DXP HD 4K PLUS Series

4K/60 HDMI MATRIX SWITCHERS WITH AUDIO DE-EMBEDDING

Reliable, High Performance Switching of HDMI Video and Audio Signals

18 Gbps
4K/60 4:4:4

▸ Available in 4x4, 8x4, and 8x8 fixed I/O sizes

▸ Supports computer and video resolutions up to 4K/60 @ 4:4:4

▸ Supported HDMI 2.0b specification features include data rates up to 18 Gbps, HDR, Deep Color up to 12-bit, 3D, and HD lossless audio formats

▸ HDCP 2.2 compliant

▸ HDMI audio de-embedding with digital S/PDIF and analog stereo audio outputs

Extron

Introduction

The Extron **DXP HD 4K PLUS Series** are high performance HDCP 2.2 compliant HDMI matrix switchers for computer and video signals at resolutions up to 4K/60 with 4:4:4 chroma sampling. They support HDMI 2.0b specifications, including data rates up to 18 Gbps, HDR, Deep Color up to 12-bit, 3D, and HD lossless audio formats. These matrix switchers incorporate Extron technologies such as SpeedSwitch®, EDID Minder®, and Key Minder® as well as HDMI input equalization and output regeneration to ensure reliable system operation. Digital audio can be de-embedded from any input and assigned to digital or analog stereo outputs for ease of integration. Available in 4x4, 8x4, and 8x8 sizes, the DXP HD 4K PLUS Series is ideal for applications that require reliable, high performance matrix switching of 4K/60 HDMI video and audio signals.

The DXP HD 4K PLUS Series matrix switchers are designed for use with computers equipped with 4K graphics cards, media players, and similar signal sources, as well as 4K native resolution displays. With a maximum data rate of 18 Gbps, they support computer and video resolutions up to 4096x2160 at 60 Hz with 8-bit color in 4:4:4 color space. To maintain signal integrity, the matrix switchers feature automatic cable equalization on inputs and output reclocking to reshape and restore timing of the video signal at each HDMI output. These features combined with Extron Pro Series High Speed HDMI Cables allow longer 4K signal runs, reducing the need for additional signal conditioning equipment by compensating for weak source signals or signal loss on long cable runs. Additionally, +5 VDC, 250 mA is available on the outputs for powering peripheral devices.

Flexible Audio Distribution

Audio routing in the DXP HD 4K PLUS Series is handled in two ways. Embedded digital audio from a source can be switched along with its corresponding video signal to any or all selected HDMI outputs. Built-in audio de-embedders allow signals to be routed to discrete digital and analog audio outputs. The internal de-embedders eliminate the need for external HDMI audio extraction products, reducing the number of boxes in the AV system and system complexity, as well as maintenance costs. For applications requiring digital audio distribution, the de-embedded audio is made available on S/PDIF outputs in its native two-channel or multi-channel Dolby® Digital or DTS format. For analog audio applications, the de-embedded signal is made available as line level stereo audio, on captive screw connectors. These audio outputs simplify integration with the local audio system.

Fast Reliable Switching

For streamlined integration of HDMI-equipped sources and displays, the DXP HD 4K PLUS Series features two Extron technologies: EDID Minder and Key Minder. EDID Minder automatically manages EDID communications, ensuring that all HDMI sources power up properly and reliably provide content for display. For HDMI signals with protected content, Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments while enabling simultaneous distribution of a single source signal to one or more displays. With SpeedSwitch Technology, the DXP HD 4K PLUS matrix switcher delivers exceptional, virtually instantaneous switching speeds for HDCP-encrypted content.

Easy Setup, Monitoring, and Control

The matrix switchers also provide advanced system monitoring and control via the RS-232 and Ethernet ports. Global presets allow for simplified configuration changes and fast switching speed when using a separate control system to operate the matrix switcher. Front panel indicators provide visual feedback of routing, signal presence on all inputs and outputs, and the presence of HDCP-encrypted content on each input.

Available in 4x4, 8x4, and 8x8 sizes, the DXP HD 4K PLUS Series can provide AV signal switching for various commercial, residential, medical, military and government environments. This includes conference and divisible meeting rooms, simulation labs, briefing rooms, lecture halls, and a centralized control room supporting adjacent classrooms. The DXP HD 4K PLUS matrix switchers are ideal for a wide variety of professional AV installations where distribution of 4K video signals is needed and a fully digital pathway is essential to maintain the highest possible image quality between multiple sources and displays.

A DXP HD 4K PLUS matrix switcher installed in a central control room can support two or more adjacent classrooms.

Features

Available in 4x4, 8x4, and 8x8 fixed I/O sizes

Supports computer and video resolutions up to 4K/60 @ 4:4:4

HDMI 2.0b specification features include data rates up to 18 Gbps, HDR, Deep Color up to 12-bit, 3D, and HD lossless audio formats

HDMI audio de-embedding with digital S/PDIF and analog stereo audio outputs
The DXP HD 4K PLUS Series can extract embedded HDMI two-channel LPCM audio to S/PDIF digital and analog audio outputs. It also extracts Dolby® or DTS® encoded bitstream audio to the S/PDIF outputs. The matrix switchers feature multiple sets of S/PDIF and analog outputs, supporting audio assignment from any HDMI source.

SpeedSwitch® Technology provides exceptional switching speed for HDCP-encrypted content

Key Minder® continuously verifies HDCP compliance for quick, reliable switching
Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, while enabling simultaneous distribution of a single source signal to two or more displays.

EDID Minder® automatically manages EDID communication between connected devices
EDID Minder ensures that all sources power up properly and reliably output content for display.

Support for High Dynamic Range video
Enables greater contrast range and wider color gamut by providing the necessary video bandwidth, color depth, and metadata interchange capability for HDR video.

Automatic input cable equalization
Actively conditions incoming HDMI signals to compensate for signal loss when using long cables, low quality cables, or source devices with poor HDMI signal output. 4K/60 signals are equalized to 35 feet (10.7 meters) when used with Extron HDMI Pro cables.

Automatic output reclocking
Reshapes and restores timing of HDMI signals at each output, enabling transmission over long HDMI cables.

HDCP 2.2 compliant
Ensures display of content-protected media and interoperability with other HDCP-compliant devices.

User-selectable HDCP authorization
Allows individual inputs to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected material is not passed in non-HDCP mode.

HDMI to DVI Interface Format Correction
Automatically reformats HDMI source signals for output to a connected DVI display.

Provides +5 VDC, 250 mA power on the HDMI outputs for external peripheral devices

Global presets
Up to 16 frequently used I/O configurations may be saved and recalled from the front panel, Ethernet, 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
Discrete buttons for each input and output allow for simple, intuitive operation.

View I/O mode and HDCP status
Discrete LEDs for each input so users can easily view which inputs and outputs are actively connected, as well as if signal presence and HDCP content is being input, for ease in troubleshooting.

Audio breakaway
Provides the capability to break an analog audio signal away from its corresponding video signal and route to audio output 2, allowing the analog audio channels to be operated as a separate switcher.

Output volume control
Provides volume control for the audio outputs. Analog audio outputs can be balanced or unbalanced and are available as stereo or independently mixed mono.

Ethernet monitoring and control
Can be proactively monitored, managed, or controlled over a LAN, WAN, or the Internet using standard TCP/IP protocols.

RS-232 control port

Front panel USB configuration port
Enables easy setup, configuration, and firmware updating without having to access the rear panel.

Front panel security lockout
Prevents unauthorized use in non-secure environments.

Highly reliable, energy-efficient internal universal power supply
Provides worldwide power compatibility, with high demonstrated reliability and low power consumption for reduced operating costs.

Power Save Mode
Enables the system to save power via SIS commands by temporarily turning off the fan, video and audio chips, and other components when not in use.

Rooming
All models can be programmed to group selected outputs into specific "rooms," each with its own set of unique presets. Each room can support up to 8 outputs. A total of 10 rooms, with 10 presets per room, are available.

Output muting control
Provides the capability to mute one or all outputs at any time.

Easy setup and commissioning with Extron's PCS - Product Configuration Software
Conveniently configure multiple products using single software application.

Rack-mountable 1U, full rack width metal enclosure

Internal Extron Everlast power supply
Provides worldwide power compatibility, with high-demonstrated reliability and low power consumption for reduced operating costs.

Overview

Key Minder®
Continuously verifies HDCP compliance for quick, reliable switching while enabling simultaneous distribution of a single source to one or more displays.

4K/60 @ 4:4:4
Provides high performance switching and distribution of computer and video resolutions up to 4096x2160.

EDID Minder®
Automatically manages EDID communication between connected devices, ensuring that all sources power up properly and reliably output content for display.

SpeedSwitch® Technology
Provides exceptional switching speed for HDCP-encrypted content.

Automatic input cable equalization
Actively conditions incoming HDMI signals to compensate for signal loss when using long cables, low quality cables, or source devices with poor HDMI signal output. 4K/60 signals are equalized to 35 feet (10.7 meters) when used with Extron HDMI Pro cables.

HDCP 2.2 compliant
Ensures display of content-protected media and interoperability with other HDCP-compliant devices.

Automatic output reclocking
Reshapes and restores timing of HDMI signals at each output, enabling transmission over long HDMI cables.

HDMI audio de-embedding
Encoded Dolby or DTS multi-channel audio or two-channel audio can be extracted to S/PDIF or analog audio outputs.

Audio De-embedding

The DXP HD 4K PLUS Series features built-in audio de-embedders that allow independent distribution on digital multi-channel or analog stereo outputs. Mixers or DSP processors can be connected directly to the matrix switcher without the cost and complexity of additional audio de-embedding equipment. For flexible audio routing, native Dolby® Digital or DTS format multi-channel digital audio can be assigned to S/PDIF outputs and native two-channel audio can be assigned to both S/PDIF and analog stereo outputs. This enables a single centrally located DXP HD 4K PLUS matrix switcher to route independent video and audio signals to multiple locations.
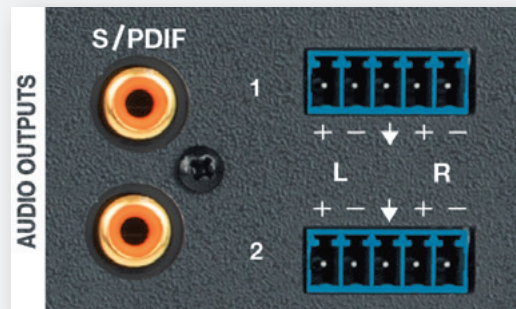
Applications

Divisible Rooms

Many facilities include divisible spaces, which optimizes room usage for training, meetings, and social gatherings. At the same time, these rooms can complicate technology implementation due to the large number of sources and displays that need to be used in the individual or combined spaces. A single matrix switcher that can be easily addressed by a control system is ideal for divisible spaces.

The DXP HD 4K PLUS Series matrix switchers provide centralized signal routing of video signals up to 4K resolutions with embedded audio. Outputs can be grouped or zoned to match different room configurations. Each matrix switcher provides audio de-embedding from digital and analog signals for independent processing and distribution to a sound system. These features make the DXP HD 4K PLUS Series ideal for supporting divisible spaces in a wide variety of room configurations.

APPLICATION DIAGRAM
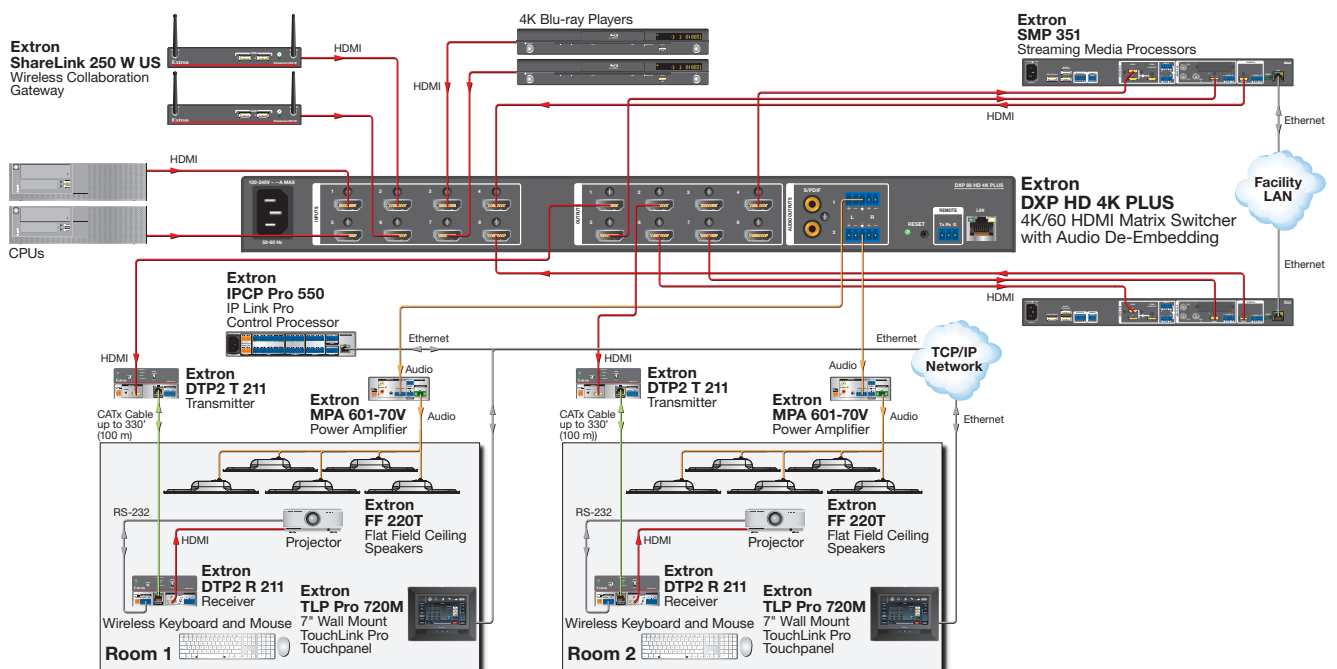
TRUE 4K SPECIFICATION

Max 4K Capabilities

Resolution and Refresh Rate	Chroma Sampling	Max Bit Depth per Color
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz 4096 x 2160 at 30 Hz 3840 x 2160 at 30 Hz	4:4:4	8 bit
		12 bit
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz	4:2:0	

Frame rate[1]	24, 25, 30, 50, or 60 fps
Chroma sampling[1]	4:4:4, 4:2:2, or 4:2:0
Color bit depth[1]	8, 10, or 12 bits per color
Signal type	HDMI 2.0, HDCP 2.2
Max. video data rate	18 Gbps (6 Gbps per color)

NOTE: [1]Subject to the maximum data rate limit. Use our calculator (http://www.extron.com/product/videotools.aspx) to determine video parameters supported by this data rate.

VIDEO

Routing	4x4 to 8x8 matrix
Maximum data rate	18 Gbps (6 Gbps per color)
Maximum pixel clock	600 MHz
Resolution range	Up to 1920x1200 or 1080p @ 60 Hz, 12 bit color 4K (4096x2160) @ 60 Hz (4:4:4 color space) UHD (3840x2160) @ 60 Hz (4:4:4 color space)
Formats	RGB and YCbCr digital video

NOTE: *Appropriate DVI-D to HDMI cables or adapters are required for DVI signal input and output.

NOTE: Extron strongly recommends compatibility testing while designing, and before installing, any 3D or HDR (high dynamic range) system. There are several unique 3D and HDR formats in use by source devices and display manufactorers. The level of 3D and HDR product support is governed by pixel clock, signal format, and communication between source and sink devices. Please contact an Extron Application Engineer for more information.

VIDEO INPUT

Number/signal type	4 or 8 HDMI digital video (HDCP compliant)
Connectors	4 or 8 female HDMI type A

VIDEO OUTPUT

Number/signal type	4 or 8 HDMI digital video (HDCP compliant)
Connectors	4 or 8 female HDMI type A
Peripheral device power	250 mA per HDMI output

AUDIO

Supported formats – Pass through

HDMI connectors	LPCM up to 7.1/24-bit/96 kHz, Dolby ATMOS, Dolby TrueHD, Dolby Digital Plus, Dolby Digital EX, Dolby Digital 5.1, Dolby Digital 2/0 Surround, Dolby Digital 2/0, DTS-HD Master Audio, DTS-HD, DTS ES Discrete 6.1, DTS ES Matrix 6.1, DTS Digital Surround 5.1, DTS 2 Channel

Supported formats – S/PDIF

LPCM	2-channel, 16/20/24 bit depths, 32/44.1/48 kHz sampling
Dolby Digital (AC-3)	6-channel, 640k mbr, 32/44.1/48 kHz sampling
DTS	7-channel, 1536k max bit rate, 44.1/48 kHz sampling

AUDIO — INDIVIDUAL AUDIO GROUPS (HDMI)

Gain	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response	20 Hz to 20 kHz, ±0.2 dB
THD + Noise	0.01% @ 1 kHz at nominal level
S/N	>105 dB at maximum output (unweighted)
Crosstalk	<-90 dB @ 20 Hz to 20 kHz, fully loaded
Stereo channel separation	>80 dB @ 20 Hz to 20 kHz

AUDIO OUTPUT

Number/signal type	4 or 8 HDMI, embedded 2 stereo, balanced or unbalanced 2 S/PDIF
Connectors HDMI Stereo audio S/PDIF	 4 or 8 female (2) 3.5 mm captive screw, 5 pole 2 female RCA
Impedance Stereo audio S/PDIF	 50 ohms unbalanced, 100 ohms balanced 75 ohms
Gain error	±0.1 dB channel to channel
D/A conversion	24-bit, 192 kHz
Maximum level (Hi-Z)	>+21 dBu, balanced, or +15 dBu, unbalanced
Output volume range	0 to -100 dB in 1.3 dB steps

COMMUNICATIONS

Serial control port	1 bidirectional RS-232
Serial control connector	(1) 3.5 mm captive screw, 3 pole (rear panel)
USB control port	1 front panel female USB mini-B
USB standards	USB 2.0, low speed
Ethernet control port	1 female RJ-45 connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	DHCP, DNS, HTTP, HTTPS, ICMP, NTP, SFTP, SMTP, SNMP, SSH, TCP/IP, UDP/IP, ARP, Telnet
Ethernet default settings	Link speed and duplex level: autodetected IP address: 192.168.254.254 Subnet mask: 255.255.0.0 Gateway: 0.0.0.0 DHCP: Off
Web server	Up to 200 simultaneous sessions 40.0 MB nonvolatile user memory

GENERAL

Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption (power save)	10.8 watts
DXP 44 HD 4K PLUS	5.2 lbs (2.3 kg)
DXP 84 HD 4K PLUS	5.3 lbs (2.4 kg)
DXP 88 HD 4K PLUS	5.5 lbs (2.5 kg)
Regulatory compliance	CE, c-UL, UL, PSE, RoHs, and WEEE

Model	Version Description	Part number
DXP 44 HD 4K PLUS	4x4 4K/60 HDMI with 2 Audio Outputs	60-1493-21
DXP 84 HD 4K PLUS	8x4 4K/60 HDMI with 2 Audio Outputs	60-1494-21
DXP 88 HD 4K PLUS	8x8 4K/60 HDMI with 2 Audio Outputs	60-1495-21

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.