

Hybrid Modular Matrices



MX SERIES

visual engineering
LIGHTWARE

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Matrix Switcher Frames

The MX series matrix routers are the highest performance, modular expandable DVI and HDMI compliant switchers, available in five different frame sizes.

The built-in sophisticated software and hardware features make these routers the most flexible integrated solution for AV professionals and high-end home theatre applications.



Non-Blocking Topology:

Any input can be tied to any one or more outputs without limitations. One source can be viewed on multiple destinations at the same time. Crosspoint switching is done instantly without frame delay or frame latency. Different frame sizes are available from 9x9 up to 80x80 allowing the building of custom I/O sized matrices.

Hybrid Modular Architecture:

Lightware's Hybrid Modular matrix switchers have various input and output interface boards, which can be mixed in the same frame without limitation. The hybrid architecture allows for routing signals between the boards even if they have different type of interfaces (DVI, HDMI, fiber optical, or CATx twisted pair). A wide range of compatible extender devices is available for all interface boards.

Cross-Platform Signal Routing:

DVI, HDMI, analog VGA, SDI, HD-SDI, 3G-SDI, S/PDIF and analog stereo audio signals are handled in the same frame without routing limitations.

MX Series Frame Features:

- Equipped with MX-CPU2 processor board
- Additional I/O ports accessible on MX-CPU2 processor board
- Dual-Link DVI compatible
(one Dual-Link port uses two Single-Link ports)
- Compatible with all MX-.. and MXD-.. I/O boards
- Provide Ethernet and RS-232 extension to the endpoints
- Frame Detector for input signal analysis on any port
- Multiple TCP/IP connection
- Non-blocking topology
- Advanced error handling and logging with time code
- Combine non-HDCP and HDCP capable I/O boards in the same frame
- Advanced EDID Management
- Intuitive control software
- HDCP compliant
- Simultaneous control over several interfaces
- Optional redundant power supplies
- Hybrid Modular and Cross Platform technology
- Full crosspoint configuration save and reload as preset (32 presets)

Control Options:

- Front panel buttons and 4 line LCD menu
- RS-232
- TCP/IP Ethernet (multiple connections)
- Built-in website (multiple access)
- Front panel USB
- Christie (ex-Vista) Spyder and Barco Encore compatible

Processor Board

MX-CPU2

Part No: 9111 0008

MX-CPU2 contains an additional input and output port that fully support DVI and 3D HDMI signals with or without HDCP encryption. The test input and preview output ports turn an existing 16x16 matrix to a 17x17, an existing 32x32 to a 33x33.



Remote Control Panels (RCP)

MX-RCP16 and MX-RCP32

Part No: 9111 0009 (RCP16), 9111 0010 (RCP32)

Features:

- Remote access to matrix switchers
- Setup and programming through Ethernet connection
- 10/100 Ethernet connection
- Programmable Preset and Salvo functions
- 16+16 and 32+32 button versions
- XY control possibility

Lightware MX-RCP16 and MX-RCP32 are remote control panels for controlling Lightware matrix routers remotely through LAN connection. The RCPs can be used just like the front panel buttons on matrix routers to make crosspoint changes, or they can be programmed for special functions like salvo mode or universal device control.



MX-RCP32 Front View



MX-RCP32 Rear View

**Hybrid Modular Redundant Matrix Switcher
Frame 80x80**

MX-FR80R

Part no: 9111 0006

Features:

- I/O board slots: 10 input board slots, 10 output board slots
- Custom I/O sizes: from 9x9 to 80x80 (Single-Link DVI or HDMI)
- Rack height: 15U
- Redundant high reliability power supplies

**Hybrid Modular Redundant Matrix Switcher
Frame 65x65**

MX-FR65R

Part no: 9111 0005

Features:

- I/O board slots: 8 input board slots, 8 output board slots
- Custom I/O sizes: from 9x9 to 65x65 (Single-Link DVI or HDMI)
- Rack height: 15U
- MX-FR65R can be upgraded any time to a real MX-FR80R frame
- Redundant high reliability power supplies

**Hybrid Modular Redundant Matrix Switcher
Frame 33x33**

MX-FR33R

Part no: 9111 0004

Features:

- I/O board slots: 4 input board slots, 4 output board slots
- Custom I/O sizes: from 9x9 to 33x33 (Single-Link DVI or HDMI)
- Rack height: 7U
- Redundant high reliability power supplies

**Hybrid Modular Redundant Matrix Switcher
Frame 33x33**

MX-FR33L

Part no: 9111 0003

Features:

- I/O board slots: 4 input board slots, 4 output board slots
- Custom I/O sizes: from 9x9 to 33x33 (Single-Link DVI or HDMI)
- Rack height: 6U
- Single high reliability power supply

**Hybrid Modular Redundant Matrix Switcher
Frame 17x17**

MX-FR17

Part no: 9111 0002

Features:

- I/O board slots: 2 input board slots, 2 output board slots
- Custom I/O sizes: from 9x9 to 17x17 (Single-Link DVI or HDMI)
- Rack height: 4U
- Single high reliability power supply

**Hybrid Modular Redundant Matrix Switcher
Frame 9x9**

MX-FR9

Part no: 9111 0001

Features:

- I/O board slots: 1 input board slots, 1 output board slots
- Custom I/O sizes: 9x9 (Single-Link DVI or HDMI)
- Rack height: 4U
- Single high reliability power supply

The 'MX series frame features' on page 19 refer to all the Lightware MX series frames. The features above highlight the differences between the models.

Available Models, Rear Views:



MX-FR80R, MX-FR65R



MX-FR33R



MX-FR33L

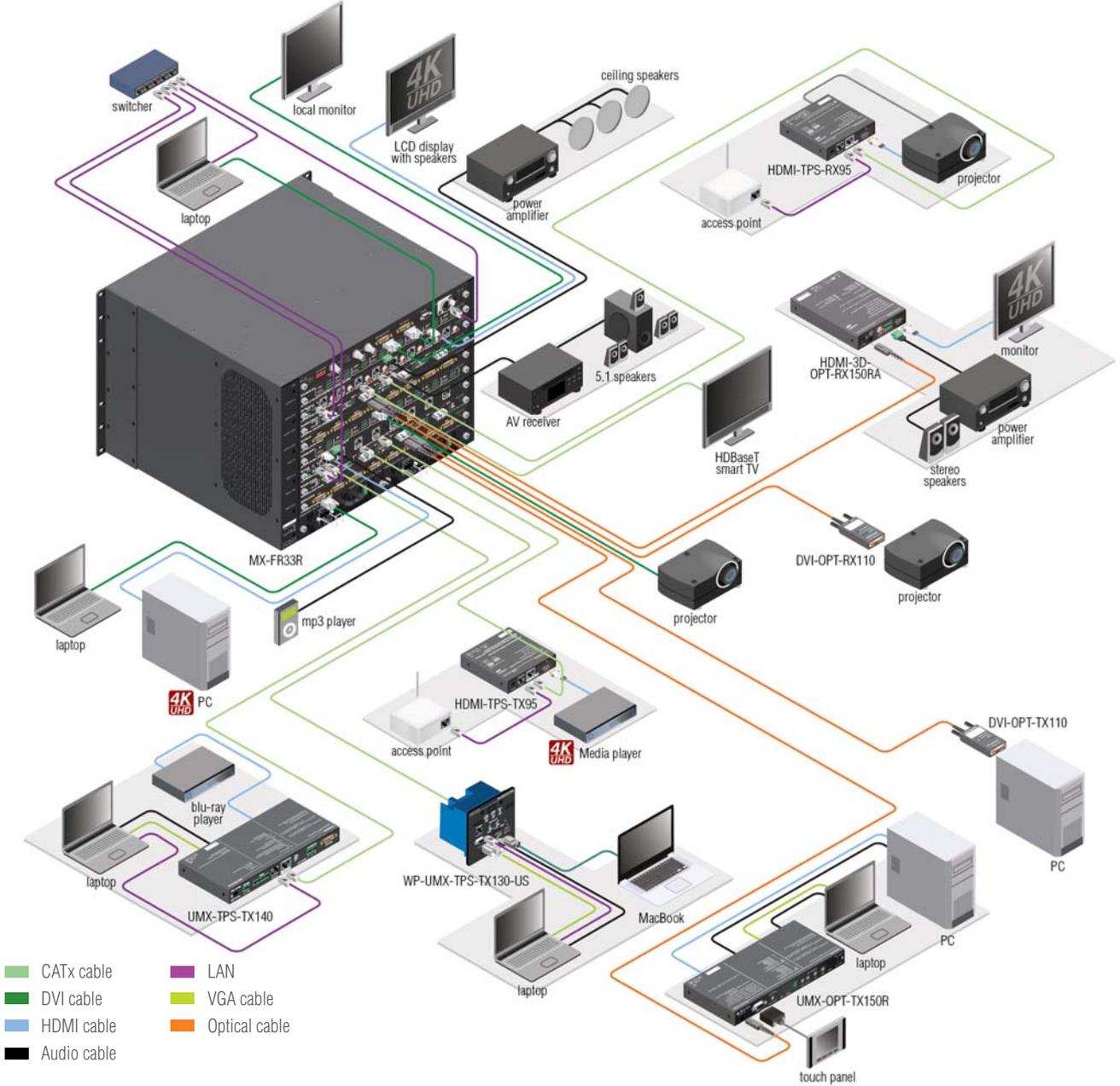


MX-FR17



MX-FR9

Limitless Variations:



Available Models, Front Views:



Frame-Dependent Specifications:

	MX-FR80R	MX-FR65R	MX-FR33R	MX-FR33L	MX-FR17	MX-FR9
Equipped with MX-CPU2 processor board	✓	✓	✓	✓	✓	✓
I/O board slots	10 in, 10 out	8 in, 8 out	4 in, 4 out	4 in, 4 out	2 in, 2 out	1 in, 1 out
Additional I/O ports accessible on MX-CPU2	✓	✓	✓	✓	✓	✓
Custom I/O sizes (Crosspoint size)	from 9x9 to 80x80	from 9x9 to 65x65	from 9x9 to 33x33	from 9x9 to 33x33	from 9x9 to 17x17	9x9
Dual-Link DVI compatible (Dual-Link crosspoint size)	from 4x4 to 40x40	from 4x4 to 32x32	from 4x4 to 16x16	from 4x4 to 16x16	from 4x4 to 8x8	4x4
Rack height	15U	15U	7U	6U	4U	4U
Redundant high reliability power supplies	✓	✓	✓	x	x	x
Number of power supplies	3	2	2	1	1	1
Power supply hot swappable	✓	✓	✓	x	x	x
Power consumption ¹	114 W	114 W	27 W	26 W	19 W	19 W
Heat dissipation (BTU) ¹	389	389	92	89	65	65
Cooling (forced convection) 120 mm fans	10	10	4	2	2	2
Dimensions with rack mounting ears:	482 W x 665 H x 392 D mm	482 W x 665 H x 392 D mm	482 W x 309,5 H x 400 D mm	482 W x 265,5 H x 300 D mm	482 W x 176,5 H x 300 D mm	482 W x 176,5 H x 300 D mm
Dimensions without rack mounting ears:	440 W x 665 H x 392 D mm	440 W x 665 H x 392 D mm	440 W x 309,5 H x 400 D mm	440 W x 265,5 H x 300 D mm	440 W x 176,5 H x 300 D mm	440 W x 176,5 H x 300 D mm
Net weight ²	25 kg	25 kg	12 kg	12 kg	9,8 kg	9,8 kg

¹with CPU2 board and without I/O boards

²with CPU2 board, power supplies and without I/O boards

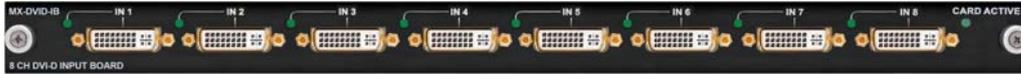
Specifications for All Frames:

Video data rate:	12.8 Gbps
EDID memory:	100 factory preset and 50 user programmable
EDID emulation:	256-Byte Extended EDID v1.3
Front panel buttons:	Yes
Front panel LCD:	Yes, 4 x 20 characters
RS-232:	Selectable (9600, 38400, 57600, 115200) Baud RX, TX (default: 57600)
LAN:	Ethernet 10Base-T or 100Base-TX (Auto-sensing)
WEB:	Built-in website
Temperature:	0°C to +50°C operational, -40°C to +70°C storage
Humidity:	10 to 90% non-condensing
Altitude:	2000 m operational
EMI/EMC compliance:	Yes, EN 55022 Class B
RoHS compliance:	Yes
Warranty:	3 years

Single-Link DVI Input Board

MX-DVID-IB

Part no: 9112 0001



MX-DVID-IB

Lightware manufactures a wide range of Single-Link products. The MX-DVID-IB Input Board is one of them with eight input channels accepting digital-only DVI signals. It supports resolutions from 640 x 480 to 1920 x 1200 or 2048 x 1080 with interlaced or progressive scan. Weak input signals are independently equalized and buffered for further signal processing. Each input port incorporates a built-in cable extender and an individual EDID Manager fixing EDID information and keeping sources continuously active. Users can set up any EDID resolution when using the Advanced EDID Management function of the routers. Non-HDCP encrypted DVI sources like computers can be connected to MX-DVID-IB with up to 60 meters of copper cable.

Features:

- 8 DVI-D input ports
- Adaptive and manual equalization for up to 60 m DVI cable
- Advanced EDID Management

Dual-Link DVI Input Board

MX-DVIDL-IB

Part no: 9112 0005



MX-DVIDL-IB

Lightware provides the world's biggest Dual-Link matrix switcher, the MX-FR80R frame, fully populated with MX-DVIDL-IB and MX-DVIDL-OB boards. MX-DVIDL-IB is a four-channel Dual-Link DVI Input Board which was designed for high video resolutions such as 2560 x 1600 or 4096 x 2400 as well as 100 or 120 Hz 3D signals. It incorporates Advanced EDID Management and 60 m Dual-Link DVI copper cable equalization.

Features:

- 4 gold plated DVI connectors
- Pro series Dual-Link DVI input board
- 60 m copper cable equalization - adaptive or manual mode
- Advanced EDID Management

DVI, HDCP and HDMI Compliant Input Board

MX-DVI-HDCP-IB

Part no: 9112 0002



MX-DVI-HDCP-IB

MX-DVI-HDCP-IB is an eight channel Input Board with DVI connectors which can receive digital DVI and HDMI 1.3 signals with or without HDCP encryption. Each input has 60 m cable equalization and an individual EDID Manager incorporated. The DVI connectors pass HDMI with Embedded Audio signals from blu-ray and set top boxes and ensure a reliable connection with its lockable screws.

Features:

- 8 DVI input ports
- HDMI 1.3; DVI and HDCP compliant
- 60 m copper cable compensation on all input - adaptive or manual
- Advanced EDID Management
- Supports all HDMI audio formats: Dolby TrueHD and DTS-HD Master Audio
- Pixel Accurate Reclocking
- 36-bit deep color support
- 3D signal compatibility with frame packing, side-by-side and top-bottom formats

Analog and Digital DVI-I Input Board

MX-DVII-HDCP-IB

Part no: 9112 0003



MX-DVII-HDCP-IB

MX-DVII-HDCP-IB is an all-around Input Board which was designed to handle analog VGA, YUV, digital DVI and HDMI 1.3 video signals with HDCP compliancy. Each input port incorporates an individual EDID Manager, a video A/D converter and a Analog/Digital video switch. No frame delay occurs while the analog signal is digitized.

Features:

- DVI-I (analog+digital) input board
- Digitizes VGA, YUV analog input formats and converts to HDMI or DVI
- 10-bit HD and SD; interlaced and progressive A/D conversion
- Accepts DVI and HDMI 1.3 digital signals with embedded audio
- HDCP compliant
- Autodetects input signal
- Deep color support
- Picture adjustments per input port, contrast, black level, color etc.
- Pixel Accurate Reclocking
- Advanced digital and analog EDID Management
- Adaptive DVI and HDMI cable equalization for up to 20 meters

3G-SDI Input Board

MX-3GSDI-IB

Part no: 9112 0010



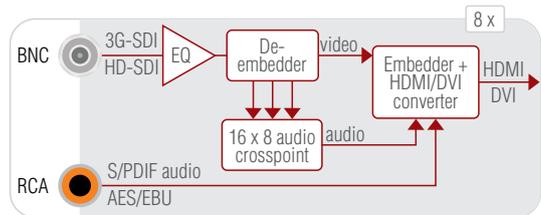
MX-3GSDI-IB

The MX-3GSDI-IB input board allows 3G-SDI sources to be connected, routed and extended, brings your 3G-SDI sources to an HDMI, DVI routing system. It accepts SD-SDI, HD-SDI and 3G-SDI video signals with embedded audio on BNC connectors. Each channel also incorporates an SDI/HD-SDI/3G-SDI to HDMI/DVI conversion for further switching and processing in the router frame. SDI input signals are automatically equalized and reclocked. The card also boasts an additional RCA Phono digital audio input connector accepting AES/EBU or S/PDIF digital audio per channel. Both stereo PCM and 5.1 AC3 encoded formats are supported and are embedded into the video stream.

Features:

- 8 BNC and 8 RCA connectors
- Built-in 8 x SDI to HDMI converter
- Converts SDI, HD-SDI and 3G-SDI to DVI or HDMI
- SDI multichannel audio de-embedding
- Embeds multichannel SDI or external S/PDIF digital audio into the HDMI signal
- Auto detects input formats
- Input cable equalization
- PLL Reclocking

Port Diagram:



4K, 3D and Deep Color HDMI Input Board

MX-HDMI-3D-IB, -A, -S

Part no: 9112 0007, 9112 0008 (A), 9112 0009 (S)

MX-HDMI-3D-IB provides eight channel HDMI 1.4 extension with 4K resolution, 3D formats and local audio support. DVI and HDCP compliance are important features as are the different audio connector options: digital S/PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board as well). The MX-HDMI-3D-IB without the digital or analog audio option can handle HDMI embedded audio. Advanced functions such as HDCP enable/disable mode, Pixel Accurate Reclocking, Advanced EDID Management and Frame Detector are integrated providing the professional setup and operation.

Features:

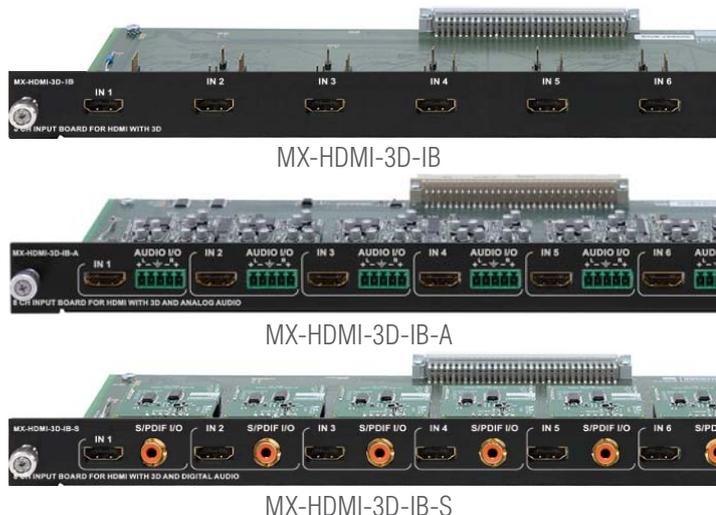
- 8 HDMI input ports
- HDMI 1.4a; DVI and HDCP compliant
- For advanced audio optional 8 S/PDIF (S) or 8 stereo audio (A) connectors
- Available models: analog stereo audio option (MX-HDMI-3D-IB-A) or digital S/PDIF audio option (MX-HDMI-3D-IB-S) or without audio (MX-HDMI-3D-IB)
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048, HD video resolutions and all 3D formats are supported
- Advanced EDID Management and Frame Detector
- Pixel Accurate Reclocking
- Dolby TrueHD and DTS-HD Master Audio
- 36-bit deep color support

Digital S/PDIF Audio Option:

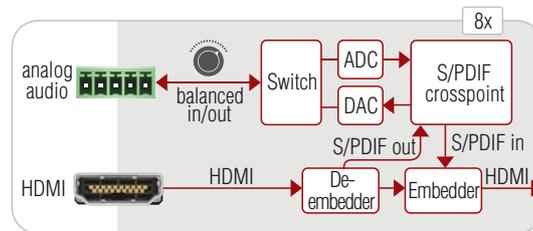
- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors: audio can be de-embedded from the HDMI signals or audio can be embedded (or replaced) to the HDMI signal
- S/PDIF can be sent over ARC back to the source device

Analog Stereo Audio Option:

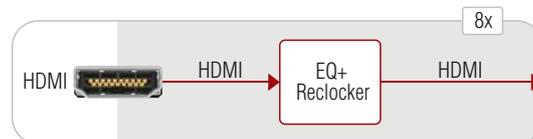
- Bi-directional configurable analog stereo port with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) to the HDMI signal
- Volume, gain, balance, bass and treble control
- Phase invert, DC filter and de-emphasis option



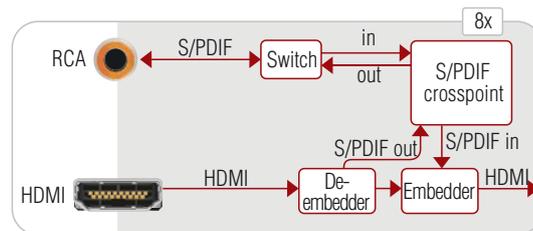
Port Diagrams:



MX-HDMI-3D-IB-A

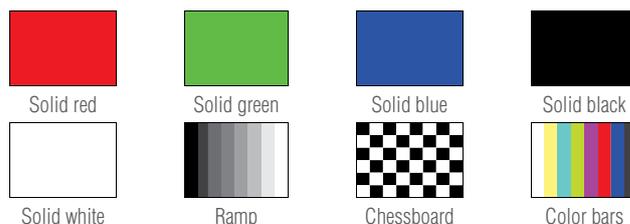


MX-HDMI-3D-IB



MX-HDMI-3D-IB-S

Available Video Patterns:



Test Pattern Generator Video Formats:

480p, 576p, 720p, 1080p, 1080p deep color

TPS and HDMI Input Board for Ethernet, Audio and Control new!

MX-4TPS2-4HDMI-IB, -A, -S, -P, -AP, -SP

Part no: 9112 0041, 9112 0042 (A), 9112 0043 (S), 9112 0038 (AP), 9112 0039 (SP), 9112 0040 (P)



MX-4TPS2-4HDMI-IB



MX-4TPS2-4HDMI-IB-A



MX-4TPS2-4HDMI-IB-S



MX-4TPS2-4HDMI-IB-P



MX-4TPS2-4HDMI-IB-AP



MX-4TPS2-4HDMI-IB-SP

MX-4TPS2-4HDMI-IB is a mixed input board with four HDMI and four HDBaseT™ single CAT inputs providing HDMI 1.4, audio, Ethernet and RS-232 extension on a single CAT5/6/7 cable up to 120m in HDBaseT™ and 170m distance in Long reach mode (maximal resolution is Full HD 1080p in Long reach mode). Resolutions up to 4K / UHD (30Hz RGB 4:4:4 , 60Hz YCbCr 4:2:0) and 48-bit color depth are handled with all standard audio formats as well as 120Hz 3D signals. The board offers bi-directional RS-232 and Ethernet transmission (each board has a 10/100 uplink connector for the Ethernet network connection). The input board is available with audio add-ons: digital S/PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board).

MX-4TPS2-4HDMI-IB without the digital or analog audio option also handles HDMI embedded audio. Advanced professional functions such as HDCP enable/disable mode, Pixel Accurate Reclocking, Advanced EDID Management and Frame Detector are integrated ensuring professional setup and operation. The board is compatible with deep color, Dolby TrueHD and DTS-HD audio.

Features:

- HDMI extension supporting 3D and 4K
- Accepts HDMI + Ethernet + RS-232 over one CAT5/6/7 cable up to 170m distance
- HDMI 1.4; DVI and HDCP compliant
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048,
- 10/100 Ethernet transmission
- Supports all HDMI audio formats
- Digital or analog audio add-on option
- PoE add-on option
- Adjustable analog audio settings

Product Name	Audio Add-on	PoE Add-on
MX-4TPS2-4HDMI-IB	none	none
MX-4TPS2-4HDMI-IB-A	analog	none
MX-4TPS2-4HDMI-IB-S	spdif	none
MX-4TPS2-4HDMI-IB-P	none	yes
MX-4TPS2-4HDMI-IB-AP	analog	yes
MX-4TPS2-4HDMI-IB-SP	spdif	yes

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MX-4TPS2-4HDMI-IB-P

- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback

MX-4TPS2-4HDMI-IB-AP

- Bi-directional configurable analog stereo ports with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) into the HDMI signal
- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Volume, gain, balance, bass and treble control
- Phase invert, DC filter and de-emphasis option

MX-4TPS2-4HDMI-IB-SP

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors:
- audio can be de-embedded from the HDMI signals or audio can be embedded (or replaced) into the HDMI signal
- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback
- S/PDIF can be sent over ARC back to the source device

MX-4TPS2-4HDMI-IB-A

- Bi-directional configurable analog stereo ports with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) into the HDMI signal
- Volume, gain, balance, bass and treble control
- Phase invert, DC filter and de-emphasis option

MX-4TPS2-4HDMI-IB-S

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors: audio can be de-embedded from the HDMI signals or audio can be embedded (or replaced) into the HDMI signal
- S/PDIF can be sent over ARC back to the source device



TPS Input Board for HDMI, Ethernet, Audio and Control

MX-TPS-IB, -A, -S

Part no: 9112 0027, 9112 0028 (A), 9112 0029 (S)

MX-TPS-IB Input Board is a long distance single CAT HDBaseT™ solution with localized audio embedding and de-embedding points. The board provides HDMI 1.4, audio, Ethernet and RS-232 extension on a single CAT5/6/7 cable up to a 100 m distance in HDBaseT™ and a 170 m distance in Long Reach Mode (maximum resolution is Full HD 1080p in Long Reach Mode) on eight channels. Resolutions up to 4K and 48-bit color depth are handled with all standard audio formats as well as 120Hz 3D signals. The board offers bi-directional RS-232 and Ethernet transmission (each board has a 10/100 uplink connector for the Ethernet network connection) and remote powering option for the TPS 95 series extenders. The Input Board is available with optional audio connectors: digital S/PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board). The MX-TPS-IB without the digital or analog audio option also handles HDMI embedded audio. Advanced functions such as HDCP enable/ disable mode, Pixel Accurate Reclocking, Advanced EDID Management and Frame Detector are integrated providing professional setup and operation. The board is compatible with deep color, Dolby TrueHD and DTS-HD audio and features PCM audio sample rate conversion.

Features:

- 8 channel twisted pair input board
- HDMI extension supporting 3D and 4K
- Accepts HDMI + Ethernet + RS-232 over one CAT5/6/7 cable up to 170m distance
- HDMI 1.4; DVI and HDCP compliant
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), UHD, 2560 x 1600, HD video resolutions and all 3D formats are supported
- 10/100 Ethernet transmission
- Supports all HDMI audio formats
- Options for cards with digital or analog audio connections

Digital S/PDIF Audio Option:

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors: audio can be de-embedded from the HDMI signals or audio can be embedded (or replaced) to the HDMI signal

Analog Stereo Audio Option:

- Bi-directional configurable analog stereo port with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) to the HDMI signal
- Volume, gain, balance, bass and treble control
- Phase invert, DC filter and de-emphasis option

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MX-TPS-IB

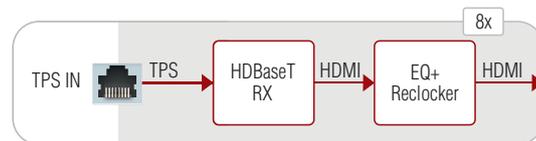


MX-TPS-IB-A

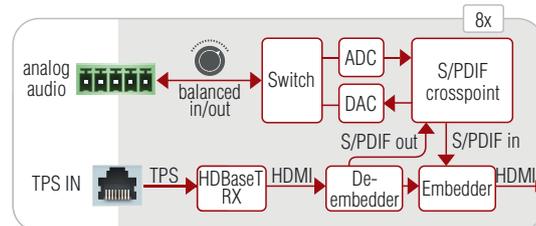


MX-TPS-IB-S

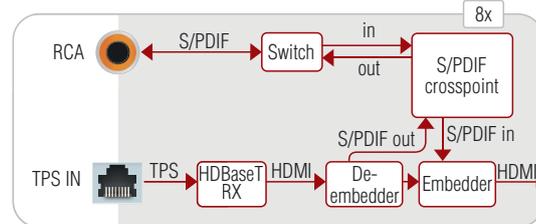
Port Diagrams:



MX-TPS-IB

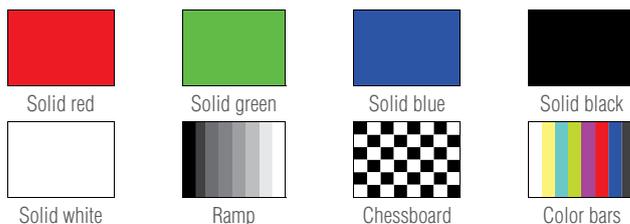


MX-TPS-IB-A



MX-TPS-IB-S

Available Video Patterns:



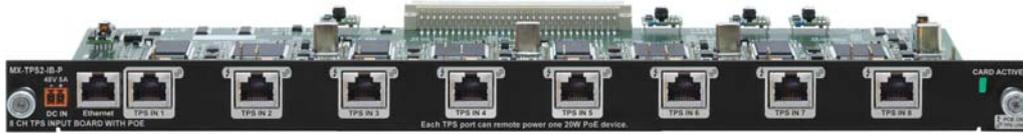
Test Pattern Generator Video Formats:

480p, 576p, 720p, 1080p, 1080p deep color

TPS Input Board with PoE new!

MX-TPS2-IB-P, -AP, -SP

Part no: Part No: 9112 0035 (P), 9112 0036 (AP), 9112 0037 (SP)



MX-TPS2-IB-P



MX-TPS2-IB-AP



MX-TPS2-IB-SP

MX-TPS2-IB is an eight channel HDMI and single CAT HDBase™ Input Board providing HDMI 1.4, audio, Ethernet and RS-232 extension on a single CAT5/6/7 cable up to a 100m in HDBase™ and a 170m distance in Long Reach Mode (maximal resolution is Full HD 1080p in Long Reach Mode). Resolutions up to 4K and 48-bit color depth are handled with all standard audio formats as well as 120Hz 3D signals. The board offers bi-directional RS-232 and Ethernet transmission (each board has a 10/100 uplink connector for the Ethernet network connection) and remote powering option for the TPS extenders available with the PoE add-on.* The Input Board is available with audio add-ons: digital S/ PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board).

The MX-TPS2-IB without the digital or analog audio option also handles HDMI embedded audio. Advanced functions such as HDCP enable/disable mode, Pixel Accurate Reclocking, Advanced EDID Management and Frame Detector are integrated providing professional setup and operation. The board is compatible with deep color, Dolby TrueHD and DTS-HD audio, and features PCM audio sample rate conversion.

Features:

- HDMI extension supporting 3D and 4K
- Accepts HDMI + Ethernet + RS-232 over one CAT5/6/7 cable up to 170m distance
- HDMI 1.4; DVI and HDCP compliant
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 2560 x 1600, HD video resolutions and all 3D formats are supported
- 10/100 Ethernet transmission
- Supports all HDMI audio formats
- Digital or analog audio add-on option
- Adjustable analog audio settings
- Integrated PoE power injection option for TPS extenders*

*HDMI-TPS-TX95 and DVI-HDCP-TPS-TX95 remote powering is supported by these boards: MX-TPS-IB, MX-TPS-IB-A, MX-TPS-IB-S

Product Name	Audio Add-on	PoE Add-on
MX-TPS2-IB-P	none	yes
MX-TPS2-IB-AP	analog	yes
MX-TPS2-IB-SP	spdif	yes

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MX-TPS2-IB-P

- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback

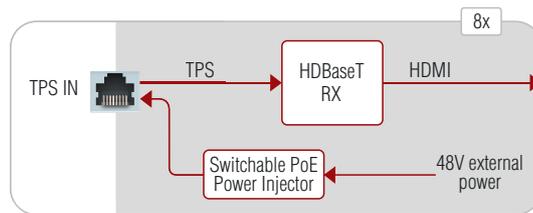
MX-TPS2-IB-AP

- Bi-directional configurable analog stereo port with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) to the HDMI signal
- Volume, gain control
- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback

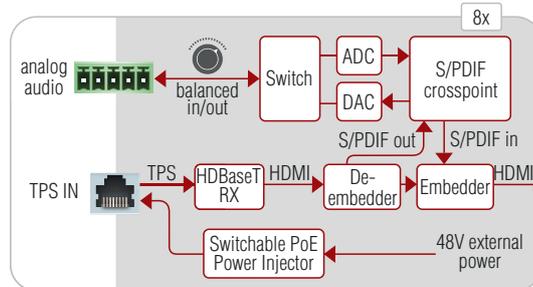
MX-TPS2-IB-SP

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors:
 - audio can be de-embedded from the HDMI signals or
 - audio can be embedded (or replaced) to the HDMI signal
- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback

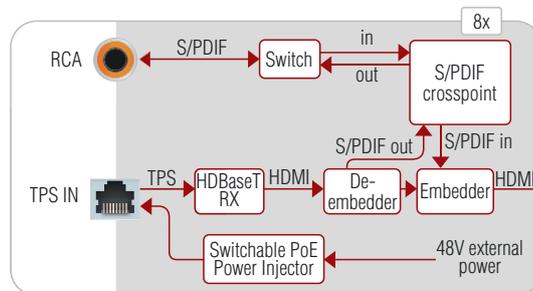
Port Diagrams:



MX-TPS2-IB-P



MX-TPS2-IB-AP



MX-TPS2-IB-SP

Twisted Pair Single-Link DVI Input Board

MX-DVI-TP-IB

Part no: 9112 0011



MX-DVI-TP-IB

MX-DVI-TP-IB is a cost-effective solution for the top level HDBaseTTM matrix boards with several useful features. The eight channel twisted pair Input Board takes DVI signals over a single CATx cable. Each input has a manual or adaptive CAT5, CAT6 or CAT7 twisted pair cable equalization for up to 40 dB signal loss.

Features:

- 8 channel twisted pair input board
- Accepts DVI signals over CAT5, CAT6 or CAT7 cables
- Input cable equalization: adaptive or manual

Compatible Products:

- Transmitters:
 - DVI-TP-TX200
 - DVI-TP-TX300
 - DVI-HDCP-TP-TX100R

Twisted Pair Single-Link DVI Input Board

MX-DVI-TP-IB+

Part no: 9112 0012



MX-DVI-TP-IB+

MX-DVI-TP-IB+ is a cost-effective solution to the top level HDBase™ matrix boards with several useful features. This input board has eight dual twisted pair input channels accepting DVI-D signals. Each input port incorporates two RJ45 connectors that have built-in cable extender and an individual EDID Manager for setting EDID information and keeping sources active.

Features:

- 8 channel dual twisted pair Input Board
- Accepts DVI signals over CAT5, CAT6 or CAT7 cables
- Optional extender remote powering over second CATx cable
- Advanced EDID Management over second CATx cable
- Input cable equalization: adaptive or manual

Optional Accessory:



Power adaptor with IEC plug.
Universal input: 100-240 V
AC, 50-60 Hz.
Output: 12 V DC, 6.67 A.

Compatible Products:

- Transmitters:
DVI-TP-TX200
DVI-TP-TX300
DVI-HDCP-TP-TX50
DVI-HDCP-TP-TX100R

Twisted Pair HDMI Input Board

MX-HDMI-TP-IB

Part no: 9112 0013



MX-HDMI-TP-IB

MX-HDMI-TP-IB is a cost-effective solution of extending HDMI, DVI, VGA signals over shorter distances. This eight channel Input Board accepts HDMI 1.3 and DVI signals over CAT5, CAT6 or CAT7 cables with HDCP compliance. Each input has two RJ45 connectors that feature manual or automatic twisted pair cable equalization, Pixel Accurate Reclocking, Frame Detector and an individual EDID Manager. Using the optional 12 Volt DC power supply this board is able to remotely power the connected compatible TP transmitters.

Features:

- Built-in CAT7 to HDMI converters
- Accepts HDMI 1.3 and DVI signals over CAT5, CAT6 or CAT7 cables
- HDCP compliant
- Supports all HDMI audio formats such as Dolby TrueHD and DTS-HD Master Audio
- Advanced EDID Management
- Adaptive and manual cable equalization
- Pixel Accurate Reclocking
- 3D signal compatibility with frame packing, side-by-side and top-bottom formats

Optional Accessory:



Power adaptor with IEC plug.
Universal input: 100-240 V
AC, 50-60 Hz.
Output: 12 V DC, 6.67 A.

Compatible Products:

- Transmitters:
WP-HDMI-TP-TX50R
WP-DVI-HDCP-TP-TX50R
DVI-TP-TX200
DVI-TP-TX300
DVI-HDCP-TP-TX50
- DVI-HDCP-TP-TX100R
HDMI-TP-TX50
HDMI-TP-TX100R
HDMI-TP-TX200R

Twisted Pair HDMI Input Board

MXD-HDMI-TP-IB

Part no: 9112 0014



MXD-HDMI-TP-IB

The MXD-HDMI-TP-IB double-slot board accepts HDMI 1.3 and 3D signals over two CATx cables and provides a bi-directional RS-232 link to each remote source device when using compatible CATx transmitters. Each input port de-embeds digital audio from the HDMI stream and generates output via an S/PDIF connector locally while maintaining the audio content to the router's main crosspoint board.

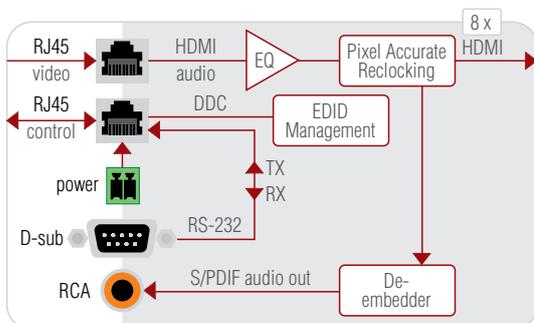
Features:

- 8 channel twisted pair Input Board
- Accepts HDMI 1.3 and DVI signals over CAT5, CAT6 or CAT7 cables
- Supports all HDMI Audio formats such as Dolby TrueHD and DTS-HD Master Audio
- Double slot output board - needs two cards' slot in the frame
- S/PDIF audio output per channel
- RS-232 control over twisted pair for each input port
- HDCP compliant
- Advanced EDID Management
- Pixel Accurate Reclocking
- Adaptive or manual CATx cable equalization
- Automatic or adjustable color range conversion
- 3D signal compatibility with frame packing, side-by-side and top-bottom formats
- Compatible with MX-FR80R, MX-FR65R, MX-FR33R, MX-FR33L, MX-FR17 and MX-FR9 frames

Compatible Products:

- Transmitters:
 - WP-HDMI-TP-TX50R
 - WP-DVI-HDCP-TP-TX50RW
 - DVI-TP-TX200
 - DVI-TP-TX300
 - DVI-HDCP-TP-TX50
 - DVI-HDCP-TP-TX100R
 - HDMI-TP-TX50
 - HDMI-TP-TX100R
 - HDMI-TP-TX200R

Port Diagram:



Optional Accessory:

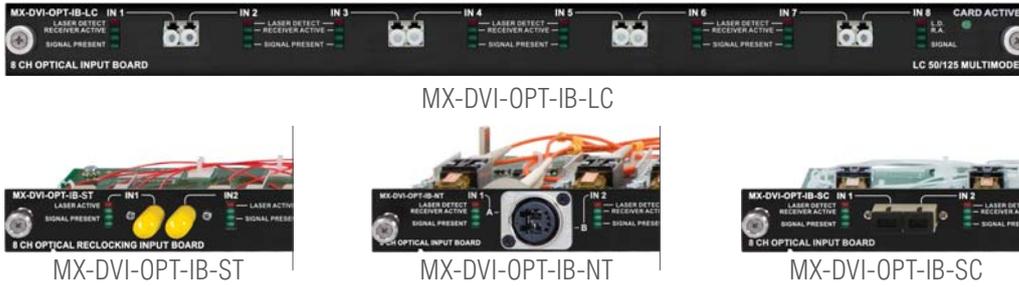


Power adaptor with IEC plug.
 Universal input: 100-240 V AC, 50-60 Hz.
 Output: 12 V DC, 6.67 A.

Fiber Optical Single-Link DVI Input Board

MX-DVI-OPT-IB -LC, -NT, -SC, -ST

Part no: 9112 0015 (LC), 9112 0016 (ST), 9112 0017 (SC), 9112 0018 (NT)



MX-DVI-OPT-IB offers an extremely long, 2500m distance extension over a single Multimode fiber for Single-Link DVI signals on eight channels. The board is available with Neutrik OpticalCON, -LC, -SC or -ST connectors. Each port converts an incoming fiber signal to DVI-D format. Single Fiber Technology ensures transmission of DVI-D signals over one multimode fiber core using multiple wavelengths.

Features:

- 8 x Multimode fiber input
- Selectable connectors: Neutrik OpticalCON, -LC, -SC, -ST
- Laser detect LED for each input
- No video compression
- Zero frame delay
- Extension distance: 2500 m (1600 x 1200 @ 60Hz)

Compatible Products:

- Transmitters:
DVI-OPT-TX110
DVI-OPT-TX220-Pro

Fiber Optical Dual-Link DVI Input Board

MX-DVIDL-OPT-IB-LC, -NT

Part no: 9112 0019 (LC), 9112 0022 (NT)



MX-DVIDL-OPT-IB offers an extremely long, 2500m distance extension over a duplex Multimode fiber for Dual-Link DVI signals on four channels. It supports Dual-Link DVI video resolutions as well as 120 Hz 3D signals. Fiber to Dual-Link DVI conversion maintains the signal integrity with zero frame delay and without video compression. The board is available with Neutrik OpticalCON, -LC, -SC or -ST connectors.

Features:

- 4 Dual-Link DVI Multimode fiber input
- Selectable connectors: Neutrik OpticalCON, -LC, -SC, -ST
- Laser detect LED for each input
- No video compression
- Zero frame delay
- Extension distance: up to 2500 m
- Supports 120 Hz 3D signals

Compatible Products:

- Transmitters:
DVIDL-OPT-TX200

4K, 3D and Deep Color HDMI Optical Input Board

MX-HDMI-OPT-IB-LC, -NT, -SC

Part no: 9112 0023 (LC), 9112 0025 (SC), 9112 0026 (NT)



MX-HDMI-OPT-IB-NT



MX-HDMI-OPT-IB-SC



MX-HDMI-OPT-IB-LC

MX-HDMI-OPT-IB offers an extremely long, 2500m distance extension over a single Multimode fiber for HDMI, DVI, VGA signals on 8 channels with 4K resolution and 3D formats support. An internal fiber to HDMI conversion adds no latency or frame delay and uses no video compression.

Features:

- Built-in HDMI to fiber converter
- Selectable connectors: Neutrik OpticalCON, -LC, -SC
- 4K x 2K @ 30 Hz, 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048 HD video resolutions and all 3D formats are supported
- Laser detect LED
- No video compression
- Zero frame delay
- Extension distance: 2500 m (1600 x 1200 @ 60Hz)

Compatible Products:

- Transmitters:
 - DVI-OPT-TX110
 - DVI-OPT-TX220-Pro
 - HDMI-OPT-TX100
 - HDMI-OPT-TX100R
 - HDMI-OPT-TX200R
 - MX-HDMI-OPT-OB
 - MX-HDMI-OPT-OB-R
 - 25G-MX-HDMI-OPT-OB

Analog Audio Output Board

MX-AUDIO-OB-A **new!**

Part no: 9113 0045



MX-AUDIO-OB-A

MX-AUDIO-OB-A is an eight-channel analog audio output board to switch audio de-embedded from a video signal to an output port. The board has adjustable audio setting options. This output board features eight durable Phoenix type audio connectors. Volume, balance, bass and treble settings help enhancing the stereo PCM audio signal ranging up to 96kHz. Further options to set phase inverting and pre-emphasis are also included.

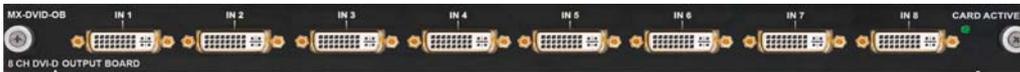
Features:

- Eight Phoenix (Euroblock) connectors
- Stereo PCM audio up to 96 kHz de-embedded from the HDMI signals
- Volume, balance, bass and treble control
- Phase invert option
- Pre-emphasis option

Single-Link DVI Output Board

MX-DVID-OB

Part no: 9113 0001



MX-DVID-OB

MX-DVID-OB is a cost effective solution for routing DVI signals. It accepts digital DVI signals and incorporates a Pixel Accurate Reclocking engine, recognizes attached Monitor EDIDs and each output can power the DVI-OPT-TX110 fiber optic transmitter via +5 V pin with up to 500 mA current.

Features:

- 8 DVI-D connectors
- Advanced EDID Management
- Pixel Accurate Reclocking
- +5 V fiber extender powering

Dual-Link DVI Output Board

MX-DVIDL-OB

Part no: 9113 0003



MX-DVIDL-OB

Lightware's MX-FR80R frame is the world's largest Dual-Link matrix switcher, which is fully populated with MX-DVIDL-OB and MX-DVIDL-OB boards. MX-DVIDL-OB is a Dual-Link DVI Output Board supporting four Dual-Link DVI-D connectors. All signals are reclocked on output with the TMDS Reclocking technology. High-definition computer signals and 120Hz 3D video content are supported.

Features:

- 4 gold plated DVI connectors
- Pro series Dual-Link I/O board
- Advanced EDID Management
- TMDS Reclocking
- Fiber adapter powering on output

DVI, HDCP and HDMI Compliant Output Board

MX-DVI-HDCP-OB

Part no: 9113 0002



MX-DVI-HDCP-OB

MX-DVI-HDCP-OB is an eight channel Output Board with DVI connectors able to receive digital DVI and HDMI 1.3 signals with or without HDCP encryption. This board fully supports HDMI signals with embedded multichannel audio using reliable screw-lockable DVI connectors. Numerous professional features are built-in such as 3D compatibility, Pixel Accurate Reclocking, HDMI to DVI conversion and color space conversion.

Features:

- 8 channel Output Board
- HDMI 1.3; DVI and HDCP compliant
- Advanced EDID Management
- Supports all HDMI audio formats such as Dolby TrueHD and DTS-HD Master Audio
- Pixel Accurate Reclocking
- 36-bit deep color support
- Color space conversion: RGB and YUV
- Color range scaling (16:235 to 0:255)
- 3D signal compatibility with frame packing, side-by-side and top-bottom formats

4K, 3D and Deep Color HDMI Output Board

MX-HDMI-3D-OB, -A, -S

Part no: 9113 0005, 9113 0006 (A), 9113 0007 (S)



MX-HDMI-3D-OB



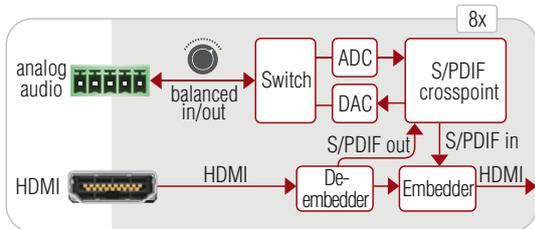
MX-HDMI-3D-OB-A



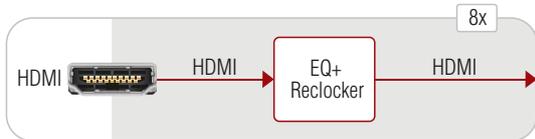
MX-HDMI-3D-OB-S

MX-HDMI-3D-OB provides eight channel HDMI 1.4 extension with 4K resolution, 3D formats and local audio support. DVI and HDCP compliance are important features as are the different audio connector options: digital S/PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board as well). The MX-HDMI-3D-OB without the digital or analog audio option can handle HDMI embedded audio as well. Pixel Accurate Reclocking and HDMI (24 bit RGB) to DVI conversion are incorporated. The board is compatible with deep color, Dolby TrueHD and DTS-HD audio.

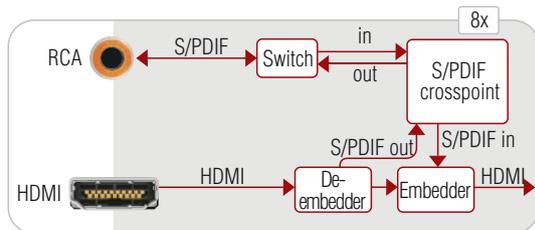
Port Diagrams:



MX-HDMI-3D-OB-A



MX-HDMI-3D-OB



MX-HDMI-3D-OB-S

Features:

- 8 HDMI output ports
- HDMI 1.4a; DVI and HDCP compliant
- For advanced audio optional 8 S/PDIF (S) or 8 stereo audio (A) connectors
- Available models: analog stereo audio option (MX-HDMI-3D-OB-A) or digital S/PDIF audio option (MX-HDMI-3D-OB-S) or without audio (MX-HDMI-3D-OB)
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048, HD video resolutions and all 3D formats are supported
- Advanced EDID Management and Frame Detector
- Pixel Accurate Reclocking
- Dolby TrueHD and DTS-HD Master Audio
- 36-bit deep color support

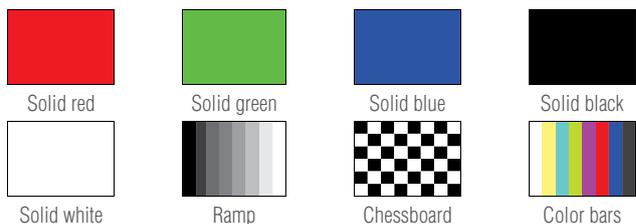
Digital S/PDIF Audio Option:

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors: audio can be de-embedded from the HDMI signals or audio can be embedded (or replaced) to the HDMI signal

Analog Stereo Audio Option:

- Bi-directional configurable analog stereo port with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) to the HDMI signal

Available Video Patterns:



Test Pattern Generator Video Formats:

480p, 576p, 720p, 1080p, 1080p deep color



TPS Output Board for HDMI, Ethernet, Audio and Control

MX-TPS-OB, -A, -S

Part no: 9113 0027, 9113 0028 (A), 9113 0029 (S)

MX-TPS-OB Output Board is a long-distance single CAT HDBaseT™ solution with localized audio embedding and de-embedding points. This board provides HDMI 1.4, audio, Ethernet and RS-232 extension on a single CAT5/6/7 cable up to a 100m in HDBaseT™ and up to a 170m distance in Long Reach Mode (maximum resolution is Full HD 1080p in Long Reach Mode) on eight channels. Resolutions up to 4K and 48-bit color depth are handled with all standard audio formats as well as 120Hz 3D signals. The board offers bi-directional RS-232 and Ethernet transmission (each board has a 10/100 uplink connector for the Ethernet network connection) and remote powering option for the TPS 95 series extenders. The Output Board is available with optional audio connectors: digital S/PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board). The MX-TPS-OB without the digital or analog audio option also handles HDMI embedded audio. The board is compatible with deep color, Dolby TrueHD and DTS-HD audio and features PCM audio sample rate conversion. Advanced functions such as HDCP enable/disable mode, Pixel Accurate Reclocking, Advanced EDID Management and Frame Detector are integrated providing professional setup and operation.

Features:

- 8 channel twisted pair Output Board
- HDMI extension supporting 3D and 4K
- Accepts HDMI + Ethernet + RS-232 over one CAT5/6/7 cable up to 170m distance
- HDMI 1.4; DVI and HDCP compliant
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), UHD, 2560 x 1600, HD video resolutions and all 3D formats are supported
- 10/100 Ethernet transmission
- Supports all HDMI audio formats
- Options for cards with digital or analog audio connectors

Digital S/PDIF Audio Option:

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors: audio can be de-embedded from the HDMI signals or audio can be embedded (or replaced) to the HDMI signal

Analog Stereo Audio Option:

- Bi-directional configurable analog stereo port with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) to the HDMI signal
- Volume, gain, balance, bass and treble control
- Phase invert, DC filter and de-emphasis option

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MX-TPS-OB

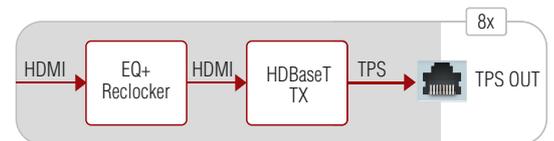


MX-TPS-OB-A

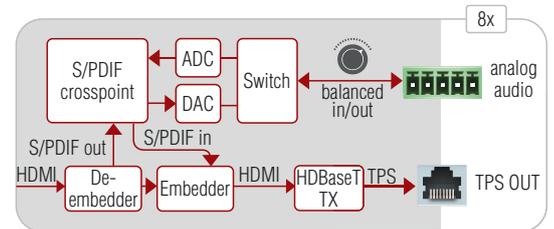


MX-TPS-OB-S

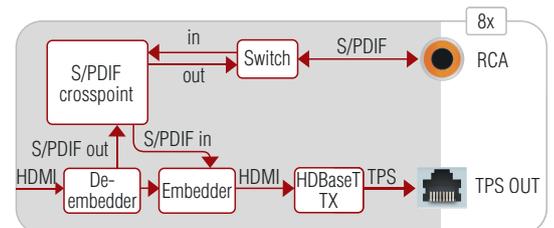
Port Diagrams:



MX-TPS-OB

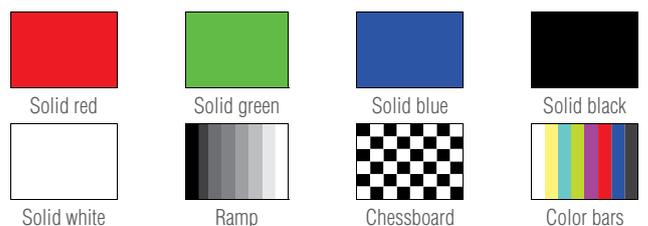


MX-TPS-OB-A



MX-TPS-OB-S

Available Video Patterns:



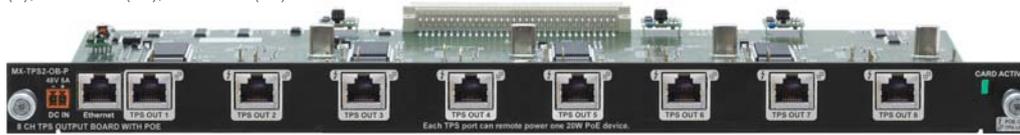
Test Pattern Generator Video Formats:

480p, 576p, 720p, 1080p, 1080p deep color

TPS Output Board with PoE Option new!

MX-TPS2-OB-P, -AP, -SP

Part no: 9113 0042 (P), 9113 0043 (AP), 9112 0044 (SP)



MX-TPS2-OB-P



MX-TPS2-OB-AP



MX-TPS2-OB-SP

MX-TPS2-OB-P the 8 channel twisted pair output board provides HDMI 1.4, audio, Ethernet and RS-232 transmission on a single CAT5/6/7 cable up to 100m in HDBaseT™ and 170m distance in Long reach mode (maximal resolution is Full HD 1080p in Long reach mode). Resolutions up to 4K and 48-bit color depth are handled with all standard audio formats as well as 120Hz 3D signals. The board offers bi-directional RS-232 and Ethernet transmission (each board has a 10/100 uplink connector for the Ethernet network connection) and remote powering option for the TPS extenders available with the PoE add-on. The output board is available with audio add-ons: digital S/PDIF or analog stereo connectors are available for advanced audio functions (HDMI embedded audio signals are managed by the board).

The MX-TPS2-OB-P without the digital or analog audio option also handles HDMI embedded audio. The board is compatible with deep color, Dolby TrueHD and DTS-HD audio and features PCM audio sample rate conversion. Advanced professional functions such as HDCP enable/disable mode, Pixel Accurate Reclocking, Advanced EDID Management and Frame Detector are integrated providing the highest level of setup and usage.

Features:

- HDMI extension supporting 3D and 4K
- Accepts HDMI + Ethernet + RS-232 over one CAT5/6/7 cable up to 170m distance
- HDMI 1.4; DVI and HDCP compliant
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), UHD, 2560 x 1600, HD video resolutions and all 3D formats are supported
- 10/100 Ethernet transmission
- Supports all HDMI audio formats
- Digital or analog audio add-on option
- Adjustable analog audio settings
- Integrated PoE power injection option for TPS extenders

MX-TPS2-OB-AP

- Bi-directional configurable analog stereo port with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Digitalized audio (PCM 48 kHz) can be embedded (or replaced) to the HDMI signal
- Volume, gain control
- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback

MX-TPS2-OB-SP

- S/PDIF breakout for every port
- Bi-directional configurable S/PDIF connectors:
 - audio can be de-embedded from the HDMI signals or
 - audio can be embedded (or replaced) to the HDMI signal
- PoE compatible
- 48V remote powering
- Remote powering on/off switching
- Status feedback

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Twisted Pair Single-Link DVI Output Board

MX-DVI-TP-OB

Part no: 9113 0008



MX-DVI-TP-OB

MX-DVI-TP-OB is a cost-effective solution for the top level matrix boards with several useful features. This Output Board was designed to convert and transmit Single-Link digital DVI-D video signals over one CATx cable. Each port contains a Pixel Accurate Reclocking engine, a DVI-D to CATx converter and cable booster. The best performance will be achieved with CAT6a or CAT7 SFTP cables. Only the video content is extended and therefore no EDID, hotplug or remote receiver powering is available with this board.

Features:

- 8 channel twisted pair Output Board
- Converts and transmits Single-Link digital DVI-D signals over one CATx cable
- Pixel Accurate Reclocking

Compatible Products:

- Receivers:
 - DVI-TP-RX100
 - DVI-HDCP-TP-RX50
 - DVI-HDCP-TP-RX100R

Twisted Pair Single-Link DVI Output Board

MX-DVI-TP-OB+

Part no: 9113 0009



MX-DVI-TP-OB+

MX-DVI-TP-OB+ is a cost-effective solution for the top level matrix boards with several useful features. This eight channel Output Board transmits DVI signals over CATx cables. Pixel Accurate Reclocking and the added Advanced EDID Management is incorporated. Using an external 12 Volt DC power supply, remote powering of external TP receivers can also be achieved over the second CATx cable.

Features:

- 8 channel twisted pair Output Board
- Converts and transmits DVI signals over CAT5, CAT6 or CAT7 cables
- Advanced EDID Management
- Pixel Accurate Reclocking
- Optional extender remote powering over second CATx cable

Compatible Products:

- Receivers:
 - DVI-TP-RX100
 - DVI-HDCP-TP-RX50
 - DVI-HDCP-TP-RX100R

Optional Accessory:



Power adaptor with IEC plug.
 Universal input: 100-240 V
 AC, 50-60 Hz.
 Output: 12 V DC, 6.67 A.

Twisted Pair HDMI Output Board

MX-HDMI-TP-OB

Part no: 9113 0010



MX-HDMI-TP-OB

MX-HDMI-TP-OB is a cost-effective solution of extending HDMI, DVI, VGA signals over shorter distances. This eight channel twisted pair Output Board was designed for dual CAT5, CAT6 or CAT7 cables, extending HDMI and DVI signals with HDCP compliance. HDCP encryption, remote powering of compatible receivers (with external 12 Volt DC power supply), and EDID handling are performed over the second CATx cable.

Optional Accessory:



Power adaptor with IEC plug.
Universal input: 100-240 V AC, 50-60 Hz.
Output: 12 V DC, 6.67 A.

Features:

- Built-in CAT7 to HDMI converters
- Transmits HDMI 1.3 and DVI signals over CAT5, CAT6 or CAT7 cables
- HDCP compliant
- Supports all audio formats over HDMI: Dolby TrueHD and DTS-HD Master Audio
- Advanced EDID Management
- Pixel Accurate Reclocking
- 3D signal compatibility with frame packing, side-by-side and top-bottom formats

Compatible Products:

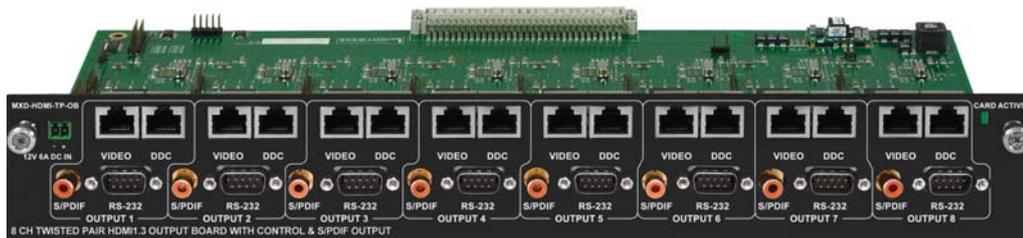
- Receivers:

WP-HDMI-TP-RX50A	DVI-HDCP-TP-RX100R
WP-HDMI-TP-RX50R	HDMI-TP-RX50
WP-DVI-HDCP-TP-RX50A	HDMI-TP-RX100R
WP-DVI-HDCP-TP-RX50R	HDMI-TP-RX100RA
DVI-TP-RX100	HDMI-TP-RX200R
DVI-HDCP-TP-RX50	

Twisted Pair HDMI Output Board

MXD-HDMI-TP-OB

Part no: 9113 0011



MXD-HDMI-TP-OB

MXD-HDMI-TP-OB provides eight channel HDMI to CATx conversion in addition to S/PDIF audio de-embedding from the outgoing HDMI video stream and a bi-directional RS-232 link to each remote display device when using compatible twisted pair receiver. HDMI + embedded multichannel HD digital audio + RS-232 + remote DC power can be extended via two CATx cables from the AV rack to the projector or LCD display. The 12 Volt DC connector allows remote powering of the RX, eliminating the need for local DC adaptors.

Features:

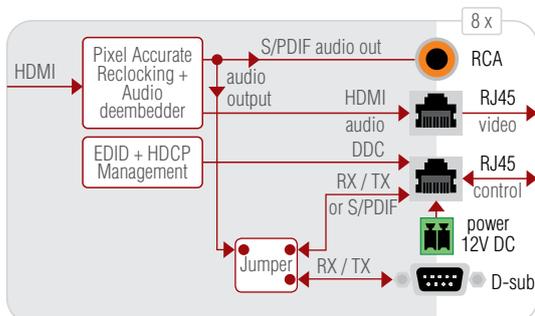
- 8 channel twisted pair Output Board
- Transmits HDMI 1.3 and DVI signals over CAT5, CAT6 or CAT7 cables
- Supports all audio formats over HDMI: Dolby TrueHD and DTS-HD Master Audio
- Double slot Output Board - needs two cards' slot in the frame
- RS-232 or S/PDIF over twisted pair on each output
- HDCP compliant
- Advanced EDID Management
- Pixel Accurate Reclocking
- Automatic or adjustable color space and color range conversion
- PCM subsampling by 2 x or 4 x
- 3D signal compatibility with frame packing, side-by-side and top-bottom formats
- Compatible with MX-FR80R, MX-FR65R, MX-FR33R, MX-FR33L, MX-FR17 and MX-FR9 frames

Compatible Products:

- Receivers:

WP-HDMI-TP-RX50A	DVI-HDCP-TP-RX100R
WP-HDMI-TP-RX50R	HDMI-TP-RX50
WP-DVI-HDCP-TP-RX50A	HDMI-TP-RX100R
WP-DVI-HDCP-TP-RX50R	HDMI-TP-RX100RA
DVI-TP-RX100	HDMI-TP-RX200R
DVI-HDCP-TP-RX50	

Port Diagram:



Optional Accessory:



Power adaptor with IEC plug.
 Universal input: 100-240 V AC, 50-60 Hz.
 Output: 12 V DC, 6.67 A.

Fiber Optical Single-Link DVI Output Board

MX-DVI-OPT-OB-LC, -ST, -SC

Part no: 9113 0012 (LC), 9113 0013 (ST), 9113 0014 (SC),



MX-DVI-OPT-OB-LC



MX-DVI-OPT-OB-SC



MX-DVI-OPT-OB-ST

MX-DVI-OPT-OB provides extremely long, 2500m distance extension over a single Multimode fiber for Single-Link DVI signals on eight channels. It incorporates eight DVI to fiber converters, and it is available with -LC, -SC or -ST connectors. Digital video signals up to 1920 x 1200 or 2048 x 1080 pixel resolution can be extended from the router frame to compatible Lightware fiber receivers 2500m away.

Features:

- 8 Single-Link DVI Multimode fiber outputs
- Selectable connectors: -LC, -SC, -ST
- Laser active LED for each output
- No video compression
- Zero frame delay
- Extension distance: 2500 m (1600 x 1200 @ 60Hz)

Compatible Products:

- Receivers:
 - DVI-OPT-RX110
 - DVI-OPT-RX220-Pro

Fiber Optical Reclocking Single-Link DVI Output Board

MX-DVI-OPT-OB-R, -LC, -ST, -SC, -NT

Part no: 9113 0015 (LC), 9113 0016 (ST), 9113 0017 (SC), 9113 0018 (NT)



MX-DVI-OPT-OB-R-LC



MX-DVI-OPT-OB-R-SC



MX-DVI-OPT-OB-R-NT



MX-DVI-OPT-OB-R-ST

MX-DVI-OPT-OB-R Output Board provides extremely long, 2500m extension and reclocking for DVI-D signals over Multimode fiber on eight channels. It incorporates our Pixel Accurate Reclocking technology and Single Fiber Technology. Fiber connectors are available with Neutrik OpticalCON, -LC, -SC or -ST connectors.

Features:

- 8 Single-Link DVI Multimode fiber output
- DVI Pixel Accurate Reclocking
- Selectable connectors: Neutrik OpticalCON, -LC, -SC, -ST
- No video compression
- Zero frame delay
- Extension distance: 2500 m (1600 x 1200 @ 60Hz)

Compatible Products:

- Receivers:
 - DVI-OPT-RX110
 - DVI-OPT-RX220-Pro

Fiber Optical Dual-Link DVI Output Board

MX-DVIDL-OPT-OB-LC, -NT

Part no: 9113 0019 (LC), 9113 0022 (NT)



MX-DVIDL-OPT-OB-NT

MX-DVIDL-OPT-OB-LC

MX-DVIDL-OPT-OB provides extremely long, 2500m extension over a duplex Multimode fiber for Dual-Link DVI signals on 4 channels. It supports 120 Hz 3D signals as well as high resolution computer signals such as 2560 x 1600 or 4096 x 2400 amongst others. The board is available with Neutrik OpticalCON, -LC, -SC or -ST connectors.

Features:

- 4 Dual-Link DVI Multimode fiber output
- Selectable connectors: Neutrik OpticalCON, -LC
- Laser active LED for each output
- No video compression
- Zero frame delay
- Extension distance: up to 2500 m
- Supports 120 Hz 3D signals

Compatible Products:

- Receivers:
DVIDL-OPT-RX100

Fiber Optical HDMI Output Board

MX-HDMI-OPT-OB-LC, -SC, -NT

Part no: 9113 0023 (LC), 9113 0025 (SC), 9113 0026 (NT)



MX-HDMI-OPT-OB-NT

MX-HDMI-OPT-OB-SC

MX-HDMI-OPT-OB-LC

MX-HDMI-OPT-OB provides extremely long 2500m distance extension over a single Multimode fiber for HDMI, DVI, VGA signals on 8 channels with 4K resolution and 3D formats support. EDID handshaking is performed over the one Multimode fiber as well utilizing our Single Fiber Technology. The board is available with Neutrik OpticalCON, -LC, -SC or -ST connectors.

Features:

- 8 channel fiber optical Output Board
- Built-in HDMI to fiber converter
- Selectable connectors: Neutrik OpticalCON, -LC, -SC
- 4K x 2K @ 30 Hz, 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048 , HD video resolutions and all 3D formats are supported
- Laser detect LED
- No video compression
- Zero frame delay
- Extension distance: 2500 m (1600 x 1200 @ 60Hz)

Compatible Products:

- Receivers:
DVI-OPT-RX110
DVI-OPT-RX220-Pro
HDMI-OPT-RX100
HDMI-OPT-RX100R
- HDMI-OPT-RX200R
MX-HDMI-OPT-IB
25G-MX-HDMI-OPT-IB

4K, 3D and Deep Color HDMI Optical Output Board with Reclocking

MX-HDMI-OPT-OB-R-LC, -SC, -NT

Part no: 9113 0030 (LC), 9113 0032 (SC), 9113 0033 (NT)



MX-HDMI-3D-OB-R is an eight channel Multimode optical Output Board providing HDMI 1.4, audio and RS-232 extension over a single Multimode fiber up to 2500m distance. Pixel Accurate Reclocking, HDCP compliance and HDMI to DVI conversion are incorporated. Resolutions up to 4K and 36-bit color depth are handled with all standard audio formats as well as 120Hz 3D signals.

Together with the video and audio extension the unit provides a bi-directional RS-232 option for remote controlling external devices like projectors or professional media players.

The video signals with the HDCP, EDID handshaking data and the RS-232 channel traffic are transmitted over one Multimode fiber utilizing our Single Fiber Technology. The board is compatible with Dolby TrueHD and DTS-HD audio while Pixel Accurate Reclocking, Advanced EDID Management, Frame detector and built-in test pattern generator are integrated providing professional setup and operation. The board is available with Neutrik OpticalCON, -LC, -SC or -ST connectors.

Features:

- HDMI 1.4a; DVI and HDCP compliant 8 output matrix board
- Selectable connectors: Neutrik OpticalCON, -LC, -SC
- Resolution up to 4096x2048@30Hz and all 3D formats are supported
- Extension distance: 2500 m (up to 1920 x 1200 @ 60Hz), 1100m (4096 x 2048 @ 30Hz)
- Dolby TrueHD and DTS-HD Master Audio
- Advanced EDID Management
- Frame Detector
- Pixel Accurate Reclocking
- One bi-directional RS-232 channel per port

Compatible Products:

- Receivers:
 - DVI-OPT-RX110
 - DVI-OPT-RX220-Pro
 - HDMI-OPT-RX100
 - HDMI-OPT-RX100R
 - HDMI-OPT-RX200R
 - HDMI-3D-OPT-RX150RA
 - MX-HDMI-OPT-IB
 - 25G-MX-HDMI-OPT-IB

MX- Frames

- MX-FR9.....9x9 digital crosspoint router frame with built-in control panel and CPU2
- MX-FR17.....17x17 digital crosspoint router frame with built-in control panel and CPU2
- MX-FR33L.....33x33 digital crosspoint router frame with built-in control panel and CPU2
- MX-FR33R.....33x33 digital crosspoint router frame with redundant power supplies, built-in control panel and CPU2
- MX-FR65R.....65x65 digital crosspoint router frame with redundant power supplies, built-in control panel and CPU2
- MX-FR80R.....80x80 digital crosspoint router frame with redundant power supplies, built-in control panel and CPU2
- MX-CPU2.....Processor board for modular matrix frames

Input Boards

- MX-DVID-IBDVI-D Single-Link input board with DVI-I connectors
- MX-DVIDL-IBDual-Link DVI digital only input board with DVI-I connectors
- MX-DVI-HDCP-IBDVI, HDCP and HDMI compliant input board
- MX-DVII-HDCP-IBDVI-I input board supporting VGA, YUV, DVI and HDMI with HDCP signals
- MX-HDMI-3D-IBHDMI input board including 4K, 3D and Deep Color
- MX-HDMI-3D-IB-AHDMI input board including 4K, 3D and Deep Color, with Phoenix connectors

- MX-HDMI-3D-IB-S HDMI input board including 4K, 3D and Deep Color, with S/PDIF connectors
- MX-4TPS2-4HDMI-IB TPS-HDMI input board
- MX-4TPS2-4HDMI-IB-A TPS-HDMI input board with analog audio
- MX-4TPS2-4HDMI-IB-S TPS-HDMI input board with digital audio
- MX-4TPS2-4HDMI-IB-P TPS-HDMI input board with PoE
- MX-4TPS2-4HDMI-IB-AP TPS-HDMI input board with PoE and analog audio
- MX-4TPS2-4HDMI-IB-SP TPS-HDMI input board with PoE and digital audio
- MX-3GSDI-IB 3G-SDI input board supporting SDI embedded, S/PDIF and AES/EBU audio
- MX-TPS-IB TPS input board
- MX-TPS-IB-A TPS input board with analog audio
- MX-TPS-IB-S TPS input board with digital audio
- MX-TPS2-IB-P TPS input board for HDMI, Ethernet, audio and control, with optional PoE
- MX-TPS2-IB-AP TPS input board for HDMI, Ethernet, audio and control, with optional PoE and analog audio
- MX-TPS2-IB-SP TPS input board for HDMI, Ethernet, audio and control, with optional PoE and digital audio
- MX-DVI-TP-IB Twisted pair input board for DVI over CAT5...CAT7 cables
- MX-DVI-TP-IB+ Twisted pair input board for DVI over CAT5...CAT7 cables
- MX-HDMI-TP-IB Twisted pair HDMI input board for CAT5...CAT7 cables
- MXD-HDMI-TP-IB Double slot twisted pair HDMI input board with control
- MX-DVI-OPT-IB-LC Fiber optical input board for Single-Link DVI-D signal extension, with LC connectors
- MX-DVI-OPT-IB-NT Fiber optical input board for Single-Link DVI-D signal extension, with Neutrik OpticalCON connectors
- MX-DVI-OPT-IB-SC Fiber optical input board for Single-Link DVI-D signal extension, with SC connectors
- MX-DVI-OPT-IB-ST Fiber optical input board for Single-Link DVI-D signal extension, with ST connectors
- MX-DVIDL-OPT-IB-LC Dual-Link DVI fiber optical input board, with LC connectors
- MX-DVIDL-OPT-IB-NT Dual-Link DVI fiber optical input board, with Neutrik OpticalCON connectors
- MX-HDMI-OPT-IB-LC HDMI and HDCP compliant fiber optical input board including 4K, 3D, with LC connectors
- MX-HDMI-OPT-IB-NT HDMI and HDCP compliant fiber optical input board including 4K, 3D, with Neutrik OpticalCON connectors
- MX-HDMI-OPT-IB-SC HDMI and HDCP compliant fiber optical input board including 4K, 3D, with SC connectors

Output Boards

- MX-AUDIO-OB Analog audio output board
- MX-DVID-OB DVI-D Single-Link output board with DVI-I connectors
- MX-DVIDL-OB Dual-Link DVI digital only output board with DVI-I connectors
- MX-DVI-HDCP-OB DVI, HDCP and HDMI compliant output board
- MX-HDMI-3D-OB HDMI output board including 4K, 3D and Deep Color
- MX-HDMI-3D-OB-A HDMI output board including 4K, 3D and Deep Color, with Phoenix connectors
- MX-HDMI-3D-OB-S HDMI output board including 4K, 3D and Deep Color, with S/PDIF connectors
- MX-TPS-OB TPS output board for HDMI, Ethernet, audio and control
- MX-TPS-OB-A TPS output board for HDMI, Ethernet, audio and control with analog audio
- MX-TPS-OB-S TPS output board for HDMI, Ethernet, audio and control with digital audio
- MX-TPS2-OB-P, -AP, -SP TPS output board with PoE option
- MX-DVI-TP-OB Twisted pair output board for DVI over CAT5...CAT7 cables
- MX-DVI-TP-OB+ Twisted pair output board for DVI over CAT5...CAT7 cables
- MX-HDMI-TP-OB Twisted pair HDMI output board for CAT5...CAT7 cables
- MXD-HDMI-TP-OB Double slot twisted pair HDMI output board with control and audio
- MX-DVI-OPT-OB-LC Fiber optical output board for extending DVI-D signals, with LC connectors
- MX-DVI-OPT-OB-SC Fiber optical output board for extending DVI-D signals, with SC connectors
- MX-DVI-OPT-OB-ST Fiber optical output board for extending DVI-D signals, with ST connectors
- MX-DVI-OPT-OB-R-LC Fiber optical output board with Pixel Accurate Reclocking, with LC connectors
- MX-DVI-OPT-OB-R-NT Fiber optical output board with Pixel Accurate Reclocking, with Neutrik OpticalCON connectors
- MX-DVI-OPT-OB-R-SC Fiber optical output board with Pixel Accurate Reclocking, with SC connectors
- MX-DVI-OPT-OB-R-ST Fiber optical output board with Pixel Accurate Reclocking, with ST connectors
- MX-DVIDL-OPT-OB-LC Dual-Link DVI fiber optical output board, with LC connectors
- MX-DVIDL-OPT-OB-NT Dual-Link DVI fiber optical output board, with Neutrik OpticalCON connectors
- MX-HDMI-OPT-OB-LC HDMI and HDCP compliant fiber optical output board, with LC connectors
- MX-HDMI-OPT-OB-NT HDMI and HDCP compliant fiber optical output board, with Neutrik OpticalCON connectors
- MX-HDMI-OPT-OB-SC HDMI and HDCP compliant fiber optical output board, with SC connectors
- MX-HDMI-OPT-OB-R-LC HDMI optical output board with Pixel Accurate Reclocking including 4K, 3D and Deep Color with LC connectors
- MX-HDMI-OPT-OB-R-NT HDMI optical output board with Pixel Accurate Reclocking including 4K, 3D and Deep Color with NT connectors
- MX-HDMI-OPT-OB-R-SC HDMI optical output board with Pixel Accurate Reclocking including 4K, 3D and Deep Color with SC connectors

Lightware Headquarters

Peterdy 15, Budapest H-1071, Hungary

Tel: +36 1 255 3800

sales@lightware.eu

support@lightware.eu

www.lightware.eu

Lightware Visual Engineering Asia

Unit A, 9/F, Hang Seng Ctr. 95-97 Tung Chau Street Tai Kok Tsui, Kowloon, Hong Kong

Tel: + 852 3678 9951

sales.asia@lightware.eu

www.lightware.asia

Lightware Visual Engineering Australia

Unit 18, Leighton Industrial area, 22 Leighton Place, Hornsby, Sydney, NSW, 2077

Tel : +(02) 9476 8850

Mob : +61 437 307 577

sales.anz@lightware.eu

support.anz@lightware.eu

www.lightware.com.au

Lightware Visual Engineering Canada

103 Ontario St., Georgetown,

Ontario, Canada L7G 3L2

Tel: +416 818 6418

sales.ca@lightware.eu

www.lightware.eu

Lightware Visual Engineering India

No-1AAC-214, G Floor, East of NGEF Layout, Kasturinagar, Bangalore - 560043, India

Tel: +91 9663 652058

sales.india@lightware.asia

www.lightware.asia

Lightware Visual Engineering Italy

Via Mons. Bagnoli, 49 67051 Avezzano (AQ)

Tel: +39 086 3186 0437

Mob: +39 392 281 9135

adriano.dalessio@lightware.eu

www.lightware.eu

Lightware Visual Engineering Middle East

P.O. Box 410595, Techno Point 223, Silicon Oasis, Dubai, UAE

Tel: +9714 3336072

Mob: +971 50 2449964

sales.me@lightware.eu

www.lightware.eu

Lightware Visual Engineering USA

40 Engelwood Drive Suite C, Lake Orion, MI 48359 USA

Tel: +1 888 587 5587 ext 108

Mob: +(702) 673-8831

sales@lightwareusa.com

www.lightwareusa.com

Lightware Visual Engineering UK

Dunley Hill Court, Ranmore, Dorking, Surrey, RH5 6SX

Tel: +44(0) 1483 28 13 10

Mob: +44(0) 7879 991 889

sales.uk@lightware.eu

www.lightware.eu

Lightware Visual Engineering Netherlands BV

Tel: +31 35 631 3295

sales.nl@lightware.eu

www.lightware.eu