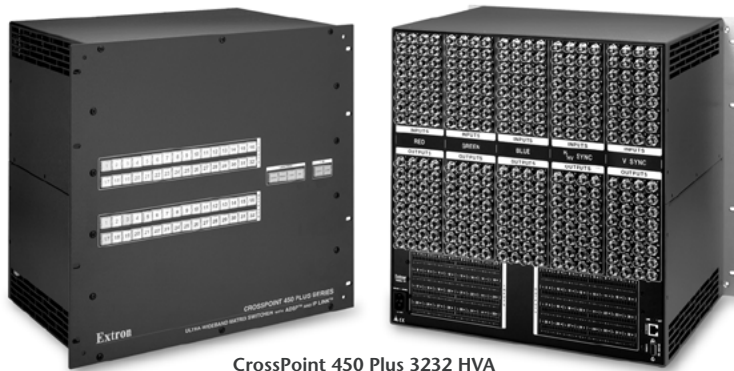


CrossPoint 450 Plus Series

ULTRA-WIDEBAND MATRIX SWITCHERS
WITH ADSP™ AND IP LINK®
FOR RGB AND STEREO AUDIO



CrossPoint 450 Plus 3232 HVA

The Extron CrossPoint 450 Plus Series of Ultra-Wideband RGBHV matrix switchers is designed to deliver exceptional performance in the most demanding, very high resolution computer-video and audio routing systems. Twenty-four models in 12 popular I/O sizes feature the highly efficient, highly reliable matrix switcher architecture that has been the hallmark of Extron engineering for more than a decade.

- 24 models with I/O sizes from 24x12 to 64x64
- Ultra-wideband 450 MHz (-3 dB) RGB video bandwidth, fully loaded
- Extremely flat frequency response - ± 1.0 dB from 0 to 130 MHz
- Highly efficient, fan-free design – most models
- Low power consumption
- ADSP - Advanced Digital Sync Processing technology
- DSVP™ - Digital Sync Validation Processing
- Triple-Action Switching™ for RGB Delay
- I/O rooming and grouping
- Audio input gain and attenuation
- Audio output volume control
- Audio breakaway
- Switches balanced and unbalanced audio
- Global presets for storing commonly used switching configurations
- QuickSwitch™ Front Panel Controller with tri-color backlit buttons
- RS-232/RS-422 serial control
- IP Link Ethernet monitoring and control



Extron® Electronics

www.extron.com

DESCRIPTION

Now in its fourth generation of design, the Extron CrossPoint 450 Plus Series of Ultra-Wideband RGBHV matrix switchers is the A/V system designer's first choice for the most demanding high resolution computer-video and audio routing systems, where no-compromise switching between sources is mandatory.

Available in twelve fixed I/O sizes from 24x12 to 64x64, the CrossPoint 450 Plus Series is the ideal solution for command and control operations, corporate and university CAD/graphics development centers, bio-medical imaging and training facilities, financial services, and other mission-critical system designs. The CrossPoint 450 Plus Series is also the logical choice for maximizing system performance in demanding A/V system designs with multiple levels of signal processing.

Ultra-wideband Performance

The CrossPoint 450 Plus Series is engineered with a minimum of 450 MHz (-3 dB) RGB video bandwidth, fully loaded, when one input drives all outputs. The performance of the switcher is further enhanced by remarkably flat frequency response in the critical portion of bandwidth curve, ± 1.0 dB between 0 and 130 MHz. This underscores the switcher's consistent performance, with minimal signal loss or gain across the frequency spectrum, as seen in Figure 1.

Flat Frequency Response

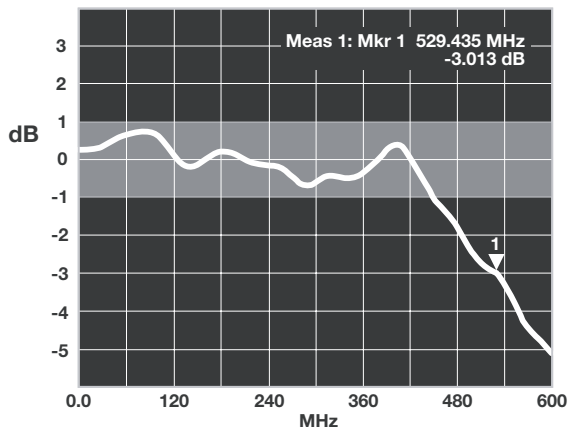


Figure 1 - Actual sweep from a CrossPoint 450 Plus 6464 Ultra-Wideband Matrix Switcher. The input is tied to all outputs. Even in this worst case, fully loaded configuration, the frequency sweep is a flat ± 1.0 dB through the critical portion of the bandwidth curve, from 0 to 130MHz.

To ensure confidence and peace of mind, CrossPoint 450 Plus Series matrix switchers are engineered and built to the highest standards in the A/V industry, with a minimum number of boards and cables for optimum reliability in critical, 24/7 switching applications. All models feature cool-running, highly efficient redundant power supplies, and most models are convection-cooled without the need for failure-prone fans. CrossPoint 450 Plus switchers also feature exclusive Extron technologies such as Advanced Digital Sync Processing and Digital Sync Validation Processing.

ADSP - Advanced Digital Sync Processing

As shown in Figure 2, Extron's ADSP corrects and restores the sync signal as it passes through the switcher. ADSP technology restores sync to TTL levels, 5.0 V p-p, unterminated, ensuring that the projector or monitor accurately locks to sync and displays a stable image. Additionally, ADSP corrects the signal waveform to create sharp rising and falling edges, ensuring a more stable and reliable image in systems with different signal sources or cable lengths. Regardless of the cause of signal losses and distortion, ADSP significantly reduces sync-related problems, improving signal compatibility with many digital display devices.

Advanced Digital Sync Processing

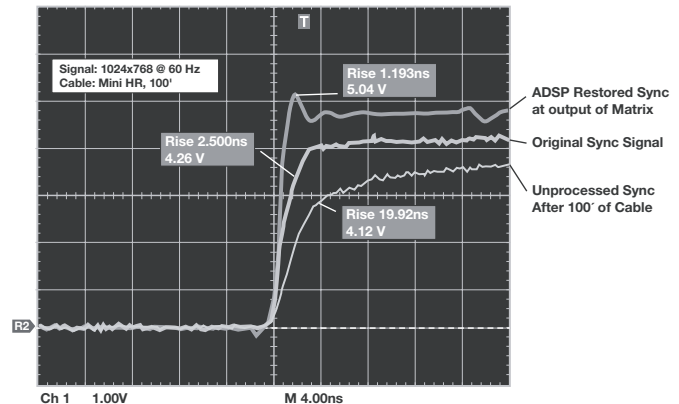


Figure 2 Leading Edge of Sync Pulse

For the best possible high resolution signal routing, Extron recommends the use of a computer-video interface with ADSP, such as the Extron RGB 109xi, with the CrossPoint 450 Plus Series. Interfaces with ADSP include additional circuitry that restores the original sync timing relationship and re-locks the sync signal. This combination eliminates almost all projector synchronization problems caused by unstable sync. System designs that utilize ADSP throughout the sync path provide the optimum signal quality and reliability for all I/O combinations.

DSVP - Digital Sync Validation Processing

- Verifies active sources by polling inputs for horizontal and vertical sync rate information. This information is made available to the user through the RS-232 serial and IP Link Ethernet control ports.

Control Flexibility

All CrossPoint 450 Plus Series are equipped with RS-232/RS-422 serial control ports and Extron's IP Link Ethernet monitoring and control for optimum flexibility when integrating the switcher with a third-party control system. The serial control port utilizes Extron's popular and widely-used SIS™ - Simple Instruction Set, a set of basic ASCII code commands that allow for quick and easy programming.

IP Link is built around an integrated, high performance Web server that features global compatibility with industry standard Ethernet communication protocols, multi-user support, and Extron's free IP Link GlobalViewer™ software. GlobalViewer, a Web-based application, enables a variety of asset management functions including proactive maintenance and remote technical support from any authorized LAN, WAN, or Internet portal.

IP Link provides technical support administrators with the ability to receive service and failure messages through an e-mail-enabled cell phone, PDA, pager, or e-mail account. Utilizing IP Link, the help desk can also view embedded Web pages to manage, monitor, control, and diagnose the switcher. In the CrossPoint 450 Plus Series, IP Link facilitates:

Asset Management

- Remotely select input and output ties for audio only, video only, or audio and video
- Name and select global I/O presets
- Set audio input and output volume levels
- Set RGB delay time for glitch-free transitions

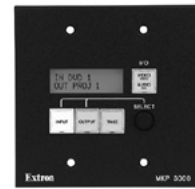
Operating Status and Diagnostics

- Monitor primary and redundant power supply voltages
- Monitor operating temperature
- Recall firmware revision and other data for improved help desk support
- Provide immediate notification via e-mail for loss of input signal, power supply failure, and other critical service information
- Update firmware

- **Ultra-wideband video bandwidth** – Designed for the most demanding, high resolution computer-video rates without signal degradation. The CrossPoint 450 Plus provides a minimum 450 MHz (-3 dB) of RGB video bandwidth fully loaded, when one input drives all outputs.
- **Extremely flat frequency response** – Switcher performance is further enhanced by the extremely flat response in the critical portion of the bandwidth curve, ± 1.0 dB between 0 and 130 MHz.
- **ADSP - Advanced Digital Sync Processing technology** – An exclusive, all-digital process that regenerates the sync signal waveform and restores sync level to 5.0 V p-p, TTL, specifications. This ensures a stable sync signal for improved signal compatibility with any LCD, DLP, plasma, or other digital display device.
- **DSVP - Digital Sync Validation Processing** – Verifies active sources by polling all inputs for valid sync signals. DSVP then transmits the horizontal and vertical sync information to the user through the serial or IP Link ports.
- **RGBHV Switching** – All models switch separate horizontal and vertical sync to ensure proper sync polarity, providing a more stable image. All models are also fully compatible with RGBS, RGsB, HDTV, component video, S-video, and composite video signals.
- **Excellent channel to channel isolation** – Provides isolation between channels and extremely low electromagnetic emissions, perfect for minimizing signal leakage in high security or government environments.
- **Buffered I/O** – Each input and output is individually buffered to provide maximum performance and virtually no crosstalk or signal interference between channels.
- **Triple-Action Switching for RGB Delay** – 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. The time delay between the RGB and sync signals is adjustable up to five seconds through the front panel, IP Link, or serial control.
- **Audio input gain and attenuation** – Allows users to set the level of gain or attenuation for each audio input channel, eliminating noticeable differences when switching between sources.
- **Audio output volume control** – Can be set dynamically for each channel through the front panel, IP Link, or serial control, eliminating the need for an audio preamplifier in many system designs.
- **Audio breakaway** – Provides the capability to break an audio signal away from its corresponding video signal, allowing the audio channels to be operated as a separate matrix switcher.
- **View I/O mode** – Users can easily view which inputs and outputs are actively connected.
- **I/O grouping** – Allows the matrix switcher to be virtually divided into smaller sub-switchers, making installation and control easier. I/O grouping allows specific outputs, like those designated for a specific video format, to be grouped together.
- **Rooming** – The matrix switcher can be programmed to group-selected outputs into specific rooms, each with its own set of unique presets. Each room can support eight to 16 outputs with 10 different presets. A total of 10 presets each, for up to 10 rooms, are available.
- **Global Presets** – Frequently used I/O configurations may be saved and recalled either from the QS-FPC™ - QuickSwitch Front Panel Controller, IP Link, or serial control. This time-saving feature allows I/O configurations to be set up and stored in memory for future use.
- **QS-FPC - QuickSwitch Front Panel Controller** – Provides a discrete button for each input and output, allowing for simple, intuitive operation.
- **Tri-color, backlit buttons** – Can be custom-labeled for easy identification. The buttons illuminate red, green, or amber, depending on function, for ease of use in low-light environments.
- **Front panel security lockout** – Prevents unauthorized use in non-secure environments. In lockout mode, a special button combination is required to operate the switcher from the front panel controller.
- **IP link Ethernet control and diagnostics** – Engineered to meet the needs of professional A/V environments, IP Link enables the CrossPoint 450 Plus matrix switchers to be proactively monitored and managed over a LAN, WAN, or the Internet, using standard TCP/IP protocols. IP Link provides for remote selection of input and output ties, adjustment and control of audio input and output levels, and advanced system diagnostics, including monitoring of internal product operating temperature and power supply voltages, e-mail notification of input signal loss, and other critical service information.
- **RS-232 and RS-422 control port** – Using serial commands, the CrossPoint 450 Plus Series can be controlled and configured via the included Windows-based control software, or integrated into third-party control systems. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming. The RS-232 and RS-422 port also makes it easy to install firmware updates.
- **Control software** – Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via RS-232 or RS-422 remote control. This software also offers an emulation mode for configuration of an offsite matrix switcher; the I/O configuration may be saved for future downloading to the matrix switcher.
- **Optional control panels and keypads** – Provide the flexibility to control a CrossPoint 450 Plus Series matrix switcher from a remote location.



MKP 2000
X-Y Remote
Control Panel



MKP 3000
X-Y Remote
Control Panel with
LCD Display



MCP 1000
Control Panel

- **Rack-mountable** – All CrossPoint 450 Plus Series matrix switchers are housed in 19-inch wide, rack-mountable metal enclosures.
- **Efficient, cool-running redundant power supplies** – Internally mounted 100-240VAC, 50/60 Hz, universal primary and secondary power supplies provide worldwide power compatibility. The power supply system is configured to automatically switch over to a spare power supply if the primary supply fails. This means no loss of functionality in the event of a primary power supply malfunction. These highly-efficient power supplies allow even the largest, 64x64 size, to be convection-cooled, without the need for a fan, further enhancing switcher reliability in critical 24/7 applications.

CROSSPOINT 450 PLUS MODELS



CrossPoint 450 Plus 2412 HVA

24x12 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 2412 HV	RGBHV only.....	60-470-02
CrossPoint 450 Plus 2412 HVA	RGBHV & Stereo Audio.....	60-470-01



CrossPoint 450 Plus 2424 HVA

24x24 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 2424 HV	RGBHV only.....	60-468-02
CrossPoint 450 Plus 2424 HVA	RGBHV & Stereo Audio.....	60-468-01



CrossPoint 450 Plus 3216 HVA

32x16 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 3216 HV	RGBHV only.....	60-471-02
CrossPoint 450 Plus 3216 HVA	RGBHV & Stereo Audio.....	60-471-01



CrossPoint 450 Plus 3232 HVA

32x32 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 3232 HV	RGBHV only.....	60-469-02
CrossPoint 450 Plus 3232 HVA	RGBHV & Stereo Audio.....	60-469-01



CrossPoint 450 Plus 6464 HVA

32x48 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 3248 HV	RGBHV only.....	42-078-40
CrossPoint 450 Plus 3248 HVA	RGBHV & Stereo Audio.....	42-078-45

32x64 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 3264 HV	RGBHV only.....	42-079-40
CrossPoint 450 Plus 3264 HVA	RGBHV & Stereo Audio.....	42-079-45

48x32 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 4832 HV	RGBHV only.....	42-080-40
CrossPoint 450 Plus 4832 HVA	RGBHV & Stereo Audio.....	42-080-45

48x48 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 4848 HV	RGBHV only.....	42-081-40
CrossPoint 450 Plus 4848 HVA	RGBHV & Stereo Audio.....	42-081-45

48x64 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 4864 HV	RGBHV only.....	42-082-40
CrossPoint 450 Plus 4864 HVA	RGBHV & Stereo Audio.....	42-082-45

64x32 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 6432 HV	RGBHV only.....	42-083-40
CrossPoint 450 Plus 6432 HVA	RGBHV & Stereo Audio.....	42-083-45

64x48 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 6448 HV	RGBHV only.....	42-084-40
CrossPoint 450 Plus 6448 HVA	RGBHV & Stereo Audio.....	42-084-45

64x64 Ultra-Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 450 Plus 6464 HV	RGBHV only.....	42-085-40
CrossPoint 450 Plus 6464 HVA	RGBHV & Stereo Audio.....	42-085-45

SPECIFICATIONS – 24x12 to 32x32

VIDEO

Routing	
2412 Series	24 x 12 matrix
2424 Series	24 x 24 matrix
3216 Series	32 x 16 matrix
3232 Series	32 x 32 matrix
Gain	Unity
Bandwidth	450 MHz (-3dB), fully loaded
	0 - 10 MHz: no more than +0.1 dB to -0.1 dB
	0 - 130 MHz: no more than +0.8 dB to -0.8 dB
Crosstalk	-80 dB @ 1 MHz, -55 dB @ 10 MHz, -45 dB @ 30 MHz, -37 dB @ 100 MHz
Switching speed	200 ns (max.)

VIDEO INPUT

Number/signal type	24 or 32 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	
2412/2424 Series	24 x 5 BNC female
3216/3232 Series	32 x 5 BNC female
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video
	0.7 Vp-p for RGB and for R-Y and B-Y of component video
	0.3 Vp-p for C of S-video
Minimum/maximum levels	Analog: 0.5 V to 2.0 V p-p with no offset
Impedance	75 ohms
Return loss	<-30 dB @ 5 MHz
DC offset (max. allowable)	1.5 V

VIDEO OUTPUT

Number/signal type	12, 16, 24, or 32 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	
2412 Series	12 x 5 BNC female
3216 Series	16 x 5 BNC female
2424 Series	24 x 5 BNC female
3232 Series	32 x 5 BNC female
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video
	0.7 Vp-p for RGB and for R-Y and B-Y of component video
	0.3 Vp-p for C of S-video
Minimum/maximum levels	0 V to 2.0 V p-p (follows input)
Impedance	75 ohms
Return loss	-30 dB @ 5 MHz
DC offset	±5 mV with input at 0 offset
Switching type	Triple-Action™

SYNC

Input type	RGBHV, RGBS, RGsB, RsGsBs
Output type	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Input level	0.5 V to 5.0 V p-p, 4.0 V p-p normal
Output level	AGC to TTL: 4.0 V to 5.0 V p-p, unterminated
Input impedance	Inputs 1 to 4: 75 or 510 ohms, switchable
	Inputs 5 to 8, 12, or 16: 510 ohms
Output impedance	75 ohms
Max input voltage	5.0 V p-p
Max. propagation delay	30 ns
Max. rise/fall time	4 ns
Polarity	Positive or negative (follows input)

AUDIO — AUDIO MODELS ONLY

Gain	Unbalanced output: -6 dB; balanced output: 0 dB
Frequency response	20 Hz to 20 kHz, ±0.05 dB
THD + Noise	0.03% @ 1 kHz at nominal level
S/N	>90 dB, balanced, at maximum output (21 dBu), unweighted
Crosstalk	<-80 dB @ 1 kHz, fully loaded
Stereo channel separation	>80 dB @ 1 kHz
CMRR	>75 dB @ 20 Hz to 20 kHz

AUDIO INPUT — AUDIO MODELS ONLY

Number/signal type	24 or 32 stereo, bal./unbal.
Connectors	(24 or 32) 3.5 mm captive screw connectors, 5 pole
Impedance	>10k ohm, balanced/unbalanced, DC coupled
Nominal level	0 dBu (775mV)
Maximum level	+19.5 dBu, (balanced or unbalanced) at 0.01% THD+N
Input gain adjustment	-18 dB to +24 dB, adjustable per input by RS-232/422, Ethernet, or front panel

NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

AUDIO OUTPUT — AUDIO MODELS ONLY

Number/signal type	12, 16, 24, or 32 stereo, bal./unbal.
Connectors	(12, 16, 24, or 32) 3.5 mm captive screw connectors, 5 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	±0.1 dB channel to channel
Maximum level (Hi-Z)	>+21 dBu, balanced or unbalanced at 1.0% THD+N
Maximum level (600 ohm)	>+15 dBm, balanced or unbalanced at 1.0% THD+N
Output volume range	0 to 64 (-98 dB to 0 dB) in 1 dB increments from steps 1 to 64, 35 dB increment from step 0 to 1

CONTROL/REMOTE — SWITCHER

Global presets	32 (plus 100 room presets)
Serial control port	1 RS-232 or RS-422, 9-pin female D connector
Baud rate and protocol	9600 (default), 19200, 38400, 115200 baud (adjustable); 8 data bits, 1 stop bit, no parity
Serial control pin configurations	RS-422 (2412, 2424, 3216, and 3232 series) 1 = Tx+, 2 = Tx-, 3 = Rx+, 4 = Rx-, 5 = Gnd RS-422 (All other models) 2 = Tx-, 3 = Rx-, 5 = Gnd, 7 = Rx+, 8 = Tx+
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, DHCP, ICMP (ping), TCP/IP, Telnet, HTTP
Program control	Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS™) Microsoft® Internet Explorer, Telnet

GENERAL

Power	2 power supplies (1 primary, 1 redundant), 100 VAC to 240 VAC, 50/60 Hz, internal, universal 2412/2424 Series: 150 watts 3216/3232 Series: 180 watts
Rack mount	Yes
Enclosure type	Metal
Enclosure dimensions (Depth excludes connectors. Width excludes rack ears.)	
2412/3216 Series	14.0" H x 17.0" W x 12.0" D (8U high, full rack wide) (35.5 cm H x 43.2 cm W x 30.5 cm D)
2424/3232 Series	17.5" H x 17.0" W x 12.0" D (10U high, full rack wide) (44.5 cm H x 43.2 cm W x 30.5 cm D)
Product weight	
2412/3216 Series	39.0 lbs (17.7 kg)
2424/3232 Series	42.0 lbs (19.1 kg)
Shipping weight	
2412/3216 Series	56 lbs (26 kg)
2424/3232 Series	60 lbs (28 kg)
DIM weight International	
2412/2424/3216/3232 Series	89 lbs (41 kg)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES

NOTE: All nominal levels are at ±10%.

VIDEO	
Routing	
3248 Series.....	32x48 matrix
3264 Series.....	32x64 matrix
4832 Series.....	48x32 matrix
4848 Series.....	48x48 matrix
4864 Series.....	48x64 matrix
6432 Series.....	64x32 matrix
6448 Series.....	64x48 matrix
6464 Series.....	64x64 matrix
Gain	Unity
Bandwidth	450 MHz (-3dB), fully loaded
	0 - 10 MHz: no more than +0.1 dB to -0.1 dB
	0 - 130 MHz: no more than +1.0 dB to -1.0 dB
Crosstalk	-80 dB @ 1 MHz, -62 dB @ 10MHz, -52 dB @ 30 MHz
Switching speed.....	200 ns (max)
VIDEO INPUT	
Number/signal type	32, 48, or 64 RGBHVBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	32, 48, or 64 BNC female
Nominal level.....	1 Vp-p for Y of component video and S-video, and for composite video
	0.7 Vp-p for RGB and for R-Y and B-Y of component video
	0.3 Vp-p for C of S-video
Minimum/maximum levels	Analog: 0.5V to 2.0V p-p, no offset
Impedance.....	75 ohms
Return loss	30dB @ 5 MHz
Maximum DC offset.....	1.5V
VIDEO OUTPUT	
Number/signal type	32, 48, or 64 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	32, 48, or 64 BNC female
Nominal level.....	1 Vp-p for Y of component video and S-video, and for composite video
	0.7 Vp-p for RGB and for R-Y and B-Y of component video
	0.3 Vp-p for C of S-video
Minimum/maximum level.....	2V p-p.
Impedance.....	75 ohms
Return loss	-30dB @ 5 MHz
DC offset	±5mV with input at 0 offset
Switching type.....	Triple-Action™
SYNC	
Input type.....	RGBHV, RGBS, RGsB, RsGsBs
Output type.....	RGBHV, RGBS, RGsB, RsGsBs
Input level.....	0.5V to 5.0V p-p, 4.0V p-p normal
Output level.....	AGC to TTL: 4V to 5V p-p, unterminated
Input impedance	
Inputs 1 to 16.....	75 or 510 ohms, switchable
Inputs 17 to 32/48/64.....	510 ohms
Output impedance	75 ohms
Horizontal.....	15 KHz to 150 KHz
Vertical.....	30 Hz to 150Hz
Polarity	Positive or negative (follows input)
AUDIO — AUDIO MODELS ONLY	
Routing	32, 48, 64 stereo
Gain	Unbalanced output: -6 dB
	Balanced output: 0 dB
Frequency response	20 Hz to 20 kHz, ±0.05 dB
THD + Noise	0.03% @ 1 kHz at nominal level
S/N	>90 dB, balanced, at max. output (21 dBu), unweighted
Crosstalk	<-80 dB @ 1 kHz, fully loaded
Stereo channel separation	>80 dB @ 1 kHz
CMRR	>75 dB @ 20 Hz to 20 kHz
AUDIO INPUT — AUDIO MODELS ONLY	
Number/signal type	32, 48, or 64 stereo
Connectors	(32, 48, 64) 3.5 mm captive screw connectors, 5 pole

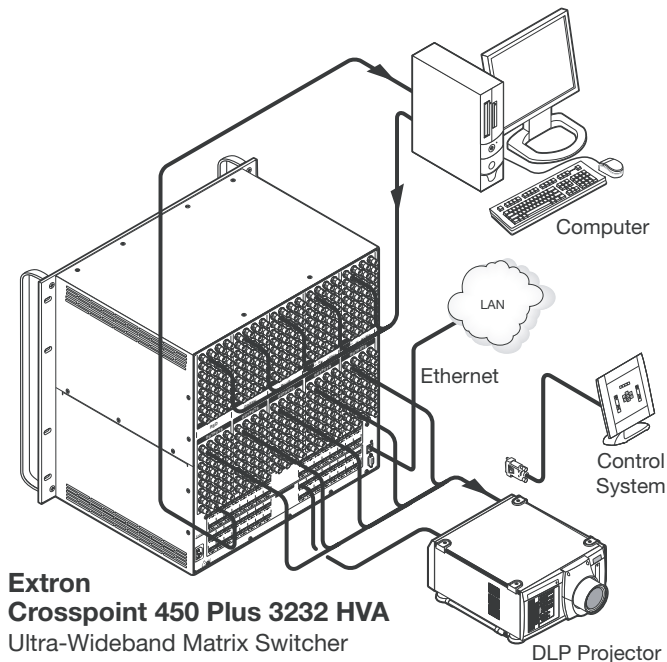
Impedance.....	>10 k ohm, balanced/unbalanced, DC coupled
Nominal level	-10 dBV (316mV)
Maximum level	+19.5 dBu, (balanced or unbalanced) at 0.01%THD+N
Input gain adjustment.....	-18 dB to +24 dB, adjustable per input by RS-232/422, Ethernet, or FPC
NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu	
AUDIO OUTPUT — AUDIO MODELS ONLY	
Number/signal type	32, 48, or 64 stereo
Connectors	(32, 48, 64) 3.5 mm captive screw connectors, 5 pole
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Gain error	±0.1 dB channel to channel
Maximum level (Hi-Z).....	>+21 dBu, balanced or unbalanced at 1.0% THD+N
Maximum level (600 ohm)	>+15 dBm, balanced or unbalanced at 1.0% THD+N
	0 dBu = 0.775 volts (RMS).
Output volume range	0 to 64 (-98 dB to 0 dB) in 1/2 dB increments from steps 1 to 64, 35 dB increment from step 0 to 1
CONTROL/REMOTE — SWITCHER	
Global presets.....	64 (plus 100 room presets)
Serial control port	(1) RS-232 or RS-422, 9-pin female D
Baud rate and protocol	9600, 8-bit, 1 stop bit, no parity
Serial control pin config	RS-232 -- 2 = TX, 3 = RX, 5 = GND
	RS-422 -- 2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = TX+
Ethernet control port	(1) RJ-45 female connector
Ethernet data rate	10/100Base-T
Ethernet protocol	ARP, ICMP (ping), TCP/IP, Telnet, HTTP
Program control.....	Extron's control program for Windows®
	Extron's Simple Instruction Set (SIS™) Microsoft Explorer, Netscape® Navigator, Telnet
GENERAL	
Power	100VAC to 240VAC, 50/60 Hz, internal, universal
64x Series video.....	110 watts at 115VAC, 60Hz
48x Series video.....	110 watts at 115VAC, 60Hz
32x Series video.....	50 watts at 115VAC, 60Hz
64x Series sync	65 watts at 115VAC, 60Hz
All audio models.....	195 watts at 115VAC, 60Hz
Temperature/humidity	
Storage	-40° to +158°F (-40° to +70°C) 10% to 90%, non-condensing
Operating	+32° to +122°F (0° to +50°C) 10% to 90%, non-condensing
Rack mount	Yes, with included parts
Enclosure	Metal
Enclosure dimensions	
Video/Sync	10.50" H x 17.0" W x 14.1" D (6U high, full rack width)
Audio.....	12.25" H x 17.0" W x 14.1" D (7U high, full rack wide) 31.1 cm H x 43.2 cm W x 35.8 cm D
Product weight	
Per signal.....	64 and 48 Series: 41 lbs (18.5 kg)
	32 Series: 31 lbs (14.0 kg)
DIM weight	
Per signal.....	All models: 44 lbs
Vibration.....	ISTA/NSTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances.....	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty.....	3 years parts and labor

Specifications are subject to change without notice.

CROSSPOINT FAMILY COMPARISON CHART

	Features	CrossPoint Ultra	CrossPoint 450 Plus	
Video Features	Ultra-wideband performance	8x4 to 12x8: 600 MHz (-3 dB), fully loaded 12x12 to 16x16: 525 MHz (-3 dB), fully loaded	450 MHz (-3 dB), fully loaded	
	Ultra-flat frequency response	±0.5 dB from 0 to 130 MHz	±1.0 dB from 0 to 130 MHz	
	Ultra-low crosstalk	✓	✓	
	ADSP Advanced Digital Sync Processing	✓	✓	
	DSVP Digital Sync Validation Processing	✓	✓	
	Triple Action Switching for RGB Delay	✓	✓	
	I/O rooming	✓	✓	
	I/O grouping	✓	✓	
Audio Features	Ultra-low audio noise – THD+N	0.01% @ 1 kHz at nominal level	0.03% @ 1 kHz at nominal level	
	Audio input gain and attenuation	✓	✓	
	Audio output volume control	✓	✓	
	Switches balanced and unbalanced audio	✓	✓	
Chassis Features	Input/Output size range	8x4 to 16x16	24x12 to 64x64	
	Ultra-low power consumption	✓	✓	
	Fan-free enclosure	✓	Most models	
	Ultra-efficient power supply	✓	✓	
	Ultra-reliable architecture	5th Generation design	4th Generation design	
	Ultra-flexible control	RS-232/422 serial	RS-232/422 serial	RS-232/422 serial
		IP Link Ethernet	IP Link Ethernet	IP Link Ethernet
		QuickSwitch front panel controller	QuickSwitch front panel controller	QuickSwitch front panel controller
Enhanced QS-FPC with tri-color backlit buttons		Enhanced QS-FPC with tri-color backlit buttons	Enhanced QS-FPC with tri-color backlit buttons	

APPLICATION DIAGRAM



**Extron
Crosspoint 450 Plus 3232 HVA**
Ultra-Wideband Matrix Switcher



Extron **USA - West**
Headquarters
+800.633.9876
Inside USA / Canada Only
+1.714.491.1500
+1.714.491.1517 FAX

Extron **USA - East**
+800.633.9876
Inside USA / Canada Only
+1.919.863.1794
+1.919.863.1797 FAX

Extron **Europe**
+800.3987.6673
Inside Europe Only
+31.33.453.4040
+31.33.453.4050 FAX

Extron **Asia**
+800.7339.8766
Inside Asia Only
+65.6383.4400
+65.6383.4664 FAX

Extron **Japan**
+81.3.3511.7655
+81.3.3511.7656 FAX

Extron **China**
+400.883.1568
Inside China Only
+86.21.3760.1568
+86.21.3760.1566 FAX

Extron **Dubai**
+971.4.2991800
+971.4.2991880 FAX