PUV-1610TX & RX

5Play™ HDBaseT™ Transmitter & Receiver (inc. PoH & single LAN, up to 100m)

OPERATION MANUAL

HDBT 4K2K HDCP 2.2

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Version 1.1 August 2011

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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

CONTENTS

1. INTRODUCTION

This transmitter and receiver set 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 metres. Multiple data and control interfaces are provided, including IR, RS-232 and LAN connections. This extender set complies with the advanced HDCP 2.2 and HDMI 2.0 standards, as well as supporting the legacy HDCP 1.x and HDMI 1.x standards. The Transmitter (PD) is powered by 48V PoH (Power over HDBaseT) provided by the Receiver (PSE), allowing for greater flexibility within different installation scenarios.

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

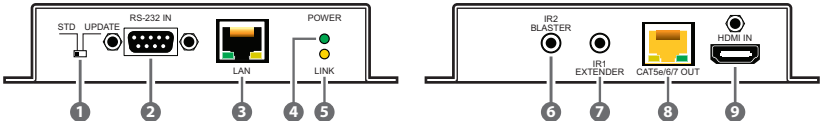
- HDMI with 3D & 4K support, DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- Supports resolutions up to 4K@50/60Hz (4:2:0, 8-bit)
- Supports CEC bypass
- Simultaneous transmission of uncompressed video, audio and data over a single 100m/328ft Cat.5e/6/7 cable at 1080p60 and 70m/230ft at 4K
- HDBaseT feature support: HD Video and Audio, 100BaseT Ethernet, 48V PoH, and Control (bidirectional IR/RS-232 pass-through)
- Supports standard 48V PoH from Receiver (PSE) to Transmitter (PD) (compatible Transmitters only)

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.*

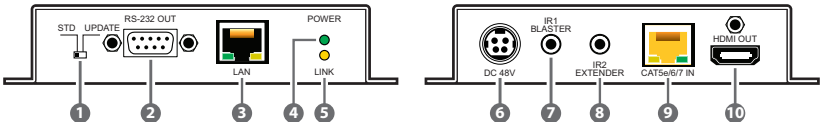
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter's Front and Rear Panels



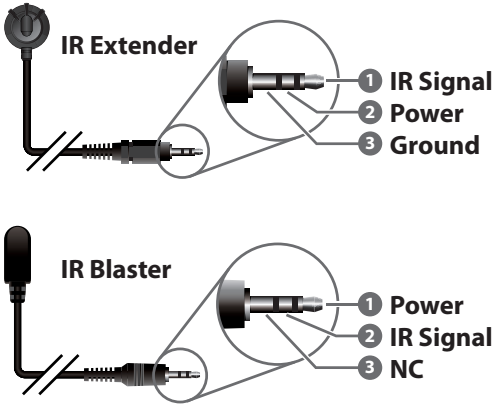
1. **STD/UPDATE:** This switch is reserved for factory use only.
2. **RS-232 IN:** Connect to a PC, laptop or other serial control device for the extension of RS-232 signals.
3. **LAN:** Connect to an Ethernet device or to your local network as appropriate.
4. **POWER LED:** This LED will illuminate 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

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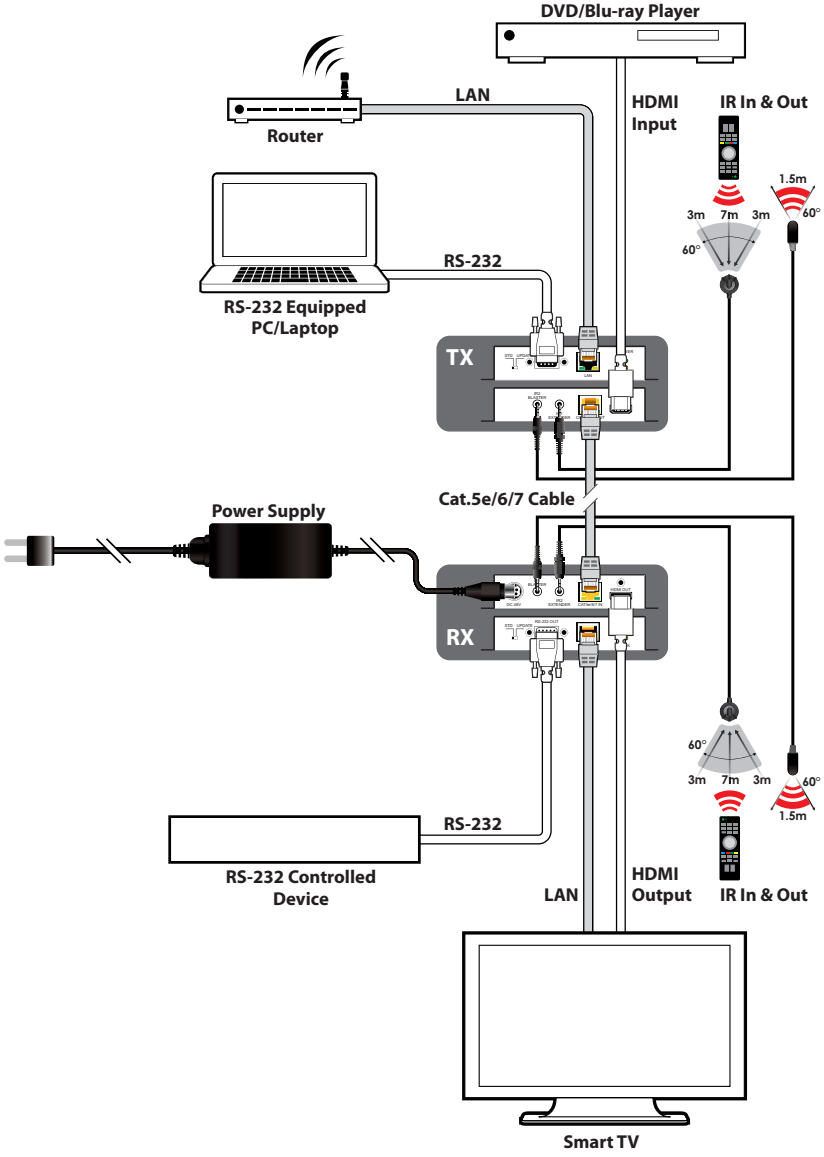
RX	
Pin	**Definition**
1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

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

Video Bandwidth	340Hz/10.2Gbps
Input Port	1×HDMI
Output Port	1×Cat.5e/6/7
Pass-through Ports	1×IR Extender [3.5mm] 1×IR Blaster [3.5mm] 1×RS-232 [9-pin D-sub] 1×LAN [RJ45]
Supported Resolutions	480i@60Hz - 4K@60Hz (4:2:0, 8-bit) VGA@60Hz - WUXGA@60Hz (RB)
HDMI Cable Length	10m (1080p@60Hz, 12-bit) 5m (4K@60Hz, 4:4:4, 8-bit)
CAT5e/6 Cable Length	100m (1080p@60Hz, 12-bit) 70m (4K@60Hz, 4:2:0, 8-bit)
IR Frequency	30 - 50kHz (30 - 60kHz under ideal conditions)
Baud Rate	Up to 115200bps
Power Supply	48V PoH
ESD Protection	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions	128mm×25mm×108mm (W×H×D) [Case Only] 128mm×25mm×117m (W×H×D) [All Inclusive]
Weight	370g
Chassis Material	Metal
Silkscreen 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	4.71W

8.2 Receiver's Technical Specifications

Video Bandwidth	340Hz/10.2Gbps
Input Port	1×Cat.5e/6/7
Output Port	1×HDMI
Pass-through Ports	1×IR Extender [3.5mm] 1×IR Blaster [3.5mm] 1×RS-232 [9-pin D-sub] 1×LAN [RJ45]
Supported Resolutions	480i@60Hz - 4K@60Hz (4:2:0, 8-bit) VGA@60Hz - WUXGA@60Hz (RB)
HDMI Cable Length	10m (1080p@60Hz, 12-bit) 5m (4K@60Hz, 4:4:4, 8-bit)
CAT5e/6 Cable Length	100m (1080p@60Hz, 12-bit) 70m (4K@60Hz, 4:2:0, 8-bit)
IR Frequency	30 - 50kHz (30 - 60kHz under ideal conditions)
Baud Rate	Up to 115200bps
Power Supply	48V/0.83A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)

Dimensions	128mm×25mm×108mm (W×H×D) [Case Only] 128mm×25mm×117m (W×H×D) [All Inclusive]
Weight	366g
Chassis Material	Metal
Silkscreen 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	8.74W

8.3 Video Specifications

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

8.4 Cable Specifications

Cable Type	Cable Length	Supported Video Format
Cat.5e/6/7	100 meters	Full HD video: Up to 1080p@60Hz, 12-bit color Data rates lower than 5.3Gbps or below 225MHz TMDS clock
Cat.7	100 meters	Ultra HD video: 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
Cat.5e/6	70 meters	

9. ACRONYMS

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