PUV-1730PLRX-AVLC

HDBaseT™ HDR Receiver (70m)

(4K, HDCP2.2, PoH, OAR, 18Gbps)

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.

REVISION HISTORY

VERSION NO.	DATE	SUMMARY OF CHANGE
v1.00	19/06/2018	First release

CONTENTS

1. INTRODUCTION

This HDMI over single Cat.5e/6/7 Receiver is a great solution for extending 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 70 metres. Multiple data and control interfaces are provided, including IR and RS-232 connections. This Receiver 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. Despite HDBaseT's 10.Gbps bandwidth limitation, 4K UHD HDMI video sources, up to and including 4K@60Hz (4:4:4, 8-bit) as well as 10/12-bit sources with HDR, are able to be processed and extended by the use of AVLC (Adaptive Visually Lossless Compression) when connected to a compatible AVLC Transmitter.

Beyond video, data, and control this unit also contains useful audio features. The Optical Audio Return (OAR) feature supports transmitting optical audio back to a compatible Transmitter for local playback. Rounding out the feature set is automatic TMDS re-clocking support. This Receiver (PD) is powered by 48V PoH (Power over HDBaseT) from a compatible Transmitter (PSE), allowing for flexibility within different installation scenarios.

2. APPLICATIONS

- 48V PoH from Transmitter (PSE) to Receiver (PD)
- 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

- 1×HDMI over HDBaseT Receiver with HDR & OAR
- 1×3.5mm to IR Extender Cable
- 1×Rackmount Ears (Set of 2)
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

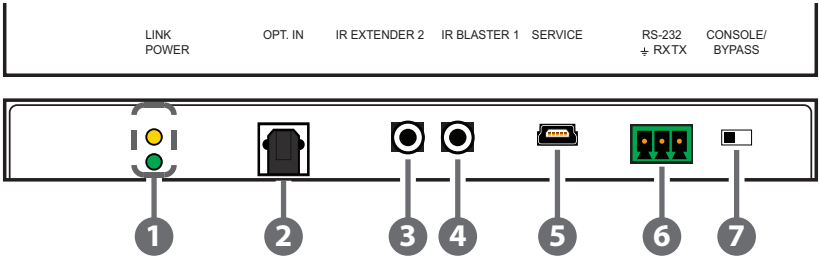
- HDMI receiving equipment such as an HDTV, monitor or audio amplifier.
- A compatible HDBaseT Transmitter (PSE) with 48V PoH support is required.
- The use of industry standard Cat.6, Cat.6a or Cat.7 cable is highly recommended.
- The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI with HDR, 3D & 4K@60Hz support, DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- Supports up to 4K UHD (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video input and output
- Supports Deep Colour input and output up to 12-bit
- Supports 10-bit and 12-bit HDR (High Dynamic Range) input/output
- Supports CEC bypass
- Simultaneous reception of uncompressed video, audio and data over a single Cat.5e/6/7 cable up to 70m/230ft at 1080p60 and 35m/115ft at 4K
- HDBaseT feature support: HD Video and Audio, 48V PoH, and Control (bidirectional IR/RS-232 pass-through)
- Support for compatible AVLC (Adaptive Visually Lossless Compression) Transmitters, allowing for the output of HDMI sources that were originally beyond 10.2Gbps (340MHz) and up to 18Gbps (600MHz) with no loss of visual quality
- Supports the Optical Audio Return (OAR) function to transmit optical audio from the Receiver to a compatible Transmitter
- Performs TMDS re-clocking and signal re-generation for improved signal integrity
- Ultra-thin design (16mm thickness) for convenient installation
- Powered by standard 48V PoH from Transmitter (PSE) to Receiver (PD) (compatible Transmitters only)

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.

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

2. **OPT. IN:** Connect to the optical audio output of a device such as a media player or game console using an appropriate optical cable. Audio is sent to the Optical Audio Return output on a connected compatible Transmitter.

3. **IR EXTENDER 2:** Connect to an IR Extender to extend the IR control range of 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.

4. **IR BLASTER 1:** 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. **SERVICE:** This USB port is reserved for firmware update.

6. **RS-232:** Connect to a PC, laptop or other serial control device with a 3-pin adapter cable for the extension of RS-232 signals to the Transmitter in "Bypass" mode, or for control this unit when in "Console" mode.

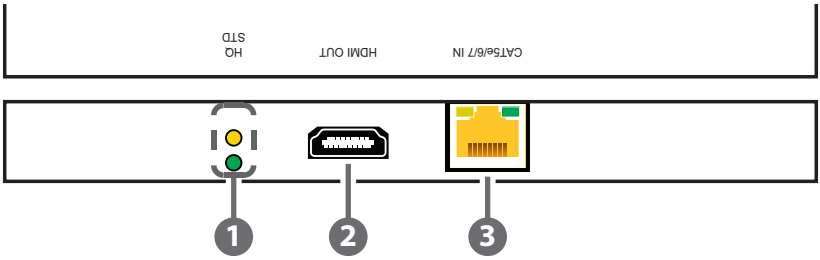
   Note: Depending on the controlled device connected to the Transmitter side, the Tx and Rx pins might need to be reversed.

7. **CONSOLE/BYPASS:** This switch controls the operational mode of the RS-232 port. When set to "Bypass", RS-232 signals will be passed to the connected Transmitter. When set to "Console" the RS-232 port may be

used to send commands directly to the Receiver.

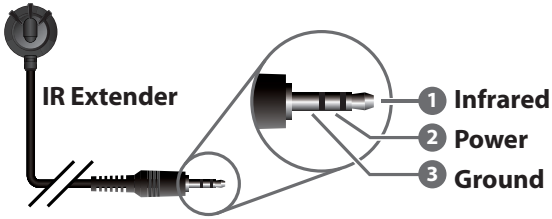
Note: RS-232 bypass requires both the Transmitter and Receiver to be set to "Bypass" mode.

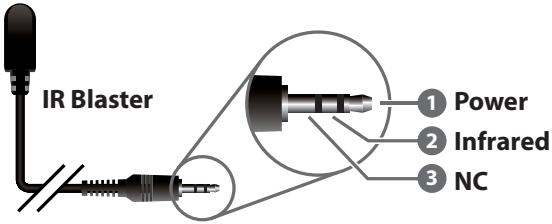
6.2 Rear Panel



1. **HQ & STD LEDs:** These LEDs illuminate to indicate which AVLC mode will be used when AVLC is required. The lower green LED indicates that AVLC will use HQ (High Quality) mode. The upper yellow LED indicates that AVLC will use STD (Standard) mode.
2. **HDMI OUT:** Connect to an HDMI TV, monitor or amplifier for digital video and audio output.
3. **CAT5e/6/7 IN:** Connect to a compatible, 48V PoH supplying, HDBaseT Transmitter with a single Cat.5e/6/7 cable for transmission of all data signals as well as to power the unit.

6.3 IR Cable Pinouts





6.4 RS-232 Control

Terminal Block	
Pin	**Definition**
1	GND
2	Rx
3	Tx

Controlling PC	
Pin	**Definition**
1	
2	Rx
3	Tx
4	
5	GND
6	
7	
8	
9	

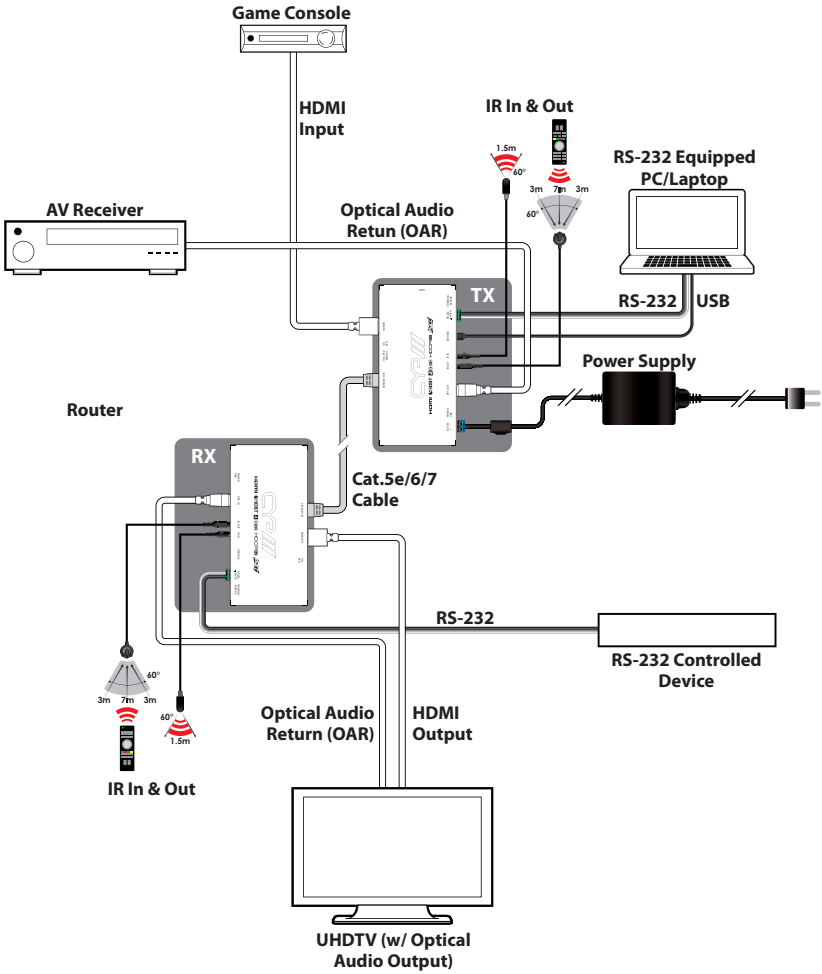
Serial Port Settings	
Baud Rate	19200
Data Bits	8
Parity Bit	None
Stop Bits	1
Flow Control	None

6.5 RS-232 Commands

COMMAND
Description and Parameters
HELP↵
Show the full command list.
?↵
Show the full command list.
GET MODEL NAME↵
Show the unit's model name.
GET MODEL TYPE↵
Show the unit's model type.
GET POWER↵
Show the power state of the unit.
SET SYSTEM REBOOT↵
Reboot the unit.
GET IN 1 SYNC STATUS↵
Show the current input sync state.
GET OUT A SYNC STATUS↵
Show the current output sync state.
GET TRANSCEIVER COMPRESS RATE↵
Show the current AVLC compression mode.

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

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	600MHz/18Gbps
HDBaseT Bandwidth	340MHz/10.2Gbps
Input Ports	1×HDBaseT (RJ45) 1×S/PDIF (TOSLINK)
Output Port	1×HDMI
Pass-through Ports	1×IR Extender (3.5mm) 1×IR Blaster (3.5mm)
Pass-through/Control Port	1×RS-232 (3-pin Terminal Block)
IR Frequency	30–50kHz (30–60kHz under ideal conditions)
Baud Rate	Up to 115200bps
Power Supply	48V PoH (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions	163mm×16mm×78mm (W×H×D) [Case Only] 183mm×16mm×81mm (W×H×D) [All Inclusive]
Weight	200g
Chassis Material	Aluminum
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	7W

8.2 Video Specifications

Supported PC Resolutions (Hz)		HDMI Input	HDBaseT Output
640×480	60, 72, 75, 85	✓	✓
720×400	70, 85	✓	✓
800×600	56, 60, 72, 75, 85	✓	✓
1024×768	60, 70, 75, 85	✓	✓
1152×864	75	✓	✓
1280×720	50, 60	✓	✓
1280×768	60, 75, 85	✓	✓
1280×800	60, 60 (RB)	✓	✓
1280×960	60	✓	✓
1280×1024	60	✓	✓
1360×768	60	✓	✓
1366×768	60	✓	✓
1400×1050	60, 60 (RB)	✓	✓
1440×900	60, 60 (RB)	✓	✓
1600×900	60	✓	✓
1600×1200	60	✓	✓
1680×1050	60, 60 (RB)	✓	✓
1920×1080	60	✓	✓
1920×1200	60, 60 (RB)	✓	✓

Supported TV Resolutions (Hz)		HDMI Input	HDBaseT Output
720×480i	59.94, 60	✓	✓
720×576i	50	✓	✓
720×480p	59.94, 60	✓	✓
720×576p	50	✓	✓
1280×720p	50, 59.94, 60	✓	✓
1920×1080i	50, 59.94, 60	✓	✓
1920×1080p	50, 59.94, 60	✓	✓
1920×1080p	23.97, 24, 25, 29.97, 30	✓	✓
3840×2160p	24, 25, 30	✓	✓
4096×2160p	24, 25, 30	✓	✓
3840×2160p (YUV 4:2:0)	50, 60	✓	✓
3840×2160p	24, 25, 30 (10, 12-bit HDR)	✓	✓ (AVLC)
3840×2160p (YUV 4:2:0)	50, 60 (10, 12-bit HDR)	✓	✓ (AVLC)
3840×2160p	50, 60	✓	✓ (AVLC)

8.3 Audio Specifications

Digital (S/PDIF) Input	
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192

8.4 Cable Specifications

HDMI Cable Length	1080p		4K
	8-bit	12-bit	8-bit
Output	10m	10m	5m

Cat. Cable Length	1080p	4K
Cat.5e	70m	35m
Cat.6	70m	35m
Cat.7	70m	35m

Full HD Video (1080p)

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

Ultra HD Video (4K)

- 4K@24/25/30Hz & 4K@50/60Hz (YUV 4:2:0), 8-bit colour
- 4K@50/60Hz (4:4:4, 8-bit) with AVLC active
- Data rates higher than 5.3Gbps or above 225MHz TMDS clock

8.5 HDBaseT Features

HDBaseT Feature	Supported
Video & Audio	✓
IR Pass-through	✓
RS-232 Pass-through	✓
Accept power from Transmitter	✓
Send power to Transmitter	×
LAN Pass-through	×

9. ACRONYMS

ACRONYM	COMPLETE TERM
AVLC	Adaptive Visually Lossless Compression
Cat.5e	Category 5 (enhanced) cable
Cat.6	Category 6 cable
Cat.7	Category 7 cable
CEC	Consumer Electronics Control
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
IR	Infrared
LPCM	Linear Pulse-Code Modulation
OAR	Optical Audio Return
PC	Personal Computer
PD	Powered Device
PoH	Power over HDBaseT
PSE	Power Sourcing Equipment
S/PDIF	Sony/Philips Digital Interface Format
UHD	Ultra-High-Definition
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus

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