



# PUV-1610-KIT

Standard HDBaseT1 KIT for the Reverse Power  
PUV-1600 Series

**OPERATION MANUAL**



HDCP2.2



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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.

## REVISION HISTORY

VERSION NO.	DATE	SUMMARY OF CHANGE
v1.00	07/03/2018	First release

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## 1. INTRODUCTION

The PUV-1610-KIT enables transmission of video resolutions up to 4K UHD, along with HD audio, 2-Way IR, RS-232, PoH (Power over HDBaseT), and LAN signals up to 100m. This solution provides advanced signal management ensuring reliable results in the most demanding installation environments. All audio, video, control, and power are transmitted simultaneously over a single CAT6a/7 cable up to 100m.

A key feature of the PUV-1600 series is that the power is sent to the TX from the mains powered RX. This offers additional flexibility when integrating and designing commercial AV systems.

## 2. APPLICATIONS

- /// Household entertainment sharing and control
- /// Lecture room display and control
- /// Showroom display and control
- /// Meeting room presentation and control
- /// Classroom display and control

## 3. PACKAGE CONTENTS

### ***Transmitter***

- /// 1×HDMI over HDBaseT Transmitter (PD)
- /// 1×IR Blaster Cable
- /// 1×Operation Manual

### ***Receiver***

- /// 1×HDMI over HDBaseT Receiver (PSE)
- /// 1×IR Extender Cable
- /// 1×48V/0.83A DC Power Adaptor
- /// 1×Power Cord
- /// 1×Operation Manual

## 4. SYSTEM REQUIREMENTS

- /// HDMI input source equipment such as a Blu-ray player, game console or set-top box.
- /// HDMI output equipment such as an HDTV, projector or AV receiver.
- /// Industry standard Cat.6 or Cat.6a cables are recommended.
- /// The use of "Premium High Speed HDMI" cables is recommended.

## 5. FEATURES

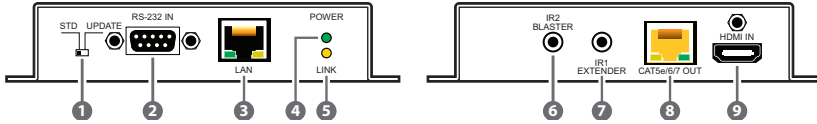
- /// Supports uncompressed video/audio up to 10.2Gbps
- /// HDCP2.2 Compliant
- /// Supports resolutions VGA~WUXGA, 480i~1080p, 4K UHD@24/25/30Hz (RGB 4:4:4 & YUV 4:2:2), 4K UHD@ 60Hz (YUV 4:2:0), 4K/2K@24/25/30Hz (RGB 4:4:4 & YUV 4:2:2) and 4K/2K@ 60Hz (YUV 4:2:0) dependent upon the output display's EDID settings
- /// 4K/2K & 4K UHD signals can be transmitted up to 70m via CAT5e/6 and 100m via CAT6a/7
- /// 1080p signals can be transmitted up to 100m via CAT5e/6/6a/7
- /// Audio support up to 7.1CH & Dolby TrueHD, DTS-HD
- /// 5-Play™ convergence: HDMI, LAN, POE & Control (IR & RS232)

Notes:

- /// *The 48V PoH function is designed to power compatible Transmitter units only. Non-PoH Transmitters will need their own power supply. Other brands of Transmitter may not be compatible.*
- /// *The use of "Premium High Speed HDMI" cables is highly recommended for displaying 3D and 4K content and compatible display equipment is required.*

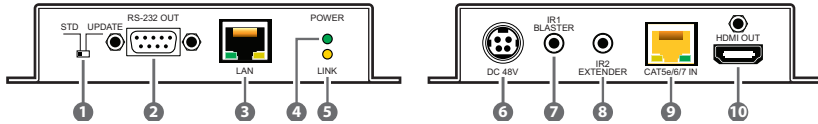
## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Transmitter's Front and Rear Panels



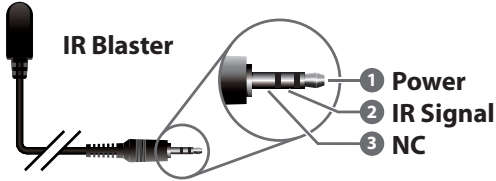
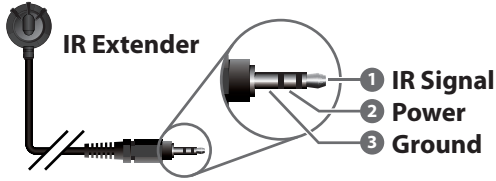
- ① **STD/UPDATE:** This switch is reserved for factory use only.
- ② **RS-232 IN:** Connect to a PC, laptop or other serial control device for the extension of RS-232 signals.
- ③ **LAN:** Connect to an Ethernet device or to your local network as appropriate.
- ④ **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power via PoH.
- ⑤ **LINK LED:** This LED will illuminate solid when both Transmitter and Receiver are connected and communicating with each other properly.
- ⑥ **IR2 BLASTER:** Connect to the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.
- ⑦ **IR1 EXTENDER:** Connect to the supplied IR Extender cable for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.
- ⑧ **CAT5e/6/7 OUT:** Connect to a compatible HDBaseT Receiver with a single Cat.5e/6/7 cable for transmission of all data signals.
- ⑨ **HDMI IN:** Connect to HDMI source equipment such as a media player, game console or set-top box. DVI sources are supported with the use of an HDMI to DVI adapter.

## 6.2 Receiver's Front and Rear Panels



- 1 **STD/UPDATE:** This switch is reserved for factory use only.
- 2 **RS-232 OUT:** Connect to a serial controllable device for the extension of RS-232 signals.
- 3 **LAN:** Connect to an Ethernet device or to your local network as appropriate.
- 4 **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.
- 5 **LINK LED:** This LED will illuminate solid when both Transmitter and Receiver are connected and communicating with each other properly.
- 6 **DC 48V:** Plug the 48V DC power adapter into this port and connect it to an AC wall outlet for power.
- 7 **IR1 BLASTER:** Connect to the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.
- 8 **IR2 EXTENDER:** Connect to the supplied IR Extender cable for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.
- 9 **CAT5e/6/7 IN:** Connect to a compatible HDBaseT Transmitter with a single Cat.5e/6/7 cable for transmission of all data signals.
- 10 **HDMI OUT:** Connect to an HDMI TV, monitor or amplifier for digital video and audio output.

### 6.3 IR Cable Pin Assignments



### 6.4 RS-232 Protocol

TX	
Pin	Definition
1	NC
2	TxD
3	RxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC



RX	
Pin	Definition
1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 115200bps

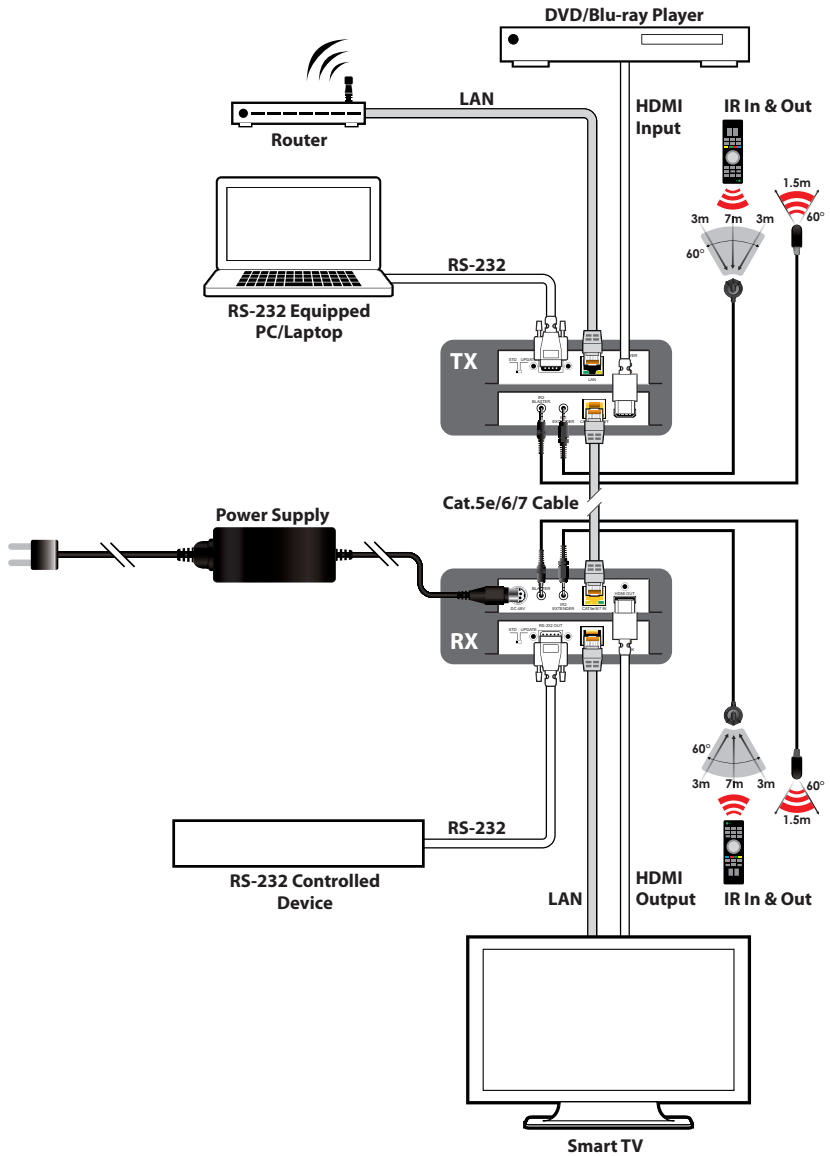
Data Bits: 8

Parity Bits: None

Stop Bits: 1

Flow Control: None

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

### 8.1 Transmitter's Technical Specifications

<b>Video Bandwidth</b>	340Hz/10.2Gbps
<b>Input Port</b>	1×HDMI
<b>Output Port</b>	1×Cat.5e/6/7
<b>Pass-through Ports</b>	1×IR Extender [3.5mm] 1×IR Blaster [3.5mm] 1×RS-232 [9-pin D-sub] 1×LAN [RJ45]
<b>Supported Resolutions</b>	480i@60Hz - 4K@60Hz (4:2:0, 8-bit) VGA@60Hz - WUXGA@60Hz (RB)
<b>HDMI Cable Length</b>	10m (1080p@60Hz, 12-bit) 5m (4K@60Hz, 4:4:4, 8-bit)
<b>CAT5e/6 Cable Length</b>	100m (1080p@60Hz, 12-bit) 70m (4K@60Hz, 4:2:0, 8-bit)
<b>IR Frequency</b>	30 - 50kHz (30 - 60kHz under ideal conditions)
<b>Baud Rate</b>	Up to 115200bps
<b>Power Supply</b>	48V PoH
<b>ESD Protection</b>	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions</b>	128mm×25mm×108mm (W×H×D) [Case Only] 128mm×25mm×117m (W×H×D) [All Inclusive]
<b>Weight</b>	370g
<b>Chassis Material</b>	Metal
<b>Silkscreen Colour</b>	Black

<b>Operating Temperature</b>	0°C - 40°C/32°F - 104°F
<b>Storage Temperature</b>	-20°C - 60°C/-4°F - 140°F
<b>Relative Humidity</b>	20 - 90% RH (Non-condensing)
<b>Power Consumption</b>	4.71W

## 8.2 Receiver's Technical Specifications

<b>Video Bandwidth</b>	340Hz/10.2Gbps
<b>Input Port</b>	1×Cat.5e/6/7
<b>Output Port</b>	1×HDMI
<b>Pass-through Ports</b>	1×IR Extender [3.5mm] 1×IR Blaster [3.5mm] 1×RS-232 [9-pin D-sub] 1×LAN [RJ45]
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<b>CAT5e/6 Cable Length</b>	100m (1080p@60Hz, 12-bit) 70m (4K@60Hz, 4:2:0, 8-bit)
<b>IR Frequency</b>	30 - 50kHz (30 - 60kHz under ideal conditions)
<b>Baud Rate</b>	Up to 115200bps
<b>Power Supply</b>	48V/0.83A DC (US/EU standards, CE/FCC/UL certified)
<b>ESD Protection</b>	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)

<b>Dimensions</b>	128mm×25mm×108mm (W×H×D) [Case Only] 128mm×25mm×117m (W×H×D) [All Inclusive]
<b>Weight</b>	366g
<b>Chassis Material</b>	Metal
<b>Silkscreen Colour</b>	Black
<b>Operating Temperature</b>	0°C - 40°C/32°F - 104°F
<b>Storage Temperature</b>	-20°C - 60°C/-4°F - 140°F
<b>Relative Humidity</b>	20 - 90% RH (Non-condensing)
<b>Power Consumption</b>	8.74W

### 8.3 Video Specifications

Supported Resolutions (Hz)	Input	Output
<b>640×480@60/72/75/85</b>	✓	✓
<b>800×600@56/60/72/75/85</b>	✓	✓
<b>1024×768@60/70/75/85</b>	✓	✓
<b>1280×720@60</b>	✓	✓
<b>1280×1024@60</b>	✓	✓
<b>1600×1200@60</b>	✓	✓
<b>1920×1200@60 (RB)</b>	✓	✓
<b>480i/576i</b>	✓	✓
<b>480p/576p</b>	✓	✓
<b>720p@50/60</b>	✓	✓
<b>1080i@50/60</b>	✓	✓
<b>1080p@50/60</b>	✓	✓
<b>1080p@24/25/30</b>	✓	✓
<b>3840×2160p@24/25/30</b>	✓	✓
<b>4096×2160p@24</b>	✓	✓
<b>4096×2160p@50/60 (4:2:0)</b>	✓	✓

## 8.4 Cable Specifications

Cable Type	Cable Length	Supported Video Format
<b>Cat.5e/6/7</b>	100 meters	Full HD video: Up to 1080p@60Hz, 12-bit color Data rates lower than 5.3Gbps or below 225MHz TMDS clock
<b>Cat.7</b>	100 meters	Ultra HD video:
<b>Cat.5e/6</b>	70 meters	4K@24/25/30Hz & 4K@50/60Hz (YUV 4:2:0), 8-bit color Data rates higher than 5.3Gbps or above 225MHz TMDS clock

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>Cat.5e</b>	Category 5 (enhanced) Cable
<b>Cat.6</b>	Category 6 Cable
<b>Cat.7</b>	Category 7 Cable
<b>CEC</b>	Consumer Electronics Control
<b>DVI</b>	Digital Visual Interface
<b>HD</b>	High-Definition
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>IR</b>	Infrared
<b>LAN</b>	Local Area Network
<b>PoH</b>	Power over HDBaseT
<b>VGA</b>	Video Graphics Array (640×480@60Hz)
<b>WUXGA</b>	Wide Ultra Extended Graphics Array (1920×1200@60Hz)









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