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# DXP HDMI Series

## HDMI MATRIX SWITCHERS

- **Available in 4x4, 4x8, 8x4, and 8x8 I/O sizes**
- **Supports computer-video to 1920x1200, including HDTV 1080p/60**
- **Supports HDMI specification features including data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats**
- **HDCP compliant**
- **SpeedSwitch™ Technology provides exceptional switching speed for HDCP-encrypted content**
- **Key Minder®**
- **EDID Minder®**
- **Automatic cable equalization for each input to 100 feet (30 meters) at 1920x1200**
- **Automatic output reclocking**
- **Provides +5VDC, 250mA power on the HDMI outputs for peripheral devices**

The Extron DXP HDMI Series are designed for applications where routing of high resolution, digital video signals is required. They are HDCP compliant and available in sizes of 4x4, 4x8, 8x4, and 8x8, and offer several proprietary features to optimize performance and reliability of HDMI transmission to and from the matrix switcher. The DXP HDMI Series also offers the same convenience features common to Extron matrix switchers, such as the QS-FPC front panel controller with tri-color backlit buttons, global presets, Ethernet control, and RS-232/RS-422 serial control.

## DESCRIPTION

The Extron **DXP HDMI Series** are high performance, HDMI matrix switchers. They support resolutions up to 1920x1200 and HDTV 1080p/60, enabling simultaneous distribution of content-protected HDMI and DVI signal sources to one or more compliant displays. The matrix switchers support HDMI specification features, including data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats. The DXP HDMI Series also incorporates a number of intelligent technologies that help integrators ensure reliable system operation and compatibility between digital devices, including SpeedSwitch™ Technology, Key Minder®, HDCP Visual Confirmation, EDID Minder®, and Automatic Input Cable Equalization and Output Reclocking. Available in I/O sizes from 4x4 to 8x8, the DXP HDMI Series is ideal for use in applications that require reliable, high performance routing of HDMI and DVI digital signals between multiple devices.

The DXP HDMI Series features two key Extron technologies that enhance and simplify integration: EDID Minder and Key Minder. EDID Minder automatically manages EDID communications for each input/output tie. By maintaining continuous EDID communication with all sources, EDID Minder ensures that all HDMI sources power up properly and maintain their video outputs whether or not they are actively connected to the digital display devices through the matrix switcher's outputs. For HDMI signals with protected content, Key Minder continuously authenticates HDCP-compliant 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. When an HDCP-compliant source is routed to a non-compliant display, the switcher outputs a full-screen green signal, providing immediate visual confirmation that the protected content cannot be viewed on the selected display.

DXP HDMI matrix switchers also feature automatic cable equalization for all inputs and output reclocking for each output. This reduces the need for additional signal conditioning equipment by compensating for weak source signals or signal loss when using long input cable assemblies. Automatic output reclocking restores signal integrity for improved performance. Signals are reshaped and the timing is restored to allow for transmission over long HDMI cables. Additionally, all models offer +5VDC, 250mA on the HDMI outputs for powering peripheral devices.

The DXP HDMI Series matrix switchers are ideal for use in commercial, medical, government, residential, and other environments where a fully digital pathway is essential to maintain image quality of high resolution, digital video signals from multiple sources to multiple displays.

## FEATURES

- **Supports computer-video to 1920x1200, including HDTV 1080p/60**
- **Supports HDMI specification features including data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats**
- **HDCP compliant**
- **SpeedSwitch Technology provides exceptional switching speed for HDCP-encrypted content**

## FEATURES (Cont.)

- **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 one or more displays.
- **HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display** – A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.
- **EDID Minder automatically manages EDID communication between connected devices** – EDID Minder ensures that all sources power up properly and reliably output content for display.
- **Automatic color bit depth management** – The switcher automatically adjusts color bit depth based on display EDID, preventing color compatibility conflicts between source and display.
- **Automatic cable equalization for each input to 100 feet (30 meters) at 1920x1200/8-bit color 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.
- **Provides +5VDC, 250mA power on the HDMI outputs for peripheral devices**
- **Audio breakaway** – Provides the capability to separate an embedded audio signal, allowing the audio and video signals from one source to be switched to different destinations.
- **Global presets** – Up to 32 frequently used I/O configurations may be saved and recalled from the front panel, Ethernet, or serial control.
- **Rooming** – The matrix switchers can be configured to group selected outputs into specific "rooms," each with its own set of unique presets. A total of 10 rooms, with 10 presets per room, are available.
- **I/O Grouping** – Allows the matrix switcher to be virtually divided into smaller sub-switchers, making installation and control easier.
- **Tri-color, backlit buttons** – Can be custom labeled for easy identification. The backlit buttons illuminate red, green, or amber, depending on function, for ease of use in low-light environments.
- **Ethernet monitoring and control** – DXP HDMI matrix switchers can be proactively monitored and managed over a LAN, WAN, or the Internet, using standard TCP/IP protocols.
- **RS-232 and RS-422 control port** – Using serial commands, DXP HDMI matrix switchers can be controlled and configured via the included Windows®-based control software, or integrated into a control system.
- **Control software** – Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via RS-232 and 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.
- **Front panel security lockout** – Prevents unauthorized use in non-secure environments.
- **Rack-mountable 2U, full rack width metal enclosure**
- **Includes LockIt® HDMI cable lacing brackets**
- **Internal universal power supply**

# SPECIFICATIONS

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

## VIDEO

| | |
|---|---|
| **Routing** | |
| DXP 44 HDMI | 4 x 4 matrix |
| DXP 48 HDMI | 4 x 8 matrix |
| DXP 84 HDMI | 8 x 4 matrix |
| DXP 88 HDMI | 8 x 8 matrix |
| **Signal type** | TMDS digital RGB and single-link DVI digital video signals are supported |
| Digital video | RGB digital video (DVI and HDMI standards) or Y, Cr, Cb digital component video (HDMI), actively buffered (supports all single-link DVI and HDMI [if using an optional adapter] standards from 640x480 @ 60 Hz to 1600x1200 @ 60 Hz computer video and HDTV 480p, 720p, 1080i, 1080p) |

**NOTE:** The DXP HDMI Series switchers support HDMI specification features including data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats.

| | |
|---|---|
| Digital audio | Supports HDMI audio transmitted through the RGB and Y, Cr, Cb lines, actively buffered. |
| EDID and DDC | Supports Extended Display Identification Data (EDID) and Display Data Channel (DDC) data using DVI and HDMI standards. EDID and DDC signals are actively buffered. |
| HDCP | Compliant with High-bandwidth Digital Content Protection (HDCP) using DVI and HDMI standards |
| HPD | Supports hot plug detection (HPD) of display as a pass-through signal. |
| **Gain** | Unity |
| **Resolution range** | Up to 1080p (HDTV) or 1920x1200 (the highest resolution of the single-link DVI standard) @ 60 Hz |
| **Maximum data rate** | 6.75 Gbps (2.25 Gbps per color) |
| **Maximum pixel clock** | 225 MHz |
| **Standards** | DVI 1.0, HDMI |
| **Switching speed** | 200 ns, max. |

## VIDEO INPUT

| | |
|---|---|
| **Number/signal type** | 4 or 8 (depending on model) digital RGB (TMDS) HDMI (or single-link DVI-D*) |
| **Connectors** | 4 or 8 female HDMI type A (digital only) |
| **Nominal level** | |
| Digital video | 1.2 Vp-p |
| DDC (Display Data Channel) | 5.0 Vp-p (TTL) |
| **Minimum/maximum level** | 0.5 V to 1.0 Vp-p with no offset |
| **Impedance** | 100 ohms |
| **Return loss** | <-15 dB @ 1 MHz to 1.5 GHz |
| **TDR rise time (10%-90%)** | 75 ps |
| **Equalization** | Automatic |
| **Input cable length** | >100' (30 m) at 1920x1200 @ 48, 50, or 60 Hz; or 1080p; 8 bit color |

**NOTE:** The transmission distance varies depending on the signal resolution and on the type of cable, graphic card, and display used in the system.

## VIDEO OUTPUT

| | |
|---|---|
| **Number/signal type** | 4 or 8 (depending on model) digital RGB |
| **Connectors** | 4 or 8 female HDMI type A |
| **Nominal level** | 1.2 Vp-p |
| **Minimum/maximum level(s)** | 0.5 V to 1.0 Vp-p with no offset (follows input) |
| **Impedance** | 100 ohms |
| **Return loss** | <-15 dB @ 1 MHz to 1.5 GHz |
| **DC offset** | ±500 mV maximum with input at 0 offset |
| **Rise and fall time (20-80%)** | 0.6 ns |
| **Re-clocking** | Automatic |
| **Peripheral device power** | 250 mA per output |

## CONTROL/REMOTE — SWITCHER

| | |
|---|---|
| **Serial control port** | (1) RS-232, 9-pin female D connector<br>(1) RS-232, front panel 2.5 mm mini stereo jack |
| **Baud rate and protocol** | 9600 to 115200 baud, 9600 baud (default), 8 data bits, 1 stop bit, no parity |
| **Serial control pin configurations** | |
| 9-pin D connector | 2 = Tx, 3 = Rx, 5 = GND |
| Mini stereo jack | Tip = Tx, ring = Rx, sleeve = GND |
| **Ethernet control port** | (1) RJ-45 female connector |
| **Ethernet data rate** | 10/100Base-T, half/full duplex with autodetect |
| **Ethernet protocol** | ARP, ICMP (ping), IP, TCP, DHCP, HTTP, Telnet |
| **Default settings** | Link speed and duplex level = autodetected<br>IP address = 192.168.254.254<br>Subnet mask = 255.255.0.0<br>Gateway = 0.0.0.0<br>DHCP = off |
| **Program control** | Extron control/configuration program for Windows®<br>Extron Simple Instruction Set (SIS™)<br>Microsoft® Internet Explorer® ver. 6 or higher, Telnet |

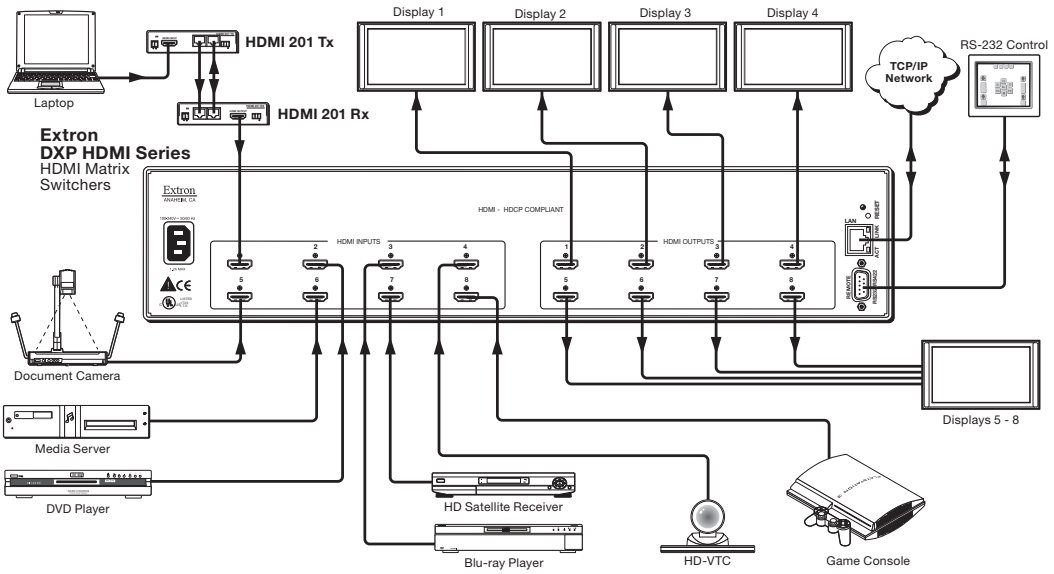
## GENERAL

| | |
|---|---|
| **Power supply** | Internal<br>Input: 100-240 VAC, 50-60 Hz |
| **Power consumption** | 48 watts, fully loaded 8 x 8 unit |
| **Temperature/humidity** | Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing<br>Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing |
| **Cooling** | Fan, air flows right to left (as viewed from front) |
| **Thermal dissipation, full load** | 164 BTU |
| **Mounting** | |
| Rack mount | Yes, 2U high |
| **Enclosure type** | Metal |
| **Enclosure dimensions** | 3.5" H x 17.5" W x 12.0" D (2U high, full rack wide)<br>(8.9 cm H x 44.4 cm W x 30.5 cm D)<br>(Depth excludes connectors. Width excludes integrated rack ears.) |
| **Product weight** | 10.0 lbs (4.5 kg) |
| **Shipping weight** | 15 lbs (7 kg) |
| **Vibration** | ISTA 1A in carton (International Safe Transit Association) |
| **Regulatory compliance** | |
| Safety | CE, c-UL, UL |
| Compliances | CE, C-tick, FCC Class A, ICES, VCCI |
| **MTBF** | 30,000 hours |
| **Warranty** | 3 years parts and labor |

**NOTE:** All nominal levels are at ±10%.

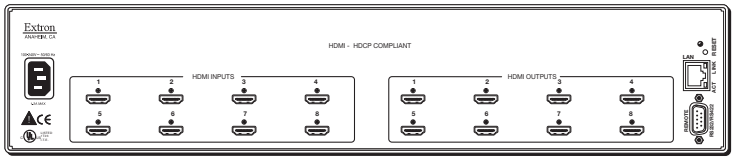
| Model | Version Description | Part number |
|---|---|---|
| DXP 44 HDMI | 4x4 HDMI Matrix Switcher | 60-880-01 |
| DXP 48 HDMI | 4x8 HDMI Matrix Switcher | 60-1010-01 |
| DXP 84 HDMI | 8x4 HDMI Matrix Switcher | 60-881-01 |
| DXP 88 HDMI | 8x8 HDMI Matrix Switcher | 60-882-01 |

## APPLICATION DIAGRAM

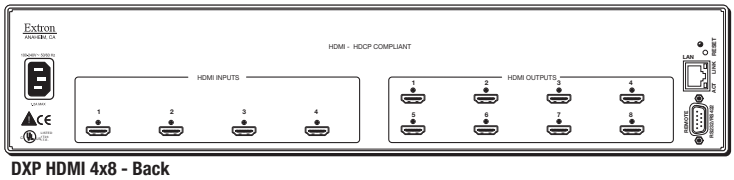



## PANEL DRAWINGS

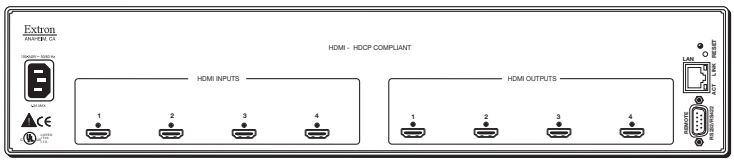

**DXP HDMI - Front**




**DXP HDMI 8x8 - Back**




**DXP HDMI 4x8 - Back**




**DXP HDMI 4x4 - Back**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