PUV-2606TX

**HDBaseT2 Transmitter with USB for the
Reverse Power PUV-2600 Series**

/// **OPERATION MANUAL**

DISCLAIMERS

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.

- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.

- Never spill liquid of any kind on or into this product.

- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.

- Do not attach the power supply cabling to building surfaces.

- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.

- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.

- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
RDV1	2019/04/25	Preliminary release
RDV2	2019/12/04	Updated RS-232 command list
RDV3	2020/02/26	Removed Adaptor from package content

CONTENTS

1. INTRODUCTION

This HDBaseT 2.0 Transmitter is a great solution for extending uncompressed HD audio and video as well as Ethernet and control via a single run of Cat.5e/6/7 cable over distances of up to 100 meters. Multiple data and control signal types are supported, including USB 2.0, IR, RS-232 and LAN connections. An independent analogue stereo audio input is also provided to enable easy audio signal extension. The HDMI input supports transmitting resolutions up to a maximum of 4K@30Hz (4:4:4, 8-bit) or 4K@60Hz (4:2:0, 8-bit) over HDBaseT to a compatible Receiver.

When paired with this unit's standard Receiver, 2 switchable USB 2.0 host (Type B) connections are available (1 on the Transmitter, 1 on the Receiver) which can connect to devices on up to 6 USB 2.0 (Type A) ports (3 on the Transmitter, 3 on the Receiver) forming a highly flexible KVM extension configuration (Note: Only 1 USB host may be active at a time).

This Transmitter (PD) may be powered locally using a standard power supply, or it can be powered by PoH (Power over HDBaseT) provided by a compatible Receiver (PSE), allowing for greater flexibility within different installation scenarios. This unit is controllable via a front panel button and RS-232.

2. APPLICATIONS

- Lecture room display and control
- Showroom display and control
- Meeting room presentation and control
- Classroom display and control

3. PACKAGE CONTENTS

- 1× HDMI/USB to HDBaseT Transmitter
- 1× 3.5mm to IR Blaster Cable
- 1x 3.5mm to IR Extender cable
- 1× Shockproof Feet (Set of 4)
- 1× Operation Manual

4. SYSTEM REQUIREMENTS

/// HDMI source equipment such as a media player, video game console or set-top box.

/// A compatible HDBaseT 2.0 Receiver with PoH (PSE) support is highly recommended.

/// The use of Premium High Speed HDMI cables, and industry standard Cat.6, Cat.6a or Cat.7, is highly recommended.

5. FEATURES

/// HDMI 2.0 and DVI 1.0 compatible

/// HDCP 2.2 and HDCP 1.x compliant

/// HDBaseT 2.0 compatible

/// 1 HDMI input and 1 HDBaseT output

/// 3 USB 2.0 Type A ports and 1 USB 2.0 Type B port

/// Supports HDMI input resolutions up to 4K@60Hz (4:2:0, 8-bit)

/// HDBaseT output supports resolutions up to 4K@60Hz (4:2:0, 8-bit)

/// HDBaseT output transmits video, audio, and data over a single Cat.5e/6/7 cable and can reach distances up to 100m/230ft at 4K when using Cat.6a/7

/// HDBaseT feature support: HD Video and Audio, 100BaseT Ethernet, PoH (PD), and control (bi-directional IR/RS-232/USB 2.0)

/// Supports CEC bypass

/// Supports pass-through of audio formats including LPCM (up to 8 channels), Bitstream and HD Bitstream from HDMI sources

/// Independent analogue stereo audio extension

/// Flexible USB host selection using the front panel button

Note: Multiple USB hosts may be connected at once (up to 2 total, between the Tx and a compatible Rx unit) with a single selected host active at a time

/// Supports PoH from Receiver (PSE) to Transmitter (PD) (compatible Transmitters only)

/// Controllable via a front panel button and RS-232

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## 6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
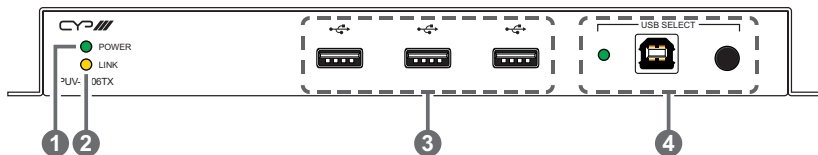
1 POWER LED: This LED will illuminate to indicate the unit is on and receiving power.

2 LINK LED: This LED will illuminate solidly when a live connection with a compatible Receiver is active.

3 USB 2.0 (Type A) Ports: Connect directly to standard USB 2.0 peripherals such as a mouse, keyboard or flash drive to extend their USB functionality to the designated Host Port.

4 USB SELECT Button & LED: Press this button to toggle between the USB Host Ports on the Transmitter or compatible Receiver. The LED will illuminate to indicate which USB Host Port is currently active. If the LED is off, the USB Host Port on the connected Receiver is active.

Note: Changing the USB host will force the HDBaseT connection to briefly disconnect while it reconfigures. The connected host (PC, laptop, etc.) may also take a moment to detect all available devices.

USB 2.0 (Type B) Port: Connect directly to a standard USB host such as a PC or laptop to extend its USB functionality to all currently connected USB devices.

Note: Multiple USB hosts may be connected at once (up to 2 total, between the Tx and a compatible Rx unit) with a single selected host active at a time.

6.2 Rear Panel
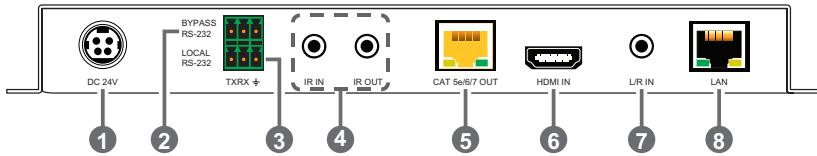
1 DC 24V Port: Plug the 24V DC power adapter into this port and connect it to an AC wall outlet for power. (Optional when connected to a compatible PoH (PSE) Receiver)

2 BYPASS RS-232 Terminal Block: Connect to a PC, laptop, or serial controllable device with a 3-pin adapter cable for the extension of RS-232 signals between both ends of the HDBaseT connection.

3 LOCAL RS-232 Terminal Block: Connect directly to a PC, laptop, or other serial control device with a 3-pin adapter cable to send RS-232 commands to control the unit.

4 IR IN Port: Connect to the provided IR Extender to receive IR control signals and extend them to devices connected to the other end of the HDBaseT connection. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

IR OUT Port: Connect to the provided IR Blaster to transmit IR signals from the other end of the HDBaseT connection to devices within direct line-of-sight of the IR Blaster.

5 CAT 5e/6/7 OUT Port: Connect to a compatible HDBaseT Receiver with a single Cat.5e/6/7 cable for transmission of all data signals. Power via PoH will also be supplied to this unit when connected to a compatible PSE Receiver.

6 HDMI IN Port: Connect to HDMI source equipment such as a media player, game console or set-top box.

7 L/R IN Port: Connect to the analogue stereo output of a device such as a CD player or PC. This is transmitted as an independent audio channel to compatible HDBaseT Receivers.

8 LAN Port: Connect to an Ethernet supporting device or to your local network, as appropriate, to extend the network to both ends of the HDBaseT connection.

6.3 IR Cable Pinouts

IR Blaster Cable

① Power
② Infrared
③ Not Used

IR Extender Cable

① Infrared
② Power
③ Ground
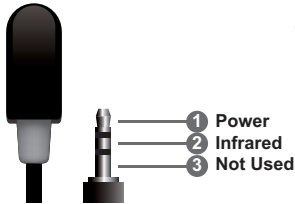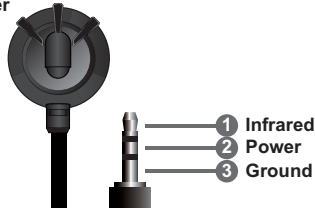
6.4 RS-232 Pinout and Defaults

Serial Port Default Settings	
Baud Rate	19200
Data Bits	8
Parity Bits	None
Stop Bits	1
Flow Control	None

3-pin Terminal Block

① GND
② RxD
③ TxD
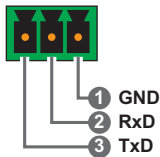
6.5 RS-232 Commands

COMMAND
Description and Parameters
help↵
Show the full command list.
?↵
Show the full command list.
help N1↵
Show help details about command **N1**.
N1 = {Command name}
get model name↵
Show the unit's model name.
get fw ver↵
Show the unit's current firmware version.
set factory default↵
Reset the unit to the factory defaults.
set system reboot↵
Reboot the unit
set in 1 name N1↵
Set the name of the HDMI input.
N1 = {Name}   [16 characters max]
get in 1 name↵
Show the current name of the HDMI input.
set out A name N1↵
Set the name of the HDBaseT output.
N1 = {Name}   [16 characters max]

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COMMAND
Description and Parameters

get out A name↵

Show the current name of the HDBaseT output.

get in name list↵

List the names of all inputs on the unit.

get out name list↵

List the names of all outputs on the unit.

get in type list↵

List the port type of all inputs on the unit.

get out type list↵

List the port type of all outputs on the unit.

set keylock N1↵

Enable or disable the front panel key lock.

Available values for **N1:**
ON   [Lock enabled]
OFF   [Lock disabled]

get keylock N1↵

Show the current front panel lock state.

get in port number↵

Show the total number of inputs on the unit.

get out port number↵

Show the total number of outputs on the unit.

get hdbt out A cable test↵

Show the cable test result for the HDBaseT output.

Note: Tests using the highest available source resolution without exeeding 4K@60Hz 4:2:0

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

7. CONNECTION DIAGRAM

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8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	10.2Gbps
HDBaseT Bandwidth	10.2Gbps
Input Ports	1×HDMI (Type-A) 1×Stereo Audio (3.5mm)
Output Port	1×HDBaseT (RJ-45)
Pass-through Ports	1×IR Extender (3.5mm) 1×IR Blaster (3.5mm) 3×USB 2.0 (Type A) 1×USB 2.0 (Type B) 1×RS-232 (3-pin Terminal Block) 1×LAN (RJ-45)
Control Ports	1×RS-232 (3-pin Terminal Block)
IR Frequency	30 – 50kHz (30 – 60kHz under ideal conditions)
Baud Rate	Up to 115200 (Bypass)/19200 (Control)
Power Supply	PoH from Rx or 24V/2.7A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	231.5mm×25mm×108mm [Case Only] 231.5mm×25mm×110mm [All Inclusive]
Weight	647g
Chassis Material	Metal (Steel)
Chassis Colour	Black
Operating Temperature	0˚C – 40˚C/32˚F – 104˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	40.44W

8.2 Video Specifications

Supported Resolutions (Hz)	Input HDMI	Output HDBaseT
720×400p@70/85	✓	✓
640×480p@60/72/75/85	✓	✓
720×480i@60	✓	✓
720×480p@60	✓	✓
720×576i@50	✓	✓
720×576p@50	✓	✓
800×600p@56/60/72/75/85	✓	✓
848×480p@60	✕	✕
1024×768p@60/70/75/85	✓	✓
1152×864p@75	✓	✓
1280×720p@50/60	✓	✓
1280×768p@60/75/85	✓	✓
1280×800p@60/75/85	✓	✓
1280×960p@60/85	✓	✓
1280×1024p@60/75/85	✓	✓
1360×768p@60	✓	✓
1366×768p@60	✓	✓
1400×1050p@60	✓	✓
1440×900p@60/75	✓	✓
1600×900p@60RB	✓	✓
1600×1200p@60	✓	✓
1680×1050p@60	✓	✓
1920×1080i@50/60	✓	✓
1920×1080p@24/25/30	✓	✓

Supported Resolutions (Hz)	Input	Output
	HDMI	**HDBaseT**
1920×1080p@50/60	✓	✓
1920×1200p@60RB	✓	✓
2560×1440p@60RB	✓	✓
2560×1600p@60RB	✓	✓
2048×1080p@24/25/30	✓	✓
2048×1080p@50/60	✓	✓
3840×2160p@24/25/30	✓	✓
3840×2160p@50/60 (4:2:0)	✓	✓
3840×2160p@24, HDR10	✗	✗
3840×2160p@50/60 (4:2:0), HDR10	✗	✗
3840×2160p@50/60	✗	✗
4096×2160p@24/25/30	✓	✓
4096×2160p@50/60 (4:2:0)	✓	✓
4096×2160p@24, HDR10	✗	✗
4096×2160p@50/60 (4:2:0), HDR10	✗	✗
4096×2160p@50/60	✗	✗

8.3 Audio Specifications

8.3.1 Digital Audio

HDMI Input/Output	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Supported Formats	Standard & High-Definition

8.3.2 Analogue Audio

Analogue Output	
Max Audio Level	1Vrms
Impedance	10kΩ
Type	Unbalanced

8.4 Cable Specifications

Cable Length	1080p		4K30	4K60
	8-bit	**12-bit**	**(4:4:4) 8-bit**	**(4:4:4) 8-bit**
High Speed HDMI Cable				
HDMI Output	15m	10m	5m	✕
Ethernet Cable				
Cat.5e/6	100m		90m	✕
Cat.6a/7	100m		100m	✕

Bandwidth Category Examples:

- **1080p (FHD Video)**

  - Up to 1080p@60Hz, 12-bit colour
  - Data rates lower than 5.3Gbps or below 225MHz TMDS clock

- **4K30 (UHD Video)**

  - 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit colour
  - Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps
- **4K60 (UHD+ Video)**

  - 4K@50/60Hz (4:4:4, 8-bit)
  - 4K@50/60Hz (4:2:0, 10-bit HDR)
  - Data rates higher than 10.2Gbps

8.5 HDBaseT Features

HDBaseT Feature Set	Transmitter
Video & Audio Extension	Supported
LAN Extension	Supported
Send power to Receiver	Unsupported
Accept power from Receiver	Supported (PoH)
IR Extension	Supported
RS-232 Extension	Supported
USB 2.0 Extension	Supported

9. ACRONYMS

ACRONYM	COMPLETE TERM
ADC	Analogue-to-Digital Converter
AV	Audio/Video
AVLC	Adaptive Visually Lossless Compression
AVR	Audio/Video Receiver or Recorder
Cat.5e	Enhanced Category 5 cable
Cat.6	Category 6 cable
Cat.6a	Augmented Category 6 cable
Cat.7	Category 7 cable
CEC	Consumer Electronics Control
CLI	Command-Line Interface
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HD	High-Definition
HDBT	HDBaseT
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
HDTV	High-Definition Television
IR	Infrared
KVM	Keyboard/Video/Mouse
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
PC	Personal Computer
PD	Powered Device

ACRONYM	COMPLETE TERM
PoH	Power over HDBaseT
PSE	Power Sourcing Equipment
SDTV	Standard-Definition Television
UHD	Ultra-High-Definition (10.2Gbps)
UHD⁺	Ultra-High-Definition Plus (18Gbps)
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array

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