



LIGHTWARE HDMI-TPX Series Transmitter User Guide

[Home](#) » [LIGHTWARE](#) » LIGHTWARE HDMI-TPX Series Transmitter User Guide 

Contents

- [1 LIGHTWARE HDMI-TPX Series Transmitter](#)
- [2 Important Safety Instructions](#)
- [3 Introduction](#)
 - [3.1 Front and Rear View – Transmitter \(TX\)](#)
- [4 Box Contents](#)
- [5 Specification](#)
 - [5.1 General](#)
 - [5.2 Connecting Steps](#)
- [6 Documents / Resources](#)
 - [6.1 References](#)
- [7 Related Posts](#)



LIGHTWARE HDMI-TPX Series Transmitter



Important Safety Instructions

Please read the supplied safety instruction document before using the product and keep it available for future reference.

Introduction

The HDMI-TPX-106 and HDMI-TPX-107 series extenders with AVX technology are Lightware's future proof development and a natural progression from the widely popular HDMI-TPS-TX/RX97 series, allowing users to extend HDMI 2.0 signals up to 4K60 4:4:4 video resolution through a single CATx cable over distances up to 100 meters.

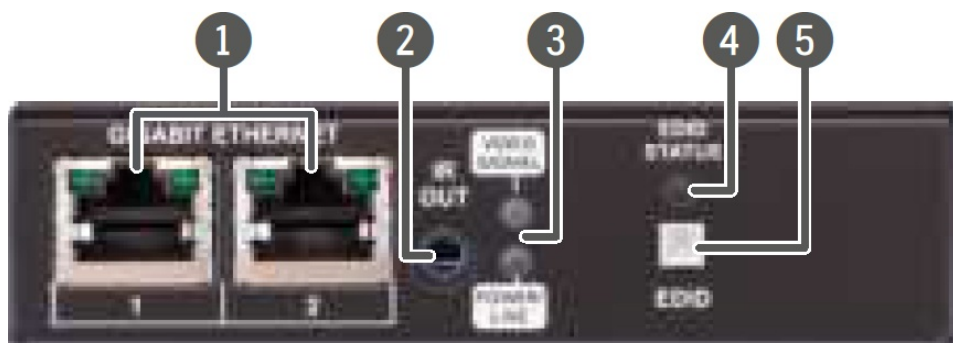
Beyond the benefits of sending high-resolution video over long distances, the extenders are also capable of handling various connectivity standards, including bi-directional RS-232 and command injection over IR (output only) as well. The Gigabit Ethernet port is also a valuable addition, allowing users to connect an additional device to the network directly through the TPX extender. HDCP 2.3 and basic EDID management functionality are also among the features offered by these devices, such as their connectivity and easy integration into a wide range of AV operations and compatibility with 3rd party devices.

Compatible Devices

The product is compatible with all Lightware TPX series models and any third-party AVX devices.

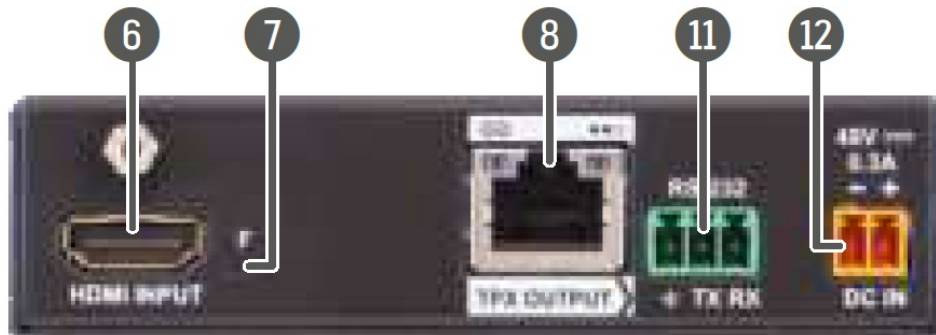
Front and Rear View – Transmitter (TX)

Front View



- TX106 model is built with one, TX107 model is built with two Gigabit Ethernet connectors.

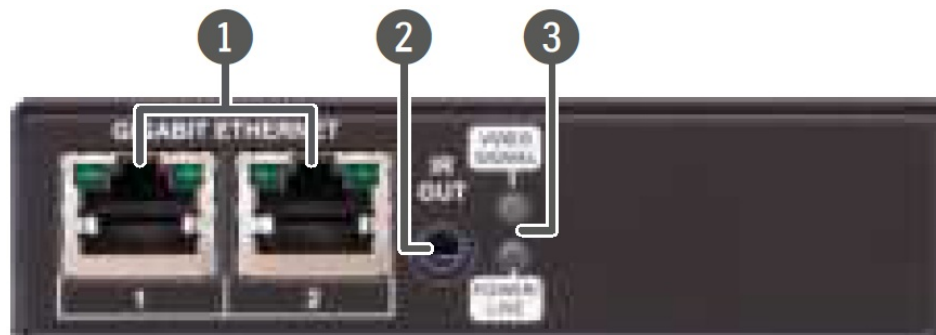
Rear View



- TX106 model is built with 12V, TX107 model is built with 48V DC input connector.

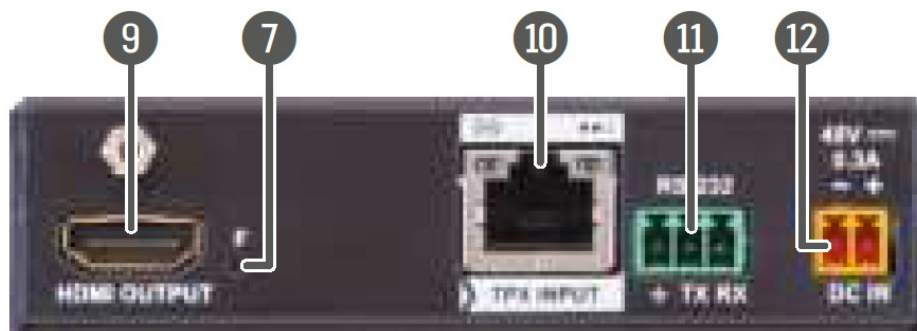
Front and Rear View – Receiver (RX)

Front View



- RX106 model is built with 12V, RX107 model is built with 48V DC input connector.

Rear View



- RX106 model is built with one, RX107 model is built with two Gigabit Ethernet connectors.

1. Gigabit Ethernet port
2. IR out
3. Status LEDs
4. EDID Status LED
5. EDID button
6. HDMI input
7. Factory reset button
8. TPX output

9. HDMI output
10. TPX input
11. RS-232 port
12. 12V / 48V DC input

1GBase-T RJ45 connector for user Ethernet purpose. TRS (3.5mm jack) output connector for an Infrared emitter unit. The LEDs give immediate feedback about the current status of the extender. See the details in the Status LEDs section on the right. The LED gives immediate feedback about the current status of the EDID emulation. See the details in the Status LEDs section on the right. Two EDID emulation modes can be selected with the button: Learned and Transparent.

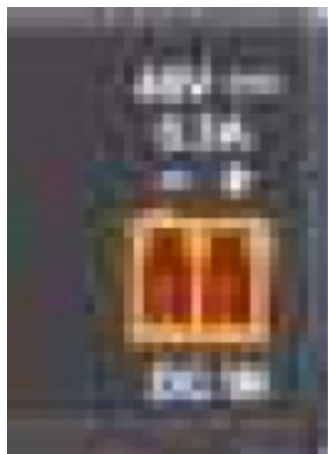
- Short press: switch between transparent and stored user EDID.
- Long press: learn and store EDID from the output of the receiver.

HDMI input port with HDMI 2.0 support for source devices. Hidden button for setting the device to factory default values. RJ45 connector for AVX output signal transmission. See more details about the connector in the Power Supply Options and the Status LEDs sections. HDMI output port with HDMI 2.0 support for sink devices. RJ45 connector for AVX input signal. See more details about the connector in the Power Supply Options and the Status LEDs sections. 3-pole Phoenix connector for bi-directional serial communication. DC input for local powering. Connector types by models:

- HDMI-TPX-106 series: 12V DC input with locking connector.



- HDMI-TPX-107 series: 48V DC input with 2-pole Phoenix connector.

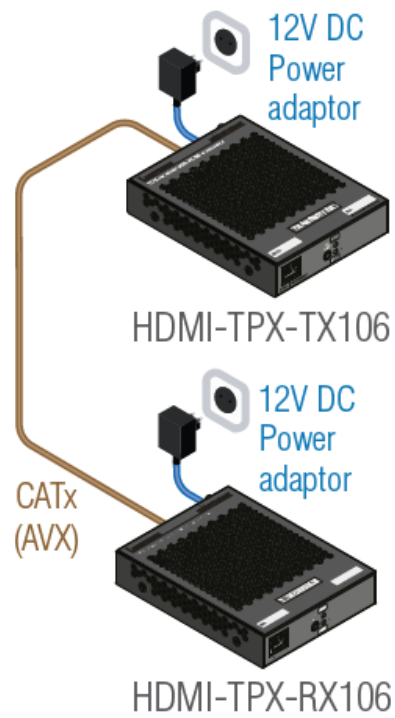


Power Supply Options

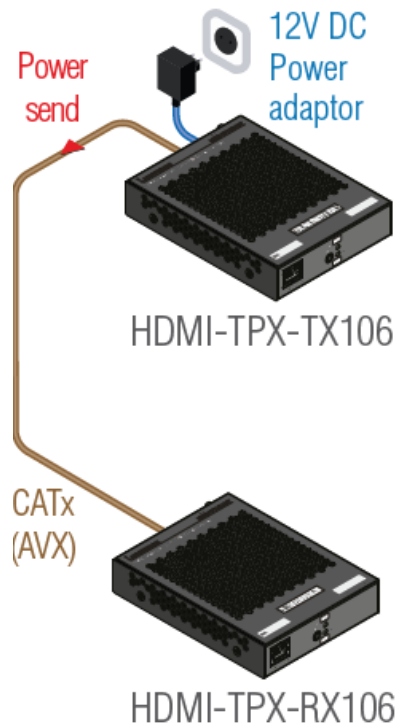
HDMI-TPX-106 series

TPX106 series extenders are able to supply remote power to each other over the TPX connector. The TPX106 series devices can be powered by any of the following ways:

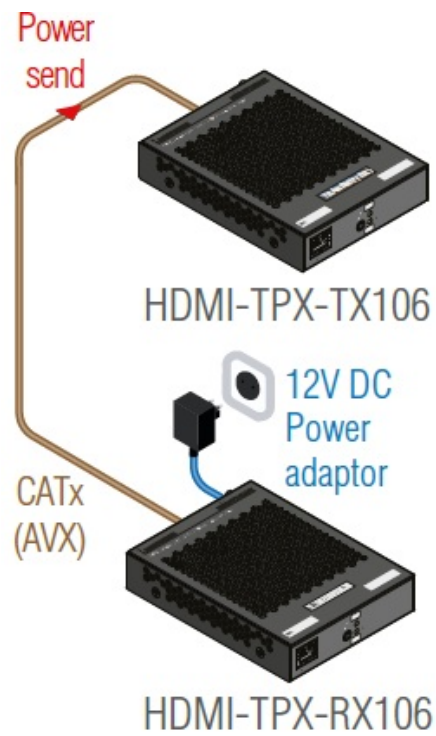
1. Local adaptor for both TX and RX



2. Local adaptor and remote power to RX



3. Local adaptor and remote power to TX



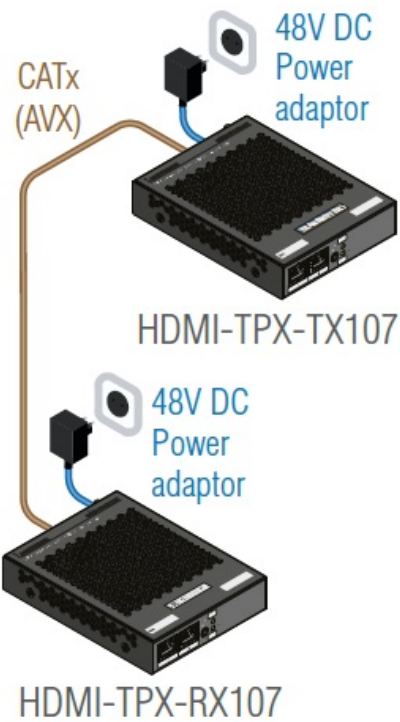
HDMI-TPX-107 series

TPX107 series extenders fulfill PoE PD standard which means TPX port can receive power over the Ethernet line.

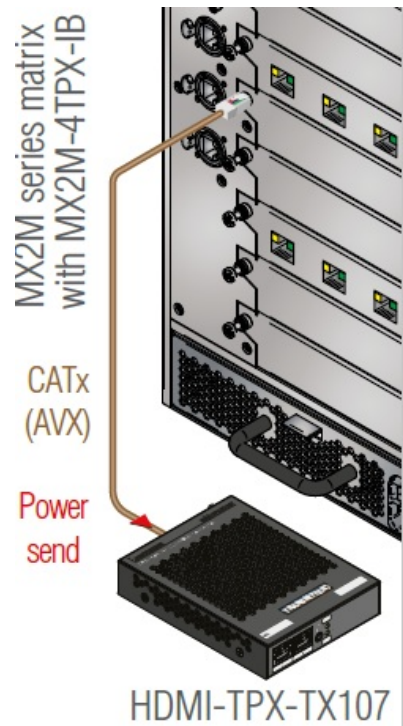
- HDMI-TPX-107 series extenders are not able to send remote power to each other.

The TPX107 series devices can be powered by any of the following ways:

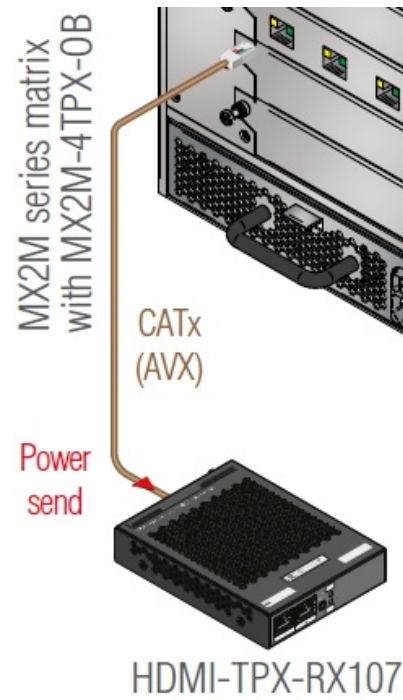
1. Local adaptor for both TX and RX



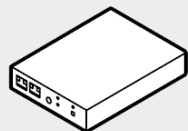
2. Remote power via matrix board to TX



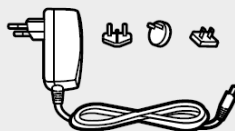
3. Remote power via matrix board to RX



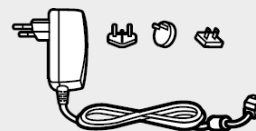
Box Contents



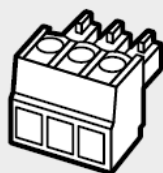
Transmitter / receiver
device



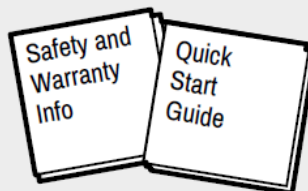
12V DC adaptor with
interchangeable plugs *



48V DC adaptor with
interchangeable plugs **










Phoenix® Combicon 3-pole connector












Safety & Warranty Info;
Quick Start Guide

- Only for HDMI-TPX-TX106 and HDMI-TPX-RX106 units.
- Only for HDMI-TPX-TX107 and HDMI-TPX-RX107 units.

Status LEDs

POWER/LIVE		Transmitter / Receiver
	off	Device is not powered.
	blinking between 50% and 100% brightness (green)	Device is powered on and operational.
VIDEO SIGNAL		Transmitter / Receiver
	off	No video signal detected on the HDMI input (TX) or HDMI output (RX) port.
	on (green)	Video signal is detected on the HDMI input (TX) or HDMI output (RX) port.
EDID STATUS		Transmitter
	on (green)	Learned EDID is emulated on the HDMI input port.
	on (yellow)	Transparent EDID is emulated on the HDMI input port.
	blinking (red)	Error occurred during the EDID emulation. It may be caused by: <ul style="list-style-type: none"> ▪ EDID emulation cannot be set correctly. ▪ Device cannot apply transparent EDID emulation.

TPX INPUT/OUTPUT		Transmitter / Receiver
	off	No connection is established between the transmitter and receiver units.
	on (green)	Connection is established with 10G / 5G / 2.5G bandwidth.
	blinking (yellow)	Link training is in progress.
TPX INPUT/OUTPUT		Transmitter / Receiver
	off	No data transmission on the port.
	blinking (green)	Data transmission is active.
GIGABIT ETHERNET - LEFT LED		Transmitter / Receiver
	on (yellow/green)	Connection is established with 100Mbps bandwidth.
	blinking (yellow/green)	Data transmission is active.
GIGABIT ETHERNET - RIGHT LED		Transmitter / Receiver
	on (green)	Connection is established with 1Gbps bandwidth.
	blinking (green)	Data transmission is active.

Specification

General

- ComplianceCE
- Electrical safety..... EC/EN 62368-1:2014
- EMC (emission)..... EC/EN 55032:2015
- EMC (immunity)..... EC/EN 55035:2017
- RoHS..... EN 63000:2018
- Warranty..... 3 years
- Operating temperature..... 0° to +50°C (+32° to +122°F)
- Operating humidity..... 10% to 90%, non-condensing
- Cooling..... passive

Power

- Power supply option (106 series) Power adaptor / 12V remote powering
- Power supply option (107 series)..... Power adaptor / PoE PD
- Supported power source..... 100-240 V AC; 50/60 Hz
- Power consumption (TPX106 series, without remote power)..... 11 W
- Power consumption (TPX106 series, with remote power)..... 25 W
- Power consumption (TPX107 series)..... 11 W
- Heat dissipation (TPX106 series, without remote power)..... 37.5 BTU/h
- Heat dissipation (TPX106 series, with remote power)..... 85.3 BTU/h
- Heat dissipation (TPX107 series)..... 37.5 BTU/h
- Power Adaptor (TPX106 series)
- Supplied power12V DC, 3A

- AC power plug Inter changeable (EU, UK, JP/US, AUS/NZ)
- DC power plug Locking DC connector (2.1/5.5 mm pin)

Power Adaptor (TPX107 series)

- Supplied power48V DC, 0.3A
- AC power plug Interchangeable (EU, UK, JP/US, AUS/NZ)
- DC power plug2-pole Phoenix connector

Enclosure

- Rack mountableyes, with UD kit / UD kit double / 1U high rack shelf
- Enclosure material 1 mm steel
- Dimensions (mm / inch)100.4 W x 131.9 D x 26 H (3.95 W x 5.19 D x 1 H)
- Weight476 g (1.05 lbs)

Video Ports

HDMI input/output

- Connector type19-pole HDMI Type A receptacle
- AV standard DVI 1.0, HDMI 2.0
- HDCP complianceHDCP 2.3
- Color spaceRGB, YCbCr
- Supported resolutions at 8 bits/color *up to 4096×2160@60Hz (4:4:4)
- Audio formats 8 channel PCM, Dolby TrueHD, DTS-HD Master Audio 7.1

TPX input/output

- Connector type RJ45 connector
- Power over Ethernet (TPX106 series) 12V remote powering
- Power over Ethernet (TPX107 series)PoE PD (IEEE802.3af)
- Compliance SDVoE AVX
- HDCP complianceHDCP 2.3
- Transferred signalsVideo, Audio, RS-232, Infrared, Ethernet
- Color spaceRGB, YCbCr
- Video latency (TPX output).....0 frame (five lines/ under 8ms)
- Compression ratio (TPX output)1.4 to 1 **
- Supported resolutions at 8 bits/color *up to 4096×2160@60Hz (4:4:4)
- Audio formats 8 channel PCM, Dolby TrueHD, DTS-HD Master Audio
- All standard VESA, CEA and other custom resolutions up to 600MHz (HDMI2.0) are supported.
- Compression is applied only in case of the AV signal is above HDMI 1.4 standard.

Control Ports

Ethernet port

- Connector type RJ45 female connector
- Number of connectors per unit (106 series / 107 series)1 / 2
- Ethernet data rate1GBase-T, full duplex with autodetect
- Power over Ethernet (PoE)Not supported

RS-232 serial port

- Connector type.....3-pole Phoenix connector
- Default setting..... 57600 BAUD, 8N1

Infrared output port

- Connector type3.5mm TRS (approx. 1/8" jack)
- Output signalmodulated (38kHz)
- Operation mode command injection (only with 3rd-party software)

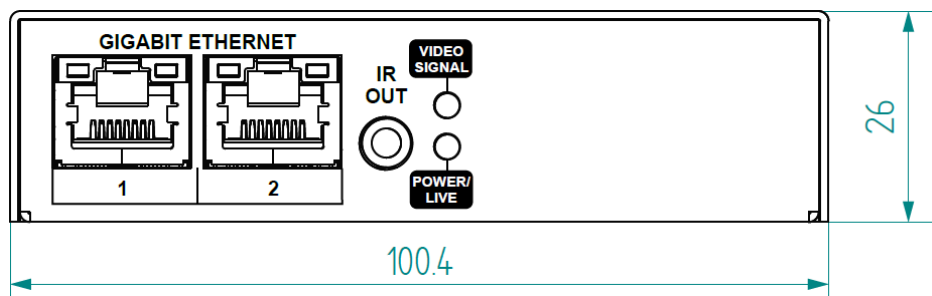
Firmware Upgrade

Lightware Device Updater (LDU2) is an easy and comfortable way to keep your device up to date. Establish the connection via Gigabit Ethernet port. Download and install LDU2 software from the company's website www.lightware.com where you can find the latest firmware package as well.

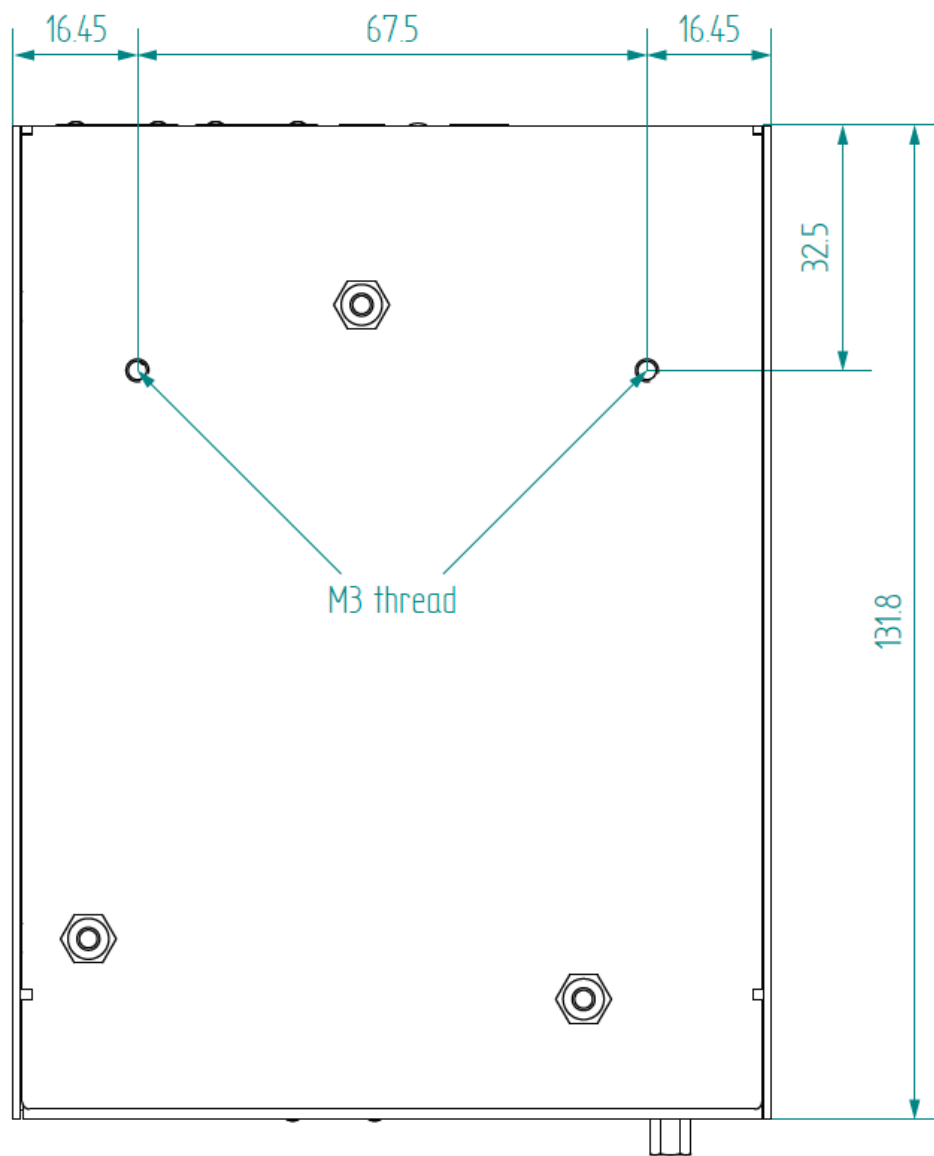
Mechanical Drawings

The following drawings present the physical dimensions of the HDMI-TPX-100 series extenders. Dimensions are in mm.

Front View



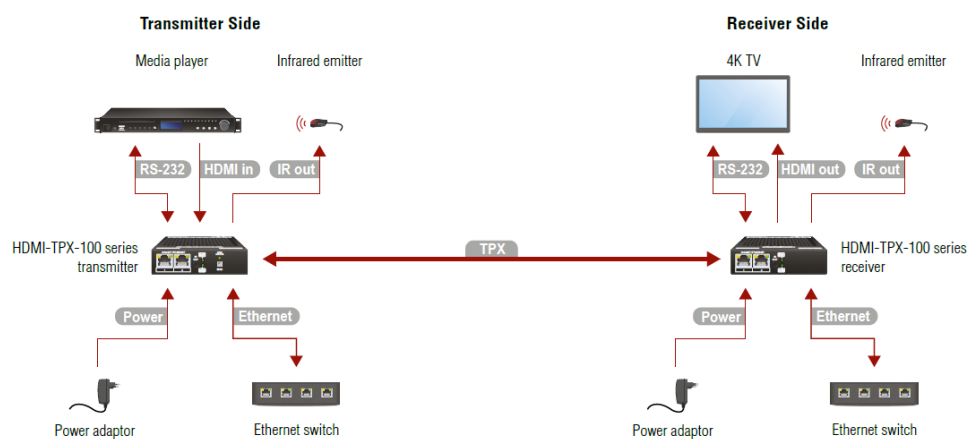
Bottom View



Ventilation

- Pay attention to the ventilation holes when designing the system. Top and side ventilation holes must not be covered.

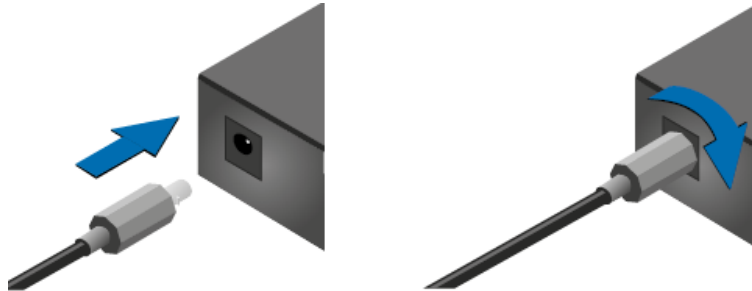
Connecting Steps



Transmitter Side		Receiver Side	
TPX	Connect a CATx cable between the TPX output port of the transmitter and the TPX input port of the receiver.	TPX	Connect a CATx cable between the TPX output port of the transmitter and the TPX input port of the receiver.
HDMI in	Connect the source (e.g. media player) to the HDMI input port of the transmitter by a HDMI cable.	HDMI out	Connect the sink (e.g. 4K TV) to the HDMI output port of the receiver by a HDMI cable.
Ethernet	Connect the device to a LAN network.	Ethernet	Connect the device to a LAN network.
IR out	Optionally for Infrared extension: connect an IR emitter to the IR OUT port of the transmitter.	IR out	Optionally for Infrared extension: connect an IR emitter to the IR OUT port of the receiver.
RS-232	Optionally for RS-232: connect a device (e.g. media player) to the RS-232 port.	RS-232	Optionally for RS-232: connect a device (e.g. 4K TV) to the RS-232 port.
Power	Powering on the devices is recommended to do as the final step during the installation. Please check the <i>Power Supply Options</i> section for the details.	Power	Powering on the devices is recommended to do as the final step during the installation. Please check the <i>Power Supply Options</i> section for the details.

Locking DC Plug

Twist 90° clockwise to lock.



- Only HDMI-TPX-106 series extenders are built with locking DC input connector

Minimum CAT Cable Requirement

Lightware highly recommends using CAT6a AWG24 or higher category 10G Ethernet cable for the TPX (AVX) connection between the transmitter and the receiver. Usage of e.g. AWG28 Ethernet cable may reduce the extension distance significantly.

Mounting Options

For the mounting of the devices Lightware supplies optional accessories for different usages. There are two kinds of mounting kits with a similar fixing method. The transmitter and the receiver have two mounting holes with inner thread on the bottom side. Fasten the device by the screws enclosed to the accessory.



Under-desk mounting kit

Under-desk double mounting kit

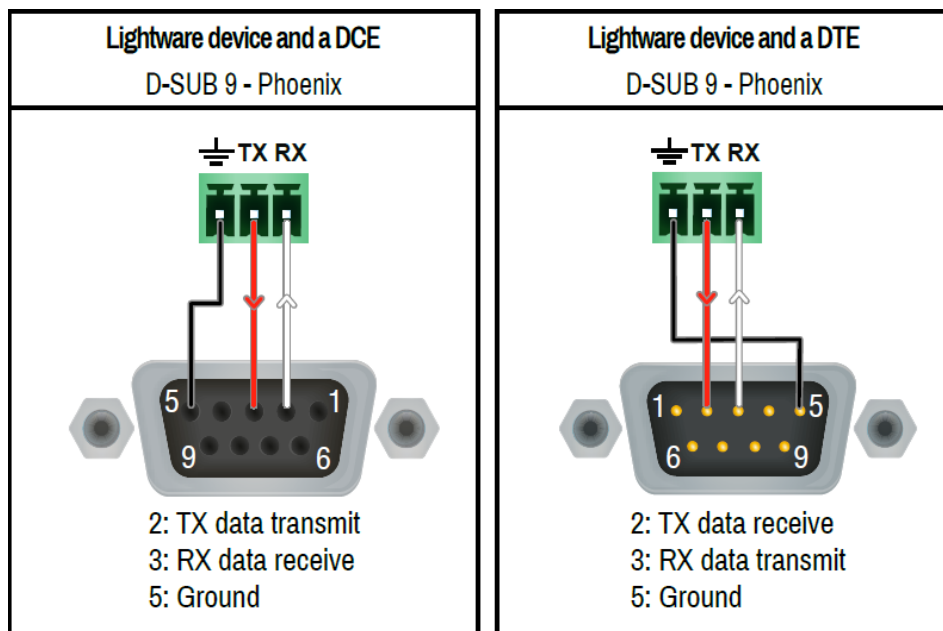
1U high rack shelf

The Under-desk and Under-desk double mounting kit makes it easy to mount a single device on any flat surface, e.g. furniture. 1U high rack shelf provides mounting holes for fastening two half-rack or four quarter-rack sized units. Pocket-sized devices can also be fastened on the shelf. To order mounting accessories, please contact sales@lightware.com.

- The transmitter and the receiver units are quarter-rack sized.
- Using different (e.g. longer) screws may cause damage to the device.

Wiring Guide for RS-232 Data Transmission

HDMI-TPX-100 series extenders are built with a 3-pole Phoenix connector. See the below examples of connecting to a DCE (Data Circuit-terminating Equipment) or a DTE (Data Terminal Equipment) type device:



For more information about the cable wiring see the user's manual of the device or the Cable Wiring Guide on our website

www.lightware.com/support/guides-and-white-papers.

Further Information

The document is valid with the following firmware version: 1.0.0

The User's manual of this appliance is available on www.lightware.com. See the Downloads section on the dedicated product page.

Contact Us

sales@lightware.com

+36 1 255 3800

support@lightware.com

+36 1 255 3810

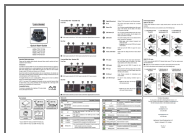
Lightware Visual Engineering LLC.

Peterdy 15, Budapest H-1071, Hungary

Doc. ver.: 1.0

19200191

Documents / Resources



[LIGHTWARE HDMI-TPX Series Transmitter](#) [pdf] User Guide

HDMI-TPX-TX106, HDMI-TPX-RX106, HDMI-TPX-TX107, HDMI-TPX-RX107, HDMI-TPX Series Transmitter, HDMI-TPX Series, Transmitter

References

-  [Lightware Visual Engineering](#)
-  [Guides and White Papers](#)