www.extron.com

ExtroNews™

Issue 13.2 April – June 2002

Extron at InfoComm

Connecting with A/V Professionals

The Extron tradeshow booth at InfoComm 2001

It is time to gear up for our biggest tradeshow of the year—InfoComm 2002. Extron will unveil dozens of new products, present educational courses, and cut loose with you at the Extron 2002 Rock & Rodeo Bash!

InfoComm is a great place for Extron to keep you, our dealers, consultants and endusers, informed about the latest innovations and technologies in A/V, as well as meet with you personally. All of which enables us to provide the best Service, Support, and Solutions - S^3.

On the Show Floor

This year, we will utilize 6,000 square feet of booth space to display a wide array of new products as well as selected items from our line of interfacing, switching, distribution, signal enhancement, and cable products. There will also be working demonstrations that emphasize real-life applications and innovative solutions using new and existing Extron products.

In addition, the new Extron 2002-2003 Product Catalog will be available in our booth, complete with the New Products Brochure, which highlights all the new products introduced at the show. As always, your Customer Support Representatives, and Extron's Product Managers and Management will be on hand to answer any technical questions and provide you with information and literature about Extron technologies and products.

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Extron's booth location at Infocomm 2002 show floor.

In the Classroom

We will be conducting nine courses at InfoComm in conjunction with the InfoComm Academy as well as four special Extron Seminars for Extron dealers and consultants only at the Venetian Hotel, Room #901. In each of the courses, Extron instructors will apply their in-depth knowledge and expertise gained from past experience working in the A/V industry and from extensive interaction with A/V professionals in our S^3 Technical Institute. This allows them to present course material from a perspective that facilitates a better understanding of the subject matter.

To register for InfoComm Academy/Extron courses or to view a complete course description, refer to the recent Extron at InfoComm 2002 Pre-show Mailer sent to your company or visit the InfoComm Web site at www.infocomm.org. To register or learn more about Extron Seminars, call your Extron Regional Sales Manager at 714.491.1500 or 800.633.9876 (inside USA and Canada only) or refer to the Extron at InfoComm 2002 Pre-Show Mailer.

Extron

EXTRON SEMINARS

Topics of the special Extron Seminars for Extron dealers @ InfoComm courses include:

• Financing Business Growth

Hosted by Andrew Edwards, President of Extron Electronics

Instructors:
Howard Edwards, Managing Director for Commercial Banking Consultants
Ed Ellingwood, Vice President of Finance for Extron Electronics

Andrew's seminar is designed for the CFO or financial decision maker of A/V dealerships. Credit and banking are two of the most important if not THE most important areas of information needed to run a business. This seminar is not only about how to work more effectively with Extron credit, but with any manufacturer in the A/V industry. If you are responsible for the financial decisions of your dealership you should attend this seminar. If you own a large dealership, bring your CFO with you. If you are NOT a large dealer with an official CFO, it is even MORE important for you to attend this seminar and bring whoever is responsible for financial and accounting decisions.

Howard's section will focus on financial relationships and provide unique insight about SBA Loans, credit ratings, credit lines, and how banks evaluate businesses from the banker's perspective. This section will cover information that financial institutions do not want you to know about how they measure and evaluate your risk and make decisions about how much credit you qualify for. Find out which ratios are most important, historical performance indicators, and the strength of a company's financial forecasting methods.

Ed's section will cover the credit element of dealer/ manufacturer relationships. Learn how Extron and manufacturers in the A/V industry evaluate a dealer's credit worthiness and what they look for when deciding on raising or lowering lines of credit.

• Small System Technologies

Instructor: David Kroeger, Extron West/Canada Regional Applications Specialist

Explores issues and provides solutions affecting small A/V systems such as programming concerns, expanding display input limitation, audio control and enhancement, installation and mounting concerns, as well as display, room, and device control.

• Advanced Switching Methods

Instructor: Karl Rosenberg, Extron Mid-Atlantic Regional Specialist

Provides an in-depth look at the latest technologies driving high performance switching applications including seamless video switching, vertical interval switching, and genlocking of equipment.

• Understanding Digital Video Signal Distribution

Instructors: Rich Hanna, Extron Southeast Regional Applications Specialist

Provides an in-depth look at digital video signal technologies including signal types, signal composition, specifications, and integration using the latest distribution technologies.

INFOCOMM ACADEMY / EXTRON CLASSES

Topics for the 2002 InfoComm Academy/Extron classes include:

• The Truth About Scan Converting

Instructor: Chris Gillespie, Extron Technical Trainer

Provides a basic overview of the video signal hierarchy, explains how a scan converter works, goes over the pros and cons of various decoding technologies, and points out what features need to be considered when selecting a scan converter.

• Terminating Cable Correctly and Efficiently

Instructor: Dennis Olson, Extron Southwest Regional Applications Specialist

Teaches proper cable termination techniques as well as cable testing procedures and provides hands-on experience and exposure to crimping, soldering, and testing of numerous cable and connector types.

• Display Evaluation Essentials

Instructor: Steve Somers, Extron Vice President of Engineering

Provides essential knowledge about the basic performance attributes of the various display technologies and tools needed to interpret what is seen in a display demonstration including how to use basic display test patterns to identify performance issues quickly.

• Understanding Video Bandwidth

Instructor: Rich Hanna, Extron Southeast Regional Applications Specialist

Shows how to define, calculate, and measure signal and system bandwidth while providing information about equivalent bandwidth specification for cable, test generators, and graphic cards.

• The Cable Seminar

Instructor: Chris Gillespie, Extron Technical Trainer

Provides practical knowledge about selecting the correct cable type for specific installations, as well as an understanding of cable construction, electrical characteristics, and how cables affect system performance.

• An Overview of Integrating IP Into Today's A/V Systems

Instructor: Chris Gillespie, Extron Technical Trainer

Provides information on applications and benefits of Internet Protocol (IP), networking, streaming media, and traditional control architectures used in A/V systems.

• Understanding Digital Visual Interface (DVI) Technology

Instructor: Roy A. Hermanson, Jr., Extron Northeast Regional Applications Specialist

Introduces the basics of DVI, reasons for this new technology; DVI specifications, as well as operation, and integration issues.

• Video Over Twisted Pair (CAT 5e/6)

Instructor: Dennis Olson, Extron Southwest Regional Applications Specialist

Explains the ins and outs of using Category 5e/6 cabling for running video and audio signals. Also covers key points such as NEXT, FEXT, skew, and attenuation as well as misconceptions about this medium.

• Computer Video Interfacing to Presentation Systems

Instructor: Chris Gillespie, Extron Technical Trainer

Provides practical knowledge about interfacing to display systems, beginning with the basics: computer and signal types, bandwidth, how interfacing works, an overview of interfacing elements such as resolutions, scan frequencies, video and computer standards, and more.

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Rock & Rodeo Bash 2002

It is also time once again for one of InfoComm's most anticipated events, the Extron Party. Taking place on Wednesday, June 12, 2002, at a yet undisclosed location, the party provides an excellent opportunity for our invited guests to network with their peers and mingle with their Extron representatives as well as enjoy great food, drinks, and entertainment. The party also allows us to show our appreciation to our dealers, consultants, and users who support us and our products throughout the year. There will be both rock and country music live bands entertaining you in a unique, dual-venue facility. The Zippers are a flashy combination of classic rock, R&B, disco and swing, while the Doo-Wah Riders perform a unique blend of country music with a Cajun twist. In addition, the traditional Battle of the Bands will take place with confirmed musical groups from Christie Digital, and NEC.

Doo-Wah Riders

The Zippers

Events & Activities:

- Carnival-style gaming booths including slap-shot hockey, rodeo ropers, mechanical bulls, robo-surfer, a rock wall, golf driving ranges, pool tables, and more!
- Airbrush tattoo artists on hand so you can get 'inked'
- Photographers so you can commemorate this event with a complimentary photo button of you with your friends or your favorite Extron representative

Transportation & More Info

Transportation will be provided to and from the Sands Convention Center and various hotels and casinos to the Extron Bash. For additional information about the party, contact your Extron Support Representative at 714.491.1500 or 800.633.9876.

We hope to see you there!

NEW

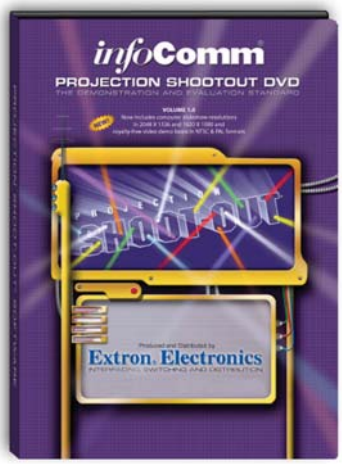
INFOCOMM/Projection Shoot-Out DVD – Volume One

The Demonstration and Evaluation Standard

The **InfoComm/Projection Shoot-Out DVD – Volume One**, entirely produced and distributed by Extron Electronics in partnership with ICIA, is full of unique and interactive features. The DVD itself is a hybrid of a new set of stunning computer-based, multi-resolution images, high quality royalty-free video montages (in both NTSC and PAL) great for product demonstrations, tradeshows, and shoot-outs; set-up test patterns; and background music. It includes several customized enhancements such as image sequencing and Business Card software that allows a user to insert a personalized slide with text and logos into a presentation. Multi-system operation of the DVD is made possible via Ethernet control. Up to three computers can run the software at the same or different resolution. Copies of the software must be purchased for each computer used. Best of all, the InfoComm/Projection Shoot-Out DVD – Volume One allows dealers and technicians to stage their own shoot-outs.

New Features:

- DVD-based product (hybrid format)
- Montage of royalty-free video imagery in both NTSC and PAL
- Computer-based, multi-resolution image files
- Network capability for the computer-based files
- Background music selections for computer-based files
- Customizable sequencing
- Educational pop-ups for describing image details
- Personalized "Business Card" feature
- Separate title containing test patterns for setup
- Compatible with previous Shoot-out CD-ROMs



by Jeff Gibson, Vice President of Sales

I-Demos: Your Virtual Extron Instructor

While installation manuals are sufficient for most products, there are times when a more personal, hands-on presentation would be ideal. And, although we'd really enjoy providing in-person, individual instruction to each Extron dealer, this is not always very timely or practical. So what's the solution?

NEW iDemo

Extron introduces I-Demo— streaming video demonstrations that focus on the installation of Extron products. I-Demos were created to eliminate the guesswork when installing or mounting these unique Extron products.

Hideaway Surface Access Enclosure Installation I-Demo

An Extron I-Demo walks viewers through an installation step-by-step, thoroughly covering safety issues, tools needed, site preparation, installation of the various components, and troubleshooting the finished job. Like Extron E-Demos, I-Demos enable Extron customers to learn about our products without leaving the comfort of their computer. Perfect for one-on-one learning or for group training presentations, I-Demos bridge the gap between installation manuals and live classes. In addition, since I-Demos can be accessed from any computer through download or via the Internet, they can be pulled up at the installation site if a question should arise.

The first products to be featured in an Extron I-Demo are the HSA 400/402 and HSA 800/802 Hideaway Surface Access enclosures. HSAs are designed for inconspicuous computer-video interface connector access and control and can be easily integrated into virtually any table surface. Once installed, HSAs fit flush with the tabletop, hiding connectors out of sight. Connectors can be accessed when needed by simply pushing down on the top of the enclosure so that it pivots or vertically lifts open. To learn more about the HSAs visit the Extron Web site (www.extron.com) and be sure to check out the new I-Demo for installation hints and tips.

To view the HSA I-Demo, Windows® Media Player is required. This is available for free download via the internet. There are three versions of the HSA I-Demo for viewing online: low speed for use with a 56.6 kbps dial-up modem or 100k and 300k high speed versions for broadband connections. There is also a version that can be downloaded to your computer's hard drive. The complete installation video can be watched in sequence as each chapter will automatically launch into the next. Chapters can also be viewed out of sequence so that needed information can be accessed quickly and easily.

Of course, Extron Customer Support is always available to answer product, installation, and technical questions, 24 hours a day, 7 days a week at:

Extron USA: 800.633.9876 or 714.491.1500;
Extron Europe: +31.33.453.4040 or +800.3987.6673;
Extron Asia: +65.6383.4400;
Extron Japan: +81.3.3511.7655.

by Lee Dodson, Vice President of Marketing

Winning the Pricing War *without Losing it too*

Pricing strategy is often at the heart of every company's competitive business plan. It's a well-known fact that the winner of any looming price war is usually the customer as prices creep downward. Occasionally, as the battle intensifies, lower and lower prices translate into lower profits for all competing parties.

Aggressive competitors become so intent on winning the sale that they lose track of the bigger picture. On the surface, it may seem like the customer is the winner. Upon closer inspection, however, it may become all too apparent that the so-called "winner" of a sale is not making enough to even support the customer after the initial transaction. At that end, a customer "wins" a low-priced system that may not be fully engineered, installed correctly, set up completely, or doesn't work from a company that can't afford to fix it. In our high-tech A/V industry, this can spark a disastrous wave of devastating consequences.

Price vs. Value

Continuing cycles of price wars erode a dealer's ability to add value to the sale of products as their margins evaporate. In the commodities industry where only the slimmest survive, that may be an effective strategy; however, the professional A/V industry plays by a different set of rules. Success is heavily reliant upon highly trained integrators who sort through countless options and mix and match the best combination of products to suit the application.

This sounds simple enough until you are facing a price war of your own. Often, a price-aggressive competitor is using his or her strongest (and possibly only) weapon against you: price. All too often, this is someone with far less overhead and very little value to offer to their customers; their only recourse is a lower price. If you are facing this threat the last thing you want to do is lower your prices to the point of losing money. This practice may work for strategic projects where you bet on a long term payoff, but certainly not for day-to-day operations. If not controlled, it's a surefire way to go out of business.

Fighting competitors on their own turf can take its toll. For all the value your firm may offer in service and support, your competitor with less to offer must ALWAYS reciprocate by being less expensive than you. If you lower your price to match theirs, you can bet they will lower theirs to be considerably less because they simply have nothing else to offer.

The Value of Value

The trick is to know how much the value you add is worth. There is a buffer that can be added in light of these services to keep you profitable and keep your competitor from dropping prices even lower. It begins by identifying your competitor's weaknesses.

There is a section from the famous ancient Chinese text, *The Art of War* by Sun Tzu, which states:

> *If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.*

The lesson contained herein lies in comparing your services and value-added to that of your competitor. In short, you should know what you are up against. You must consider how much your customer is willing to pay for those extras. Services, experience, certifications, capacity, turn-around time, installation skill, inventory, and all other areas you invest in must carry the kind of value that customers will seek out and pay for. All you need is an accurate assessment of the differences between what you offer and what your competitor offers. Then, of course, you need to quantify it and communicate that message to your customer.

This strategy may not win every sale in a fierce price war, but if your goal is to stay profitable and win repeat customers, you will be on the right track.

AAP 301 & AAP 302

Full Rack Width, 1U and 2U Faceplate

AAP 301

AAP 302

The Extron AAP (Architectural Adapter Plate) 301 and 302 are 1U and 2U high, full rack metal panels that support the installation of AAP panels into a rack as a single unit. The AAP 301 has four double space AAP openings that can be populated with up to eight single space AAPs or four double space AAPs. The AAP 302 has four AAP openings that can be populated with up to 16 single space AAPs. AAP openings enable integration with a number of Extron's Architectural Adapter Plates. Blank AAP panels are included to fill unused openings. Both the AAP 301 and AAP 302 are available in gray only.

AAP 301 & AAP 302

AAP 301

Part Number	List Price:
60-459-01	$150.00*

AAP 302

Part Number	List Price:
60-459-02	$200.00*

URL
www.extron.com/aap301
www.extron.com/aap302

* Prices listed in US Dollars, valid for US sales only.

AAP Silk-Screened Panels

Silk-Screened Architectural Adapter Plates

The Extron AAP (Architectural Adapter Plate) Silk-Screened Panels consist of labeled single and double space AAPs with standard inputs. The silk-screened labels reflect the most commonly used input connector combinations, enabling clear identification of RCA (video and audio), 3.5 mm audio, 15-pin HD, 4-pin mini DIN, and BNC connectors. All AAP Silk-Screened Panels are available in gray, black, and white.

AAP Silk-Screened Panels

Call Extron for part numbers and pricing.

URL
www.extron.com/aapsilkscreen

Crestron TPSBLOCK-10 AAP Panels

These new Extron Architectural Adapter Plates (AAPs) enable mounting of the Crestron TPSBLOCK-10 Panel Mount Interface (available only from Crestron) for Cresnet touch panel connection. There are two models of the double space AAPs: one allows for mounting of a single TPSBLOCK-10 connector, the other allows for mounting of two TPSBLOCK-10 connectors. The single and dual Crestron TPSBLOCK-10 AAPs are available in gray, unpainted, black, and white.

Crestron TPSBLOCK-10 AAP

Single Crestron TPSBLOCK-10 AAP

Part Number	List Price:
70-195-01 (gray)	$28.00*
70-195-11 (black)	$29.00*
70-195-21 (white)	$29.00*
70-195-51 (unpainted)	$28.00*

Dual Crestron TPSBLOCK-10 AAP

Part Number	List Price:
70-196-02 (gray)	$34.00*
70-196-12 (black)	$35.00*
70-196-22 (white)	$35.00*
70-196-52 (unpainted)	$34.00*

URL
www.extron.com/crestrontpsblock

* Prices listed in US Dollars, valid for US sales only.

More New Products continued on next page.

NEW

MDA Half Racks

Half Rack Width Mini Distribution Amplifiers

The MDA 3AV RCA, MDA 5AV RCA, and MDA 5SVA RCA Mini Distribution Amplifiers are affordable, compact distribution amplifiers for a number of A/V applications including boardrooms, training facilities, home theater, and rental and staging. The MDA 3AV RCA offers three amplified outputs of composite video and unbalanced stereo audio on RCA connectors. The MDA 5AV RCA offers five amplified outputs of composite video and unbalanced stereo audio on RCA connectors. The MDA 5SVA RCA offers five amplified outputs of S-video and unbalanced stereo audio on RCA connectors. The input on all three models feature a separate, passive loop-through channel that can be de-selected (removed) by the user via a DIP switch.

MDA Half Racks

MDA 3AV RCA
Part Number 60-443-01
List Price: $325.00*
URL
www.extron.com/mda3avrca

MDA 5AV RCA
Part Number 60-479-01
List Price: $435.00*
URL
www.extron.com/mda5avrca

MDA 5SVA RCA
Part Number 60-445-01
List Price: $455.00*
URL
www.extron.com/mda5savrca

* Prices listed in US Dollars, valid for US sales only.

NEW

Extron VersaTools™

Quarter Rack Width Enclosure Mini Distribution Amplifiers

VERSA™ TOOLS

MDA VersaTools™

Model	Part Number	List Price:
MDA 3V	60-439-01	$200.00*
MDA 3V Dual	60-439-10	$290.00*
MDA 5V	60-446-01	$235.00*
MDA 3AV	60-439-20	$320.00*
MDA 3SV	60-444-01	$235.00*
MDA 3SV Dual	60-444-10	$355.00*
MDA 5SV	60-447-01	$290.00*
MDA 3SVA	60-444-20	$335.00*
MDA 4V SDI	60-448-01	$425.00*
MDA 3A	60-440-01	$235.00*
MDA 3A RCA	60-440-30	$220.00*
MDA 5A RCA	60-441-01	$235.00*

URL
www.extron.com/versatools

* Prices listed in US Dollars, valid for US sales only.

Extron VersaTools is a new line of compact, affordable products housed in quarter rack width, rugged metal enclosures. Their small size makes them the ideal solution for easy integration into both new and existing A/V systems including boardrooms, training facilities, home theaters, and rental and staging environments. VersaTools are rack or under-desk mountable with an external power supply. First in the VersaTools line are Extron Mini Distribution Amplifiers (MDAs). There are 12 models of MDAs for composite, composite with stereo audio, S-video, S-video with stereo audio, Serial Digital Interface (SDI), and audio only.

Stereo audio models are available with either unbalanced RCA connectors or captive screw connectors (balanced/unbalanced). Captive screw models have selectable output gain via a DIP switch. This feature provides unity gain for balanced or unbalanced audio signals.

Composite Video VersaTools Amps

Composite video versions are available in three output (MDA 3V), dual three output (MDA 3V Dual), and five output (MDA 5V) sizes. Composite video with audio is offered in a three output (MDA 3AV) size. The MDA 3V Dual model includes two three output distribution amplifiers in a single enclosure. Video inputs and outputs are on female BNC connectors. Balanced/unbalanced audio is accepted on captive screw connectors.

S-Video VersaTools Amps

S-video versions are available in three output (MDA 3SV), dual three output (MDA 3SV Dual), and five output (MDA 5SV) sizes. An S-video with audio model is offered in a three output (MDA 3SVA) size. The dual model includes two three-output distribution amplifiers in a single enclosure. S-video inputs and outputs are on female 4-pin mini DIN connectors. Balanced/ unbalanced audio is accepted on captive screw connectors.

Serial Digital Interface (SDI) VersaTools Amps

The SDI version is available in a four output (MDA 4V SDI) model. It accepts SMPTE-259M Serial Video on a female BNC connector, and amplifies and re-clocks the buffered outputs. It will automatically recognize 4fsc PAL, 4fsc NTSC, component 4:2:2, and widescreen 4:2:2 standards.

Audio VersaTools Amps

Audio-only versions are available in a three output (MDA 3A) model that accepts audio on captive screw connectors. Three or five output (MDA 3A RCA or MDA 5A RCA) models accept audio on unbalanced RCA connectors.

See more New Extron Products at InfoComm Booth #16074.

QSD 204
Quad-Standard Decoder with optional SDI

The Extron QSD 204 Quad Standard Decoder accepts composite video, S-video or component video on three inputs and decodes the signals into component (Y, R-Y, B-Y) or RGB (RGsB, RGBS, or RGBHV) for output. The fourth input is RGBS or RGBcvS from the SCART connector found on many European DVD players. The QSD 204D model is configured for an SDI input. The QSD 204 has a four-line adaptive comb filter that virtually eliminates chroma noise and enables a projector or monitor to display a higher quality image than that of composite video or S-video.

QSD 204

QSD 204
Part Number: 60-501-01
List Price: $1,595.00*

QSD 204D with SDI
Part Number: 60-501-02
List Price: $2,595.00*

URL
www.extron.com/qsd204

* Prices listed in US Dollars, valid for US sales only.

RGB 164xi
Universal Mountable Computer Interface

The Extron RGB 164xi universal, analog computer-video interface with ADSP™ has two sets of BNC outputs, a female 15-pin HD input, and buffered local monitor output. It has a 15-130 kHz scanning range, 300 MHz (-3dB) RGB bandwidth, and is compatible with VGA–UXGA, Mac, Sun, and SGI signals. The RGB 164xi also converts computer-generated, unbalanced audio to balanced line-level audio. Sync processing is achieved through Extron's exclusive Advanced Digital Sync Processing (ADSP™) technology, ensuring compatibility with digital display devices (DLP, LCD, plasma, etc.).

RGB 164xi

Part Number: 60-485-01
List Price: $895.00*

URL
www.extron.com/rgb164

* Prices listed in US Dollars, valid for US sales only.

VSS 100
Video Sync Separator

The Extron VSS 100 Video Sync Separator is for systems that use video formats with embedded sync such as with the SCART connector found in Europe. Sources, such as DVD players, with RGB and composite video output on a SCART connector can now use RGB switchers like the Extron System 7SC. Simply use the RGB output of the DVD player and composite sync output from the VSS 100. The VSS 100 also accepts sync on green from RGB, luminance from component or S-video or composite video input on a female BNC connector and extracts the sync signal. Then it outputs the composite sync signal (at TTL levels) on a separate signal line also on a female BNC connector. The original video signal is looped through unchanged on a third female BNC connector. Such systems can take advantage of Extron technologies that depend on a separate sync input such as the Digital Sync Validation Processing (DSVP™) feature on the Extron CrossPoint Plus matrix switchers.

VSS 100

Part Number: 60-462-01
List Price: $200.00*

URL
www.extron.com/vss100

* Prices listed in US Dollars, valid for US sales only.

See more New Extron Products at InfoComm Booth #16074.

Digital Sync Validation Processing (DSVP™):

Verifying the Signal with DSVP—Providing Proactive Service and Support for Extron Matrix 12800 and CrossPoint Plus Matrix Switchers

Extron offers a variety of technologies to enhance and improve video images, but there's one that actually goes inside and helps troubleshoot a system, providing proactive service and support capabilities: Digital Sync Validation Processing (DSVP™).

Extron products featuring DSVP:

Matrix 12800 Matrix Switcher

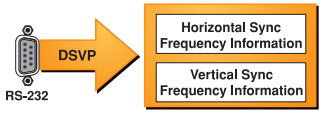
Flexible configurations for RGB, video, and audio (balanced/unbalanced) switching up to 128 x 128 with 375 MHz (-3dB) RGB video bandwidth, fully loaded.

CrossPoint Plus Matrix Switcher

20 I/O sizes for high-resolution computer-video and audio (balanced/unbalanced) switching applications with 425 MHz (-3dB) RGB video bandwidth, fully loaded.

VSS 100 Video Sync Separator

Separates sync from sources with video formats with embedded sync so that DSVP technology can be utilized.



By definition, DSVP works with RGBS or RGBHV video—signals where the sync is run separately from the video—by scanning all sync inputs, and obtaining the frequency of the horizontal and vertical sync signals. This information is then transmitted to a computer, touch panel, or other display system via RS-232 or ethernet. DSVP technology is built into Extron **Matrix 12800 Series** Matrix Switchers and **CrossPoint Plus Series** Matrix Switchers. The Extron **VSS 100** Video Sync Separator can be used to separate composite TTL level sync output for DSVP verification when using video formats with embedded sync such as RsGsBs, RGsB, component video, S-video, and composite video.

Problem Finder

With DSVP, problems can be tracked down much faster, even from remote locations, saving time and unnecessary maintenance calls. Monitoring a complex A/V system is easier with DSVP as any user or technician can quickly determine which inputs on the matrix are actually receiving signals and what type/resolution of signal is on a particular input.

Using RS-232 or a computer running the Extron matrix control software, DSVP can help to determine if an active signal is actually on an input, what the frequency/resolution of a signal is on a particular input, if a source has dropped out, or if a source has been changed. With such information, it is much easier to locate the cause of a lost signal. If DSVP shows that the signal at the source has dropped out, then the user knows the source side is the problem. If there is no signal at the projector and DSVP shows there is an active source on the input, then the user/technician knows the problem lies after the input of the matrix.

Consider the value of knowing that a different source is on an input than was expected. In big matrix systems, signal changes are often made without all the users or technicians being notified. Being able to find this information out via DSVP can save considerable time during troubleshooting.

System Monitoring and Active Updating of Touch Panels

DSVP can be used in conjunction with other information sources to allow a user to monitor and troubleshoot a complex matrix system with ease. Mike Leitensdorfer, President of

Communitronics, an A/V dealership in St. Louis, Missouri, recently hatched upon the idea of utilizing DSVP's powerful active updating capabilities within AMX touch panels.

To begin, Leitensdorfer determined that the easier the detection, the better the results. He reasoned that many end-users are not concerned with the horizontal and vertical scan rates; they just want to know if the signal is active or not. "The scan rate of the inputs really only benefits the technical staff," he said.

With that, he and his team set about to simplify the message. "We're using the CrossPoint Plus and asking for its read-out. With the RS-232 response, it sends horizontal and vertical read-outs. With the software, we've transformed the message by simply indicating whether or not a source is active or not active. If the source is active, we show an active button on the touch screen."

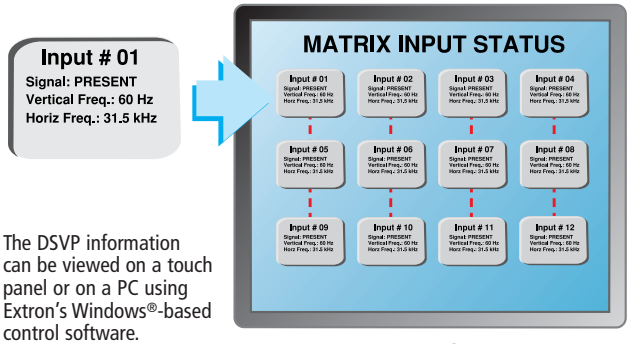
To illustrate the point, Leitensdorfer refers to the following example. "If you have two floor boxes—one at stage right and the other at stage left—and you have nothing plugged in either one, you won't see a button on the screen. If you plug a computer into stage left, the input button will pop up on the screen within five seconds. It lets you know it's an active source. If anything is unplugged, the button disappears from the touch screen. It's really that easy."

Leitensdorfer emphasizes how the DSVP feature keeps the screen real estate less cluttered with unnecessary data and information. Once the active input is determined, the user can concentrate on other aspects of the control system software. Best of all, there's no need to continue to query the status of the input.

Another benefit is that the user at the touch screen can easily determine the status of the system, isolate at what point a signal has dropped out, and most likely identify source changes, switching errors, and the like.

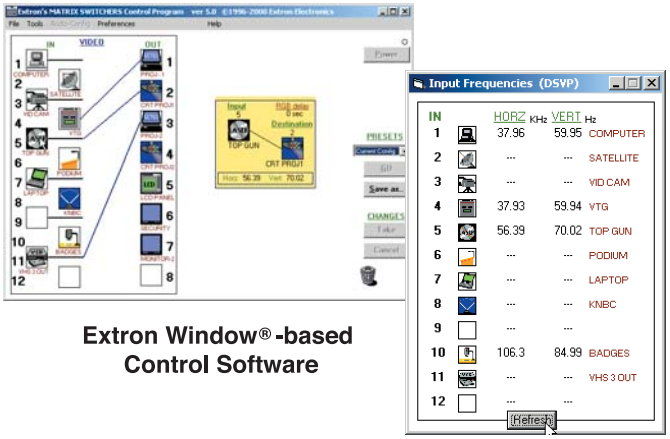
Leitensdorfer is keen to note that his trick also lends itself to monitoring a system remotely, even over the Internet. This opens up a realm of possibilities for long-distance troubleshooting and centralized monitoring. No matter how the system is set up, DSVP makes it much easier to detect and solve any problems that occur.

The Communitronics staff continues experimenting with the DSVP techniques. Leitensdorfer thinks this technology can improve many installations. "We foresee DSVP becoming a standard part of system integration. It saves time, resources, and money. And that's a benefit our industry will always welcome."



The DSVP information can be viewed on a touch panel or on a PC using Extron's Windows®-based control software.

Touch Panel Controller



Extron Window®-based Control Software

by Steve Somers, Vice President of Engineering

IR Control — The Invisible Frontier

How many of you grew up like me in a house with "the clicker"? Dad: "Steve, bring me the clicker. Perry Mason is about to start on channel eight... oh, thanks." <Click!> ker-chunk, ker-chunk, ker-chunk... <Click!> ker-chunk...

Perhaps I was fortunate. Most of my friends didn't have "space command" in their homes. And, while the clicker didn't need batteries, we did have to replace the springs once in a while and put up with that motorized, ratcheting mechanical tuner. What if we couldn't find the clicker? Through her own early research and development in remote control, Mom discovered that if she took the large soup spoon and struck it with the paring knife she could change channels.

Thus began the era of the remote control in the home. In the US, most all remote controls for TVs began as ultrasonic (above human hearing) controls. These mechanical controls with limited functions evolved into electronic ultrasonic remotes with additional functionality. Then, in the late 1970s, infrared light became the method of choice when light emitting diodes became available. Why infrared? What is infrared exactly?

I Am, Therefore IR

The light emitting diode is a marvel. In the 70s, integrated circuit (IC) development was in its infancy. One of the curious byproducts of activated ICs was that some portions would emit light while operating. Researchers could see this strange light emission under laboratory conditions using electron microscopes. By the late 70s, semiconductor channel structures were designed to emit light when small voltage potentials were applied. While quite large compared to current fabrication technology, these silicon channel structures translate to wide gaps, or long wavelengths that can generate energy in the infrared, or what we call the IR region.

This portion of the light spectrum is called "infrared" since it comprises the region between visible red and the microwave (radio) region. See **Figure 1**. The infrared region is relatively wide—extending from about 0.75 micrometers to over 100 micrometers. The most widely used infrared range for control is from 0.78 to 1.5 micrometers, or microns.

All objects not at 0° Kelvin (absolute zero) emit energy in the infrared region. Heat travels from one object to another via radiation, convection, or conduction. The sensation of heat is produced by infrared energy. While conduction

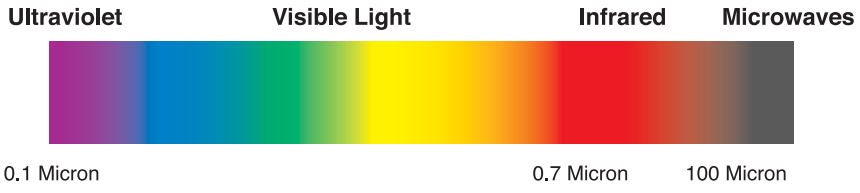


Figure 1. Infrared energy resides between visible red and microwave radio.

describes how heat moves through a solid, convection describes how heat moves through a liquid or gas. Of the three methods, radiation is the most powerful. Radiation moves at the speed of light and is the phenomenon we perceive in the dull red glow of the coals in a fire or the element of an electric oven. Unlike visible light which can be refracted, filtered, or reflected, IR propagation may be modeled by some properties of visible light, but also propagates via radiation, convection, and conduction.

Not the Lone Radiator

I think of IR control as "the invisible frontier." Why? IR control is a land of unsettled territory. The trail is strewn with various digital control protocols and methods. Early makers of IR remote controls developed unique control protocols and chip sets for their products. Latecomers to IR control must decide whether to use an available protocol or develop yet another of their own design. Some system protocols are skeletons of others which, over time and out of the necessity to avoid control interference with other brands, branch out in different directions like the old desert mesquite. Meanwhile, most peaceful folk are amassing a vociferous collection of these ray guns; not to mention that each modern household now contains a new "junk drawer", a veritable mass grave, housing the "dead" IR remote controls… a kind of contemporary Boot Hill.

At every turn of the system installation trail there can be outside interference in the form of IR noise, sunlight, fluorescent lighting fixtures, and heat sources. There are some organizations that, like the marshals of the old Wild West, are attempting to bring law and order in the form of standards to this necessary sector of systems control and integration. Who are these masked men?

One of them is IrDA-Infrared Data Association. This organization has developed standard intercommunications for two key application areas: data and control.

IrDA DATA

This is the popular two-way protocol for short range, high speed data exchange between enabled appliances, both portable and fixed installation. They claim application in over 300 million electronic devices currently. Data communication speed ranges from 9600 baud upwards in steps to 4 Mbps. This is a low power interface intended to auto-magically operate when two appliances are within range of one another…that range being at least one meter and upward of two meters. IrDA DATA is structured through a mandatory set of three protocols and a set of optional protocols. The optional set includes seven other functions providing specific exchange services and data handling facilities. Important attributes of this protocol set are automatic service discovery, device-to-device connection, data packet protection, and continuous bi-directional operation.

IrDA Control

This variation allows cordless devices such as mice, keyboards, game pads, etc. to interact with host devices. Important aspects of this protocol are minimum five meter range, bi-directional communication, up to 75 Kbps transmission rate, protected data packets, and utilization of a 1.5 MHz subcarrier. Similar in design to IrDA DATA, IrDA CONTROL uses a mandatory set of three protocols: PHY (Physical layer), MAC (Media Access Control), and LLC (Logical Link Control).

Even with new protocols and design improvements, every installation design using IR control must take into account the environment. IR receive sensors must be kept away from unwanted sources of ambient IR radiation, like sunlight exposure, incandescent lamps, and switched fluorescent light fixtures.

Infra-Shades

Ever wonder why infrared equipment typically has a dark red plastic window in front of the receiver? The receiver consists of a photodiode coupled with a bias circuit, a small amplifier, and perhaps, a demodulator. The photodiode's sensitivity curve, or optical bandwidth, includes the infrared region plus most, or all, of the visible spectrum, and possibly the ultraviolet portion as well. Allowing visible light and ultraviolet light energy to strike the photodiode will begin to make it conduct and, depending on the strength of these competing energy bands, will decrease the photodiode's sensitivity to infrared. If the diode is already in a conducting state due to other light energy, the incremental amount of response afforded by infrared reception may be incidental to the ambient current condition in the diode. The dark red filter blocks all ultraviolet and most all visible spectrum energy from reaching the photodiode. This situation returns the diode to a state of mild, or no, conduction until infrared energy passes through the red filter. Therefore, most all the diode's sensitivity is dedicated to infrared reception.

continued on next page

Seeing Like An Owl

Some cameras and camcorders can capture images in total darkness. How does this work? As stated previously, photo diodes and the charge-coupled devices (CCDs) used in cameras respond to a wide range of photon wavelengths and any number of photons striking the surface of a photo sensitive semiconductor produces a proportional amount of electron charge.

Camera CCD imagers may possess a spectral response from about 0.4 microns (blue) to about 1.050 microns (IR range). Additional processes will allow response to extend to the extreme ultraviolet range. Those who may own a popular camcorder that have the ability to shoot at night are utilizing such a device. The camcorder includes an IR LED that provides the IR light source for close range image capture. Additional illumination is obtained by the camera's sensitivity to the IR radiated by objects in its view.

Boulders Along The Trail

System designers have many control interface options. This article discusses IR control, but what about others? When would you want a hardwired interface over a wireless interface? Hardwiring a control interface is a good, solid approach when the presence and/or cost of wiring is not an issue, or the environment contains so many interference variables that may affect wireless operation. This type of control connection that makes use of the IR protocol is called an unmodulated IR system.

Most times, IR control involves directionality. The IR transmitter must be pointed line-of-sight at the receiver within a few degrees of normal. So, some variability in control reliability can occur. Systems designed with IR flooding transmitters, repeaters, and wide angle transmitters and/or receivers tend to be less directional and can overcome this limitation to a great extent. Controlling any device within an environment of high ambient light, including unshielded incandescent light sources, can be challenging for an IR interface. Ambient light sources will tend to desensitize the IR receiver. Continuous levels of infrared ambient energy will cause the receiver's AGC system to decrease receiver gain, thus making the system less sensitive to remote IR transmitters.

Fluorescent lamps typically have not emitted large amounts of IR energy. Historically, fluorescent lamps have required rather large ballast transformers which develop enough high voltage to cause the fluorescent tube to ionize internal gases to create ultraviolet emissions that energize the phosphor coating on the glass. The light energy bands emitted by those lamps are not as rich in IR as incandescent lamps. Today, however, there are new, compact fluorescent lamps replacing incandescent light bulbs of various sizes. Many of these light bulb replacements are very compact. How does this affect IR control?

Drive power for these lamps is being generated by very compact switching power supplies operating as high speed power inverters. Much like a regular switch mode power supply, many of these power inverters operate around 40 kHz which is within the operating frequency of many IR systems. In addition, the switching frequency combining with small amounts of the lamp's IR energy create an interfering signal that may cause false triggering of IR-controlled systems. At a minimum, this energy can interfere with an IR control transmission that may confuse the IR receiver.

Playing Five-Card Protocol

There are about five common IR remote control system protocols. Each utilizes some format of modulated carrier for data encoding. Virtually all equipment manufacturers use one of the five protocols. The carrier frequency is typically between 30 – 40 kHz, with a large percentage of the remotes using 38 or 40 kHz. The use of the carrier supports the ability of the receiver to be tuned to that specific frequency, thereby enhancing the immunity of the system to external noise or interference. Most receivers are tuned to about +/- 2 kHz of the carrier frequency.

Pulse Width Modulation (PWM) is commonly used to denote the difference between a data "1" and "0." In other words, the ON versus OFF time for communication of a zero is specifically different than that for a one. When the IR transmitter is actively communicating, it sends a burst of the carrier frequency that coincides with the required ON time followed by the required OFF time, or no burst, to signify either a one or zero. Refer to **Figure 2** to see the relationship between the basic data and the way in which it is transmitted via modulated carrier. The

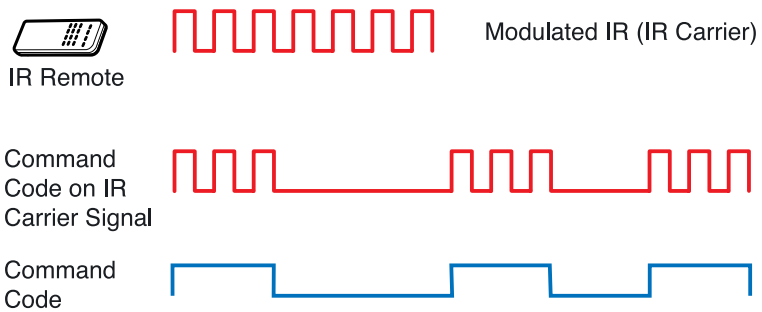


Figure 2. Data is transmitted via bursts of carrier ON and carrier OFF.

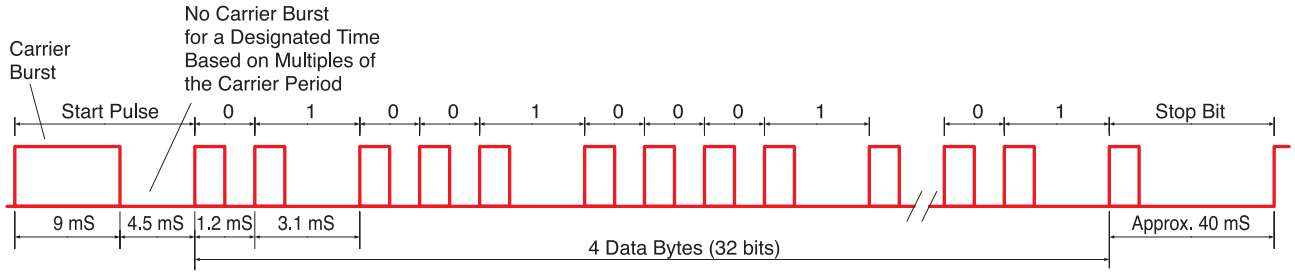


Figure 3. An example of an IR data transmission and its construction.

number of cycles of carrier signal corresponding to the burst period representing the first part of a ONE or ZERO may be of the same time interval with the delineation between the two being the number of carrier cycles for which no burst is sent. The carrier burst ON time along with the carrier burst OFF time is called a "burst pair."

Data bit timing is determined by taking the reciprocal of the carrier frequency and multiplying by the prescribed number of carrier cycles for which we wish to have represent a data bit. For example, the reciprocal of 38 kHz is about 26.3 microseconds (one carrier cycle). In one of the most popular IR remote protocols, a ONE is represented by 22 cycles of carrier ON followed by 96 cycles of carrier OFF. So, a logical ONE burst pair timing ratio is 22, 96. The zero burst pair is communicated by 22, 24. Therefore, the time to communicate a ONE is (22+96) x 26.3 µS = 3.1 mS and the time to send a ZERO is (22+24) x 26.3 µS = 1.2 mS.

Now, creating an actual transmission involves more than just sending the data. Most IR transmissions utilize a "start" pulse period to "wake up" the IR receivers and provide them the time to adjust to the incoming signal strength via their automatic gain control (AGC) circuit. Demodulation is optimized by setup of the system gain and this, in large part, is responsible for the system's noise immunity. In our example, the start pulse burst pair is 341, 171 which is a fairly long time interval, about 9 ms followed by 4.5 ms dead time. Following this start pulse are the data bits starting with the least significant bit (LSB) first. After all data bits are sent, there is a "stop" pulse burst pair of 22, 1427 which signifies the end of transmission. See **Figure 3** above.

In this example, the full data transmission is constructed of four bytes. The first and second bytes signify the device address. The third byte identifies the function command and the fourth byte is the inverse of the third. The addition of the third with the fourth should equal 255. If this does not occur when the data is decoded, a transmission error is detected. Therefore, the entire transmission is 34 burst pairs including start, data, and stop bits. The total time required for the transmission varies depending on the complement of data ones and zeros. There is a nominal 40 ms rest period between transmissions. If a particular function key, say volume up, is continuously pressed, the transmitter may send a repeat command about every 180 mS. The receiver decides when to use the repeat command. Battery power is saved in the transmitter by using a repeat command code and not sending an entire code string when a key is held for long periods.

The receiver "sees" the carrier burst and, since we know that radio signal detectors convert a carrier without modulation to a DC voltage level, the output of the receiver's demodulator provides a high level when the carrier is detected and returns to low level when no carrier is detected. This is simple burst carrier demodulation. The microprocessor that ultimately must make sense of all the data bits looks for the large difference in data periods represented by the one and the zero. The fact that the time interval for a one is several times longer than a zero makes for easy recognition. Once detected, the data bits are processed like other data.

Long Live The Clicker

It seems wherever there is an electronic appliance today, there's an IR remote to operate it. How many remote controls do you own? IR control has become an essential commodity. And, even if we really don't need the remote control for every electronic gadget we buy, we think we do. Let's face it, IR remotes have changed the way we interface with electronic devices. The functionality expands and continues to improve. Imagine – now that we have low cost sound synthesis too, maybe we could incorporate that into these IR remote systems to re-create "the clicker" and the sound of that old motorized RF tuner… how technically nostalgic.

Tri-Level Sync in a Bi-Level World

The advent of HDTV has brought a number of new concepts and technologies with it. One of the concepts put into practice is tri-level sync. Tri-level sync solves some traditional problems found with bi-level sync. Although tri-level sync is preferable with the new television system, we still find ourselves interfacing to systems capable of handling only bi-level sync. Therefore, the need exists to convert from tri-level to bi-level sync on occasion. This Tech Corner will acquaint the reader with the new tri-level sync format and its relationship to bi-level sync.

Bi-Level Sync

Bi-level sync has been the standard synchronization signaling method for all forms of video including computer video, composite video, S-video, and component video. Bi-level refers to two levels. For sync, this means a pulse having two voltage levels (a high and low level, relatively speaking), hence the name. Systems using bi-level sync are edge triggered. Typically, the negative-going, leading edge of the pulse triggers the synchronization process (**Figure 1**). Display systems must "look" for this negative going edge in order to identify the moment in time when to re-sync the raster scan process. Most will recall that computer graphic cards sometimes output positive-going sync. Positive-going sync signal the display that the graphics line rate has changed to a new format.

Looking for the sync pulse has always been one of the "trickiest" of tasks for the display signal processor. It requires careful biasing of the sync processing circuitry so that the sync pulse is made as distinguishable as possible from the other voltage levels within the video signal. As part of the video signal, bi-level sync introduces an unwanted DC component (**Figure 2**). In processing of composite, S-video, or component video the DC component is not too troublesome and can easily be managed as part of the normal sync separation routine. When bi-level sync is introduced onto RGB video channels, the process is more complex. In some systems, sync is introduced on the green channel only. This requires that the sync separation process be ultra clean; in most cases, however, it is not. Usually a very narrow sync pulse remains. Residual sync results from incomplete removal of the sync information from a video processing channel. Sync is typically imposed on the green channel in RGsB systems. High definition component video signals contain sync on each channel. Depending on the performance characteristics of the DC restoration circuitry within the video processing channel, some or all of the sync pulse may not be removed from the green channel. Residual sync causes the green channel to bias incorrectly with respect to red and blue at the display CRT, thus causing a color shift. Even in RGB systems where sync is introduced on all three channels, there is some difficulty with maintaining consistent processing between the three channels. Again, small DC shifts in the black level caused by residual sync can disturb the color balance or gains of the video channels.

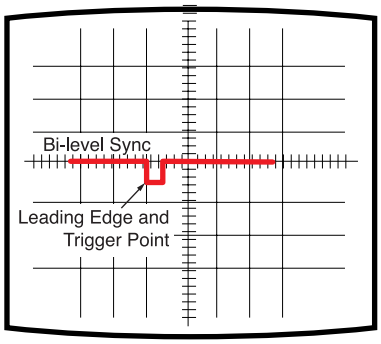


Figure 1

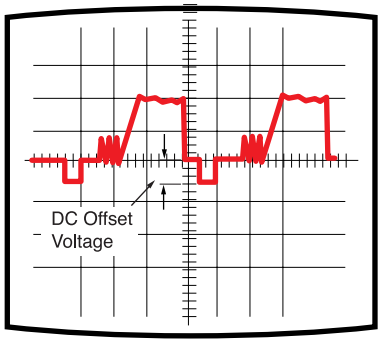


Figure 2

A significant amount of power is used by the broadcast transmitter to send the sync pulse. Polarity of the video signal is designed to minimize the amount of power used to transmit sync. And, while we have not transmitted analog versions of high definition television terrestrially, early testing done during HDTV development demonstrated a need to improve the management of

synchronization in the new television system. Tri-level sync eliminates the DC component and provides a more robust way to identify the coming of synchronization in the signal chain.

Tri-Level Sync

Tri-level sync was introduced with the SMPTE 240 analog HDTV standard. Previous to that, the early HDTV 1125/60 systems used various synchronization waveforms, as provided by various 1125/60 equipment manufacturers. The creators of the later SMPTE 240 HDTV standard searched for a standard sync waveform that would ensure system compatibility. The goal was to provide more precise synchronization and relative timing of the three component video signals. HDTV component video has sync present on all three channels: Y, Pb, and Pr. In addition, the sync structure needs to be resilient enough to endure multigenerational recording and other noisy situations. Tri-level sync met the requirements.

Figure 3 shows a graphic representation of a tri-level sync signal. As defined by the SMPTE 240 standard, the pulse will start at the zero volts (specified black level) and first transitions negative, to -300 mV (+/- 6 mV). After a specified period, it transitions positive + 300 mV (+/- 6 mV), holds for a specified period and then returns to zero or black level. The display system "looks" for the zero crossing of the sync pulse. Each half of the tri-level sync pulse is defined to be 44 samples (reference clock periods) wide, for a total sync pulse width of 88 samples. The rise time is defined to be four samples wide +/- 1.5 samples.

This symmetry of design results in a net DC value of zero volts. This is one major advantage of tri-level sync. This solves the problem of a bi-level signal introducing a DC component into the video signal. The elimination of DC offset makes signal processing easier. Within our new digital television system, the unique excursions of the sync derive numerical values that are easily coded and easily recognized within the digital transmission channel.

Converting Tri-Level to Bi-Level Sync

There are times when it is necessary to convert tri-level sync to bi-level sync such as when component HDTV is converted to RGBHV. A format converter, like Extron's CVC 200 will perform the conversion of tri-level to bi-level sync as part of the component HDTV to RGB conversion process. Traditional displays and projectors not capable of handling tri-level sync will "see" sync information in the traditional way.

Any time signals are converted from one format to another; the relative timing of the conversion is of prime importance. The introduction of timing error, once introduced into a signal channel, is difficult to repair. The positioning of tri-level sync with respect to active video and the wider excursion from peak negative (-300 mV) to peak positive (+300 mV) provided by this format establishes easier sync detection and more consistent triggering through the use of the zero crossing. When converting bi-level sync, the leading edge of the bi-level pulse should be aligned using the zero crossing of the tri-level sync. By doing so, the bi-level sync pulse will provide leading-edge trigger at the proper point and correct timing will be maintained. **Figure 4** shows the relationship of a tri-level sync signal to a properly-timed bi-level sync signal.

Anyone involved in interfacing video signals will, at some point, encounter the need to convert tri-level sync to bi-level sync. As time progresses, a growing group of displays and projectors will be designed to cope directly with these format differences. In the meantime, technicians should be aware of the differences in sync construction and the proper timing relationship for conversion between these two common formats.

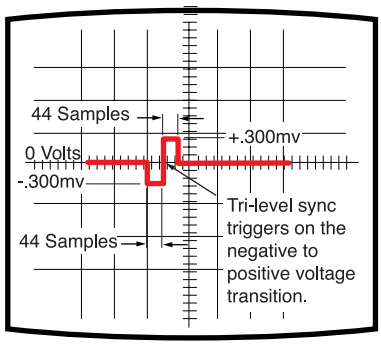


Figure 3

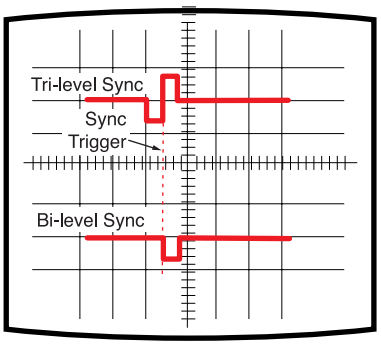


Figure 4

ExtroNews publishes information about new products that are relative to the Extron product line in the New News section. Also listed are the recommended Extron products that will complement these new display devices in their targeted applications. If you would like a new product to be reviewed for New News, please send a press release, literature, contact name, and a four-color slide or photo to: **New News c/o Pat Charlton, Extron Electronics, 1230 South Lewis Street, Anaheim, CA 92805, phone: (714) 491-1500, ext. 6244 or e-mail to pcharlton@extron.com.**

Christie Digital Systems
www.christiedigital.com

Christie Digital Systems introduced three new mid-sized LCD projectors in their Vivid LX line. The **Vivid LX20** weighs 8.6 lbs and delivers 2000 ANSI lumens with a native XGA (1024 x 768) resolution. The Vivid LX20 features auto-setup functionality allowing fast plug and play set-up to RGB computer signals (VGA to SXGA) and uses a digital visual interface (DVI) to offer digital connectivity to computer video cards, composite video, S-video, and component video inputs. The **Vivid LX26** weighs 17.4 lbs and delivers 2600 ANSI lumens and 500:1 contrast ratio. The **Vivid LX35** weighs 18.5 lbs and delivers 3500 ANSI lumens with XGA (1024 x 768) native resolution and offers a 800:1 contrast ratio. The Vivid LX26 and Vivid LX35 offer a number of analog and digital inputs supporting various video and data formats as well as analog HDTV sources. The suggested USD list price is $5,995 for the Vivid LX20, $8,995 for the Vivid LX26, and $12,995 for the Vivid LX35.

Recommended Extron product:
Adding the Extron MediaLink™ System will allow easy remote control of the Vivid LX line of projectors. The flexible **MLC 206 MediaLink Controller** is an intuitive, intelligent remote control panel that provides power on/off, input switching, and volume control for the Vivid LX line as well as room control. For expansion of an A/V system, the MLC 206 can be coupled with a variety of versatile MLS MediaLink Switchers, which allow additional inputs to be added to the Vivid LX line.

Vivid LX26

Clarity Visual Systems
www.clarityvisual.com

Clarity Visual Systems recently introduced the 40 inch Wildcat family (**WN-4030-S** & **WN-4030-SE**) rear-projection displays based on their Advanced Performance Liquid Crystal Display (AP/LCD™) technology. The two Wildcat models use the same native SVGA (800 x 600) optical engine, but the Wildcat SE adds advanced signal processing electronics for greater input flexibility and high resolution image scaling. This enhancement lets the Wildcat SE accept inputs with resolutions up to XGA (1024 x 768) for stand-alone applications and up to UXGA (1600 x 1200) resolution using Clarity Big Picture™ processing for wall applications. Both models accept computer signals on a 15-pin HD or DVI-D connector. An optional Video Input Module is available for composite video and S-video formats. The units can be stacked in multiple horizontal and vertical configurations to create effective displays that can be controlled or updated instantaneously from anywhere. The pricing in the US starts at $9,995.

Recommended Extron product:
The Extron **USP 405 Universal Signal Processor** can zoom an image up to 200% and allow panning across the screen. The image can be zoomed in and out up to 200% while keeping the image in its original aspect ratio. With its zooming capabilities, a single video signal can be ran through four USP 405s and divided into quadrants to create a professional video wall effect across four display devices.

WN-4030-SE

Digital Projection, Inc.
www.digitalprojection.com

Digital Projection, Inc., recently announced its THUNDER Displays line-up of projectors, featuring three-chip DLP™ technology by Texas Instruments. The THUNDER **10000sx** features a SXGA (1280 x 1024) native resolution and offers 9500 ANSI lumens. The THUNDER **9000gv** features XGA (1024 x 768) native resolution and 10,000 ANSI lumens. Both models are compatible with resolutions up to 1600 x 1200. Inputs on these projectors include composite, S-video, component, HDTV, RGB/Digital DFP and computer. Both units offer optional HD-SDI and SD-SDI inputs. The suggested USD list price is $86,995 for the THUNDER 10000sx and $78,995 for the THUNDER 9000gv.

Recommended Extron product:
For rental and staging events, the **SGS 408 Seamless Graphics Switcher** can be combined with the THUNDER 9000gx or THUNDER 10000sx to put on the show. The seamless cuts, dissolves, wipes, and titles of the SGS 408 bring professionalism and style to live presentations. The SGS 408 incorporates two video scalers plus a digital video mixer and can manage component as well as any type of RGB input from video sources up to 1600 x 1200 resolutions. When using the SDI input of the THUNDER projectors, the Extron **Digital CrossPoint DXP** line of Serial Digital Interface (SDI) matrix switchers allow multiple SDI signals to be routed to the projector.

THUNDER 9000gv

Hitachi America, Ltd.
http://global.hitachi.com

Hitachi America, Ltd. has recently announced the **CP-S370W**, a bright ultra-portable LCD projector designed for educators and budget-conscious consumers. The CP-S370W offers 2200 lumens brightness and a native (800 x 600) SVGA resolution. It features two RGB inputs, as well as component video, composite video and S-video inputs. This connectivity enables presenters to use a variety of multimedia equipment, including PCs, DVD players, and more. It also features an RGB output, allowing teachers to view presentations on a desktop monitor, without turning away from the classroom. The CP-S370W features Hitachi's Whisper Mode, allowing users to reduce the fan noise to near-whisper levels. The CP-S370W has a suggested list price of $6,995.

Recommended Extron product:
Adding the new Extron MediaLink System will allow easy remote control of the Hitachi CP-S370W projector. The **MLC 206 MediaLink Controller** is the cornerstone of the MediaLink System. The flexible MLC 206 is an intuitive, intelligent remote control panel that provides power on/off, input switching, and volume control for the CP-S370W as well as room control. For expansion of an A/V system, the MLC 206 can be coupled with a variety of versatile MLS MediaLink Switchers, which allow additional inputs to be added to the CP-S370W.

CP-S370W

Mitsubishi
www.mitsubishi-presentations.com

Mitsubishi has recently announced the **XD200** DLP projector. At 2000 ANSI lumens and 6.6 lbs, the XD200 ColorView™ is the first DLP projector that provides Mitsubishi's proprietary ColorView technology along with sRGB, a Microsoft color standard. It offers a native XGA (1024 x 768) resolution and 450:1 contrast ratio. This projector includes inputs for a wide selection of video signals including composite, S-video, component, and computer signals with resolutions up to 1280 x 1024. The XD200 has a MSRP of $6,995.

Recommended Extron product:
For home theater installations using the XD200, the Extron **DVS 204 Digital Video Scaler** offers an affordable switcher and scaler solution. Using the DVS 204, up to four video sources can be switched. Inputs one through four consist of an RGB input as well as accommodate component video, S-video, and composite video. The output of the DVS 204 can be scaled to the native resolution of the XD200 using proprietary Extron scaling technologies including Dynamic Motion Interpolation (DMI™), 3:2 and 2:2 pulldown detection, True Rate™, and Accu-RATE Frame Lock (AFL™).

XD200 Colorview™

Sharp Electronics Corporation
www.SharpLCD.com

Sharp Electronics Corporation has recently introduced the **Notevision M20X** and **Notevision M25X** DLP™ projectors. They are slim, compact, and weigh 5.8 lbs each. The Notevision M25X is a wireless projector using IEEE 802.11b wireless LAN technology and an exclusive new vector quantization (VQ) technology making it possible to compress and decompress still images with high compression rates and high image quality. Both models offer a native XGA resolution and 1900 ANSI lumens brightness. They are compatible with virtually any computer source, including PC, Mac, or Workstation through its DVI-I input, as well as with video sources such as DVD, HDTV, VCR, or video game stations. The NotevisionM20X has a list price of $5,295 and the Notevision M25X has an estimated suggested price of $5,995.

Recommended Extron product:
For either of these projectors, the **P/2 DA1**, also known as "The Peaker," is the ideal product to ensure a high quality presentation. The P/2 DA1 peaks or drives the video output of the laptop or PC. It also restores the low level sync found on many laptops and compensates for long cable runs and poor quality cable. The P/2 DA1 is available in a 110V, 220V, and USB version. The USB version obtains its power from the USB port on the laptop or PC. The Peaker or P/2 DA1 gives added confidence to the presenter on the go.

Notevision M20X

ISM Series

Integration Scaling Matrix Switchers with Audio

The Extron ISM Series consists of two Integration Scaling Matrix Switchers: the ISM 182 and ISM 482. Both are eight input, two output matrix switchers with built-in scalers. All eight inputs are fully configurable for RGBHV, RGBS, RGsB, component video, S-video, or composite video on female BNCs. The ISM 482 also accepts HDTV to facilitate future system expansion or projector upgrades. Both models include two independent, high-resolution, audio/video outputs with built-in, high performance video scalers. The ISM 182 outputs 15 different scaled rates up to 1024 x 768 while the ISM 482 features 33 scaled output rates up to 1365 x 1024 including HDTV. Each output is available on a 15-pin HD connector and five BNCs.

ISM Series Key Features

- Eight inputs, two outputs
- Integrated scalers for each output
- Extron scaling technologies: 3:2 and 2:2 pulldown detection, Dynamic Motion Interpolation (DMI™), and Accu-RATE Frame Lock (AFL™)
- Aspect ratio conversion capabilities
- Test patterns, RGB delay, and audio breakaway
- RS-232, IR, and Ethernet control options

The Extron ISM Series combines switching and scaling in one box—perfect for applications utilizing two displays with different resolutions. This would include presentation applications such as boardrooms, conference rooms, classrooms, courtrooms, churches, and auditoriums. Additionally, the ISM series is effective in videoconferencing where multiple sources fed into dual displays is the norm.

Each matrix also provides switching of balanced and unbalanced stereo audio on eight, 3.5 mm captive screw connectors. Audio signals are, in turn, output (balanced/unbalanced) on two, 3.5 mm captive screw connectors. Audio breakaway is also included and enables the audio signal to be separated from the video signal to switch either the video only or the audio only.

Applications

In one instance, an ISM 482 switcher may be used in a boardroom that utilizes an LCD projector with a native resolution of 1280 x 1024 and a touch-screen control panel mounted in a podium that accepts 640 x 480. Additional sources may include a laptop, VCR, DVD player, and document camera. The second output allows the presenter to view an input on the touch panel before switching it over to the main display. One output of the switcher is able to scale to the native resolution to the projector, while the other output is able to scale to the native resolution to the touch panel. Unique to the ISM is how it is able to preview the image at a lower resolution

Extron ISM 482 is ideal for large presentations.
Photo courtesy of A&V Company-Events Division.

while switching the signal to the other display at a higher resolution.

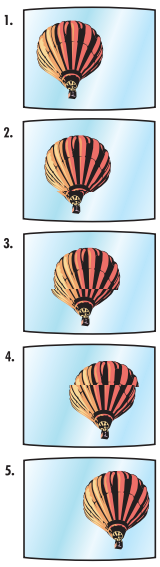
In another instance, there are two conference rooms with a centralized control system between them. One room is equipped with a projector that accepts a resolution of 1024 x 768 while the other room has a plasma with a resolution of 852 x 480. The ISM enables the presenter to not only switch the signal, but to also scale the signal to match the native resolution of either display. By adding networked PCs into each room, the presenter has the option of utilizing the ISM's Ethernet capabilities with customized Web pages for added control.

Built-in Scalers

The technology behind the ISM can be found in its built-in scalers. Proprietary Extron scaling technologies enable the ISM to optimize higher image quality. **3:2 and 2:2 pulldown** detection helps maximize image detail and sharpness for NTSC or PAL sources originating from film. 3:2 pulldown detection for NTSC and 2:2 film detection for PAL is an advanced film mode processing technique. The ISM Series uses 3:2 pulldown and 2:2 film detection to match film to video frame rates for smoother and more properly aligned film-to-video conversions. In the case of 3:2 pulldown detection for NTSC, it surpasses basic scan doubling or quadrupling techniques in optimizing image quality without introducing motion artifacts.

Dynamic Motion Interpolation (DMI™) is an advanced detection and compensation method which results in a superior level of image enhancement with no loss of image fidelity. DMI enables the ISM to measure and compensate for motion artifacts, such as jaggies, that can distort an image when video is de-interlaced. The DMI process delivers the best aspects of still and motion algorithms and introduces a new level of image enhancement capability without loss of image fidelity. With DMI, the ISM is able to provide superior image quality.

Outputs can be scaled using **Accu-RATE Frame Lock (AFL™)**, a patented technology exclusive to Extron which solves frame rate conversion issues experienced when input and output refresh rates differ, and cross-over results in a glitch or image freeze. This is most noticeable with high motion content such as camera panning. To solve this issue, AFL locks the output frame rate to the input frame rate.



Without AFL, image tearing is present in this series of images

Triple Action Switching™ provides RGB delay which blanks the screen when switching to a new source. The new sync signals precede the RGB signals, so there is no glitch shown during the transition. Time delay between RGB and sync signals is adjustable up to five seconds.

without Triple-Action Switching™

with Triple-Action Switching™

In addition to the Extron proprietary technologies, the ISM's built-in scalers have the ability to horizontally and vertically resize the video image to match a specified aspect ratio, filling the display, and improving the overall perception of the displayed image. Each input includes three aspect ratio presets, allowing compatibility with virtually any display format.

Each ISM switcher has ten test patterns including a crop pattern, cross hatch, 16 bar grayscale, color bars, alternating on/off pixels, ramp, 4 x 4 cross hatch for use with video walls, and three aspect ratio patterns for setting up letter-box DVDs. Test patterns aide in preliminary picture set-up, helping to maximize the potential of the image while minimizing image artifacts and other noise that occurs during signal processing.

Taking Control

For control, both the ISM 182 and the ISM 482 come standard with the QuickSwitch Front Panel Controller (QS-FPC™), which allows for touch-of-a-button input and output selection directly from the front panel. With the Extron QuickSwitch technology, there is no need to conquer a steep learning curve when mastering the I/O routing control of a matrix switcher. The intuitive QS-FPC uses a tactile front panel button for each input and output. For any routing changes, just push a button to select or deselect its input source or output destination.

continued on next page

Both models also include RS-232 capability. The unique advantage of RS-232 control is the Extron Simple Instruction Set (SIS™). SIS is provided for RS-232 control via Extron's Windows®-based control software or a third-party control system. Extron ships the software with every matrix switcher. This icon-driven software uses a graphical, drag-and-drop interface to make I/O configuration and other customization functions simple and convenient.

Direct IP/Ethernet/Internet Support

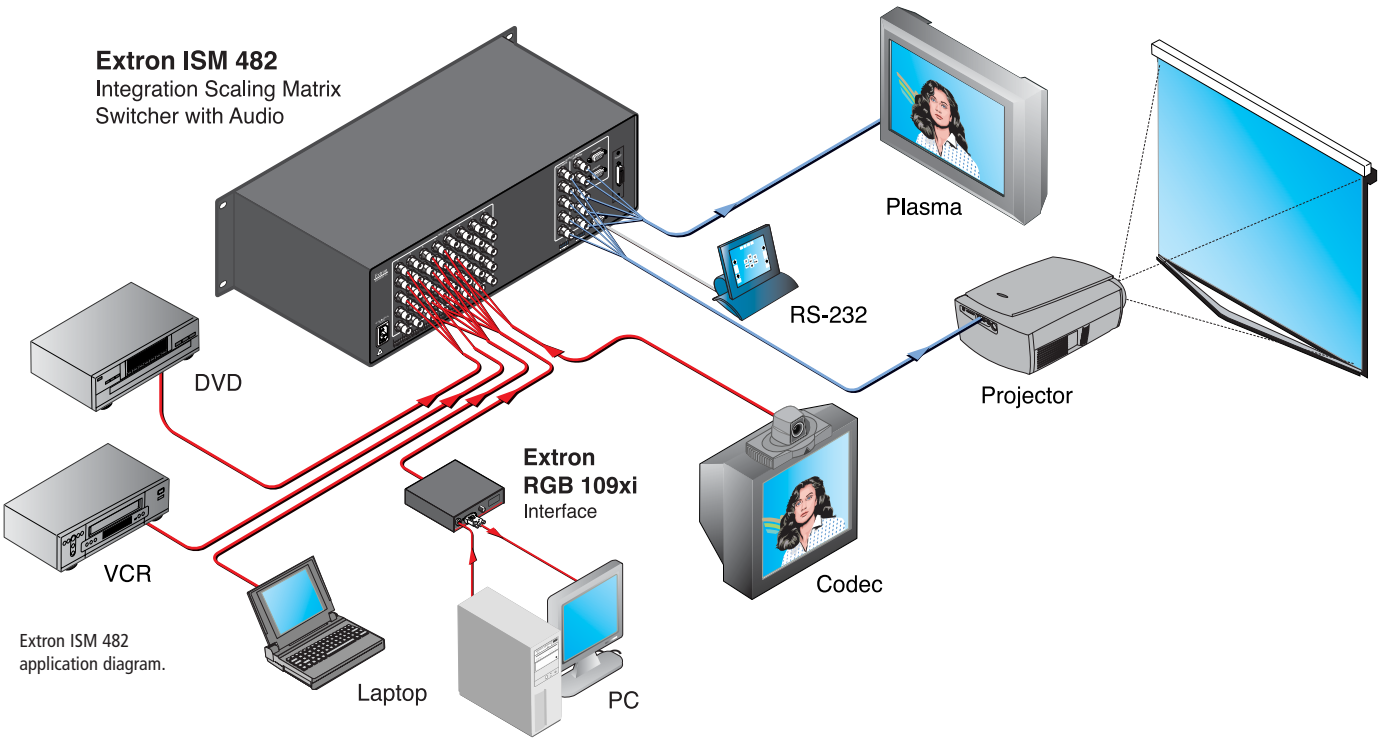
Another innovative feature found on the ISM series is browser-based support via TCP/IP, the primary supported protocol (communications method) on the Internet. Extron Direct IP provides connectivity via any Ethernet network or TCP/IP connection. In other words, IP control of the ISM series can be accessed anywhere on the network, or even over the Internet.

Extron IP control also enables a user to monitor the ISM over the World Wide Web. Essentially, the ISM becomes a Web server hosting an embedded Web page. The Web page, in turn, can be displayed on an Internet browser. Custom-made HTML pages or Java applets can also be created with off-the-shelf web page development software programs for added functionality.

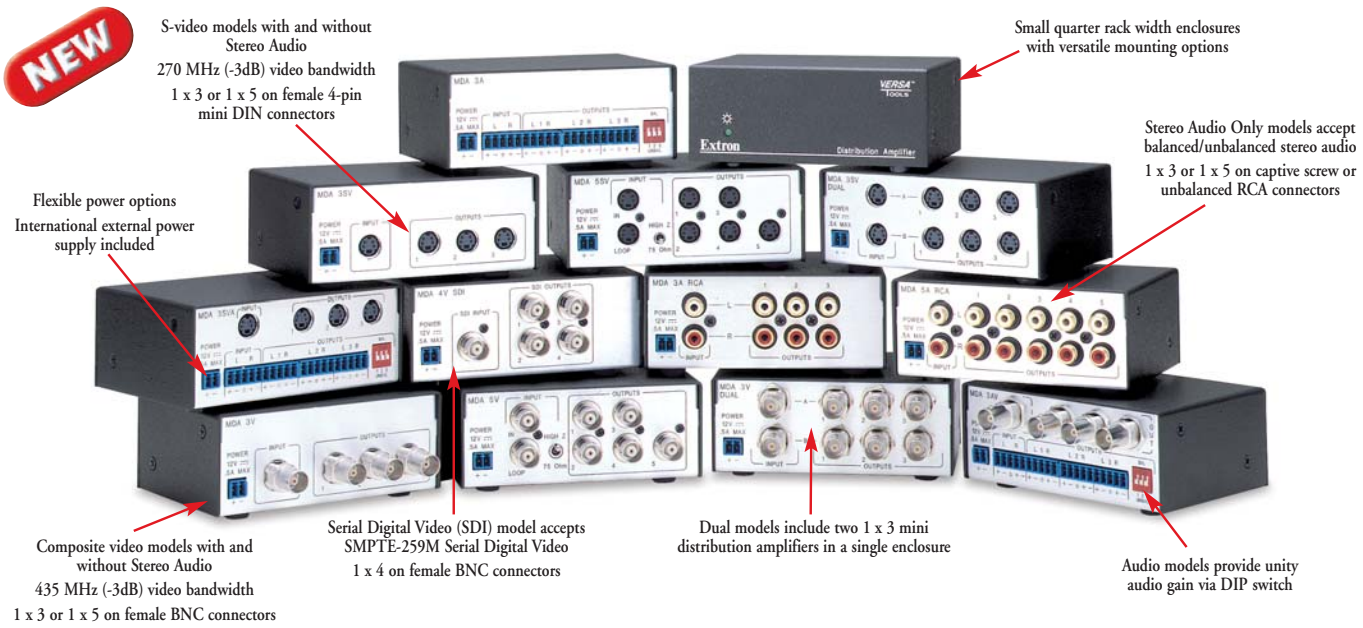
And More...

Along with the array of scaling and control features, the ISM series also includes 16 auto-memories per input. These memories save sizing, centering, detail, contrast, and brightness information for each source. Automatic recall of presets can save an enormous amount of time and effort in fine-tuning displayed images.

Housed in a rack-mountable, 3U high, full rack width metal enclosure, the ISM 182 and ISM 482 are multifunctional and flexible tools that no presentation system should be without.



Extron ISM 482 application diagram.



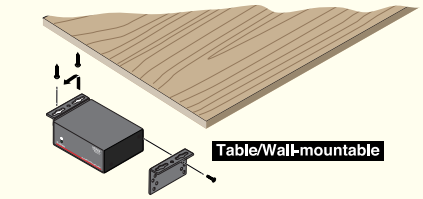
Extron® VersaTools™

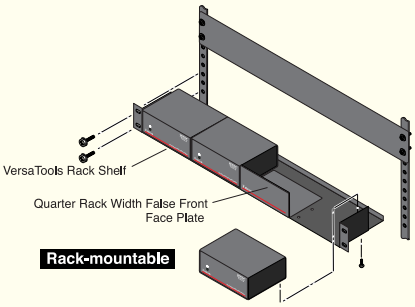
Small Miracles From Extron

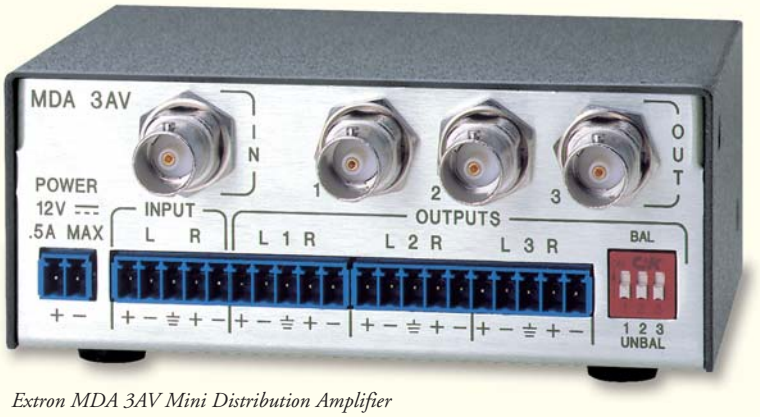
VERSA™ TOOLS

Extron introduces **VersaTools**, a new line of compact, versatile A/V products. With durable, quarter rack width enclosures, quality components, flexible mounting options, and straightforward functionality, VersaTools really can help save the day in a wide range of A/V applications. These small and versatile system products are perfect solutions for the toughest small problems encountered in everyday systems.

First in the VersaTools line are a series of 12 Mini Distribution Amplifiers (MDAs). All VersaTools MDAs are stand-alone, rack, projector, or under-desk mountable and ship with an international, external 100-240 VAC power supply. The Extron P/S 100 can also be used to power the MDAs. Audio models have unity audio gain (fixed on RCA models and selectable on captive screw audio models).







Extron MDA 3AV Mini Distribution Amplifier

www.extron.com/2/versatools

Watch for more VersaTools product introductions soon!

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Tweeker Use #64

Cork Remover

Joe Baran of Video Exhibits Group in Windham, CT, uses his tweeker to remove broken corks and cork sediment from 20 year old wines. "Like tweeking an old CRT projector, I use the tweeker to adjust angles, making the cork easier to remove," Joseph explains. Then he sits back, relaxes, and enjoys a nice glass of 1966 Chateau Margaux with the latest edition of ExtroNews.

Send us a photograph and brief explanation of how you use the Tweeker.

If we publish it in a future issue of ExtroNews, we'll give you a free **VTG 150.** Please send entries along with contact information to:

Extron Tweeker Contest
1230 South Lewis St.
Anaheim, CA 92805.

Or e-mail a high resolution photo and explanation to tweeker@extron.com

Extron Institute Upcoming Schedule, 2002

May 27-28	The Netherlands
June 15-16	Las Vegas, NV
June 24-25	The Netherlands
July 11-12	Anaheim, CA
July 11-12	Singapore
July 22-23	San Fransisco, CA
July 24-25	San Fransisco, CA
Aug. 8-9	Anaheim,CA
Aug. 19-20	Boston, MA
Aug. 21-22	Boston, MA
Sept. 5-6	Anaheim, CA
Sept. 5-6	Singapore
Sept. 16-17	Minneapolis, MN
Sept. 18-19	Minneapolis, MN

Upcoming Tradeshows, 2002

June 12-14	INFOCOMM	Las Vegas, NV
July 24-26	INFOCOMM Japan	Tokyo, Japan
Sept. 25-30	Photokina	Köln, Germany
Sept. 27-29	CEDIA	Minneapolis, MN

Extron® Electronics
1230 South Lewis Street
Anaheim, CA 92805

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We welcome your comments and contributions! Please submit ideas to:

Extron Electronics, USA
1230 South Lewis Street
Anaheim, CA 92805
Phone: 714.491.1500 or 800.633.9876
Fax: 714.491.1517

Extron Electronics, Europe
Beeldschermweg, 6C 3821 AH Amersfoort
The Netherlands
Phone: +31.33.453.4040 or +800.3987.6673
Fax: +31.33.453.4050

Extron Electronics, Asia
135 Joo Seng Road #04-01
PM Industrial Building
Singapore 368363
Phone: +65.6383.4400
Fax: +65.6383.4664

Extron Electronics, Japan
Daisan DMJ Bldg. 6F, 3-9-1 Kudan Minami
Chiyoda-ku, Tokyo 102-0074
Japan
Phone: +81.3.3511.7655
Fax: +81.3.3511.7656

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