12-circuit VI-12 panel to the full-sized VI-48 with 48 bulkhead coax circuits. Each panel is made of the same strong powder-coated steel and uses high-quality 3 GHz coax bulkhead connectors suitable for HDTV.

- VI-12 and VI-16 2 RU panels handle 12 or 16 circuits for small applications, such as organizing monitor outputs or the inputs and outputs of a small router
- VI-24 and VI-32 2 RU panels provide 24 and 32 circuits for moderately-sized applications, such as feeding cables to a 32-input router
- The VI-132 (2x32) 1 RU panel provides the largest number of inputs and outputs in the smallest space
- VI-48 2 RU panel handles 48 circuits for larger applications
- Colors available include white, putty white, and black
- Some models include designation strip holders for circuit identification
- Insulated and non-insulated available



Exclusive ADC closed-entry center pin resists damage



Conventional center pins prone to damage



VI-12-PTY
12-circuit BNC panel



BNC-BLK-48-75 Ohm
48-circuit BNC panel

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products



Video Integrated Organization Network (ICON®)

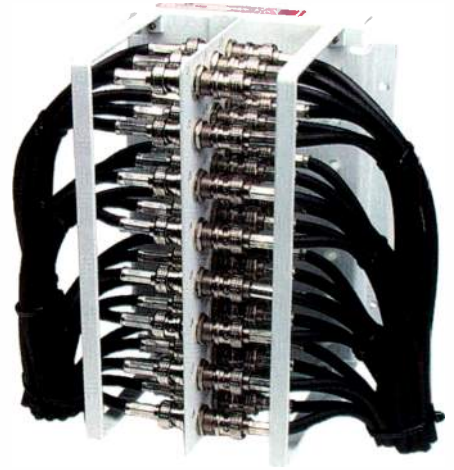
Wall-Mount Bulkhead Panels

For facilities where rack space is at a premium but wall space is readily available, ADC offers the VIW Video ICON® wall-mount video bulkhead panel series. These tough powder-coated steel panels mount on the wall and provide from eight to 96 video bulkhead connectors for managing cables between racks or between studios. Top-quality 3 GHz bulkhead connectors ensure the best video performance from analog to HDTV transmission rates.

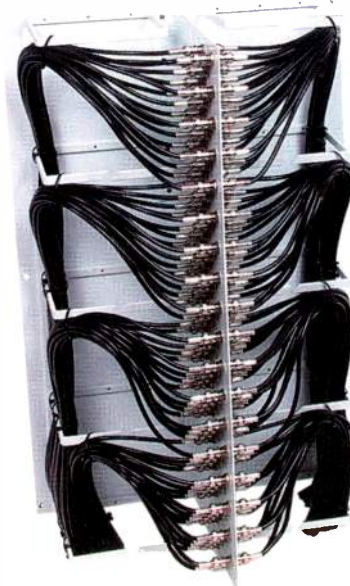
- VIW-8 (1x8) and VIW-408 (4x8) for small applications
- VIW-424 (4x24), VIW-64 (2x32), and VIW-72 for intermediate size applications. The VIW-64 is ideal for managing cables for a 64-input router matrix
- VIW-96 (3x32) for larger uses, such as organizing inputs and outputs for a large router matrix
- Cable support bars or rings included on most models



VIW-8
8-Connector Bulkhead
Wall-Mount Panel



VIW-24
24-Connector Bulkhead
Wall-Mount Panel



VIW-64
64-Connector Bulkhead
Wall-Mount Panel



Video ICON®

ICON Video BNC Bulkhead Panels

Ordering Information

Description	Number of Circuits	Ordering Number
75 Ohm 19" Rack Mount BNC Bulkhead Panels		
2 RU 2x6, putty	12	VI-12-PTY
2 RU 2x6, white	12	VI-12-W
1 RU 1x16 with designation strips, white	16	VI-116-DES-W
2 RU 2x8 with designation strips, putty	16	VI-16-PTY
2 RU 2x10 with designation strips, putty	20	VI-20-PTY
2 RU 2x12, putty	24	VI-24-PTY
2 RU 2x12 with vertical and horizontal rings, black	24	VI-24VHR-BK
2 RU 2x16 with designation strips, black	32	VI-32-BK
2 RU 2x16 with designation strips, putty	32	VI-32-PTY
2 RU 2x16 with upper and lower designation strips, white	32	VI-32-W
2 RU 2x16 with lower and middle designation strips, white	32	VI-32-DES-W
2 RU 3x16 with designation strips, black	48	VI-48-BK
2 RU 3x16 with designation strips, putty	48	VI-48-PTY
2 RU 3x16 with designation strips, white	48	VI-48-W
2 RU 2x24 with designation strips, black	48	VI-48-TTDES-BK
2 RU 2x24 with designation strips, gray	48	VI-48-TTDES-G
1 RU 2x16 empty BNC panel for ADC bulkhead BNCs	32	VI-132-PNL-BK
75 Ohm 23" Rack Mount BNC Bulkhead Panels		
2 RU 2x18 with top and bottom designation strips, putty	36	VI-36-23-DES-PTY
2 RU 2x24 with upper and lower designation strips, black	48	VI-48-23-DES-BK
2 RU 2x24 with upper and middle designation strips, black	48	VI-48-23-TT-DES-BK
75 Ohm 19" Rack Mount BNC Bulkhead Panels with Cable Tray		
2 RU 2x6 with cable tray, white	12	VI-12-TR-W
2 RU 2x12 with cable tray, white	24	VI-24-TR-W
1 RU 2x16 with cable tray, black	32	VI-132-TR-BK
2 RU 2x16 with cable tray, putty	32	BNC-BLK-32-TR75
75 Ohm 23" Rack Mount BNC Bulkhead Panels with Cable Tray		
2 RU 2x14 with cable tray, putty	28	VI-28-BBG
2 RU 2x18 with cable tray, black	36	BNC-BLK-36-TR-1U-B
2 RU 2x24 with cable tray, black	48	BNC-BLK-48-TR-2U-B
2 RU 2x24 with cable tray, putty	48	BNC-BLK-48-TR-2U-P
75 Ohm Wall-Mount BNC Bulkhead Panels		
1x8 wall mount bulkhead panel, Fits on I-W Frame	8	VIW-8
3x8 wall mount bulkhead panel, Fits on I-W Frame	24	VIW-24
24-circuit bulkhead panel	32	VIW-408
64-circuit bulkhead panel	64	VIW-64
72-circuit bulkhead panel	72	VIW-72
96-circuit bulkhead panel	96	VIW-424
96-circuit bulkhead panel	96	VIW-96
75 Ohm F81 Connector Rack Mount Bulkhead Panels		
2 RU 1x6 BNC, 1x6 F81 connector with tray, white	12	VI-12-BNC-F-W
1 RU 19" 1x16 F81 connector panel with designation strip, putty	16	VI-16F-19-PTY
2 RU 19" 3x16 F81 connector panel with designation strip, putty	48	VI-48F-19-PTY
2 RU 23" 2x24 F81 connector panel with designation strip, putty	48	VI-48F-23-PTY

Broadcast Products

3/06 • 102117AE

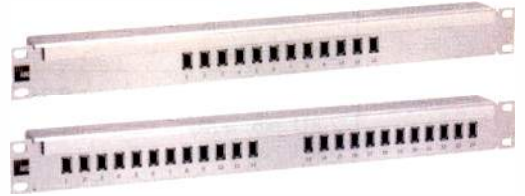


Ethernet/Data Connectivity

ADC IEEE 1394a FireWire® Patch Panel

Features

- IEEE 1394a compatible six-pin connectors
- 400Mb/s bandwidth
- High-density, 24 ports in one rack unit
- Plated panel housing to facilitate superior shielding and grounding
- Designation and port numbering



ADC continues its leadership role in broadcast connectivity with the development of the new 1394a FireWire® patch panel. The panel accommodates 24 ports in one rack unit and mounts in standard 19-inch racks. The panel offers customers a passive interconnection solution for their digital video editing needs. Industry-compatible six-pin IEEE 1394a connectors on both the front and rear of the panel allow customers to interconnect cameras, servers, workstations, and non-linear editing suites via FireWire at 400Mb/s bandwidth. The result is increased flexibility and productivity without sacrificing performance and reliability.

Ordering Information

Description	Dimensions	Ordering Number
One rack unit 24-port 1394a compatible FireWire patch panel	1.75" x 19" x 2.25" (4.45 x 48.26 x 5.75 cm)	VI-124-1394
One rack unit 12 port 1394a compatible Firewire patch panel		VI-II2-SB-1394

Note: FireWire® is a registered trademark of the 1394 Trade Association

RJ45 Coupler Panel

ADC's Broadcast Ethernet coupler panels provide feed-through data and voice connectivity on the front and rear for CAT5e and CAT6 applications. Broadcast versions feature extra heavy-duty frames and come with .480" designation strips. ADC's RJ45 coupler panel provides feed-through data and voice connectivity on the front and rear for Category 5e and 6 applications. Connectivity on the front of the panel accommodates standard RJ45 patch cords. Connectivity for hubs, routers and other active equipment on the back of the panel is also designed for RJ45 patch cords – creating a convenient connection field for data applications. Includes port labeling for front and rear. Width is 48.26 cm (19-inch).

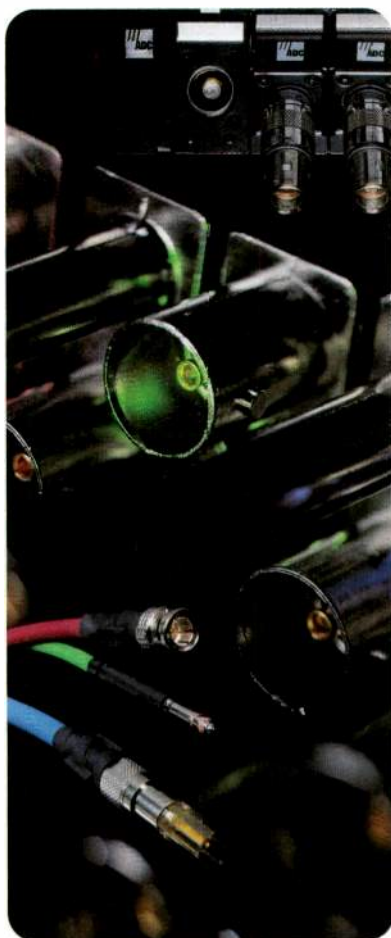
Ordering Information

Description	Port Count	Category	Rack Units	Ordering Number
RJ45 coupler panel,	24	5e	1	ADCPP24505-DES
	24	6	1	ADCPP24606-DES



ADCPP24505-DES
RJ45 Coupler Panel
(Front View)

Connectors and Accessories



75 Ohm BNC Connectors	88
75 Ohm Precision F Connectors	90
Precision RCA Connectors	91
Ordering Information for Connector	92
Connectors Tools and Accessories	99
ProAx™ Triaxial Camera Connectors	104



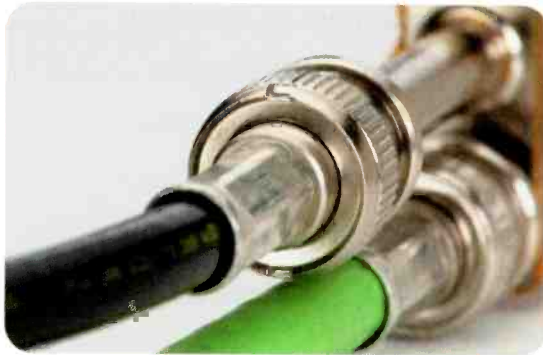
Connector Products

75 Ohm BNC Connectors



ADC's BNC connectors are the most reliable and universally accepted method of terminating coaxial cable in the market today. Outstanding electrical performance (up to 3 GHz) is achieved by unique design elements in the industry's truest 75-Ohm connector. Precision-molded insulators with locking gold-plated center conductors ensure true 75-Ohm characteristic impedance. Innovative features result in significant reduction of impedance mismatch throughout the network and improved transmission reliability in digital applications.

An idea whose time has come, the new notched BNC series from ADC makes it easy to spot BNC connectors that are not properly latched to BNC jacks. This is especially helpful with high-density coax panels such as ADC's midsize video product offering where terminations are very tight, and in the back of dark racks.



Index notches at 12 and 6 make it easy to spot when BNCs are not properly locked



Unlocked



Locked

Features

- Designed to exceed the rigorous demands of today's telecom CATV and broadcast environment including SMPTE 259, 274, and 292M standards
- Outstanding electrical performance up to 3 GHz
- Gold-plated, locking center conductor
- True 75 Ohm characteristic impedance end-to-end
- Compatible with hex, square, and 12-point crimp tools and select competitive crimp tools and die sets
- Tarnish-resistant, nickel-plated body and machine bayonet
- Sizes for multiple cable types
- Meets or exceeds MIL-C-39012 requirements
- 100% North American/European precision components



Connector Products

75 Ohm BNC Connectors

For all types of digital applications, ADC's true 75 Ohm BNC connector products ensure outstanding electrical performance, improved transmission, and enhanced reliability. ADC offers a complete line of straight, right angle, and bulkhead connectors, complemented by adapters, terminating plugs, and accessories.

- True 75 Ohm characteristic impedance through the entire connector
- Outstanding electrical performance to 3 GHz
- Tarnish-resistant, nickel-plated body and bayonet
- Compatible with select competitive crimp tools and die sets
- Sizes for multiple cable types
- Meets or exceeds all requirements in MIL-C-39012

Straight BNC Plug Connectors

Features

- Designed to exceed the rigorous demands of today's broadcast environment, including SMPTE 259, 274, and 292M standards
- Gold-plated, locking center conductor
- .625" crimp sleeve for greater pulloff force
- 100 percent guided mating
- Compatible with telco 12-point crimp tools
- Strip lengths common between sizes and types (except for Belden 7731/CommScope 7530, RG11 Cable)



Right Angle BNC Plug Connectors

Features

- Right angle design alleviates stress associated with bending cable
- Provides increased density
- Improves overall cable management
- Bulk packaging available
- Center conductor pins and crimp sleeves are fully interchangeable with ADC's straight plugs for same cable type



Bulkhead Jack Connectors

Features

- Easier, more reliable termination; gold-plated locking center conductor ensures proper alignment during termination
- 100 percent guided mating
- Exclusive closed-entry contact prevents center conductor damage from non-standard BNCs or test probes
- Eliminates one termination point when used as a bulkhead connector





Connector Products

75 Ohm Precision ADC F Connectors



ADC's high-performance F connectors are designed for demanding digital applications where a high-quality, high-performance F connector is required. These connectors provide superior return loss (-30 dB to 3 GHz) and are the perfect choice for use in digital headends, satellite down links, and high performance customer premises applications.

Features

- All-crimp two-piece design goes together like a BNC
- Combines the superior electrical performance of a BNC with the superior RF performance of an F connector
- True 75-Ohm design for performance up to 3 GHz
- Crimp-on center pin provides outstanding connection rather than relying on the copper center conductor of the cable
- Gold-plated locking center pin just like a BNC connector
- Diamond-knurled crimp hub and long .500" crimp sleeve provides higher pull-off force than typical F connector types
- Long 3/8" wrench flats make for a more comfortable and easier connector to thread
- Precision machined parts for greater unit to unit consistency
- Exclusive molded center conductor insulator provides a truer impedance match over PVC and Teflon types
- Same strip and crimp dimensions as our standard BNC plugs, common tooling
- Cable sizes for RG59, RG187, and RG6 available
- Termination plugs in 1% and precision 0.1% available



Connector Products

Precision RCA Connectors



The venerable RCA connector is still the universally accepted method of terminating coaxial cable for audio and video signals in Prosumer-type products such as video decks, DVDs, video projectors and HD monitors. ADC's new precision RCA connectors are designed for demanding professional environments, offering a performance-driven product with outstanding mechanical and electrical characteristics, as well as easy BNC-type assembly. Precision-molded insulators with locking gold-plated center conductors ensure nominal 75 Ohm characteristic impedance. Innovative features such as ADC's proprietary geometrically molded insulator design result in a significant reduction of impedance mismatch and improved transmission reliability for digital applications. ADC's RCA connectors use the same strip and crimp tools as ADC BNC and F connector products, making installation easy and fast.

Features

- Outstanding electrical performance up to 2 GHz
- 50 microinch gold-plated, locking internal center conductor crimps to cable
- Exclusive closed-entry center pin contact RCA pin/receptacle
- Nominal 75 Ohm characteristic impedance end-to-end
- Easy preparation and installation; installs just like a standard BNC with BNC tooling
- Compatible with hex, square, and 12-point crimp tools and select competitive crimp tool and die sets
- Tarnish-resistant, nickel-plated body; 50 microinch gold-plated center pin, or all gold-plated version (shown)
- Sizes for multiple cable types
- Cable sizes for RG59, RG187 and RG6 available; uses same tooling
- Meets or exceeds MIL-STD-202F requirements

75 Ohm BNC, F, and RCA Connectors

Ordering Information

Below is an ordering guide that will help you select the BNC, F, and RCA connectors that best meet your needs. Simply select the connector type, diameter, crimp area and cable type to determine the correct ADC ordering number.

Cat#/lg Number	Connector Type	Cable Outer Jacket Diameter					Center Conductor Outside Diameter			
		Inch Range		mm Range		AWG (USA)	Inch Range		mm Range	
		Lower	Upper	Lower	Upper		Lower	Upper	Lower	Upper
BN-1-N	Straight Plug	0.235	0.245	5.97	6.22	20	0.030	0.033	0.76	0.83
BN-2-N	Straight Plug	0.220	0.242	5.59	6.15	23	0.022	0.025	0.56	0.62
BN-3-N	Straight Plug	0.127	0.127	3.23	3.23	26	0.015	0.018	0.38	0.44
BN-3TMX	Straight Plug	0.158	0.178	4.01	4.52	26	0.016	0.019	0.41	0.48
BN-4-N	Straight Plug	0.305	0.305	7.75	7.75	20	0.030	0.033	0.76	0.83
BN-5	Straight Plug	0.270	0.281	6.86	7.14	20	0.030	0.033	0.76	0.83
BN-6-N	Straight Plug	0.199	0.212	5.05	5.38	20	0.030	0.033	0.76	0.83
BN-7	Straight Plug	0.155	0.178	3.94	4.52	24	0.019	0.022	0.48	0.55
BN-8-N	Straight Plug	0.275	0.288	6.99	7.32	18	0.038	0.040	0.97	1.02
BN-9-N	Straight Plug	0.275	0.305	6.99	7.75	18	0.038	0.040	0.97	1.02
BN-10-N	Straight Plug	0.234	0.257	5.94	6.53	18	0.038	0.040	0.97	1.02
BN-11	Straight Plug	0.265	0.330	6.73	8.38	23	0.022	0.025	0.56	0.62
BN-12-N	Straight Plug	0.150	0.178	3.81	4.52	25	0.017	0.019	0.43	0.47
BN-13-N	Straight Plug	0.146	0.178	3.71	4.52	24	0.019	0.022	0.48	0.55
BN-14	Straight Plug	0.142	0.187	3.61	4.75	28	0.012	0.013	0.30	0.33
BN-15	Straight Plug	0.193	0.232	4.90	5.89	24	0.019	0.022	0.48	0.55
BN-16-N	Straight Plug	0.103	0.110	2.62	2.79	26	0.015	0.018	0.38	0.44
BN-17-N	Straight Plug	0.271	0.271	6.88	6.88	20	0.030	0.033	0.76	0.83
BN-19-N	Straight Plug	0.125	0.171	3.18	4.34	24	0.019	0.022	0.48	0.55
BN-20-N	Straight Plug	0.249	0.288	6.32	7.32	18	0.038	0.040	0.97	1.02
BN-21-N	Straight Plug	0.193	0.232	4.90	5.89	20	0.030	0.033	0.76	0.83
BN-22	Straight Plug	0.149	0.178	3.78	4.52	25	0.017	0.019	0.43	0.47
BN-24	Straight Plug	0.348	0.380	8.84	9.65	14	0.064	0.065	1.63	1.65
BN-25-N	Straight Plug	0.400	0.412	10.16	10.46	14	0.064	0.065	1.63	1.65
BN-26-N	Straight Plug	0.177	0.187	4.50	4.75	23	0.024	0.030	0.61	0.76
BN-27	Straight Plug	0.310	0.326	7.87	8.28	16	0.051	0.053	1.30	1.35
BN-28	Straight Plug	0.077	0.132	1.96	3.35	26	0.018	0.022	0.46	0.56
BN-29	Straight Plug	0.292	0.308	7.41	7.83	18	0.040	0.042	0.97	1.07
BN-31-N	Straight Plug	0.100	0.134	2.54	3.40	28.5	0.0122	0.016	0.31	0.41
BN-32	Straight Plug	0.102	0.134	2.59	3.40	30	0.010	0.017	0.25	0.43
BN-RA-1	Right Angle Plug	0.235	0.245	5.97	6.22	20	0.030	0.033	0.76	0.83
BN-RA-2	Right Angle Plug	0.220	0.242	5.59	6.15	23	0.022	0.025	0.56	0.62
BN-RA-3	Right Angle Plug	0.127	0.127	3.23	3.23	26	0.015	0.018	0.38	0.44
BN-RA-4	Right Angle Plug	0.305	0.305	7.75	7.75	20	0.030	0.033	0.76	0.83
BN-RA-7	Right Angle Plug	0.155	0.178	3.94	4.52	24	0.019	0.022	0.48	0.55
BN-RA-8	Right Angle Plug	0.275	0.288	6.99	7.32	18	0.038	0.040	0.97	1.02
BN-BHJ-1	Bulkhead Jack	0.235	0.245	5.97	6.22	20	0.030	0.033	0.76	0.83
BN-BHJ-3TMX	Bulkhead Jack	0.158	0.178	4.01	4.52	26	0.016	0.019	0.41	0.48
BN-BHJ-8	Bulkhead Jack	0.275	0.288	6.99	7.32	18	0.038	0.040	0.97	1.02
BN-BHJ-13	Bulkhead Jack	0.146	0.178	3.71	4.52	24	0.019	0.022	0.48	0.55
CF-1	Straight Plug	0.235	0.245	5.97	6.22	20	0.030	0.033	0.76	0.83
CF-5	Straight Plug	0.270	0.281	6.86	7.14	20	0.030	0.033	0.76	0.83
CF-8	Straight Plug	0.275	0.281	6.99	7.14	18	0.038	0.040	0.97	1.02
CF-13	Straight Plug	0.146	0.178	3.71	4.52	24	0.019	0.022	0.48	0.55
CF-29	Straight Plug	0.292	0.308	7.41	7.83	18	0.040	0.042	0.97	1.07
CR-A-1	Straight RCA Plug	0.235	0.245	5.97	6.22	20	0.030	0.033	0.76	0.83
CR-A-2	Straight RCA Plug	0.220	0.242	5.59	6.15	23	0.022	0.025	0.56	0.62
CR-A-4	Straight RCA Plug	0.305	0.305	7.75	7.75	20	0.030	0.033	0.76	0.83
CR-A-5	Straight RCA Plug	0.270	0.281	6.86	6.86	20	0.030	0.033	0.76	0.83
CR-A-8	Straight RCA Plug	0.275	0.281	6.99	7.14	18	0.038	0.040	0.97	1.02
CR-A-13	Straight RCA Plug	0.146	0.178	3.71	4.52	24	0.019	0.022	0.48	0.55
CR-A-16	Straight RCA Plug	0.103	0.110	2.62	2.79	26	0.015	0.018	0.38	0.44
CR-AG-8	Straight RCA Plug	0.275	0.281	6.99	7.14	18	0.038	0.040	0.97	1.02
CR-AG-13	Straight RCA Plug	0.148	0.178	3.71	4.52	24	0.019	0.022	0.48	0.55
CR-AG-16	Straight RCA Plug	0.103	0.110	2.62	2.79	26	0.015	0.018	0.38	0.44

In addition to the .042" square pin crimp, all connectors listed are compatible with a 12-point method of crimping or .042" hex crimp. All ADC BNC connector plugs use the same crimp dimensions and crimp tools for the same cable type.

Bulk packaging in quantities of 100 is available (package includes 100 connector bodies, 100 center pins, and 100 crimp sleeves bagged separately). For bulk packaging add "B" to the end of the ordering number. Example: BNC-13B.

Cable Dielectric Inch Range		Outside Diameter MM Range		Connector Crimp Areas				Crimp Die Ordering Number	Cable Type Ordering Number	Ordering Number
Lower	Upper	Lower	Upper	Hex Flats Inch	Distance mm	Center Pin Inch	mm			
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	734A/D, 734AP, 9259, 1505A, 9100, VPM2000, CV752, FM59, RCCH, 9167, M8023, LV61	BNC-1-N
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	RG59, RG59B/U, 9209, 8279, 8241, VJ59U	BNC-2-N
0.077	0.102	1.96	2.59	0.178	4.52	.042	1.07	WD-2	735A, NT735	BNC-3-N
0.102	0.106	2.59	2.69	0.197	5.00	.040	1.07	WD-3, WD-4	CECBV-75-2	BNC-3T/MX
0.185	0.198	4.70	5.03	0.324	8.23	.042	1.07	WD-1	728, 8281, 8281B, 8281F, VP618PE, VP618M, CV752, CAMPLEX 1	BNC-4-N
.0144	0.164	3.66	4.17	0.324	8.23	.042	1.07	WD-1	1187A, HEC-2, F-HEC59, F59SSEF	BNC-5
0.135	0.140	3.43	3.56	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	1506A, 1824A, VPM2000TS, VPM2000TK, CV7559-PLEN	BNC-6-N
0.095	0.102	2.41	2.59	0.178	4.52	.042	1.07	WD-2	8218, 7538, 0222, CV75SM, RCC	BNC-7
0.180	0.185	4.57	4.70	0.278	7.06	.042	1.07	WD-4	1694A, 9248, 9058, VSD2001, VSD2001TS, RG6SD, 1.0/4.8, M8024, L-5CFB	BNC-8-N
0.180	0.198	4.57	5.03	0.324	8.23	.042	1.07	WD-1	1189A	BNC-9-N
0.180	0.187	4.57	4.75	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	1695A, RG6SD-PLEN	BNC-10-N
0.142	0.164	3.61	4.17	0.324	8.23	.042	1.07	WD-1	9268, S-HEC 89, 6605, PSF1/3	BNC-11
0.099	0.102	2.51	2.59	0.178	4.52	.042	1.07	WD-2	1865, 8218, 7537, RGB250	BNC-12
0.090	1.102	2.29	2.59	0.178	4.52	.042	1.07	WD-2	1855A, RGB5250, VDM250, VDM230, DSM1 (3,4,5) M8025	BNC-13-N
0.068	0.085	1.73	2.16	0.178	4.52	.042	1.07	WD-2	BT-3002	BNC-14
0.122	0.259	3.10	6.58	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	9209, 82241, 2041, V618M59TK, RG59-PLEN	BNC-15
0.060	0.070	1.52	1.78	0.178	4.52	.042	1.07	WD-2	8216, 9239, 83269, RGBSC260TS	BNC-16-N
0.185	0.198	4.70	5.03	0.324	8.23	.042	1.07	WD-1	88281, VP618TK, CV752-PLEN	BNC-17-N
0.078	0.102	1.98	2.59	0.178	4.52	.042	1.07	WD-2	LL79301	BNC-19-N
0.182	0.187	4.62	4.75	0.278	7.06	.042	1.07	WD-4	8228, 82120	BNC-20-N
0.122	0.102	3.10	2.59	0.255	6.48	0.42	1.07	WD-1, WD-2, WD-3, WD-5	8219, RG58	BNC-21-N
0.098	0.102	2.49	2.59	0.178	4.52	.042	1.07	WD-2	1167A, 1418B RGB	BNC-22-N
0.280	0.300	7.11	7.62	0.384	9.75	.068	1.73	WD-6	7732A	BNC-24
0.280	0.300	7.11	7.62	0.384	9.75	.068	1.73	WD-6	7731A, 5906, VHD1100, 89292	BNC-25-N
0.110	0.128	2.79	3.25	0.197	5.00	.042	1.07	WD-3, WD-4	0.6/2.8, SDV-25, 3CFB	BNC-26-N
0.225	0.244	5.72	6.20	0.278	7.06	.042	1.07	WD-4	1800A, 7530, VHD7000, 7855A	BNC-27
0.120	0.102	3.05	2.59	0.178	4.52	.042	1.07	WD-2	LL92833	BNC-28
0.180	0.207	4.57	5.26	0.324	8.23	.042	1.07	WD-1	5740, 5741, L-5CFB	BNC-29
0.056	0.068	1.42	1.73	0.178	4.52	.042	1.07	WD-2	DT179	BNC-31-N
0.045	0.068	1.14	1.73	0.178	4.52	.042	1.07	WD-2	Condux Mini 75 Cable	BNC-32
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	734, 9259, 1505A, 9100, VPM2000	BNC-RA-1
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	RG59, 9209, 8279	BNC-RA-2
0.077		1.96		0.178	4.52	.042	1.07	WD-2	735, NT735	BNC-RA-3
0.185	0.198	4.70	5.03	0.324	8.23	.042	1.07	WD-1	8281B, 8281F, VP618PE, VP618M	BNC-RA-4
0.095	0.102	2.41	2.59	0.178	4.52	.042	1.07	WD-2	8218, 1855A, 7538	BNC-RA-7
0.180	0.185	4.57	4.70	0.278	7.06	.042	1.07	WD-4	1694A, VSD2001	BNC-RA-8
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	734A/D, 734AP, 9259, 1505A, 9100, VPM2000, CV752, FM59, RCCH, 9167, M8023, LV61	BNC-BHJ-1
0.102	0.106	2.59	2.69	0.197	5.00	0.04	1.07	WD-3, WD-4	CECBV-75-2	BNC-BHJ-3T/MX
0.180	0.185	4.57	4.70	0.278	7.06	.042	1.07	WD-4	1694A, VSD2001	BNC-BHJ-8
0.090	0.102	2.29	2.59	0.178	4.52	.042	1.07	WD-2	1865, 1855A, RGBSC250	BNC-BHJ-13
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	734A/D, 734AP, 9259, 1505A, 9100, VPM2000, CV752, FM59, RCCH, 9167, M8023, LV61	CF-1
0.144	0.164	3.66	4.17	0.324	8.23	.042	1.07	WD-1	1187A, HEC-2, F-HEC59	CF-5
0.180	0.185	4.57	4.70	0.324	8.23	.042	1.07	WD-1	1694A, 9248, 9058, VSD2001, VSD2001TS, RG6SD, 1.0/4.8, M8024, L-5CFB	CF-8
0.090	0.102	2.29	2.59	0.178	4.52	.042	1.07	WD-2	1855A, RGB5250, VDM250, VDM230, DSM1 (3, 4, 5), M8025	CF-9
0.180	0.207	4.57	5.26	0.324	8.23	.042	1.07	WD-1	5740, 5741, L-5CFB	CF-10
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	734A/D, 734AP, 9259, 1505A, 9100, VPM2000, CV752, FM59, RCCH, 9167, M8023, LV61	CRCA-1
0.140	0.150	3.56	3.81	0.255	6.48	.042	1.07	WD-1, WD-2, WD-3, WD-5	RG59, RG59B/U, 9209, 8279, 8241, VJ59U	CRCA-2
0.185	0.198	4.70	5.03	0.324	8.23	.042	1.07	WD-1	728, 8281, 8281B, 8281F, VP618PE, VP618M, CV752, CAMPLEX 1	CRCA-4
0.144	0.164	3.66	4.17	0.324	8.23	.042	1.07	WD-1	1187A, HEC-2, F-HEC59	CRCA-5
0.180	0.185	4.57	4.70	0.324	8.23	.042	1.07	WD-1	1694A, 9248, 9058, VSD2001, VSD2001TS, RG6SD, 1.0/4.8, M8024, L-5CFB	CRCA-8
0.090	0.102	2.29	2.59	0.178	4.52	.042	1.07	WD-2	1855A, RGB5250, VDM250, VDM230, DSM1 (3, 4, 5), M8025	CRCA-13
0.06	0.07	1.52	1.78	0.178	4.52	.042	1.07	WD-2	8216, 9239, 83269, RGBSC260TS	CRCA-16
0.180	0.185	4.57	4.70	0.324	8.23	.042	1.07	WD-1	1694A, 9248, 9058, VSD2001, VSD2001TS, RG6SD, 1.0/4.8, M8024, L-5CFB	CRCA-8
0.090	0.102	2.29	2.59	0.178	4.52	.042	1.07	WD-2	1855A, RGB5250, VDM250, VDM230, DSM1 (3, 4, 5), M8025	CRCA-13
0.06	0.07	1.52	1.78	0.178	4.52	.042	1.07	WD-2	8216, 9239, 83269, RGBSC260TS	CRCA-16



75 Ohm BNC Connectors

BNC and F Terminating Plugs

3/06 • 102117AE Broadcast Products

Ordering Information	
Description	Ordering Number
BNC terminating plug 1% 75 Ohm resistor precision 0.1% 75 Ohm resistor	BNC-TP1 BNC-TP2
F terminating plug 1% 75 Ohm resistor precision 0.1% 75 Ohm resistor	CF-TP1 CF-TP2



BNC-TP2 Precision 0.1% Terminating Plug



CF-TP1 Precision 0.1% Terminating Plug

Accessories

Ordering Information	
Description	Ordering Number
Hex nut for .505" bulkhead connectors	TPC-1B
Locking washer for .505" bulkhead connectors	TPC-1C
Insulating shoulder washer for .505" bulkhead connectors	HDW-101611
Hex nut for .440" bulkhead connectors	BNC-HN440
Locking washer for .440" bulkhead connectors	BNC-LW440
Insulating shoulder washer for .440" bulkhead connectors	BNC-IW440
2.5 mm x 5 mm Phillips pan head screw for BNC-PC-RRA	SA1089-00



75 Ohm BNC Connectors

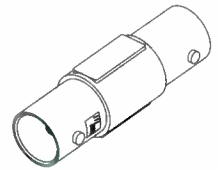
Adapters and Bulkheads

Broadcast Products

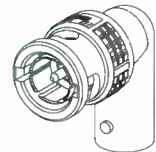
3/06 • 102117AE

Features

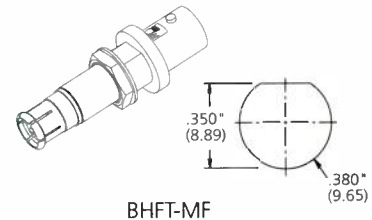
- Improved performance – true 75 Ohm character impedance
- Outstanding electrical performance to 3 GHz
- Bulkhead feedthrough available with or without panel isolation
- Meets the performance requirements of MIL-A-55339 for radio frequency coaxial adapters
- Gold-plated, closed-entry contact center conductor to prevent damage during test or mating plug termination



BNC-STRT-ADP
Straight Adapter

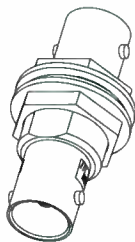


BNC-RA-ADP
Right Angle Adapter

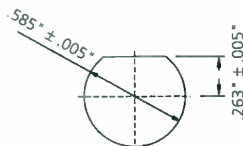


Ordering Information

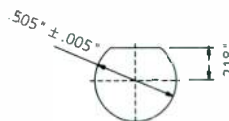
Description	Ordering Number
BNC straight adapter	BNC-STRT-ADP
BNC right angle adapter	BNC-RA-ADP
Bulkhead feedthrough, for .505\"/>.585\" cutout	BHFT1
Bulkhead feedthrough, for .440\"/}.505\" cutout	BHFT-I2
Bulkhead feedthrough with panel isolation washers	BHFT-I1
Bulk 100 pack version of above	BHFT-I1B
Bulkhead male to female	BHFT-MF
F to BNC Bulkhead Feedthrough adaptor, no hardware	BHFT0-FB
F to F Bulkhead Feedthrough adaptor, no hardware	BHFT0-FF
F to BNC Bulkhead Feedthrough adaptor w/hardware	BHFT1-FB
F to F Bulkhead Feedthrough adaptor, Insulated w/hardware	BHFT1-FF
F to BNC Bulkhead Feedthrough adaptor, Insulated w/hardware	BHFT-FB-I1
F to BNC Bulkhead Feedthrough adaptor, insulated w/hardware	BHFT-FB-I1-B
bulk 100 count	
F to F Bulkhead Feedthrough adaptor insulated w/hardware	BHFT-FF-I1
F to F Bulkhead Feedthrough adaptor insulated w/hardware	BHFT-FF-I1-B
bulk 100 count	



BHFT-I1



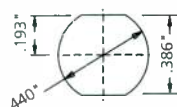
RECOMMENDED PANEL CUTOUT
WITH INSULATING WASHER
(MAX THICKNESS .250)



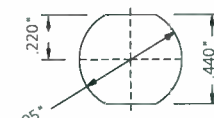
RECOMMENDED PANEL CUTOUT
WITHOUT INSULATING WASHER
(MAX THICKNESS .250)



BHFT-I2



RECOMMENDED PANEL CUTOUT
WITHOUT ISOLATION WASHER
(MAX PANEL THICKNESS: .250)



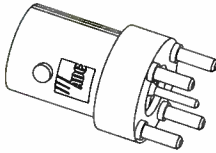
RECOMMENDED PANEL CUTOUT
WITH ISOLATION WASHER
(MAX PANEL THICKNESS: .250)

75 Ohm BNC Connectors

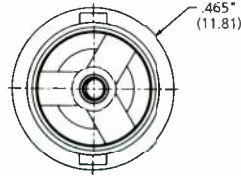
PCB Mount BNC Connectors

Ordering Information

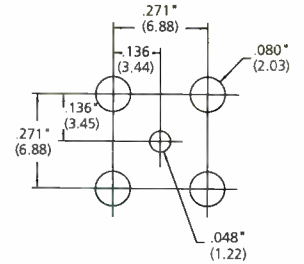
Description	Ordering Number
BNC PC mount straight staked	BNC-PC-V1
BNC PC mount threaded right angle	BNC-PC-RTRA
BNC PC mount threaded straight	BNC-PC-STRT
BNC PC mount right angle screw mount	BNC-PC-RRA
BNC PC mount right angle screw mount with screw	BNC-PC-RRA-1
BNC square panel mount	BNC-BHJ-PNL-3TMX



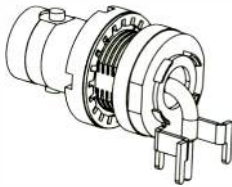
BNC-PC-V1



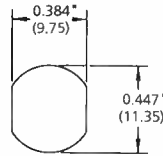
Hole Cutout



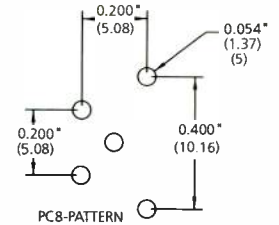
Mounting Template



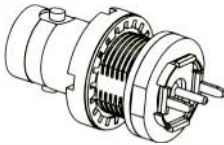
BNC-PC-RTRA



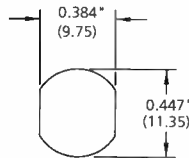
Hole Cutout



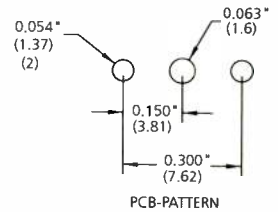
Mounting Template



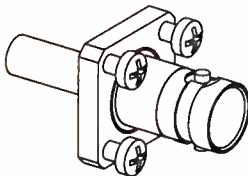
BNC-PC-STRT



Hole Cutout



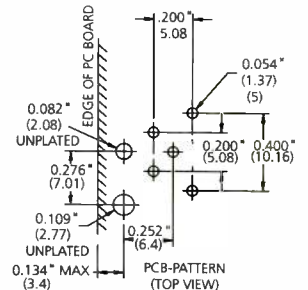
Mounting Template



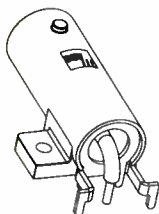
BNC-BHJ-PNL-3TMX



Hole Cutout



Mounting Template



BNC-PC-RRA



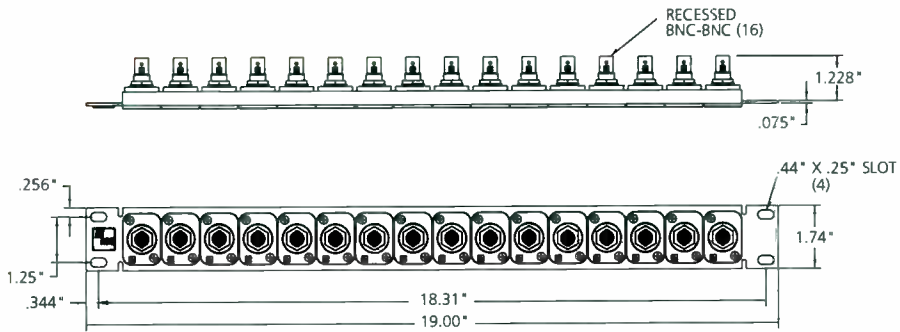
75 Ohm BNC Connectors

Recessed BNC Panels and Connectors

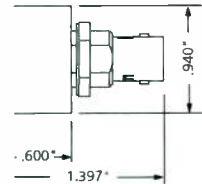
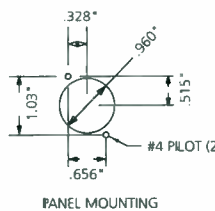
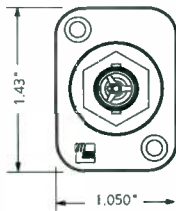
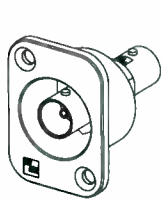
Ordering Information

Description	Ordering Number
16-position empty, 1 RU, black - for BHFT-R-X	BHFT-PNL-16-BK
16-position empty, 1 RU, gray - for BHFT-R-X	BHFT-PNL-16-G
Recessed BNC, 75 Ohm feedthrough	BHFT-R-X*
Recessed RCA connector	RCA-R-X*
Recessed S-video connector	SV-R-X*

* Replace X in ordering number with desired color. (G=green, R=red, B=black, BL=blue, W=white, Y=yellow)



BHFT-PNL-16-BK



BHFT-R-X

For x specify color

- Black – BK
- Red – R
- Orange – O
- Yellow – Y
- Green – G
- Blue – B
- Violet – V
- White – W

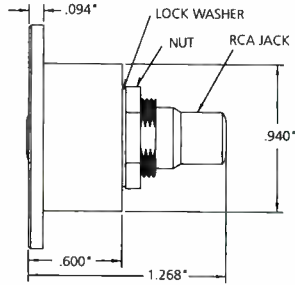
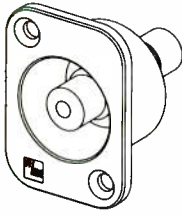


75 Ohm BNC Connectors

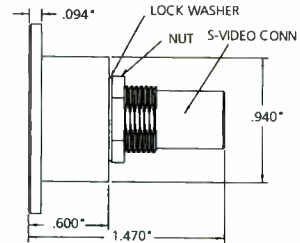
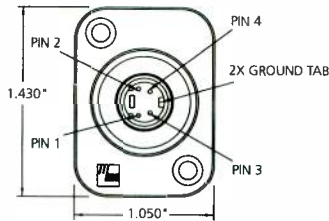
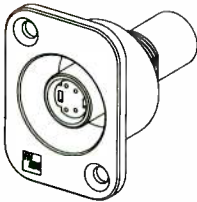
Recessed Components

Broadcast Products

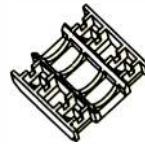
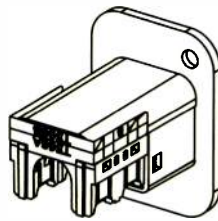
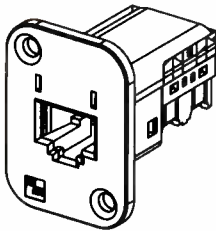
3/06 • 102117AE



RCA-R-X



SV-R-X



RJ45
BHFT-CAT5E-X
BHFT-CAT6-X

For x specify color

- Black – BK
- Red – R
- Orange – O
- Yellow – Y
- Green – G
- Blue – B
- Violet – V
- White – W



BNC, F and RCA Tooling

BNC Crimping Tool

Features

- Durable ergonomic handle provides greater comfort
- Fully adjustable for preloading to maintain die set alignment
- Exceptional life, rated for 100,000 crimp cycles
- Available in two handle sizes
- Highest mechanical advantage in the industry, reduces fatigue during crimping
- Precision-manufactured by Pressmaster in Sweden



BNC Crimping Tool
WT-2



BNC Insertion Tool
BT2000-12



WTC-12

Ordering Information

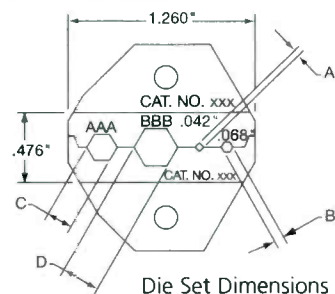
Description	Ordering Number
Crimp tool with ergonomic handle for ADC die sets	WT-2
Crimp tool with long ergonomic handle for ADC die sets	WT-3
BNC insertion tool with 6" handle	BT2000-06
BNC insertion tool with 12" handle	BT2000-12
BNC insertion tool with 24" handle	BT2000-24
Crimp tool, 12 point For BNC, F, RCA and LCC	WTC-12

BNC, F and RCA and LCC Die Sets

Ordering Information

Ordering Number Die Set	A Center Wire	B Center Wire	C Crimp Sleeve	D Crimp Sleeve
WD-1	.042"/1.07 mm	.068"/1.73 mm	0.255"/6.48 mm	0.324"/8.23 mm
WD-2	.042"/1.07 mm	.068"/1.73 mm	0.178"/4.52 mm	0.255"/6.48 mm
WD-3	.042"/1.07 mm	.068"/1.73 mm	0.197"/5.00 mm	0.255"/6.48 mm
WD-4	.042"/1.07 mm	.068"/1.73 mm	0.197"/5.00 mm	0.278"/7.06 mm
WD-5	.042"/1.07 mm	.068"/1.73 mm	0.255"/6.48 mm	0.278"/7.06 mm
WD-6	.068"/1.73 mm		0.384"/9.76mm	
WD-1-SER*	.042"/1.07 mm	.068"/1.73 mm	0.255"/6.48 mm	0.324"/8.23 mm
WD-2-SER*	.042"/1.07 mm	.068"/1.73 mm	0.178"/4.52 mm	0.255"/6.48 mm

* SER units feature a unique serial number that imprints on the crimp sleeve. This is useful for tracking tooling or installation quality.





BNC, F and RCA Tooling

Hand Crimp Tool

Ordering Information

Hand Crimp Tool Ordering Number	Connector Ordering Number	Die Set Ordering Number	Station Dimensions	
			Center Conductor	Crimp Sleeve
WT-2 Ergonomic Handle	BNC-1/BNC-RA-1/CF-1, CRCA-1	WD-1, WD-2, WD-3, WD-5	.042"/1.07 mm	0.255"/6.48 mm
	BNC-2/BNC-RA-2, CF-2, CRCA-2	WD-1, WD-2, WD-3, WD-5	.042"/1.07 mm	0.255"/6.48 mm
	BNC-3/BNC-RA-3	WD-2	.042"/1.07 mm	0.178"/4.52 mm
WT-3 Long Ergonomic Handle	BNC-4/BNC-RA-4	WD-1	.042"/1.07 mm	0.324"/8.23 mm
	BNC-5/CF-5, CRCA-5, CRCAG-5	WD-1	.042"/1.07 mm	0.324"/8.23 mm
	BNC-6	WD-1, WD-2, WD-3, WD-5	.042"/1.07 mm	0.255"/6.48 mm
	BNC-7/BNC-RA-7	WD-3	.042"/1.07 mm	0.197"/5.00 mm
	BNC-8/BNC-RA-8/BNC-BHJ-8/CF-8, CRCA-8	WD-4, WD-5	.042"/1.07 mm	0.278"/7.06 mm
	BNC-9	WD-1	.042"/1.07 mm	0.324"/8.23 mm
	BNC-10	WD-1, WD-2, WD-3, WD-5	.042"/1.07 mm	0.255"/6.48 mm
	BNC-11	WD-1	.042"/1.07 mm	0.324"/8.23 mm
	BNC-12	WD-3	.042"/1.07 mm	0.178"/4.52 mm
	BNC-14	WD-3	.042"/1.07 mm	0.217"/5.51 mm
	BNC-13/BNC-BHJ-13/CF-13, CRCA-13	WD-2	.042"/1.07 mm	0.178"/4.52 mm
	BNC-15	WD-1, WD-2, WD-3, WD-5	.042"/1.07 mm	0.255"/6.48 mm
	BNC-16	WD-2	.042"/1.07 mm	0.178"/4.52 mm
	BNC-17	WD-1	.042"/1.07 mm	0.324"/8.23 mm
	BNC-19	WD-2	.042"/1.07 mm	0.178"/4.52 mm
	BNC-20	WD-4, WD-5	.042"/1.07 mm	0.278"/7.06 mm
	BNC-22	WD-2	.042"/1.07 mm	0.178"/4.52 mm
	BNC-25	WD-6	.064"/1.63 mm	0.384"/9.76 mm
	BNC-26/BNC-3TMX	WD-3, WD-4	.042"/1.07 mm	0.197"/5.00 mm
	BNC-27	WD-1	.051"/1.30 mm	0.324"/8.23 mm
	BNC-28	WD-2	.042"/1.07 mm	0.178"/4.52 mm
	BNC-29	WD-1	.042"/1.07 mm	0.324"/8.23 mm
BNC-30	WD-2	.056"/1.42 mm	0.178"/4.52 mm	
BNC-31	WD-2, WT-C12	.042"/1.07 mm	0.178"/4.52 mm	
BNC-32	WD-2, WT-C12	.042"/1.07 mm	0.178"/4.52 mm	

3/06 • 102117AE Broadcast Products



BNC, F and RCA Tooling

Cable Stripper Tool Kit

Ordering Information

Description	Connector Type	Ordering Number
Complete Manual Stripper Tool Kit Includes stripper cassette, memory and tool	BNC-3, BNC-7, BNC-12, BNC-13, BNC-16, BNC-22	STC-13B
	BNC-1, BNC-2, BNC-6, BNC-10	STC-12B
	BNC-4, BNC-5, BNC-8, BNC-9, BNC-11, BNC-17	STC-11B

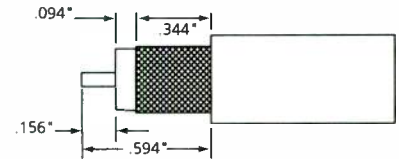


STC-12B

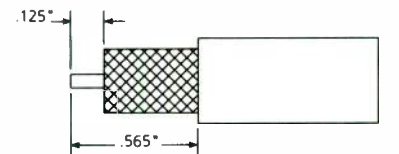
Individual Tools

Ordering Information

Description	Connector Type	Ordering Number
Stripper Cassette Replacement cutting blades for the manual Stripper Tool	All, except BNC-25	CCS-BLK
Memory for Manual Stripper Tool Determines how deep each blade on the stripper cassette will cut into cable. Can be adjusted for most cable types.	BNC-4, BNC-5, BNC-8, BNC-9, BNC-11	CCS-1
	BNC-1, BNC-2, BNC-6, BNC-10	CCS-2
	BNC-3, BNC-7, BNC-12, BNC-13	CCS-3
Empty Tool Handle Requires memory and stripper cassette	All, except BNC-25	STC-1



BNC, F, and RCA Plug Strip Length
(All BNC Plug Connectors except BNC-25 and BNC-24)



BNC Plug Strip Length
For BNC-25 and BNC-24

BNC, F and RCA Tooling

Connection Tool Kit

Ordering Information

Description	Ordering Number
Connection tool kit for BNC connectors Includes: <ul style="list-style-type: none"> • Crimp tool (WT-2) • BNC crimp die set for 735, RG59 and 734 cables (WD-2) • Stripping tool with cassette for 735/0222 cables (STC-13B) • Stripping tool with cassette for RG59/734 cables (STC-12B) • Cable termination tray (LCA-000009) • Insertion/withdrawal tool for BNC connector (BT2000) • Carrying case 	BNC-TOOL-1



BNC-TOOL-1

Motorized Cable Stripper Includes Nicad battery pack, stripper body, AC/DC charger, ABS plastic carrying case, instruction manual	All except BNC-25	BNC-S1-KIT
Cutter Heads for Motorized Cable Stripper	BNC-1, BNC-2 BNC-6, BNC-8, BNC-9, BNC-10, BNC-11 BNC-3, BNC-7, BNC-12, BNC-13	BNC-H2 BNC-H5

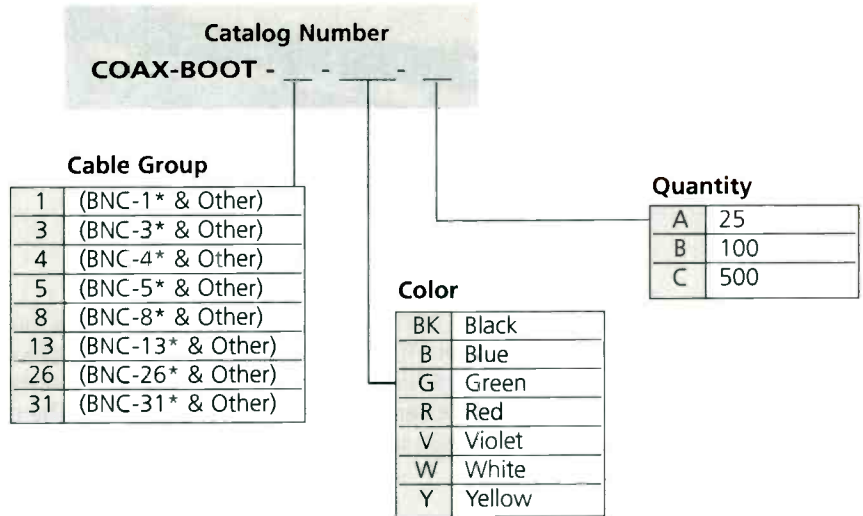


BNC, F and RCA Tooling

Coax Connector Boots

Broadcast Products

3/06 • 102117AE



*Boots can be used for any variety of ADC connector Example: BNC-1; CF-1; CRCA-1; CRCAG-1; LCC-1; LCP-1

Cat Number	ADC Groups	Current BNC	Current F	Current RCA	Current LCC	Current LCP
COAX-BOOT-1-XX-Y	1	BNC-1				
	2	BNC-2				
	6	BNC-6	CF-1	CRCA-1	LCC-1	
	15	BNC-15		CRCA-2	LCC-2	
	20	BNC-20				
COAX-BOOT-3-XX-Y	3	BNC-3			LCC-3	LCP-3
	19	BNC-19				
	28	BNC-28				
COAX-BOOT-4-XX-Y	4	BNC-4				
	9	BNC-9*	CF-9*	CRCA-4		
	29	BNC-29	CF-29			
COAX-BOOT-5-XX-Y	5	BNC-5	CF-5	CRCA-5		
	9	BNC-9**	CF-8 ⁽¹⁾	CRCA-8 ⁽¹⁾		
	11	BNC-11	CF-9**	CRCAG-8		
	17	BNC-17				
COAX-BOOT-8-XX-Y	8	BNC-8				
	10	BNC-10				
COAX-BOOT-13-XX-Y	7	BNC-7				
	12	BNC-12				
	13	BNC-13	CF-13	CRCA-13	LCC-13	LCP-13
	14	BNC-14		CRCAG-13		
COAX-BOOT-26-XX-Y	18	BNC-3TMX				
	26	BNC-18 BNC-26				
COAX-BOOT-31-XX-Y	16	BNC-16		CRCA-16	LCC-31	LCP-31
	21	BNC-21				
	31	BNC-31				
	32	BNC-32				

* For cable outer diameter greater than .285

** For cable outer diameter smaller than .285

(1) CF-8 and CRCA-8 use an exception to Group 8.



ProAx™ Triaxial Camera Connectors



For years, the industry has been locked into connector designs that are difficult to terminate, and even more difficult to field repair. ADC's line of ProAx™ Triaxial Camera Connectors will change the way you think about this component forever. These connectors have innovative features such as gender/type changability, field repairable center conductors that eliminate the need to restrip, O-rings that protect the signal path against moisture, fewer parts to assemble, and compatibility with the tooling you already own.

Field Repairable

Triax connectors can really take a beating — especially in field applications where dirt, sand and moisture are everywhere. When the female center conductor breaks, or the male latches are worn, the entire assembly must be cut off and reterminated.

Using a two-piece center conductor and housing assembly that can easily be replaced in the field without having to restrip and reterminate the entire connector, the patented ADC ProAx allows you to simply replace a damaged portion of the connector with common tools. When a repair is needed, the outer shell and insulator can be removed; next you simply unscrew the center conductor housing and replace the center conductor assembly, reversing the process to assemble. Absolutely no stripping or crimp tools are required.

Gender-Reversible

With ADC's ProAx connectors, gender parts can be swapped back and forth between males and females in only a few seconds. This process eliminates common problems such as when you've just run a thousand feet of triax only to discover the male is where the female should be. Simply trade the male for the female and continue with your project.

Format Reversible

With ADC's U.S. and six international standard (Global, BBC, Reverse BBC, French, Duetsch and Japanese) versions, O.B. vans and internationally televised events no longer mean headaches for camera technicians. ADC's patented ProAx connectors can be format reversed between U.S. and global formats in only seconds. Plus, ADC's ProAx connectors are designed to fit standard U.S. triax cables as well as global metric cables.



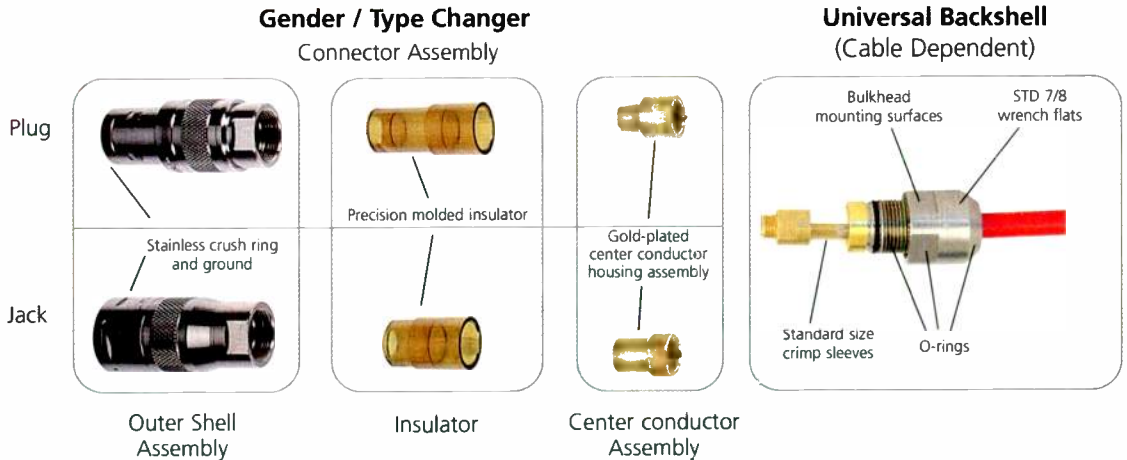
ProAx™ Triaxial Camera Connectors

Applications

High-Definition Digital Ready True 75 Ohm Impedance

The ADC ProAx™ connector line is designed for maximum bandwidth for serial digital and high-definition digital applications while maintaining a true 75 Ohm impedance. All critical path components are gold-plated for outstanding durability and connectivity.

ProAx™ Triax Connectors



Solid Outer Shield Ground

The solid outer braid ground in the ProAx connectors maintains the ground no matter what the conditions. This eliminates camera shutdown from intermittent grounds, as well as the need for special conductive gaskets between the male and female connectors.

Sturdy Construction

Each female ProAx connector is made of machined brass with stainless steel crush rings to assure maximum crush strength. The assembly will not go out of round under typical mobile application wear and tear.

Patented Panel-Mount System

Each ProAx connector can be either cable-mounted or panel-mounted with our patented mounting kit. The mounting kit securely fastens the male or female connector to a steel plate that is attached to standard panels. Two different mounting options are available: a unique 45° and the standard 90° straight. ADC's angled 45° mounting option reduces the weight of the cables on the connectors and providing less strain on the connectors than the traditional 90° mounting. Mounting yokes are available separately for custom metalwork applications.

Compatibility

ProAx connectors are engineered to be compatible with other industry triaxial connectors from Kings Electronics Co., Inc., W.W. Fischer SA, LEMO SA, Tajimi, and Damer and Hagen, as well as standard industry tools and dies.

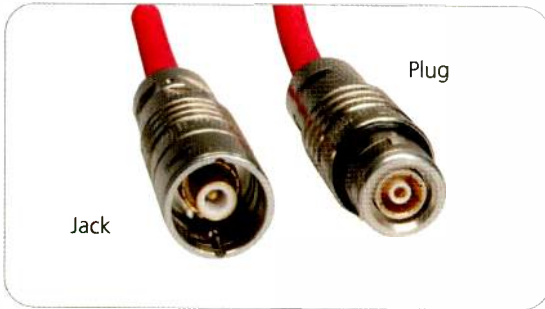
ProAx™ Triaxial Camera Connectors



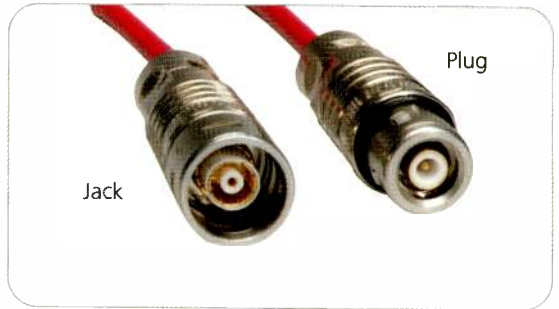
American Standard
Equivalent: Kings



Global Standard
G-Series
Equivalent: Fischer 1051



BBC Standard
B-Series
Equivalent: Lemo 4M



Reverse BBC Standard
N-Series
Equivalent: Lemo 4E



French Standard
L-Series
Equivalent: Lemo 3T



Japanese Standard
J-Series
Equivalent: Tajimi



Deutsch Standard
D-Series
Equivalent: Damar & Hagen



ProAx™ Triaxial Camera Connectors

Triax Connector Ordering Information

ADC Triax connectors are available in US and six global formats. Use the following model to determine the catalog ordering number for your specific product needs.

Catalog Number

Connectors

TC	American (Kings Equivalent)
GTC	Global (Fischer 1051 Equivalent)
BTC	BBC (Lemo 4M Equivalent)
NTC	Reverse BBC (Lemo 4E Equivalent)
LTC	French (Lemo 3T Equivalent)
JTC	Japanese (Tajimi Equivalent)
DTC	Deutsch (Damar & Hagen Equivalent)

Gender

J	Jack/Female
	Plug/Male

Catalog ordering number examples:

TCJ-B38 = 75 Ohm, US standard Jack to fit .360" OD cable

BTCJ-H11-50 = 50 Ohm, BBC Triax Jack Connector to fit 11mm OD cable.

GTCP-G8 = 75 Ohm, Global Fischer Triax Plug Connector to fit 8mm cable.

Impedance*

50	50 Ohms
75	75 Ohms

*If ordering TC, GTC, LTC, DTC and JTC type connectors, leave blank.

Cable Type

A12	.475" OD
B38	.360" OD
C12	.520" OD
D38	.410" OD
E38	.315" OD
F14	.246" OD
G8	8mm OD
H11	11mm OD
K14	14mm OD

OR

BH	Bulkhead/Camera Mount
----	-----------------------



ProAx™ Triaxial Camera Connectors

Broadcast Products

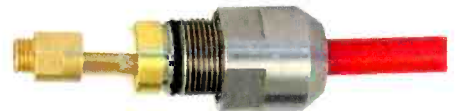
3706 • 102117AE

Ordering Information

Description	Ordering Number			
American Triax Camera Connectors A 1/2", .475" cables, 75 Ohm B 3/8", .360" cables, 75 Ohm C 1/2", .510" cables, 75 Ohm D 3/8", .410" cables, 75 Ohm E 3/8", .315" cables, 75 Ohm F 1/4", .246" cables, 75 Ohm	Triax Jack TCJ-A12 TCJ-B38 TCJ-C12 TCJ-D38 TCJ-E38 TCJ-F14	Triax Plug TCP-A12 TCP-B38 TCP-C12 TCP-D38 TCP-E38 TCP-F14		
	Internaional Triax Camera Connectors			
Female Jacks G 8 mm cables H 11 mm cables K 14 mm cables	Global GTCJ-G8 GTCJ-H11 GTCJ-K14	Reverse BBC NTCJ-G8-75* NTCJ-H11-75* NTCJ-K14-75*	Japanese JTCJ-G8 JTCJ-H11 JTCJ-K14	
		BBC BTCJ-G8-50* BTCJ-H11-50* BTCJ-K14-50*	French LTCJ-G8 LTCJ-H11 LTCJ-K14	Deutch DTCJ-G8 DTCJ-H11 DTCJ-K14
Male Plugs G 8 mm cables H 11 mm cables K 14 mm cables	Global GTCP-G8 GTCP-G8 GTCP-K14	Reverse BBC NTCP-G8-75* NTCP-H11-75* NTCP-K14-75*	Japanese JTCP-G8 JTCP-H11 JTCP-K14	
		BBC BTCP-G8-50* BTCP-H11-50* BTCP-K14-50*	French LTCP-G8 LTCP-G8 LTCP-G8	Deutch DTCP-G8 DTCP-H11 DTCP-K14

Ordering Information

Description	Ordering Number
Universal RoHS Compliant Backshells A 1/2", .475" cables B 3/8", .360" cables C 1/2", .510" cables D 3/8", .410" cables E 3/8", .315" cables F 1/4", .246" cables G 8 mm cables H 11 mm cables K 14 mm cables	GTCJ-BS-A12 GTCJ-BS-B38 GTCJ-BS-C12 GTCJ-BS-D38 GTCJ-BS-E38 GTCJ-BS-F14 GTCJ-BS-G8 GTCJ-BS-H11 GTCJ-BS-K14



Universal RoHS Compliant Backshell
(Cable size dependent)

*Available with 75 Ohm or 50 Ohm options.
Call a distributor for more information. To locate a distributor, visit ADC.com/partners.



ProAx™ Triaxial Camera Connectors

Ordering Information

3/06 • 102117AE Broadcast Products

Description	Ordering Number
<p>Triax Camera Connector Repair Kits</p> <p>Gender Change Kits</p> <p>American female to male, 75 Ohm American male to female, 75 Ohm Global female to male, 75 Ohm Global male to female, 75 Ohm BBC female to male, 50 Ohm BBC male to female, 50 Ohm Reverse BBC female to male, 75 Ohm Reverse BBC male to female, 75 Ohm French female to male, 75 Ohm French male to female, 75 Ohm Japanese female to male, 75 Ohm Japanese male to female, 75 Ohm Deutsch female to male, 75 Ohm Deutsch male to female, 75 Ohm</p> <p>Center Conductor Repair Kits</p> <p>American front, female, 75 Ohm American front, male, 75 Ohm Global front, female, 75 Ohm Global front, male, 75 Ohm BBC and Reverse BBC series front, female, 50 Ohm BBC and Reverse BBC series front, female, 75 Ohm BBC and Reverse BBC series front, male, 50 Ohm BBC and Reverse BBC series front, male, 75 Ohm French front, female, 75 Ohm French front, male, 75 Ohm Japanese front, female, 75 Ohm Japanese front, male, 75 Ohm Deutsch front, female, 75 Ohm Deutsch front, male, 75 Ohm</p> <p>Outer Shell Repair Kits</p> <p>American outer, female American outer, male Global outer, female Global outer, male BBC outer, female BBC outer, male Reverse BBC outer, female Reverse BBC outer, male French outer, female French outer, male Japanese outer, female Japanese outer, male Deutsch outer, female Deutsch outer, male</p> <p>Retermination Kits, Rear (Only parts required for Retermination)</p> <p>Size A and D Size B, E, F Size C Size G Size H Size K</p>	<p>TRK-GCM TRK-GCF GTRK-GCM GTRK-GCF BTRK-GCM-50* BTRK-GCF-50* NTRK-GCM-75* NTRK-GCF-75* LTRK-GCM LTRK-GCF JTRK-GCM JTRK-GCF DTRK-GCM DTRK-GCF</p> <p>TRK-FF TRK-FM GTRK-FF GTRK-FM BNTRK-FF-50 BNTRK-FF-75 BNTRK-FM-50 BNTRK-FM-75 LTRK-FF LTRK-FM JTRK-FF JTRK-FM DTRK-FF DTRK-FM</p> <p>TRK-FOS TRK-MOS GTRK-FOS GTRK-MOS BTRK-FOS BTRK-MOS NTRK-FOS NTRK-MOS LTRK-FOS LTRK-MOS JTRK-FOS JTRK-MOS DTRK-FOS DTRK-MOS</p> <p>TRK-RAD TRK-RBEF TRK-RC GTRK-RG GTRK-RH GTRK-RK</p>

*Available with 75 Ohm or 50 Ohm options.

Call a distributor for more information. To locate a distributor, visit ADC.com/partners.



ProAx™ Triaxial Camera Connectors

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products

Ordering Information

Description	Ordering Number
Universal Mounting Kit and Accessories	
Cable Mounting Solutions	
Black Straight panel mount kit, universal; mounts in TRP-2 rack mount	TCM-KIT-BK
Gray Straight panel mount kit, universal; mounts in TRP-2 rack mount	TCM-KIT-G
Black 45 degree panel mount kit, universal	TCM45-KIT-BK
Gray 45 degree panel mount kit, universal	TCM45-KIT-G
Yoke clamp for male ProAx plug	TCP-Y
Yoke clamp for female ProAx jack	TCJ-Y
Yoke clamp adaptor for G-Series Jacks	GTCJ-YA
Yoke clamp adaptor for L-Series, D-Series, J-Series Jacks and D-Series Plugs	LTCJ-YA
Black Empty 2 RU panel for TCM kits (mounting kits and connectors sold separately)	TRP-2-BK
Gray Empty 2 RU panel for TCM kits (mounting kits and connectors sold separately)	TRP-2-G
Black Empty 1 RU panel for 10 connectors - requires connectors and yoke kit, sold separately	TRP-1-BK
Gray Empty 1 RU panel for 10 connectors - requires connectors and yoke kit, sold separately	TRP-1-G

Ordering Information

Description	Ordering Number
Tools	
Universal triax installation tool kit	TRK-TKIT
Die set A,D,H .384" x .400", 9.75mm x 10.16mm	TD-ADH
Die set B,E,F .255" x .400", 6.47mm x 10.16mm	TD-BEF
Die set C .429" x .400", 10.89mm x 10.16mm	TD-C
Die set G .278" x .400", 7.06mm x 10.16mm	TD-G
Die set K .476" x .400", 12.09mm x 10.16mm	TD-K
Tool crimp, long-handled Pressmaster	WT-3
Wire stripping gauge, ProAx Triax	TRIAX-GAUGE
Universal Triax Adapter (UTA)	
UTA adapts any connector type and gender. (Required Gender Change Kit - See P104)	UTA-1
UTA kit, includes all triax (male and female) formats, with case (Japanese & German Standards sold separately)	UTA-1-KIT



UTA-1



Universal Triax Adaptor

Shown: L-Type Jack to N-Type Plug
UTA-1 + LTRK-CGF + NTRK-GCM-75



UTA-1-KIT



ProAx™ Triaxial Camera Connectors

Triax Protective Weather Boots

ADC's Triax Weather boots provide ultimate protection for your Triax connector investment.

Features

- Sealed to IP67
- Available in US and all other formats
- Feature a weather-tight patent pending lip-over seal protection
- Each boot is adjustable to fit any cable size
- Mating cap is attached via stainless steel lanyard, and is hermaphroditic for both male (plug) and female (jack) boots
- Made of a special high-performance UL rated rubber compound that can withstand extreme temperature ranges from -45c to +55c
- Fits all global cable sizes



Ordering Information

Description	Ordering Number
ProAx Universal Standard Weather Protection Boots and Caps	
Universal weather boot and cap for all B & N series female jacks	BNTCJ-BOOT
Universal weather boot and cap for all B & N series male plugs	BNTCP-BOOT
Universal weather cap for all B & N series connectors	BNTC-CAP
Universal weather boot and cap for all global female jacks	GTCJ-BOOT
Universal weather boot and cap for all male plugs	GTCP-BOOT
Universal weather cap for all global connectors	GTC-CAP
Universal weather boot and cap for all French female jacks	LTCJ-BOOT
Universal weather boot and cap for all French male plugs	LTCP-BOOT
Universal weather cap for French connectors	LTC-CAP
Protective metallic cap, female, Deutch	DTCJ-CAP
Protective metallic cap, male, Deutch	DTCP-CAP
Protective weather boot and meta lic cap, female, Deutch	DTCJ-BOOT
Protective weather boot and meta lic cap, male, Deutch	DTCP-BOOT



Global (G-Type) Triax Connectors With Boots

Broadcast Products 3/06 • 102117AE



ProAx™ Triaxial Camera Connectors

Low-Profile Bulkhead Mount

ADC's slim-line versions of its seven triax formats are specifically engineered for OEM camera use and low-profile bulkhead mounting. These new bulkhead connectors retain gender flexibility, field repairability and format reversible features that ensure high performance and superior field productivity.

Features

- Solder style termination
- Connectors are gender and format interchangeable
- Field repairable without having to replace the connector or open the camera
- Compatible with industry standard triaxial connectors
- Reverses between US and six global formats in just seconds
- Qualified to demanding MIL-STD 202



American Standard female jack



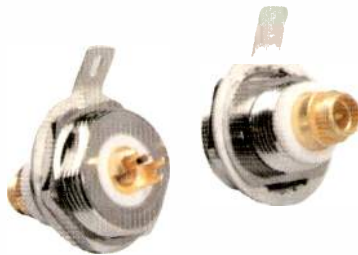
American Standard male plug



Global Standard female jack

Ordering Information

Description	Ordering Number
Bulkhead/Camera Mount Triax Connectors (Solder type) American standard female jack, 75 Ohm American standard male plug, 75 Ohm Global standard female jack, 75 Ohm BBC standard female jack, 50 Ohm BBC standard male plug, 50 Ohm Reverse BBC standard female jack, 75 Ohm Reverse BBC standard male plug, 75 Ohm French standard female jack, 75 Ohm French standard male plug, 75 Ohm Japanese standard female jack, 75 Ohm Japanese standard male plug, 75 Ohm Deutsch standard female jack, 75 Ohm Deutsch standard male plug, 75 Ohm	TRK-BH TRK-BH GTCJ-BH BTCJ-BH-50* BTCP-BH-50* NTCJ-BH-75* NTCP-BH-75* LTCJ-BH LTCP-BH JTCJ-BH JTCP-BH DTCJ-BH DTCP-BH
Universal Rear Unit	TRK-RU-BH



*Available with 75 Ohm or 50 Ohm options.

3/06 • 102117AE Broadcast Products



ProAx™ Triaxial Camera Connectors

Ordering Information

3/06 • 102117AE Broadcast Products

Description	Ordering Number
<p>Triax Camera Connector Repair Kits for Bulkhead</p> <p>Gender Change Kits</p> <ul style="list-style-type: none"> American standard female to male, 75 Ohm American standard male to female, 75 Ohm Global standard male to female, 75 Ohm BBC standard female to male, 50 Ohm BBC standard male to female, 50 Ohm Reverse BBC standard female to male, 75 Ohm Reverse BBC standard male to female, 75 Ohm French standard female to male, 75 Ohm French standard male to female, 75 Ohm Japanese standard female to male, 75 Ohm Japanese standard male to female, 75 Ohm Deutsch standard female to male, 75 Ohm Deutsch standard male to female, 75 Ohm <p>Center Conductor Repair Kits</p> <ul style="list-style-type: none"> American standard front, female, 75 Ohm American standard front, male, 75 Ohm Global standard front, female, 75 Ohm BBC and Reverse BBC standard front, female, 50 Ohm BBC and Reverse BBC standard front, female, 75 Ohm BBC and Reverse BBC standard front, male, 50 Ohm BBC and Reverse BBC standard front, male, 75 Ohm French standard front, female, 75 Ohm French standard front, male, 75 Ohm Japanese standard front, female, 75 Ohm Japanese standard front, male, 75 Ohm Deutsch standard front, female, 75 Ohm Deutsch standard front, male, 75 Ohm <p>Outer Shell Repair Kits</p> <ul style="list-style-type: none"> American standard outer, female American standard outer, male Global standard outer, female BBC standard outer, female BBC standard outer, male Reverse BBC standard outer, female Reverse BBC standard outer, male French standard outer, female French standard outer, male Japanese standard outer, female Japanese standard outer, male Deutsch standard outer, female Deutsch standard outer, male 	<ul style="list-style-type: none"> TRK-GCM-BH TRK-GCF-BH GTRK-GCF-BH BTRK-GCM-BH-50* BTRK-GCF-BH-50* NTRK-GCM-BH-75* NTRK-GCF-BH-75* LTRK-GCM-BH LTRK-GCF-BH JTRK-GCM-BH JTRK-GCF-BH DTRK-GCM-BH DTRK-GCF-BH <ul style="list-style-type: none"> TRK-FF TRK-FM GTRK-FF BNTRK-FF-50 BNTRK-FF-75 BNTRK-FM-50 BNTRK-FM-75 LTRK-FF LTRK-FM JTRK-FF JTRK-FM DTRK-FF DTRK-FM <ul style="list-style-type: none"> TRK-BH-FOS TRK-BH-MOS GTRK-BH-FOS BTRK-BH-FOS BTRK-BH-MOS NTRK-BH-FOS NTRK-BH-MOS LTRK-BH-FOS LTRK-BH-MOS JTRK-BH-FOS JTRK-BH-MOS DTRK-BH-FOS DTRK-BH-MOS

*Available with 75 Ohm or 50 Ohm options.



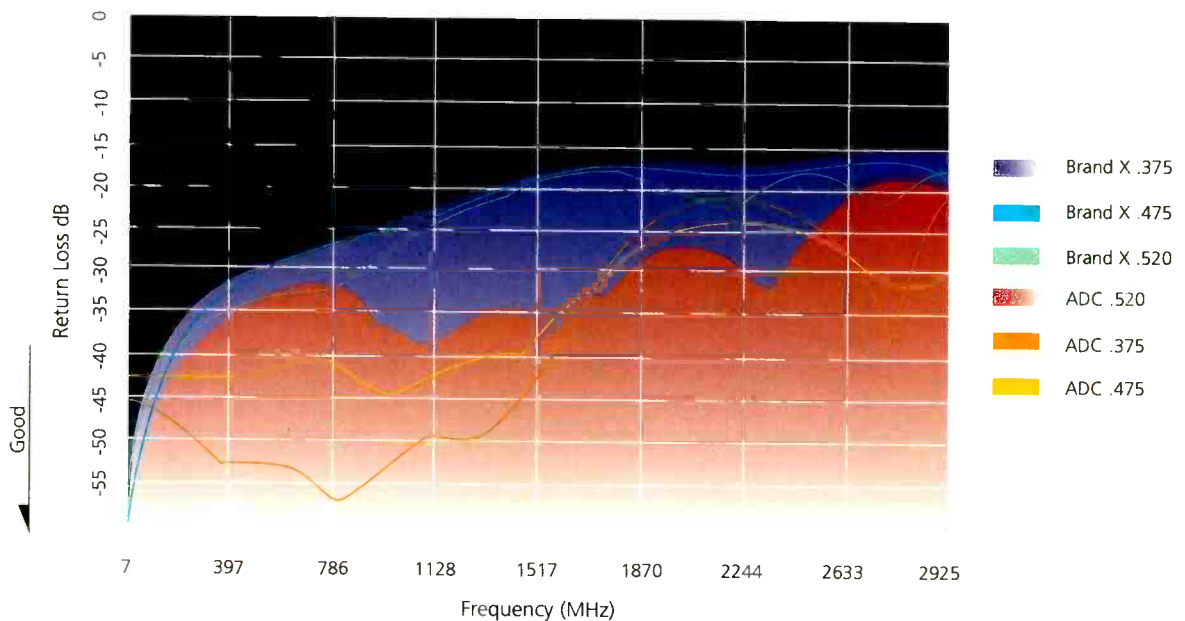
ProAx™ Triaxial Camera Connectors

America's Cable Types

Broadcast Products

3 / 0 6 • 1 0 2 1 1 7 A E

Kings Group	Kings Crimp Die	ADC Group	ADC Crimp Die	Die Set Dimensions			Cable Part Number
				Center Conductor	Crimp Sleeve	Die Width	
70	KTH-2040	A12	TD-ADH	.068" 1.73 mm	.384" 9.75 mm	.400" 10.15 mm	0.520 cable Belden 8233, 8233A, 7803A CommScope 7820, 7827 Gepco VT61811, VT61811PEF Nemal 1810 West Penn 1150, 3811
73	KTH-2002	B38	TD-BEF	.068" 1.73 mm	.255" 6.48 mm	.400" 10.15 mm	0.360 cable Belden 1856A, 1856B, 1857A, 9267 Clark Wire & Cable TV7559 CommScope 7811, 7812, 7814 Gepco VT61859, LVT61859, LVT61859S Manhattan M8021 Nemal 1835 West Penn 5994
74	KTH-2041	C12	TD-C	.068" 1.73 mm	.429" 10.9 mm	.400" 10.15 mm	0.475 cable Belden 1858A, 9192, 9232 Clark Wire & Cable TV7511 CommScope 7825, 7826 Gepco LVT61811 Manhattan M8022 Nemal 1820, 1825 West Penn 1165
NONE	KTH-2040	D38	TD-ADH	.068" 1.73 mm	.384" 9.75 mm	.400" 10.15 mm	Belden 1859A Gepco VT61811TK West Penn 253811
76	KTH-2002	E38	TD-BEF	.068" 1.73 mm	.255" 6.48 mm	.400" 10.15 mm	0.246 cable Belden 8232, 8232A CommScope 7810 Nemal 1840 West Penn 3815, 5992
78	KTH-2002	F14	TD-BEF	.068" 1.73 mm	.225" 5.7 mm	.400" 10.15 mm	Belden 88232 West Penn 253815
KTH-1000		WT-3					Hand Crimp Tool





ProAx™ Triaxial Camera Connectors

ProAx Global Cable Types

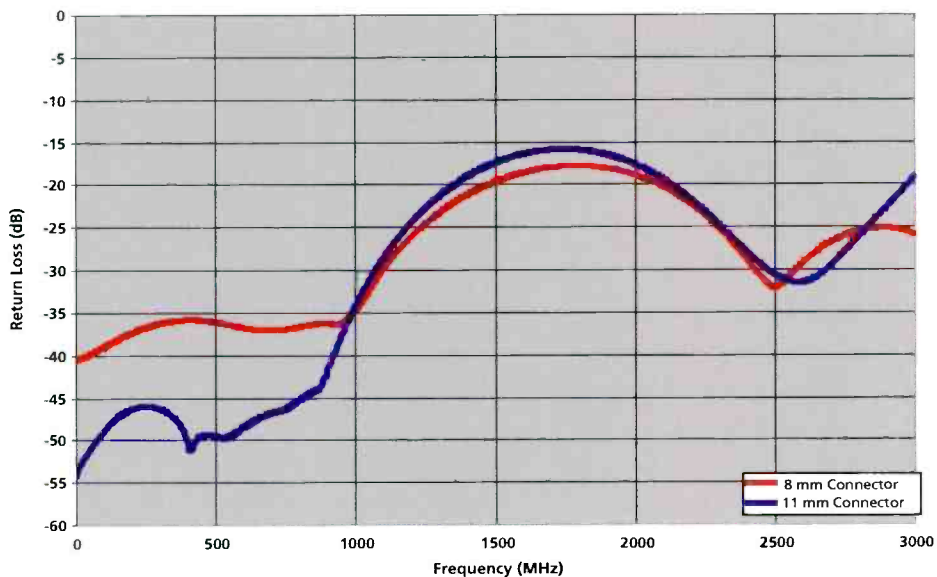
Broadcast Products
3/06 • 102117AE

ADC Cable Group	Cable Manufacturer and Part Number	Connector Manufacturer and Connector Number	
		Fischer Equivalent SE & KE Series	Lemo Equivalent Redel F Series
G8	8mm (3/8") Cable Size		
	Intercond RX 75/55 N.E.K. 23860 Draka Triax 8 1.0s/4.5s	1051 A004-5 1.0/4.5/8.7 1051 A004-5 1.0/4.5/8.7 1051 A004-5 1.0/4.5/8.7	T75.FTCC86C (Group 2) T75.FTCC86C (Group 2) T75.FTCC86C (Group 2)
	Bedeax Superflex 8 1.0Ls/4.5s Belden 7801A Fujikura 4.8/1.0 EFTXF Hirakava Triax 4.8/1.0 Tufret Draka Triflex 8 1.0Ls/4.5s Filotex SFP:A2 Video Fixe Filotex SFP:A2 Video Mobile	1051 A004-5 1.0/4.5/9.4 1051 A004-5 1.0/4.5/9.4 1051 A004-5 1.0/4.5/9.4 1051 A004-5 1.0/4.5/9.4 1051 A004-5 1.0/4.5/9.4 1051 A004-5 1.4/4.5/9.4 1051 A004-5 1.4/4.5/9.4	T75.FTCC90C (Group 3) T75.FTCC90C (Group 3) T75.FTCC86C (Group 2) T75.FTCC86C (Group 2) T75.FTCC90C (Group 3) T75.FTCC90C (Group 3)
	Bedeax Std. 8 1.0s/4.5s	1051 A004-5 1.0/4.5/8.7	

H11	11mm (1/2") Cable Size		
	Belden 9192 Belden 9232 Filotex SPF:B2 Video Fixe Filotex SPF:B2 Video Mobile	1051 A004-4 T1895/13.6 1051 A004-4 T1895/13.6 1051 A004-4 T1895/13.6 1051 A004-4 T1895/13.6	T75.FTCC14C (Group 7) T75.FTCC14C (Group 7) T75.FTCC14C (Group 7) T75.FTCC14C (Group 7)
	Bedeax Standard 11 1.4s/6.6s Bedeax Superflex 11 1.4Ls/6.6s BIW 91307 Intercond RX 75/56 N.E.K. 63990 Draka Triax 11 1.4s/6.6s Draka Triflex 11 1.4Ls/6.6s	1051 A004-5 1.4/6.6/11.3 1051 A004-5 1.4/6.6/11.3 1051 A004-5 1.4/6.6/11.3 1051 A004-5 1.4/6.6/11.3 1051 A004-5 1.4/6.6/11.3 1051 A004-5 1.4/6.6/11.3 1051 A004-5 1.4/6.6/11.3	T75.FTCC11C (Group 4) T75.FTCC11C (Group 4) T75.FTCC11C (Group 4) T75.FTCC11C (Group 4) T75.FTCC11C (Group 4) T75.FTCC11C (Group 4) T75.FTCC11C (Group 4)
	Draka Triax 11/1 1.4s/6.6s	1051 A004-5 1.4/6.6/12.6	

Note: Cross reference information is our best estimate and not guaranteed. Information is subject to change without notice. For information on ADC series K14 (14mm cables), M9 (9mm, A2, 8/1 cable), N12 (12 mm, 11/1 cable), or P13 (13 mm, B2 cable) please contact ADC.

ADC Global Triax Connectors





RF Signal Management



RF Worx® SignalOn® Overview	118
RF Worx® SignalOn® Series Passive Devices.....	121
RF Worx® SignalOn® Series Active Devices	128
RF Worx® Reverse Path Amplifier	133



RF Worx® SignalOn® Series



Broadcast Products

3/06 • 102117AE

Advanced broadband services are being developed and launched at an ever-accelerating pace. And while these services may vary, they have one thing in common. Whether it be high speed data, video-on-demand, or IP telephony, broadband subscribers expect a reliable, high-quality experience at an affordable price.

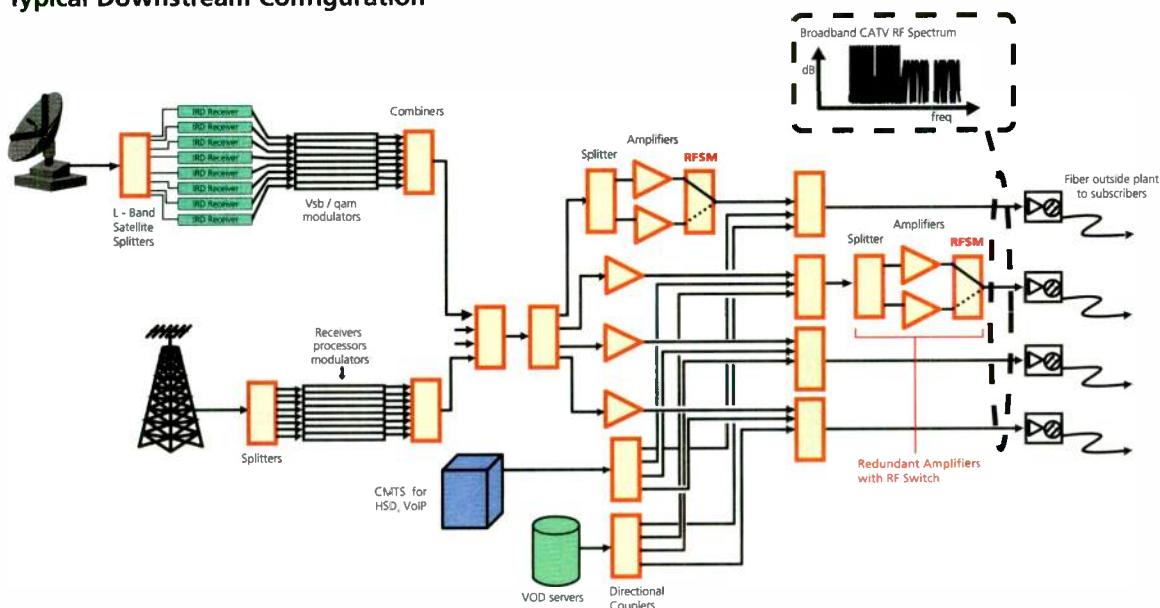
ADC's RF Worx® SignalOn® Series has been designed with these demanding service requirements in mind. This next generation RF signal management platform provides unmatched density, RF performance, and reliability – all at a competitive price. And with its patented hitless “make-before-break” attenuator circuit design, maintaining your RF signal network has never been easier.



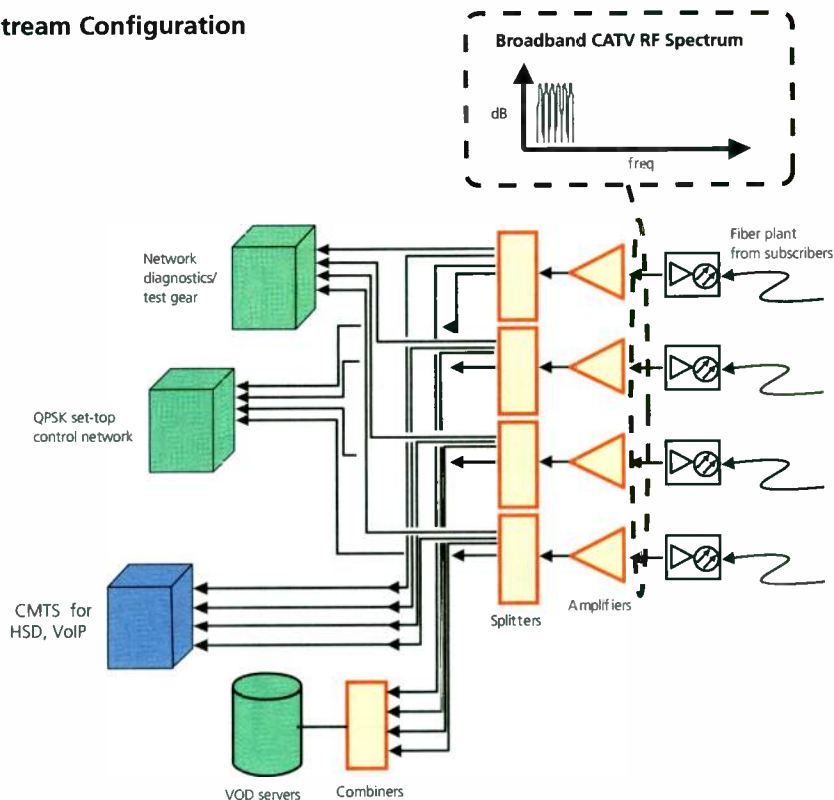
RF Worx® SignalOn® Series

Applications

Typical Downstream Configuration



Typical Upstream Configuration



Broadcast Products

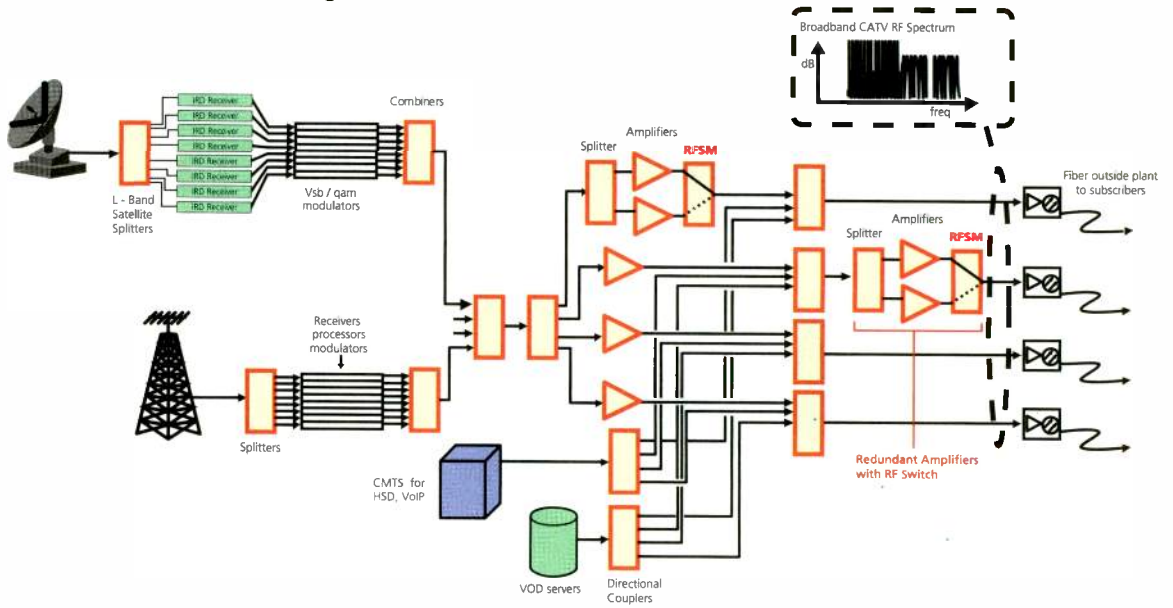
3 / 0 6 • 1 0 2 1 1 7 A E



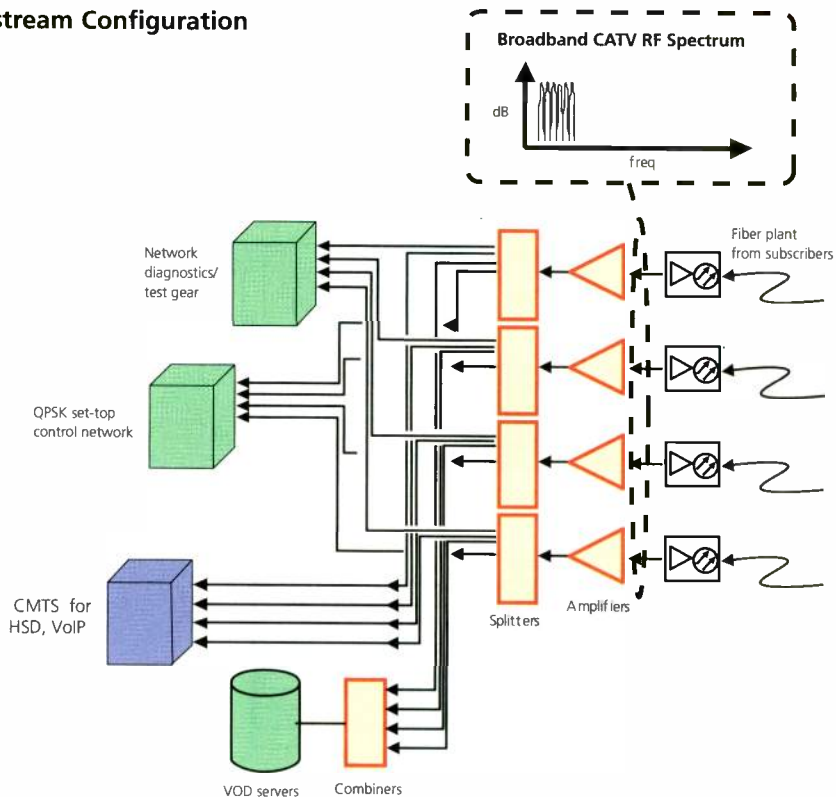
RF Worx® SignalOn® Series

Applications

Typical Downstream Configuration



Typical Upstream Configuration



Broadcast Products

3/06 • 102117AE



RF Worx® SignalOn® Series Passives

Introduction

The RF Worx® SignalOn® Series, combined with the innovative cable management of the newly-designed chassis, provides engineers with a variety of products to simplify RF signal management challenge.

Features

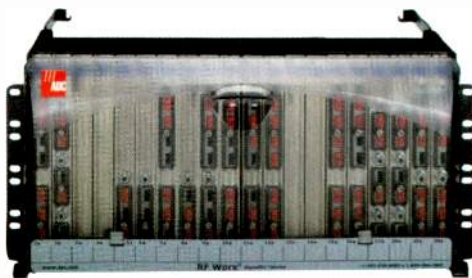
- Industry's highest density
- Industry's best performance and specifications
- Individual performance certificate shipped with every module
- Patented make-before-break attenuator pad design for hitless signal balancing
- Chassis supports both passive and active modules
- Clear chassis door provides protection and clear view of modules
- Clear attenuator pad covers and patented pad guides for simplified maintenance
- High quality, precision F or BNC connectors
- Designed to exceed NEBS requirements for grounding/bonding
- Independent EMI near and far-field testing
- Ten year warranty on all passive modules
- Available in 1 RU, 2 RU, and 5 RU chassis



Plain Module



Pad and Monitor Module with Make-Before-Break Attenuation



20-Position, 5 RU Chassis



2-Position, 1 RU Chassis

Broadcast Products

3/06 • 102117AE



RF Worx® SignalOn® Series Passives

Universal Chassis

Catalog Number

N - C

Type

20V	20 position, Vertical
02H	2 position, Horizontal
08H	8 position, Horizontal

Color

B	Black
C	Blue*
P	Putty white*

*Non standard

Power Kit

N	No
Y	Yes



20-Position , 5RU Chassis



2-Position, 1RU Passive Chassis



8-Position, 2RU Chassis

Ordering Information

Description	Catalog Number
20 position chassis, 5 RU, black	N-C20VNB
20 position powered chassis, 5 RU, Black	N-C20VYB
8 position chassis, 2 RU, black	N-C08HNB
8 position powered chassis, 2 RU, black	N-C08HYB
2 position chassis, 1 RU, black	N-C02HNB

Broadcast Products

3/06 • 102117AE

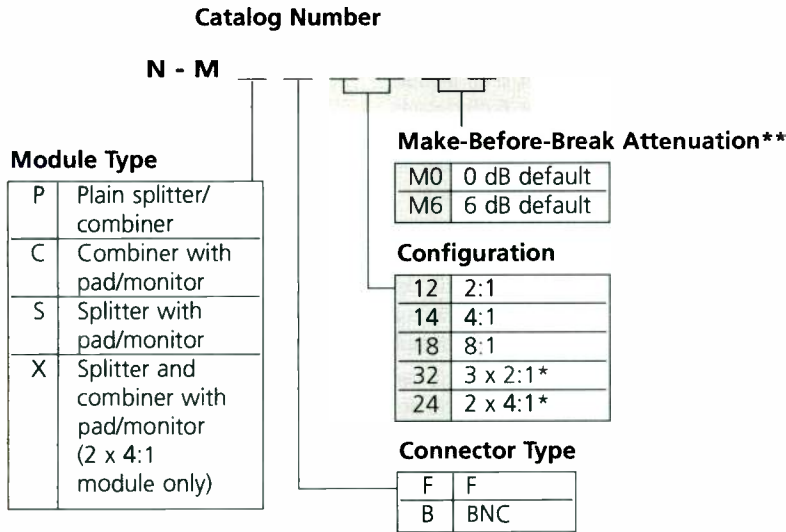


RF Worx® SignalOn® Series Passives

Splitters/Combiners for 5MHz to 1GHz

Broadcast Products

3/06 • 102117AE



*3 x 2:1 and 2 x 4:1 housed in a single module.
 **Leave last two digits blank for plain modules.



Plain Module
 Pad and Monitor Module with Make-Before-Break Attenuation

Ordering Information

Description	Catalog Number
Plain Splitters/Combiners	
2:1 plain, BNC connector	N-MPB12
4:1 plain, BNC connector	N-MPB14
8:1 plain, BNC connector	N-MPB18
2:1 plain, F connector	N-MPF12
4:1 plain, F connector	N-MPF14
8:1 plain, F connector	N-MPF18
Splitters/Combiner with Monitor	
2:1 combiner with monitor, BNC connector, 0 dB default	N-MCB12M0
4:1 combiner with monitor, BNC connector, 0 dB default	N-MCB14M0
8:1 combiner with monitor, BNC connector, 0 dB default	N-MCB18M0
2:1 combiner with monitor, F connector, 0 dB default	N-MCF12M0
4:1 combiner with monitor, F connector, 0 dB default	N-MCF14M0
8:1 combiner with monitor, F connector, 0 dB default	N-MCF18M0
2:1 splitters with monitor, BNC connector, 0 dB default	N-MSB12M0
4:1 splitters with monitor, BNC connector, 0 dB default	N-MSB14M0
8:1 splitters with monitor, BNC connector, 0 dB default	N-MSB18M0
2:1 splitters with monitor, F connector, 0 dB default	N-MSF12M0
4:1 splitters with monitor, F connector, 0 dB default	N-MSF14M0
8:1 splitters with monitor, F connector, 0 dB default	N-MSF18M0
2:1 combiner with monitor, BNC connector, 6 dB default	N-MCB12M6
4:1 combiner with monitor, BNC connector, 6 dB default	N-MCB14M6
8:1 combiner with monitor, BNC connector, 6 dB default	N-MCB18M6
2:1 combiner with monitor, F connector, 6 dB default	N-MCF12M6
4:1 combiner with monitor, F connector, 6 dB default	N-MCF14M6
8:1 combiner with monitor, F connector, 6 dB default	N-MCF18M6

Ordering information continued on next page.



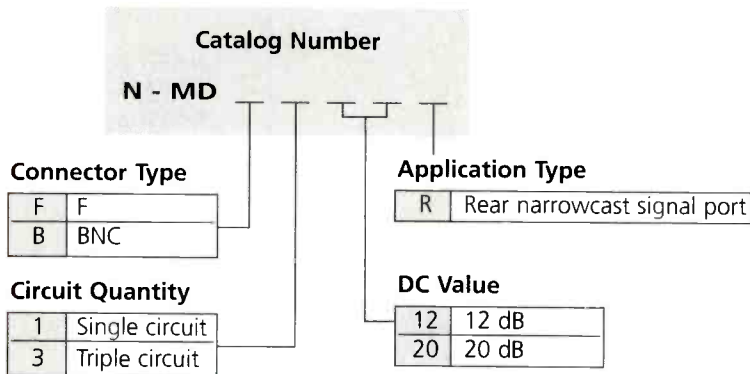
RF Worx® SignalOn® Series Passives

Broadcast Products

3/06 • 102117AE

Ordering Information	
Description	Catalog Number
Splitters/Combiner with Monitor (Continued)	
2:1 splitters with monitor, BNC connector, 6 dB default	N-MSB12M6
4:1 splitters with monitor, BNC connector, 6 dB default	N-MSB14M6
8:1 splitters with monitor, BNC connector, 6 dB default	N-MSB18M6
2:1 splitters with monitor, F connector, 6 dB default	N-MSF12M6
4:1 splitters with monitor, F connector, 6 dB default	N-MSF14M6
8:1 splitters with monitor, F connector, 6 dB default	N-MSF18M6
3x2:1 combiner with monitor, BNC connector, 0 dB default	N-MCB32M0
2x4:1 combiner with monitor, BNC connector, 0 dB default	N-MCB24M0
3x2:1 combiner with monitor, F connector, 0 dB default	N-MCF32M0
2x4:1 combiner with monitor, F connector, 0 dB default	N-MCF24M0
3x2:1 combiner with monitor, BNC connector, 6 dB default	N-MCB32M6
2x4:1 combiner with monitor, BNC connector, 6 dB default	N-MCB24M6
3x2:1 combiner with monitor, F connector, 6 dB default	N-MCF32M6
2x4:1 combiner with monitor, F connector, 6 dB default	N-MCF24M6
2x4:1 splitter/combiner with monitor, BNC connector, 0 dB default	N-MXB24M0
2x4:1 splitter/combiner with monitor, BNC connector, 6 dB default	N-MXB24M6
2x4:1 splitter/combiner with monitor, F connector, 0 dB default	N-MXF24M0
2x4:1 splitter/combiner with monitor, F connector, 6 dB default	N-MXF24M6

Directional Couplers for 5MHz to 1GHz



Ordering Information	
Description	Catalog Number
12 dB directional coupler, single circuit, BNC connector	N-MDB112R
12 dB directional coupler, triple circuit, BNC connector	N-MDB312R
20 dB directional coupler, single circuit, BNC connector	N-MDB120R
20 dB directional coupler, triple circuit, BNC connector	N-MDB320R
12 dB directional coupler, single circuit, F connector	N-MDF112R
12 dB directional coupler, triple circuit, F connector	N-MDF312R
20 dB directional coupler, single circuit, F connector	N-MDF120R
20 dB directional coupler, triple circuit, F connector	N-MDF320R



RF Worx® SignalOn® Series Passives

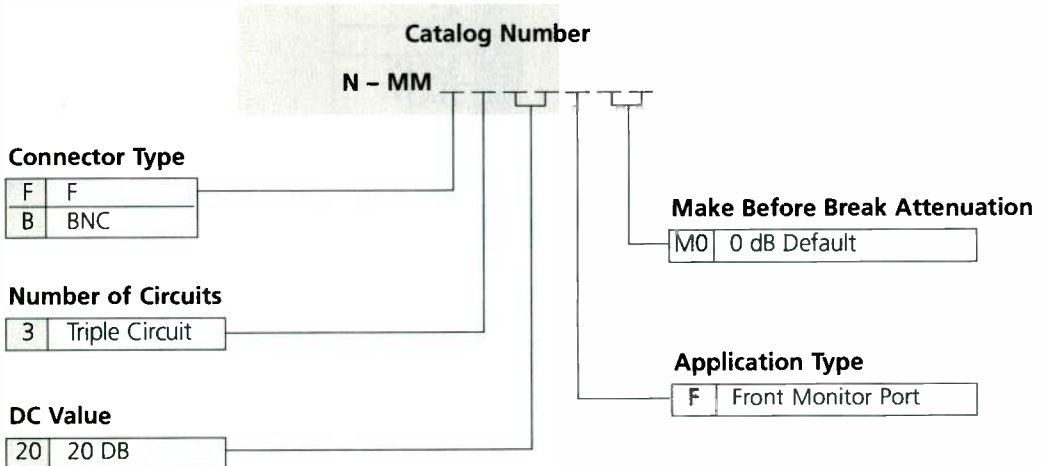
Conditioning & Monitor Module

- Typically placed at the input to the forward path optical transmitter, This module allows for conditioning and grooming of the RF signal gain and slope. It is designed as 1:1 input to output with two MBB circuits in series for pad and EQ placement.
- Single & triple circuit modules
- -20dB front facing Monitor port



Triple C&M F-connectors

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products



Ordering Information

Description	Catalog Number
Condition and monitor module, triple circuit, 20dB, 0dB default, BNC connector	N-MMB320FM0
Condition and monitor module, triple circuit, 20dB, 0dB default, F connector	N-MMF320FM0

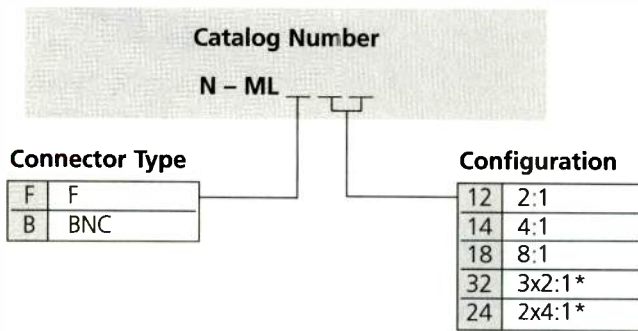


RF Worx® SignalOn® Series Passives

L-Band Satellite Splitters/Combiners

ADC's new L-Band series satellite splitter modules are engineered for the highest performance in the 950MHz to 2.1GHz frequency range. These plain splitter/combiner modules feature dual port power-passing capability for powering LNB's. All L-Band modules available with precision F or BNC connectors.

Splitter/Combiners for L-Band 950MHz to 2.1GHz



*Housed in a single module.



L-Band Satellite Splitter

Ordering Information

Description	Catalog Number
L-Band satellite 2:1 splitter, BNC connector	N-MLB12
L-Band satellite 4:1 splitter, BNC connector	N-MLB14
L-Band satellite 8:1 splitter, BNC connector	N-MLB18
L-Band satellite 3x2:1 splitter, BNC connector	N-MLB32
L-Band satellite 2x4:1 splitter, BNC connector	N-MLB24
L-Band satellite 2:1 splitter, F connector	N-MLF12
L-Band satellite 4:1 splitter, F connector	N-MLF14
L-Band satellite 8:1 splitter, F connector	N-MLF18
L-Band satellite 3x2:1 splitter, F connector	N-MLF32
L-Band satellite 2x4:1 splitter, F connector	N-MLF24



RF Worx® SignalOn® Series Passives

Accessories

3/06 • 102117AE Broadcast Products

Ordering Information

Description	Catalog Number
Cable Management Kits <i>(includes rack mount cable management rings)</i> 2 brackets, 2 - 2.5" x 5.5" cable rings 4 brackets, 12 - 2.5" x 5.5" cable rings	N-ACMK-01P N-ACMK-04P
Chassis Extender Brackets 2-position chassis, 23" rack 8-position chassis, 23" rack 20-position chassis, ETSI 21" rack	EB-17B EB-35B EB-87
Insertion/Withdrawal Tools BNC insertion tool with 12" handle BNC insertion tool with 24" handle F connector insertion tool	BT2000-12 BT-2000-24 SC-FG
Terminating Plugs BNC terminating plug, 75 Ohm ± 0.1% BNC High Performance Terminating Plug, 75 Ohm ± 0.1% F High Performance Terminating Plug, 75 Ohm ± 0.1%	BNC-TP1 BNC-TP2 CF-TP2
Attenuator Pads XX dB pads, qty 25 (replace XX with 00 through 26) 1-5 dB pads, qty 5 each pad value, qty 25 total 6-10 dB pads, qty 5 each pad value, qty 25 total 11-15 dB pads, qty 5 each pad value, qty 25 total 16-20 dB pads, qty 5 each pad value, qty 25 total 21-25 dB pads, qty 5 each pad value, qty 25 total 3,6,9,12,15 dB pads, qty 5 each pad value, qty 25 total* 0,3,9,12,15 dB pads, qty 5 each pad value, qty 25 total** 75 Ohm termination pads, qty 25	N-ACC-AP-XX N-ACC-AP-S1 N-ACC-AP-S2 N-ACC-AP-S3 N-ACC-AP-S4 N-ACC-AP-S5 N-ACC-AP-M0 N-ACC-AP-M6 N-ACC-TP-75
Equalizers Equalizer Pads, 2 dB Plug-in Equalizer Pads, 3 dB Plug-in Equalizer Pads, 4 dB Plug-in Equalizer Pads, 5 dB Plug-in Equalizer Pads, 6 dB Plug-in Equalizer Pads, 7 dB Plug-in Equalizer Pads, 8 dB Plug-in Equalizer Pads, 9 dB Plug-in Equalizer Pads, 10 dB Plug-in Equalizer Pads, 11 dB Plug-in Equalizer Pads, 12 dB Plug-in Equalizer Pads, 13 dB Plug-in	N-ACC-LE-02 N-ACC-LE-03 N-ACC-LE-04 N-ACC-LE-05 N-ACC-LE-06 N-ACC-LE-07 N-ACC-LE-08 N-ACC-LE-09 N-ACC-LE-10 N-ACC-LE-11 N-ACC-LE-12 N-ACC-LE-13
Module Conversion Kits Kit to install 1 RF Worx passive module into SignalOn chassis Kit to install 1 SignalOn passive module into MAXNET™ chassis ¹ Kit to install 18 SignalOn passive modules into MAXNET™ chassis ¹	N-ACC-BRKT-RFW N-AMCK-01 N-AMCK-18
Panel Black Covers Single Blank Panel Cover Dual Blank Panel Cover	N-ACC-BLANK-01 N-ACC-BLANK-02

* kit intended for 0 db default MBB modules (-M0 modules)

** kit intended for 6 db default MBB modules (-M6 modules)

¹ MAXNET is a trademark of ATX Networks



RF Worx® SignalOn® Series Actives

Introduction

SignalOn amplifiers features non-service-affecting gain and slope controls. This capability along with the patented make-before-break attenuator pad design of the splitters and combiners, allow for "hitless" RF signal adjustment - critical for today's carrier-class broadband service applications.

Features

- Operation from 50 MHz to 1 GHz
- GaAs technology with near-100% surface mount design for high performance
- Meets MIL-202 specs for quality and reliability
- Mounts in same SignalOn chassis as passive modules for maximum design flexibility
- Digitally variable gain and slope control for non-service-affecting signal level adjustments
- 20 dB monitor points on both input and output signals for testing and troubleshooting
- "Blind-mate" power bus connector with gold-on-gold contacts; requires no cabling
- Chassis-mounted AC-DC and DC-DC power supply options
- Redundant powering with dual load shared power supplies for increased availability
- External +24VDC powering option



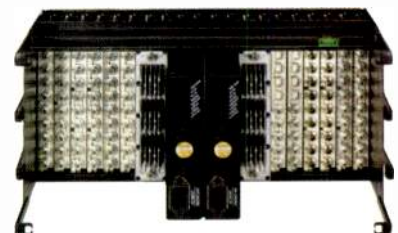
Amplifier, front view



Dual RF Switch module



20-Position, 5RU Chassis with mixture of passive and active modules



20-Position, 5RU Chassis, rear view



8-Position, 2RU Powered Chassis



8-Position, 2RU Powered Chassis, rear view

3106 • 102117AE Broadcast Products



RF Worx® SignalOn® Series Actives

Universal Powered Chassis

Broadcast Products

3/06 • 102117AE

Catalog Number

N - C

Type

08H	8 position, Horizontal
20V	20 position, Vertical

Color

B	Black
C	Blue*
P	Putty white*

*Non standard.

Power Kit

N	No
Y	Yes



20-Position, 5RU Powered Chassis



8-Position, 2RU Powered Chassis

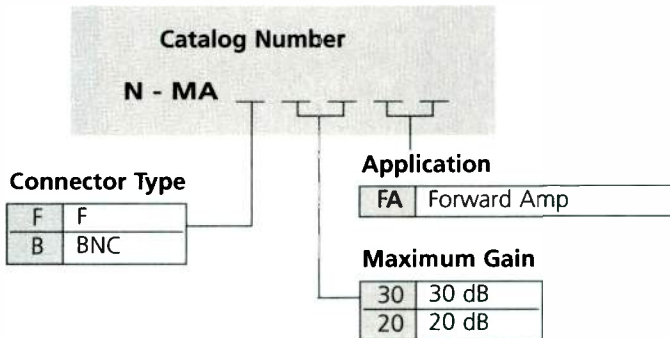
Ordering Information

Description	Catalog Number
20 position powered chassis, 5 RU, Black	N-C20VYB
8 position powered chassis, 2 RU, black	N-C08NYB



RF Worx® SignalOn® Series Actives

Amplifiers

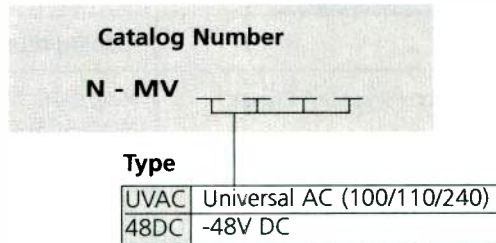


Amplifier

Ordering Information

Description	Catalog Number
20 dB forward path amplifier, BNC connector	N-MAB20FA
30 dB forward path amplifier, BNC connector	N-MAB30FA
20 dB forward path amplifier, F connector	N-MAF20FA
30 dB forward path amplifier, F connector	N-MAF30FA

Power Supplies



Ordering Information

Description	Catalog Number
AC to DC power supply	N-MVUVAC
DC to DC power supply	N-MV48DC

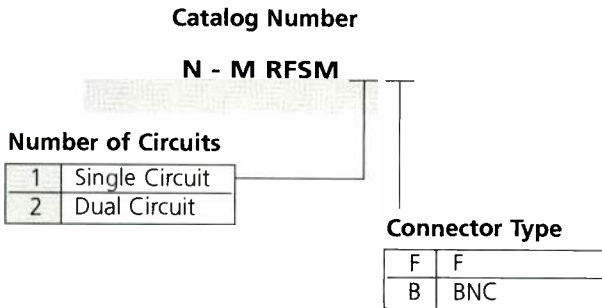


RF Worx® SignalOn® Series Actives

RF Switch Module



RF Switch module



Ordering Information

Description	Catalog Number
Single RF switch module, BNC connector	N-MRFSM1B
Single RF switch module, F connector	N-MRFSM1F
Dual RF switch module, BNC connector	N-MRFSM2B
Dual RF switch module, F connector	N-MRFSM2F

Active Accessories

Ordering Information

Description	Catalog Number
Bracket Kit for Return Path Amplifier to fit into SignalOn® Chassis	N-ACC-BRKT-RA
Power Cord for Power Supply	N-ACC-CBL-DC-DC
Fan Replacement Kit for Power Supply	N-ACC-FAN
DC Power Kit, 2RU - used to power 8-Position, 2RU Chassis	N-ACC-PWRKIT-08B
DC Powering Kit - used to power 20-Position, 5RU Chassis	N-ACC-PWRKIT-20B



RF Worx® Reverse Path Amplifier

Introduction

ADC's RF Worx Return Path Amplifier was designed specifically to solve problems particular to your environment. Providing greater density, unparalleled cable management, greater functionality and redundant powering, the Return Path Amplifier is part of the RF Worx system approach to integrating all signal management functions in a common format and modular system.



Use these amplifiers in conjunction with N-ACC-BRKT-RA

Features

- Fixed 22 dB or 11 dB gain
- Low distortion characteristics
- Low noise figure
- 5-200 MHz bandwidth
- Two 20 dB monitor ports (input and output)
- BNC or F connectors
- AC or DC powering
- Power redundancy (optional)

Ordering Information

Description	Dimensions (H x W x D)	Catalog Number
Reverse Path Amplifiers		
11 dB fixed gain with F connectors	2.25" x 1.2" x 8.0" (6.35 x 3.05 x 20.32 cm)	RFX-AMP-11F
11 dB fixed gain with BNC connectors	2.25" x 1.2" x 8.0" (6.35 x 3.05 x 20.32 cm)	RFX-AMP-11B
22 dB fixed gain with F connectors	2.25" x 1.2" x 8.0" (6.35 x 3.05 x 20.32 cm)	RFX-AMP-22F
22 dB fixed gain with BNC connectors	2.25" x 1.2" x 8.0" (6.35 x 3.05 x 20.32 cm)	RFX-AMP-22B

Fiber Connectivity and Cable Management



Pro Patch™ Optical Normal Through Panel	136
FL2000 System	140
FPL series Fiber Panels	152
Fiber Management Tray	156
FL1000 Fiber Termination Products	162
FiberGuide® Fiber Management System	167
Fiber Optic Patch Cords	168



Pro Patch™ Optical Normal Through Panel

Introduction



Module Front



Module Rear



Chassis Open

ADC's new Optical Normal Through Panel is the latest addition to its Pro Patch line of broadcast patching products. This new fiber panel is designed to provide patch by exception, normal through functionality, similar to copper-based patch panels. Traditional fiber patch panels require a fiber jumper to be in place at all times. With this newly designed panel, however, all fiber "Source" and "Destination" connections are on the rear of the panel, with a normal through connection between the "Source" and "Destination" ports. For greater convenience and reliability, patch and monitoring capabilities are accessed on the front of the panel.

Features

Two density options:

- 3RU chassis houses 6 modules to provide 24 fiber terminations (12 pairs) using simplex connectors (SC, FC, ST)
- 4RU chassis houses 6 modules to provide 48 fiber terminations (24 pairs) using small-form-factor connectors (LC, LX.5)

Functionality:

- Each module contains pairs of "Source" and "Destination" fibers plus optional monitor ports and a switch for emergency patching.
- Accommodates 1310 and 1550 singlemode wavelengths (switch wavelength range is 1290-1330 and 1525-1610)
- Connector ports on front and rear may be SC, ST, FC, LC, or LX.5
- IL through module is approximately 0.5 dB (final specifications TBD)
- Module port is configurable to 90/10, 95/5 or 99/1 split ratios.

Module specifications:

- Modules may be added to the chassis as needed.
- "Source" and "Destination" terminations may be made by either splicing raw cable to pigtails attached to the modules or by routing connectorized patch cords to the back of the modules.
- Manual switch on front of module to change to "Patched" operation.
- LED indicators for "Normal" and "Patched" operations.
- Modules are available with or without monitor ports on the front.

Chassis specification:

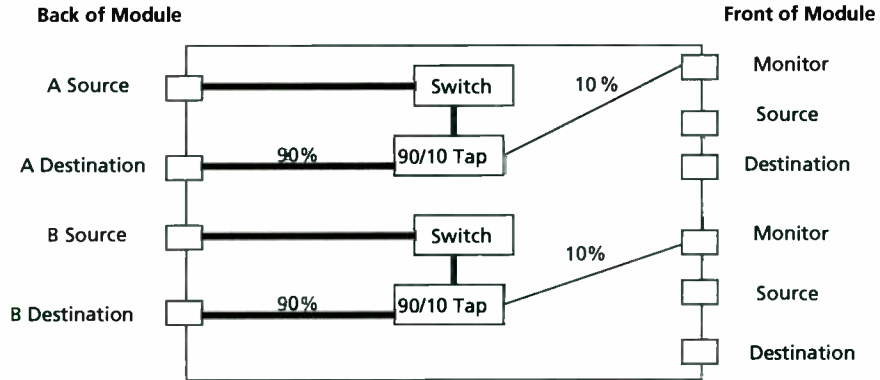
- 19" EIA flush mounting
- Hot swappable power supply to power switches inside modules
- 110/220 IEC interface



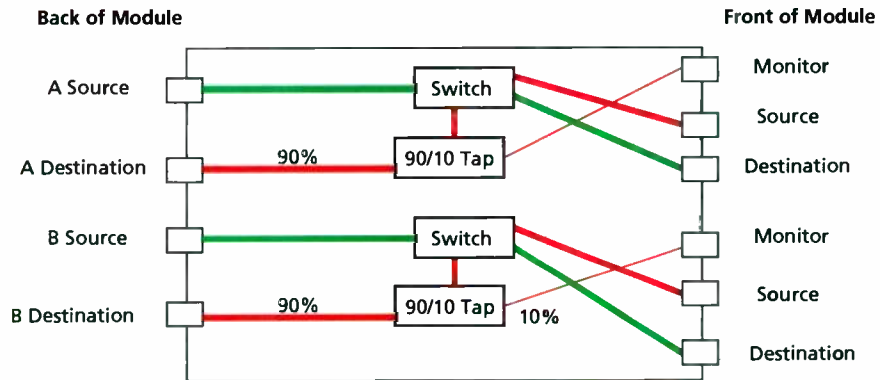
Pro Patch™ Optical Normal Through Panel

Module Schematics

The new Pro Patch Optical Normal Through Panel provides patch by exception, normal through functionality. With this newly designed panel, fiber "Source" and "Destination" connections are on the rear of the panel, with a normal through connection between the "Source" and "Destination" ports. To enable patching functionality, a fiber patch cord is plugged into the front of the panel and a switch is flipped.



Normal



Patched

These are preliminary specifications.

Call an ADC distributor for more details. To find a distributor near you visit adc.com/partners.

Ordering Information

Description	Catalog Number
Empty chassis with power supply	
3 RU chassis with power supply and IEC cord, patch cord storage in rear	PPO-3RU-P
3 RU chassis with power supply and IEC cord, splice tray area in rear	PPO-3RU-S
4 RU chassis with power supply and IEC cord, patch cord storage in rear	PPO-4RU-P
4 RU chassis with power supply and IEC cord, splice tray area in rear	PPO-4RU-S
Power supply	
Replacement power supply with IEC cord	PPO-PWR

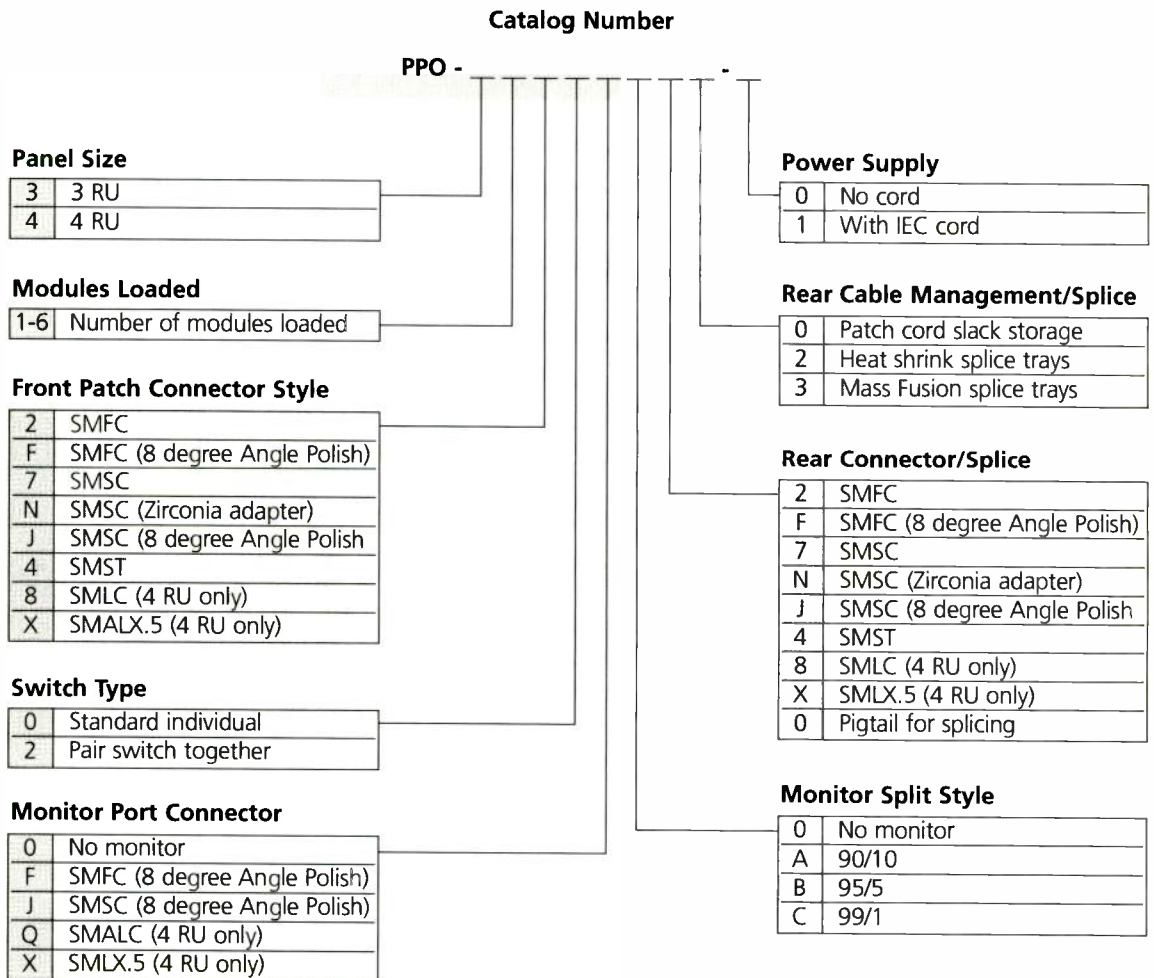


Pro Patch™ Optical Normal Through Panel

Pro Patch™ Preconfigured Panels

The information below explains the ordering numbers contained in the charts on this page. Custom configurations are available: please contact ADC.

3/06 • 102117AE Broadcast Products



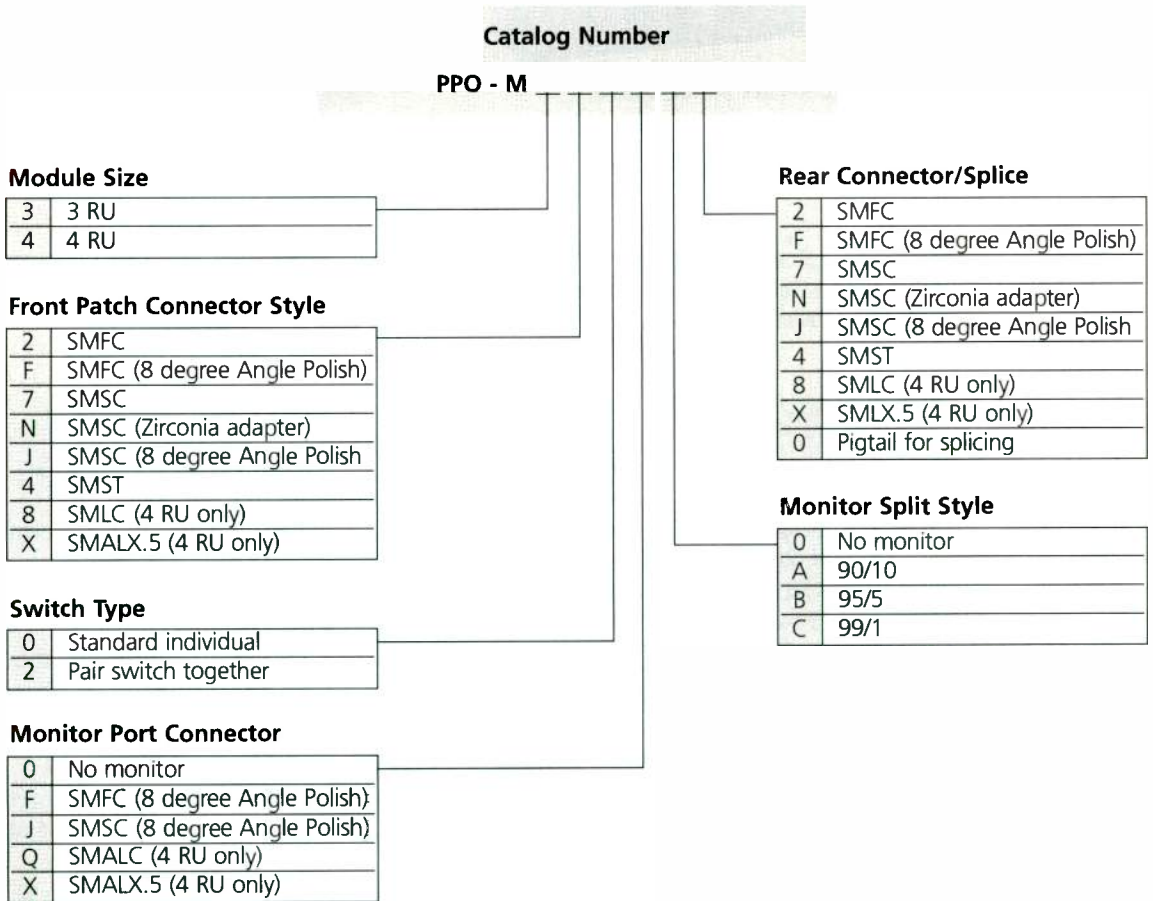


Pro Patch™ Optical Normal Through Panel

Pro Patch™ Modules

The information below explains the ordering numbers contained in the charts on this page. Custom configurations are available: please contact ADC.

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products



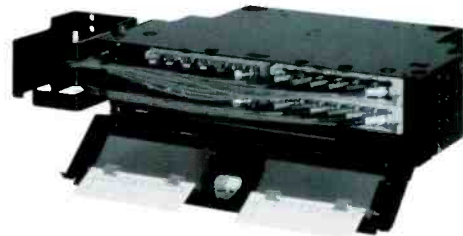


FL2000 System

Introduction



FL2000 Rack Mount Chassis



FL2000 Rack Mount Chassis (door open)

The economical and flexible FL2000 series of fiber optic products is ideal for small fiber counts and can be used in moderate fiber count applications as well by combining various panels. This leading fiber optic panel is now available in black.

Features

- A complete line of modular panels developed for cabinet, rack and wall mounting
- Fully adaptable for large or small main distribution frame (MDF), intermediate distribution frame (IDF) or telephone closet (TC) applications
- Designed for 19" (48.26 cm) EIA rack or cabinet environment found in many broadcast networks; optional brackets are available to accommodate 23" (58.42 cm) or ETSI rack or cabinet mounting
- Provides termination, splicing and storage capabilities for in-building cables, outside plant cables and fiber optic terminal (FOT) equipment patch cords
- Modular design offers maximum flexibility to satisfy both current needs and future growth requirements
- A full line of options and accessories ensures compatibility with existing optical equipment
- FL2000 systems accommodate the Value-Added plug-in modules, adding flexibility and functionality to the optical transport systems. Splitters, wavelength division multiplexers (WDMs) and other optical components can be easily incorporated
- All FL2000 panels accommodate the modular FL2000 6pak plug-ins. 6paks are available in all connector styles and can be ordered as needed
- ADC's patented removable angled retainers allow easy access for single fiber maintenance
- FL2000 panels and feature superior vertical cable protection and management
- Rack mount panels are hinged on one side, allowing full access to the rear of the front plate and the interior of the panel
- Rack mount panels are equipped with mounting brackets to provide 5" (12.7 cm) recess mounting; mounting brackets are available for virtually any mounting application
- Rack mount panels can be wall mounted
- The new FL2000 splice wheel allows easy roll-up of pigtail and buffer tube lengths and superior bend radius protection
- The FL2000 splice deck is available to complete existing installations



FL2000 System

Rack or Cabinet Mount Termination/Splice Panels

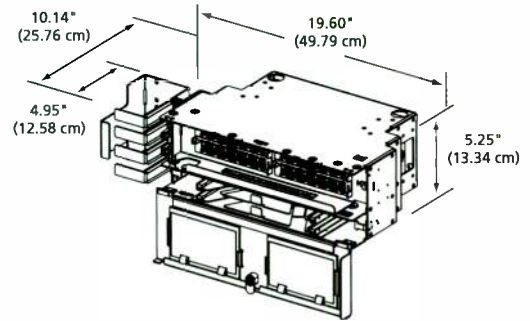
Preconfigured Panels with Pigtails, Black

Features

FL2000 panels can also be shipped with 6paks and/or pigtails pre-installed at the factory.

- Reduce installation time
- Simplify ordering process

Use this configuration guide to determine the ordering number right for your application.



Broadcast Products

3/06 • 102117AE

Ordering Number

FL2 - 1 2 3 4 5 6 7 8 9 10 11 12

Panel Type

C	Termination/Splice
---	--------------------

Nominal Capacity Panel Height

Nominal Capacity	Panel Height
A 12 position	3.5" (8.89 cm) (2 RU)
B 24 position	5.25" (13.34 cm) (3 RU)
D 48 position	8.75" (22.23 cm) (5 RU)
E 72 position	14.00" (35.56 cm) (8 RU)
F 96 position	17.50" (44.45 cm) (10 RU)

Connector Style

Multimode	
9	SC
D	Duplex SC
5	ST [®]
Y	LX.5 ^{®1}
6	LC ¹
Singlemode	
2	Ultra PCFC
L	FC with zirconia adapter
F	FC 8° angled polish
7	Ultra PCSC
N	SC with zirconia adapter
J	SC 8° angled polish
E	Duplex SC
4	Ultra PCST
P	ST [®] with zirconia adapter
K	E-2000 8° angled polish
X	LX.5 ^{®1}
8	LC ¹
1	FC Hybrid (FC connector on front; SC connector on back of bulkhead)
3	ST [®] Hybrid (ST [®] connector on front; SC connector on back of bulkhead)

Number of Ports Loaded

Pigtail or Adapter Type

A	Adapters only
P	6 fiber softwall bundle
H	6 fiber Maxi-Strip
R	12 fiber ribbon
K	12 fiber softwall bundle ²
Y	12 fiber Maxi-Strip

Splice Type

0	None or N/A
M	Mechanical (Wheel)
W	Heat Shrink Fusion (Wheel)
1	Bare Fusion (Deck)
2	Heat Shrink Fusion (Deck)
3	Mechanical (Deck)
7	Raychem Universal (Deck)
8	Nortel (Deck)

Splice Type²

M	Mechanical (Wheel)
N	Nortel (Wheel)

Number of Splice Decks

Latch Type

0	Latch
1	Hole Plug
2	Screwdriver
5	K1 Lock
6	K2 Lock

Number of Cable Clamps

0	1 clamp (standard)
2	2 clamps

Mounting Style³

A	19" (48.26 cm) standard (19.6" [49.78 cm] overall)
B	19" (48.26 cm) maximum (19" [48.26 cm] overall)
C	19" (48.26 cm) flush mount
D	23" (58.42 cm) centered
E	23" (58.42 cm) with oversized VCG
F	ETSI flush mount

¹ LX.5[®] and LC connectors and adapters double the capacity of the panel by terminating two fibers at each adapter.
² For use with LX.5[®] and LC.
³ Mounting kit shipped unattached if other than standard mounting style.



FL2000 System

Rack or Cabinet Mount Termination Panels

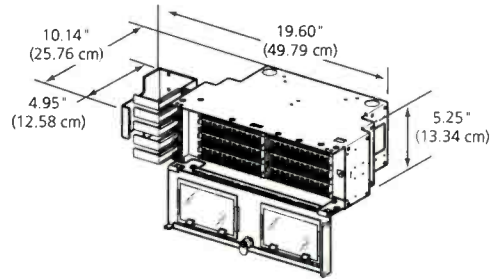
Preconfigured Panels with Pigtails, Black

Features

FL2000 panels can also be shipped with 6paks and/or pigtailed pre-installed at the factory.

- Reduce installation time
- Simplify ordering process

Use this configuration guide to determine the ordering number right for your application.



Ordering Number

FL2 - 1 2 3 0 4 5 6 7 0 - 0 8 9 10 11 12

Panel Type

R	Termination only
---	------------------

Nominal Capacity

Panel Height

A	12 position	1.75" (4.45cm) (1 RU)
B	24 position	3.5" (8.89 cm) (2 RU)
C	36 position	5.25" (13.34 cm) (3 RU)
D	48 position	5.25" (13.34 cm) (3 RU)
E	72 position	8.75" (22.23 cm) (5 RU)
F	96 position	10.5" (26.67 cm) (6 RU)

Connector Style

Multimode	
9	SC
D	Duplex SC
5	ST [®]
Y	LX.5 ^{®1}
6	LC ¹
Singlemode	
2	Ultra PCFC
L	FC with zirconia adapter
F	FC 8° angled polish
7	Ultra PCSC
N	SC with zirconia adapter
J	SC 8° angled polish
E	Duplex SC
4	Ultra PCST
P	ST [®] with zirconia adapter
K	E-2000 8° angled polish
X	LX.5 ^{®1}
8	LC ¹
1	FC Hybrid (FC connector on front; SC connector on back of bulkhead)
3	ST [®] Hybrid (ST [®] connector on front; SC connector on back of bulkhead)

Number of Ports Loaded

Pigtail or Adapter Type

A	Adapters only
P	6 fiber softwall bundle
H	6 fiber Maxi-Strip
R	12 fiber ribbon
K	12 fiber softwall bundle ²
Y	12 fiber Maxi-Strip

Mounting Style³

A	19" (48.26 cm) standard (19.6" [49.78 cm] overall)
B	19" (48.26 cm) maximum (19" [48.26 cm] overall)
C	19" (48.26 cm) flush mount
D	23" (58.42 cm) centered
E	23" (58.42 cm) with oversized VCG
F	ETSI flush mount

Latch Type

0	Latch
1	Hole Plug
2	Screwdriver
5	K1 Lock
6	K2 Lock

Number of Cable Clamps

0	1 clamp (standard)
2	2 clamps

¹ LX.5[®] and LC connectors and adapters double the capacity of the panel by terminating two fibers at each adapter.

² For use with LX.5[®] and LC

³ Mounting kit shipped unattached, if other than standard mounting style.



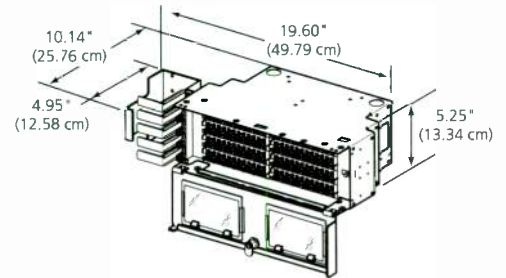
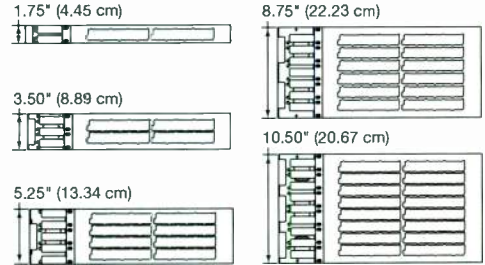
FL2000 System

Empty Panels

Rack or Cabinet Mount Termination Panels

Features

- Mounting
 - 19" (48.26 cm) EIA rack or cabinets, standard 5" (12.7 cm) recess
 - Wall mounting option available
 - Other mounting kits available
 - Please see pages 143-146
- Hinged on left front side¹; allows full access to rear of front plate and interior of panel
- FL2000 6pak adapter plug-ins ordered separately
- Constructed of high strength aluminum
- Equipped with removable metal doors with Plexiglas windows
- Designation labels included with each panel
- Complete line of accessories including locks for security



¹ Right hinged also available

Ordering Information

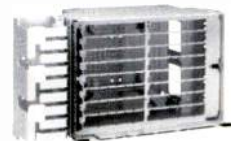
Description	Panel Height	Ordering Number
Rack or Cabinet Mount Panel, black <i>Includes vertical cable management trough</i>		
12 fiber capacity	1.75" (4.45 cm)	FL2-12RPNL-B
24 fiber capacity	3.50" (8.89 cm)	FL2-24RPNL-B
36 fiber capacity	5.25" (13.34 cm)	FL2-36RPNL-B
48 fiber capacity	5.25" (13.34 cm)	FL2-48RPNL-B
72 fiber capacity	8.75" (22.23 cm)	FL2-72RPNL-B
96 fiber capacity	10.50" (26.67 cm)	FL2-96RPNL-B
Accessories		
Wall mount bracket, black - needed for 12 fiber capacity panel only		FL2-ACC008
Cable clamp kit - One per cable recommended Outer diameter .2" to .8" Outer diameter .7" to 1.0" Cable Clamp kit for 12 fiber capacity panel only		FL2-ACC007 FL2-ACC021 FL2-ACC033
Bonding/grounding kit		FL2-ACC006



24 Fiber Capacity



72 Fiber Capacity



96 Fiber Capacity

Mounting kits sold separately, see pages 167-170

Broadcast Products

3/06 • 102117AE



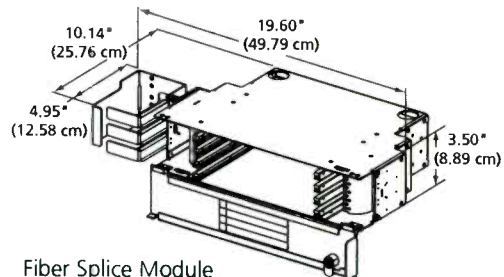
FL2000 System

Empty Panels

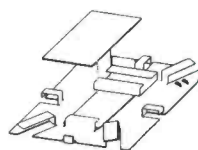
Rack or Cabinet Mount Splice Panels

Features

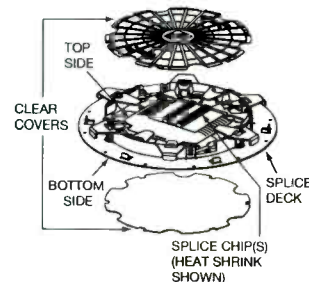
- Offers combination of splicing protection and associated fiber/pigtail storage
- Splice panel can be mounted in conjunction with any FL2000 termination panel or as a stand-alone splice panel
- Occupies same footprint and offers same mounting options as FL2000 termination panels
- Accepts the new ADC splice wheel for efficient management of fiber cable and splice protection
- Accepts the traditional ADC splice deck



Fiber Splice Module
(48 Fiber Capacity
Module Shown)



Splice Deck with
Splice Chip (Black)



Splice Wheel with
Splice Chip (Black)

Ordering Information

Description	Panel Height	Ordering Number
Splice Panel for Splice Wheel, black (Accepts splice wheel only) 48 fiber capacity 96 fiber capacity 144 fiber capacity	3.5" (8.89 cm) 7" (17.78 cm) 8.75" (22.23 cm)	FL2-48SPNL2-B FL2-96SPNL2-B FL2-144SPNL2-B
Splice Wheel with Splice Chip Heat shrink fusion Mechanical Nortel		FST-DRS12-HS FST-DRS12-MT FST-DRS24-NT
Splice Panel for Splice Deck for Existing Installations, black (Also accepts splice wheel) 48 fiber capacity 96 fiber capacity 144 fiber capacity	3.5" (8.89 cm) 7" (17.78 cm) 8.75" (22.23 cm)	FL2-48SPNL-B FL2-96SPNL-B FL2-144SPNL-B
Splice Deck with Splice Chip for Existing Installations Heat shrink fusion Mechanical Bare fusion Nortel QPAK		FL2-RSPLCE-HS-B FL2-RSPLCE-MT-B FL2-RSPLCE-FT-B FL2-RSPLCE-NT-B
Cable Clamp Kit (kit of 1) Outer diameter .2" to .8" Outer diameter .7" to 1.0"		FL2-ACC007 FL2-ACC021

Mounting kits sold separately, see pages 167-170



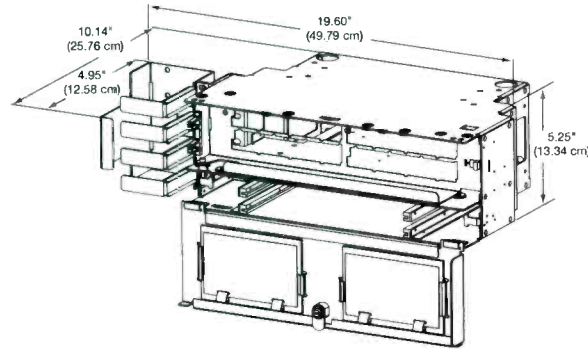
FL2000 System

Empty Panels

Rack or Cabinet Mount Termination/Splice Panels

Features

- Mounting
 - 19" (48.26 cm) EIA racks or cabinets, standard 5" (12.7 cm) recess
 - Wall mounting option available
 - Other mounting kits available. Please see pages 143-146
- Hinged on left front side¹ for complete access to interior of termination section
- Ability to quickly and easily configure, utilizing the 6pak assemblies (ordered separately)
- Complete line of accessories including locks for security
- Uses ADC splice wheels or splice decks



Termination/Splice Panel

¹ Right hinged also available

Ordering Information

Description	Panel Height	Ordering Number
Termination/splice Panel, black		
12 position	3.5" (8.89 cm)	FL2-12TS350-B
24 position	5.25" (13.34 cm)	FL2-24TS525-B
48 position	8.75" (22.23cm)	FL2-48TS875-B
72 position	14" (35.56 cm)	FL2-72TS140-B
96 position	17.5" (44.45 cm)	FL2-96TS175-B
Splice Wheel with Splice Chip		
Heat shrink fusion		FST-DRS12-HS
Mechanical		FST-DRS12-MT
Nortel		FST-DRS24-NT
Splice Deck with Splice Chip		
Heat shrink fusion		FL2-RSPLCE-HS-B
Mechanical		FL2-RSPLCE-MT-B
Bare fusion		FL2-RSPLCE-FT-B
Nortel		FL2-RSPLCE-NT-B

Mounting kits sold separately, see pages 167-170

Broadcast Products 3/06 • 102117AE



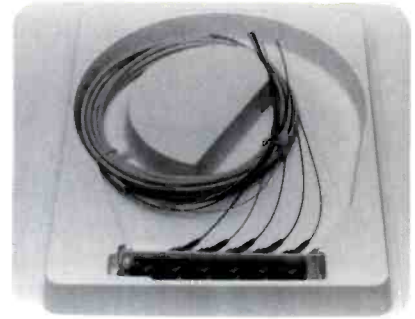
6pak Connector Plug-Ins

With Adapters and Pigtails

Broadcast Products
3/06 • 102117AE

Features

- Available with pre-terminated 3 meter (9.84') or 5 meter (16.4') pigtails
- Pigtails consist of a single outer jacket containing six color-coded 900 µm fibers
- One end of pigtail terminated to chosen connector style and installed into the 6pak plug-in adapters
- ADC recommends specific breakouts for panel and wall mount box products
- Saves installation time



FL2000 6pak plug-in with SC adapters and pigtails

Multimode Pigtails and Adapters

Ordering Number
FL2 - 6P B C 6

Multimode Connector Style	
5	ST [®]
9	SC
A	FC
D	Duplex SC
Y	LX.5 ^{®1}
6	LC ¹

Fiber Size	
B	Multimode 62.5/125
C	Multimode 50/125

Length (in meters)	
03W	3 m (9.84') pigtail for wall mount boxes
05R	5 m (16.4') pigtail for rack mount panels

Note: 6paks are putty in color
¹ LX.5[®] and LC 6paks are loaded with 12 fiber pigtails

Singlemode Pigtails and Adapters

Ordering Number
FL2 - 6P S 6

Singlemode Connector Style	
E	Duplex SC
2	Ultra PCFC
4	Ultra PCST
7	Ultra PCSC
F	PCFC 8° angled polish
J	PCSC 8° angled polish
K	E-2000 angled polish
X	LX.5 ^{®1}
8	LC ¹
Q	PCSC 9° angled polish
1	FC Hybrid (FC connector on front; SC connector on back of bulkhead)
3	ST [®] Hybrid (ST [®] connector on front; SC connector on back of bulkhead)

Length (in meters)	
03W	3 m (9.84') pigtail for wall mount boxes
05R	5 m (16.4') pigtail for rack mount panels

Fiber Type	
C	Stranded
D	Maxi-Strip

Fiber Size	
S	Singlemode

Note: 6paks are putty in color
¹ LX.5[®] and LC 6paks are loaded with 12 fiber pigtails



6pak Adapter Plug-Ins

For all FL2000 Termination Products

Broadcast Products

3/06 • 102117AE

Features

- Completely interchangeable between FL2000 panel and wall box products
- Can be ordered with all standard types of simplex and duplex single and multimode adapters and connectors
- Feature ADC's patented removable angled retainers which provide superior fiber management
- No tools required to install into FL2000 boxes or panels
- Can be ordered with adapters only, or for quick and easy installation, with pre-terminated 3 meter (9.84') or 5 meter (16.4') pigtails



6pak Plug-In (shown with singlemode simplex adapters)



6pak Plug-In (shown with multimode simplex adapters)



6pak Plug-In (shown with singlemode LX.5° adapters)



6pak Plug-In (shown with multimode LX.5° adapters)



6pak Plug-In (shown with singlemode duplex adapters)



6pak Plug-In (shown with multimode duplex adapters)



6pak Blank Plug-In

Ordering Information

Description	Ordering Number
Multimode	
SC	FL2-6PMMSC
ST*	FL2-6PMMST
FC	FL2-6PMMFC
SC (duplex)	FL2-6PMMDSC
SC, zirconia	FL2-6PMMSC-Z
ST*, zirconia	FL2-6PMMST-Z
FC, zirconia	FL2-6PMMFC-Z
LX.5°	FL2-6PMMXLX
LC	FL2-6PMLLC
Singlemode	
SC	FL2-6PSMSC
ST*	FL2-6PSMST
FC	FL2-6PSMFC
SC (duplex)	FL2-6PSMDSC
FC with 8° angled polish	FL2-6PSMAFC
SC with 8° angled polish	FL2-6PSMASC
SC, zirconia	FL2-6PSMSC-Z
ST*, zirconia	FL2-6PSMST-Z
FC, zirconia	FL2-6PSMFC-Z
E-2000, angled polish	FL2-6PSMAE-2
LX.5°	FL2-6PSMALX
LC	FL2-6PSMLC
Hybrid: FC front, SC back	FL2-6PSMFC/SC
Hybrid: ST* front, SC back	FL2-6PSMST/SC
6pak blank plug-in	FL2-6PBLNK



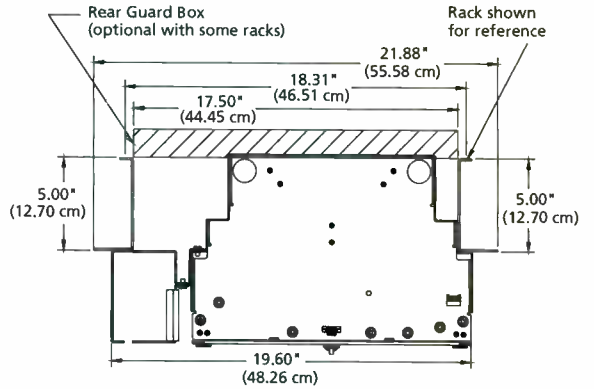
FL2000 System

Mounting Options – 19" (48.26 cm) Rack Mounting

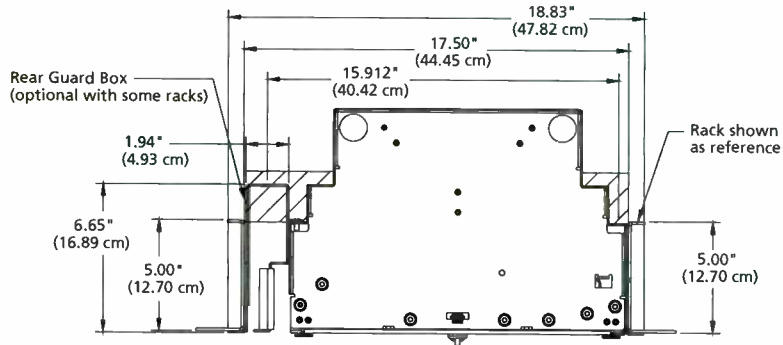
Standard Mount (as shipped)

Features

- Panels typically shipped from factory equipped for this mounting
- Panels shipped with
 - Left-side "L" bracket
 - Left-side 2.5" (6.32 cm) wide vertical cable guide (VCG)



Flush Mount



Ordering Information

Description	Panel Height	Ordering Number
Flush Mount	1.75" (4.45 cm)	FL2-FLMT0175-B
Allows 1", 2" or 4" (2.54, 5.08 or 10.16 cm) recess mounting	3.5" (8.89 cm)	FL2-FLMT0350-B
Kit includes: new vertical cable guide and mounting flanges	5.25" (13.34 cm)	FL2-FLMT0525-B
	7" (17.78 cm)	FL2-FLMT0700-B
	8.75" (22.23 cm)	FL2-FLMT0875-B
	10.5" (26.67 cm)	FL2-FLMT1050-B

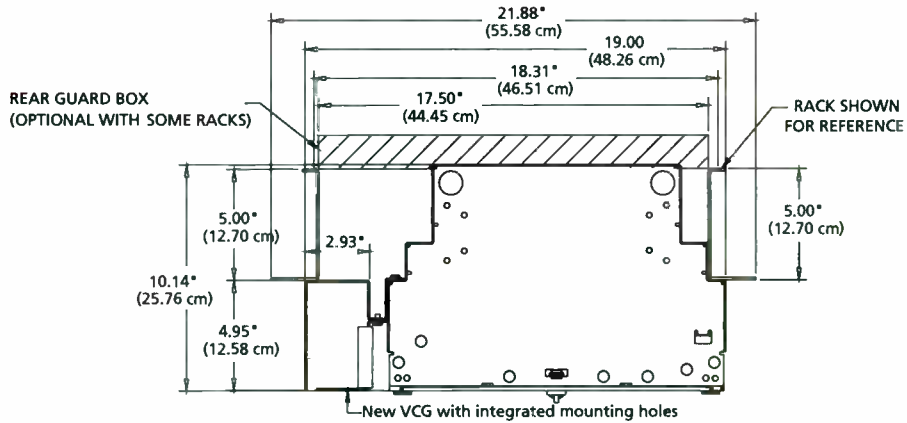
3/06 • 102117AE Broadcast Products



FL2000 System

Mounting Options – 19" (48.26 cm) Rack Mounting

19" (48.26 cm) Maximum Mounting



Ordering Information

Description	Panel Height	Ordering Number
19" Maximum, black	1.75" (4.45 cm)	FL2-19MAX0175-B
Allows entire panel to be contained within frame footprint Kit includes: new vertical cable guide with integrated mounting holes	3.5" (8.89 cm)	FL2-19MAX0350-B
	5.25" (13.34 cm)	FL2-19MAX0525-B
	7" (17.78 cm)	FL2-19MAX0700-B
	8.75" (22.23 cm)	FL2-19MAX0875-B
	10.5" (26.67 cm)	FL2-19MAX1050-B
	14" (35.56 cm)	FL2-19MAX1400-B
	17.5" (43.18 cm)	FL2-19MAX1750-B

Broadcast Products

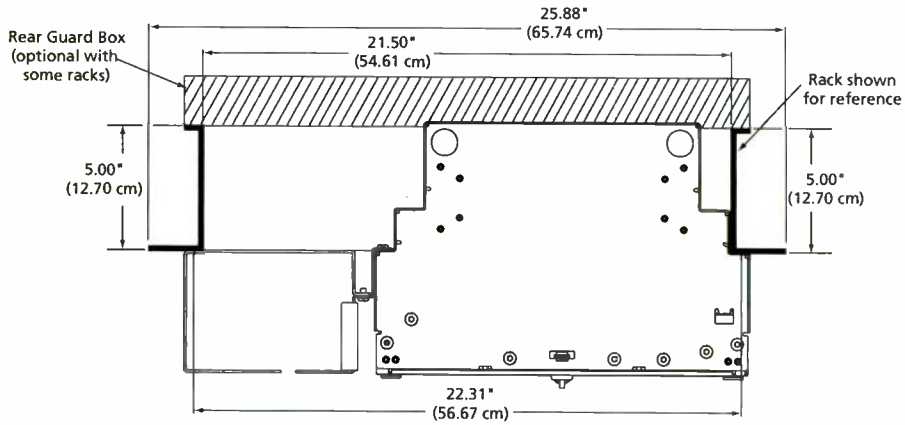
3/06 • 102117AE



FL2000 System

Mounting Options – 23" (58.42 cm) Rack Mounting

23" (58.42 cm) Wide VCG Mounting



Ordering Information

Description	Panel Height	Ordering Number
23" with Large VCG, black Kit includes: new vertical cable guide with integrated mounting holes	1.75" (4.45 cm)	FL2-23VCG0175-B
	3.5" (8.89 cm)	FL2-23VCG0350-B
	5.25" (13.34 cm)	FL2-23VCG0525-B
	7" (17.78 cm)	FL2-23VCG0700-B
	8.75" (22.23cm)	FL2-23VCG0875-B
	10.5" (26.67 cm)	FL2-23VCG1050-B
	14" (35.56 cm)	FL2-23VCG1400-B
	17.5" (43.18 cm)	FL2-23VCG1750-B

Broadcast Products

3/06 • 102117AE

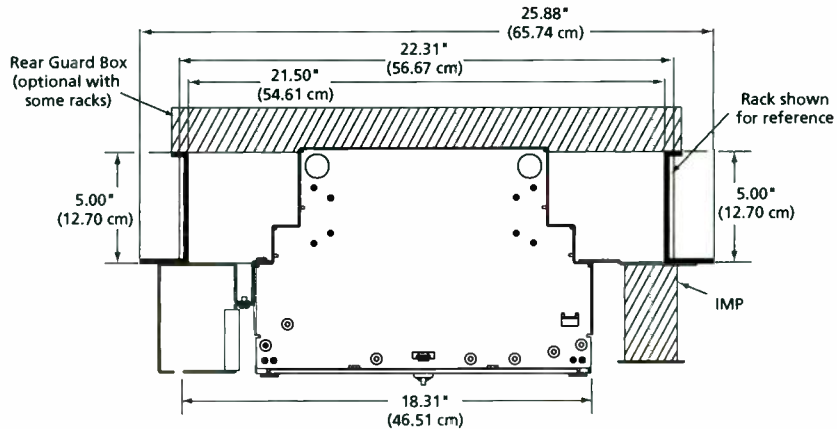


FL2000 System

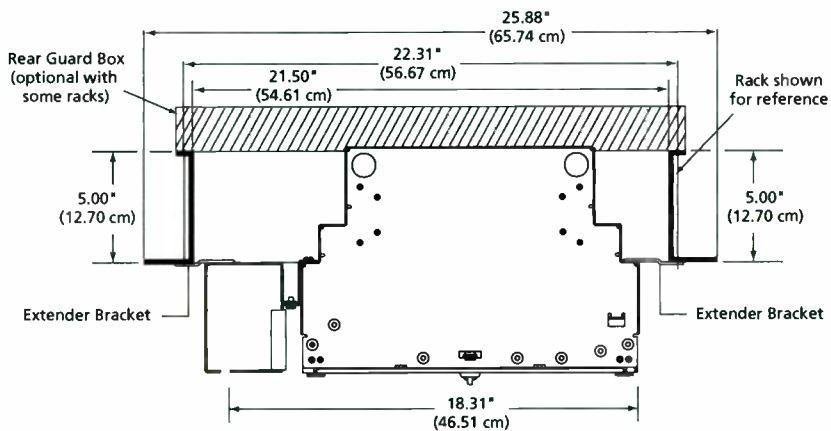
Mounting Options – 23" (58.42 cm) Rack Mounting

Inner IMP Mounting

Note: Standard mounting in a rack equipped with inner-IMP



23" (58.42 cm) Centered (Extender Bracket Mounting)



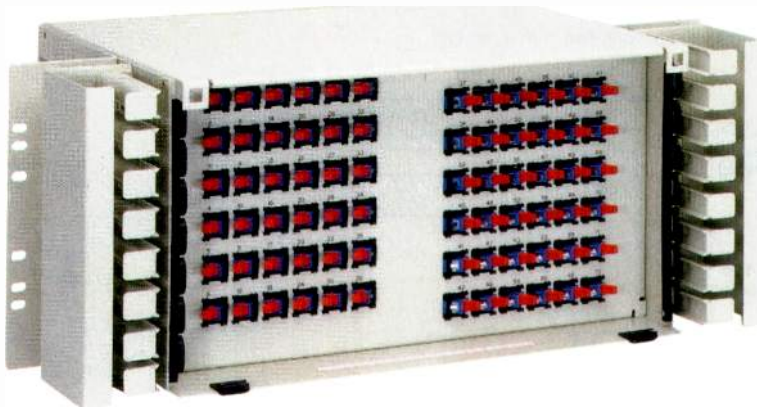
Ordering Information

Description	Panel Height	Ordering Number
23" Rack Centered (with extender brackets) This kit can be used with flush mount brackets (see page 149) to achieve 23" flush mounting, as well as 1", 2", or 4" recess mounting	1.75" (4.45 cm)	FL2-EB0175P-B
	3.5" (8.89 cm)	FL2-EB0350P-B
	5.25" (13.34 cm)	FL2-EB0525P-B
	7" (17.78 cm)	FL2-EB0700P-B
	8.75" (22.23 cm)	FL2-EB0875P-B
	10.5" (26.67 cm)	FL2-EB1050P-B
	14" (35.56 cm)	FL2-EB1400P-B
	17.5" (43.18 cm)	FL2-EB1750P-B



FPL Series

Fiber Panels For Termination, Splice and Storage



With a variety of fiber termination, splicing and storage solutions ADC's FPL Series fiber panels allow customers to optimize rack space and the dollars that go with it. The FPL panels combine the unique features of vertical cable guides and angle-left/angle-right adapters. This results in diverse cable routing options and a complete cable management solution. The panel's rear access splicing provides a high-density termination/splice solution maximizing rack space. And with a wide range of fiber capabilities and options, the panels are designed to meet growing network application needs.

ADC now introduces the 144-position High-Density Termination/Splice panel. The 144-position panel maintains all existing FPL panel capabilities – in the space of just five rack units (8.75").

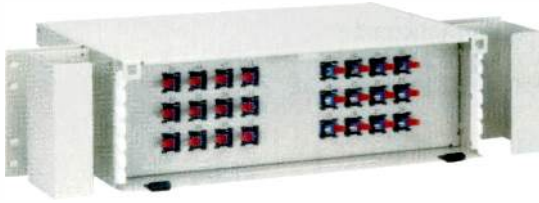
Features

- Panels are equipped with adjustable mounting brackets to provide either 19" or 23" rack or cabinet mounting (EIA or WECCO) as well as 4" or 5" recess mounting
- Available preterminated with pigtailed to simplify ordering and reduce installation time
- ADC's patented removable angled retainers allow easy access for single fiber maintenance
- Vertical cable guides on either side of the panel provide bend radius protection and management of fibers exiting the panel
- Using an LC or ADC's LX.5® connector will double the capacity of each panel

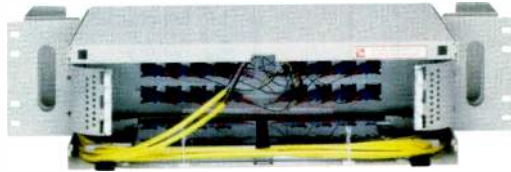


FPL Series Fiber Panels

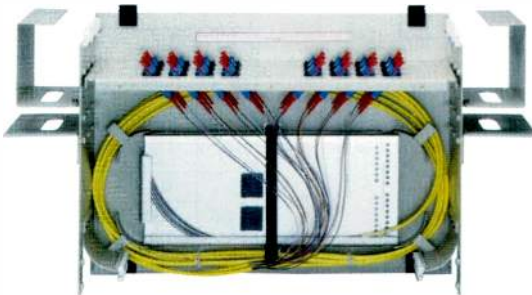
Termination and Splice



Front View



Rear View



Top Cover Removed with Pigtail Routing Shown

Features

- Available in 24, 48, 72, and 96 termination densities
- Provides termination and splice of pigtails as well as associated fiber/pigtail storage
- Rear splice area saves space by reducing panel height
- ADC recommends completely splicing all OSP/IFC cables during initial installation to maintain minimal disturbance of the interior of the panel
- Splice area provides up to a total of 7 meters of slack storage for pigtails and OSP/IFC buffer tubes
- Optional lock for both front and rear doors (available separately)
- Removable front polycarbonate door
- Designation labels included with each panel
- Mounting brackets included with panel may be flipped to accommodate 19" or 23" mounting and 4" or 5" recess
- Each panel includes 2 cable clamps

Broadcast Products

3/06 • 102117AE

Panel Size	Splice Tray Type	Number of Splice Trays included for a fully loaded panel
24	Single Height	2
48	Dual Height	2
72	Dual Height	3
96	Dual Height	4



FPL Series Fiber Panels

Termination and Splice

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products

Ordering Number

FPL- R 0 - 0

Nominal Capacity		Dimensions Height
24	24-position	5.25" (3RU)
48	48-position	8.75" (5RU)
72	72-position	8.75" (5RU)
96	96-position	8.75" (5RU)

Adapters/Pigtails	
P	Stranded pigtails and adapters
R	Ribbon pigtails and adapters

Connector Style (Panel/Stub)	
Multimode	
9	SC
D	SC duplex
5	ST*
Y	LX.5**
6	LC*
Singlemode	
2	FC
L	FC (zirconia adapter)
F	FC (8° angle polish)
7	SC
N	SC (zirconia adapter)
J	SC (8° angle polish)
E	SC duplex
4	ST*
P	ST* (zirconia adapter)
K	E-2000 (8° angle polish)
R	E-2000 (flat polish)
X	LX.5**
8	LC*

Splice Type	
0	None or N/A
1	Bare fusion
2	Heat shrink fusion
3	Mechanical
4	Rotary
5	FibrLok®
7	Raychem Universal (RU)
8	Nortel
9	AFL

Number of Pigtailed Terminations	
12	12
24	24
36	36
48	48
72	72
96	96
144	144 (LX.5* and LC only)

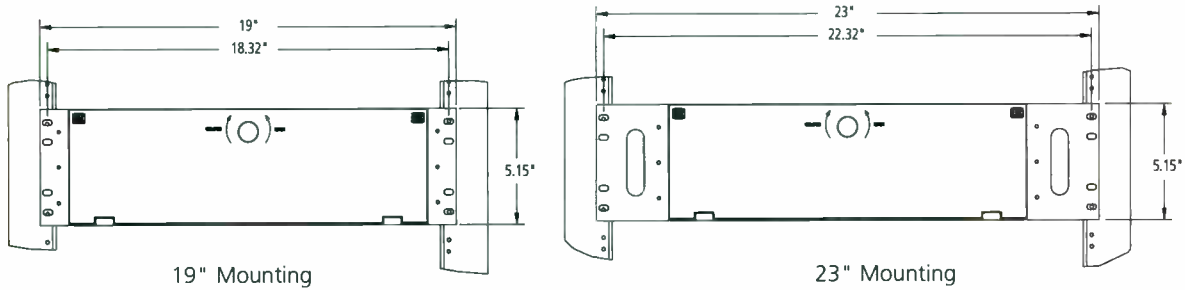
* LX.5* and LC are not available in 96-position panel



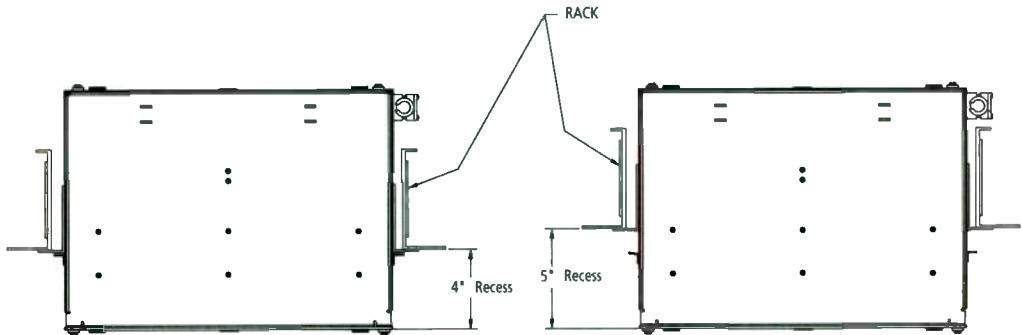
FPL Series Fiber Panels

Mounting Options for FPL Panels

The following mounting bracket options are available with all FPL panels except the single-drawer storage panels. (Vertical cable guides removed to show mounting brackets.)



Mounting brackets may be flipped to provide either 19" or 23" mounting.



Mounting brackets may be adjusted for 4" or 5" recess mounting.



Fiber Management Tray

Introduction

ADC's Fiber Management Trays provide a flexible, economical approach to handling your network's most vital elements by offering four different designs. Termination, termination/splicing, termination/storage, and slack storage designs are offered with ADC's modular, all-front-access design.

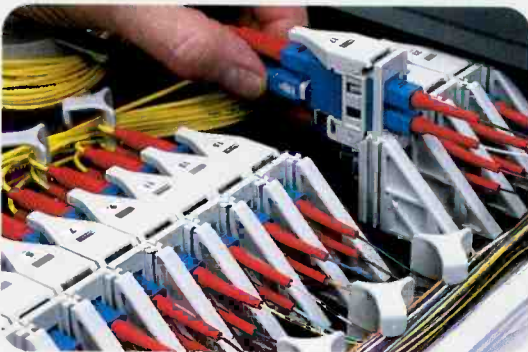
Features:

All-Front-Access Design



Sliding radius limiters provide ultimate fiber management by addressing one of the most critical elements of fiber cable management: bend radius protection.

By controlling the movement of fibers into the tray, error-proof slack loop management is maintained, ensuring 30 mm bend radius protection. This is crucial to protecting fiber, eliminating service failures and decreasing costs.



Sliding Adapter Packs

Sliding adapter packs allow easy access for connecting jumpers and cleaning connectors, ensuring that any fiber can be installed or removed without disturbing adjacent fibers. That can mean the difference between a network reconfiguration time of 20 minutes per fiber and one of over 90 minutes per fiber.



Modular Design

ADC's modular design offers the value of a single interface for performing multiple tasks in your network. By employing a one-rack-unit, modular tray, network technicians have familiar access to terminating, splicing, and storing fiber. This cable management approach translates to time and money saved, for moves, adds and changes.

Broadcast Products

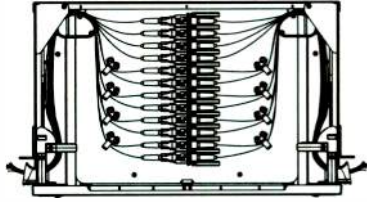
3/06 • 102117AE



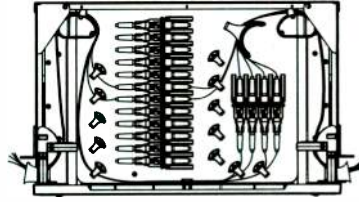
Fiber Management Tray

Termination Only

The termination only Fiber Management Tray provides termination for 24 or 32 fibers in an all-front-access design. This tray mounts in 19-inch, 23-inch, or ETSI racks, while sliding radius limiters provide cable management for incoming and outgoing fibers.



24-Termination Only



32-Termination Only

Broadcast Products

3/06 • 102117AE

Ordering Number
FMT-D 0 0AO -

Drawer Configuration

RT	Termination only
----	------------------

Connector/Adapter Style

Multimode	
5	ST®
9	SC
Singlemode	
1	FC hybrid (FC connector on front; SC connector on back of bulkhead)
2	FC ultra polish
3	ST® hybrid (ST® connector on front; SC connector on back of bulkhead)
4	ST® ultra polish
7	SC ultra polish
F	FC angled polish
J	SC angled polish
K	E-2000 angled polish
L	FC with zirconia adapter
M	MTRJ feedthrough adapter
N	SC with zirconia adapter
P	ST® with zirconia adapter

Faceplate Color

B	Black
P	Putty

Number of Ports

24
32

Mounting Style

A	19" EIA 5" recess
C	19" EIA 2.2" recess
E	19" EIA 40 mm recess
F	ETSI 40 mm recess
S	23" WECCO 2.2" recess

Lock Type

0	No lock
1	Lock, key type 1
2	Lock, key type 2

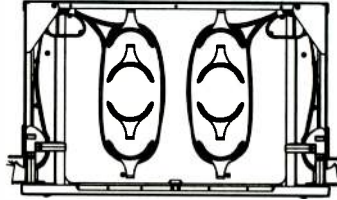


Fiber Management Tray

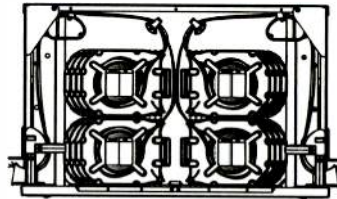
Slack Storage Panels

The slack storage tray offers bulk storage for up to 60 fibers, and discrete slack storage for up to 16 fibers. This all-front-access tray mounts in 19-inch, 23-inch, or ETSI racks, while sliding radius limiters provide cable management for incoming and outgoing fibers.

Bulk/Storage Drawer



Discrete/Storage Drawer



Slack storage type	Capacity		
	3 mm cable	2 mm cable	1.7 mm cable
Bulk	32 cables, 2.5 m each	48 cables, 2.5 m each	60 cables, 4 m each
Discrete	16 cables, 1.7 m each	16 cables, 2 m each	16 cables, 2.5 m each

Ordering Number

FMT - D 0 0 0 00 - 00

Drawer Configuration

BS	Bulk storage
DS	Discrete storage

Lock Type

0	No lock
1	Lock, key type 1
2	Lock, key type 2

Faceplate Color

B	Black
P	Putty

Mounting Style

A	19" EIA 5" recess
C	19" EIA 50 mm recess
E	19" EIA 40 mm recess
F	ETSI 40 mm recess
S	23" WECO 2.2" recess



Fiber Management Tray

Specifications

PHYSICAL

Approximate Weight:

8 lbs (3.7 kg)

Configuration Options and Capacity:

Termination only (24 or 32 fibers)

Termination/storage (12, 16, or 24 terminations)

Bulk Storage

3 mm outer diameter cable: 32 cables, length 2.5 m each

2 mm outer diameter cable: 48 cables, length 2.5 m each

1.7 mm outer diameter cable: 60 cables, length 4 m each

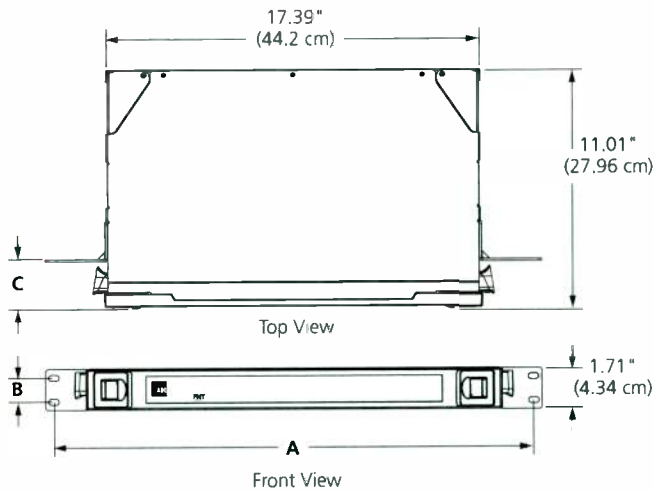
Discrete storage

3 mm outer diameter cable: 16 cables, length 1.7 m each

2 mm outer diameter cable: 16 cables, length 2 m each

1.7 mm outer diameter cable: 16 cables, length 2.5 m each

Termination/splicing (12, 16, or 24 splices)



Configuration	A	B	C
19" EIA (2.2" recess)	18.31" (46.5 cm)	1.25" (3.2 cm)	2.25" (5.7 cm)
19" EIA (40 mm recess)	18.31" (46.5 cm)	1.25" (3.2 cm)	1.54" (3.9 cm)
19" EIA (5" recess)	18.31" (46.5 cm)	1.25" (3.2 cm)	5.0" (12.7 cm)
ETSI (40 mm recess)	20.28" (51.5 cm)	0.98" (2.5 cm)	1.54" (3.9 cm)
23" WEKO (2.2" recess)	22.31" (56.7 cm)	1.0" (2.5 cm)	2.25" (5.7 cm)
23" WEKO (5" recess)	22.31" (56.7 cm)	1.0" (2.5 cm)	5.0" (12.7 cm)
23" EIA (2.2" recess)	22.31" (56.7 cm)	1.25" (3.2 cm)	2.25" (5.7 cm)
23" EIA (5" recess)	22.31" (56.7 cm)	1.25" (3.2 cm)	5.0" (12.7 cm)



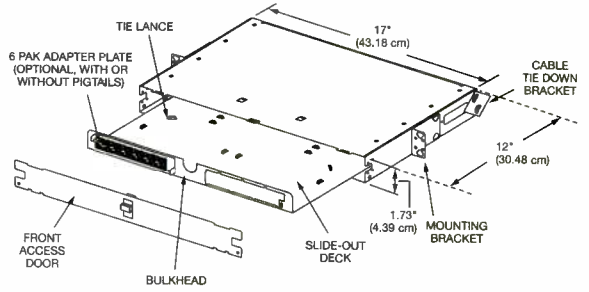
FL1000 Fiber Termination Products

Rack Mount

Limited floor space and smaller fiber counts often dictate that multiple pieces of communications apparatus share common equipment racks. The FL1000 is designed to be mounted within standard 19-inch or 23-inch EIA equipment racks. Standard flush mount capability also makes this panel well-suited to cabinet installations.

The left/right orientation of the individual angled adapters and retainers allows the easy exit of the jumpers from the panel. A removable rear door on the 24 termination panels allows efficient access the interior of the panel for the routing and termination of fiber cables. The 12 position panel is 1.75" high and features a sliding bulkhead drawer to accommodate easy access within the panel.

The FL1000 fanning panel, used in conjunction with the FL1000 rack mount panels and their left/right orientation, offers an effective and safe means of routing jumpers within a multi-use communications rack.



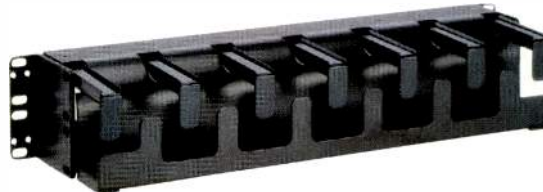
12-Position Rack Mount Panel



12-Position Rack Mount

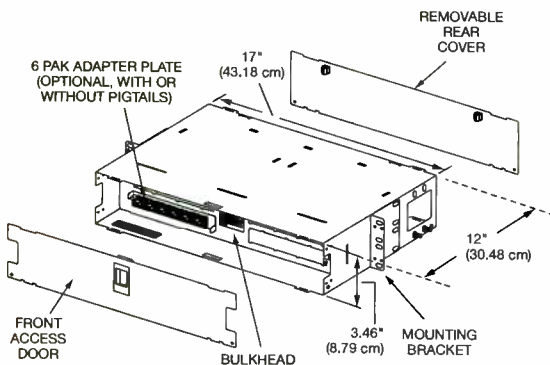


24-Position Rack Mount

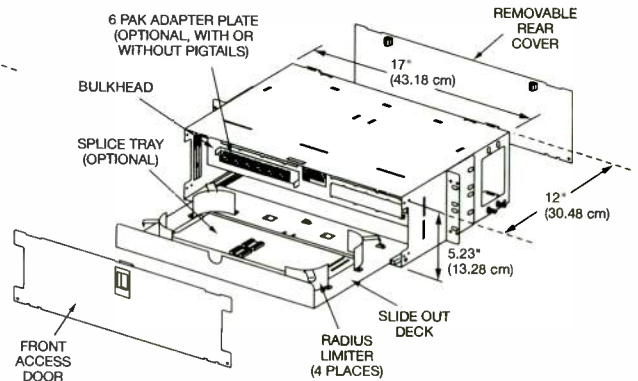


FL1-FPL

Designed to route optical cables left and right from the front of the FOT to the FL1000 6paks



24-Position Rack Mount Panel



24-Position Termination/
Splice Rack Mount Panel



FL1000 Fiber Termination Products

Ordering Information/Rack Mount Panels

Broadcast Products

3/06 • 102117AE

FL1 - 1 2 3A 3B 3C 3D N N - 0 7 8

1 Select Panel Type

Panel Type	
D	12-position termination rack mount panel
E	24-position termination rack mount panel
F	24-position termination/splice rack mount panel

2 6paks (with or without fiber) not installed into panel

1	Adapters with pigtails (2.0 mm x 3.0 m)
2	Adapters only
N	None/NA

OR

3 6paks (with or without fiber) installed into panel

3	Adapters with pigtails pre-installed into panel (2.0 mm x 3.0 m)
4	Adapters pre-installed into panel

Rack Mount Front View

3A	3B
3C	3D

6pak placement ordering guide in panel is factory installed

4 Select Splice Tray with Chip

1	Bare fusion
2	Heat shrink
3	Mechanical
4	Rotary
6	FibrLok®
7	Nortel QPAK
N	None/NA

Select number of each needed (0-9)

5, 6, 7, 8

Accessories	
5	Cable clamp
6	Compression fittings
7	Bonding grounding kit
8	Radius limiters (set of two)

If selecting a splice tray:
 (1-2) 6paks: you will receive 1 splice tray
 (3-4) 6paks: you will receive 2 splice trays

5 6pak Adapter/Connector Type Multimode (62.5/125)

9	SC
D	Duplex SC
5	ST®
A	FC
0	Blank plug-in
N	None/NA

OR

Singlemode

7	PCSC
E	Duplex PCSC
4	PCST
2	PCFC
R	PCSC-HP (zirconia sleeves)
C	Duplex PCSC-HP (zirconia sleeves)
P	PCST-HP (zirconia sleeves)
L	PCFC-HP (zirconia sleeves)
J	PCSC 8° angled polish
F	PCFC 8° angled polish
K	E-2000 8° angled polish
B	Duplex SC 8° angled polish
3	PCD4*
0	Blank plug-in
N	None/NA

* = 3.0 mm x 3.0 m pigtails



FL1000 Fiber Termination Products

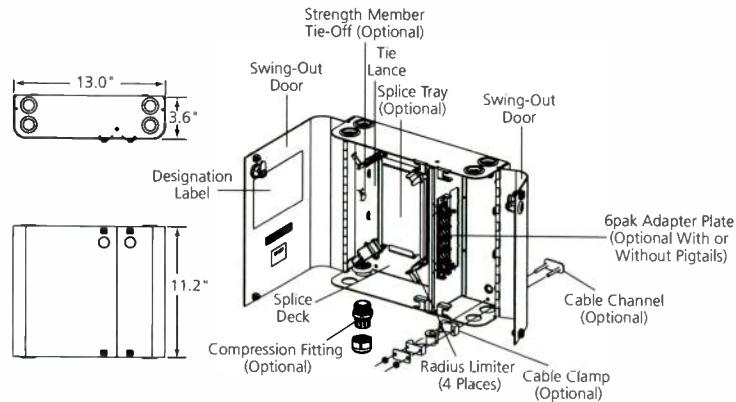
Two-Door Wall-Mount Boxes

The FL1000 two-door, wall-mount boxes feature a unique design and many integrated features such as:

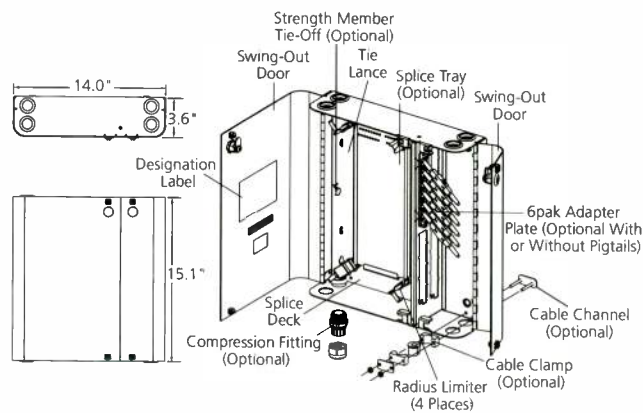
- Multiple, configurable locking options that allow users and service providers separate access for security
- Acceptance of strength member tie-off hardware
- Acceptance of cable clamps at each corner

Grounding screws, mounting screws, and dust caps are included with each panel. More accessories are available.

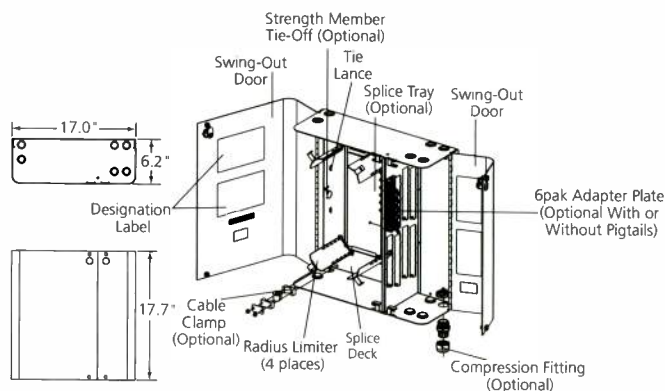
12-Position Termination/Splice Wall Box



24-Position Termination/Splice Wall Box



48-Position Termination/Splice Wall Box





FL1000 Fiber Termination Products

Two-Door Ordering Information

Broadcast Products
3/06 • 102117AE

How to order an FL1000 two-door wall-mount box

1. Select wall box type
2. Select 6pak (with or without fiber) **not installed** in wall-mount box (recommended for quicker availability) **OR** Select 6pak (with or without fiber) **installed** in wall-mount box
3. Select 6pak adapter type (if factory installed, choose placement in the wall-mount box)
4. Select splice tray with chip
5. Select number of cable clamps (0-9)
6. Select number of compression fittings (0-9)
7. Select number of bonding grounding kits (0-9)
8. Select number of strength member tie-off kits (each wall box accepts 2, maximum) (0-9)
9. Select locks

FL1- 1 2 3A 3B 3C 3D 3E 4 - 5 6 7 8 9

Wall Box Type

G	2-door, 12-position termination/splice wall box
H	2-door, 24-position termination/splice wall box
J	2-door, 48-position termination/splice wall box

6paks not Installed into Wall Box (with or without Fiber)

1	Adapters with pigtails (2.0 mm x 3.0 m)
2	Adapters only
N	None/NA

OR

6paks Installed into Wall Box (with or without Fiber)*

3	Adapters with pigtails preinstalled into wall box (2.0 mm x 3.0 m)
4	Adapters preinstalled into wall box

Multimode and Singlemode 6pak Adapter/Connector Type

0	Blank
N	None/NA

Singlemode

2	FC ultra polish
4	ST® ultra polish
7	SC ultra polish
B	SC Duplex
C	SC Duplex with zirconia sleeves
E	SC Duplex
F	FC angled polish
J	SC angled polish
K	E-2000 angled polish
L	FC with zirconia sleeves
P	ST® with zirconia sleeves
R	SC with zirconia sleeves
X	LX.5®
8	LC

Multimode

5	ST®
9	SC
A	FC
D	SC Duplex
Y	LX.5®
6	LC

Locks

A	Two A keys
B	Two B keys
C	One A key, one B key
D	One A key
E	One B key
N	None

Numerous locking options are available for separate user and service provider access. Choose the combination appropriate for your security needs.

Accessories

5	Cable clamp
6	Compression fittings
7	Bonding grounding kit
8	Strength member tie-off

Enter the desired quantity (0-9) above the corresponding accessory.

Splice Tray with Chip

1	Bare fusion
2	Heat shrink fusion
3	Mechanical (elastomeric)
4	Rotary
6	FibrLok®
7	Nortel QPAK
N	None

Wall-Mount Bulkhead

3	3	3	3
E	D	C	A
3	3	3	3
E	D	C	B

Door Side Mounting Wall Side
Viewed from Equipment Side

* Use the guide above for placement of factory-installed 6paks. Place the desired connector or adapter type (from guide above) above the corresponding location designation of 3A, 3B, 3C, 3D or 3E. The diagram illustrates the location of each 6pak within the bulkhead.



FL1000 Fiber Termination Products

6pak Adapter Packs

Flexibility for future growth:

To add capacity to an existing FL1000 panel, simply order the appropriate 6pak.



6pak without fiber



6pak with fiber

6paks without fiber

Multimode (62.5/125)	Ordering Number
SC	FL2-6PMMSC
Duplex SC	FL2-6PMMDSC
ST*	FL2-6PMMST
FC	FL2-6PMMFC
LX.5*	FL2-6PMMXL
LC	FL2-6PMMLC
Singlemode	
SC	FL2-6PSMSC
Duplex SC	FL2-6PSMDSC
ST*	FL2-6PSMST
FC	FL2-6PSMFC
SC (with zirconia sleeve)	FL2-6PSMSC-Z
Duplex SC (with zirconia sleeve)	FL2-6PSMDSC-Z
ST* (with zirconia sleeve)	FL2-6PSMST-Z
FC (with zirconia sleeve)	FL2-6PSMFC-Z
SC angled 8°	FL2-6PSMASC
FC angled 8°	FL2-6PSMAFC
E-2000 angled 8°	FL2-6PSMAE2
LX.5*	FL2-6PSMALX
LC	FL2-6PSMLC

6paks with fiber

Multimode (62.5/125)	Ordering Number
SC	FL1-6P9BC003
Duplex SC	FL1-6PDBC003
ST*	FL1-6P5BC003
FC	FL1-6PABC003
LX.5*	FL1-6PYBC003
LC	FL1-6P6BC003
Singlemode	
SC	FL1-6P7SC003
Duplex SC	FL1-6PESC003
ST*	FL1-6P4SC003
FC	FL1-6P2SC003
SC (with zirconia sleeve)	FL1-6PRSC003
Duplex SC (with zirconia sleeve)	FL1-6PCSC003
ST* (with zirconia sleeve)	FL1-6PPSC003
FC (with zirconia sleeve)	FL1-6PLSC003
SC angled 8°	FL1-6PJSC003
FC angled 8°	FL1-6PFSC003
E-2000 angled 8°	FL1-6PKSC003
LX.5*	FL1-6PXBC003
LC	FL1-6P8SC003

Accessories

Ordering Information

Description	Ordering Number
Compression fitting	FL1-ACC001
Radius limiters (set of 2 for use with rack mount panels)	FL1-ACC002
Strength member tie-off kit	FL1-ACC003
NEMA box access tool	ACE/AGX-KEY
Cable clamp	FL2-ACC007
Bonding grounding kit	FL2-ACC006
Lock and Key Type A	IPA-K1
Lock and Key Type B	IPA-K2
Mini-splice trays	
(used only in 12-position, wall mount box)	
Bare fusion	FL1-M-FT
Heat shrink fusion	FL1-M-HS
Rotary	FL1-M-RT
FibrLok®	FL1-M-3M
Northern Telecom QPAK	FL1-M-NT
Standard splice trays	
Bare fusion	FST-FT
Heat shrink fusion	FST-HS
Mechanical (Elastomeric)	FST-MT
Rotary	FST-RT
FibrLok®	FST-3M
Northern Telecom QPAK	FST-NT
Raychem universal chip	FST-RCM



FiberGuide® Fiber Management System

Introduction

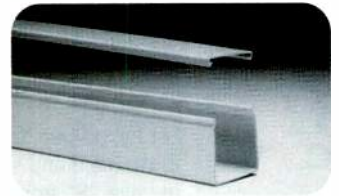
The Industry's Most Comprehensive Optical Raceway System

ADC's FiberGuide® Fiber Cable Management System is a trough system designed to protect and route fiber optic patch cords, multifiber cable assemblies, and intrafacility fiber cable (IFC) to and from fiber splice enclosures, fiber distribution frames, and fiber optic terminal devices. The FiberGuide system is designed to ensure a 2-inch minimum bend radius is maintained throughout the system.

The FiberGuide system is a complete set of products designed and manufactured to ensure total off-frame protection. Basic components include horizontal and vertical straight sections, horizontal and vertical elbows, downspouts, junctions, and numerous support hardware and flex tube kits.

The FiberGuide system is available in a variety of sizes:

2x2 — Ideal for smaller installations or for vertical routing into fiber bays. It has the trough capacity to support (400) 2 mm fiber optic patch cords. All 2x2 FiberGuide products are shipped with covers.



2x6 — Designed for height-restricted environments, this robust system provides the same support and system flexibility of the traditional 4-inch-high system while saving 2 inches of overhead space. It features a maximum capacity of 1,200 2 mm patch cords.



4x4 — Features the maximum capacity to support 1,600, 2 mm patch cords. It has been engineered to allow straight sections to be self-supporting over a span of up to 6 feet (1.83 m).



4x6 — Features the same benefits of the 4-inch system and a maximum trough capacity of 2,400 2 mm patch cords.



4x12 — The largest system in the FiberGuide family, this 12-inch-wide trough has a maximum capacity to support nearly 5,000 2 mm patch cords. Perfect for runs over fibre frame lineups and perimeter routes.



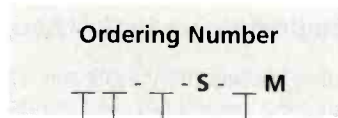
For complete ordering information, see ADC ordering guide 100569.



Fiber Optic Patch Cords

Singlemode and Multimode

Singlemode



Cable Option

FPC	Connector on both ends (patch cord)
FPT	Connector on one end (pigtail)

Cable Type

<small>Leave Blank</small>	3 mm single
M	2 mm single
F	1.7 mm single
9	900 micron
Z	3 mm dual zip
2	2 mm dual zip
T	1.7 mm dual zip

Length

X Length in meters

Connector Type¹

SPSC	SC ultra polish
APSC	SC angled polish
SDSC	SC duplex ²
SPFC	FC ultra polish
APFC	FC angled polish
SPST	ST [®] ultra polish
AE2	E-2000 angled polish
SPLX	LX.5 [®] ultra polish ³
ALX5	LX.5 [®] angled polish ³
SDLX	LX.5 [®] ultra polish duplex ⁴
ADLX	LX.5 [®] angled polish duplex ⁴
SPLC	LC ultra polish
SDLC	LC ultra polish duplex ²

¹For hybrid patch cords, enter both connector types in this field and separate them with a slash mark; remove "S" from the ultra polish connector options (see second ordering example).

²One connector per end; requires dual zip cable

³Requires 900 micron, 1.7 mm or 2 mm cable

⁴Requires 1.7 mm or 2 mm dual zip cable

Ordering Example

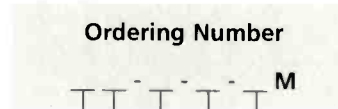
FPC2-SPFC-10M: Patch cord with ultra polish FC connectors on both ends, 2 mm dual zip cable, 10 meters in length with standard breakout length of 12" on both ends.

FPC-SPST/PSC-S-10M: Patch cord with ST[®] ultra polish connector on one end and SC ultra polish connector on the other end, 10 meters in length.

Broadcast Products

3/06 • 102117AE

Multimode



Cable Option

FPC	Connector on both ends (patch cord)
FPT	Connector on one end (pigtail)

Cable Type

<small>Leave Blank</small>	3 mm single
M	2 mm single
F	1.7 mm single
9	900 micron
Z	3 mm dual zip
2	2 mm dual zip
T	1.7 mm dual zip

Length

X Length in meters

Fiber Size

A	50/125
B	62.5/125

Connector Type¹

MSC	SC ultra polish
MDSC	SC duplex ²
MFC	FC ultra polish
MST	ST [®] ultra polish
MLX5	LX.5 [®] ultra polish ³
MDLX	LX.5 [®] duplex ⁴
MLC	LC ultra polish
MDLC	LC duplex ²

¹For hybrid patch cords, enter both connector types in this field and separate them with a slash mark

²One connector per end; requires dual zip cable

³Requires 900 micron, 1.7 mm or 2 mm cable

⁴Requires 1.7 mm or 2 mm dual zip cable

Ordering Example

FPC-MST/MSC-B-7M: Patch cord with ST[®] ultra polish connector on one end and SC ultra polish connector on the other end, 62.5/125 fiber size, 7 meters in length.

Drawings and Specifications



Patching

ProPatch™ Programmable Series	170
Longframe Audio Products	172
Bantam Audio Products	173
Video Products	175

ICON Systems

I-W Wall-Mount System.....	177
Bulkhead Panels.....	182
F Connector Bulkhead Panels.....	188
Wall-Mount Panels.....	189
Audio Products	191

Connectors and Accessories

Component Audio Products.....	196
MUSA-Series jacks and Accessories	199
Video Products	200
75 Ohm Connectors	206
ProAx™ Triaxial Camera Connectors	214

RF Signal Management

RF Worx® SignalOn® Passives	218
RF Worx® Satellite Splitters/Combiners	220
RF Worx® SignalOn® Actives	221



Drawings and Specifications

ProPatch™ Programmable Series

PPP1248 Chassis and AMI-BAN Module in all Chassis Configurations

ELECTRICAL

Contact Resistance:	0.020 Ohm maximum (initial) 0.020 Ohm maximum (after life cycling) 0.10 Ohm maximum (after salt spray)
Insulation Resistance:	10,000 megohms minimum (initial) 1,000 megohms minimum (after moisture resistance test)
Dielectric Withstanding:	Voltage: 500 Vac
Contact Rating:	Maximum: 100 mA + 130 Vdc; Minimum: -40 dBm

MECHANICAL

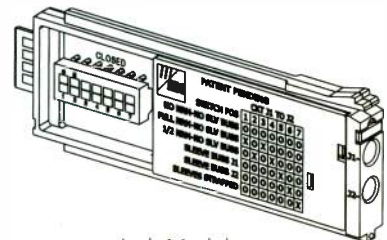
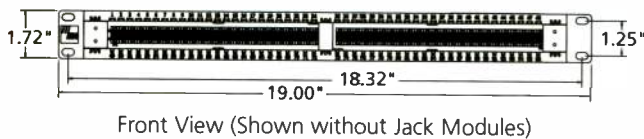
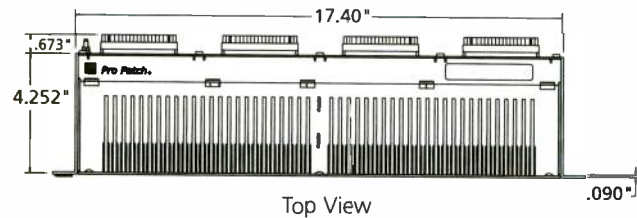
Mechanical Shock:	Per MIL-STD-202F, Method 213B, test condition H
Vibration:	MIL-STD-1344, Method 2005, test condition I
Insertion Force:	7 lbs. (3.17 kg) maximum
Withdrawal Force:	1.5 lbs. (.679 kg) minimum
Life:	20,000 insertion/withdrawal cycles minimum

ENVIRONMENTAL

Operating Temp:	-40°C to 65°C
Storage Temp:	-55°C to 85°C
Thermal Shock:	Per MIL-STD-202F, Method 107G, test condition A
Operating Humidity:	0% to 95% (no condensation)
Storage Humidity:	0% to 95% (no condensation)
Salt Spray:	Per MIL-STD-202F, Method 101D
Moisture Resistance:	Per MIL-STD-202F, Method 106E

MATERIALS

Chassis Frame:	Steel, zinc plated with electroless nickel plating
Bantam Frame:	Steel with black zinc chromate plating
Springs:	Unreinforced polyetherimide resin rated UL 94-V0 for flammability
Contacts:	Nickel-silver
PC Boards:	WECO No. 1 gold crossbar alloy welded to springs
Sockets:	FR-4
Switches:	Phosper bronze
	30 micro inches gold on contact
	Copper alloy
	10 micro inches minimum gold on contact



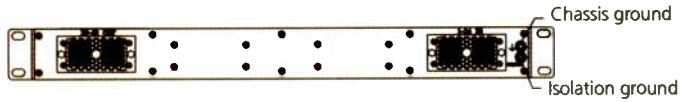


Drawings and Specifications

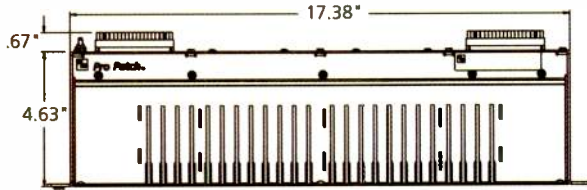
ProPatch™ Programmable Series

Broadcast Products

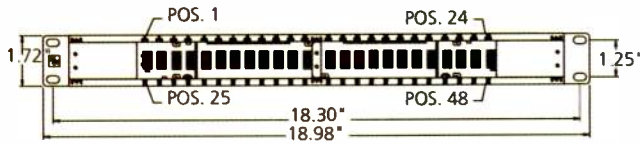
3/06 • 102117AE



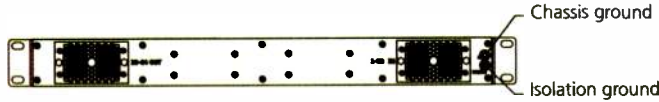
Typical 1RU 24-Position EDAC 90 Rear View



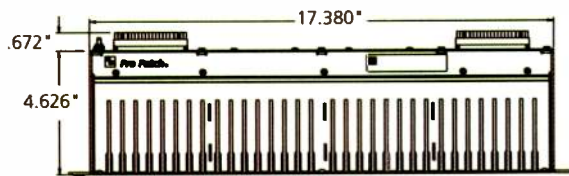
Top View



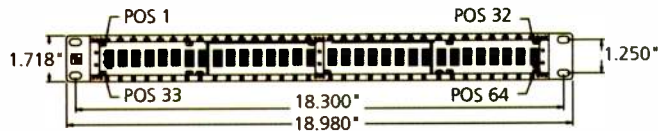
Front View



Typical 1RU 32-Position EDAC 120 Rear View



Top View



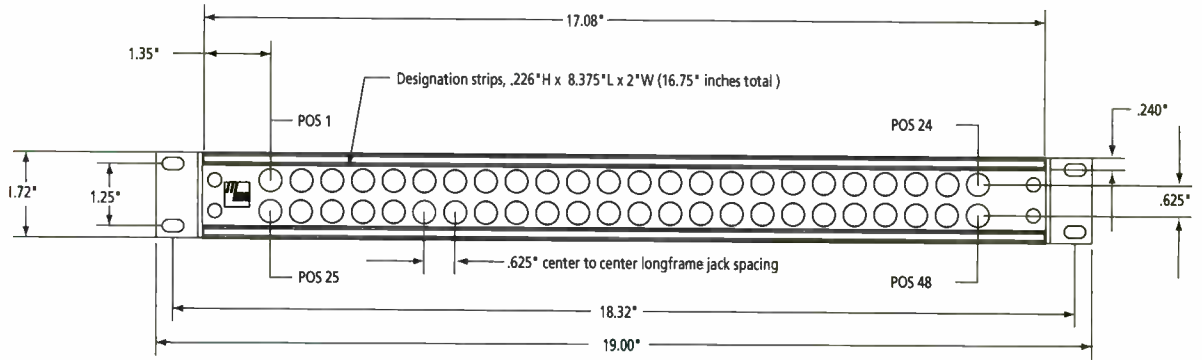
Front View



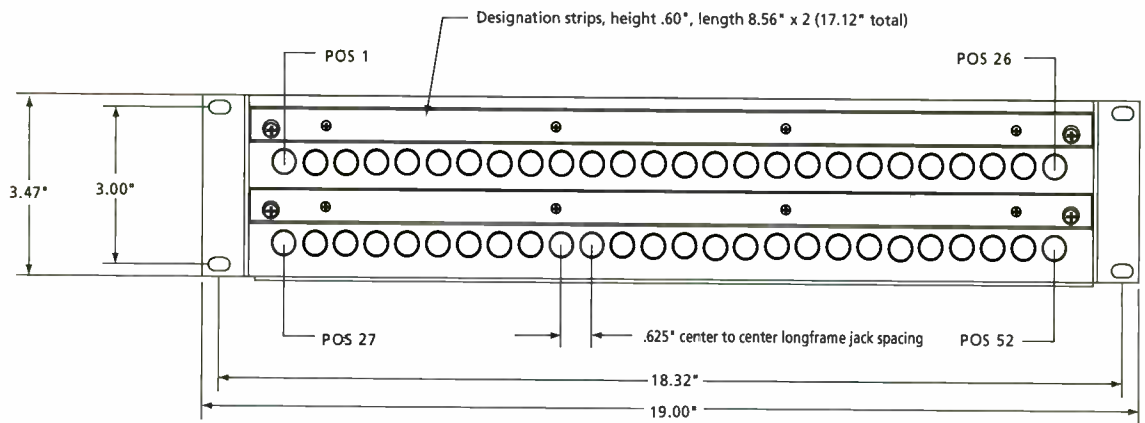
Drawings and Specifications

Standard Pro Patch Longframe Audio Products

This section presents drawings and specifications for typical products. For additional information or for information about products not presented here, please see the ADC web site at ADC.com or consult our Technical Assistance Center.



Typical 1 RU 2x24 Longframe Audio Panel Dimensions



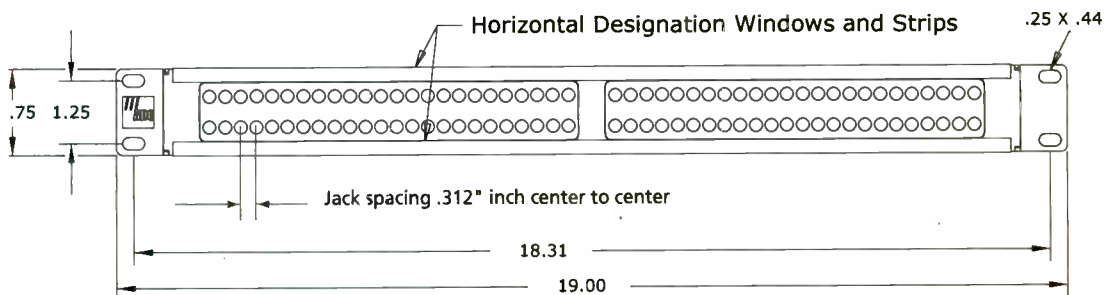
Typical 2 RU 2x26 Longframe Audio Panel Dimensions

3/06 • 102117AE Broadcast Products



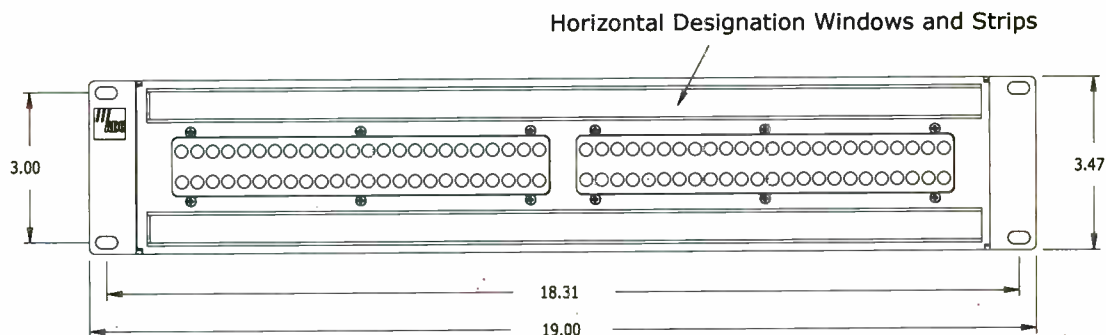
Drawings and Specifications

Standard Pro Patch Bantam Audio Products



Front View

Typical 1 RU 2x48 Regular Spaced Bantam Audio Panel Dimensions



Front View

Typical 2 RU 2x48 Regular Spaced Bantam Audio Panel Dimensions

Broadcast Products

3/06 • 102117AE

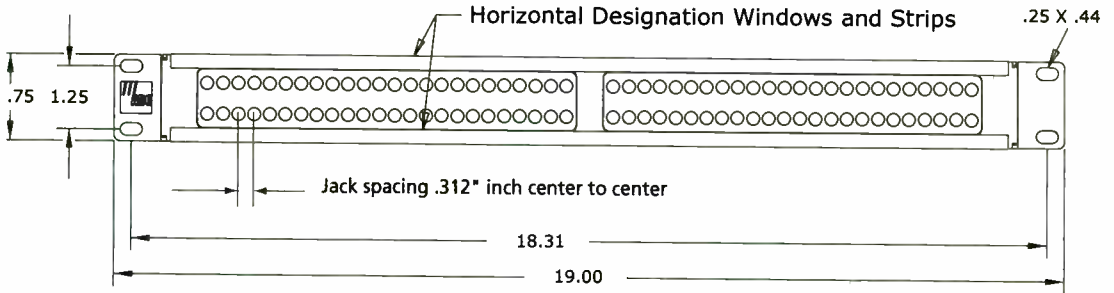


Drawings and Specifications

Standard Pro Patch Bantam Audio Products

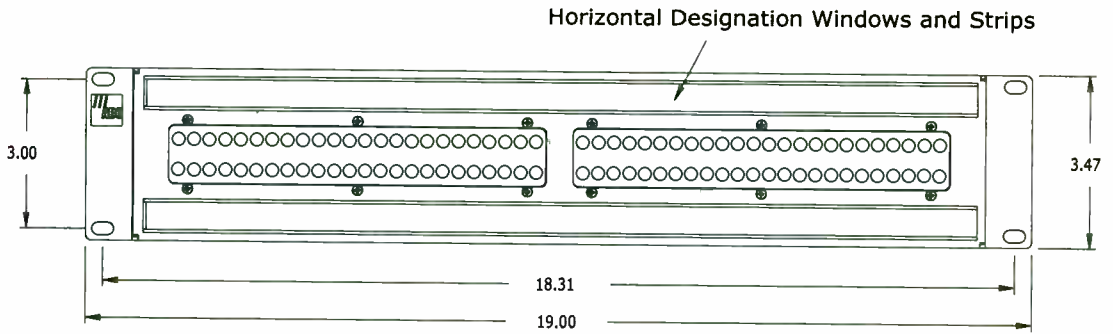
Broadcast Products

3/06 • 102117AE



Front View

Typical 1 RU 2x48 Regular Spaced Bantam Audio Panel Dimensions



Front View

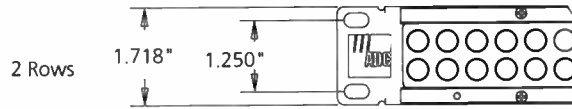
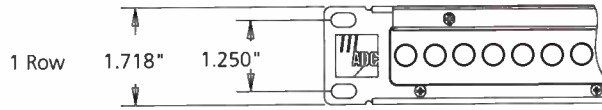
Typical 2 RU 2x48 Regular Spaced Bantam Audio Panel Dimensions



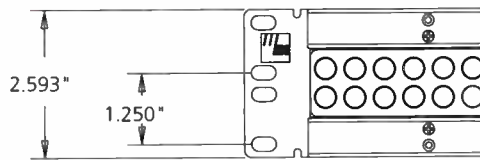
Drawings and Specifications

Video Products PPE Series

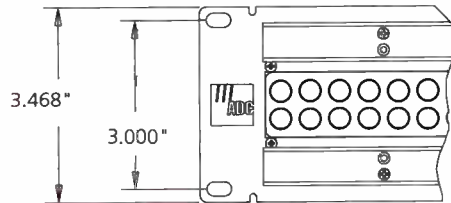
Broadcast Products
3/06 • 102117AE



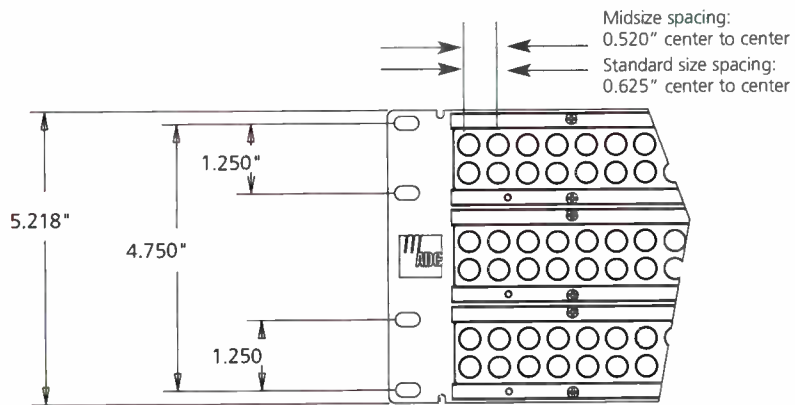
1 Rack Unit



1.5 Rack Unit



2 Rack Unit



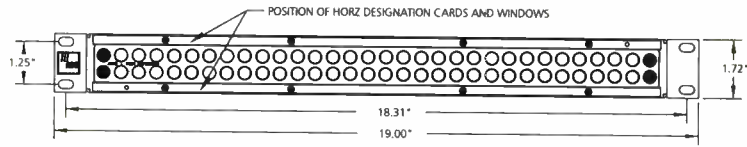
3 Rack Unit



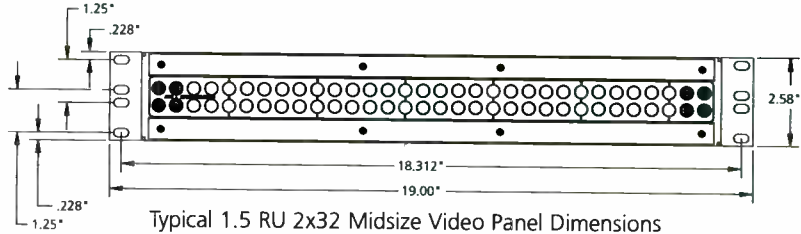
Drawings and Specifications

Video Products PPI Series

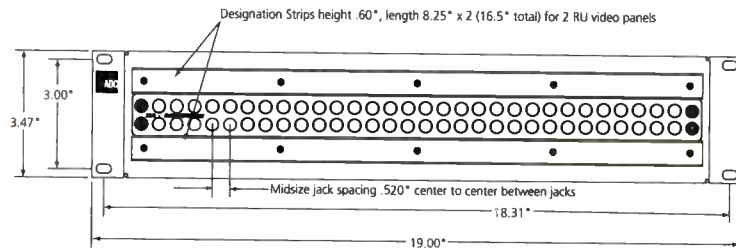
3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products



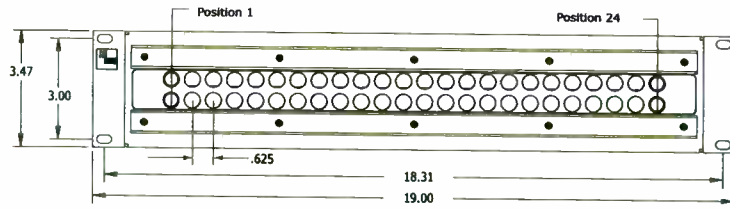
Typical 1 RU 2x32 Midsize Video Panel Dimensions



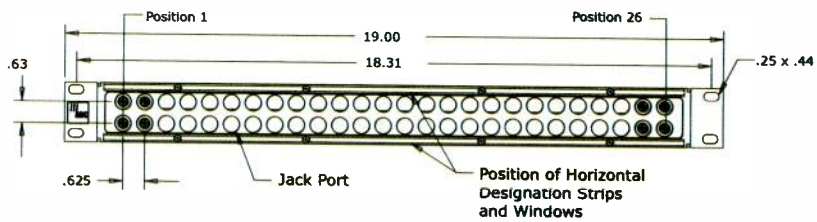
Typical 1.5 RU 2x32 Midsize Video Panel Dimensions



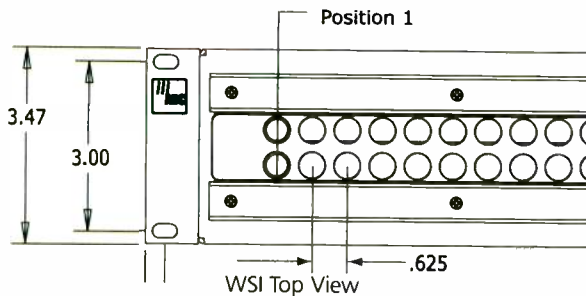
Typical 2 RU 2x32 Midsize Video Panel Dimensions



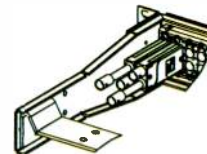
Typical 2 RU 2x24 Standard Size and MUSA Video Panel Dimensions



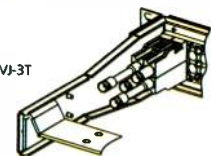
Typical 1 RU 2x26 Standard Size and MUSA Video Panel Dimensions



Typical 2 RU Series 2x32 Midsize Video Panel Dimensions



Jacks Type MVJ-3 and MVJ-3T



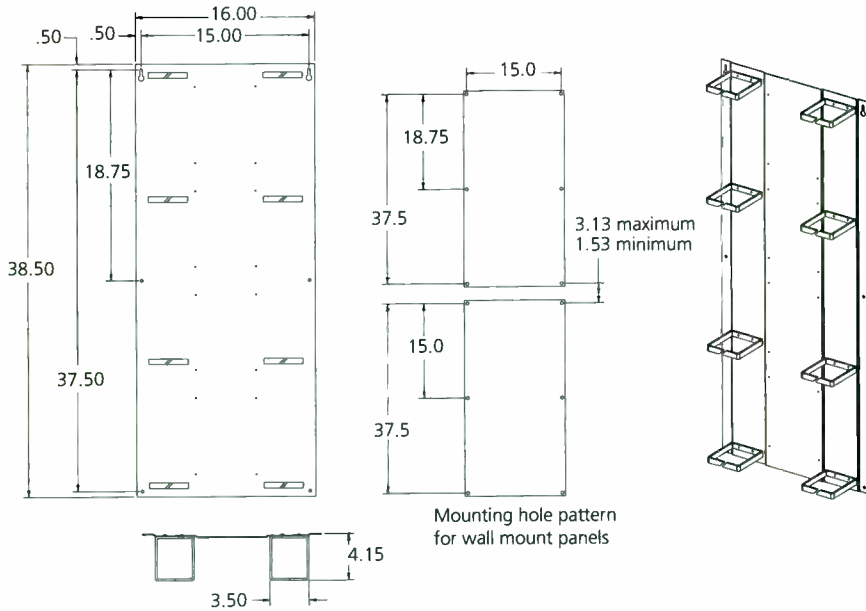
Jacks Type CJ3014N and CJ4014N
CJ3014N-75 and CJ4014N-75



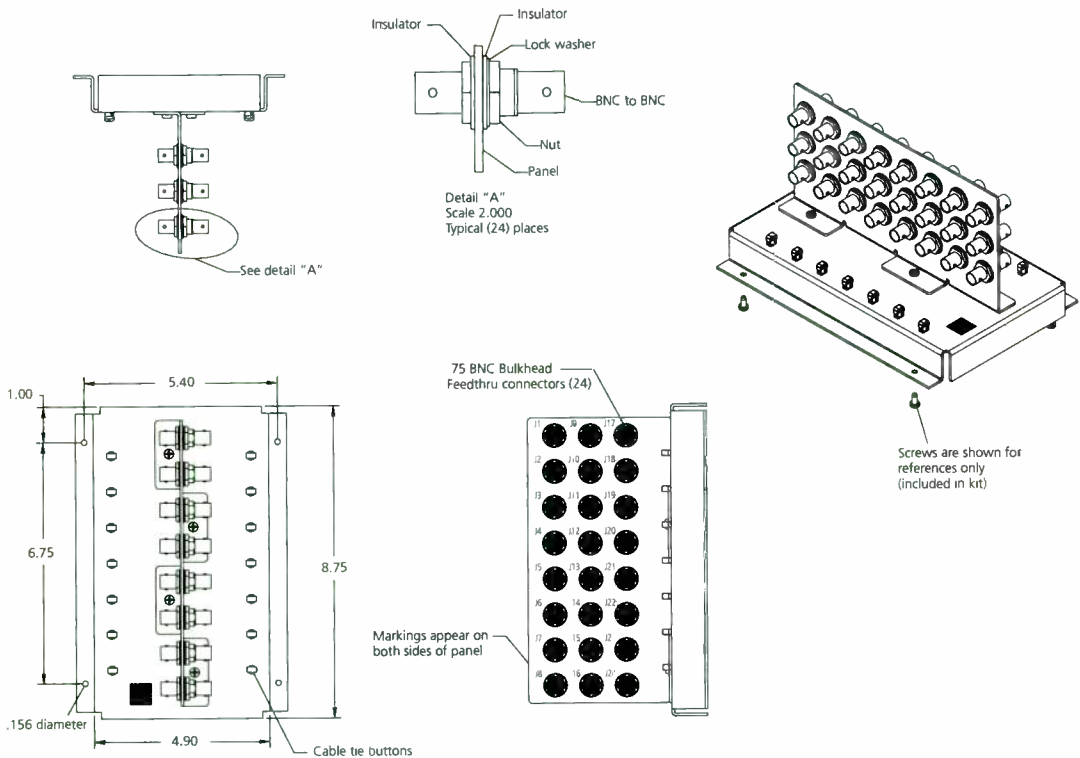
Drawings and Specifications

ICON® I-W Modular Wall-Mount System

I-W-MKIV Panel



BNC and BNC to F Wall-Mount Block



3/06 • 102117AE Broadcast Products



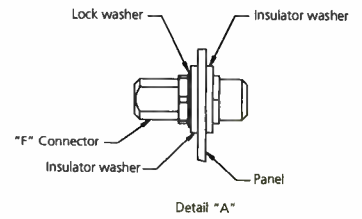
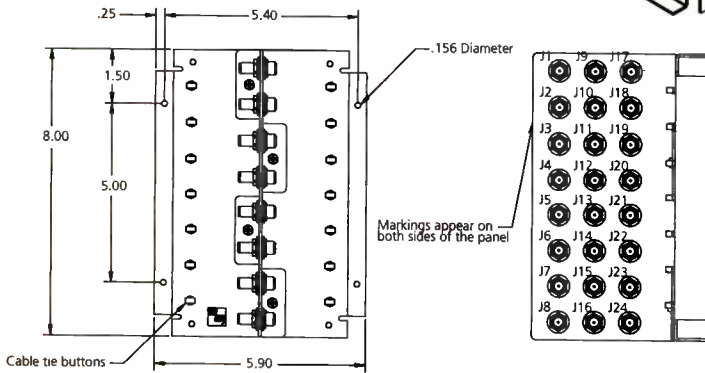
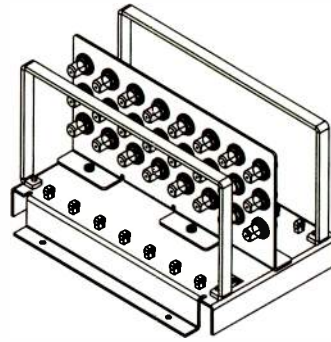
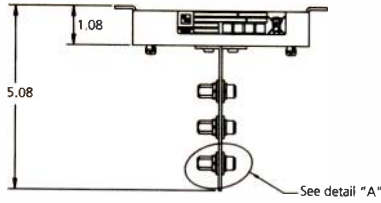
Drawings and Specifications

ICON® I-W Modular Wall-Mount System

F Wall-Mount Block

Broadcast Products

3/06 • 102117AE

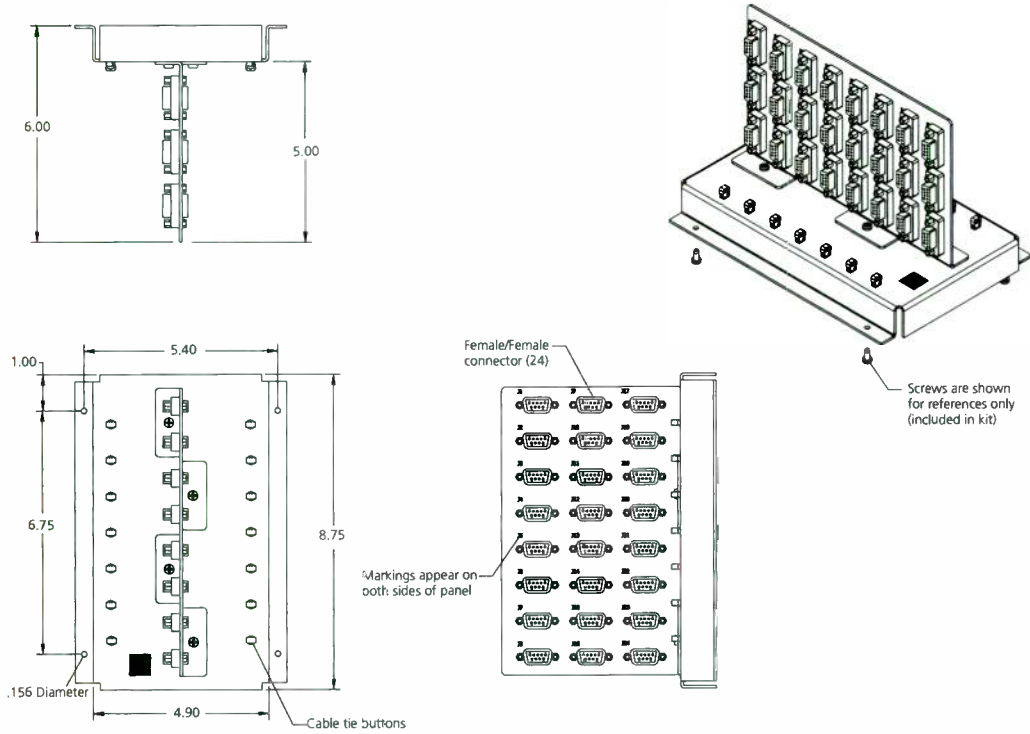




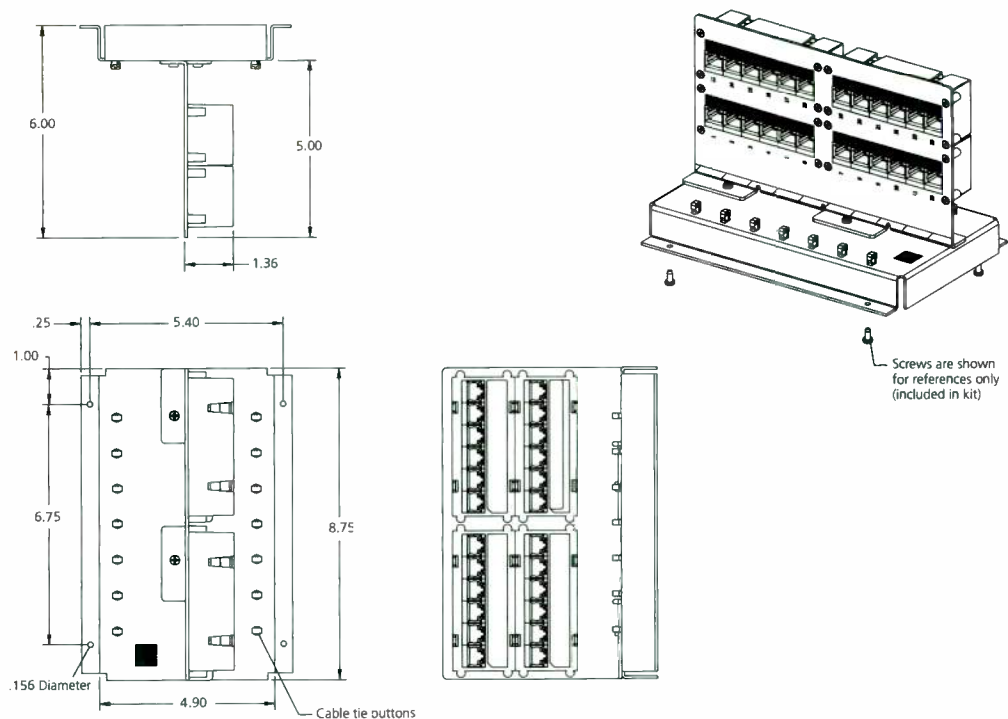
Drawings and Specifications

ICON® I-W Modular Wall-Mount System

DB-9 Wall-Mount Block



RJ Wall-Mount Block



Broadcast Products

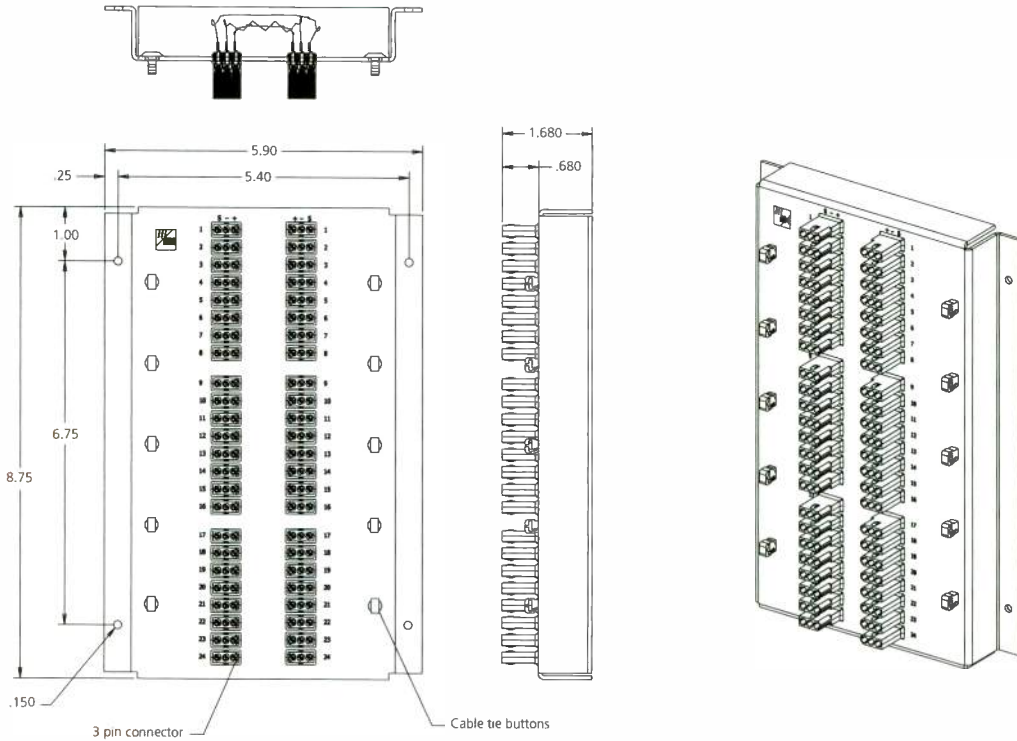
3/06 • 102117AE



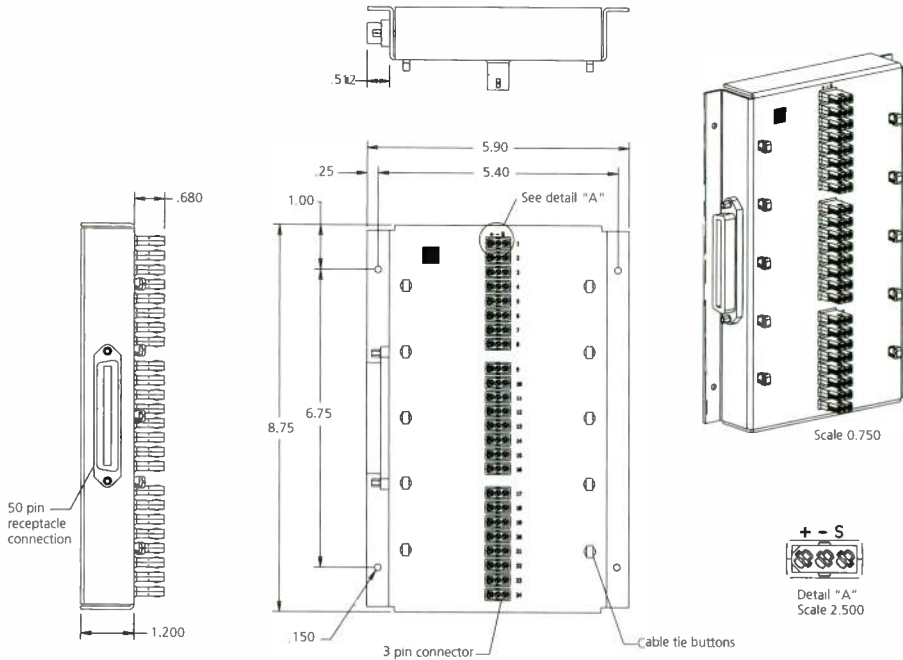
Drawings and Specifications

ICON® I-W Modular Wall-Mount System

E3 Wall-Mount Block



E3-AMP Wall-Mount Block



Broadcast Products

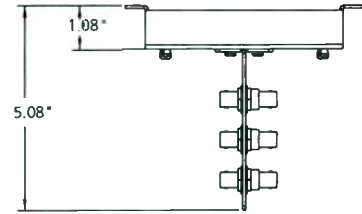
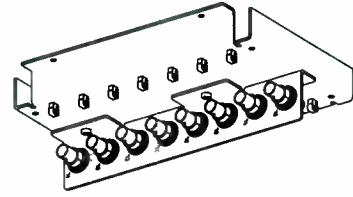
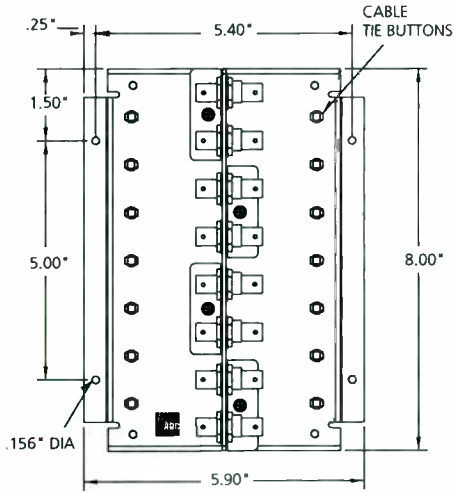
3/06 • 102117AF



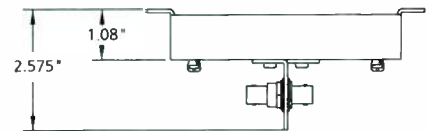
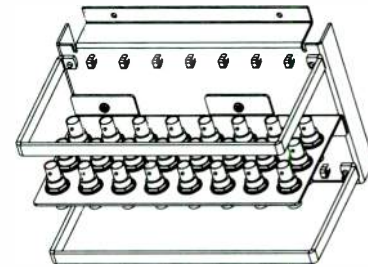
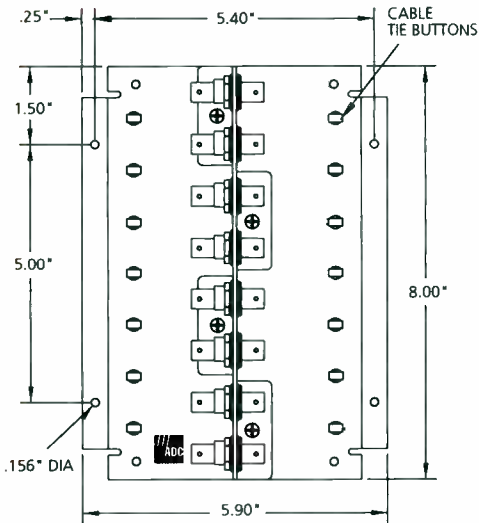
Drawings and Specifications

Video ICON® Wall-Mount Panels

3/06 • 102117AE Broadcast Products



VIW-8



VIW-24



Drawings and Specifications

Video ICON® Bulkhead Panels

ADC offers a wide variety of bulkhead panels featuring our exclusive impedance matched true 75 Ohm bulkhead connector.

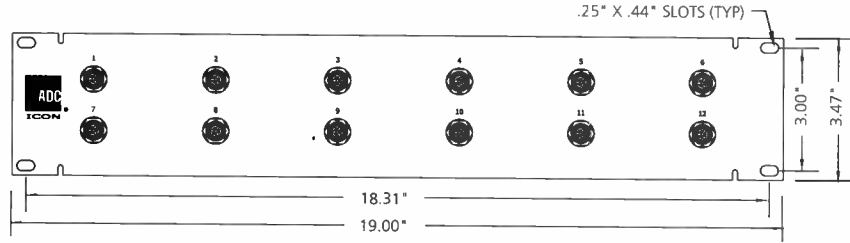
Features:

- Rack-mount versions in 19" (48.26 cm) or 23" (58.42 cm) 1 RU or 2 RU heights
- Models from 12 to 48 circuits with or without cable trays
- Wall-mount systems from 8 to 96 circuits

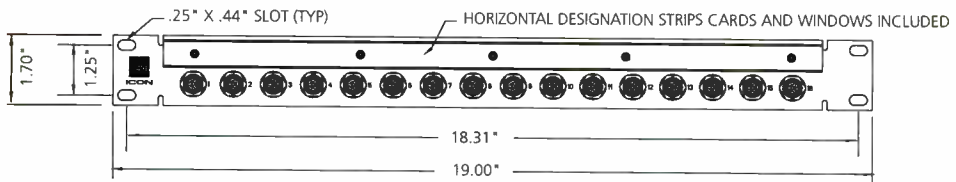
Broadcast Products

3/06 • 102117AE

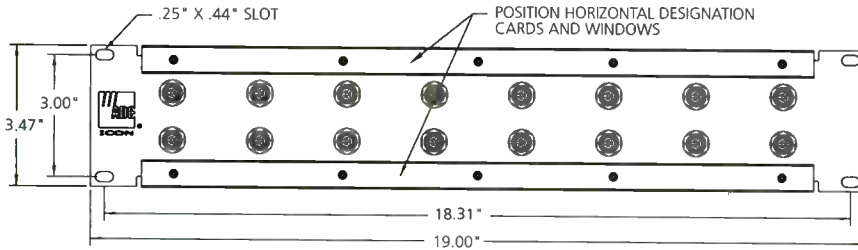
19" (48.26 cm) Panels



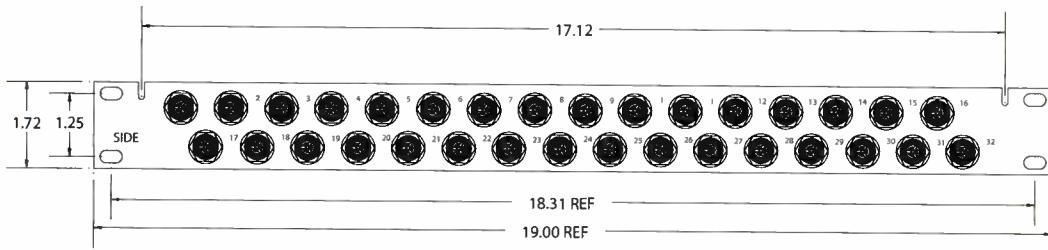
VI-12-W 12-Circuit 2 RU BNC Bulkhead Panel



VI-116-DES-W 16-Circuit 1 RU BNC Bulkhead Panel



VI-16-PTY 16-Circuit 2 RU BNC Bulkhead Panel



VI-132-BK 32-Circuit 1 RU BNC Bulkhead Panel



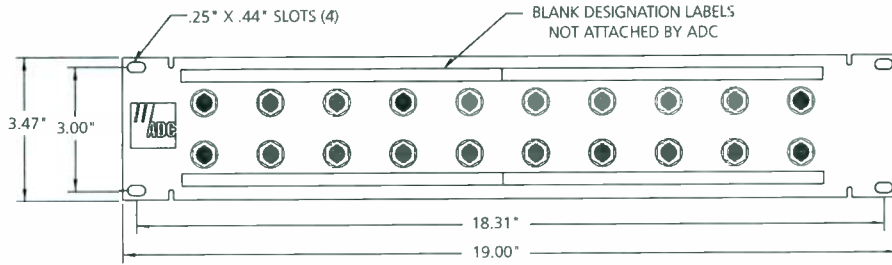
Drawings and Specifications

Video ICON® Bulkhead Panels

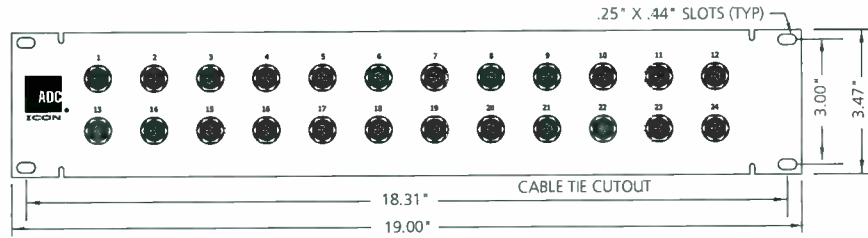
19" (48.26 cm) Panels

Broadcast Products

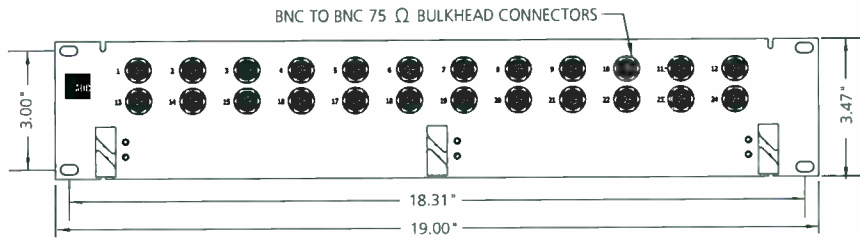
3/06 • 102117AE



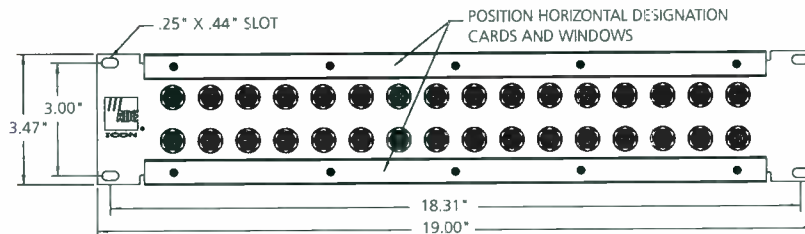
VI-20-PTY



VI-24-PTY



VI-24VHR-BK



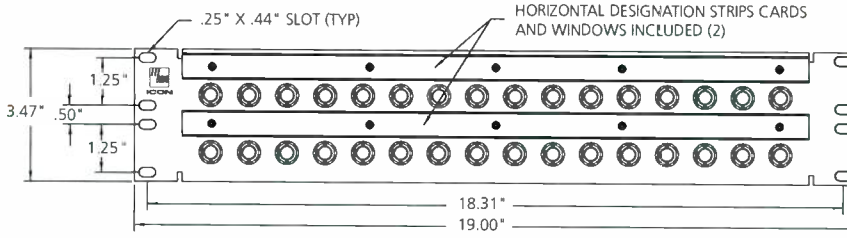
VI-32-BK



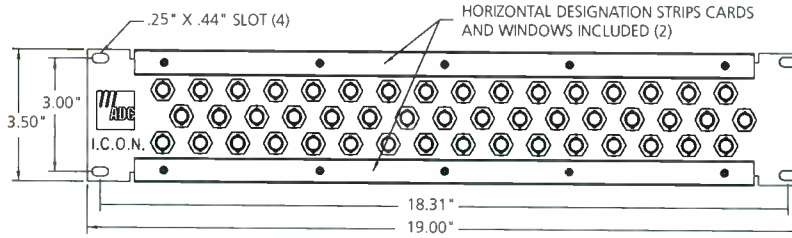
Drawings and Specifications

Video ICON® Bulkhead Panels

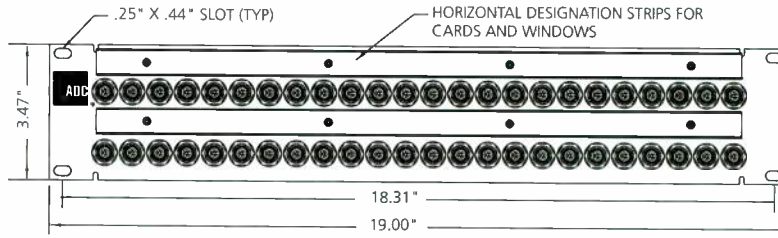
19" (48.26 cm) Panels



VI-32-DES-W

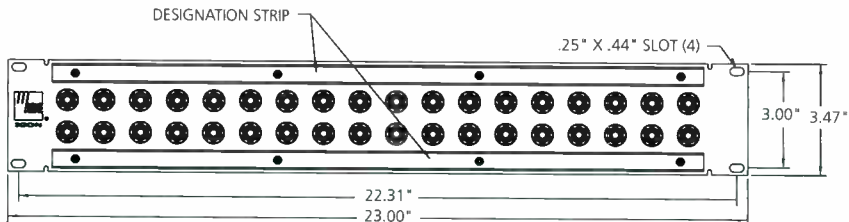


VI-48-BK



VI-48-19-TTDES-BK

23" (58.42 cm) Panels



VI-36-23-DES-PTY

Broadcast Products

3/06 • 102117AE



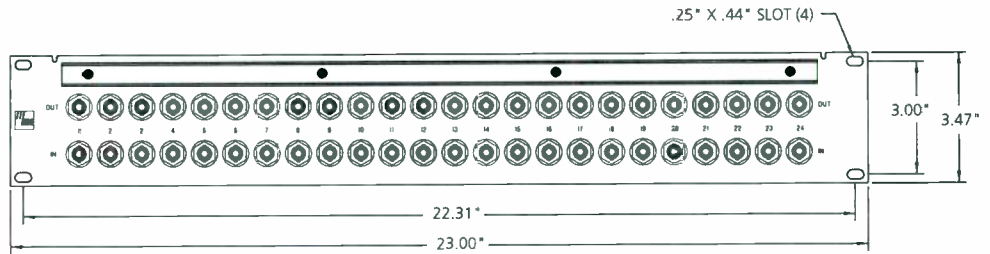
Drawings and Specifications

Video ICON® Bulkhead Panels

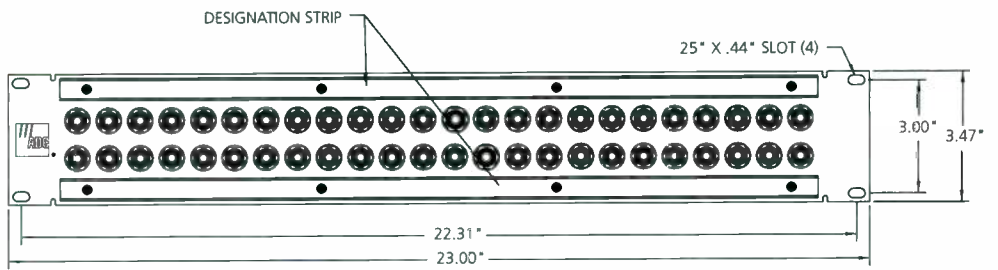
23" (58.42 cm) Panels

Broadcast Products

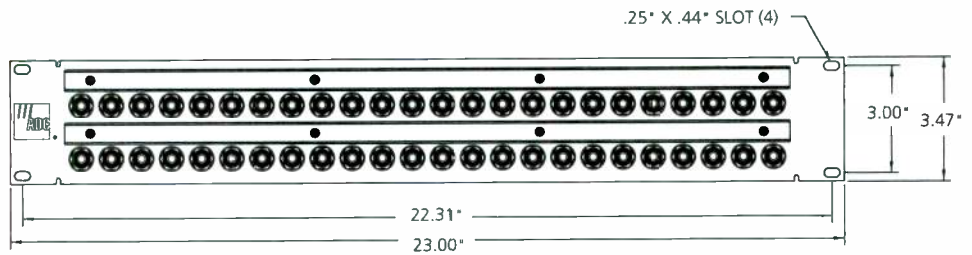
3/06 • 102117AE



BNC-BLK-48-CL



VI-48-23-DES-BK



VI-48-23-TT-DES-BK



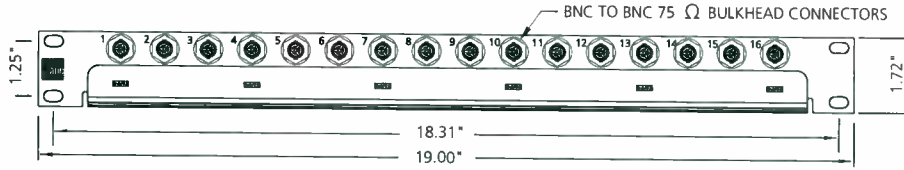
Drawings and Specifications

Video ICON® Bulkhead Panels

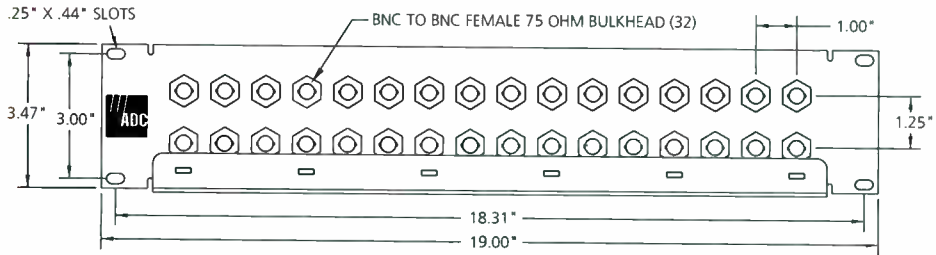
19" (48.26 cm) Panels with Cable Tray

Broadcast Products

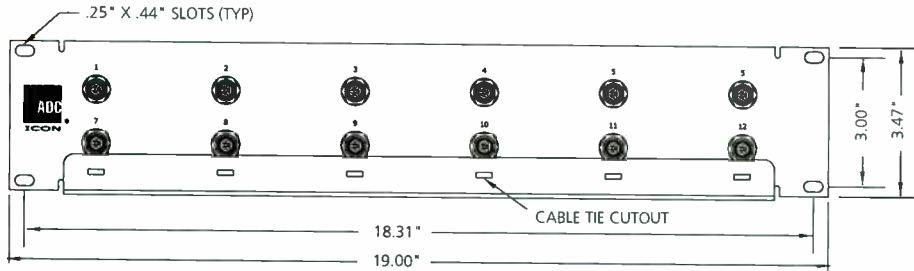
3/06 • 102117AE



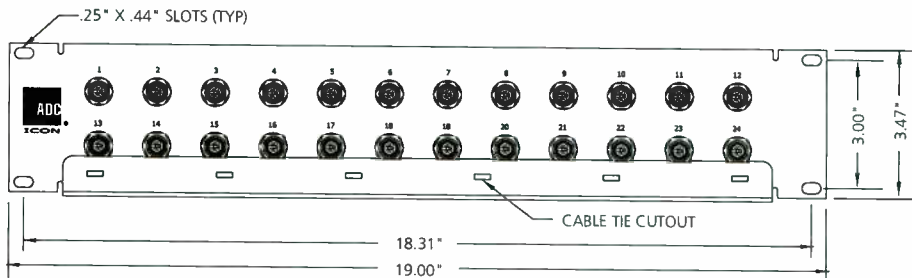
VI-132-TR-BK



BNC-BLK-32-TR75



VI-12-TR-W



VI-24-TR-W

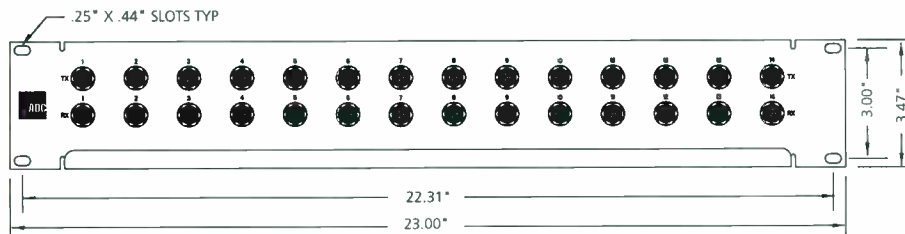


Drawings and Specifications

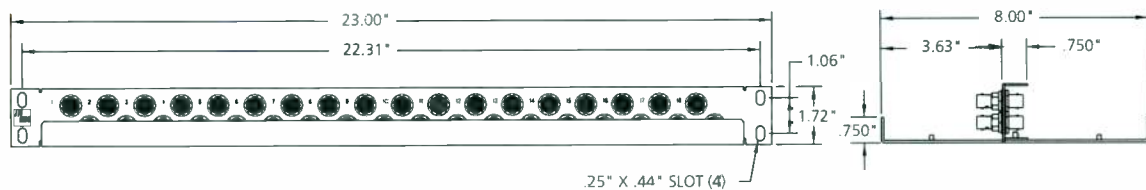
Video ICON® Bulkhead Panels

23" (584.2 mm) Panels with Cable Tray

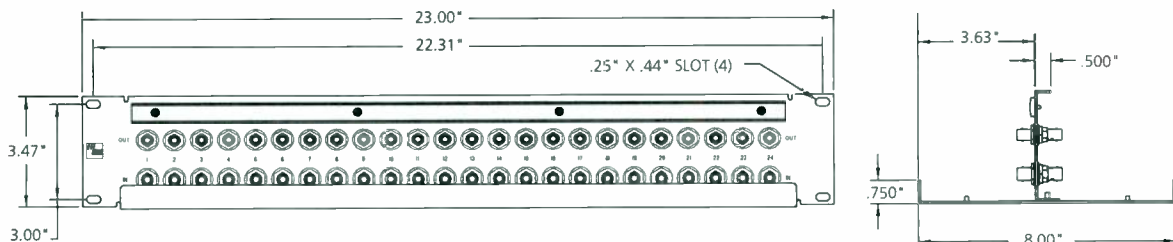
Broadcast Products
3/06 • 102117AE



VI-28-BBG



BNC-BLK-36-TR-1U-B



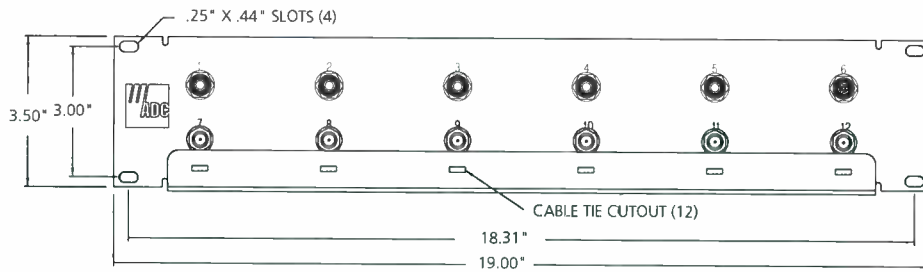
BNC-BLK-48-TR-2U-B



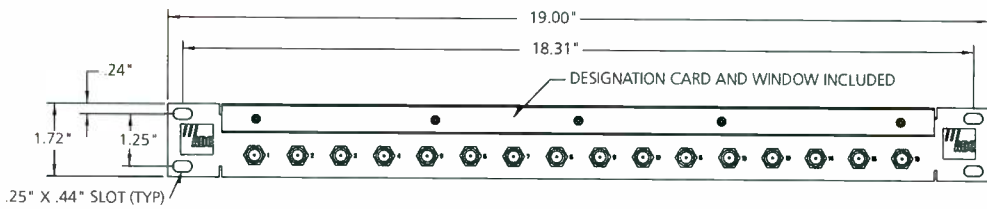
Drawings and Specifications

Video ICON® F Connector Bulkhead Panels

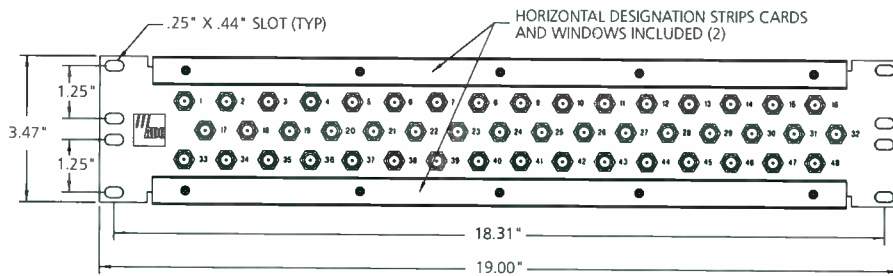
Broadcast Products
3/06 • 102117AE



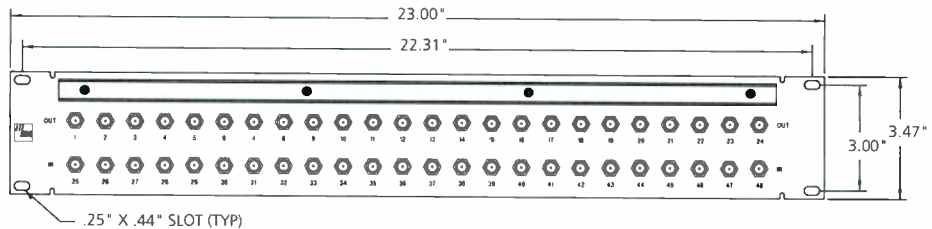
VI-12-BNC-F-W



VI-16F-PTY



VI-48F-PTY

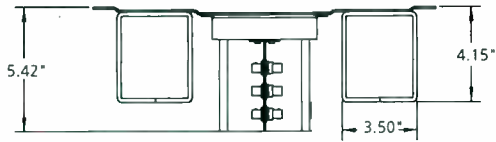


VI-48F-23-PTY



Drawings and Specifications

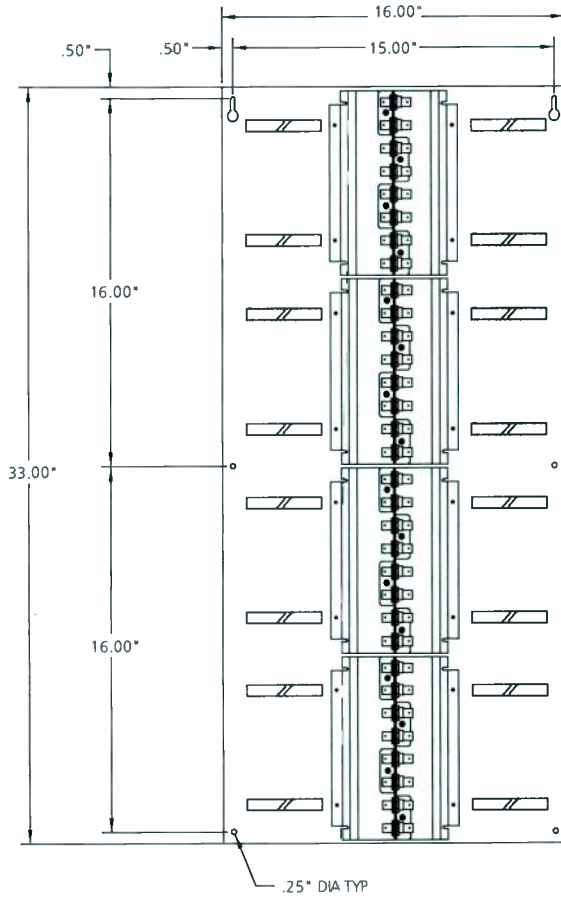
Video ICON® Wall-Mount Panels



VIW-424



VIW-408



Video ICON VIW-424/408 Wall-Mount Panel Dimensions

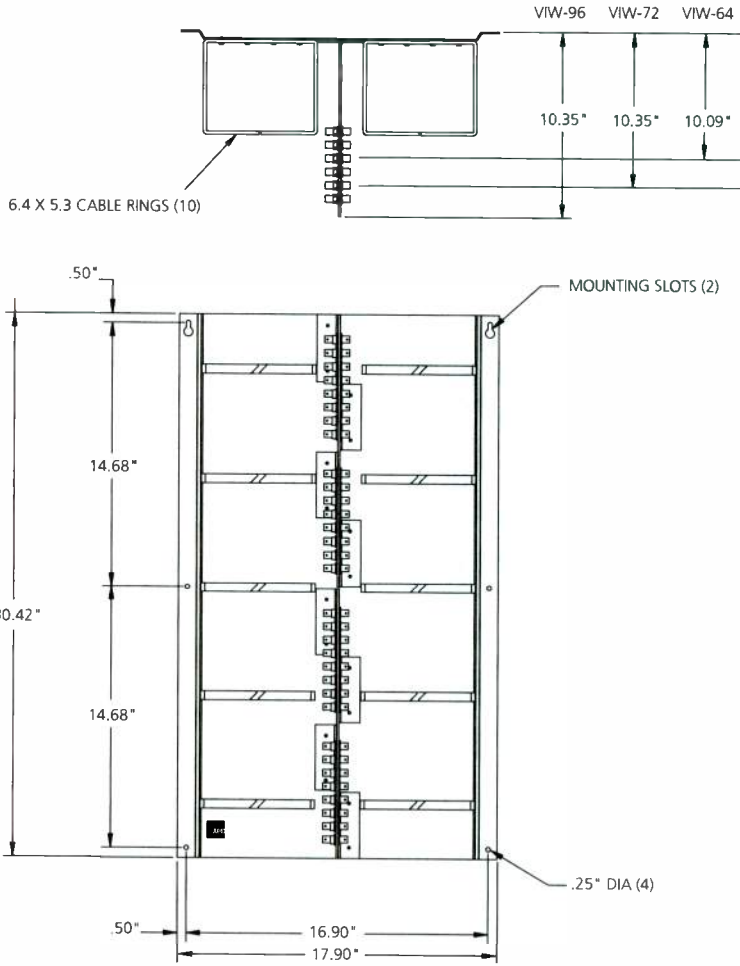
3/06 • 102117AE Broadcast Products



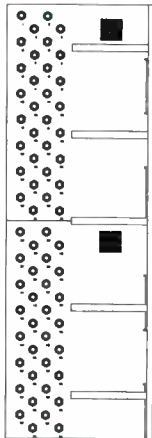
Drawings and Specifications

Video ICON® Wall-Mount Panels

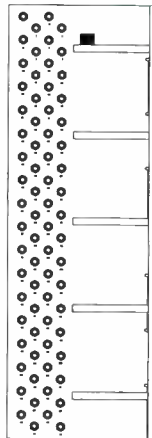
3/06 • 102117AE Broadcast Products



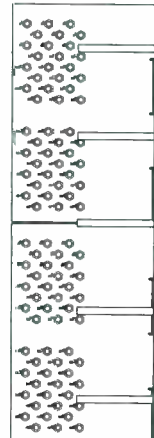
Video ICON VIW-64/72/96 Wall-Mount Panel Dimensions



VIW-64



VIW-72



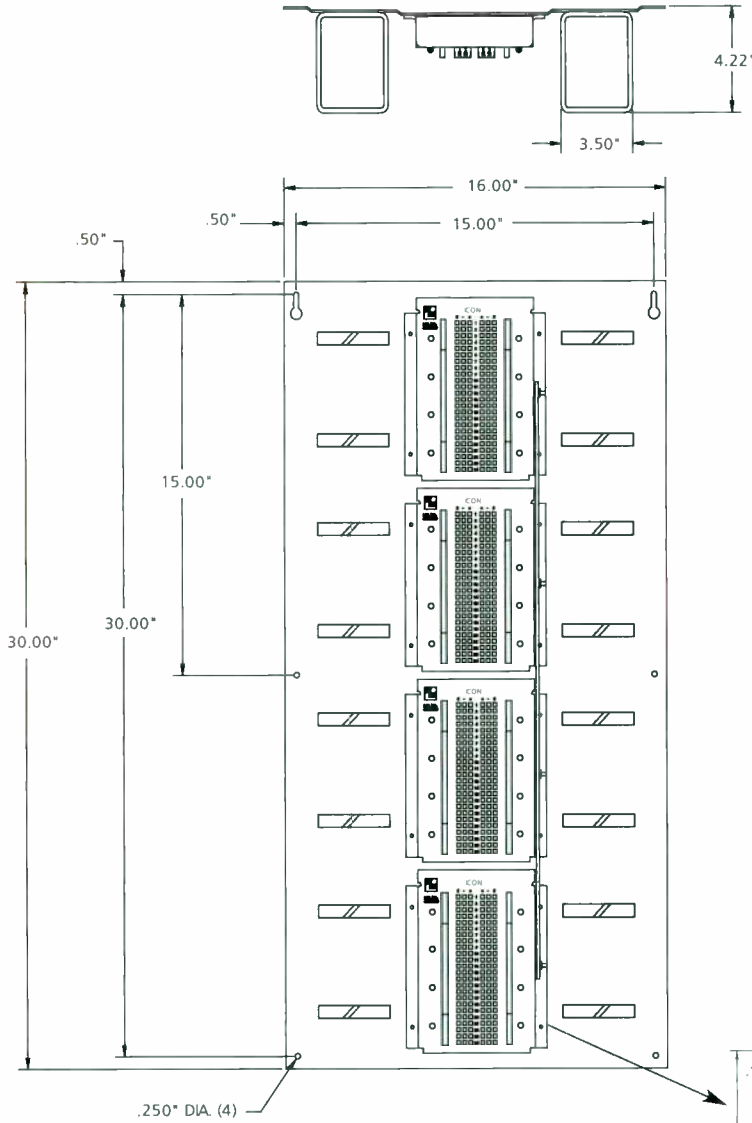
VIW-96



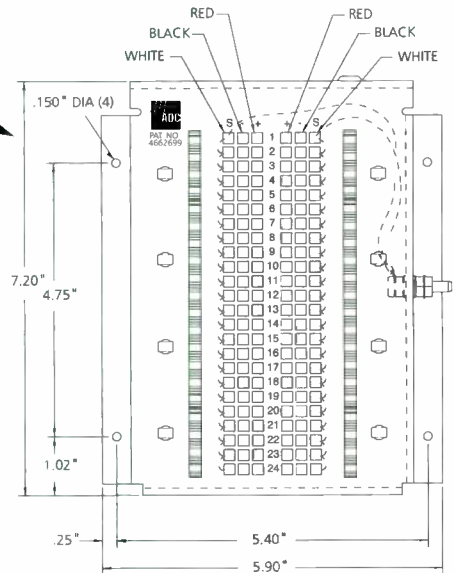
Drawings and Specifications

ICON® Audio Products

3/06 • 102117AE Broadcast Products



ICON I-WA-MKII Audio Wall-Mount Frame Dimensions



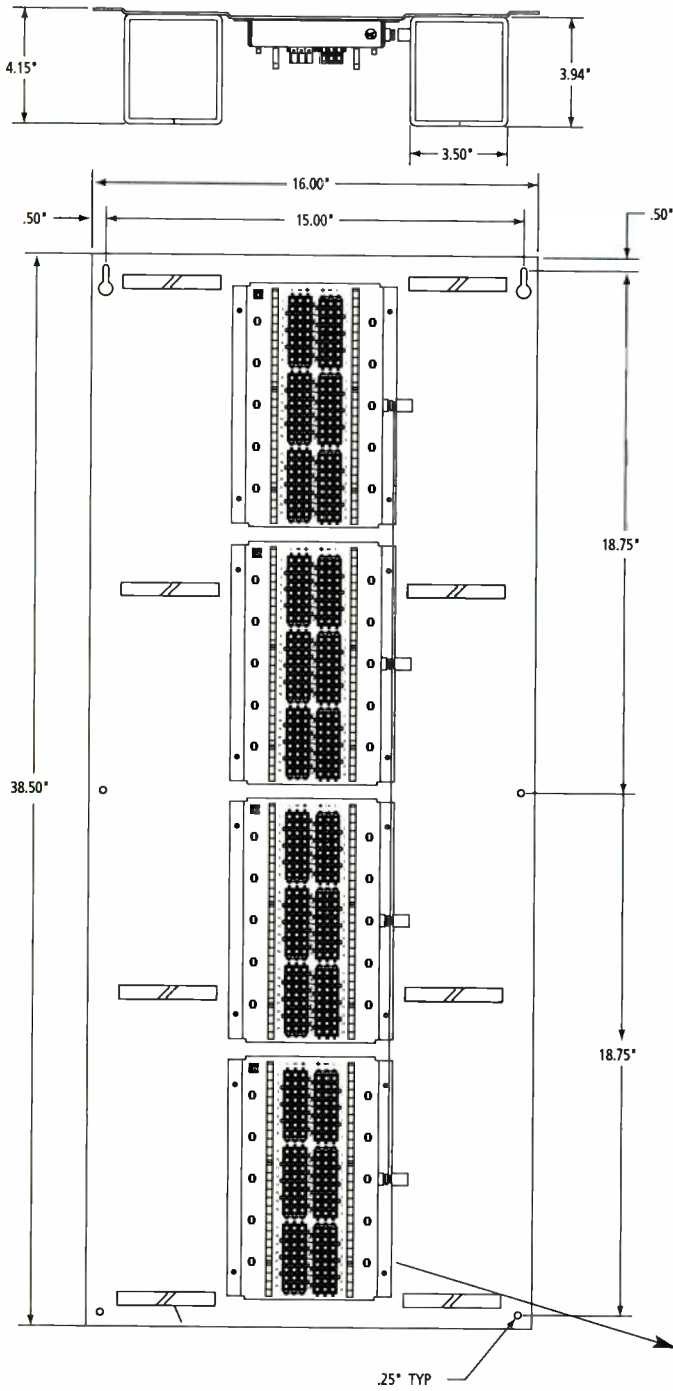
I-24-MKII



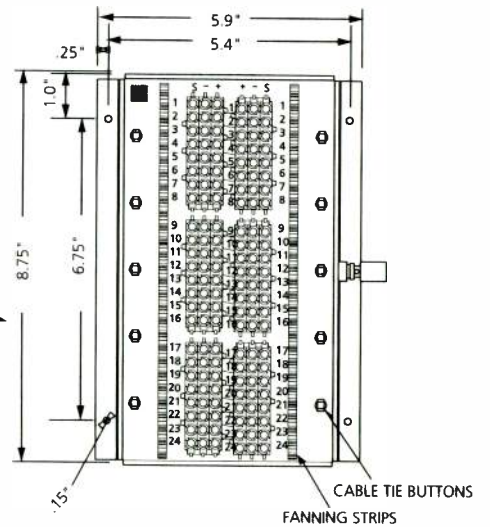
Drawings and Specifications

ICON® Audio Products

3/06 • 102117AE Broadcast Products



ICON I-WA-MKIV Wall Mount Audio Frame Dimensions



I-24-MKIV

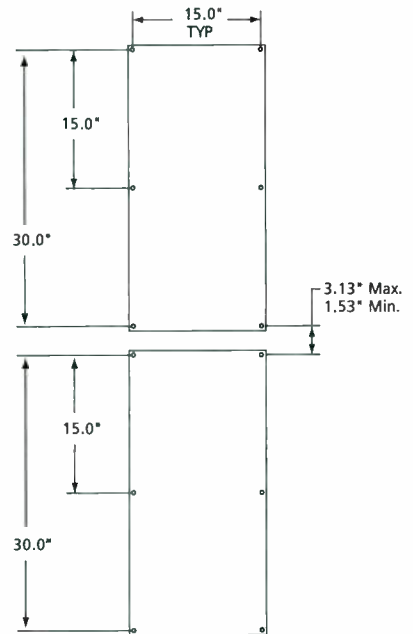
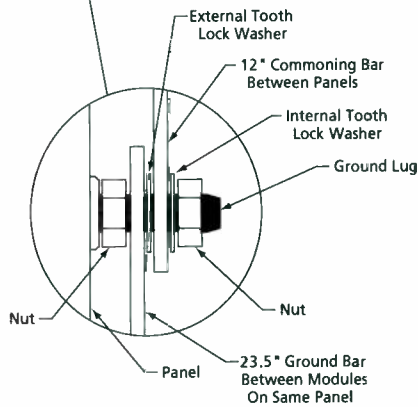
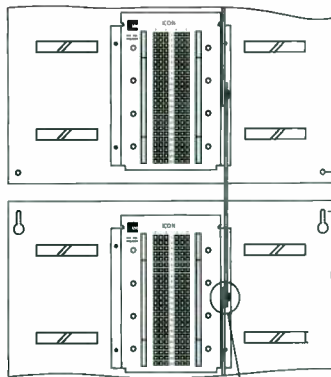


Drawings and Specifications

ICON® Audio Products

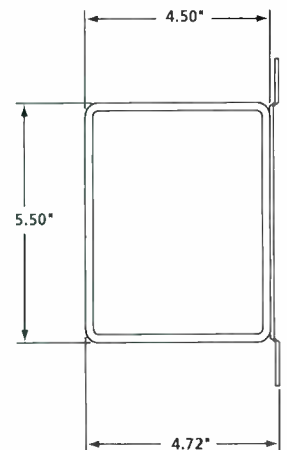
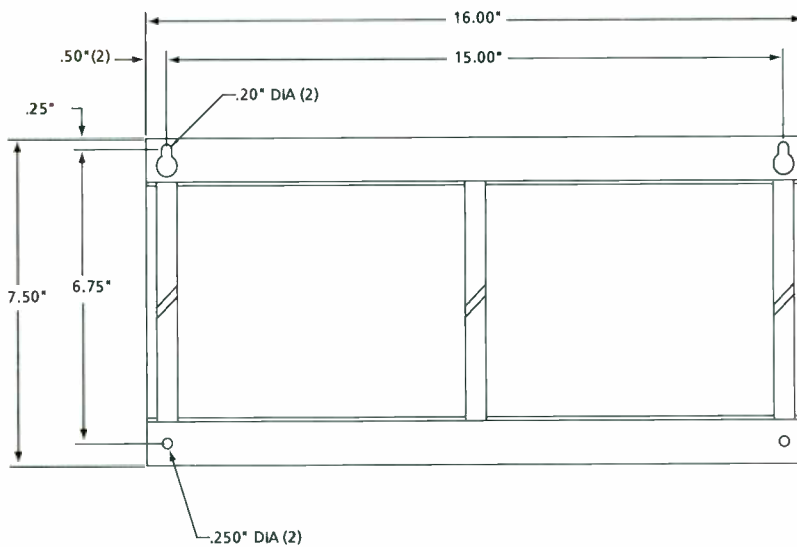
Broadcast Products

3/06 • 102117AE



Mounting Hole Pattern For Wall Mount Panels

I-WA Mounting Details



ICON I-WFP Fanning Panel Dimensions

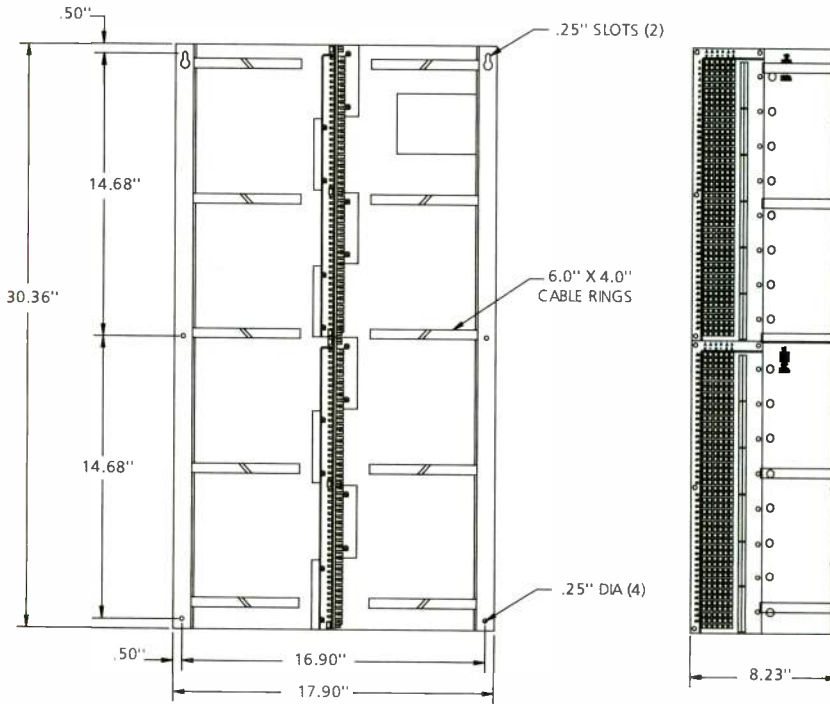


Drawings and Specifications

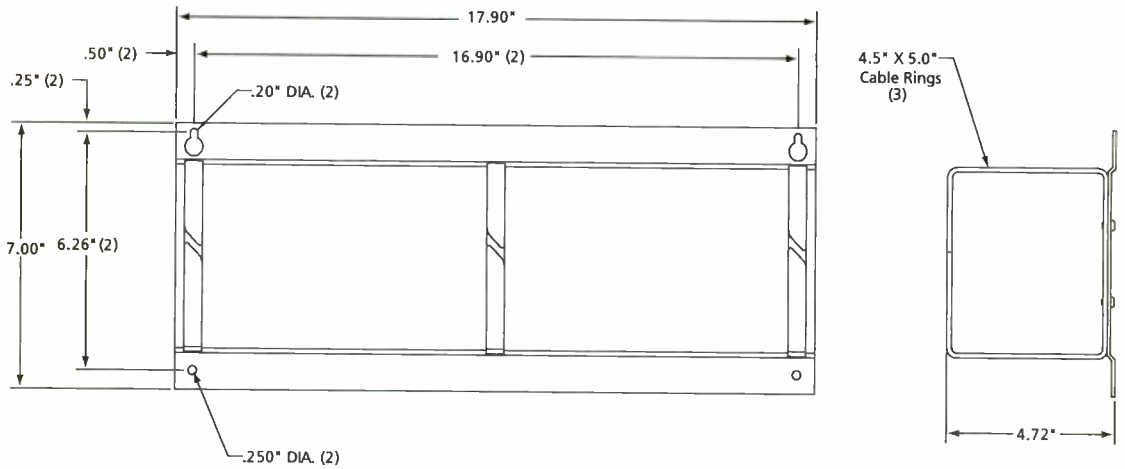
ICON® Audio Products

Broadcast Products

3/06 • 102117AE



ICON I-WS-MKII Wall-Mount Audio Panel Dimensions



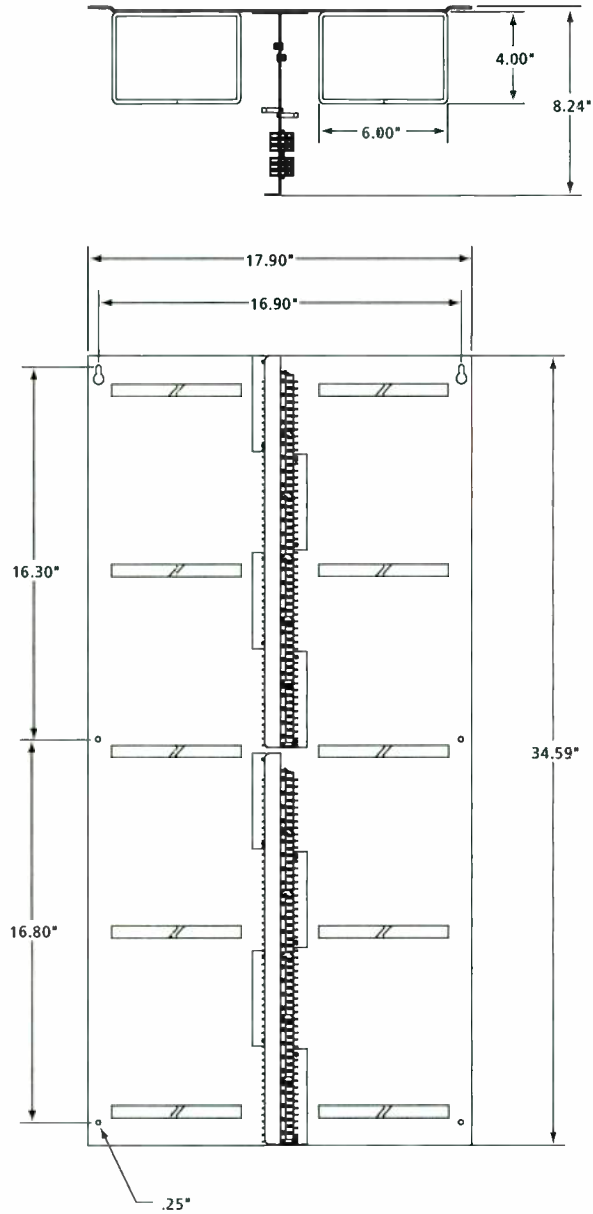
ICON I-WSET Express Trough Dimensions



Drawings and Specifications

ICON® Audio Products

3/06 • 102117AE Broadcast Products



ICON I-WS-MKIV Wall-Mount Audio Frame Dimensions



Drawings and Specifications

Component Audio Products

PJ339 and PJ482 Longframe Audio Jack Specifications

ELECTRICAL

Contact Resistance:	0.020 Ohm maximum (initial) 0.020 Ohm maximum (after life cycling) 0.10 Ohm maximum (after salt spray)
Insulation Resistance:	10,000 megohms minimum (initial) 1,000 megohms minimum (after moisture resistance test)
Dielectric Withstanding:	Voltage: 500 Vac
Contact Rating:	Maximum: 100 mA + 130 Vdc; Minimum: -40 dBm

MECHANICAL

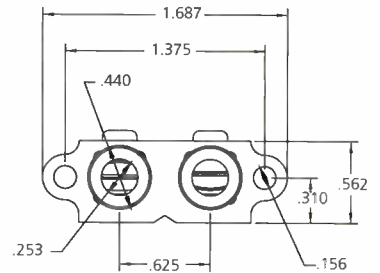
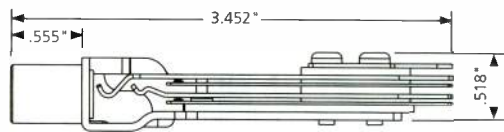
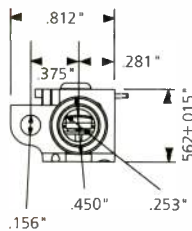
Mechanical Shock:	Per MIL-STD-202F, Method 213B, test condition H
Vibration:	MIL-STD-1344, Method 2005, test condition I
Insertion Force:	7 lbs. (3.17 kg) maximum
Withdrawal Force:	1.5 lbs. (.679 kg) minimum
Life:	20,000 insertion/withdrawal cycles minimum

ENVIRONMENTAL

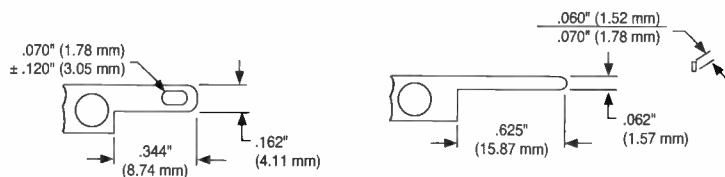
Operating Temp:	-40°C to 65°C
Storage Temp:	-55°C to 85°C
Thermal Shock:	Per MIL-STD-202F, Method 107G, test condition A
Operating Humidity:	0% to 95% (no condensation)
Storage Humidity:	0% to 95% (no condensation)
Salt Spray:	Per MIL-STD-202F, Method 101D
Moisture Resistance:	Per MIL-STD-202F, Method 106E

MATERIALS

Frame:	Steel, zinc plated with electroless nickel plating
Sleeve:	Brass, nickel plated
Insulators:	Unreinforced polyetherimide resin rated UL 94-V0 for flammability
Springs:	Nickel-silver
Contacts:	WECO No. 1 gold crossbar alloy welded to springs
Solder Lugs:	Hot tin dipped



PJ482



Single Longframe Audio Jack

3/06 • 102117AE Broadcast Products



Drawings and Specifications

Component Audio Products

PJ839 and PJ889 Bantam Audio Jack Specifications

ELECTRICAL

Contact Resistance:

0.020 Ohm maximum (initial)
0.020 Ohm maximum (after life cycling)
0.10 Ohm maximum (after salt spray)

Insulation Resistance:

10,000 megohms minimum (initial)
1,000 megohms minimum (after moisture resistance test)

Dielectric Withstanding:

Voltage:

500V RMS

Contact Rating:

Maximum: 100 mA ± 130 Vdc; Minimum: -40 dBm

MECHANICAL

Mechanical Shock:

Per MIL-STD-202F, Method 213B, test condition H

Vibration:

MIL-STD-1344, Method 2005, test condition I

Insertion Force:

7 lbs. (3.17 kg) maximum

Withdrawal Force:

1.5 lbs. (.679 Kg) minimum

Life:

20,000 insertion/withdrawal cycles minimum

ENVIRONMENTAL

Operating Temp:

-40°C to 65°C

Storage Temp:

-55°C to 85°C

Thermal Shock:

Per MIL-STD-202F, Method 107G, test condition A

Operating Humidity:

0% to 95%, non-condensing

Storage Humidity:

0% to 95%, non-condensing

Salt Spray:

Per MIL-STD-202F, Method 101D

Moisture Resistance:

Per MIL-STD-202F, Method 106E

MATERIALS

Frame:

Zinc die-cast zinc plated with electroless nickel plating

Insulators:

Unreinforced polyetherimide resin rated UL 94-V0 for flammability

Springs:

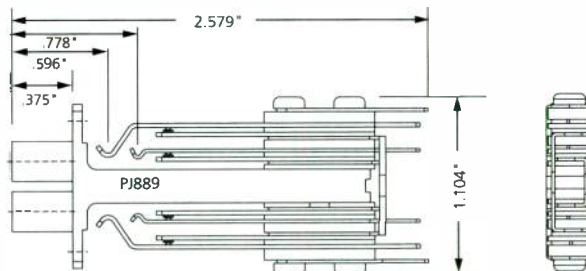
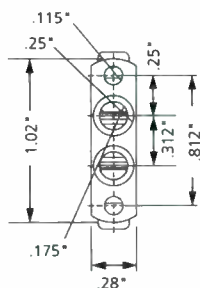
Nickel-Silver alloy

Contacts:

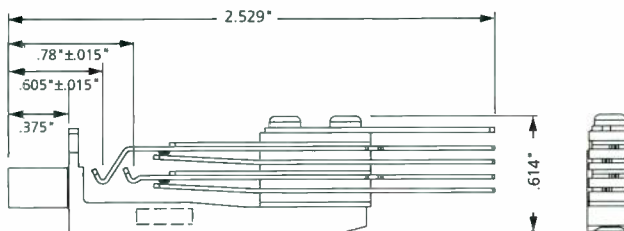
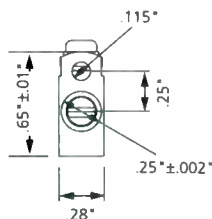
WECO No. 1 gold crossbar alloy welded to springs

Broadcast Products

3/06 • 1 0 2 1 1 7 A E



Three-Conductor Dual Bantam Jack



Three-Conductor Single Bantam Jack

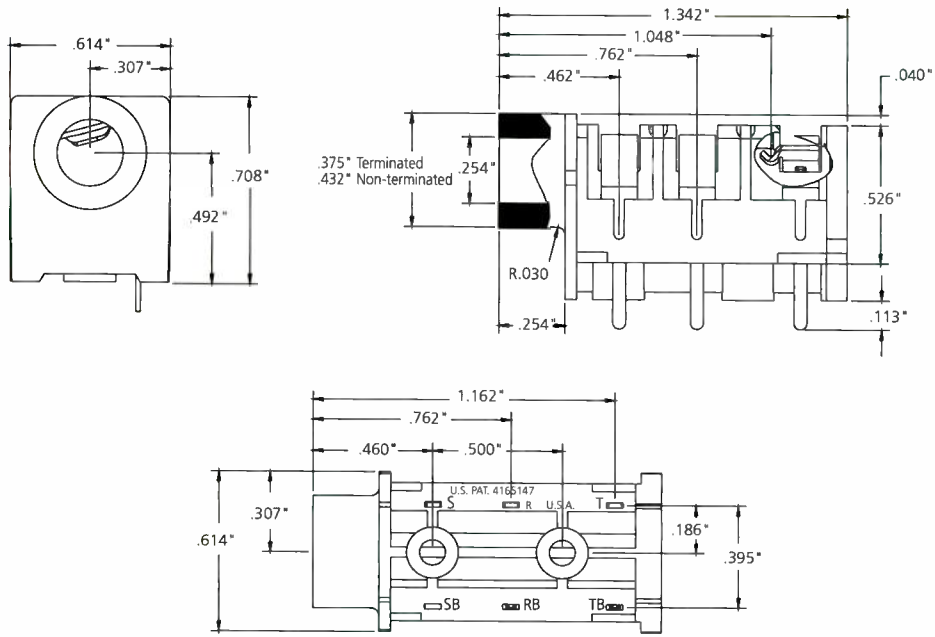


Drawings and Specifications

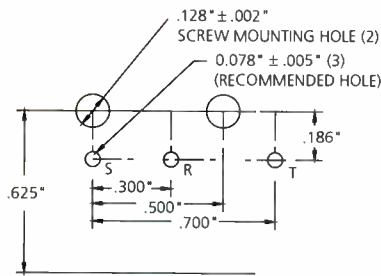
Component Audio Products

Broadcast Products

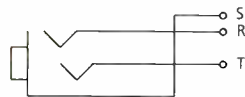
3/06 • 102117AE



AJ238/AJ339

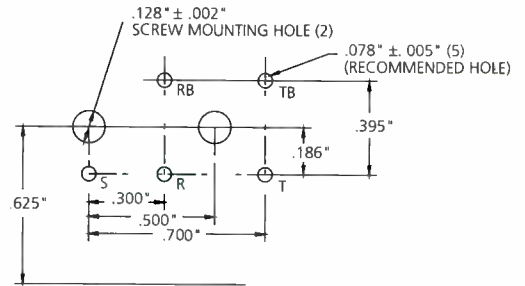


PC BOARD DRILL GUIDE
AS SEEN FROM COMPONENT
SIDE OF BOARD

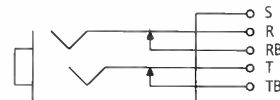


REFERENCE SCHEMATIC

AJ238



PC BOARD DRILL GUIDE
AS SEEN FROM COMPONENT
SIDE OF BOARD



REFERENCE SCHEMATIC

AJ339



Drawings and Specifications

MUSA-Series Jacks and Accessories

SMJ Series MUSA Single Coaxial Jacks to BNC Specifications

The SMJ family is rated to handle analog and digital video data rates up to and including HD 1.485 Gbps.

ELECTRICAL

Characteristic Impedance:	75 Ohms nominal
Return Loss:	> 17 dB; 300 KHz to 2.4 GHz
Contact Resistance:	10 milliohms typical

MECHANICAL

Mechanical Shock:	Per MIL-STD-202, Method 213
Vibration:	Per MIL-STD-202, Method 201
Insertion Force:	7 lbs. maximum
Withdrawal Force:	1.5 lbs. minimum

ENVIRONMENTAL

Operating Temp:	-40°C to 65°C
Storage Temp:	-55°C to 85°C
Thermal Shock:	Per MIL-STD-202, Method 107
Humidity:	0% to 95% non-condensing, operating and non-operating
Salt Spray:	Per MIL-STD-202, Method 101
Moisture Resistance:	Per MIL-STD-202, Method 106

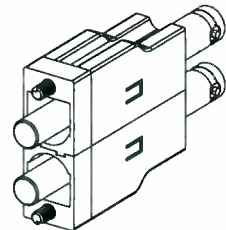
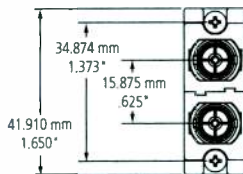
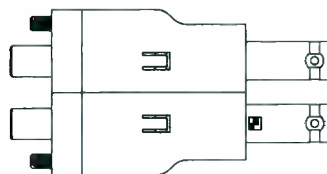
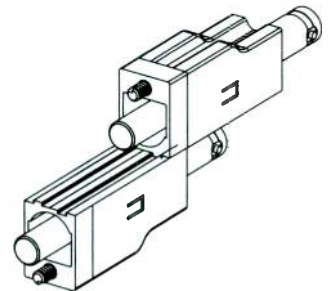
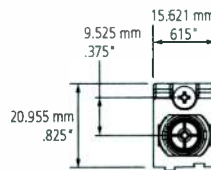
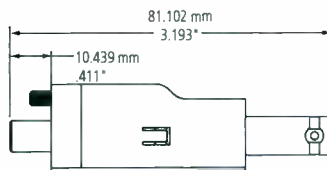
MATERIAL

Jack Sleeve & Frame:	CDA 360 brass rod per ASTM B16 with electro-deposit nickel plating per QQ-N-290
Center Conductors:	Phosphor bronze per ASTM B139 with electro-deposited gold plating per MIL-G-45204
Insulators:	Unreinforced polyetherimide resin rated UL94-V0 for flammability

OTHER

Interface Dimensions:	Outside diameter of mating plugs must be .298" (.75 cm) with pin diameter of .048" (.12 cm)
Mounting Details:	Jacks supplied with a 6-32 UNC-2A 5/16" Phillips head screws (zinc chromate plated)

3/06 • 102117AE Broadcast Products





Drawings and Specifications

Video Products

CJ2014N and CJ2020N-75 (terminated) Standard Size Coaxial Video Jack Specifications

ELECTRICAL

Characteristic Impedance:	62.5 Ohm nominal
Return Loss:	> -20 dB; 1 MHz to 2 GHz
Contact Resistance:	0.030 Ohm maximum change post environment

MECHANICAL

Mechanical Shock:	Per MIL-STD-202, Method 213
Vibration:	Per MIL-STD-202, Method 201
Insertion Force:	7 lbs. (3.17 kg) minimum
Withdrawal Force:	1.5 lbs. (0.675 kg) minimum
Life:	10,000 insertion/withdrawal cycles minimum

ENVIRONMENTAL

Operating Temperature:	-40°C to +65°C
Non-operating Temperature:	-55°C to +85°C non-operating
Thermal Shock:	Per MIL-STD-202, Method 107
Humidity:	0% to 95% non-condensing, operating and non-operating
Salt Spray:	Per MIL-STD-202, Method 101
Moisture Resistance:	Per MIL-STD-202, Method 106

MATERIAL

Jack Sleeve & Frame: Brass per ASTM B16 with electro-deposited nickel plating per QQ-N-290 or electro-deposited gold plating per MIL-G-45204

Center Conductors

.090" (.23 cm): Beryllium copper per QQ-C-533 with electro-deposited gold plating per MIL-G-45204 on contact areas only

Outer Conductor Contacts:

Phosphor bronze QQ-B-746 with electro-deposited gold plating per MIL-G-45204 or electro-deposited nickel plating per QQ-N-290
Rated UL 94V-0 for flammability
Brass per ASTM B16 with tin plating per MIL-T-10727

Insulators:

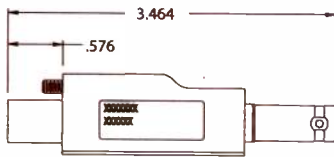
Crimping Sleeves:

INTERFACE DIMENSIONS:

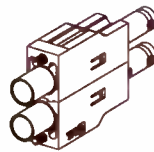
Outer diameter of mating plugs must be .375" (.95 cm) with pin diameter of .090" (.23 cm) or .070" (.18 cm)

MOUNTING INFORMATION:

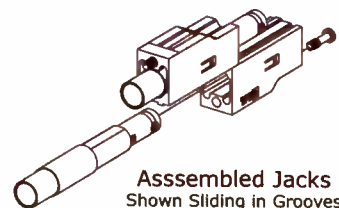
All jacks are supplied with 6-32, 5/16" Phillips head screws



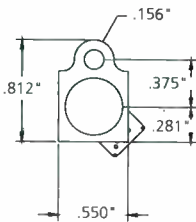
CJ2014N



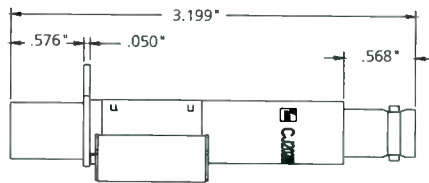
Assembled Jacks
Shown Assembled



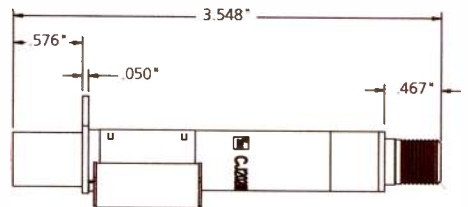
Assembled Jacks
Shown Sliding in Grooves



CJ2020-N75
CJ2020-N75FF



Dimensions for CJ2020N-75 and CJ2011N
(except CJ2011N has no termination can)



Dimensions for CJ2020-N75FF



Drawings and Specifications

Video Products

SJ2000 Switching Coaxial Jack Specifications

The SJ2000 family is rated to handle analog and digital video data rates up to 360 Mbps

ELECTRICAL

Insertion Loss:	0.4 dB DC to 200 MHz
Characteristic Impedance:	75 Ohm nominal
Return Loss:	Better than 15 dB 1 MHz to 600 MHz relative to 75 Ohm for .090" (.23 cm) diameter center conductor
Contact Resistance:	0.030 Ohm maximum change post environment
Termination Resistor Values:	75 Ohm commercial, 1/8 watt, 5%

MECHANICAL

Mechanical Shock:	Per MIL-STD-202, Method 213, Test Condition I
Vibration:	Per MIL-STD-202, Method 201
Insertion Force:	7 lbs (3.17 kg) minimum
Withdrawal Force:	1 lb (0.452 kg) minimum
Life:	10,000 insertion/withdrawal cycles (single port) minimum

ENVIRONMENTAL

Operating Temperature:	-40°C to +65°C operating
Non-operating Temperature:	-55°C to +85°C non-operating
Thermal Shock:	Per MIL-STD-202, Method 107
Humidity:	0% to 95% non-condensing, operating and non-operating
Salt Spray:	Per MIL-STD-202, Method 101
Moisture Resistance:	Per MIL-STD-202, Method 106

MATERIAL

Outer Shell, Jack Bodies and Rear Connectors:	Zinc die-casting with electro-deposit gold plating per MIL-G-45204 or electro-deposited nickel plating per QQ-N-290
Center Conductors:	0.090" (.23 cm) Beryllium copper per QQ-C-533 with electro-deposited gold plating per MIL-G45204 on contact areas only
Insulators:	Unreinforced polyetherimide resin rated UL94V-0 for flammability
Springs:	Beryllium copper per QQ-C-553 with electro-deposited gold plating per MIL-G-45204

INTERFACE DIMENSIONS

Standard Size:	Outside diameter of mating plugs must be .375" (.95 cm) with pin diameter of .090" or (.23 cm) or .070 (.18 cm)
-----------------------	---

MOUNTING INFORMATION

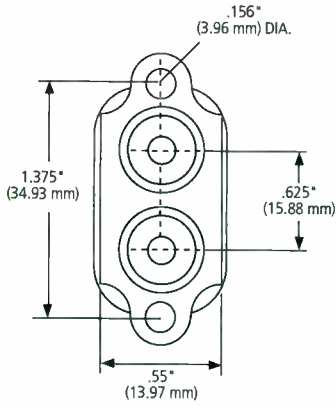
All jacks are supplied with two 6-32, round head, 5/16" Phillips head screws



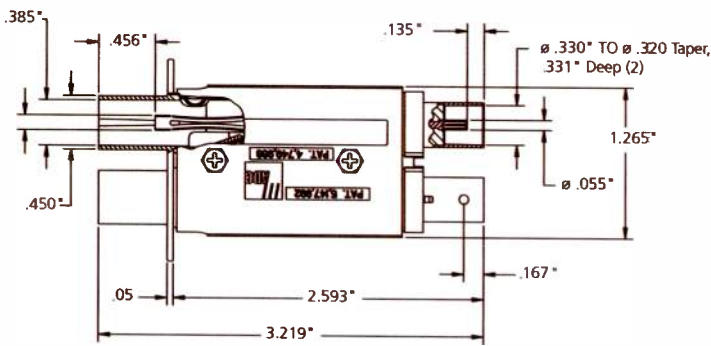
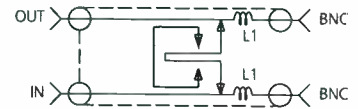
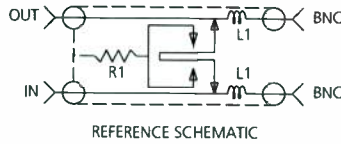
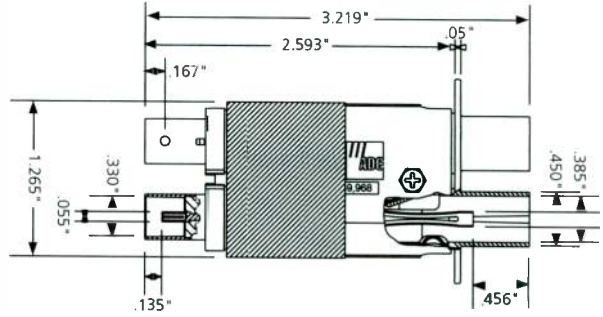
Drawings and Specifications

Video Products

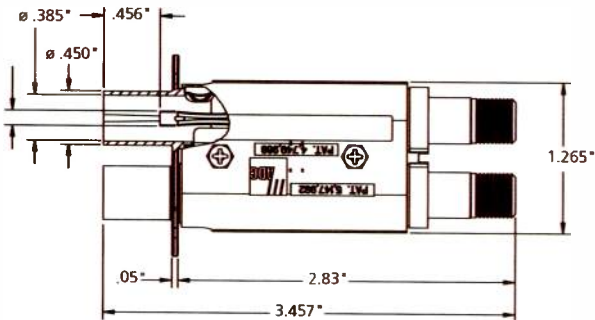
3/06 • 102117AE Broadcast Products



SJ2000 Standard Size
Switching Coaxial Video Jack



SJ2000 WECO BNC to BNC
Coaxial Video Jack



SJ2000N-75F Modified F-connection
Switching Coaxial Video Jack



Drawings and Specifications

Video Products

3/06 • 102117AF Broadcast Products

SVJ-2x Standard Size Video Super Jack Specifications

The SVJ-2x family is rated to handle digital video data rates up to and including uncompressed HDTV SMPTE 292M 1.485 Gbps.

ELECTRICAL

Rated Bandwidth:	2.4 GHz
Return Loss:	Better than -20 dB to 2.4 GHz
Characteristic Impedance:	75 Ohm
Insertion Loss:	<.5 dB Loss to 2.4 GHz
Center Conductor Diameter:	Accepts .09 center conductor
Contact Resistance:	Less than 20 milliohms
Termination Resistor:	75 Ohm, ± 1%

MECHANICAL

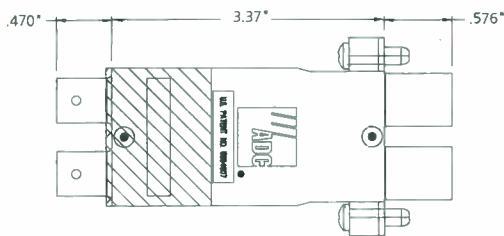
Mechanical Shock:	Per MIL-STD-202, Method 213 Test condition G
Vibration:	Per MIL-STD-202, Method 201
Insertion Force:	12 lbs. maximum
Withdrawal Force:	3 lbs. minimum
Life Cycles:	20,000 insertion/withdrawal cycles minimum

MATERIAL

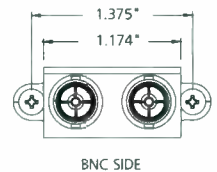
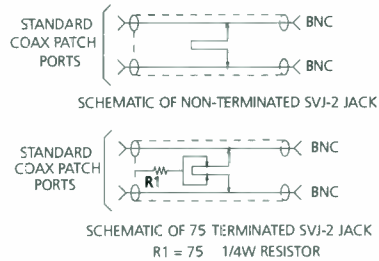
Body and Cover:	Zinc diecast per ASTM B86
Front and Rear	
Center Conductors:	Phosphor Bronze per ASTM B139
Insulators:	Polyetherimide resin rated UL 94V-0
Switching Springs:	Beryllium Copper per ASTM B196

ENVIRONMENTAL

Temperature	
Operating:	-40°C to 65°C
Storage:	-55°C to 85°C
Thermal Shock:	Per MIL-STD-202, Method 107
Humidity	
Operating:	0% to 95%, non-condensing
Storage:	0% to 95%, non-condensing
Salt Spray:	Per MIL-STD-202, Method 101
Moisture Resistance:	Per MIL-STD-202, Method 106
Dust Resistance:	Per MIL-STD-202, Method 110A



TOP VIEW



BNC SIDE

SVJ-2x Standard Size Video Super Jack



Drawings and Specifications

Video Products

CJ Series Midsize Single Coaxial Jacks to BNC Specifications

The SJ2000 family is rated to handle analog and digital video data rates up to and including 360 Mbps.

ELECTRICAL

Characteristic Impedance:	75 Ohms nominal
Return Loss:	> 19 dB; 300 Khz to 2.4 GHz
Contact Resistance:	10 milliohms typical
Termination Resistance (3014N-75/4014N-75):	75 Ohms commercial, 1/8 watt 5%

MECHANICAL

Mechanical Shock:	Per MIL-STD-202, Method 213
Vibration:	Per MIL-STD-202, Method 201
Insertion Force:	7 lbs. maximum
Withdrawal Force:	1.5 lbs. minimum

ENVIRONMENTAL

Operating Temp:	-40°C to 65°C
Storage Temp:	-55°C to 85°C
Thermal Shock:	Per MIL-STD-202, Method 107
Humidity:	0% to 95% non-condensing, operating and non-operating
Salt Spray:	Per MIL-STD-202, Method 101
Moisture Resistance:	Per MIL-STD-202, Method 106

MATERIAL

Jack Sleeve & Frame: CDA 360 brass rod per ASTM B16 with electro-deposit nickel plating per QQ-N-290

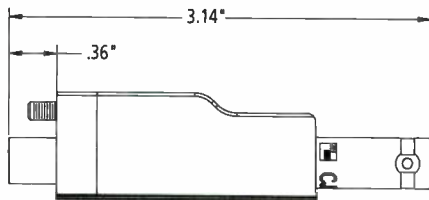
Center Conductors: Phosphor bronze per ASTM B139 with electro-deposited gold plating per MIL-G-45204

Insulators: TFE-Fluorocarbon per ASTM D1710

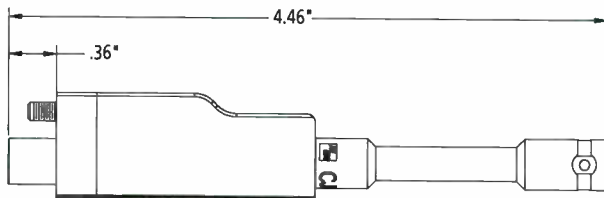
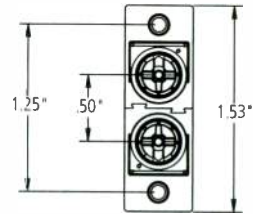
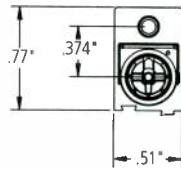
OTHER

Interface Dimensions: Outside diameter of mating plugs must be .298" (.75 cm) with pin diameter of .048" (.12 cm)

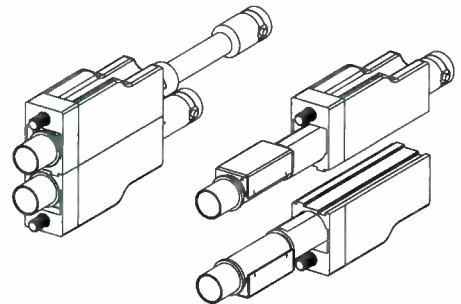
Mounting Details: Jacks supplied with a 6-32 UNC-2A 5/16" Phillips head screws (zinc chromate plated)



CJ3014N and CJ3014N-75



CJ4014N and CJ4014N-75





Drawings and Specifications

Video Products

MVJ-3 Midsize Video Super Jack Specifications

ELECTRICAL

The MVJ-3 Family is rated to handle digital video data rates up to and including uncompressed HDTV SMPTE 292M 1.485 Gbps.

Rated Bandwidth:	1 MHz to 3 GHz
Return Loss:	Better than -17 dB 1 MHz to 3 GHz
Characteristic Impedance:	75 Ohms
Insertion Loss:	0.3 dB Loss to 3 GHz
Center Conductor Diameter:	0.048 (.12cm)
Contact Resistance:	0.01 Ohm maximum change
Termination Resistor:	75 Ohm, MVJ-3T only

MECHANICAL

Mechanical Shock:	Per MIL-STD-202, Method 213
Vibration:	Per MIL-STD-202, Method 201
Insertion Force:	7lbs (3.17 Kg) maximum
Withdrawal Force:	1 lb. (.452 Kg) minimum
Life Cycles:	20,000

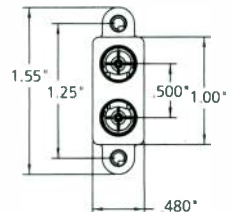
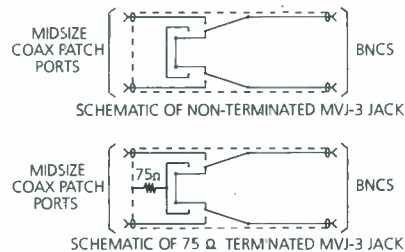
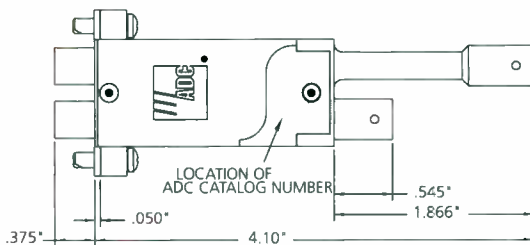
MATERIAL

Body and Cover:	Zinc alloy per ASTM B86
Front and Rear Center Conductors:	Beryllium Copper per ASTM B196
Insulators:	Unreinforced polyetherimide resin rated UL94-VO for flammability
Switching Springs:	Beryllium copper per ASTM B196

ENVIRONMENTAL

Operating Temperature:	-40°C to 65°C
Storage Temperature:	-40°C to 65°C
Thermal Shock:	Per MIL-STD-202, Method 107
Operating Humidity:	0% to 95%, non-condensing
Storage Humidity:	0% to 95%, non-condensing
Salt Spray:	Per MIL-STD-202, Method 101
Moisture Resistance:	Per MIL-STD-202, Method 106
Dust Resistance:	Per MIL-STD-202, Method 110

3/06 • 102117AE Broadcast Products



MVJ-3 Midsize Video Super Jack



Drawings and Specifications

75 Ohm BNC Connectors

Straight BNC Connectors

ELECTRICAL

Characteristic Impedance:	75 Ohm
Voltage Rating:	1000 Volts RMS
Insertion Loss:	< 0.6 dB 1 MHz to 1 GHz (measured with 1 meter of 728 cable)
Return Loss:	Better than 35 dB to 1 GHz; 30 dB to 2 GHz; 26 dB to 3 GHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	200 megohms minimum change

MECHANICAL

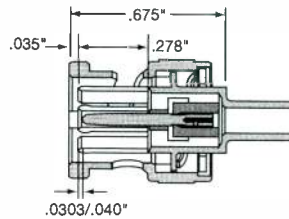
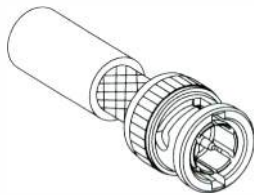
Mechanical Durability:	500 cycles minimum
Center Contact Retention:	6 lbs. minimum
Coupling Mechanism:	100 lbs. minimum
Cable Pulloff Force:	Dependent on cable size
Cable Bend and Twist:	500 cycles minimum
Force to Engage/Disengage:	Torque 2.5 in/lb maximum; longitudinal force 3 lbs. maximum
Interface Dimension:	MIL-C-39012 except 75 Ohm

ENVIRONMENTAL

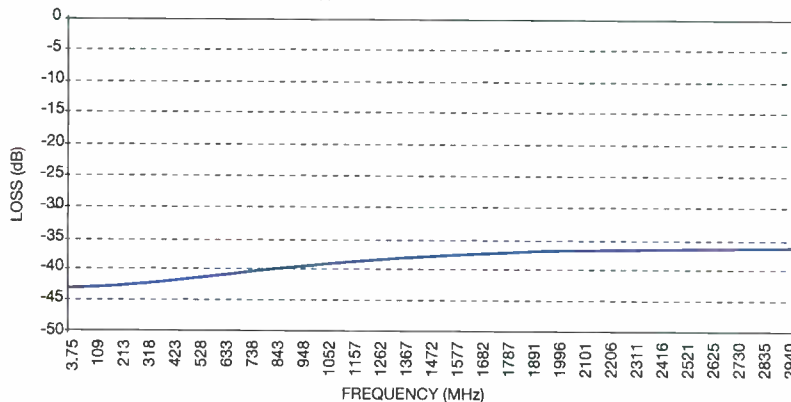
Thermal Shock:	-40°C to 65°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 201
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

Body/Bayonet:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1; requires .042" crimp station die



Typical Gated Return Loss





Drawings and Specifications

75 Ohm BNC Connectors

Right Angle BNC Connectors

ELECTRICAL

Characteristic Impedance:	75 Ohm
Voltage Rating:	1000 Volts RMS
Insertion Loss:	< 0.6 dB 1 MHz to 1 GHz (measured with 1 meter of 728 cable)
Return Loss:	Better than 30 dB to 1 GHz; 26 dB to 2 GHz; 20 dB to 3 GHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	200 megohms minimum change

MECHANICAL

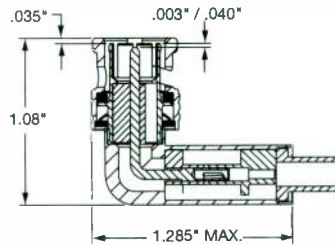
Mechanical Durability:	500 cycles minimum
Coupling Mechanism:	100 lbs. minimum
Cable Bend and Twist:	500 cycles minimum
Force to Engage/Disengage:	Torque 2.5 in/lb maximum; longitudinal force 3 lbs. maximum
Interface Dimension:	MIL-C-39012 except 75 Ohm

ENVIRONMENTAL

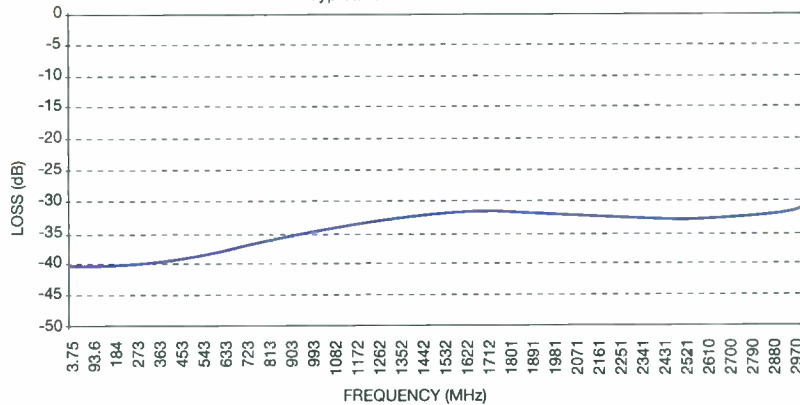
Thermal Shock:	-40°C to 65°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 201
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

Body/Bayonet:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1; requires .042" crimp station die



Typical Gated Return Loss



3/06 • 102117AE Broadcast Products



Drawings and Specifications

75 Ohm BNC Connectors

Bulkhead Jack Connectors

ELECTRICAL

Characteristic Impedance:	75 Ohm
Voltage Rating:	1500 Volts RMS
Insertion Loss:	Better than 0.20 dB 1 MHz to 2 GHz
Return Loss:	Better than 26 dB to 1 GHz; 18 dB to 2 GHz; 16 dB to 3 GHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	5000 megohms minimum change

MECHANICAL

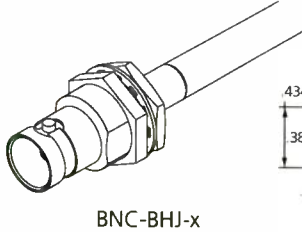
Mechanical Durability:	500 cycles minimum
Center Contact Retention:	6 lbs. minimum
Coupling Mechanism:	100 lbs. minimum
Cable Bend and Twist:	500 cycles minimum
Force to Engage/Disengage:	Torque 2.5 in/lb maximum; longitudinal force 3 lbs. maximum
Interface Dimension:	MIL-C-39012 except 75 Ohm

ENVIRONMENTAL

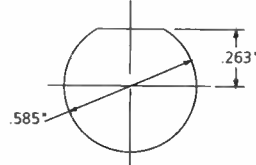
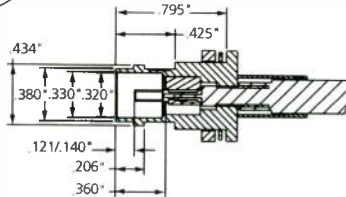
Thermal Shock:	-40°C to 65°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 204, Test Condition B
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

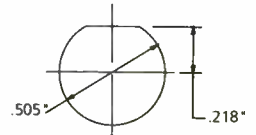
Body/Bayonet:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1



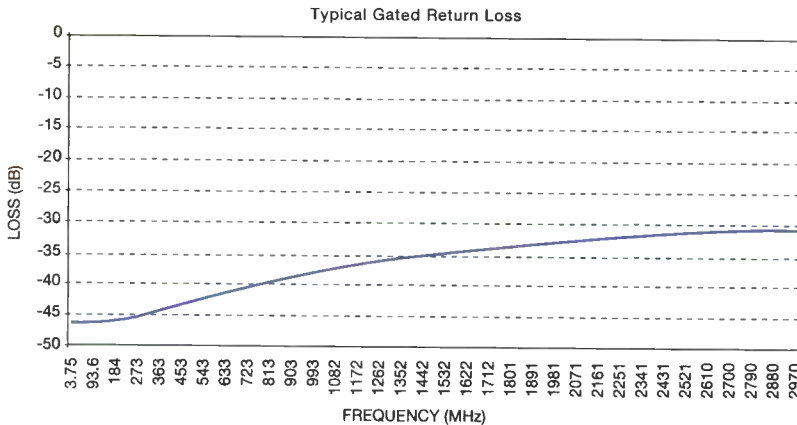
BNC-BHJ-x



RECOMMENDED PANEL CUTOUT WITH INSULATING WASHER (MAX THICKNESS: .240)



RECOMMENDED PANEL CUTOUT WITHOUT INSULATING WASHER (MAX THICKNESS: .240)



3/06 • 102117AE Broadcast Products



Drawings and Specifications

75 Ohm BNC Connectors

BNC Adapters

ELECTRICAL

Characteristic Impedance:	75 Ohm
Voltage Rating:	1500 Volts RMS
Insertion Loss:	Better than 0.20 dB 1 MHz to 2 GHz
Return Loss:	Better than 40 dB to 1 GHz; 30 dB to 2 GHz; 26 dB to 3 GHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	5000 megohms minimum change

MECHANICAL

Mechanical Durability:	500 cycles minimum
Center Contact Retention:	6 lbs. minimum
Coupling Mechanism:	100 lbs. minimum
Cable Bend and Twist:	500 cycles minimum
Force to Engage/Disengage:	Torque 2.5 in/lb maximum; longitudinal force 3 lbs. maximum
Interface Dimension:	MIL-C-39012 except 75 Ohm

ENVIRONMENTAL

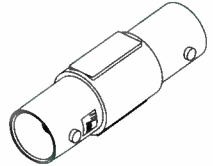
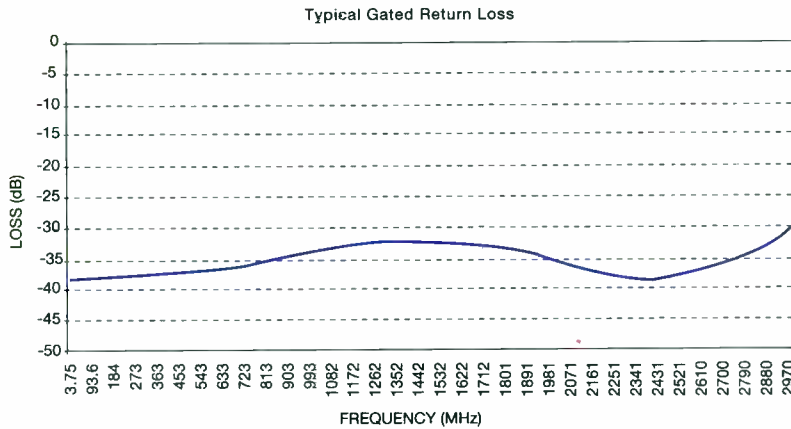
Thermal Shock:	-40°C to 65°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 204, Test Condition B
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

Body/Bayonet:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1

Broadcast Products

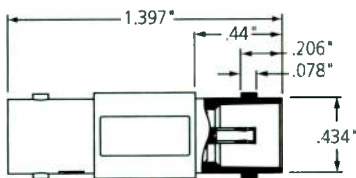
3/06 • 102117AE



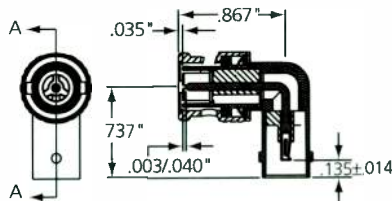
BNC Straight Adapter



BNC Right Angle Adapter



BNC Straight Adapter



BNC Right Angle Adapter



Drawings and Specifications

75 Ohm BNC Connectors

Recessed BNC

ELECTRICAL

Characteristic Impedance:	75 Ohm
Voltage Rating:	1500 Volts RMS
Insertion Loss:	Better than 0.20 dB 1 MHz to 2 GHz
Return Loss:	Better than 40 dB to 1 GHz; 30 dB to 2 GHz; 26 dB to 3 GHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	5000 megohms minimum change

MECHANICAL

Mechanical Durability:	500 cycles minimum
Center Contact Retention:	6 lbs. minimum
Coupling Mechanism:	100 lbs. minimum
Cable Bend and Twist:	500 cycles minimum
Force to Engage/Disengage:	Torque 2.5 in/lb maximum; longitudinal force 3 lbs. maximum
Interface Dimension:	MIL-C-39012 except 75 Ohm

ENVIRONMENTAL

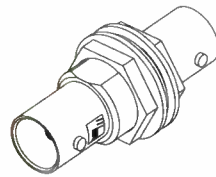
Thermal Shock:	-40°C to 65°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 204, Test Condition B
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

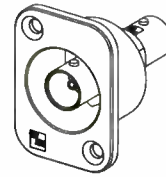
Body/Bayonet:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1

Broadcast Products

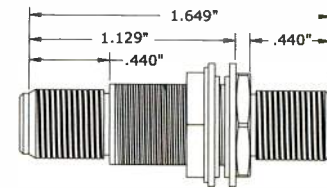
3 / 0 6 • 1 0 2 1 1 7 A E



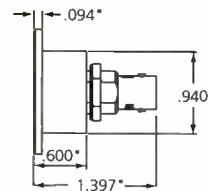
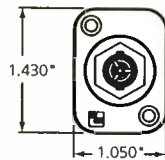
BNC Bulkhead Feed Through



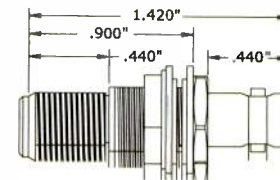
Recessed BNC



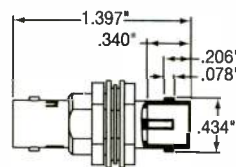
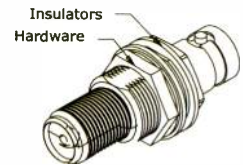
F to F Adapter



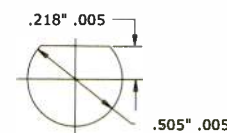
Recessed BNC



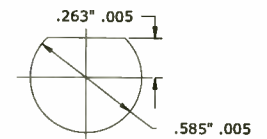
F to BNC Adapter



Bulkhead Feed Through



Recommended Panel cutout without Isolation Washer (Max Panel Thickness: .250)



Recommended Panel cutout with Isolation Washer (Max Panel Thickness: .250)



Drawings and Specifications

75 Ohm BNC Termination Plugs

BNC Terminations Plugs

ELECTRICAL

- Characteristic Impedance:** 75 Ohm
- Termination Resistance:** BNC-TP-2, 75 Ohm + 0.1% (resistor value); BNC-TP-1, 75 Ohm + 1.0% (resistor value)
- Return Loss:** BNC-TP-2, better than -29 dB return loss to 3.0 GHz; BNC-TP-1, better than -16 dB return loss to 2.0 GHz

MECHANICAL

- Mechanical Durability:** 500 cycles minimum
- Coupling Mechanism:** 100 lbs. minimum
- Mechanical Shock:** MIL-STD-202, Method 213
- Interface Dimensions:** MIL-C-39012 except 75 Ohm

ENVIRONMENTAL

- Thermal Shock:** -40°C to 65°C -55°C to 85°C, non-operating;
- Moisture Resistance:** 0% to 95% relative humidity, tested to MIL-STD-202 Method 106
- Corrosion (Salt Spray):** MIL-STD-202 Method 101, Test Condition B
- Vibration:** MIL-STD-202 Method 201

FINISH

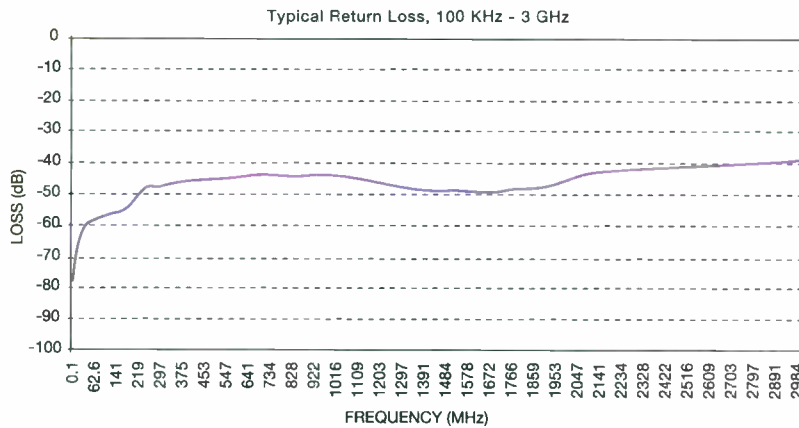
- Body/Bayonet:** Tarnish resistant electroless nickel plating
- Center Conductor:** 50 millionth inch gold plating MIL-C-45204 Type 1, Grade C, Class 1



BNC TP-1 and TP-2 Terminating Plugs



CF TP-1 and TP-2 Terminating Plugs





Drawings and Specifications

75 Ohm F Connectors

Straight F Connectors

ELECTRICAL

Characteristic Impedance:	75 Ohm
Voltage Rating:	1000 Volts RMS
Insertion Loss:	< 0.6 dB 1 MHz to 1 GHz (measured with 1 meter of 728 cable)
Return Loss:	Better than 35 dB to 1 GHz; 30 dB to 2 GHz; 26 dB to 3 GHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	200 megohms minimum change

MECHANICAL

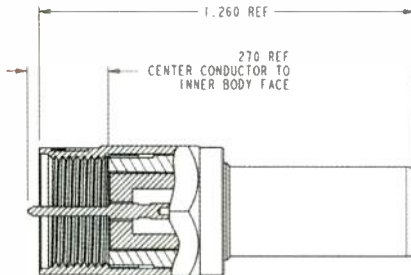
Mechanical Durability:	500 cycles minimum
Center Contact Retention:	6 lbs. minimum
Coupling Mechanism:	80 lbs. minimum
Cable Pulloff Force:	Dependent on cable size
Cable Bend and Twist:	500 cycles minimum
Coupling Nut Proof Torque:	Torque 20 in/lb minimum
Interface Dimension:	See Interface Detail below

ENVIRONMENTAL

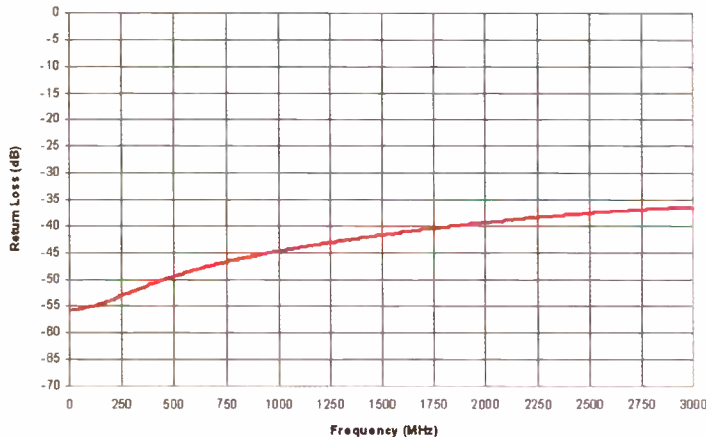
Thermal Shock:	-40°C to 35°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 201
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

Body:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1; requires .042" crimp station die



Typical GATED RETURN LOSS
F Connector





Drawings and Specifications

RCA Connectors

Straight RCA Connectors

ELECTRICAL

Characteristic Impedance:	75 Ohm typical
Voltage Rating:	1000 Volts RMS
Insertion Loss:	< 0.6 dB 1 MHz to 1 GHz (measured with 1 meter of 728 cable)
Return Loss:	Better than 26 dB up to 200 MHz
Contact Resistance:	.030 Ohm maximum change post environmental
Insulation Resistance:	200 megohms minimum change

MECHANICAL

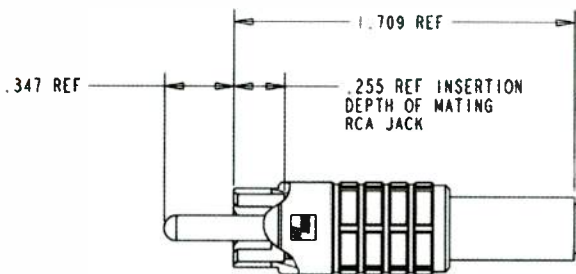
Mechanical Durability:	500 cycles minimum
Center Contact Retention:	6 lbs. minimum
Cable Pulloff Force:	Dependent on cable size
Cable Bend and Twist:	500 cycles minimum
Force to Engage/Disengage:	Longitudinal force 3 lbs. typical
Interface Dimension:	See Interface Detail below

ENVIRONMENTAL

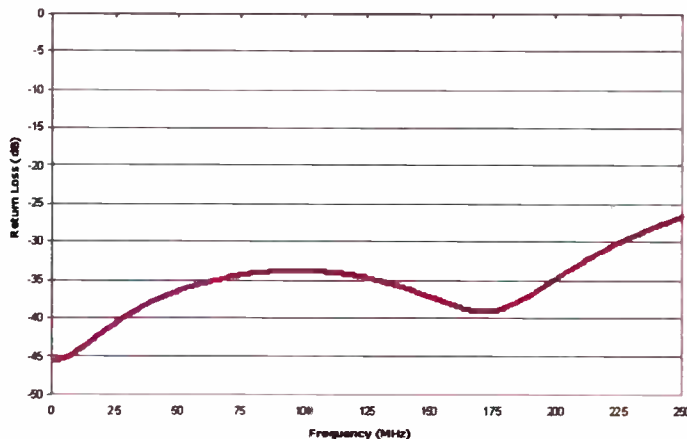
Thermal Shock:	-40°C to 35°C operating; -55°C to 85°C, non-operating
Moisture Resistance:	0% to 95%; MIL-STD-202 Method 106
Corrosion (Salt Spray):	MIL-STD-202 Method 101, Test Condition B
Flammability:	UL 94-VO rated (center conductor insulator)
Vibration:	MIL-STD-202 Method 201
Solvent Resistance:	MIL-STD-202 Method 215

FINISH

Body:	Tarnish-resistant electroless nickel plating
Center Conductor:	50 millionths inch gold plating MIL-G-45204 Type 1, Grade C, Class 1; requires .042" crimp station die



Typical Gated RETURN LOSS
RCA Plug





Drawings and Specifications

ProAx™ Triaxial Camera Connectors

Electrical performance specifications of ProAx™ triaxial camera connectors are based on a male and female connector mated together.

Rated Bandwidth:	1 MHz to 1.5 GHz
Return Loss:	Better than -20 1 GHz/-15 to 2 GHz
Characteristic Impedance:	75 Ω nominal
Insertion Loss:	Better than 0.8 dB loss 1 MHz to 1.5 GHz
Dielectric Withstanding Voltage:	1500 Volts AC
Life Cycles:	1000 cycles minimum per MIL-PFR-39012

MECHANICAL

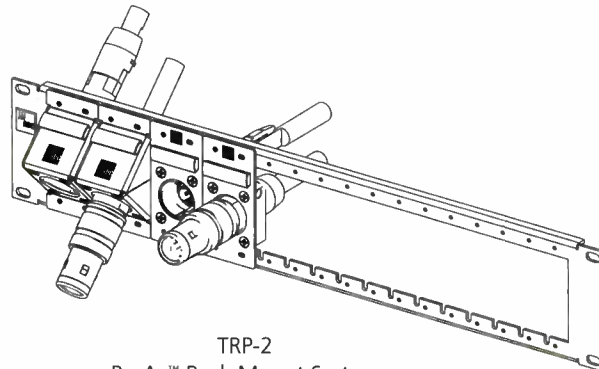
Life Cycles:	1000 cycles minimum per MIL-PFR-39012
Cable Retention:	100 lb. Per MIL-STD-1344A Method 2010.1

MATERIALS

Body Materials:	Brass per ASTM B16, CDA Alloy 360 with electroless nickel plating per QQ-N-290
Inner Bodies:	Brass per ASTM B16, CDA Alloy 360 with 50 millionths inch gold plating
Latching Spring:	Stainless Steel 460 SE heat treated and Electro-Polished
Spring Center Conductors:	Beryllium Copper with 50 millionths inch Gold per MIL-G-45204 Type 1
Crush Rings:	303 Stainless
Machined Center Conductors:	Brass per ASTM B16 CDA Alloy 360 with 50 millionths inch Gold per MIL-G-45204 Type 1
Ground Clip:	Beryllium Copper with electroless nickel plating per QQ-N-290 and Gold per MIL-G-45204 Type 1
Insulators:	Teflon™
O-Rings:	Ethylene Propylene

ENVIRONMENTAL

Temperature	
Operating:	-40°C to 65°C
Storage:	-55°C to 85°C
Thermal Shock:	Per MIL-STD-202, Method 107
Humidity	
Operating:	0% to 95%, non-condensing
Storage:	0% to 95%, non-condensing
Salt Spray:	Per MIL-STD-202, Method 101, Test Condition B
Moisture Resistance:	Per MIL-STD-202, Method 106
Sand and Dust Resistance:	Per MIL-STD-202, Method 101
Flammability:	UL 94-VO Rated
Crush Resistance:	Per MIL-STD-1344A, Method 2008.1



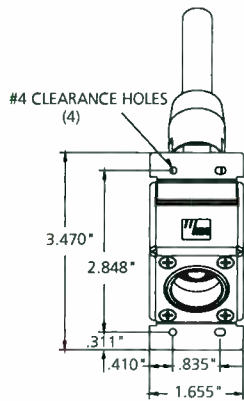
TRP-2
ProAx™ Rack Mount System



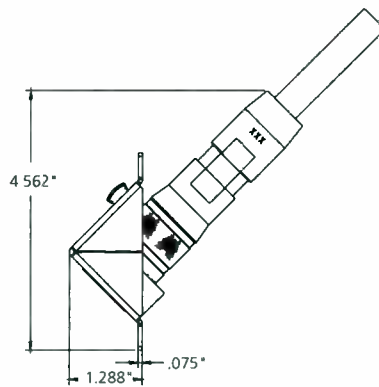
Drawings and Specifications

ProAx™ Triaxial Camera Connectors

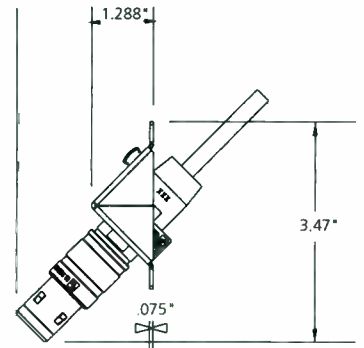
48° Angled Adapter



Front View

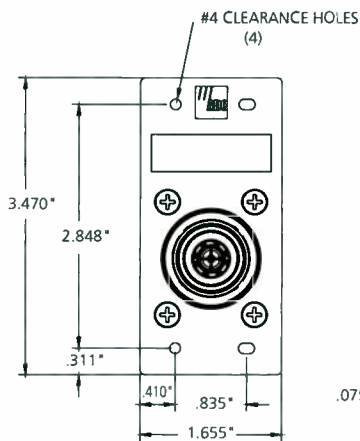


Female

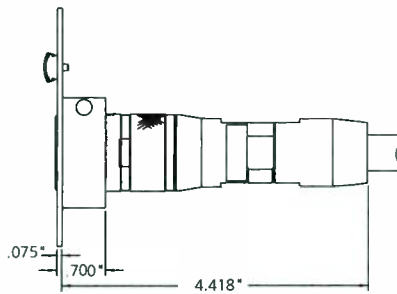


Male

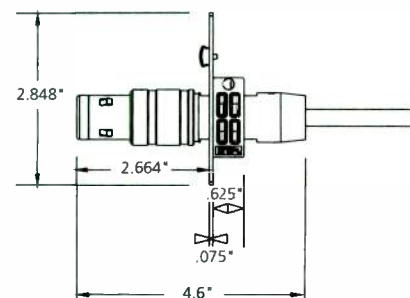
Straight Adapter Kit



Front View



Female



Male

Broadcast Products

3/06 • 102117AE

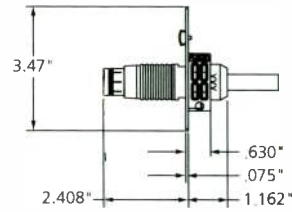
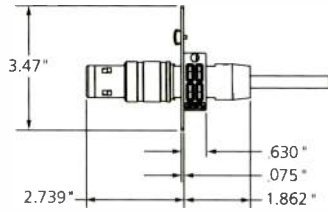


Drawings and Specifications

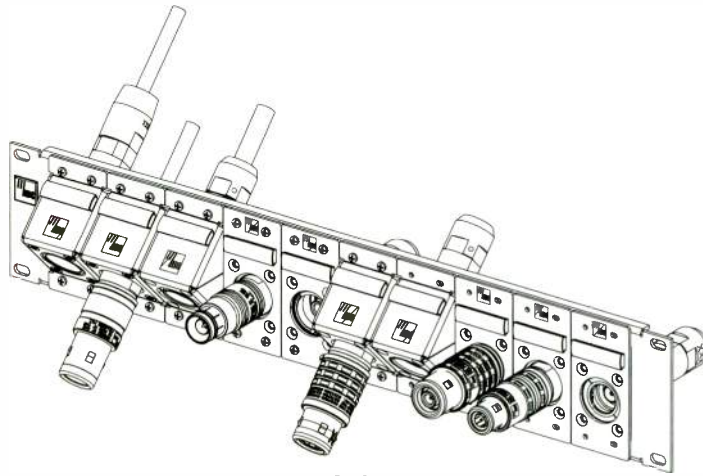
ProAx™ Triaxial Camera Connectors

Broadcast Products

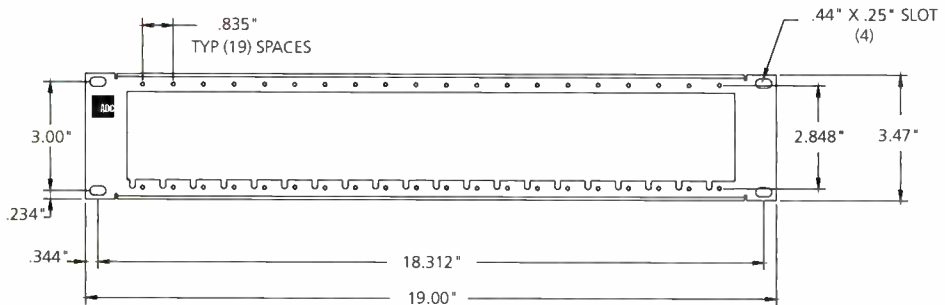
3/06 • 102117AE



TCP-XXX
USA ProAx Triax



GTCJ-XXX
Global ProAx Triax



TRP-2
ProAx™ Rack Mount System

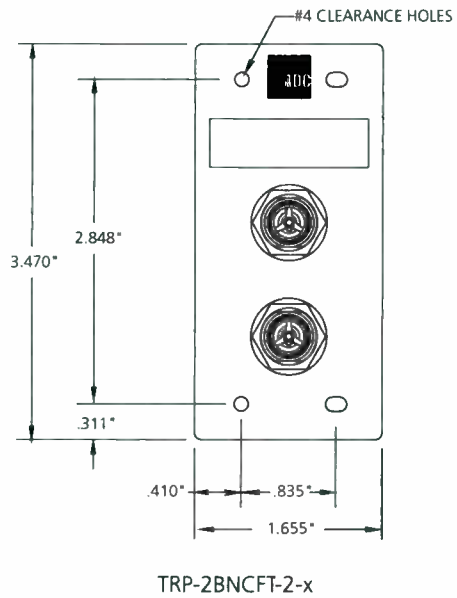
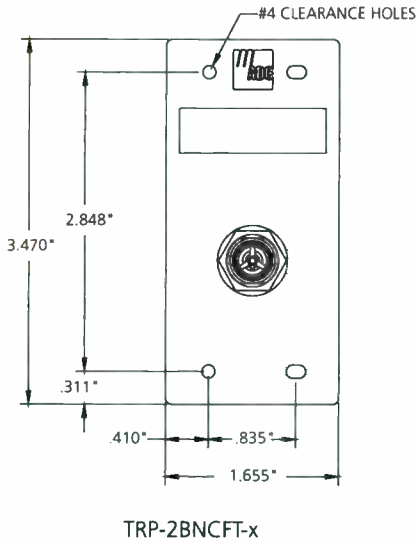


Drawings and Specifications

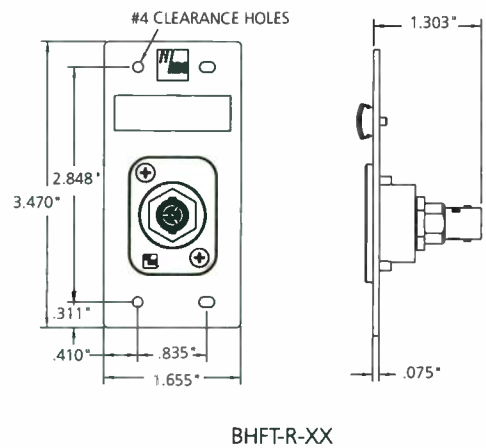
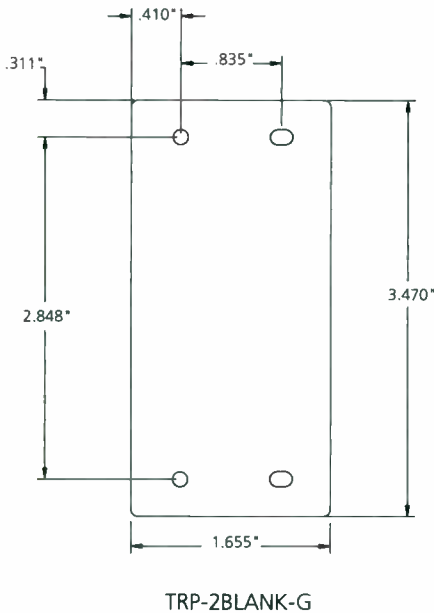
ProAx™ Triaxial Camera Connectors

BNC Modules for ProAx™ Rack Mount Plate

Broadcast Products



Recessed BNC Modules for ProAx™ Rack Mount Plate



3/06 • 102117AE

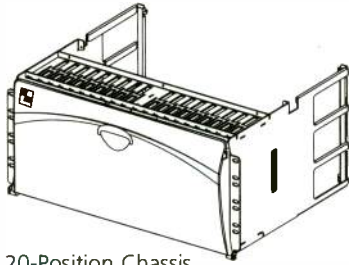


Drawings and Specifications

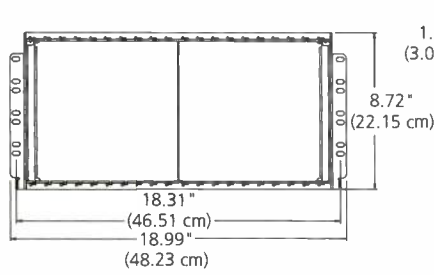
RF Worx® SignalOn® Series Passives

Broadcast Products

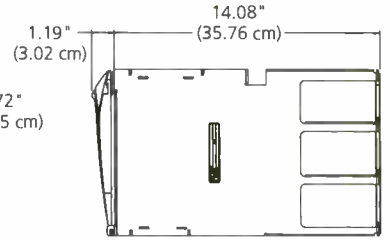
3/06 • 102117AE



20-Position Chassis



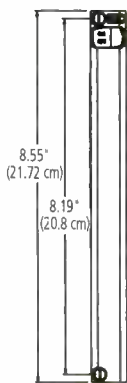
20-Position Chassis Front View



20-Position Chassis Side View



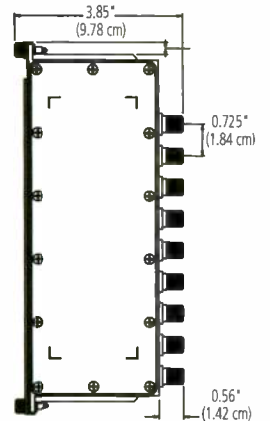
Module



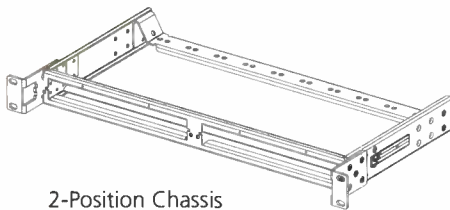
Module Front View



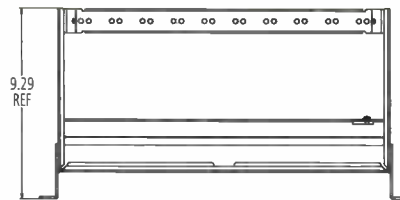
Module Rear View



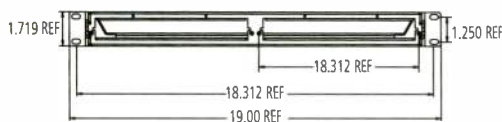
Module Side View



2-Position Chassis



2-Position Chassis Top View



2-Position Chassis Front View



Drawings and Specifications

RF Worx® SignalOn® Series Passives

Splitter/Combiner Specifications

The RF Worx® SignalOn® Series offers specifications that meet or exceed the best in the industry for insertion loss, port-to-port isolation and frequency response.

ELECTRICAL

Return Loss (All Ports):	-20 dB
Insertion Loss Flatness (Input Ports)	
Plain Modules (S/C):	Nominal ± 0.5 dB; 5-1000 MHz
Modules with Pad Monitor and Make-Before-Break Attenuation	± 0.5 dB; 5-860 MHz
Isolation (Adjacent Ports):	± 0.7 dB; 860-1000 MHz
	-30 dB

MECHANICAL

Connector Center-to-center Spacing:	0.725"
--	--------

Assembly Type	MBB Default	Performance Attributes	Specification (dB)	
			5-860 MHz	860-1000 MHz
All Modules		Minimum Return Loss, All Ports	-20	-20
		Minimum Isolation, Adjacent Ports	-30	-30
		Minimum EMI, Near-Field & Far-Field	-100	-100
2x1 Plain Module	-	Insertion Loss, Input Ports to C-Port	-3.8 ± 0.5	-3.8 ± 0.5
4x1 Plain Module	-	Insertion Loss, Input Ports to C-Port	-7.3 ± 0.5	-7.3 ± 0.5
8x1 Plain Module	-	Insertion Loss, Input Ports to C-Port	-11.6 ± 0.5	-11.6 ± 0.5
2x1 Splitter	0 dB	Insertion Loss, Input Ports to C-Port	-4.6 ± 0.5	-4.6 ± 0.7
		Monitor Level, C-Port to M-Port	-20.0 ± 0.6	-20.0 ± 0.8
	6 dB	Insertion Loss, Input Ports to C-Port	-10.6 ± 0.5	-10.6 ± 0.7
		Monitor Level, C-Port to M-Port	-20.0 ± 0.6	-20.0 ± 0.8
2x1 Combiner	0 dB	Insertion Loss, Input Ports to C-Port	-4.6 ± 0.5	-4.6 ± 0.7
		Monitor Level, Input Ports to M-Port	-24.6 ± 0.6	-24.6 ± 0.8
	6 dB	Insertion Loss, Input Ports to C-Port	-10.6 ± 0.5	-10.6 ± 0.7
		Monitor Level, Input Ports to M-Port	-30.6 ± 0.6	-30.6 ± 0.8
4x1 Splitter	0 dB	Insertion Loss, Input Ports to C-Port	-8.6 ± 0.5	-8.6 ± 0.7
		Monitor Level, C-Port to M-Port	-20.0 ± 0.6	-20.0 ± 0.8
	6 dB	Insertion Loss, Input Ports to C-Port	-14.6 ± 0.5	-14.6 ± 0.7
		Monitor Level, C-Port to M-Port	-20.0 ± 0.6	-20.0 ± 0.8
4x1 Combiner	0 dB	Insertion Loss, Input Ports to C-Port	-8.6 ± 0.5	-8.6 ± 0.7
		Monitor Level, Input Ports to M-Port	-28.6 ± 0.6	-28.6 ± 0.8
	6 dB	Insertion Loss, Input Ports to C-Port	-14.6 ± 0.5	-14.6 ± 0.7
		Monitor Level, Input Ports to M-Port	-34.6 ± 0.6	-34.6 ± 0.8
8x1 Splitter	0 dB	Insertion Loss, Input Ports to C-Port	-12.4 ± 0.5	-12.4 ± 0.7
		Monitor Level, C-Port to M-Port	-20.0 ± 0.6	-20.0 ± 0.8
	6 dB	Insertion Loss, Input Ports to C-Port	-18.4 ± 0.5	-18.4 ± 0.7
		Monitor Level, C-Port to M-Port	-20.0 ± 0.6	-20.0 ± 0.8
8x1 Combiner	0 dB	Insertion Loss, Input Ports to C-Port	-12.4 ± 0.5	-12.4 ± 0.7
		Monitor Level, Input Ports to M-Port	-32.4 ± 0.6	-32.4 ± 0.8
	6 dB	Insertion Loss, Input Ports to C-Port	-18.4 ± 0.5	-18.4 ± 0.7
		Monitor Level, Input Ports to M-Port	-38.4 ± 0.6	-38.4 ± 0.8

3/06 • 102117AE Broadcast Products



Drawings and Specifications

RF Worx® SignalOn® Series Satellite Splitters/Combiners

Broadcast Products
3/06 • 102117AE

Splitter/Combiner 2-Way

ADC catalog numbers: N-MLF12, N-MLB12

Assy Type 2 Way	Customer Specifications			Units
	950-1450 MHz	1450-1750 MHz	750-2150 MHz	
Insertion Loss Ports 1-2 to C-Port	-3.7±0.5	-3.7±0.5	-3.9±0.5	dB
Return Loss Min Ports 1-2	-18	-18	-16	dB
Return Loss Min Common Port	-17	-17	-16	dB
Isolation Min Adjacent Ports	-20	-20	-20	dB

Splitter/Combiner 4-Way

ADC catalog numbers: N-MLF14, N-MLB14

Assy Type 4 Way	Customer Specifications			Units
	950-1450 MHz	1450-1750 MHz	750-2150 MHz	
Insertion Loss Ports 1-4 to C-Port	-6.8±0.5	-6.8±0.5	-7.1±0.5	dB
Return Loss Min Ports 1-4	-18	-18	-16	dB
Return Loss Min Common Port	-17	-17	-16	dB
Isolation Min Adjacent Ports	-20	-20	-20	dB

Splitter/Combiner 8-Way

ADC catalog numbers: N-MLF18, N-MLB18

Assy Type 8 Way	Customer Specifications			Units
	950-1450 MHz	1450-1750 MHz	750-2150 MHz	
Insertion Loss Ports 1-8 to C-Port	-10.3±0.5	-10.6±0.5	-11.0±0.7	dB
Return Loss Min Ports 1-8	-18	-16	-16	dB
Return Loss Min Common Port	-17	-17	-16	dB
Isolation Min Adjacent Ports	-20	-20	-20	dB

Splitter/Combiner 2-4-8 Way

ADC catalog numbers: N-MLF12, N-MLB12, N-MLF14, N-MLB14, N-MLF18, N-MLB18,

Assy Type	DC Power Passing Ports	Maximum Power Rating
2 Way	1,2	24 VDC @ 1 Ampere
4 Way	1,4	24 VDC @ 1 Ampere
8 Way	1,8	24 VDC @ 1 Ampere

Electrical Characteristics (General)

Characteristic	Engineering	Customer
Impedance	75 ohms nominal	75 ohms nominal
DC Power	24 VDC @ 1Ampere Max.	24 VDC @ 1Ampere Max.



Drawings and Specifications

RF Worx® SignalOn® Series Actives

Forward Path Amplifier Specifications

Performance Attribute	20dB Forward Amplifier	30dB Forward Amplifier
Bandwidth	50-1000 MHz	50-1000 MHz
Optimum RF Input	20dBmV per channel	10dBmV per channel
Minimum Full Gain	20.0 dB	30.0 dB
Gain Adjustment Range	10 ±1dB in 0.5dB steps	10 ±1dB in 0.5dB steps
Tilt Adjustment Range	10 ±1dB @ 50MHz in 0.5dB steps	10 ±1dB @ 50MHz in 0.5dB steps
Gain Flatness	±0.4 dB from 50 to 870 MHz ±0.5 dB from 870 to 1000 MHz	±0.45 dB from 50 to 870 MHz ±0.65dB from 870 to 1000 MHz
Return Loss, input and output ports	-19.0 dB from 50 to 870 MHz -16.5 dB from 870 to 1000 MHz	-18.0 dB from 50 to 870 MHz -15.0 dB from 870 to 1000 MHz
Noise Figure	7.3 dB from 50 to 870MHz 7.6 dB from 870 to 1000MHz	5.7 dB from 50 to 870MHz 6.2 dB from 870 to 1000MHz
CTB ¹	-73.1 dB	-78.9 dB
CSO ¹	-81.7 dB	-84.5 dB
IMD ¹	-78.2 dB	-83.7 dB
Monitor ports	-20dB test point for both RF input and RF output	
Power dissipation	17W max	
Operating Temperature	0 - 50 degrees C	
Dimensions	8.55"H x 1.67"W x 7.81"D	
Power connector	gold-on-gold, slide-on contacts	
Thermal Shock	Meets MIL-STD-202 Method 107	
Office Vibration	Meets GR-63-Core Section 5.4.2	
Mechanical Shock	Meets MIL-STD-202 Method 213	
Accelerated Aging	Meets MIL-STD-202 Method 108	

Power Supply Specifications

Performance Attribute	AC-DC	DC-DC
Input Voltage	90-264 VAC, 50/60 Hz	36-72 VDC nominal
Efficiency	75% nominal	80% nominal
Output Voltage	24 VDC ± 5%	24 VDC ± 5%
Output Power	200W (24 VDC @ 8.33 Amps)	192W (24 VDC @ 8Amps)
Amplifiers Supported	Up to nine 30dB amplifiers	Up to nine 30dB amplifiers
Redundancy	Yes, dual load sharing	Yes, dual load sharing
Operating Temperature	0 - 50° C	0 - 50° C
Dimensions	8.55"H x 1.67"W x 12.96"D	8.55"H x 1.67"W x 12.96"D
Power Connector	gold-on-gold, slide-on contacts	gold-on-gold, slide-on contacts
Test Points	24 VDC output test points	24 VDC output test points
Fan	Field Replaceable Unit	Field Replaceable Unit
Alarm Relays	Fan Fail, Output Power Fail	Fan Fail, Output Power Fail
TTL Contacts	Remote Inhibit, Input Power Fail, Output Power Fail	Remote Inhibit, Input Power Fail, Output Power Fail

Note 1 - Measured with 110 channel loading and optimum RF input level at full gain and no tilt

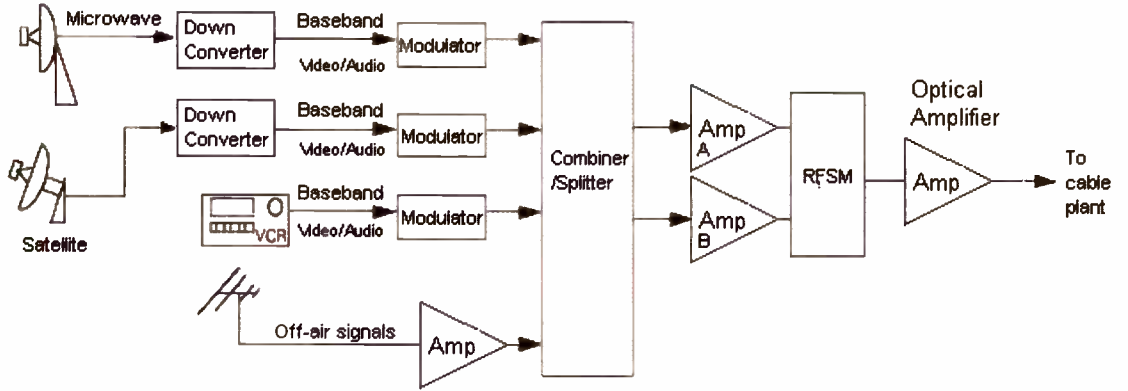
Specifications are typical worst-case numbers across the given frequency range, unless otherwise noted, and are subject to change without notice.

Broadcast Products

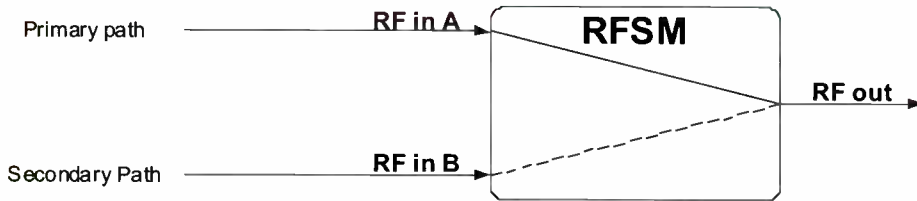
3/06 • 102117AE

Drawings and Specifications

RF Worx® SignalOn® Series RF Switch Modules



General Application Amplifier Redundancy



General Application Path Redundancy

Electrical Specifications

Frequency Range of operation	5MHz to 1GHz
Operating input level	50MHz to 1GHz
Insertion Loss	< 1dB to 1GHz
Flatness	< 0.6dB
Return Loss	> 20dB to 1GHz
Isolation between signal paths	> 60 dB
Isolation between circuits (Dual units)	> 70dB



ADC Patents for Products in this Ordering Guide

Product	Patent
SVJ-2 Super Video Jack	USO5964607 USO6045378
MVJ-3 Super Video Jack	USO5885096 USO6045378
UniPatch®, High-Density Data Patching System	USO6186798 USO6345986 USO6623278 USO6992257 Others Pending
UniPatch® Balun Modules	USO6597256 Others Pending
ProAx™ Triaxial Connectors	USO5967852 USO6109963 USO6146192 USO6231380 USO6575786 USO6561848 USO6997744 USO6783395 USO6811432 USO6942491 USO6991491 Others Pending
BNC/Coaxial Connectors	USO5921802 USO6428354 USO5921802 USO6712647 USO6848948 USO6953368 Others Pending
ProPatch® Programmable	USO6875060
RF Worx®	USO6888078



Broadcast Products

Index

A	
ACE/AGX-KEY	166
ADCPP24505-DES	86
ADCPP24606-DES	86
AJ238-1	43
AJ238-1T	43
AJ339-1	43
AJ339-1T	43
AM-2110-475-E3	15
AM-411075-E3	15
AM-411075-E3-FF	15
AM-411075-MKII	15
AM-BAN-BK	15
AM-LF1	23
AM1-BAN	23
B	
B1-VX	66
B1200V-MU	68
B1200V-MU-F	68
B1200V-MU-STS	68
B1800V-MU	68
B1800V-MU-F	68
B1800V-MU-STS	68
B1V-F	69
B1V-R	69
B1V-STM	67
B1V-STS-B	66
B1VX-B	66
B2-VX	66
B2V-F	69
B2V-R	69
B2V-STM	67
B2V-STM-B	67
B2V-STS	66
B2V-STS-B	66
B2VX-B	66
B3-VX	66
B300V-MU	68
B300V-MU-F	68
B300V-MU-STS	68
B3V-F	69
B3V-R	69
B3V-STM	67
B3V-STM-B	67
B3V-STS	66
B3V-STS-B	66
B3VX-B	66
B4-VX	66
B4V-F	69
B4V-R	69
B4V-STM	67
B4V-STM-B	67
B4V-STS	66
B4V-STS-B	66
B4VX-B	66
B6-VX	66
B600V-MU	68
B600V-MU-F	68
B600V-MU-STS	68
B6V-F	69
B6V-R	69
B6V-STM	67
B6V-STM-B	67
B6V-STS	66
B6V-STS-B	66
B6VX-B	66
B900V-MU	68
B900V-MU-F	68
B900V-MU-STS	68
BAL-XLR-1VBNC-F	43
BAL-XLR-BNC-F	43
BAL-XLR-BNC-M	43
BFK1200V-MU-F	68
BHFT-FB-I1	95
BHFT-FB-I1-B	95
BHFT-FF-I1	95
BHFT-FF-I1-B	95
BHFT-I1	95
BHFT-I1B	95
BHFT-I2	95
BHFT-MF	95
BHFT-PNL-16-BK	97
BHFT-PNL-16-G	97
BHFT-R-X	97
BHFT0-FB	95
BHFT0-FF	95
BHFT1	95
BHFT1-FB	95
BHFT1-FF	95
BJF103-4MKII26	35
BJF103-4MKIV	35
BJF107-4MKII26	35
BJF107-4MKII26HN	35
BJF107-4MKIV	35
BJF107-4MKIVHN	35
BJF203-4MKII26	35
BJF203-4MKIV	35
BJF203-4MKIVSN	35
BJF207-4MKII26	35
BJF207-4MKII26HN	35
BJF207-4MKIV	35
BJF207-4MKIVHN	35
BJF303-4MKIV	35
BJF307-4MKIV	35
BJF307-4MKIVHN	35
BJF403-4MKIV	35
BJF403-4MKIVSN	35
BJF407-4MKIV	35
BJF407-4MKIVHN	35
BJF407-4MKIVNN	35
BK1-VX	66
BK1200V-MU	68
BK1200V-MU-STS	68



Broadcast Products

Index

3/06 • 102117AE Broadcast Products

BK1800V-MU	68	BNC-15.....	92, 93
BK1800V-MU-F.....	68	BNC-16-N.....	92, 93
BK1800V-MU-ST5.....	68	BNC-17-N.....	92, 93
BK1V-F	69	BNC-19-N.....	92, 93
BK1V-R	69	BNC-2-N.....	92, 93
BK1V-STM.....	67	BNC-20-N.....	92, 93
BK1V-ST5.....	66	BNC-21-N.....	92, 93
BK1V-ST5-B.....	66	BNC-22.....	92, 93
BK1VX-B.....	66	BNC-24.....	92, 93
BK2-VX.....	66	BNC-25-N.....	92, 93
BK2V-F	69	BNC-26-N.....	92, 93
BK2V-R	69	BNC-27.....	92, 93
BK2V-STM.....	67	BNC-28.....	92, 93
BK2V-STM-B.....	67	BNC-29.....	92, 93
BK2V-ST5.....	66	BNC-3-N.....	92, 93
BK2V-ST5-B.....	66	BNC-31-N.....	92, 93
BK2VX-B.....	66	BNC-32.....	92, 93
BK3-VX.....	66	BNC-3TMX.....	92, 93
BK300V-MU	68	BNC-4-N.....	92, 93
BK300V-MU-F.....	68	BNC-5.....	92, 93
BK300V-MU-ST5.....	68	BNC-6-N.....	92, 93
BK3V-F	69	BNC-7.....	92, 93
BK3V-R	69	BNC-8-N.....	92, 93
BK3V-STM.....	67	BNC-9-N.....	92, 93
BK3V-STM-B.....	67	BNC-BHJ-1.....	92, 93
BK3V-ST5.....	66	BNC-BHJ-13.....	92, 93
BK3V-ST5-B.....	66	BNC-BHJ-3TMX.....	92, 93
BK3VX-B.....	66	BNC-BHJ-8.....	92, 93
BK4-VX.....	66	BNC-BHJ-PNL-3TMX.....	96
BK4V-F	69	BNC-BLK-32-TR75.....	85
BK4V-R	69	BNC-BLK-36-TR-1U-B.....	85
BK4V-STM.....	67	BNC-BLK-48-TR-2U-B.....	85
BK4V-STM-B.....	67	BNC-BLK-48-TR-2U-P.....	85
BK4V-ST5.....	66	BNC-H2.....	102
BK4V-ST5-B.....	66	BNC-H5.....	102
BK4VX-B.....	66	BNC-HN440.....	94
BK6-VX.....	66	BNC-IW440.....	94
BK600V-MU	68	BNC-LW440.....	94
BK600V-MU-F.....	68	BNC-PC-RRA.....	96
BK600V-MU-ST5.....	68	BNC-PC-RRA-1.....	96
BK6V-F	69	BNC-PC-RTRA.....	96
BK6V-R	69	BNC-PC-STRT.....	96
BK6V-STM.....	67	BNC-PC-V1.....	96
BK6V-STM-B.....	67	BNC-RA-1.....	92, 93
BK6V-ST5.....	66	BNC-RA-2.....	92, 93
BK6V-ST5-B.....	66	BNC-RA-3.....	92, 93
BK6VX-B.....	66	BNC-RA-4.....	92, 93
BK900V-MU	68	BNC-RA-7.....	92, 93
BK900V-MU-F.....	68	BNC-RA-8.....	92, 93
BK900V-MU-ST5.....	68	BNC-RA-ADP.....	95
BNC-1-N.....	92, 93	BNC-S1-KIT.....	102
BNC-10-N.....	92, 93	BNC-STRT-ADP.....	95
BNC-11.....	92, 93	BNC-TOOL-1.....	102
BNC-12.....	93	BNC-TP1.....	94, 127
BNC-12-N.....	92	BNC-TP2.....	94, 127
BNC-13-N.....	92, 93	BNTC-CAP.....	111
BNC-14.....	92, 93	BNTCJ-BOOT.....	111



Broadcast Products

Index

3/06 • 102117AE Broadcast Products

BNTCP-BOOT	111	COAX-BOOT-4-XX-Y	103
BNTRK-FF-50	109, 113	COAX-BOOT-5-XX-Y	103
BNTRK-FF-75	109, 113	COAX-BOOT-8-XX-Y	103
BNTRK-FM-50	109, 113	CP-1-MU-A	53
BNTRK-FM-75	109, 113	CP-1045	53
BT-2000-24	127	CP-1545	53
BT2000-06	99	CP1040N	54
BT2000-12	99, 127	CP1041G	53
BT2000-24	99	CP1041N	53
BTCJ-BH-50	112	CP1051G	53
BTCJ-G8-50	108	CP1051N	53
BTCJ-H11-50	108	CP1501N	54
BTCJ-K14-50	108	CP1540G-CRIMP	53
BTCP-BH-50	112	CP1540N	53
BTCP-G8-50	108	CP1540N-CRIMP	53
BTCP-H11-50	108	CPPV-B	64
BTCP-K14-50	108	CRCA-1	92, 93
BTRK-BH-FOS	113	CRCA-13	92, 93
BTRK-BH-MOS	113	CRCA-16	92, 93
BTRK-FOS	109	CRCA-2	92, 93
BTRK-GCF-50	109	CRCA-4	92, 93
BTRK-GCF-BH-50	113	CRCA-5	92, 93
BTRK-GCM-50	109	CRCA-8	92, 93
BTRK-GCM-BH-50	113	CRCAG-13	92, 93
BTRK-MOS	109	CRCAG-16	92, 93
C			
CAXADPT-1	53	CRCAG-8	92, 93
CAXADPT-2	53	CV-10-S-CJ2011	64
CAXADPT-3	53	CV-10-S-SVJT	64
CAXADPT-MU/BNC	53	CV-6-NJ	64
CAXADPT-MU/CPMID	53	CV-6MHV-3T	64
CAXADPT-MU/CPSTD	53	CV-8-CJ2011N	64
CCS-1	101	CV-8-N	64
CCS-2	101	CV-8-N75	64
CCS-3	101	CV-8-NJ	64
CCS-BLK	101	CV-CM	64
CF-1	92, 93	CV-M-N	64
CF-13	92, 93	CVPC-2	64
CF-29	92, 93	CVPC-3	64
CF-5	92, 93	CVPC-4	64
CF-8	92, 93	CVPC-6	64
CF-TP1	94	D	
CF-TP2	94, 127	DB9-TSHELL1-KIT	16
CJ2014N	53	DB9-TSHELL16-KIT	16
CJ2020N-75	53	DB9-TSHELL64-KIT	16
CJ3014N	53	DM-422-BK	15
CJ3014N-75	53	DM-422-G	15
CJ4014N	53	DM-422-NN-BK	15
CJ4014N-75	53	DM-422-NN-G	15
CJP-M-X	54	DM-6S-BK	15
CJP-S-X	54	DM-BLANK-BK	15
COAX-BOOT-1-XX-Y	103	DM-BLANK-G	15
COAX-BOOT-13-XX-Y	103	DM-RJC5-BK	15
COAX-BOOT-26-XX-Y	103	DTCJ-BH	112
COAX-BOOT-3-XX-Y	103	DTCJ-BOOT	111
COAX-BOOT-31-XX-Y	103	DTCJ-CAP	111
		DTCJ-G8	108



Broadcast Products

Index

DTCJ-H11	108	FL1-M-RT	166
DTCJ-K14	108	FL2-12RPNL-B	143
DTCP-BH	112	FL2-12TS350-B	145
DTCP-BOOT	111	FL2-144SPNL-B	144
DTCP-CAP	111	FL2-144SPNL2-B	144
DTCP-G8	108	FL2-19MAX0175-B	149
DTCP-H11	108	FL2-19MAX0350-B	149
DTCP-K14	108	FL2-19MAX0525-B	149
DTRK-BH-FOS	113	FL2-19MAX0700-B	149
DTRK-BH-MOS	113	FL2-19MAX0875-B	149
DTRK-FF	109, 113	FL2-19MAX1050-B	149
DTRK-FM	109, 113	FL2-19MAX1400-B	149
DTRK-FOS	109	FL2-19MAX1750-B	149
DTRK-GCF	109	FL2-23VCG0175-B	150
DTRK-GCF-BH	113	FL2-23VCG0350-B	150
DTRK-GCM	109	FL2-23VCG0525-B	150
DTRK-GCM-BH	113	FL2-23VCG0700-B	150
DTRK-MOS	109	FL2-23VCG0875-B	150
E			
EB-17B	127	FL2-23VCG1050-B	150
EB-35B	127	FL2-23VCG1400-B	150
EB-87	127	FL2-23VCG1750-B	150
EDAC-38P-SHELL	23, 43	FL2-24RPNL-B	143
EDAC-3P-SHELL	23, 43	FL2-24TS525-B	145
EDAC-56P-SHELL	23, 43	FL2-36RPNL-B	143
EDAC-90P-SHELL	23, 43	FL2-48RPNL-B	143
EDAC-CRIMP-TOOL	43	FL2-48SPNL-B	144
EDAC-EXTRACTION-TOOL	43	FL2-48SPNL2-B	144
F			
FL1-6P2SC003	166	FL2-48TS875-B	145
FL1-6P4SC003	166	FL2-6PBLNK	147
FL1-6P5BC003	166	FL2-6PMMDSC	147, 166
FL1-6P6BC003	166	FL2-6PMMFC	147, 166
FL1-6P7SC003	166	FL2-6PMMFC-Z	147
FL1-6P8SC003	166	FL2-6PMMMLC	147, 166
FL1-6P9BC003	166	FL2-6PMMMLX	147, 166
FL1-6PABC003	166	FL2-6PMMSC	147, 166
FL1-6PCSC003	166	FL2-6PMMSC-Z	147
FL1-6PDBC003	166	FL2-6PMMST	147, 166
FL1-6PESC003	166	FL2-6PMMST-Z	147
FL1-6PFSC003	166	FL2-6PSMAE-2	147, 166
FL1-6PJSC003	166	FL2-6PSMAFC	147, 166
FL1-6PKSC003	166	FL2-6PSMALX	147, 166
FL1-6PLSC003	166	FL2-6PSMASC	147, 166
FL1-6PPSC003	166	FL2-6PSMDSC	147, 166
FL1-6PRSC003	166	FL2-6PSMDSC-Z	166
FL1-6PXBC003	166	FL2-6PSMFC	147, 166
FL1-6PYBC003	166	FL2-6PSMFC-Z	147, 166
FL1-ACC001	166	FL2-6PSMFC/SC	147
FL1-ACC002	166	FL2-6PSMLC	147, 166
FL1-ACC003	166	FL2-6PSMSC	147, 166
FL1-M-3M	166	FL2-6PSMSC-Z	147, 166
FL1-M-FT	166	FL2-6PSMST	147, 166
FL1-M-HS	166	FL2-6PSMST-Z	147, 166
FL1-M-NT	166	FL2-6PSMST/SC	147
		FL2-72RPNL-B	143
		FL2-72TS140-B	145
		FL2-96RPNL-B	143
		FL2-96SPNL-B	144



Broadcast Products

Index

FL2-96SPNL2-B	144	G300V-MU-STS.....	68
FL2-96TS175-B	145	G3V-F	69
FL2-ACC006	143, 166	G3V-R	69
FL2-ACC007	143, 144, 166	G3V-STM	67
FL2-ACC008	143	G3V-STM-B	67
FL2-ACC021	143, 144	G3V-ST5	66
FL2-ACC033	143	G3V-ST5-B	66
FL2-EB0175P-B	151	G4-VX.....	66
FL2-EB0350P-B	151	G4V-F	69
FL2-EB0525P-B	151	G4V-R	69
FL2-EB0700P-B	151	G4V-STM	67
FL2-EB0875P-B	151	G4V-STM-B	67
FL2-EB1050P-B	151	G4V-ST5	66
FL2-EB1400P-B	151	G4V-ST5-B	66
FL2-EB1750P-B	151	G6-VX.....	66
FL2-FLMT0175-B.....	148	G600V-MU	68
FL2-FLMT0350-B.....	148	G600V-MU-F.....	68
FL2-FLMT0525-B.....	148	G600V-MU-ST5.....	68
FL2-FLMT0700-B.....	148	G6V-F	69
FL2-FLMT0875-B.....	148	G6V-R	69
FL2-FLMT1050-B.....	148	G6V-STM	67
FL2-RSPLCE-FT-B.....	144, 145	G6V-STM-B	67
FL2-RSPLCE-HS-B.....	144, 145	G6V-ST5	66
FL2-RSPLCE-MT-B.....	144, 145	G6V-ST5-B	66
FL2-RSPLCE-NT-B.....	144, 145	G900V-MU	68
FST-3M	166	G900V-MU-F.....	68
FST-DRS12-HS	144, 145	G900V-MU-ST5.....	68
FST-DRS12-MT	144, 145	GTC-CAP	111
FST-DRS24-NT	144, 145	GTCJ-BH	112
FST-FT	166	GTCJ-BOOT.....	111
FST-HS	166	GTCJ-BS-A12	108
FST-MT	166	GTCJ-BS-B38.....	108
FST-NT	166	GTCJ-BS-C12	108
FST-RCM	166	GTCJ-BS-D38	108
FST-RT	166	GTCJ-BS-E38.....	108
G		GTCJ-BS-F14.....	108
G1-VX.....	66	GTCJ-BS-G8	108
G1200V-MU	68	GTCJ-BS-H11	108
G1200V-MU-F.....	68	GTCJ-BS-K14	108
G1200V-MU-ST5.....	68	GTCJ-G8	108
G1800V-MU	68	GTCJ-H11	108
G1800V-MU-F.....	68	GTCJ-K14	108
G1800V-MU-ST5.....	68	GTCJ-YA	110
G1V-F	69	GTCP-BOOT	111
G1V-R	69	GTCP-G8	108
G1V-STM	67	GTCP-K14.....	108
G1V-ST5-B	66	GTRK-BH-FOS	113
G2-VX.....	66	GTRK-FF	109, 113
G2V-F	69	GTRK-FM	109
G2V-R	69	GTRK-FOS.....	109
G2V-STM	67	GTRK-GCF	109
G2V-STM-B	67	GTRK-GCF-BH.....	113
G2V-ST5	66	GTRK-GCM.....	109
G2V-ST5-B	66	GTRK-MOS	109
G3-VX.....	66	GTRK-RG	109
G300V-MU	68	GTRK-RH.....	109
G300V-MU-F.....	68	GTRK-RK.....	109



Broadcast Products

Index

H	
HDW-101115	60, 61
HDW-101611	94
HUM-1	54
I	
I-116-D9F	80
I-16A-MKIV	77
I-24A	77
I-24A-MKIV	77
I-24B	77
I-24B-MKIV	77
I-24C	77
I-24C-MKIV	77
I-24R	77
I-27A	77
I-32-DES-W	80
I-48	80
I-52-AMP	80
I-52-E	80
I-96	80
I-96-3E	80
I-96-AMP	80
I-96-E	80
I-96-MKIV	80
I-96B	80
I-96B-MKIV	80
I-96S	80
I-96S-19B	80
I-96S-MKIV-BK	80
I-CS-V8	80
I-ET-3	80
I-ET-5	80
I-ET-7	80
I-FL	80
I-FPB	80
I-FPD	80
I-FPD-1RU	80
I-VR	80
I-W-MKIV-PNL	77
I-WA	77
I-WA-E90-MKIV	77
I-WA-MKIV	77
I-WB	77
I-WB-AMP	77
I-WB-MKIV	77
I-WFP	77
I-WFP-RING	77
I-WS	82
I-WS-MKIV	82
I-WS-PANEL	82
I-WSET	82
IPA-K1	166
IPA-K2	166
IW-24-AMP-E3	77
IW-24-D9	77
IW-24-E3	77
IW-5E-24	77
IW-VI-24-MNT	77
J	
JTCJ-BH	112
JTCJ-G8	108
JTCJ-H11	108
JTCJ-K14	108
JTCP-BH	112
JTCP-G8	108
JTCP-H11	108
JTCP-K14	108
JTRK-BH-FOS	113
JTRK-BH-MOS	113
JTRK-FF	109, 113
JTRK-FM	109, 113
JTRK-FOS	109
JTRK-GCF	109
JTRK-GCF-BH	113
JTRK-GCM	109
JTRK-GCM-BH	113
JTRK-MOS	109
L	
LP-M1500	54
LP-S1625	54
LTC-CAP	111
LTCJ-BH	112
LTCJ-BOOT	111
LTCJ-G8	108
LTCJ-H11	108
LTCJ-K14	108
LTCJ-YA	110
LTCP-BH	112
LTCP-BOOT	111
LTCP-G8	108
LTRK-BH-FOS	113
LTRK-BH-MOS	113
LTRK-FF	109, 113
LTRK-FM	109, 113
LTRK-FOS	109
LTRK-GCF	109
LTRK-GCF-BH	113
LTRK-GCM	109
LTRK-GCM-BH	113
LTRK-MOS	109
M	
MBNC-3	53
MBNC-3L	53
MOLEX-3F-SHELL	43
MOLEX-3P-SHELL	43
MUSA-TP2	54
MVJ-3	53
MVJ-3NN	53
MVJ-3T	53



Broadcast Products

Index

3 / 0 6 • 1 0 2 1 1 7 A E Broadcast Products

N	
N-ACC-AP-M0	127
N-ACC-AP-M6	127
N-ACC-AP-S1	127
N-ACC-AP-S2	127
N-ACC-AP-S3	127
N-ACC-AP-S4	127
N-ACC-AP-S5	127
N-ACC-AP-XX	127
N-ACC-BLANK-01	127
N-ACC-BLANK-02	127
N-ACC-BRKT-RA	132
N-ACC-BRKT-RFW	127
N-ACC-CBL-DC-DC	132
N-ACC-FAN	132
N-ACC-LE-02	127
N-ACC-LE-03	127
N-ACC-LE-04	127
N-ACC-LE-05	127
N-ACC-LE-06	127
N-ACC-LE-07	127
N-ACC-LE-08	127
N-ACC-LE-09	127
N-ACC-LE-10	127
N-ACC-LE-11	127
N-ACC-LE-12	127
N-ACC-LE-13	127
N-ACC-PWRKIT-08B	132
N-ACC-PWRKIT-20B	132
N-ACC-TP-75	127
N-ACMK-01P	127
N-ACMK-04P	127
N-AMCK-01	127
N-AMCK-18	127
N-C02HNB	122
N-C08HNB	122
N-C08HYB	122
N-C08NYB	130
N-C20VNB	122
N-C20VYB	122, 130
N-MAB20FA	131
N-MAB30FA	131
N-MAF20FA	131
N-MAF30FA	131
N-MCB12M0	123
N-MCB12M6	123
N-MCB14M0	123
N-MCB14M6	123
N-MCB18M0	123
N-MCB18M6	123
N-MCB24M0	124
N-MCB24M6	124
N-MCB32M0	124
N-MCB32M6	124
N-MCF12M0	123
N-MCF12M6	123
N-MCF14M0	123
N-MCF14M6	123
N-MCF18M0	123
N-MCF18M6	123
N-MCF24M0	124
N-MCF24M6	124
N-MCF32M0	124
N-MCF32M6	124
N-MDB112R	124
N-MDB120R	124
N-MDB312R	124
N-MDB320R	124
N-MDF112R	124
N-MDF120R	124
N-MDF312R	124
N-MDF320R	124
N-MLB12	126
N-MLB14	126
N-MLB18	126
N-MLB24	126
N-MLB32	126
N-MLF12	126
N-MLF14	126
N-MLF18	126
N-MLF24	126
N-MLF32	126
N-MMB320FM0	125
N-MMF320FM0	125
N-MPB12	123
N-MPB14	123
N-MPB18	123
N-MPF12	123
N-MPF14	123
N-MPF18	123
N-MRFSM1B	132
N-MRFSM1F	132
N-MRFSM2B	132
N-MRFSM2F	132
N-MSB12M0	123
N-MSB12M6	124
N-MSB14M0	123
N-MSB14M6	124
N-MSB18M0	123
N-MSB18M6	124
N-MSF12M0	123
N-MSF12M6	124
N-MSF14M0	123
N-MSF14M6	124
N-MSF18M0	123
N-MSF18M6	124
N-MV48DC	131
N-MVUVAC	131
N-MXB24M0	124
N-MXB24M6	124
N-MXF24M0	124
N-MXF24M6	124
NTCJ-BH-75	112
NTCJ-G8-75	108



Broadcast Products

Index

3/06 • 102117AE Broadcast Products

NTCJ-H11-75	108	O6-VX.....	66
NTCJ-K14-75	108	O600V-MU	68
NTCP-BH-75	112	O600V-MU-F.....	68
NTCP-G8-75	108	O600V-MU-ST5.....	68
NTCP-H11-75	108	O6V-F	69
NTCP-K14-75	108	O6V-R	69
NTRK-BH-FOS	113	O6V-STM	67
NTRK-BH-MOS	113	O6V-STM-B.....	67
NTRK-FOS	109	O6V-ST5	66
NTRK-GCF-75	109	O6V-ST5-B	66
NTRK-GCF-BH-75	113	O6VX-B.....	66
NTRK-GCM-75	109	O900V-MU	68
NTRK-GCM-BH-75	113	O900V-MU-F.....	68
NTRK-MOS	109	O900V-MU-ST5.....	68
O			
O1-VX.....	66	P	
O1200V-MU	68	PAT-100900-006	17
O1200V-MU-F.....	68	PAT-100904.....	17
O1200V-MU-ST5.....	68	PC-422-2BK	17
O1800V-MU	68	PC-422-3BK	17
O1800V-MU-F.....	68	PC-422-4BK	17
O1800V-MU-ST5.....	68	PC-422-6BK	17
O1V-F	69	PC-422-KIT	16
O1V-R	69	PC-422-RJ45-2BK	17
O1V-STM	67	PC-422-RJ45-3BK	17
O1V-STM-B.....	67	PC-422-RJ45-4BK	17
O1V-ST5	66	PC-422-RJ45-6BK	17
O1V-ST5-B	66	PEM-9NCDA1-BK-NN	17
O1VX-B.....	66	PGS-100016	53
O2-VX.....	66	PGS-100018	53
O2V-F	69	PJ051B	39
O2V-R	69	PJ051B-MN.....	39
O2V-STM	67	PJ051R	39
O2V-STM-B.....	67	PJ242	41
O2V-ST5	66	PJ242W.....	41
O2V-ST5-B	66	PJ29	39
O2VX-B.....	66	PJ339	41
O3-VX.....	66	PJ339L	41
O300V-MU	68	PJ339W.....	41
O300V-MU-F.....	68	PJ4	39
O300V-MU-ST5.....	68	PJ729B	39
O3V-F	69	PJ729R	39
O3V-R	69	PJ746	39
O3V-STM	67	PJ777B	39
O3V-STM-B.....	67	PJ777R	39
O3V-ST5	66	PJ778B	39
O3V-ST5-B	66	PJ778R	39
O3VX-B.....	66	PJ824N	41
O4-VX.....	66	PJ824WN	41
O4V-F	69	PJ839N-SDR	41
O4V-R	69	PJ925B	39
O4V-STM	67	PJ925R	39
O4V-STM-B.....	67	PJ925W.....	39
O4V-ST5	66	PPA1	37
O4V-ST5-B	66	PPA1-14MKII24EHN	31
O4VX-B.....	66	PPA1-14MKII26ENS.....	31
		PPA1-14MKII26HN	31



Broadcast Products

Index

3/06 • 102117AE Broadcast Products

PPA1-14MKIINO	31	PPE1226-CJ52-BK	60
PPA1-14MKIVHN	31	PPE1226-CJ52T-BK	60
PPA1-14MKIVNN	31	PPE1226-N-BK	60
PPA1-14MKIVNS	31	PPE1226-SMJ-BK	60
PPA1-26	37	PPE1226-SVJ-BK	60
PPA1-26-HN-CG	37	PPE1226-SVJT-BK	60
PPA1-26-NS-CG	37	PPE1232-CJM-BK	61
PPA1-HN-CG	37	PPE1232-CJMT-BK	61
PPA1-L204	37	PPE1232-MVJ-BK	61
PPA1-NS-CG	37	PPE1232-MVJT-BK	61
PPA3	37	PPE15232-CJM-BK	61
PPA3-14MKII26EHN	31	PPE15232-CJMT-BK	61
PPA3-14MKII26ENS	31	PPE15232-MVJ-BK	61
PPA3-14MKII26NO	31	PPE15232-MVJT-BK	61
PPA3-14MKII26NS	31	PPE2224-75N-BK	60
PPA3-14MKII26SN	31	PPE2224-CJ48-BK	60
PPA3-14MKIVHN	31	PPE2224-CJ48T-BK	60
PPA3-14MKIVNO	31	PPE2224-N-BK	60
PPA3-14MKIVNS	31	PPE2224-SMJ	60
PPA3-14MKIVSN	31	PPE2224-SMJ-BK	60
PPA3-18MKII26NO	31	PPE2224-SVJ-BK	60
PPA3-18MKIVHN	31	PPE2224-SVJT-BK	60
PPA3-18MKIVNO	31	PPE2226-75N-BK	60
PPA3-18MKIVNS	31	PPE2226-CJ52-BK	60
PPA3-26-SN	37	PPE2226-CJ52T-BK	60
PPA3-HN-CG	37	PPE2226-N-BK	60
PPA3-NS-CG	37	PPE2226-SMJ-BK	60
PPB1	37	PPE2226-SVJ-BK	60
PPB1-14MKIIEHN	31	PPE2226-SVJT-BK	60
PPB1-14MKIENS	31	PPE2232-CJM-BK	61
PPB1-HN-CG	37	PPE2232-CJMT-BK	61
PPB1-NS-CG	37	PPE2232-MVJ-BK	61
PPB3	37	PPE2232-MVJT-BK	61
PPB3-14MKIIEHN	31	PPE4624-SMJ-BK	60
PPB3-14MKIENS	31	PPE4626-SMJ-BK	60
PPB3-14MKIINO	31	PPE4632-MVJ-BK	61
PPB3-14MKIINOBG	31	PPE4632-MVJT-BK	61
PPB3-14MKIVHN	31	PPH	43
PPB3-14MKIVNN	31	PPI-EXT-BAR-BK	16
PPB3-14MKIVNS	31	PPI-EXT-BAR-G	16
PPB3-18MKIINO	31	PPI1224-SMJ	58
PPB3-5R422D9NS	17	PPI1224-SMJ-BK	58
PPB3-5R422D9NS-12	17	PPI1224-SVJ	58
PPB3-HN-CG	37	PPI1224-SVJT	58
PPB3-NS-CG	37	PPI1226-SMJ	58
PPB3-SN	37	PPI1226-SMJ-BK	58
PPE1132-CJM-BK	61	PPI1226-SVJ	58
PPE1132-CJMT-BK	61	PPI1226-SVJT	58
PPE1224-75N-BK	60	PPI1232-CJMID	58
PPE1224-CJ48-BK	60	PPI1232-CJMID-BK	58
PPE1224-CJ48T-BK	60	PPI1232-MVJ	58
PPE1224-N-BK	60	PPI1232-MVJ-BK	58
PPE1224-SMJ	60	PPI1232-MVJT	58
PPE1224-SMJ-BK	60	PPI1232-MVJT-BK	58
PPE1224-SVJ-BK	60	PPI15232-MVJ-BK	58
PPE1224-SVJT-BK	60	PPI15232-MVJT-BK	58
PPE1226-75N-BK	60	PPI2224-CJ48	58



Broadcast Products

Index

PPI2224-CJ48T	58	PPP1248-ICA50-NS	23
PPI2224-CJ52T	58	PPV-24MKII	64
PPI2224-SMJ-BK	58		
PPI2224-SVJ	58	Q	
PPI2224-SVJ-BK	58	Q115	43
PPI2224-SVJT	58	Q150	43
PPI2224-SVJT-BK	58	QB-2	43
PPI2226-CJ52	58	QB-2LT	43
PPI2226-SMJ-BK	58	QB-2T	43
PPI2226-SVJ	58	QB-4	43
PPI2226-SVJ-BK	58	QB-4T	43
PPI2226-SVJT	58	QDF-114	43
PPI2226-SVJT-BK	58	QRK-25	43
PPI2232-CJMID	58	QRK-25-MKIV	43
PPI2232-CJMIDT	58		
PPI2232-CJMIDT-BK	58	R	
PPI2232-MVJ	58	R1-VX	66
PPI2232-MVJ-BK	58	R1200V-MU	68
PPI2232-MVJT	58	R1200V-MU-F	68
PPI2232-MVJT-BK	58	R1200V-MU-STS	68
PPI2332-MVJ-MON-BK	58	R1800V-MU	68
PPI2332-MVJT-MONT-BK	58	R1800V-MU-F	68
PPI3426-CJ52-N	58	R1800V-MU-STS	68
PPO-3RU-P	137	R1V-F	69
PPO-3RU-S	137	R1V-R	69
PPO-4RU-P	137	R1V-STM	67
PPO-4RU-S	137	R1V-STS	66
PPO-PWR	137	R1V-STS-B	66
PPP-15-CHAS-KIT	23	R1VX-B	66
PPP-15-CHAS-KIT-L	23	R2-VX	66
PPP1224-E90-HN	23	R2V-F	69
PPP1224-E90-HN-S	23	R2V-R	69
PPP1224-E90-NS	23	R2V-STM	67
PPP1224-E90-NS-S	23	R2V-STM-B	67
PPP1224-MKII-HN	23	R2V-STS	66
PPP1224-MKII-NS	23	R2V-STS-B	66
PPP1232-E120-HN	23	R2VX-B	66
PPP1232-E120-HN-S	23	R3-VX	66
PPP1232-E120-NS	23	R300V-MU	68
PPP1232-E120-NS-S	23	R300V-MU-F	68
PPP1232-MKII-HN	23	R300V-MU-STS	68
PPP1232-MKII-NS	23	R3V-F	69
PPP1248-A50-HN	23	R3V-R	69
PPP1248-A50-NS	23	R3V-STM	67
PPP1248-E3-HN	23	R3V-STM-B	67
PPP1248-E3-HN-S	23	R3V-STS	66
PPP1248-E3-NS	23	R3V-STS-B	66
PPP1248-E3-NS-S	23	R3VX-B	66
PPP1248-E56-HN	23	R4-VX	66
PPP1248-E56-HN-S	23	R4V-F	69
PPP1248-E56-NS	23	R4V-R	69
PPP1248-E56-NS-S	23	R4V-STM	67
PPP1248-E90-HN	23	R4V-STM-B	67
PPP1248-E90-HN-S	23	R4V-STS	66
PPP1248-E90-NS	23	R4V-STS-B	66
PPP1248-E90-NS-S	23	R4VX-B	66
PPP1248-ICA50-HN	23	R6-VX	66



Broadcast Products

Index

R600V-MU	68	TD-G	110
R600V-MU-F	68	TD-K	110
R600V-MU-ST5	68	TP5ETA-BL01	17
R6V-F	69	TP5ETA-BL02	17
R6V-R	69	TP5ETA-BL03	17
R6V-STM	67	TP5ETA-BL04	17
R6V-STM-B	67	TPC-1B	94
R6V-STS	66	TPC-1C	94
R6V-STS-B	66	TRIAx-GAUGE	110
R6VX-B	66	TRK-BH	112
R900V-MU	68	TRK-BH-FOS	113
R900V-MU-F	68	TRK-BH-MOS	113
R900V-MU-ST5	68	TRK-FF	109, 113
RCA-R-X	97	TRK-FM	109, 113
RFX-AMP-11B	133	TRK-FOS	109
RFX-AMP-11F	133	TRK-GCF	109
RFX-AMP-22B	133	TRK-GCF-BH	113
RFX-AMP-22F	133	TRK-GCM	109
S			
S824-NN	17	TRK-GCM-BH	113
SA1089-00	94	TRK-RAD	109
SC-FG	127	TRK-RBEF	109
SCAP-XX	15	TRK-RC	109
SJ2000N	53	TRK-RU-BH	112
SJ2000N-75	53	TRK-TKIT	110
SLVG-1	43	TRP-1-BK	110
SMJ-2100N	53	TRP-1-G	110
STC-1	101	TRP-2-BK	110
STC-11B	101	TRP-2-G	110
STC-12B	101	U	
STC-13B	101	UL-SM1625	54
SV-R-X	97	UTA-1	110
SVJ-2	53	UTA-1-KIT	110
SVJ-2T	53	V	
T			
TCJ-A12	108	V1-VX	66
TCJ-B38	108	V1200V-MU	68
TCJ-C12	108	V1200V-MU-F	68
TCJ-D38	108	V1200V-MU-ST5	68
TCJ-E38	108	V1800V-MU	68
TCJ-F14	108	V1800V-MU-F	68
TCJ-Y	110	V1800V-MU-ST5	68
TCM-KIT-BK	110	V1V-F	69
TCM-KIT-G	110	V1V-R	69
TCM45-KIT-BK	110	V1V-STM	67
TCM45-KIT-G	110	V2-VX	66
TCP-A12	108	V2V-F	69
TCP-B38	108	V2V-R	69
TCP-C12	108	V2V-STM	67
TCP-D38	108	V2V-STM-B	67
TCP-E38	108	V2V-STS	66
TCP-F14	108	V3-VX	66
TCP-Y	110	V300V-MU	68
TD-ADH	110	V300V-MU-F	68
TD-C	110	V300V-MU-ST5	68
		V3V-F	69
		V3V-R	69



Broadcast Products

Index

3/06 • 102117AE Broadcast Products

V3V-STM.....	67	VIW-8	85
V3V-STM-B	67	VIW-96	85
V3V-ST5	66	VM-2014-BK	15
V4-VX	66	VM-2014-G	15
V4V-F	69	VM-2020-BK	15
V4V-R	69	VM-CJMID2-BK	15
V4V-STM.....	67	VM-CJMIDT2-BK	15
V4V-ST5	66	VM-CJMIDT2-G	15
V6-VX	66	VM-MUSA-BK	15
V600V-MU	68	VM-MUSA-G.....	15
V600V-MU-F	68	VM-MVJ-BK	15
V600V-MU-ST5	68	VM-MVJ-G	15
V6V-F	69	VM-MVJT-BK	15
V6V-R	69	VM-MVJT-G	15
V6V-STM.....	67	VM-RGB-MVJ-BK	15
V6V-STM-B	67	VM-RGB-MVJT-BK	15
V6V-ST5	66	VM-RGBHV-MVJ-BK	15
V6V-ST5-B	66	VM-RGBHV-MVJT-BK	15
V6VX-B	66	VM-SVJ-BK	15
V900V-MU	68	VM-SVJT-BK	15
V900V-MU-F	68	VP-BAN-TOOL	16
V900V-MU-ST5	68	VP-DES-279-A	60, 61
VI-116-DES-W	85	VP-DES-343-32	16
VI-12-BNC-F-W	85	VP-DES-343-4	16
VI-12-PTY	85	VP-DES-343-A	60, 61
VI-12-TR-W	85	VP-DES-680-32	16
VI-12-W	85	VP-DES-BAN	16
VI-124-1394	86	VP-DES-VIDEO	16
VI-132-PNL-BK	85	VP2224-D9-BK	14
VI-132-TR-BK	85	VP2224-D9-G	14
VI-16-PTY	85	VP2224-NND9-BK	14
VI-16F-19-PTY	85	VP2232-BANDB25-BK	14
VI-20-PTY	85	VP2232-BANDB25-G	14
VI-24-PTY	85	VP2232-BANDB9-BK	14
VI-24-TR-W	85	VP2232-BANDB9-G	14
VI-24VHR-BK.....	85	VP2232-BANE3-BK	14
VI-28-BBG	85	VP2232-BANQCP-BK	14
VI-32-BK	85	VP2232-BK	14
VI-32-DES-W	85	VP2232-D9-BK	14
VI-32-PTY	85	VP2232-D9-BK-S	14
VI-32-W	85	VP2232-D9-G	14
VI-36-23-DES-PTY	85	VP2232-D9-G-S	14
VI-48-23-DES-BK	85	VP2232-G	14
VI-48-23-TT-DES-BK	85	VP2232-NND9-BK	14
VI-48-BK	85	VP2232-NND9-G	14
VI-48-PTY	85	VPRM-3DB9-W	16
VI-48-TTDES-BK	85	VPRM-A50-W	16
VI-48-TTDES-G	85	VPRM-BAN-A50	16
VI-48-W	85	VPRM-BAN-E3	16
VI-48F-19-PTY	85	VPRM-BAN-MKII	16
VI-48F-23-PTY	85	VPRM-D9-W	16
VI-II2-SB-1394	86	VPRM-E90-W	16
VIW-24	85	VPRM-MKII-W	16
VIW-408	85		
VIW-424	85	W	
VIW-64	85	W1-VX	66
VIW-72	85	W1200V-MU.....	68



Broadcast Products

Index

3106 • 102117AE Broadcast Products

W1200V-MU-F	68
W1200V-MU-ST5	68
W1800V-MU	68
W1800V-MU-F	68
W1800V-MU-ST5	68
W1V-F	69
W1V-R	69
W1V-STM	67
W2-VX	66
W2V-F	69
W2V-R	69
W2V-STM	67
W2V-STM-B	67
W2V-ST5	66
W3-VX	66
W300V-MU	68
W300V-MU-F	68
W300V-MU-ST5	68
W3V-F	69
W3V-R	69
W3V-STM	67
W3V-STM-B	67
W3V-ST5	66
W4V-F	69
W4V-R	69
W4V-STM	67
W4V-ST5	66
W6-VX	66
W600V-MU	68
W600V-MU-F	68
W600V-MU-ST5	68
W6V-F	69
W6V-R	69
W6V-STM	67
W6V-STM-B	67
W6V-ST5	66
W900V-MU	68
W900V-MU-F	68
W900V-MU-ST5	68
WD-1	99
WD-1-SER	99
WD-2	99
WD-2-SER	99
WD-3	99
WD-4	99
WD-5	99
WD-6	99
WT-2	99
WT-3	99, 110
WTC-12	99

Y

Y1-VX	66
Y1200V-MU	68
Y1200V-MU-F	68
Y1200V-MU-ST5	68
Y1800V-MU	68
Y1800V-MU-F	68
Y1800V-MU-ST5	68
Y1V-F	69
Y1V-R	69
Y2-VX	66
Y2V-F	69
Y2V-R	69
Y2V-STM	67
Y2V-STM-B	67
Y2V-ST5	66
Y2V-ST5-B	66
Y2VX-B	66
Y3-VX	66
Y300V-MU	68
Y300V-MU-F	68
Y300V-MU-ST5	68
Y3V-F	69
Y3V-R	69
Y3V-STM	67
Y3V-STM-B	67
Y3V-ST5	66
Y3V-ST5-B	66
Y4-VX	66
Y4V-F	69
Y4V-R	69
Y4V-STM	67
Y4V-STM-B	67
Y4V-ST5	66
Y6-VX	66
Y600V-MU	68
Y600V-MU-F	68
Y600V-MU-ST5	68
Y6V-F	69
Y6V-R	69
Y6V-STM	67
Y6V-STM-B	67
Y6V-ST5	66
Y6V-ST5-B	66
Y900V-MU	68
Y900V-MU-F	68
Y900V-MU-ST5	68



Distribution Partners

Anixter / Burbank	800-995-6158	818-559-3687	www.anixter.com
Audio Visual Inc.	952-949-3700	952-949-6000	www.avisystems.com
Brill Electronics	800-845-3427	510-452-3620	www.brillelectronics.com
Broadcasters General Store	352-622-9058	352-629-7000	www.bgsfl.com
BTX Technologies	800-666-0996	914-592-0800	www.btx.com
Clark Wire & Cable	800-222-5348	847-949-9595	www.clarkwire.com
Delco Wire & Cable	800-667-8014	905-669-6869	www.delcowire.com
Gepco	800-966-0069	847-795-8770	www.gepco.com
Herman Electronics	305-477-0063	305-392-3377	www.hermanelectronics.com
Invisio/Video Solutions Int'l	305-823-0144	305-823-9939	www.invisio.tv
KC Electronics	631-689-2200	631-689-2434	www.kcelectronics.com
Liberty Wire & Cable	719-260-0061	719-260-0075	www.libertycable.com
Pacific Radio	800-634-9476	323-969-2053	www.pacrad.com
Westlake Electronic Supply Inc.	800-523-8677	206-628-0508	www.westlake-electronic.com

Broadcast Products

3 / 0 6 • 1 0 2 1 1 7 A E



Channel Partners

Asia-Pacific

Australia

Australian Tel-TEC Pty Ltd +61 (02) 9482-4533

China

GuanHua Glory AV System Integration Co., Ltd. +86-10-68516090

Infomedia Digital Technology Co., Ltd. +86-10-51921209

Sanitec Broadcast Systems Co Ltd. +86-10-84981421

Shanghai TV & Radio Int'l (HK) Co +86-21-52341177

Hong Kong

Advanced Communication Equipment (Int) Co. Ltd. +852-2942-2100

EverTop International Technology Ltd. +852-2370-9722

Futac International Limited +852-8200-2056

Ideal Systems Asia Pacific Co. Ltd. +852-2801-4040

Macostar Technology Ltd. +852-2814-1881

New Digital Technology Ltd. +852-2942-4688

India

CINEOM Broadcasting India +91-222-8748383

IDEAL Broadcasting India Pvt. Ltd. +91-11-26134221

PROMEDIA +91-22-6142882

SETRON India Pvt. Ltd. +91-11-26242250

SHAF Broadcast Pvt. Ltd. +91-22-56972999

Indonesia

ALFATECH +62-21-5723139

Japan

AIM Co. Ltd. +81 (035) 549-7511

TOWA Engineering Corporation +81-3-3253-3134

Malaysia

O'Connor's Engineering SDN. BHD. +60-3-79538568

New Zealand

Cobalt Technologies Limited +64-9-4139070

Philippines

ADTEL +63-2-6333949

Composite Technology, Inc. +63-2-4110747

Media Convergence Inc. +63-2-4264360

Singapore

Broadcast Engineering Services Pte. Ltd. +65-65540110

Coastal Electronics Pte. Ltd. +65-63383076

South Korea

Shinjeong Protech Corp. +82-783758890

SION MEDIA +82-2-21095842

SyncTech Audio Visual System Engineering +82-2-4256450

Taiwan

Interactive Digital Technologies Inc. +886-2-26585858

TELTAI (Taiwan) Ltd. +886-2-27733237

Thailand

KDM Trading Co Ltd +66-2-7186085

PINNACLE +66-2-7343488

Sans Service Ltd +66-2-5416334

Vietnam

TUNG HOA Company Ltd +84-4-5370927

For any other country in ASIA-Pacific region:

please contact ADC – Keith White

+61 2 –4970-5688

email:keith.white@adckrone.com

Channel Partners

Europe, Middle East and Africa

Bahrain

Al Mazroui-ICAS +974 428 26070 ext. 305 www.almazrouicas.com

Belgium

Diginet +32 2 257 01 81 www.diginet.be

Bosnia & Herzegovina

Videolab +49 221 595 69 200 www.video-lab.de

Croatia

Videolab +49 221 595 69 200 www.video-lab.de

Finland

TV Tools Oy +358 9 525 9700 www.tvtools.fi

France

Pilote Films +33 (0) 5 58 41 41 41 www.pilotefilms.com

Germany

Videolab +49 221 595 69 200 www.video-lab.de

Greece

Telmaco +30 210 68 74 100 www.telmaco.gr

Italy

Professional Show +39 049 865 7111 www.professionalshow.com

Lithuania

TV & Communication Systems +370 41 520 295 www.tvc.lt

Macedonia

Videolab +49 221 595 69 200 www.video-lab.de

The Netherlands

Diginet +32 2 257 01 81 www.diginet.be

Oman

Al Mazroui-ICAS +971 4 2826070 ext. 305 www.almazrouicas.com

Poland

JBD +48 (22) 715 56 71 www.jbd.com.pl

Qatar

Al Mazroui-ICAS +974 4419459 www.almazrouicas.com

Serbia & Montenegro

Videolab +381 21 350 606 www.video-lab.de

Slovenia

Videolab +49 221 595 69 200 www.video-lab.de

South Africa

Broadcast Visions +27 11 206 8340 www.bvisions.co.za

Spain

Lexon +34 936 021 400 www.lexon.net

Sweden

DiViTec +46 8 544 705 90 www.divitec.se

Switzerland

Videolink +41 44 723 38 80 www.videolink.ch

UAE-Dubai

Al Mazroui-ICAS +971 4 2826070 ext. 312 www.almazrouicas.com

UAE-Abu Dhabi

Al Mazroui-ICAS +971 2 6724422 ext. 303 www.almazrouicas.com

UAE-Jebel Ali

Al Mazroui-ICAS +971 4 8833767 ext. 103 www.almazrouicas.com

Ukraine

ComTel +380 44 2386845 www.comtel.com.ua

United Kingdom

Argosy Components Ltd +44 (0)1844 202 101 www.almazrouicas.com

and for any other country in Europe, Middle-East and Africa :

please contact ADC - Hervé Fauvelet +33 (0) 6 21 24 43 80 herve.fauvelet@adc.com

Notes

Notes

Notes

BROADCAST PRODUCTS



Web Site: www.adc.com

From North America, Call Toll Free: 1-800-366-3891 • Outside of North America: +1-952-938-8080
Fax: +1-952-917-3237 • For a listing of ADC's global sales office locations, please refer to our web site.

ADC Telecommunications, Inc., P.O. Box 1101, Minneapolis, Minnesota USA 55440-1101
Specifications published here are current as of the date of publication of this document. Because we are continuously improving our products, ADC reserves the right to change specifications without prior notice. At any time, you may verify product specifications by contacting our headquarters office in Minneapolis. ADC Telecommunications, Inc. views its patent portfolio as an important corporate asset and vigorously enforces its patents. Products or features contained herein may be covered by one or more U.S. or foreign patents. An Equal Opportunity Employer

102117AE 3/06 Revision © 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006
ADC Telecommunications, Inc. All Rights Reserved

NEP selects Vinten pan and tilt heads

BY GEORGE HOOVER

NEP Broadcasting is an international provider of outsourced teleproduction services critical to the delivery of live sports and entertainment events. Many of the world's broadcast networks and production companies rely on NEP to provide advanced facilities, engineering expertise and customer service in support of telecasts of major events and programs.

NEP has relied on Vinten camera pan and tilt heads for more than 25 years, starting with the Vision Mark 3. Now the company uses Vector and Vision pan and tilt heads.

The Vector 70/70H pan and tilt head uses a new, patented counterbalance mechanism. This is easily adjustable, with no time-consuming camera

The Vision 11 pan and tilt head features a balance and digital readout, backlit drag knobs, an illuminated levelling bubble and a lubricated friction drag system. All of these features make it easy to use for new NEP camera operators.

One reason why the company relies solely on Vinten's products in its trucks is because they are so user-friendly. As soon as the kits are taken out of the box, they are given a simple and quick balance and are ready to use. If a new crew is on board, the equipment is intuitive, and they can use it right away with minimal training. The Vision 100's that NEP use also include user-friendly features, such as backlit drag knobs for easy viewing and an illuminated digital balance readout, which provides repeatability for easier and quicker setup.

Another reason why NEP employs Vinten camera support products is because they work in the worst possible environments. Sometimes the equipment gets seriously abused when it is left out in the elements. NEP tools must be able to endure the rain, the cold and even being put away wet. The Vinten heads do all that and still continue to work.

There are certain events that test the equipment more than others. For example, the rain during golf tournaments. Often the heads are assembled to cover a hole at the beginning of the course, but then it starts raining. The equipment must be disassembled in the rain, reassembled again and ready to cover the 14th hole when the golfers get there. We try to cover up the equipment as much as possible, but sometimes the conditions can be horrible. We have even had one piece of a kit blow off towers during a tornado.

In regards to heat, when the com-

pany covers NASCAR, it's hot, dirty and steamy. But the products are able to withstand the conditions.

The Vector 70 heads take from 55 to 101 zoom lenses and don't require users to change cameras. Changing cameras can attract dirt, grease and pebbles, so NEP's cameramen love these heads because they're all enclosed.

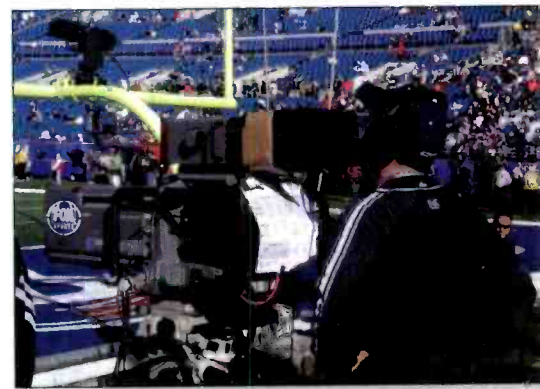
The company changes the camera more than it changes the pan heads. Some of NEP's Vectors are on their third set of cameras. New camera technology has required the company to change from analog to digital to high definition, all using the same head.

NEP has not had any Vector 70's go down that couldn't be repaired. The



NEP Broadcasting owns 40 trucks that are equipped with Vinten pan and tilt heads worldwide.

changes, and provides up to a 60-degree balanced tilt range for camera, lens and teleprompter combinations of up to 154lb. It features a telescopic pan bar and a wedge adapter, which will accept a standard camera wedge. The Vinten LF fluid drag system gives the head smooth, adjustable control over movement and a whip pan capability — ideal for sports coverage.



The Vinten Vector 70 heads feature a soft-grip carrying handle, a counterbalance mechanism, an auto-locking wedge adaptor and a rear control pan and tilt brake.

company employs a Vinten-trained staff member who fixes all of the equipment in-house. We take the opportunities presented between sports seasons to service the heads and prepare them for more work ahead. **BE**

George Hoover is the senior vice president of engineering for NEP.

WSYR implements centralcasting

BY JOHN KING

In the spring of 1999, centralcasting was barely a blip on broadcasters' radar screens. Back then, the Ackerley Group, a nationwide media and entertainment company that was acquired by Clear Channel Communications in 2002, deployed a revolutionary and unique concept to streamline its regional operations and improve programming quality. It built a master control center capable of airing commercials and programming for all its individual stations in the surrounding communities.

The first implementation of this model, trademarked as Digital CentralCasting by the Ackerley Group, was installed in July 1999. The system was designed as a significant time-saver, a way to eliminate the modus operandi of duplicating the workload across station groups.

Using WSYR-TV (then known as WIXT) in Syracuse, NY, as the hub, the group harnessed the power of a central video server and automaton technology to service a cluster of television stations located miles from the ABC affiliate. Initially, three sites, — Utica, Rochester and Binghamton — defined the cluster with master control in Syracuse at WSYR, but through attrition and acquisitions, that number has grown to seven dispersed throughout upstate New York.

The first steps involved selecting the automation, traffic and video server, which are centralized in WSYR's facility. Sundance Digital's FastBreak Automation was chosen as the heart of the solution, controlling all the stations from the Syracuse hub. The FastBreak package also included Sales-

View, an option that permits the sales, traffic and promotions departments to view selected video server content at their desks. In addition, the station purchased VCI's STARS II+ traffic application and a SeaChange Broadcast MediaCluster video server.

In the beginning, fitting all the pieces together was somewhat difficult. It was imperative that the software and hardware partners bought

ered and installed at the same time for it to work. Once everything arrived, the room was set up, all the puzzle pieces tied together and the system launched in the background. Running the new system in parallel with the old system permitted operators to become familiar with the new technology and practices as bugs were eliminated. It was definitely a learning curve for the station's broadcast veterans.

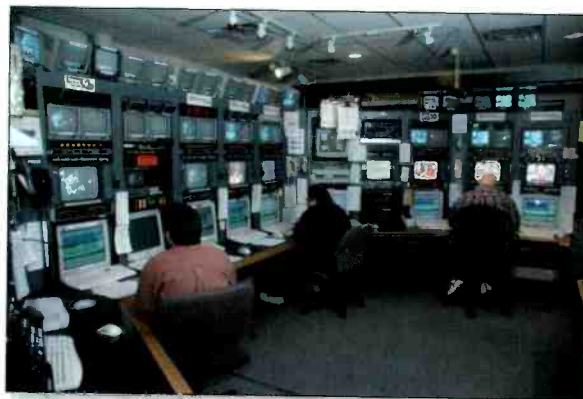
All six cluster stations are interconnected to WSYR via dedicated fiber-optic networks that carry programming and commercials from Syracuse to each remote master control room. To handle the demands of local news and sports production, each remote station is capable of taking direct control of the FastBreak user interface.

Over the last seven years, stations were added to the cluster, and overall performance has increased as the operation matured. Operators are now more educated

and familiar with how things work, and the systems themselves have improved.

The SeaChange server's capacity was increased to accommodate more commercials and long-form content. The Sundance Digital automation computers were upgraded to faster CPUs as processing speeds increased, and the company provided software upgrades as its own technology advanced.

These improvements have all contributed to the success of the Digital CentralCasting solution. **BE**



The network operations center at WSYR is the main hub for the centralcasting operation. From here, programming and commercials are sent to six stations' remote master control rooms.

into the concept and cooperated with one another. There was a great deal of software debugging and a significant learning curve for the operators. Weekly conversations helped all the vendors to work through the challenges and concerns and develop resolutions.

Checks-and-balance procedures were implemented to ensure accuracy. Discrepancy reports were reviewed on a daily basis, and solutions were developed, tested and evaluated until there was a satisfactory resolution. CentralCasting was a testing ground that allowed companies to progress individually through a joint effort.

All the equipment had to be deliv-

John King is regional director of engineering for NEG CCTV.

The only event that showcases the technology for
Capturing, Managing and Delivering Sports Content.

C4-SPORTS

An explosive vision of sport



**Event
Keynote
Speaker**

Mike Krzyzewski
 Head Basketball Coach
 of the Duke University
 Blue Devils



**Event
Keynote
Speaker**

Brian Bedol
 President and Chief Executive
 Officer of CSTV



**Sports Media
and Technology
Conference
Keynote Speaker**

Ken Adelson
 Senior Vice President of Production
 Operations and Planning for
 NBA Entertainment (NBAE)



Join sports professionals from around the world
 at C4-Sports in Las Vegas and discover:

> **Educational workshops including:**

- Sports Production Facility Management
- Creating Innovative Content
- Next Generation Delivery
- Digital Media Theater (show floor attraction)
- And newly added — Sports Content and Delivery Fundamentals

> **Featured solution sessions** to demonstrate studio technologies, wireless communications, software training tools, sports on wheels/mobile products, fantasy sports and gaming, plus stadium and facilities products.

> **An exhibit hall** filled with innovative products, services, technologies and ideas for the sports industry.

To register and for up-to-the-minute event information, visit

www.c4-sports.com

C4-SPORTS EVENT SPONSORS INCLUDE:



JULY 17 - 19, 2006

LAS VEGAS CONVENTION CENTER

WWW.C4-SPORTS.COM

NFL Films at the Super Bowl

BY GARY REED

"I'm going to Disney World!" Ever since Phil Simms of the New York Giants first hollered those famous words into an NFL Films camera 20 years ago, viewers have come to anticipate this climactic moment — the true finale of any Super Bowl broadcast.

This year, when Hines Ward of the Pittsburgh Steelers was selected Most Valuable Player of Super Bowl XL in Detroit, the wheels behind the scenes truly started turning. While viewers watched the celebration on the field, the real story was the three camera crews sprinting onto the field to capture the Steelers' wide receiver announcing his travel plans to the world. This footage was dashed off to an editing crew waiting in a truck to make quick cuts and edits and lay in the customary "Wish Upon a Star" soundtrack. While the traditional Disney spot normally airs the morning following the game, this season's version had special meaning — the 20th year of creating this on-field spot. In fact, portions of the captured footage were broadcast later that same night.

Super Bowl XL

Super Bowl XL in Detroit was just the most recent opportunity for NFL



Multiple Leitch X75 multiple-path converter/synchronizers provide the frame-rate conversion for 20 countries.

Films to apply the latest technology and techniques to help provide the best coverage of professional football. ABC Sports was responsible for providing the broadcast feed, and NFL Films' played its usual integral role, providing footage for team and league highlight films and, in probably the most unheralded role, coordinating and producing the program seen by the rest of the world. By combining the feeds provided by ABC with footage of its own, we produced content for more than 20 international broadcasters.

The demand for HD programming has drastically changed the way football games are shot and edited. Prior to the 2004 season, all film footage was transferred to SD video format



Several Videotek test and measurement instruments provide QoS monitoring for NFL Films.

ing film at 120fps. In addition to these ground cameras, sound cameras move up and down each sideline to capture in-game audio.

After capturing the action with film and video cameras, the material is transferred to digital videotape and

The demand for HD programming has drastically changed the way football games are shot and edited.

for both online and offline editing. But now, all source material must be transferred to HD for post editing. Then, the HD master is then down converted to create the SD version.

Using high-tech solutions

NFL Films crews are experts in capturing game footage. To ensure that every shot is captured, as many as five cameras are located in the press box, all shooting at different film speeds. Cameras are positioned at each end zone and on the 50-yard line. Another camera is positioned on the opposite side of the field shooting the reverse angle, which captures scenes the other cameras might not be able to see.

At ground level, there are a handful of super slow-motion cameras shoot-

servers using fiber links in the stadium. From there, the images can be used immediately for replays or simply archived.

The world broadcast feed requires a split from ABC's NEP mobile production truck. We turn it around as clean video, adding international effects audio. Multiple Leitch X75 multiple-path converter/synchronizers provide the frame-rate conversion for 20 countries. A Videotek TVM-950-E multifunction video and audio signal analyzer provides QoS monitoring.

While being responsible for producing a program watched by nearly 1 billion people is exciting, it's much more exciting after it's already been seen by those billion people.

BE

Gary Reed is chief engineer of NFL Films.



HD WORLD

Conference & Expo

November 29-30, 2006
Javits Convention Center
New York, NY

***The HD Conference & Expo, for
HDTV, High Definition Video,
Audio and Broadcast Applications***

www.hdworldexpo.com

Co-located with:



Content Delivery Applications for
Media, Government & Enterprise

**For information on attending,
exhibiting and sponsoring,
please visit:**

www.hdworldexpo.com

or call 203-371-6322

Gold
Sponsor



Sponsor



Media
Sponsors



Video storage

BY JOHN LUFF

In February's article, I discussed archival storage. This month the topic is rather similar, but nonetheless quite different.

Video compression specialist and author Peter Symes says, "Recording is transmission with indeterminate

development that AMPEX first brought to the market has become commonplace in the home, in addition to professional usage. Unless content is live, broadcasters must acquire programming by either recording or delivering recordings that were made elsewhere.

is what the disposition of that content would be in each case — whether it should be transferred into hierarchical storage or simply put on a shelf.

Linear vs. nonlinear

The first recording decision is whether to use linear tape or nonlinear media. The opinion in vogue today is that nonlinear storage is so inexpensive that videotape can be discounted for future use. I would not yet make that assumption. While videotape does not have some of the desirable characteristics of nonlinear media, it is not obvious that the death of linear recording is upon us. It is still inexpensive, durable, portable and ubiquitous.

Think about a rack of hard disks containing 50TB of storage. That

The opinion in vogue today is that nonlinear storage is so inexpensive that videotape can be discounted for future use.

latency." At one time, that storing of video was possible only as a film process, in perhaps the first convergence of film and television technology.

Kinescope recording was a process in which a television picture on a black and white monitor was shot with a film camera. The earliest reference I could find was to a system introduced by Kodak in 1947 called the Eastman Television Recording Camera, which was developed in cooperation with DuMont Laboratories and NBC. There was even a DuMont-developed electronic studio camera with a 35mm film camera inside.

Needless to say, these methods were developed due to the lack of electronic recording apparatus and were driven by needs, including the need to deliver time-zone-delayed programming. I am sure you have seen old programs of low quality that are often out of focus and have limited dynamic range. Experiments in commercial recording began as early as 1951, and AMPEX publicly showed electronic recording using the quadruplex 2in video recorder at NAB in 1956. In 2005, NATAS awarded a Technical Emmy for Lifetime Achievement in Technology to the AMPEX development team.

Today the needs of video recording have become enormous, and the de-

Lately, the question is whether that recording should be made on linear media (videotape) or on nonlinear media, such as servers, extended memory (like Panasonic's P-2), rotating media (like Sony's Blu-ray media) or evolving holographic storage. Another question

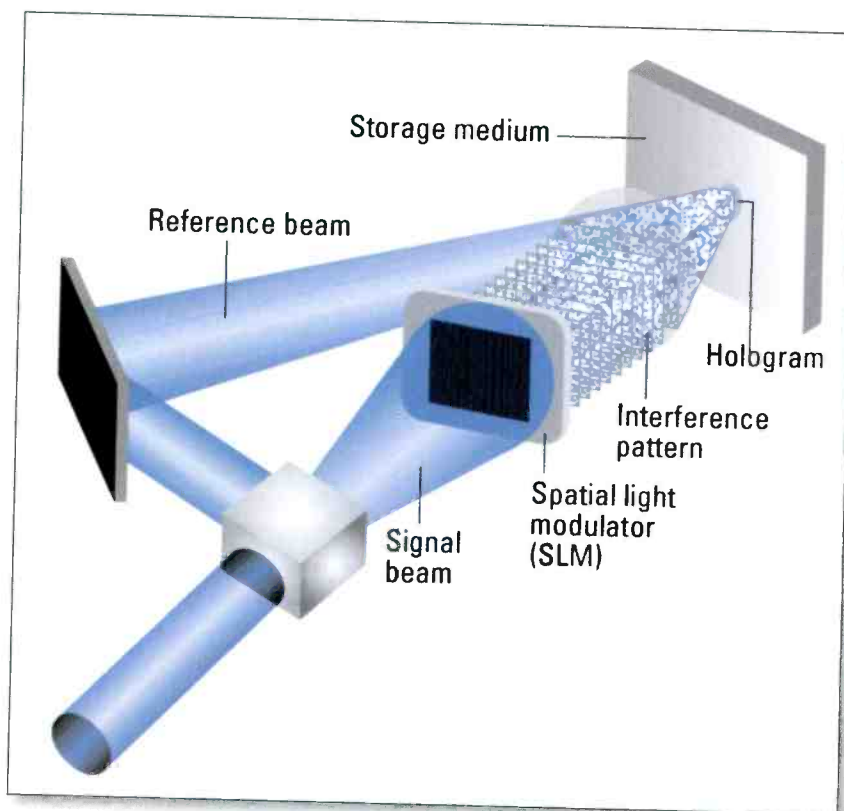


Figure 1. Holographic recording process. Figures courtesy InPhase Technologies.



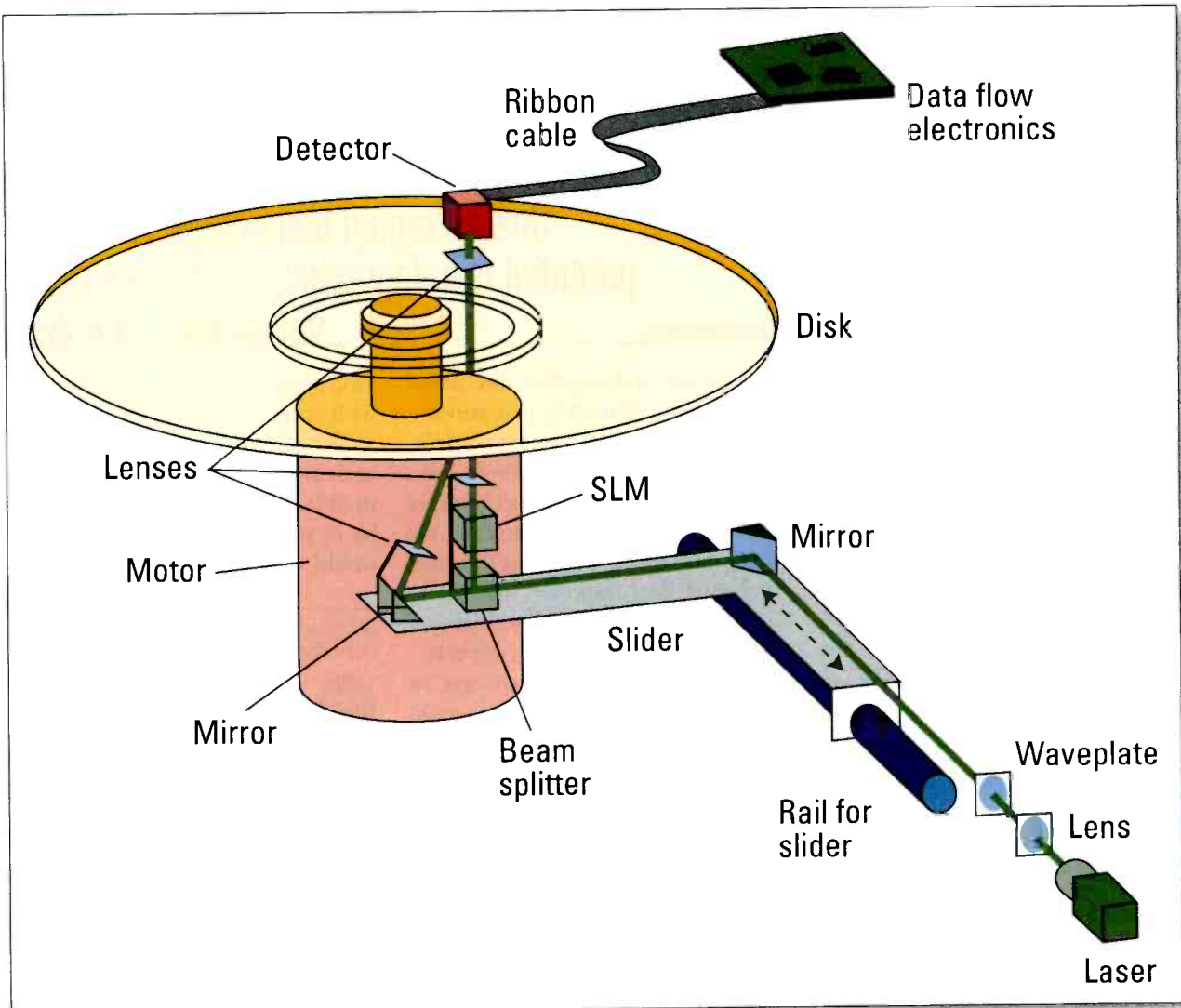


Figure 2. Holographic recording mechanics

might hold a little less than 5000 hours of DV content. For the sake of argument, let's say that it fits in one rack. The volume of that same rack (78in x 22in x 30in) could hold a little more than 5000 large DV cassettes tightly packed, each of which holds four and a half hours at consumer recording speeds. At something like 4 times the volumetric storage density, it seems like linear tape is not so inefficient after all.

Of course, there are other tradeoffs. Linear tape is slow when searching content. Extracting a short clip means finding the correct tape, loading it, shuttling to the right spot, extracting the needed shots and then reversing the process. It is fundamentally differ-

ent and slower than nonlinear access, especially when the mounted drive contains large amounts of content.

But putting hard drives on the shelf for storage of content is not efficient either. One drive may contain fragments of hundreds of pieces of media, and it may require an entire striped array to retrieve any useful content.

DVD, Blu-ray and HD-DVD

DVD, Blu-ray and HD-DVD offer another alternative with a modest amount more capacity than older removable nonlinear media, but the problem still exists. Unless a DVD has definable files that can be searched on another platform, it might not offer an improvement. If the content is stored

as files, it must be read by an application capable of turning that file back into useable content. Fortunately, loads of applications exist for doing just this, which again borders on previous information about archiving.

Each recording technology has its own limitations. Optical recording will likely never approach the speed of hard-disk recording and replay. They have, however, achieved sufficient throughput to allow HDTV recording at consequential bit rates. They also present interesting environmental challenges that require care to overcome. Both high and low temperatures represent problems for optical media, and dust can present a particular problem.

Holographic recording

One emerging technology with great potential is holographic, sometimes called volumetric, recording. By using the full volume of the recording media, instead of a small number of layers, high density recordings and extremely fast access can be achieved. (See Figures 1 and 2 on pages 484-485.)

The principle is simple: The execution in hardware is much like the rotating media of a DVD, but the capacity of 300GB per platter and the throughput of 160Mb/s is quite encouraging. InPhase Technologies and Hitachi are releasing an initial Blu-ray product for professional archiving late this year. Turner Entertainment demonstrated on-air use in late 2005 for broadcast applications.

Parameters

All of these media are targeted at one metric, the minimum cost per recorded

byte, which of course trades off against other parameters. For instance, the cost of the media must be low, but if the cost of the recording device is extraordinarily high, the equation may not work. They all have in common moving me-

become the province of memory devices, and moving media may become the archive attached to them for long-term purposes. Formalizing such a rigid hierarchical storage environment could allow optimization of

One emerging technology with great potential is holographic, sometimes called volumetric, recording.

dia, motors and sensitive mechanical processes, which must be maintained.

Another approach is to use nonvolatile memory for the recording media. In this instance, the transport becomes exceedingly cheap, but currently the cost per megabit of storage is much higher. It does, however, offer other advantages, including blindingly fast random access and no moving parts.

If memory prices fall enough in the future, online recording could

each portion of the recording process, with online, near-line and removable media off-line storage matching the cost and features required. All we need is 64GB SD cards, which might be in your camera sooner than you would think.

BE

John Luff is the senior vice president of business development for AZCAR.



Send questions and comments to:
john_luff@prism2b.com

TRUST

The guy you want sitting next to you...



Broadcast Engineering is that guy.

Want information about what's going on at the FCC that might affect the way you do business? Say no more.

How about news regarding the ever-changing technical data, specs, interfaces, industry trends, and equipment needed to stay that crucial techno-step* ahead?

We'll look no further than **Broadcast Engineering's E-Newsletters:**

- RF Update • Digital Signage Update • News Technology Update
- Sports Technology Update • Strategic Content Management • Show Updates

And the great thing is, we'll never ask to borrow money for lunch.

Subscribe today and thrive tomorrow: <http://www.broadcastengineering.com>

*Testimonial courtesy of Kevin White, Independent Program Producer

TRUSTED, Technology Industry Leader



IT ALL FITS TOGETHER WITH HOTRONIC



SDI Converter
A/V-Mux - A/V-DeMux



AX81, AX83Q
Switcher with live Quad
8x2 Asynchronized Router



AU51, Audio Converter
Digital/Analog
Audio Delay up to 10 seconds



AP41, ATS51, AR31, AR71
single/dual channel
TBC/Frame Synchronizer



Analog Proc Amp
SDI Proc Amp



AS800
8x8 Digital Video Router



AT61, AY86, AL86, DE41
SDI/Composite Frame Synchronizer
Audio/Video Delay up to 20 seconds



AG2
Digital/Analog
Test Signal Generator

HDTV PRODUCTS COMING SOON!

Hotronic offers a full line of Digital and Analog Video, Audio products including TBC/Frame Synchronizer, Audio/Video Delay, Test Signal Generator, Asynchronized Router, SDI/Analog Converter, AES/EBU/Analog Converter, Switcher with live Quad, Processing Amp, A/V Multiplexer/DeMultiplexer and more to accommodate a variety of applications.

From Digital to Analog conversion...
...to preventing profanity on a live broadcast
...to a teleconference meeting
...to video editing or post production
...to a distant classroom environment...
the applications are endless and with Hotronic, they all fit together.



HOTRONIC
www.hotronics.com

sales@hotronics.com 408.378.3883

Hotronic Inc. 1875 S. Winchester Blvd., Campbell, CA 95008 Fax 408.378.3888

TTR BAYSAVER HD 4x1 HD/SD ROUTING MATRIX



The TTR BAYSAVER HD is a four input stand alone HD/SD routing matrix housed in a self contained small 180 x 190 x 40mm box. The standard unit comes with four Looping inputs, dual outputs and a local control panel. There is an optional RS232C control module available if required. The BAYSAVER HD has been designed to full SMPTE 292M, SMPTE 344M and SMPTE 259M specifications, and switches in the vertical interval but will switch immediately if no reference signal is present. This unit employs automatic sample rate detection on the input equalizers allowing a mixture of

HD / SD signals in the same unit. Front panel LED's indicate signal presence and control activity.

- Broadcast specification
- Full 1.5Gb/s bandwidth to handle uncompressed HD signals
- Looping equalized inputs as standard
- Vertical interval switching
- Dual outputs as standard
- Automatic sample rate detection on the inputs
- Re-clocked output

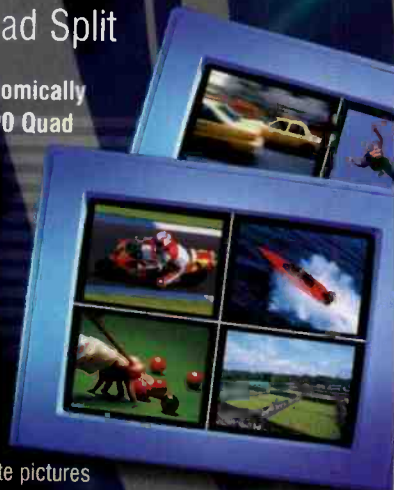
TTR

www.ttr.co.uk or email: sales@ttr.co.uk
84 Bridge Road · Chertsey · Surrey · KT16 8LA
Tel: +44 (0)1932 564063 · Fax: +44 (0)1932 772824

Quad with ARC!

SDI4000 Quad Split

Compact and economically priced, the SDI4000 Quad Split provides four complete video pictures on one or two monitors with aspect ratio conversion for each input.



Displays four complete pictures on one SDI monitor or Plasma screen

On screen idents and 'on air' cue

Buffered SDI output per channel

525/625 Operation

Aspect Ratio Converter on each input

SHOOTVIEW

Shootview Ltd

87 Cadbury Road · Sunbury
Middlesex · TW16 7LE

Tel: +44 (0) 1932 782823

Fax: +44 (0) 1932 772824

Email: sales@shootview.com · Web: www.shootview.com

THE LEADERS IN ON-SITE
AVID & FINAL CUT PRO HD
RENTALS / SUPPORT
FOR OVER A DECADE



prime to go
avid broadcast

Superbowl · Final Four · PGA
Olympics · Miss America · NBA
Horse Racing · Reality TV

Providing

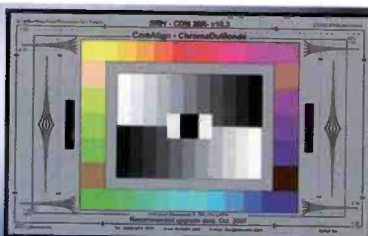
- Entire AVID Product Line
- Fully Redundant Unity Systems
- Mobile Truck Integration
- Technical Support Contracts

Clients

- Major Networks
- Post Facilities
- Production Companies
- Corporations

PRIME TO GO

The Portable Post Production People
Toll Free 888-858-4180
www.primetogo.com



Going to NAB?

See DSC charts at all major camera booths
- hope to see you at DSC's booth SU 4120,
between Sony and Thomson

Enter April contest to win a ChromaDuMond chart - see details at www.dsclabs.com. - Include #BE227

Precision Test Charts for
HD, HDV, SD and Digital Cinema



dsc Labs

"Better Images Through Research" - since 1962

Broadcast Engineering Digital Reference Guide

The Broadcast Engineering Digital Reference Guide is your easy reference online yellow pages to equipment and services in the TV broadcast industry.

CHECK US OUT AT:

<http://www.bedigitalreference.com>

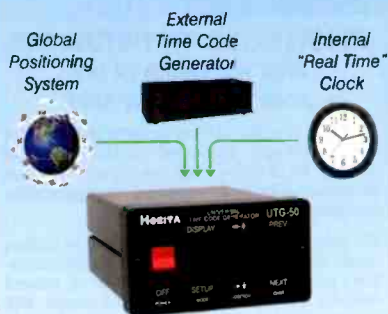
Broadcast Engineering

THE JOURNAL OF DIGITAL TELEVISION

NAB 2006
Booth C902

HORITA

Universal SMPTE Time Code Generator



UTG-50 \$699

Universal Time Code Generator

"Time of Day" time code locked to GPS or internal real time clock

OR

"Slave" to house time code

OR

Free run at 23.976, 24, 25, 29.97, or 30 fps.

Unconditionally Guaranteed

HORITA

(949) 489-0240

www.horita.com

horita@horita.com

TALLY MAPPER™

- ◆ Tally Routing & Mapping
- ◆ One Button Operation
- ◆ Store Maps Internally
- ◆ Edit From a PC/Laptop



A Compact Solution,
Ideal for Mobile Units and
Multiple Production Setups.

Videoframe™

Control System Solutions

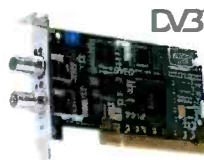
Tel: 530-477-2000

www.videoframesystems.com

NAB 2006
Booth SU1205

DVEO
Pre-Broadcast Division
CMI

Low Profile DVB-ASI PCI I/O



DVB Master LP FD™

- Transmitter and receiver on one low profile PCI card
- Black burst sync input
- Accurate clock
- Jitter management
- Packet arrival time stamping
- Unlimited PID filtering

For more information on DVB Master LP FD, please call 858-613-1818, or visit www.dveo.com.

Systems PCI Cards Software

Broadcast Engineering®

THE JOURNAL OF DIGITAL TELEVISION

Broadcast Engineering is aimed at the market that includes corporate management, engineers/technicians and other management personnel at commercial and public TV stations, post-production and recording studios, broadcast networks, cable, telephone and satellite production centers and networks.

**To reach industry professionals,
place your ad today!**

SUSAN SCHAEFER

p 484.478.0154 | f 484.478.0179 | sschaefer@prismb2b.com

Career

Where can I find... a new job?
an engineer?

SBE

RESUME Bank
Jobs ONLINE

Go to Career Services at www.sbe.org • (317) 846-9000

For Sale



AcousticsFirstTM
Toll-Free Number: **888-765-2900**

Full product line for sound control and noise elimination.
Web: <http://www.acousticsfirst.com>

MAINTENANCE/SYSTEMS ENGINEER

Bay News 9, Bright House Networks' 24-hour local news operation, has an opening for a full time Maintenance/Systems Engineer. Bay News 9 recently relocated to a new, state of the art, digital facility in St. Petersburg, FL.

Bay News 9 engineers troubleshoot to the component level and repair broadcast video & audio equipment, support and troubleshoot PC hardware & software, provide system & application support for end-users on Windows systems, install video/audio equipment and PC workstations, install, troubleshoot and maintain ENG microwave equipment and systems and perform light general facilities maintenance.

Applicants must have an AS degree or equivalent technical training in equipment maintenance and repair. Technical background with PC's, software and networking will be expected. Minimum of 3 years of experience in the installation and maintenance of analog and digital television systems required. Also required is a strong background in ENG/DSNG trucks, microwave systems, satellite systems, fiber networks and studio automation. Previous experience with television news preferred. To apply visit www.baynews9.com

TRANSMITTER/BROADCAST ENGINEER

Venture Technologies Group is seeking a full-time Transmitter/Broadcast Engineer, based in the Midwest, to take charge of transmitter operations at our growing number of Midwest television stations and assist other company stations as needed. Extensive RF experience is required. Experience with digital television and maintaining, troubleshooting, and repairing Solid-State and IOT transmitters preferred. Travel required. Please email cover letters & resumes to dbrown@loop.com or fax to 518-381-3740. EEO.

Help Wanted

POSITIONS AVAILABLE

Ascent Media Group is the world-wide leader in providing media services to content owners in post-production, media asset management and content distribution. These services are offered on a global basis through over 100 facilities in five countries, provided by more than 4,200 employees. Ascent Media Group has openings for the following positions in our Stamford, CT facility:

- Broadcast Engineer
- Broadcast Engineering Supervisor
- Archive Management Engineer
- Automation Engineer

We are looking for professionals who have experience in the Broadcast or Cable Industry. If it sounds like we could be your future employer, check us out at www.AscentMedia.com for requirements and to apply on-line! EOE

Broadcast Engineering

ATTENTION ADVERTISERS

For digital ad requirements, specifications, and guidelines for Broadcast Engineering magazine, visit the "Ad Production Website"

WWW.PRISMB2BADS.COM

TELEVISION MAINTENANCE ENGINEER

Position requires an Associate Degree in electronics with an emphasis in television broadcast maintenance engineering with a minimum of five (5) years work experience in broadcast television maintenance engineering. The successful candidate must have a clear understanding of news technical operations and possess the knowledge base to maintain the hardware and systems that support a successful news product. This position requires a thorough knowledge of ENG camera systems, editing equipment, live trucks and SNG vehicles. Component-level troubleshooting is required and digital systems knowledge is necessary.

Please send resume along with a cover letter to:

Human Resources, WTEN-TV
341 Northern Blvd., Albany, NY 12204
WTEN is an Equal Opportunity Employer.

Help Wanted

QVC

delivers

The Total Package

ENGINEERING OPPORTUNITIES

Visit our Booth at the
2006 NAB Career Fair!

QVC, Inc. is a \$6.5 billion industry pioneer. Our state-of-the-art broadcast studio in West Chester, PA (a highly rated suburb 35 miles west of Philadelphia) is equipped w/ next-generation technology & expert knowhow.

We seek candidates w/ a background in design, repair & installation of multimedia communications systems; knowledge of equipment, current industry trends & technical developments. Will be responsible for the design & functional check-out of advanced audio, video & software systems. Contract positions now available. Engineers interested in possible future full-time openings are welcome to apply.

Broadcast Engineer II

Work on-site and/or in shop service repair department. **Requires:** ability to provide technical repair/maintenance services to broadcast, postproduction & facility A/V clients; experience in component-level repair of broadcast cameras, video recorders & other production equipment.

Systems Engineer

Will pre-wire & prepare racked systems & furniture consoles. **Requires:** experience in cable fabrication & termination, mechanical assembly, rack & cabinet wiring & harnessing; ability to understand & use wiring lists, schematics & technical documents.

QVC offers competitive wages & a generous employee discount. Apply online: www.QVC.com/Careers. Please submit a resume, cover letter & salary requirements. EOE. Drug Free/Smoke Free Work Environment. Pre-employment drug screening required.

QVC

a great place to work

BROADCAST ENGINEER

WFXS in Wausau, WI is seeking a Broadcast Maintenance Engineer to direct all of the station's technical maintenance, engineering, and IT operations. Experience in maintaining Master Control, transmitter, ENG & computer systems. Coordinate our digital conversion and supervise the operations staff. SBE certification preferred. Cover letter/Resume to Robert Raff, VP/GM, r Raff@wfxs.com 1000 N. 3rd Street, Wausau, WI 54403.

No phone calls please. EOE

Products & Services

RATHBONE ENERGY

Batteries, Battery Recelling, Analyzer Chargers, Fuel Cells, PAG Power/ARC HMI Lights, HP Business Solutions. Broadcast News Batteries, a Specialty at rathboneenergy.com since 1989. Visit us at NAB booth C10621

800-223-1775 Sales • Office: 865-484-1783

sales@rathboneenergy.com

865-803-4430 Verizon In Network

There's a better way - rathboneenergy.com
A Full Disclosure Web Site.

TV • AV SYSTEMS • INFO. TECHNOLOGY

Coast-to-Coast Staffing & Job Service

www.KeystoneAmerica.com

TECHNICAL ENGINEERING SALES/Mgmt VPGM

CALL TODAY: AL KORNISH - (570) 655-7143

Help Wanted

DIRECTOR TECH/OPS

W*USA 9 seeks Director of Technology and Operations. Direct all of the technical, IT, maintenance and engineering operations of the television station. This position reports directly to the President and GM. Must have at least five years of technical management experience in a broadcast environment and proven ability to motivate, lead and manage a talented technical staff. Must also have in-depth knowledge of digital technology. Responsibilities will include budgeting, capital planning and expenditures, supervising/preparing annual staff reviews, salary and promotion recommendations. Advanced computer skills are desirable. FCC license/SBE certification are preferred. Please address your cover letter/resume to Darryll J. Green and email it to dhicks@wusa9.com. Note: Emails with attachments WILL NOT be accepted. No phone calls please. EOE.

NBC WEATHER PLUS BROADCAST SYSTEMS ENGINEER

Electronic Maintenance/Engineering professional needed to support the long and short-term projects as well as overall technical support for NBC Weather Plus. This is a full time temporary position.

Primary responsibilities are to provide front line Engineering support to the production of live programming, Weather Central graphics Systems, and web media creation. The candidate should be well versed in both digital and analog technologies and should be knowledgeable in computer based audio/video systems as well as the hardware/software components that drive them.

Detailed knowledge of the following systems is required: Audio/Video signal Routers, Production switchers, linear and non-linear editing systems, processing and terminal gear, character generators, Audio/Video servers, cameras, VTRs, test & measurement equipment. Experience with Satellite systems is a plus.

Systems design and Project Management experience is required. AutoCAD skills are a plus. Candidate must be able to work in concert with other members of the Weather Plus group as a team player and contributor in our mission to provide service. Overnight shift work, non-standard days off as well as holiday work will be required. Candidate should have a minimum of 5 years experience in this field with an educational background in Engineering or Computer science.

Interested applicants should submit their resume via e-mail (Word document attachment as well as pasted in the message) to: weatherplus@nbcuni.com

Help Wanted

TOP ENGINEERING JOBS - WEST COAST

CBS Radio, nation's leading radio broadcasting group, is seeking to hire Directors of Engineering for the Phoenix and Portland markets. We are also looking for a Chief Engineer for KROQ and JACK in Los Angeles. Executive level responsibility to oversee technical and IT operations of major market stations. Primary responsibility includes technical compliance with FCC rules and safety regulations, asset management, expense control, and preparation and execution of capital projects. Candidate must have proven outstanding management skills to direct and manage people in an increasingly complex radio broadcast environment. Candidate must be able to work under pressure; must have extensive experience and demonstrated success in similar assignments in previous broadcast engineering management positions. Prefer candidates with electronic engineering or computer science degree, plus SBE certification. DOE reports directly to local management and corporate management.

Please send resume to:

Scott Mason

CBS Radio Engineering

5901 Venice Blvd., Los Angeles, CA 90034

email: scott.mason@cbsradio.com

CBS Radio is an Equal Opportunity Employer

DIRECTOR OF TECHNOLOGY AND OPERATIONS

News10, a Gannett station in Sacramento, is seeking a Director of Technology and Operations. This department-head position is responsible for the overall strategy and direction of the Technology and Operations Department. The ideal candidate is proficient in the analog and digital aspects of broadcast television and the Web; has a successful track record of leading a staff and contributing to a television station's overall success; is able to articulate and implement emerging and future technologies; is able to lead project management, including the design and planning of capital improvement projects; is familiar with emerging industry trends, standards and FCC regulations; and has practical experience with broadcast and IT equipment. This role necessitates a clear vision of emerging and future technology as it impacts digital transition as well as strategic business opportunities. Management responsibilities include supervision of engineering, IT, operations and studio staffs. It also includes project management, writing annual performance reviews, and expense management. A bachelor's degree and a minimum of five years experience in both broadcast maintenance and IT is preferred. Exp. in design and implementation of analog to digital (specifically HDTV) television plant conversion highly desirable. Send resume, references and salary requirements to: Russell Postell, President & General Manager, News10, P.O. Box 10, Sacramento, CA 95812-0010. No phone calls please. EOE. Drug Testing.

Help Wanted

BROADCAST TV ENGINEER

Texas A&M University seeking Qualified applicant to work in a team television production environment in Athletics TV Productions.

Oversee technical operation and basic maintenance and repair of broadcast (ENG) camera packages and non-linear edit system.

Ability to troubleshoot to the component level and provide operator assistance in all aspects of broadcast, computer, and communications systems. Maintain Video Screens and associated electronic components at Texas A&M sports venues and provide support for live event technical setup and management per in-game video operations.

Excellent benefits. Starting salaries may be negotiable based on qualification & experience. Refer to Job #060770 and apply at tamujobs.tamu.edu on any computer with WEB access. Computers and staff can assist you at:

Employment Office
Texas A&M University
1475 TAMU

College Station, TX 77843-1475

Emploffice@tamu.edu

An Affirmative Action/Equal Opportunity Employer

Committed to Diversity

BUSINESS DEVELOPMENT MANAGER

AZCAR, a major media system integration and consulting firm, seeks highly motivated individual to run Business Development. Experience in system engineering and sales management important. Staff of about 10. Marketing and advertising responsibilities along with personal involvement in major accounts. Salary, commission, override and bonus plans. Relocation allowance. Excellent benefits. Commitment to growth, client service, and solid team work important. Communications skills and public speaking must be strong suits. Modest travel required. Position filled before NAB. Send expression of interest, resume and references to BDVP@AZCAR.com

CHIEF ENGINEER

KIFI, the ABC affiliate for Eastern Idaho and Western Wyoming, is seeking a take charge Chief Engineer to direct all of the technical maintenance, engineering, and IT operations of the television station. The successful candidate should be experienced in maintaining Master Control, transmitter, and must have knowledge of digital technology and translator issues for our rugged western terrain. Responsibilities include assisting in budgeting, along with the proven ability to motivate and lead the technical staff in one of the most beautiful parts of the country. Please address your cover letter and resume to Tim Larson, KIFI General Manager.

KIFI-TV

1915 N Yellowstone Highway

Idaho Falls, ID 83401

Fax (208) 525-1309



Editorial Director: Brad Dick, bdick@prism2b.com
Editor/World Editor: David Austereben, editor@broadcastengineeringworld.com
Managing Editor: Susan Anderson, sanderson@prism2b.com
Assoc. Editor/Webmaster: Chevon Payton, cpayton@prism2b.com
Assoc. Editor: Spring Suptic, ssuptic@prism2b.com
Asst. Editor: Angela Snell, asnell@prism2b.com
Sr. Art Director: Michael J. Knust, mknust@prism2b.com
Art Director: Robin Metheny, rmetheny@prism2b.com
Technical Consultants: Computers & Networking – Brad Gilmer
 Antennas/Radiation – John H. Battison
 Digital Video – Michael Robin
 Transmission Facilities – Donald L. Markley
 Legal – Harry C. Martin
 New Technology – John Luff
 Industry Watcher – Paul McGoldrick
 New Media – Craig Birkmaier
Sr. VP: Peter L. May, pmay@prism2b.com
Group Publisher: Jonathan Chalon, jchalon@prism2b.com
Marketing Dir.: Kirby Asplund, kasplund@prism2b.com
Online Sales & Marketing Dir.: Samantha Kahn, skahn@prism2b.com
Vice President of Production: Lisa Parks, lparks@prism2b.com
Production Manager: Kathy Daniels, kadaniels@prism2b.com
Classified Ad Coord.: Sarah Goulding, sgoulding@prism2b.com
Dir., Audience Marketing: Barbara Kummer, bkummer@prism2b.com
Group Show Director/LDI: Sharon Morabito, smorabito@prism2b.com

PRISM BUSINESS MEDIA™

Prism Business Media Inc.
President/CEO: John French, jfrench@prism2b.com
COO/CFO: Andrea Persily, apersily@prism2b.com

MEMBER ORGANIZATIONS

Sustaining Member of
 • Society of Broadcast Engineers
 Member, American Business Media; Member, BPA International,
 The Missouri Association of Publications



SUBSCRIPTION RATES: Free and controlled circulation to qualified subscribers. Non-qualified persons may subscribe at the following rates (Prices subject to change): USA and Canada, 1 year, \$70.00, 2 years, \$135.00, 3 years, \$200.00; Outside USA and Canada, 1 year, \$85.00, 2 years, \$165.00, 3 years, 245.00 surface mail (1 year, 155.00, 2 years, \$295.00, 3 years, \$440.00 airmail delivery). For subscriber services or to order single copies, write to Broadcast Engineering, 2104 Harvell Circle, Bellevue, NE 68005 USA; call 866-505-7173 (USA) or 402-505-7173 (outside USA); or visit www.broadcastengineering.com.

ARCHIVES AND MICROFORM: This magazine is available for research and retrieval of selected archived articles from leading electronic databases and online search services, including Factiva, LexisNexis and Proquest. For microform availability, contact ProQuest at 800-521-0600 or 734-761-4700, or search the Serials in Microform listings at proquest.com.

REPRINTS: Contact FosteReprints to purchase quality custom reprints or e-prints of articles appearing in this publication at 866-436-8366 (219-879-8366 outside the U.S. and Canada). Instant reprints and permissions may be purchased directly from our Web site; look for the RSI/Copyright tag appended to the end of each article.

PHOTOCOPIES: Authorization to photocopy articles for internal corporate, personal, or instructional use may be obtained from the Copyright Clearance Center (CCC) at 978-750-8400. Obtain further information at copyright.com.

PRIVACY POLICY: Your privacy is a priority to us. For a detailed policy statement about privacy and information dissemination practices related to Prism Business Media products, please visit our Web site at www.prism2b.com.

CORPORATE OFFICE: Prism Business Media, 9800 Metcalf, Overland Park, Kansas 66212 • 913-341-1300 • prism2b.com

Copyright 2006, Prism Business Media Inc. All rights reserved.

Ad Index

Broadcast Engineering is not responsible for errors in the Advertisers Index.

	Page #	Advertiser Hotline	Website Address
ADC Telecommunications Inc.	63	1-800-366-3891	adc.com/broadcast
ADC Telecommunications Inc.	231-478	1-800-366-3891	adc.com/broadcast
Aerial Video Systems	205	818-954-8842	aerialvideo.com
AJA Video	80	530-274-2048	aja.com
Anton-Bauer	113	203-929-1100	antonbauer.com
Avid Technology	4-5	800-949-AVID	avid.com/broadcast
Avocent	161	800-275-3500	av.avocent.com
Azden Corp.	87	516-328-7500	azdencorp.com
Barco Visual Solutions	79	+1-678-475-8000	barcocontrolrooms.com
Baron Weather Services	89-92	256-881-8811	baronservices.com
*Bit Central Inc.	211-214	800-214-2828	bitcentral.com
Blackmagic Design.....	17		blackmagic-design.com
Broadcast Microwave Services	149	800-669-9667	bms-inc.com
C4 Sports.....	481		c4-sports.com
Calrec Audio Ltd.....	75	+44(0) 1422 842159	calrec.com
Calrec Audio Ltd.....	175-178	+44(0) 1422 842159	calrec.com
Canare Cable Inc.	115	818-365-2446	canare.com
Canon USA	72-73		canonndv.com
Canon USA Broadcast Lens	13	1-800-321-HDTV	canonbroadcast.com
Clear-Com Communication Systems.....	33	1-510-496-6600	clearcom.com
Dielectric Communications	203		dielectric.com
DMT USA	69	888-912-TEAM	dmtonline.com
Dolby Labs Inc.	15		dolby.com
Doremi Labs Inc.	127	818-562-1101	doremilabs.com
DYMO Corporation	51		rhinolabeling.com
Ensemble Designs	57	1-530-478-1830	ensembledesigns.com
ERG Ventures Co. Ltd.	171	+1-949-263-1630	erg-ventures.com
ERI Electronics Research Inc.	81	877-ERI-LINE	eriinc.com
ESE	181	310-322-2136	ese-web.com
Euphonix.....	45	650-855-0400	euphonix.com
Evertz Microsystems Ltd	IBC	905-335-3700	evertz.com
EVS Broadcast	141-142	+1-973-575-7811	evs.tv
Fiberplex.....	185	301-604-0100	lightviper.com
Fischer Connectors	101	800-551-0121	fischerconnectors.com
Floral Systems	99	1-800-372-4613	floral.com
Focal Press	230		
For-A Corporation of America	83	+1-714-894-3311	for-a.com
Forecast Consoles Inc.	229	1-800-735-2070	forecast-consoles.com
Front Porch Digital	207	936-520-6042	fpdigital.com
Fujinon Inc.	31	973-633-5600	fujinon.com
GEPCO	169	1-800-966-0069	gepco.com
Global Microwave Systems	189	888-880-9339	gmsinc.com
Harris Broadcast	3	800-4-HARRIS	harris.com
HD World Conference & Expo.....	483	203-371-6322	hdworldexpo.com
HME	221	866-352-8569	pro850.com
Hot Chow Solutions	183		obordigital.com
Ikegami Electronics Inc.	19	201-368-9171	ikegami.com
Inlet Technologies	65	919-256-8145	inlethd.com
Inter BEE 2006	111	+81-3-5402-7605	bee.jesa.or.jp
JDSU (Acterna)	157	1-866-228-3762	jdsu.com/qt-1100
Kino Flo Inc.	96	818-767-6528	kinoflo.com
Konan Digital Inc.	98	+1-818-649-8655	konandigital.com

	Page #	Advertiser Hotline	Website Address
Leitch Inc.	95	1-800-231-9673	broadcast.harris.com/platinum
Leitch Inc.	BC	1-800-231-9673	broadcast.harris.com/nexioxs
Marshall Electronics Inc.	48	800-800-6608	lcdracks.com
Maxell Corp. of America	9	800-533-2836	maxellpromedia.com
MESoft Inc.	97	818-842-5700	mesoft.com
Miller Camera Support	201	973-857-8300	millersprinter.com
Miranda Technologies Inc.	11	514-333-1772	miranda.com
MITEQ	85	631-436-7400	miteq.com
NEC Display Solutions America	61	866-NEC-MORE	necdisplay.com
Network Electronics	62	800-420-5909	network-electronics.com
Nucomm Inc.	68	800-968-2666	nucomm.com/2ghz
NVIDIA Corp./PNY Technologies	59		pnycorp.com/quadro
*NVision Inc.	103-108	1-800-719-1900	nvision.tv
Omneon Video Networks	23	1-866-861-5650	omneon.com
Opticomm Corp.	123	800-867-8426	opticomm.com
Panasonic Broadcast	28-29	1-800-528-8601	panasonic.com/broadcast
PESA Switching Systems	71	1-631-912-1301	pesa.com
Pixel Power	86		pixelpower.com
Pro-Bel	46		pro-bel.com
Quantel Ltd.	50		quantel.com
Quantum Corporation	139		quantum.com/tape4 tapelessworld
Radyne Corporation	67	602-437-9620	radn.com
RF Central	225	717-249-4900	rfcentral.com
Riedel Communications	217	+1-818-563-4100	riedel.net
Rohde & Schwarz	145	1-888-837-8772	test-rsa.com/tvtrans/be
Sachtler Corp. of America	77	1-845-268-2113	sachtler.com
Scientific Atlanta Inc.	16		scientificatlanta.com/compete
Scopus Network Technologies	32		scopusamericas.com
Screen Service America	131	+1-305-826-2212	screenservice.net
Sencore	153	1-800-SENCORE	sencore.com
Sennheiser Electronic GmbH	25, 27		sennheiser.com
Snell & Wilcox Ltd.	40-41		snellwilcox.com/nab
Sony Electronics Inc.	52-53		sony.com/hdselect1
Streambox	227	206-956-0544	streambox.com
Sundance Digital	191	972-444-8442	sundancedigital.com
TBC Consoles Inc.	66	1-888-CONSOLE	tbconsoles.com
Tektronix Inc.	7		tektronix.com/seeandsolve
Telecast Fiber Systems Inc.	195	508-754-4858	telecast-fiber.com
Telemetry Inc.	165		telemetry.com
Telex	84	1-800-392-3497	rts.intercoms.com
Thales Angenieux	49	973-812-3858	angenieux.com
Thomson/Grass Valley	35-38		thomsongrassvalley.com
TVOne Multimedia Sales	199	800-721-4044	tvone.com
Utah Scientific	135	801-575-8801	utahscientific.com
VertigoXmedia	117	1-514-397-0955	vertigoxmedia.com
Videotek Inc.	21	800-800-5719	broadcast.harris.com/videotek
Wheatstone Corporation	IFC	252-638-7000	wheatstone.com
White Sands Engineering	70	1-800-JUMPERS	whitesandsengineering.com
Zandar Technologies	100	321-939-0457	zandar.com
360 Systems	47	818-735-8223	360systems.com

*Denotes ad placement in only selected editions of this month's magazine.

US/CANADA WEST

George Watts III
(360) 546-0379; Fax: (360) 546-0388
georgeww3@aol.com

EAST

Josh Gordon
(718) 802-0488; Fax: (718) 522-4751
jgordon5@bellatlantic.net

MIDWEST

Emily Kalmus
(312) 840-8492; Fax: (913) 514-6131
ekalmus@prismb2b.com

INTERNATIONAL EUROPE

Richard Woolley
+44-1295-278-407
Fax: +44-1295-278-408
richardwoolley@btclick.com

Israel

Asa Talbar
Talbar Media
+972-3-5629565; Fax: +972-3-5629567
talbar@inter.net.il

JAPAN

Mashy Yoshikawa
Orient Echo, Inc.
+81-3-3235-5961; Fax: +81-3-3235-5852
mashy@fa2.so-net.ne.jp

CLASSIFIED ADVERTISING

Susan Schaefer
(484) 478-0154
Fax: (484) 478-0179
sschaefer@prismb2b.com

REPRINTS

FasteReprints
(866) 436-8366;
International inquiries, (219) 879-8366

LIST RENTAL SERVICES

Marie Briganti, Walter Karl
(845) 620-0700
(845) 620-1885
marie.briganti@walterkarl.infousa.com

Customer Service: 913-967-1707 or 800-441-0294

April 2006, Vol. 48, No. 4 (ISSN 0007-1994) is published monthly and mailed free to qualified persons by Prism Business Media, 9800 Metcalf Ave., Overland Park, KS 66212-2216. Periodicals postage paid at Shawnee Mission, KS, and additional mailing offices. Canadian Post Publications Mail Agreement No. 40597023. Canada return address: DHL Global Mail, 7496 Bath Road, Unit 2, Mississauga, ON L4T 1L2. POSTMASTER: Send address changes to Broadcast Engineering, P.O. Box 2100, Skokie, IL 60076-7800 USA. CORRESPONDENCE: Editorial and Advertising: 9800 Metcalf, Overland Park, KS 66212-2216 Phone: 913-341-1300; Edit. fax: 913-967-1905. Advert. fax: 913-967-1904. © 2006 by Prism Business Media. All rights reserved.

Nonstop service

BY PAUL MCGOLDRICK



We tend to think that we can do just about anything on the Web. But there's a curious thing that all providers of service avoid online: the ability to cancel a service. Yes, sites like Amazon allow you to stop an unshipped order, but if you try to cancel any type of subscription online, cancel an insurance policy or even suspend a home delivery from the supermarket, it can't happen.

All these suppliers force you to go through the deadly menu-based telephone system, invented to save real employees from answering your question or dealing with your problem. Lynne Truss, in her book "Talk to the Hand," dryly puts it into real terms, "The only context in which you can expect to hear a 'please' or 'thank you' nowadays is in recorded messages — and hey, guess what, they are not extending courtesy at all, because they are not attempting to meet you halfway. 'Please have your account number ready as this will help us do our job more efficiently'..."

Once you finally get through to a human — who probably lives on a different continent — you already know that there will be no bending of the rules, no escape from the inevitable lack of assistance and no method left open to you to find anybody with the ability to get something done. The result is you let the subscription continue until it expires, you physically visit with your insurance agent and you just smile when the delivery truck drives up with your supermarket order.

That didn't happen back when my first ISP was CompuServe, and the company did okay with its numbered accounts — at least just for e-mail. But when I needed a more professional service, canceling CompuServe

proved to be not just difficult, but impossible. After about three months of being jerked about, I cancelled the credit card that was paying the CompuServe account.

My most recent experience in trying to cancel something was in our own industry. Last October, I moved to Canada, a country that is very protective of its media. The use of U.S. satellite service is prohibited. There

would have been answered on the first ring. Nevertheless, even with this run-around, I felt I had expressed my desire to cancel and that it would stick.

Oh, no, bills kept coming, and Dish ignored my address change. Finally, I e-mailed online service. The response, after two weeks, was:

"We received a call on October 23, 2005, that you are planning to disconnect the service. However, the account

If we meet on the floor at NAB, I'm going to be asking for my \$68.98 back, plus prepaid charges. Neener, neener, neener yourself.

is a gray market, of course, but smart card changes make it difficult for it to sustain itself.

Not being in the business of bucking the system, I wanted to cancel my Dish Network account. Guess what? You cannot do it online. I entered the telephone menu hell but, of course, there were no prompts to tell me how to cancel the service. I finally reached a human on the other end of the line and went through the almost fanatical procedure to prove who I was.

Fortunately, I still remember my mother's maiden name, the last four digits of my Social Security number and my date of birth, so I was accepted as a legitimate customer.

Could I cancel service, please? I was grilled about why I was canceling, and moving to another country didn't seem to impress him. Finally the agent agreed to connect me to his technical department, which could actually cancel the subscription.

After I was connected, nobody answered for about three minutes, and I gave up. I suspect if I had instead wanted to upgrade service, the phone

was never disconnected since you were not able to cancel the account at the correct department. You should have talk to our disconnection department so to process your request. Since the account was not cancelled, it remained active until December 25, 2006, due to non-payment. Since the account remained active for a period of time, the balance on the account is due, and we will not be able to make any adjustment on your bill."

Consider, "You should have talk to our disconnection department so to process your request." Apart from the dreadful grammar, can you read the neener, neener, neener in there?

If we meet on the floor at NAB, I'm going to be asking for my \$68.98 back, plus prepaid charges. Neener, neener, neener yourself.

Note: Completely out of the blue, and with no correspondence, I received a refund check from Dish Network — three weeks after this column was filed. **BE**

Paul McGoldrick is an industry consultant based on the West Coast.

QMC-2 Master Control by **evertz**

Quartz

QMC
Master Control

QMC-2

Intelligent Master Control

- *HD or SD operation from a common hardware platform*
- *Handles dual stream Dolby E for 16 channel audio*
- *Dual logo stores, and up to three external keyers*

The Leaders in HDTV and now the Leaders in Routing & Master Control

US & International Sales
905.335.3700
sales@evertz.com

US West Coast Sales
818.558.3910
LASales@evertz.com

New York Sales
newyorksales@evertz.com

Washington DC Sales
703.330.8600
dcsales@evertz.com

UK Sales
011 44 118 926 0871
uksales@evertz.com

Quartz Electronics Inc.
011 44 118 935 0200
sales@quartzuk.com

NAB 2006 - Booth SU170 www.evertz.com • www.quartzuk.com **evertz**

The right server for the job.

Not as cost-effective as NEXIO

Lacks NEXIO's agile internal encoding

NEXIO XS™

Expert in true shared-storage networking

Leader in software coding and decoding

Curriculum

Champion in scalability



Objective

I provide broadcasters worldwide with the smallest and fastest HD/SD server platform that simplifies workflow, optimizes efficiency and maximizes ROI.

Summary of Qualifications

Developed from a long lineage of shared-storage systems. SD with HD included for free in a baseband server – with a choice of internal and external storage – which is less expensive, easier to use and service, and capable of a much larger range of encode options than any other potential candidate. All this in a single 3RU frame!

Area of Specialization

All hybrid HD/SD systems. Transmission applications, commercial insertion, newsrooms, mobile production facilities, sports.

Critical Skills

- 6 channels in 3RU
- HD (1080i/720p) and SD (525/625)
- Software coding and decoding of media with back-to-back DV/MPEG playback
- Patented, Emmy Award-winning RAIDsoft™ software storage protection
- Front access to boot and media drives, USB and IEEE-1394 (FireWire™) ports
- 4Gbps Fibre Channel support
- Industry's best file transfer performance (up to 80 MB/s per chassis)
- Full dual redundant path to storage

Professional Affiliations

- Integration of Velocity™ editing platform on the same SAN
- Fully compatible with all major automation, asset management and archive partners

Languages

- TCP/IP, UDP, FTP protocols
- MXF, AVI, DV, MPEG, IMX file formats

Accomplishments

- More than 1000 installations in 80 countries worldwide
- Industry award-winning technology leader



IBM 2005 AWARD FOR INNOVATION IN MEDIA

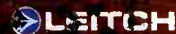
Today's changing media environments demand a new kind of server. NEXIO XS™ is more than up to the challenge. Exceptional capabilities and a comprehensive selection of applications – all fully integrated in a compact, 3RU frame.

Check out the qualifications of NEXIO XS at www.broadcast.harris.com/nexioxs

See NEXIO XS™ at NAB in booth SU2929

USA East +1 800 231 9673 | USA West +1 888 843 7004 | Canada +1 800 387 0233 | Latin 4.5 America +1 305 512 0645

Leitch is a brand of Harris Corporation.



HARRIS® assuredcommunications™

Broadcast • Microwave • RF • Government Systems

www.harris.com