visual engineering LIGHTWARE

Quick Start Guide

DVI-HDCP-TPS-TX210, DVI-HDCP-TPS-TX220
HDMI-TPS-TX210, HDMI-TPS-TX220
DP-TPS-TX210, DP-TPS-TX220

Important safety instructions

Please read and keep the information in the attached safety instructions supplied with the product before start using the device.

Introduction

Thank You for choosing Lightware TPS-TX200 series transmitter. The products have HDBaseT™ integration with additional Lightware developments. The devices transmit HDMI/DVI digital video signal up to 4K resolution, audio and control up to 170 m distance over a single CAT cable (in the case of DP-TPS transmitters the DP signal is converted to HDMI).

Compatible devices

The transmitters are compatible with all Lightware TPS receivers, matrix boards and third party devices based on HDBase-T™ technology.

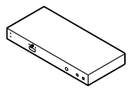
Power supply options

The transmitters can be powered:

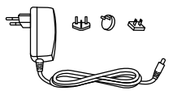
- Locally with the supplied 12V DC adaptor or Lightware's rack mountable PSU, or
- Remotely by a PoE-compatible power injector, like Lightware's TPS-PI-1P1.

TPS-TX/RX95 are not PoE-compatible, thus not able to remote power the TPS-TX200 series and vica versa. TPS-TX200 series contains PoE-compatible remote power function, RX95 can be remote powered only by TX95 transmitter.

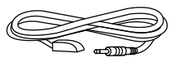
Box contents



Transmitter unit

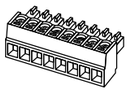


12V DC power adaptor with interchangeable plugs



Infrared transmitter unit

Phoenix Combicon 3-pole connector

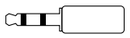


Phoenix Combicon 8-pole connector*

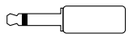
Safety and Warranty info, Quick Start Guide

* Only for DVI-HDCP-TPS-TX220, HDMI-TPS-TX220 and DP-TPS-TX220 models.

Pinout of IR connectors



3 pole, 2 rings: IR receiver



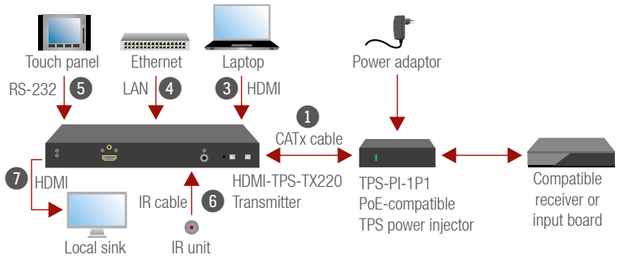
2 pole, 1 ring: IR transmitter

DVI-HDCP-TPS-TX220 - Front and rear view

HDMI-TPS-TX220 - Front and rear view

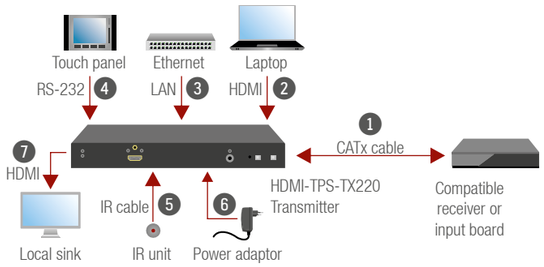
DP-TPS-TX220 - Front and rear view

Connecting steps - using power injector



1. Connect the TPS OUT port to the TPS+PoE port of TPS-PI-1P1 by a CATx cable.
2. Connect the receiver (or the input board) to the TPS-PI-1P1 by a CATx cable via the TPS port.
3. Connect the desired source(s) to the input port(s) of the transmitter.
4. Optionally connect the transmitter to a LAN in order to control the device.
5. Optionally for RS-232 extension: connect a controller to the RS-232 port.
6. Optionally for Infra-Red extension:
   a. Connect the IR emitter to the IR OUT port, and/or
   b. Connect the IR detector to the IR IN port.
7. Optionally connect a local sink to the HDMI output port.
8. Power on the devices.

Connecting steps - using local PSU



1. Connect the transmitter and the receiver by a CATx cable via the TPS connectors.
2. Connect the desired source(s) to the input port(s) of the transmitter.
3. Optionally connect the transmitter to a LAN in order to control the device.
4. Optionally for RS-232 extension: connect a controller to the RS-232 port.
5. Optionally for Infra-Red extension:
   a. Connect the IR emitter to the IR OUT port, and/or
   b. Connect the IR detector to the IR IN port.
6. Firtsly connect the power adaptor to the DC input on the transmitter, then to the AC power socket.
7. Optionally connect a local sink to the HDMI output port.
8. Power on the devices.

Mounting to an UD-kit double (optional accessory)

Front panel button functions

- Audio input switching: Press the AUDIO SELECT.
- Lock/unlock buttons: Press the AUDIO SELECT and the SHOW ME together.

Software control – Using Lightware Device Controller (LDC)

The device can be controlled from a computer through the Ethernet port using Lightware Device Controller. Please download the application from www.lightware.eu, install on a Windows PC or a Mac OS X and connect to the device via the Ethernet port.

The IP address of the unit is static (default): 192.168.0.100., DHCP is disabled.

Set dynamic IP address

1. Keep the Show me button pressed for 5 seconds; front panel LEDs start to blink.
2. Release the button, then press it 3 times quickly. DHCP is now enabled.

Restore factory default settings

1. Keep the Show me button pressed for 10 seconds; after 5 seconds front panel LEDs start to blink but keep the buttons pressed; the LEDs start to blink faster 5 seconds later.
2. Release the button, then press it 3 times quickly; factory default settings are restored:

IP address (fix)	192.168.0.100
Subnet mask	255.255.255.0
Static gateway	192.168.0.1
DHCP	Disabled
TCP/IP port nr. LW2 / LW3	10001 / 6107
Crosspoint setting (Audio)	Embedded audio
Autoselect	Disabled
Output TPS mode	Auto
Emulated EDID	Dynamic
RS-232 mode	Pass-through
RS-232 control protocol	LW2
RS-232 port setting	57600 BAUD, 8, N, 1
Command injection port (local / link)	8001 / 8002
GPIO output level	High
GPIO direction	Input

Front panel LEDs

Video source

- OFF: video source is not selected.
- BLINKING: video source is selected but not active.
- ON: video source is selected and active.

Audio sources

- OFF: audio source is not selected.
- BLINKING: audio source is selected but not active.
- ON: (with short pause): audio source is selected and the port is active but not embedded to the output video stream (DVI output mode).
- ON: (continuously): audio source is selected, the port is active and the audio is embedded to the output video stream (HDMI output mode).

When Autoselect is enabled and audio signal is not present at all, audio LEDs blink.

HDCP LED

- OFF: video output signal is not encrypted with HDCP.
- ON: video output signal is encrypted with HDCP.

Autoselect LED

- OFF: autoselect is disabled.
- BLINKING: autoselect is enabled; searching for signal (audio LEDs also blink).
- ON: autoselect is enabled; active signal is found (the LED of selected audio also lights).

Rear panel LEDs

LIVE

- OFF: device is not powered.
- BLINKING (slow): device is powered and operational.
- BLINKING (fast): device is in bootload mode.
- ON: device is powered but no operation.

RS-232 LED

- OFF: RS-232 ports (local and link) are in Pass-through mode.
- BLINKING: command injection mode is active.
- ON: RS-232 ports (local and link) are in Control mode.

SRVC

Reserved for future developments.

LINK

- OFF: no TPS link between transmitter and receiver.
- BLINKING (slow): low power mode is active.
- BLINKING (fast): Ethernet fallback mode is active.
- ON: TPS link is established, HDBaseT or Long Reach mode is active.

Maximum twisted pair distances

Resolution	Pixel clock rate	Cable lengths (Auto / Long reach 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

* Long reach TPS mode supports pixel clock frequencies up to 148.5 MHz.

Above values are valid when the transmitter is powered by a local adaptor; distances may decrease depending on the powering mode (local or remote) and cable quality.

CAT7 SFTP AWG23 cable is always recommended.

Further information

The document is valid with the following firmware version: 1.0.3
The User's manual of this appliance is available at www.lightware.eu.
See the Downloads section on the website of the product.

Contact us

sales@lightware.eu
+36 1 255 3800

support@lightware.eu
+36 1 255 3810

Lightware Visual Engineering LLC.
Peterdy 15, Budapest H-1071, Hungary

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19200021