



CH-1602TXR & CH-1602RXR

HDMI/Audio over CAT5e/6/7 Extender with 48V PoE



Operation Manual

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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 (DD/MM/YY)	SUMMARY OF CHANGE
VR0	21/08/15	Preliminary Release



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1. INTRODUCTION

This HDMI and Audio over Single CAT5e/6/7 Transmitter and Receiver set can send uncompressed audio/video along with controls and IP over a single run of CAT5e/6/7 cable up to 100m. It has the added benefit of control through the built-in RS-232 and IR ports. With LAN serving connection and external digital and analog audio capability that gives users the convenience of additional audio connection. The 48V PoE design can power the Receiver (PD) from the Transmitter (PSE), eliminating the need for a separate power supply for the Receiver. Also, the ultra-thin mechanical designs allow flexibility mounting position saving more space and make presentation orderly and tidy.

2. APPLICATIONS

- 48V PoE from Transmitter (PSE) to Receiver (PD)
- Household entertainment extending 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/Audio over CAT5e/6/7 Transmitter
- 1×HDMI/Audio over CAT5e/6/7 Receiver
- 1×IR Blaster
- 1×IR Extender
- 1×48V/0.83A DC Power Adaptor
- 1×Power Cable
- 2×Rack Ears Sets
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

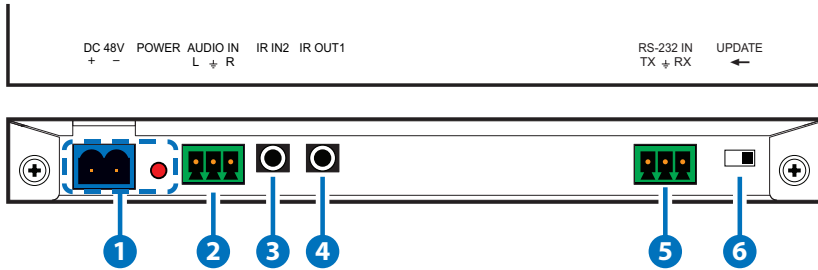
Input source equipment such as DVD/Blu-ray player, host PC/Laptop and HDMI equipped output display (TV or monitor) with amplifier or active speakers.

5. FEATURES

- Supports HDBaseT 2.0 specification supporting over a single CAT6/7 cable up to 100m/328ft and CAT5e cable up to 90m/295ft
- HDMI (with 3D & 4K2K 60_YUV420 support), HDCP 2.2 and DVI compatible
- HDBaseT 5Play™ convergence: High-Definition (HD) Video and Audio, 100BaseT Ethernet, PoE and Control (Bidirectional IR/RS-232 pass-through)
- Supports pass-through of HD audio formats: LPCM 2/5.1/7.1CH, Dolby Digital 2/5.1CH, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio
- Supports optical sampling rate up to 48kHz
- Supports Ethernet network connection
- Supports external analog and digital audio transmission
- Supports RS-232 baud rate from 110~115200bps

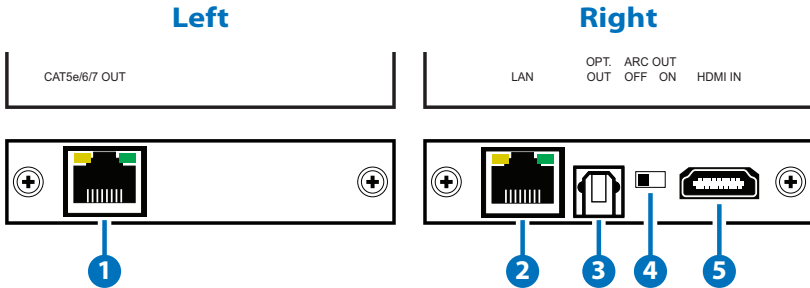
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front Panel



- 1 DC 48V and POWER LED:** Plug the 48V DC power supply into the unit and connect the adaptor to an AC outlet and the LED will illuminate.
- 2 AUDIO IN L/R:** Connect with audio source equipment such as PC or CD player for audio signal sending to Receiver's AUDIO OUT L/R.
- 3 IR IN 2:** 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.
- 4 IR OUT 1:** 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.
- 5 RS-232 IN TX/RX:** Connect to a PC or Laptop with 3-pin Relay cable for the transmission of RS-232 commands. For receiving command from Receiver side, the TX and Rx pin must be reversed.
- 6 UPDATE:** This is reserved for firmware update use only. Switch this deep switch to left for firmware update use, under normal operation, leave the switch on right. Update procedure may be done from the same RS-232 port for both Transmitter and Receiver.

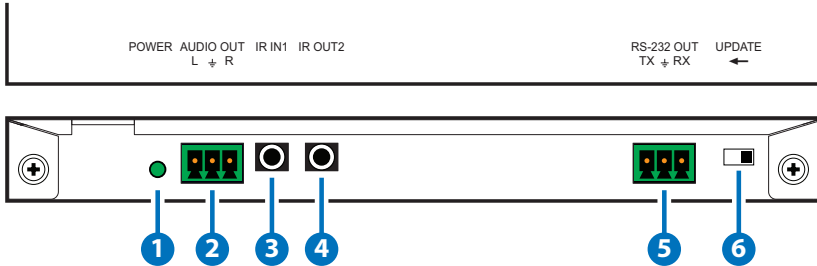
6.2 Transmitter Left and Right Panels



- 1 CAT5e/6/7 OUT:** Connect to the Receiver unit with a single CAT5e/6/7 cable for transmission of all data signals. Under proper connection the green LED will illuminate to indicate PoE activated. The yellow LED will illuminate to indicate successful connection between Transmitter and Receiver, when it blink irregularly it represent the link error or when not illuminate it means no link with Receiver.
- 2 LAN:** Connect to an internet or network connection. The yellow LED will illuminate to represent the link with Receiver is steady, when it blink irregularly it represent the link error or when not illuminate it means no link with Receiver. The green LED will illuminate to represent the Ethernet speed is with 100Mbit/s.
- 3 OPT. OUT:** Connect to speaker for audio signal output from Receiver's OPTICAL IN.
- 4 ARC OUT OFF/ON SWITCH:** Switch this dip switch to allows ARC (Audio Return Channel) function to be activate or not. Switch to OFF to disable ARC function. Switch to ON allows Receiver's HDMI output audio to be routed back and output to both HDMI IN and Optical OUT on the Transmitter side.

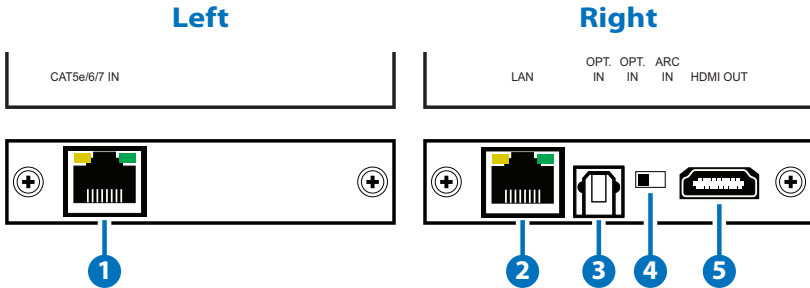
Note: When ARC switch to ON, depending on the connected devices of the HDMI OUT & Optical in, the ARC input/output transmission distance may be varied. It is suggested to use cable within 2 meters long to ensure the best audio quality.
- 5 HDMI IN:** Connect to HDMI source equipment such as a DVD or Blu-ray player.

6.3 Receiver Front Panel



- 1 POWER LED:** This LED will illuminate when device is connected with power supply.
- 2 AUDIO OUT L/R:** Connect to speaker with RCA input for audio signal output.
- 3 IR IN 1:** 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.
- 4 IR OUT 2:** 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.
- 5 RS-232 OUT TX/RX:** Connect to the device that is to be controlled via 3-pin Relay cable by RS-232 commands. For sending command to Transmitter side, the TX and Rx pin must be reversed.
- 6 UPDATE:** This is reserved for firmware update use only. Switch this deep switch to left for firmware update use, under normal operation, leave the switch on right. Update procedure may be done from the same RS-232 port for both Transmitter and Receiver.

6.4 Receiver Left and Right Panels

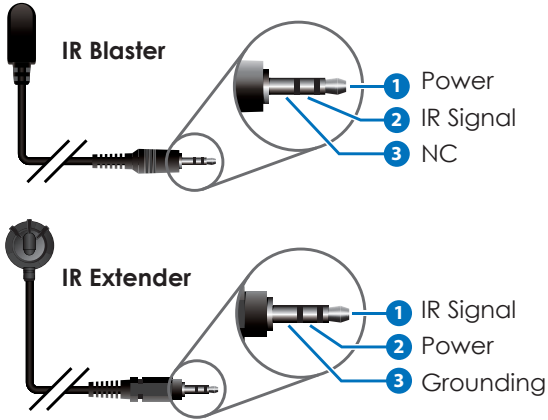


- 1 CAT5e/6/7 IN:** Connect to the Transmitter unit with a single CAT5e/6/7 cable for transmission of all data signals. The yellow LED will illuminate to represent the link from Receiver is steady, when it blink irregularly it represent the link error or when not illuminate it means no link with Receiver. The green LED will illuminate to represent the PoE function active.
- 2 LAN:** Connect to a PC or Laptop to the internet or network connection. The yellow LED will illuminate to represent the link with Transmitter is steady, when it blink irregularly it represent the link error or when not illuminate it means no link with Receiver. The green LED will illuminate to represent the Ethernet speed is with 100Mbit/s.
- 3 OPT. IN:** Connect to audio source equipment such as DVD or Blu-ray player for audio signal sending to Transmitter's OPTICAL OUT.
- 4 ARC IN or OPT. IN SWITCH:** Switch this switch to select ARC channel. Switch to ARC in to use HDMI OUT's audio or switch to Optical IN to use Optical 1's audio.

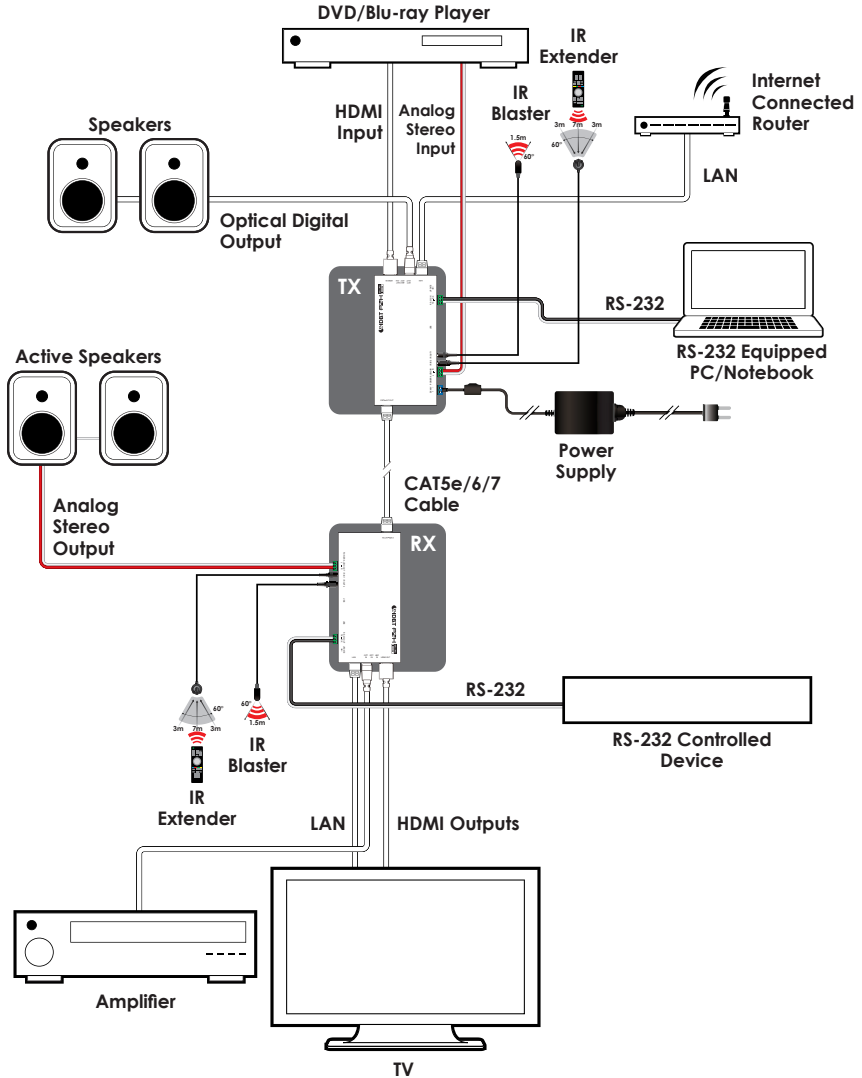
Note: Depending on the connected devices of the HDMI OUT & Optical in, the ARC input/output transmission distance may be varied. It is suggested to use cable within 2 meters long to ensure the best audio quality.

- 5 HDMI OUT:** Connect to a HDMI equipped TV/monitor for display of the HDMI input source signal.

6.5 IR Cable Pin Assignments



7. CONNECTION DIAGRAM





8. SPECIFICATIONS

8.1 Technical Specification

Video Bandwidth	340MHz/10.2Gbps
Transmitter	
Input Ports	1×HDMI, 1×L/R (Terminal Block), 1×LAN, 1×IR Extender, 1×RS-232 (Terminal Block)
Output Ports	1×CAT5e/6/7, 1×Optical, 1×IR Blaster
Receiver	
Input Ports	1×CAT5e/6/7, 1×Optical, 1×IR Extender
Output Ports	1×HDMI, 1×L/R (Terminal Block), 1×LAN, 1×IR Blaster, 1×RS-232 (Terminal Block)
HDMI Cable Length*	I: 7M/1080p-8 bits, O: 8M/1080p-8 bits I: 3M/1080p-12 bits, O: 8M/1080p-12 bits I: 5M/4K2K, O: 5M/4K2K
IR Frequency	30~50 kHz
Baud Rate	Up to 115200bps
Power Supply	48 V/0.83 A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
Dimensions	80mm (W)×180mm (D)×16mm (H)/Jacks Included
Weight	354g/TXR, 356g/RXR
Chassis Material	Metal
Silkscreen Color	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 (no condensation)
Power Consumption	15.5W

****HDMI Cable Length may be vary depend on different source, display and cable used.***

8.2 CAT5e/6/7 Cable Specification

Cable Type	Range	Pixel Clock Rate	Video Data Rate	Supported Video Formats
CAT5e/6/7	100m	≤225 MHz	≤5.3 Gbps (HD Video)	Up to 1080p@60Hz, 36-bit, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
CAT6/7	100m	>225 MHz	>5.3 Gbps (Ultra HD Video)	4K2K@30 Hz video formats
CAT5e	90m			

9. ACRONYMS

ACRONYM	COMPLETE TERM
ARC	Audio Return Channel
OPT	Optical



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Home page: <http://www.cypress.com.tw>

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