



Quick Start Guide

HDMI-TPX-TX106, -TX106A
HDMI-TPX-RX106
HDMI-TPX-TX107
HDMI-TPX-RX107

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 of up to 100 meters.

HDMI-TPX-TX106A model is featured with audio de-embedding function via the 5-pole Phoenix® Combicon analog audio port.

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.

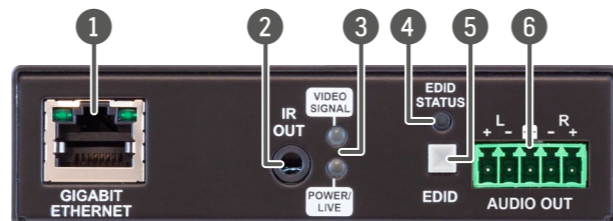
Compatible Devices

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



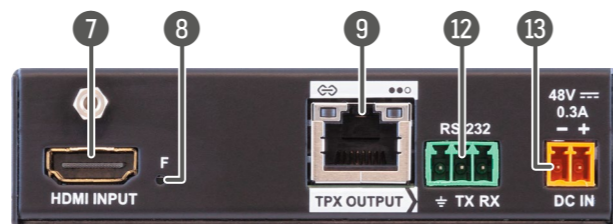
Front and Rear View - Transmitter (TX)

Front View



- 1 TX106 / TX106A models have one, TX107 model has two Gigabit Ethernet connectors.
- 2 Only TX106A model is built with an analog audio output port.

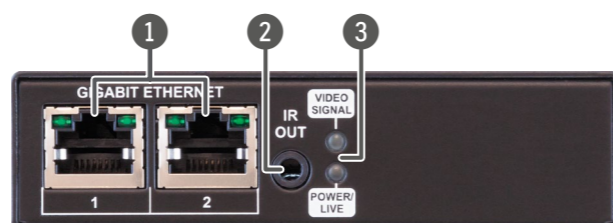
Rear View



- 13 TX106/TX10A models are built with 12V, TX107 model is built with 48V DC input connector.

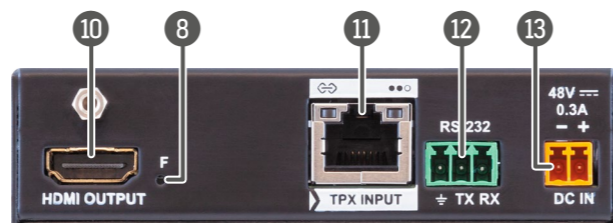
Front and Rear View - Receiver (RX)

Front View



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

Rear View



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

- 1 Gigabit Ethernet port 1GBase-T RJ45 connector for user Ethernet purpose.
- 2 IR out TRS (3.5mm jack) output connector for an Infrared emitter unit.
- 3 Status LEDs The LEDs give immediate feedback about the current status of the extender. See the details in the *Status LEDs* section.
- 4 EDID Status LED The LED gives immediate feedback about the current status of the EDID emulation. See the details in the *Status LEDs* section.
- 5 EDID button 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.
- 6 Analog audio output 5-pole Phoenix connector for balanced analog audio output.
- 7 HDMI input HDMI input port with HDMI 2.0 support for source devices.
- 8 Factory reset button Hidden button for setting the device to factory default values.

- 9 TPX output RJ45 connector for AVX output signal transmission. See more details about the connector in the *Power Supply Options* and the *Status LEDs* sections.
- 10 HDMI output HDMI output port with HDMI 2.0 support for sink devices.
- 11 TPX input RJ45 connector for AVX input signal. See more details about the connector in the *Power Supply Options* and the *Status LEDs* sections.
- 12 RS-232 port 3-pole Phoenix connector for bi-directional serial communication.
- 13 12V / 48V DC input 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.

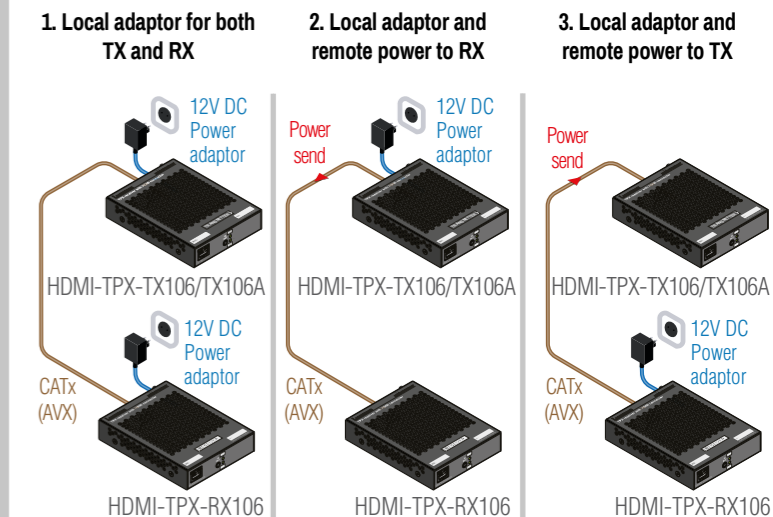


Power Supply Options

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 in any of the following ways:

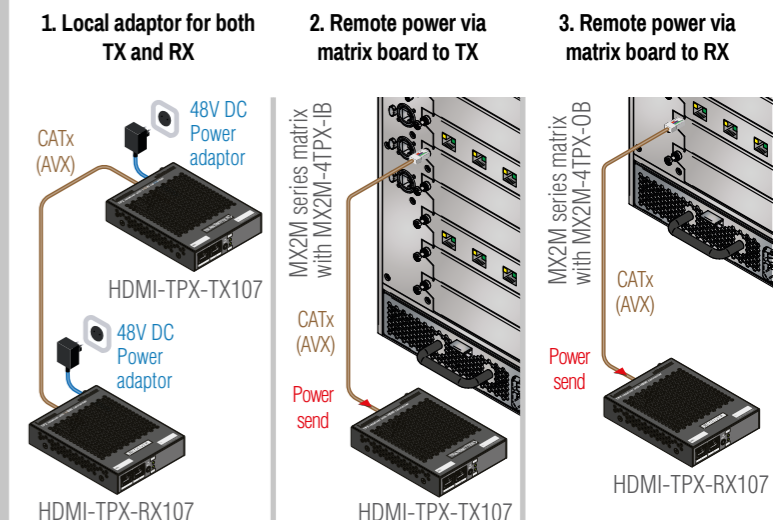


HDMI-TPX-107 series

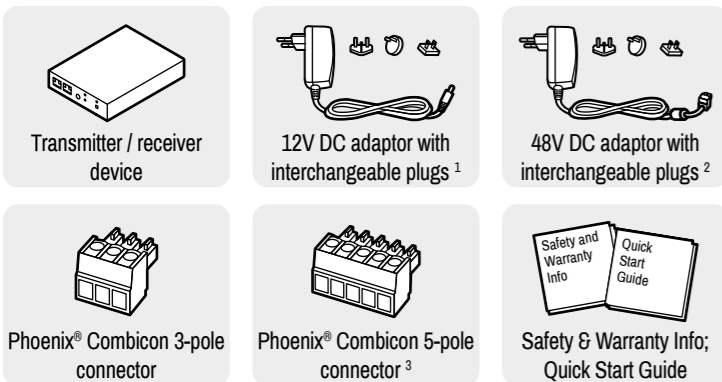
TPX107 series extenders fulfill PoE PD standard, which means the TPX port can receive power over the Ethernet line.

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

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



Box Contents



¹ Only for HDMI-TPX-TX106, HDMI-TPX-TX106A and HDMI-TPX-RX106 units.

² Only for HDMI-TPX-TX107 and HDMI-TPX-RX107 units.

³ Only for HDMI-TPX-TX106A unit.

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 the 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.

Further Information

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 PLC.
Péterdy 15, Budapest H-1071, Hungary

Specification

General

Compliance.....	CE, UKCA
Electrical safety.....	EN 62368-1:2014
EMC (emission).....	EN 55032:2015
EMC (immunity).....	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 (TPX106 series).....	Power adaptor / 12V remote powering
Power supply option (TPX107 series).....	Power adaptor / PoE PD
Supported power source.....	100-240 V AC; 50/60 Hz
Power consumption (TPX106 series, without remote power).....	7 W
Power consumption (TPX106 series, with remote power).....	16 W
Power consumption (TPX107 series).....	11 W
Heat dissipation (TPX106 series, without remote power).....	23.9 BTU/h

Heat dissipation (TPX106 series, with remote power).....	54.6 BTU/h
Heat dissipation (TPX107 series).....	37.5 BTU/h

Power Adaptor (TPX106 series)

Supplied power.....	12V DC, 2A
AC power plug.....	Interchangeable (EU, UK, JP/US, AUS/NZ)
DC power plug.....	Locking DC connector (2.1/5.5 mm pin)

Power Adaptor (TPX107 series)

Supplied power.....	48V DC, 0.8A
AC power plug.....	Interchangeable (EU, UK, JP/US, AUS/NZ)
DC power plug.....	2-pole Phoenix connector

Enclosure

Rack mountable.....	yes, with mounting accessories
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)
Weight.....	476 g (1.05 lbs)

Video Ports

HDMI input/output

Connector type.....	19-pole HDMI Type A receptacle
AV standard.....	DVI 1.0, HDMI 2.0

HDCP compliance.....	HDCP 2.3
Color space.....	RGB, YCbCr
Supported resolutions at 8 bits/color *.....	up to 4096x2160@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)
Data rate.....	10GBase-T
Compliance.....	SDVoE AVX
HDCP compliance.....	HDCP 2.3
Transferred signals.....	Video, Audio, RS-232, Infrared, Ethernet
Color space.....	RGB, 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 4096x2160@60Hz (4:4:4)
Audio formats.....	8-channel PCM, Dolby TrueHD, DTS-HD Master Audio 7.1

* All standard VESA, CEA and other custom resolutions up to 600MHz (HDMI2.0) are supported.

** Compression is applied only if the AV signal is above HDMI 1.4 standard.

Audio Ports

Analog audio output (HDMI-TPX-TX106A)

Connector type.....	5-pole Phoenix connector
Audio formats.....	2-channel PCM
Sampling frequency.....	48 kHz
Signal transmission.....	Balanced signal

Control Ports

Ethernet port

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

RS-232 serial port

Connector type.....	3-pole Phoenix connector
Default settings.....	9600 BAUD, 8N1

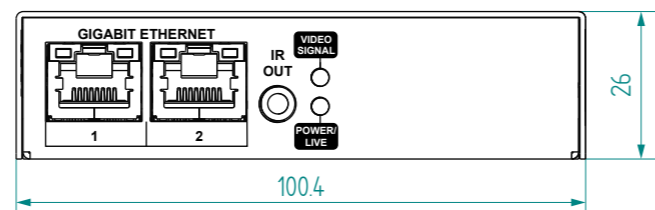
Infrared output port

Connector type.....	3.5mm TRS (approx. 1/8" jack)
Output signal.....	Modulated (38kHz)
Operation mode.....	Command injection (only with 3rd-party software)

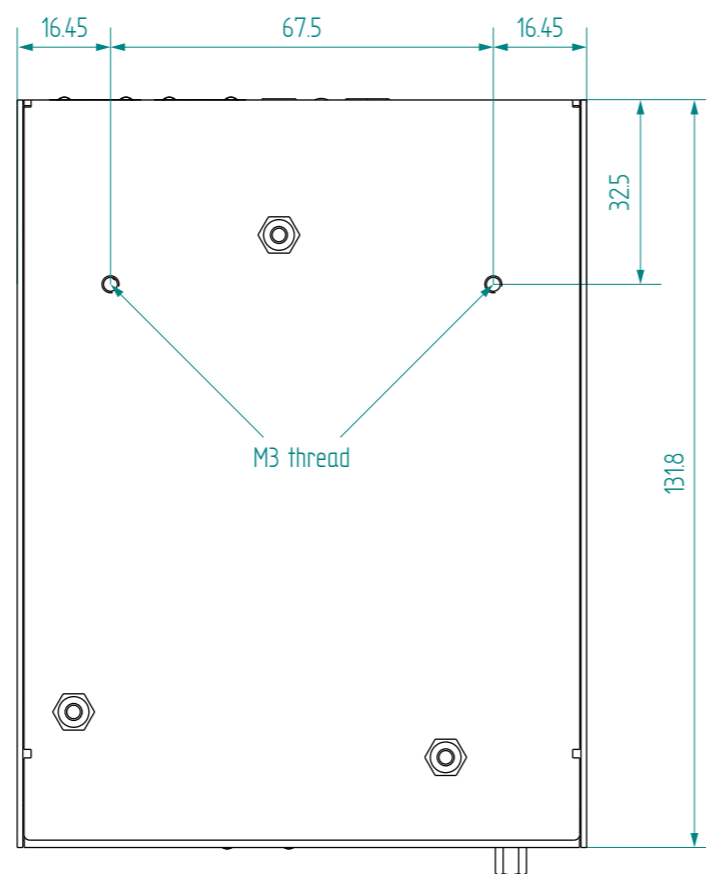
Mechanical Drawings

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

Front View



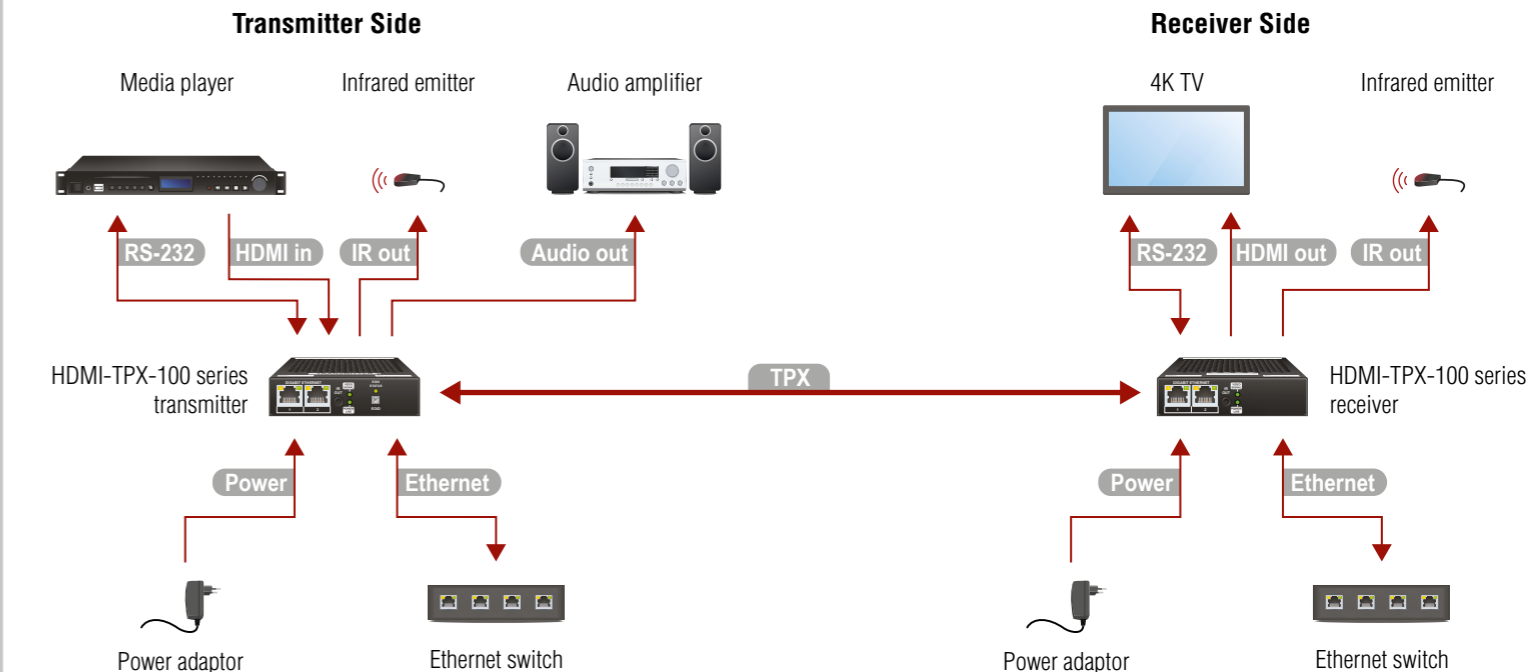
Bottom View



Ventilation

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

Connecting Steps

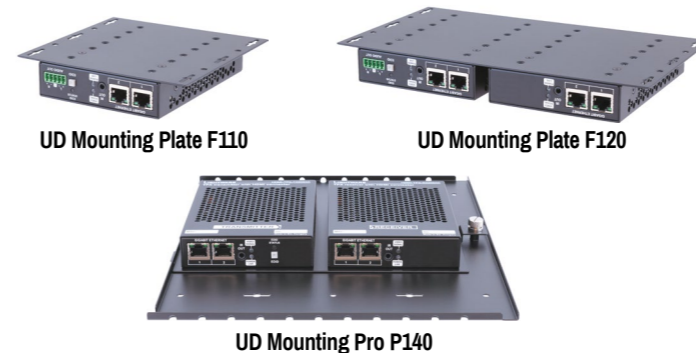


Transmitter Side	
TPX	Connect a CATx cable between the TPX output port of the transmitter and the TPX input port of the receiver.
HDMI in	Connect the source (e.g. media player) to the HDMI input port of the transmitter by a HDMI cable.
Audio out	Optionally for analog output: connect an audio device (e.g. audio amplifier) to the analog audio output port by an audio cable. ⓘ Only HDMI-TPX-TX106A model is built with an analog audio output port.
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.
RS-232	Optionally for RS-232: connect a device (e.g. media player) 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.

Receiver Side	
TPX	Connect a CATx cable between the TPX output port of the transmitter and the TPX input port of the receiver.
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.
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. 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.

Mounting Options

For the mounting of the devices Lightware supplies optional accessories for different usages. The device has two mounting holes with inner thread on the bottom side. Fasten the device by the screws enclosed to the accessory.



The UD Mounting Plate F110 makes it easy to mount a single device on any flat surface, e.g. furniture. The UD Mounting Plate F120 and UD Mounting Pro P140 provide the same for one half-rack or two quarter-rack sized units. Pocket-sized devices can also be fastened to them. The UD Mounting Pro P140 makes easy and quick changing of the extenders under the desk available. To order mounting accessories, please contact sales@lightware.com.

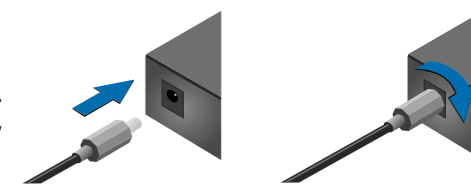
⚠ Using different (e.g. longer) screws may cause damage to the device.

ⓘ The extenders are quarter-rack sized.

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 cables for the TPX (AVX) connection between the transmitter and the receiver. Usage of e.g. AWG28 Ethernet cables may reduce the extension distance significantly.

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.

