

## Multiport HDMI and TPS Matrix Switcher



Part no: 9131 0032



### Highlight Features

- 6x2 multiport matrix switcher with HDMI and TPS ports
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0) and 3D capabilities
- 4x HDMI 1.4 input + 2x TPS input
- 2x independent AV output
- Two ports per output: mirrored HDMI + TPS
- Up to 170m\* transmission distance over TPS
- Balanced analog audio inputs and outputs
- Event Manager

\*Depends on cable category and quality

The MMX6x2-HT220 responds to a need for a practical standalone matrix switcher specifically designed for meeting room and classroom environments. The compact MMX6x2-HT220 has six video inputs (four HDMI 1.4 and two TPS) and two video outputs (two independent HDMI outputs which both have mirrored TPS outputs). 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 3D capabilities and HDCP are fully supported. The device also has four audio connectors for audio insertion and two audio outputs for de-embedding purposes. These features make this standalone matrix unique on the market.

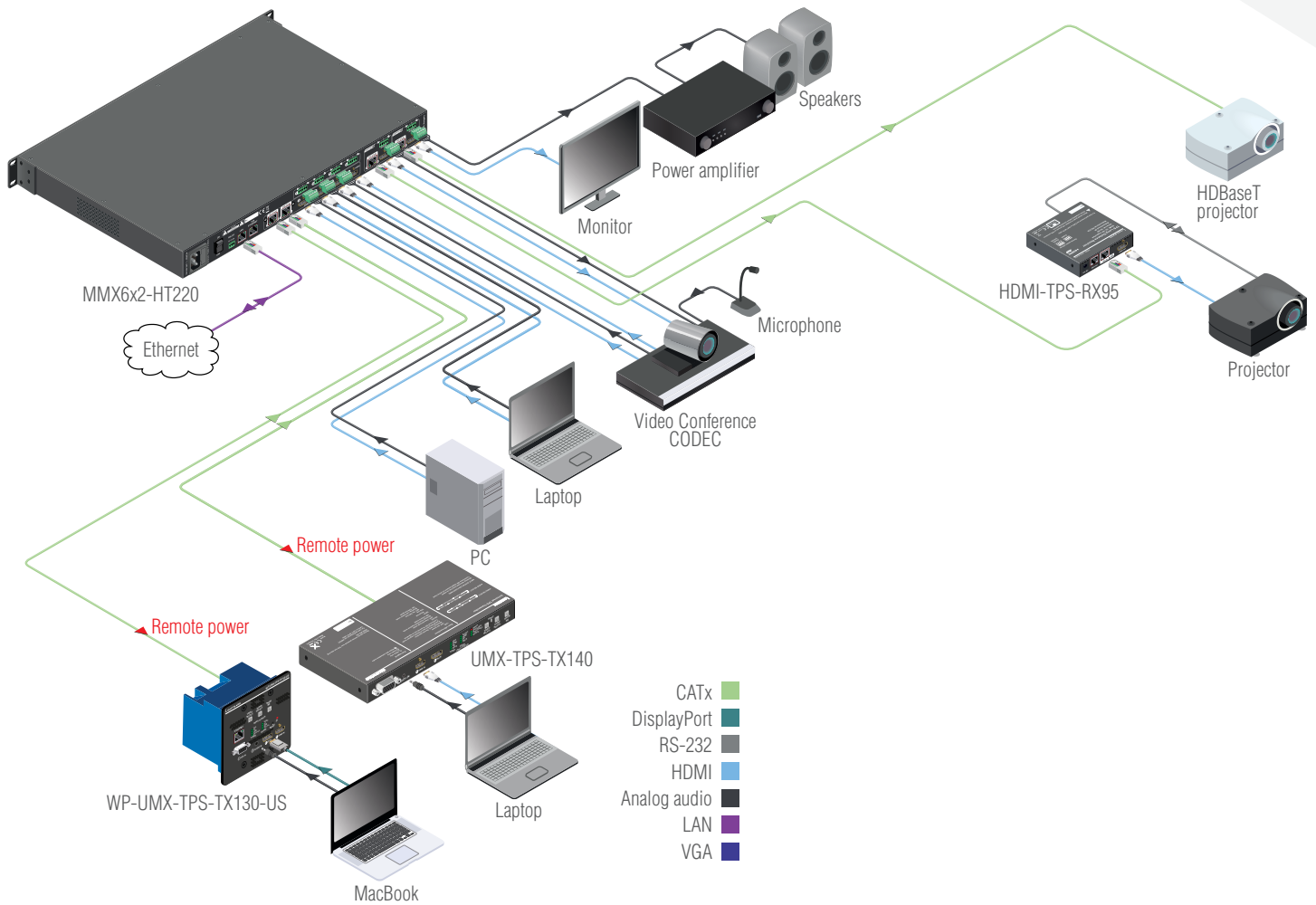
PoE 48V remote powering is available on every TPS ports for cost-effective installations. MMX6x2-HT220 receives and transmits digital video, audio and control to a distance of up to 170m over a single CATx cable. Using factory, custom or transparent EDID emulation the user can fix and lock EDID data on each input connector. Advanced EDID Management forces the required resolution from any video source and fixes the output format to conform to the system requirements.

The unit offers IR and RS-232 command injection capabilities allowing to send any IR or RS-232 control command directly from the LAN connection to remote end points. The MMX6x2-HT220 is also compatible with both HDBaseT™ extenders and HDBaseT™ compliant displays.

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## Typical Application



## Event Manager

The Event Manager is a smart, built-in feature in the Lightware HDBaseT compatible TPS extender family, the MODEX line and in some select matrix switchers like the MMX6x2-HT series units. The feature is available through the freely downloadable Lightware Device Controller software.

The Event Manager was developed to handle tasks from the most simple to expert ones, like controlling the rolling shutter, the air conditioning system or the lights based on any condition changes on the media ports, such as a new source being connected or removed.

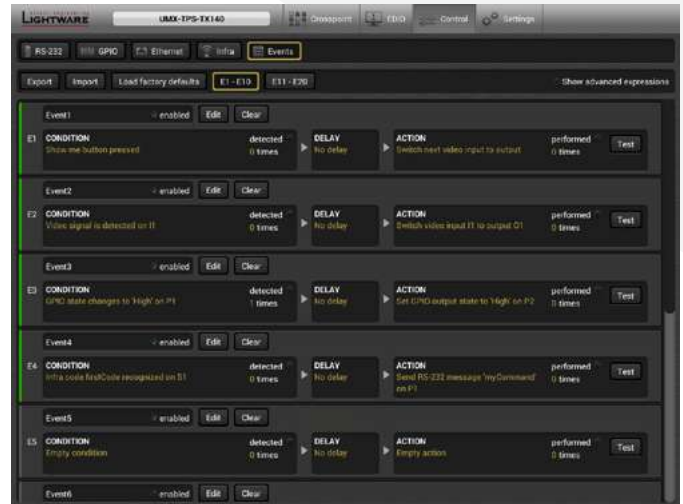
Event Manager application is continuously updated with additional features via firmware upgrades: a delay can be added between the condition and the action and more actions can be triggered by a single condition change. With the help of the 'condition count' and 'action test' features, the predefined settings can be tested before going live. The system can recognize infrared commands which can also be set as conditions, and commands can also be sent via Ethernet.

### Event Manager Wizard

Assigning an action to a condition is quick and easy with the Wizard function of Event Manager. The most typical examples of the currently selectable conditions and actions within the Event Manager Wizard are the following:

Conditions	
Video	Signal is detected on a port
Video	Signal is not detected on a port
Audio	Signal is detected on a port
Audio	Signal is not detected on a port
Audio	Signal type changes to PCM
Audio	Signal type changes to Compressed
Audio	Signal type changes to HBR
Audio	Signal type changes to Undefined (no signal)
IR	Infra code recognized
General	OPT / TPS link state changes to Connected
General	OPT / TPS link state changes to Disconnected

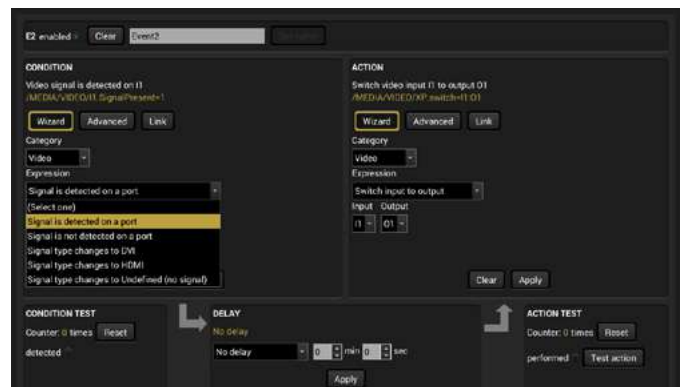
Actions	
Video	Switch input to output
Video	Enable autoselect output
Video	Disable autoselect on output
Ethernet	Send TCP command
Ethernet	Send UDP command
R232	Send RS232 message
EDID	Switch EDID
Audio	Set audio volume
Audio	Mute output
Audio	Unmute output
Audio	Increase/decrease volume



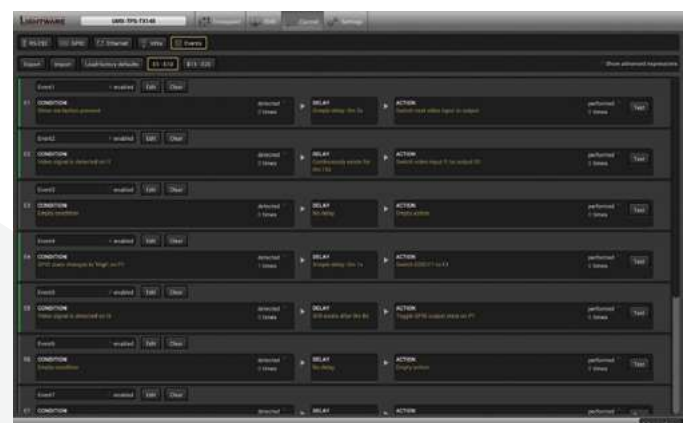
The Events menu contains separately configurable Events



The Event Wizard makes the setup easy with simple dropdown options

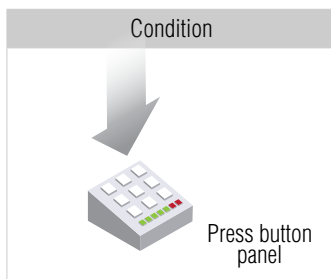
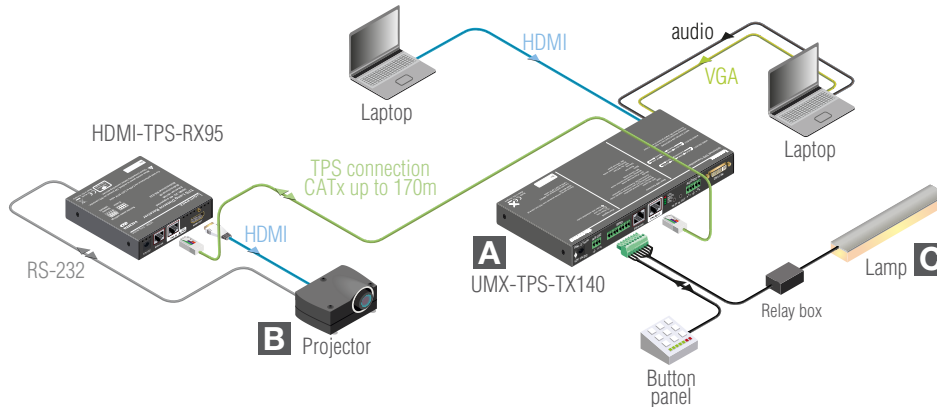


There are many default Expressions available to choose from



Green lines show which Event is configured and active, the rest stays grey

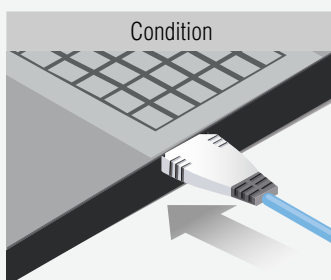
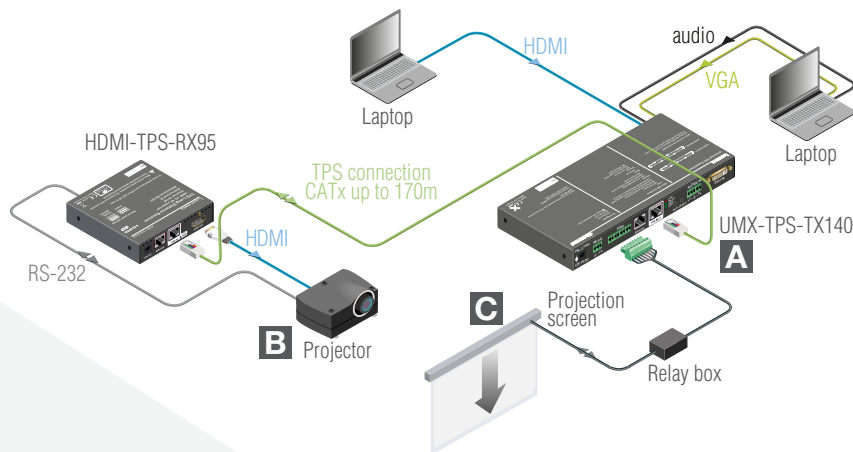
## Event Example A



Action	
	<b>A</b> Input select on the TPS transmitter
	<b>B</b> Switch on the projector using RS-232
	<b>C</b> Switch off the lamp using the transmitter's GPIO port

With a button panel connected through the GPIO port, the UMX-TPS-TX140 can be controlled from a remote location; input switching is available even if the transmitter is mounted under desk. In the example above there are three actions followed by a condition. When an input selector button is pressed on the remote button panel, the selected input port is switched to the output, the projector turns on.

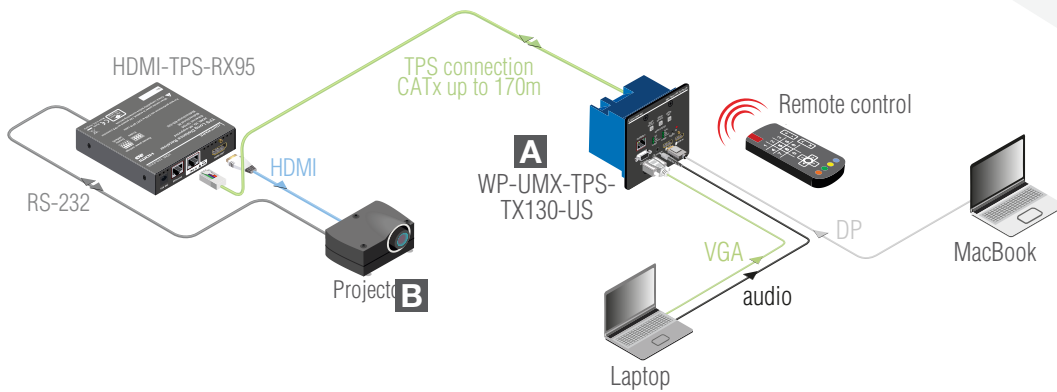
## Event Example B



Action	
	<b>A</b> Input select on the TPS transmitter
	<b>B</b> Switch on the projector using RS-232
	<b>C</b> Roll down the projection screen using the transmitter's GPIO port

The projector and the rolling screen (via relay box) are connected to the UMX-TPS-TX140. When the user connects a laptop to the HDMI port of the transmitter, then the connected input is selected automatically, the screen goes down and the projector turns on to display the source.

## Event Example C



**Condition**

Press remote control



Action	
	<b>A</b> Input select on the TPS transmitter
	<b>B</b> Switch on the projector using RS-232

A MacBook with DisplayPort and another laptop with VGA and analog audio are connected to the WP-UMX-TPS-TX130-US wallplate which means there are two audio signals and two video signals connected. These inputs can be switched via IR using a remote control. For example the analog audio of the Laptop can be mixed with the DisplayPort video of the MacBook. The Event Manager helps the user assign actions like switching the projector on when the desired input is selected.

## Configuration Cloning Capability

Using the supplied Lightware Device Controller application it is possible to clone configuration settings in a few easy steps and restore them in an unlimited number of other MMX6x2-HT220 devices.

## Power Injection over TPS ports

MMX6x2-HT220 has remote powering capabilities on its TPS in- and outputs. This feature allows for remote powering the connected TPS transmitters or receivers using standard Power over Ethernet (PoE) technology by delivering 48V of DC power over CAT cables, for devices consuming less than 15W of power. Remote powering saves time and money by avoiding the need for separate installation of video and power infrastructures. Powered extenders can be freely placed without a need for AC outlets.

## Volume Control for De-embedded Audio

MMX6x2-HT220 enables de-embedding audio and setting volume level on the balanced audio out connectors. This feature makes installations simpler and cost effective as there is no need for an external device for volume and balance adjustment when using active speakers.

## Applications

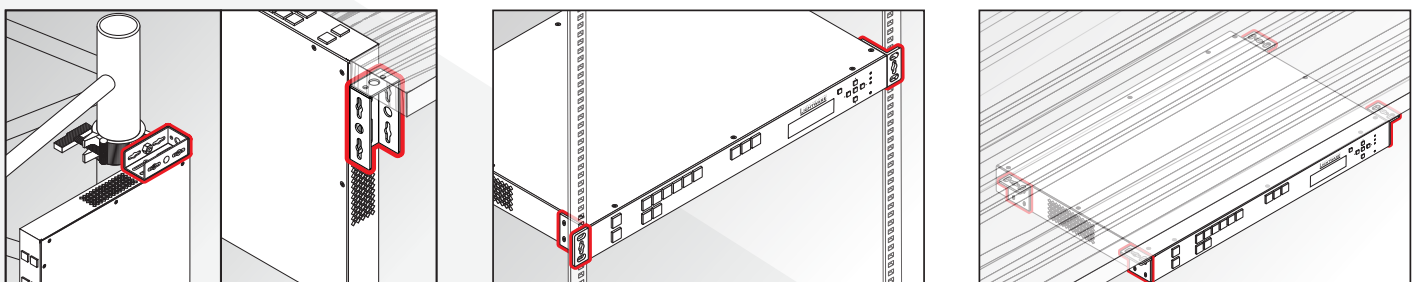
- Classrooms
- Conference/meeting/huddle rooms
- Control room
- Home cinema

## Features

- 6x2 multiport matrix with HDMI and TPS ports
- 4K / UHD (30Hz RGB 4:4:4 , 60Hz YCbCr 4:2:0) and 3D capabilities
- 4x HDMI 1.4 input
- 2x TPS input
- 2x independent AV output
- Two ports per output: mirrored HDMI + TPS
- Easy to clone device configuration settings between matrices in large installations
- Firmware upgrade capability of connected extenders through TPS link
- Up to 170m video transmission distance over TPS
- Fully HDCP compliant
- Advanced EDID Management
- Zero frame delay
- Autoselect mode
- Balanced analog audio inputs and outputs
- Audio insertion and de-embedding capabilities
- Assignable AUX audio inputs: any audio input can be combined with any video input or video output
- Analog audio inputs are converted to digital signal
- Embedded 7.1 HBR audio support
- Volume and Gain control options
- Audio de-embedding from uncompressed HDMI audio formats
- Integrated power injector on every TPS input and output port
- Bi-directional RS-232, IR, transmission over TPS
- 10/100 Ethernet extension
- RS-232, USB, and IP control options
- Insert RS-232 and IR commands from LAN
- Intuitive Control Software
- Event Manager



## Mounting Options



Devices can be mounted several ways, depending on the application. Rack ears and mounting bracket are available offering easy mounting on truss systems with standard clamps or allowing the unit to be built into furniture.

## I/O Connectors Comparison Chart

	HDMI in	TPS in	HDMI out	TPS out
MMX6x2-HT220	4	2	2	2
MMX6x2-HT210	4	2	2	1
MMX6x2-HT200	4	2	2	0

## Connectors

Digital video inputs:	4x HDMI connector
Digital video outputs:	2x HDMI connector
TPS inputs:	2x RJ45 connector
TPS outputs:	2x RJ45 connector
Analog audio inputs:	4x 5-pole PHOENIX
Analog audio outputs:	2x 5-pole PHOENIX
Control LAN:	RJ45
TPS Ethernet:	RJ45
Serial port:	3-pole PHOENIX
USB:	Mini-USB B
Power:	IEC 230V

## Supported Audio Formats

HDMI embedded audio:	Multichannel PCM (up to 8 ch., 192 kHz)
	Dolby Digital 2.1; 5.1; 7.1
	DTS 2.1; 5.1; 7.1
	Dolby TrueHD (HBR)
	DTS-HD (HBR)
All other HDMI 1.4 specified audio formats	DTS-HD Master Audio (HBR)
	All other HDMI 1.4 specified audio formats
Balanced analog output:	Stereo PCM (up to 96 kHz)

## Supplied Accessory

- 2x rack ear



## Analog Audio Input

Gain (adjustable):	0..21 dB
Volume (adjustable):	-95..0 dB
Maximum differential input level:	+4 dBu @ 0 dB Gain

## Analog Audio Output

Gain (adjustable):	0..3 dB
Volume (adjustable):	-57..0 dB
Nominal differential output level:	+4 dBu @ 0 dB Gain
Maximum differential output level:	+7 dBu @ 3 dB Gain

## Specification

Crosspoint:	6x2 video - any input(s) to any output(s)
Resolution:	Up to 4K UHD 3840x2160@30Hz, 1600x1200@60Hz, FullHD 1920x1080@60Hz
Digital audio formats:	Supports up to 8 channel PCM, Dolby TrueHD and DTS-HD Master Audio 7.1 formats
Input cable equalization (HDMI):	Automatic, adaptive
EDID emulation:	Yes, Advanced EDID Management
EDID memory:	119 factory preset, 12 user programmable
HDCP compliant:	Yes
Front panel buttons:	Yes
Front panel LCD:	Yes, 2x16 characters
RS-232 control:	Selectable (9600, 19200, 38400, 57600, 115200) Baud Rx, Tx (default: 57600)
Local power:	100 - 240 V AC
Power consumption:	30 W (typ.), 45 W (max.), 155 W (max. with PoE*)
Heat dissipation:	102 BTU/h (typ.), 187 BTU/h (max.)
Enclosure:	1 mm metal
Dimensions with rack mounting ears:	482 W x 43,9 H x 300 D mm
Dimensions without rack mounting ears:	442 W x 43,9 H x 300 D mm
Rack height:	1U
Net weights:	4,8 kg
Compliance:	CE
Temperature:	0°C to +50°C operational -40°C to +70°C storage
Humidity:	10 to 90% non-condensing
RoHS compliance:	Yes
Warranty:	3 years

\*including power consumption of remote powered TPS extenders

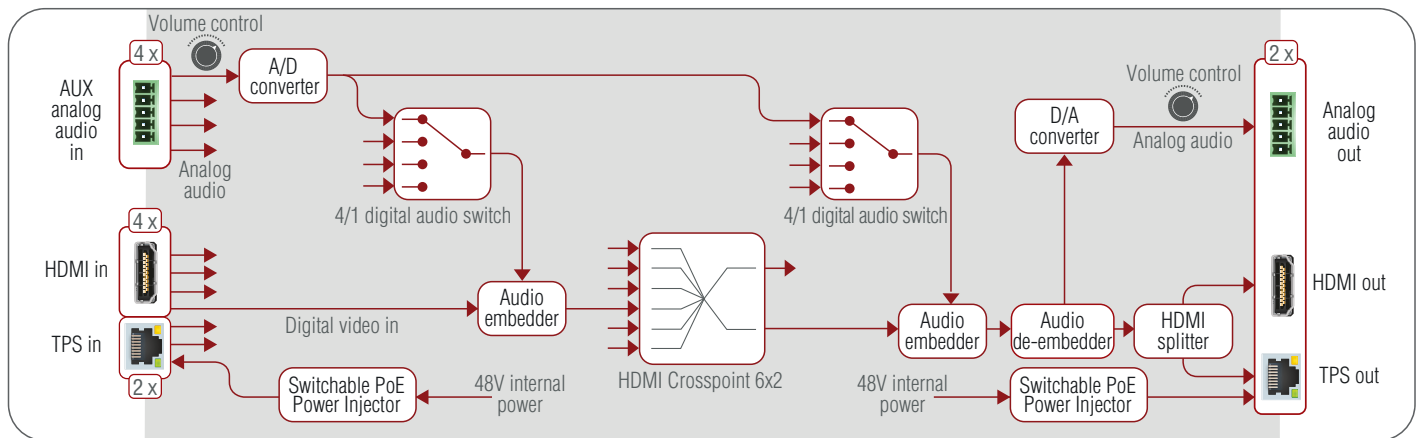
## Mounting Accessories



### Mounting bracket V2 (Part No: 5240 0273)

Our new mounting bracket makes through-furniture and under-desk mounting easy and allows truss mounting with standards clamps.

## Port Diagram



## Max Cable Lengths Supported by the Available Firmware Versions

Resolution	Pixel Clock Rate	Cable Lengths (Auto / Longreach TPS Mode)		
		CAT5e AWG24	CAT7 AWG26	CAT7 AWG23
1024x768@60Hz	65 MHz	100 m / 130 m*	90 m / 120 m*	120 m / 170 m*
1280x720p@60Hz	73.8 MHz	100 m / 130 m*	90 m / 120 m*	120 m / 170 m*
1920x1080p@60Hz / 24bpp	148.5 MHz	100 m / 130 m*	90 m / 120 m*	120 m / 170 m*
1920x1200@60Hz	152.9 MHz	100 m / NA*	90 m / NA*	120 m / NA*
1600x1200@60Hz	162 MHz	100 m / NA*	90 m / NA*	120 m / NA*
1920x1080@60Hz / 36bpp	223 MHz	70 m / NA*	70 m / NA*	100 m / NA*
3840x2160@30Hz UHD	297 MHz	70 m / NA*	70 m / NA*	100 m / NA*
4096x2160@30Hz 4K	297 MHz	70 m / NA*	70 m / NA*	100 m / NA*

\* with Long reach operation mode which supports pixel clock frequencies up to 148,5 MHz.