



CH-1528TX & CH-1528RX

HDMI/USB over CAT5e/6/7 Extender
with IR/RS-232/PoE/LAN



4K2K

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	25/09/15	First release



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1. INTRODUCTION

The HDMI over single CAT5e/6/7 Transmitter and Receiver set can send uncompressed audio/video and IP data over a single run of CAT5e/6/7 cable at a distance up to 100 meter. It has the added benefit of control through the built-in RS-232 and IR ports, USB and bidirectional LAN serving connection. The Receiver (PD) can be powered by the PoE 48V function of the Transmitter (PSE), allowing for greater flexibility in installations.

2. APPLICATIONS

- 48V PoE 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 CAT5e/6/7 Transmitter
- 1×HDMI over CAT5e/6/7 Receiver
- 1×IR Extender Cable
- 1×IR Blaster Cable
- 1×48V/0.83A Power Adaptor
- 1×Power Cord
- 1×RS-232 Terminal Block Pitch
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

Input source equipment such as PS3/Blu-ray player and output HD TV/ display.

5. FEATURES

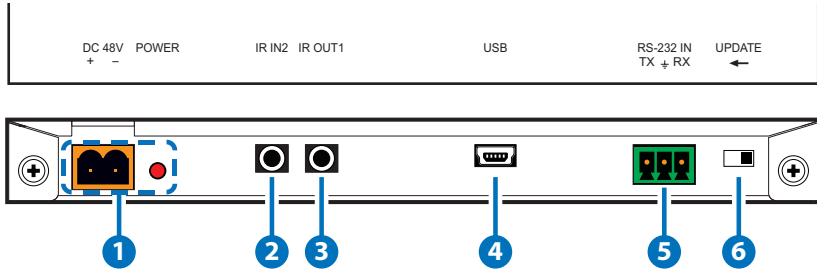
- HDMI with 3D, 4K2K support, HDMI & DVI Compliant
- Supports CEC bypass
- Simultaneous transmission of uncompressed data over a single CAT5e/6/7 cable up to 100m/328ft at 1080p and 70m/230ft at 4K2K
- 5Play™ convergence: HDMI, LAN, PoE & Control (IR & RS-2232)
- Supports resolution up to 4K2K@50/60_YUV_420 and 21:9
- Supports standard 48V from Transmitter (PSE) to Receiver (PD)
- Supports USB 2.0 keyboard and mouse
- Ultra-thin wall plate design with friendly installation

Note:

1. *The standard 48V PoE function is designed for powering compatible Receivers only—non-PoE Receivers will need their own power supply. Receivers from other brands may not be compatible.*

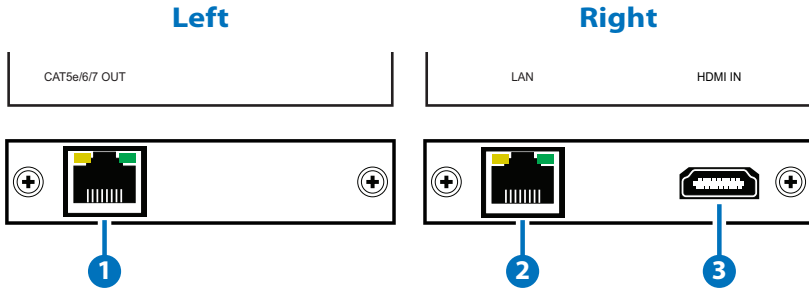
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front Panel



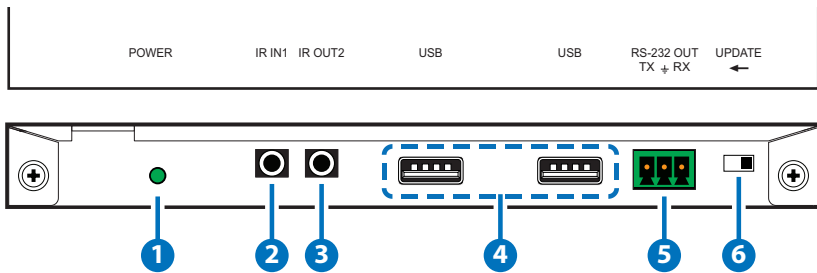
- 1 DC 48V & POWER LED:** Plug the 48V DC power supply into the unit and connect the adaptor to an AC outlet. Please do follow the label on adaptor to connect the black cable to ground pin of connector. This LED will illuminate when the unit is connected to a power supply.
- 2 IR IN 2:** IR IN 2 is considered as IR extender which to connect to the supplied IR Extender cables for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.
- 3 IR OUT 1:** IR OUT 1 is considered as IR BLASTER which connects 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.
- 4 USB:** For receiving data from receiver and firmware update use.
- 5 RS-232 IN:** Connect to a PC or Laptop via RS232 terminal to D-Sub 9-pin cable for the transmission of RS-232 commands.
- 6 UPDATE:** For firmware update use. Under normal usage, do not move the switch to the left.

6.2 Transmitter Left and Right Panels



- 1 **CAT5e/6/7 OUT:** Connects to the Receiver unit with a single CAT5e/6/7 cable for transmission of all data signals includes power.
- 2 **LAN:** Connects to an internet or network system.
- 3 **HDMI IN:** Connects to HDMI source equipment such as a DVD or Blu-ray player.

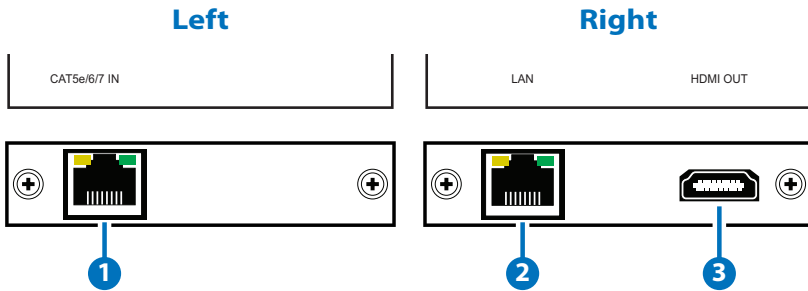
6.3 Receiver Front Panel



- 1 **POWER LED:** This power LED will illuminate when receiving the power from transmitter.
- 2 **IR IN 1:** IR IN 1 considered as IR extender which to connect to the supplied IR Extender cables for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.
- 3 **IR OUT 2:** IR Out 2 considered as IR BLASTER which connects 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.

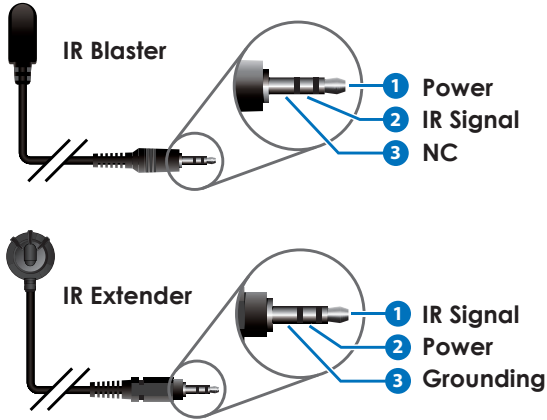
- ④ **USB:** Connecting with USB interface keyboard or mouse.
- ⑤ **RS-232 OUT:** Connect to the unit that is to be controlled (via RS232 terminal connects with D-Sub 9-pin cable) by RS-232 commands.
- ⑥ **UPDATE:** When update the firmware, the switch shall arrange to left side (just follow arrow direction on case) and arrange back when completing.

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 and power.
- ② **LAN:** Connects to an internet or network system.
- ③ **HDMI OUT:** Connects to HDMI source equipment such as a display.

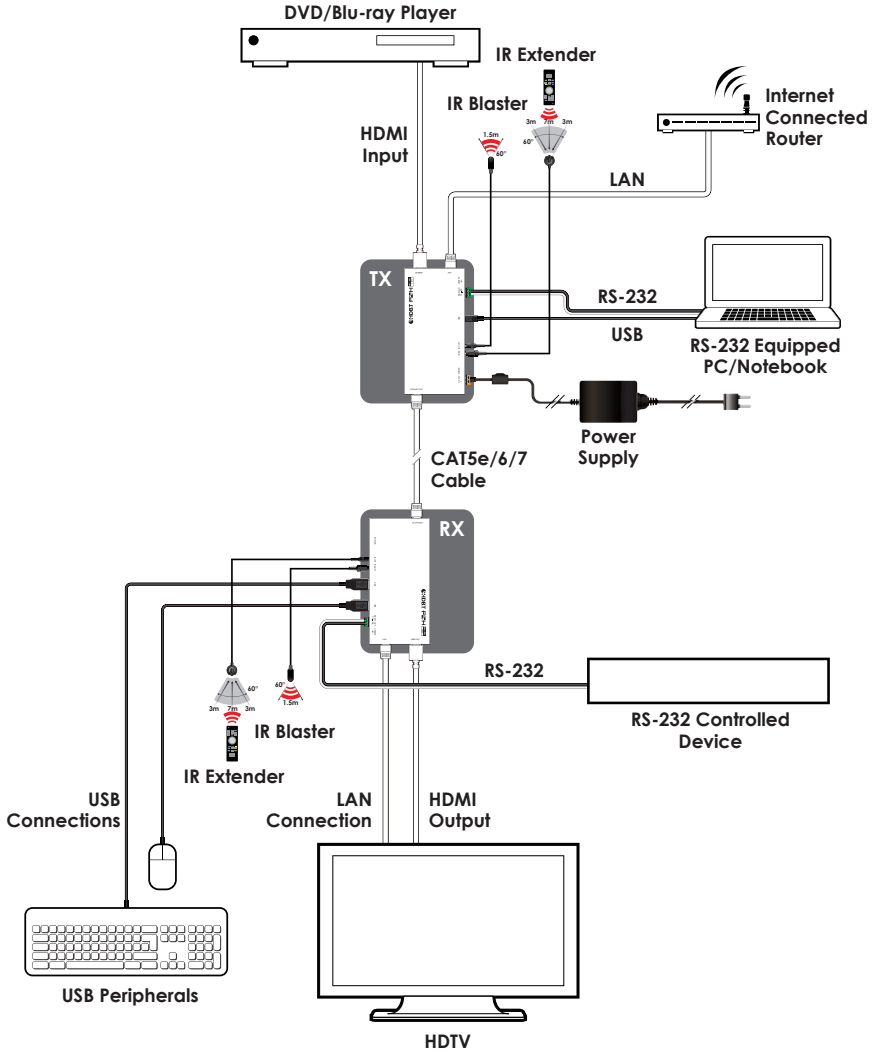
6.5 IR Cable Pin Assignment



6.6 RS-232 Cable Pin Assignment

PIN	DEFINE TX/RX
1	N/C
2	TxD/RxD
3	RxD/TxD
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	340MHz/10.2Gbps
Transmitter	
Input Ports	1×HDMI, 1×IR, 1×RS-232, 1×LAN
Output Ports	1×CAT5e/6/7, 1×IR, 1×USB
Receiver	
Input Ports	1×CAT5e/6/7, 1×IR, 2×USB
Output Ports	1×HDMI, 1×IR, 1×RS-232, 1×LAN
HDMI Resolutions	VGA~WUXGA (RB), 408i~4K2K@50/60 (YUV420)
IR Frequency	30~50kHz
HDMI Cable Distance	Input: 10m@1080p/8-bit or 12-bit, 5m@4K Output: 10m@1080p/8-bit, 5m@1080p/12-bit or 4K
CAT Cable Distance	Up to 100m@4K2K
Power Supply	48V/0.83A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human body model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
Dimensions	78mm (W)×163mm (D)×16mm (H)
Weight	330g/TX, 334g/RX
Chassis Material	Aluminum
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 (non-condensing)
Power Consumption	16.5W



8.2 Supported Resolutions

Resolutions	Input	Output
640×480@60	√	√
800×600@60	√	√
1024×768@60	√	√
1280×1024@60	√	√
1600×1200@60	√	√
1920×1200@60 (RB)	√	√
3840×2160p@24/25/30	√	√
3840×2160p@50/60 (YUV420)	√	√
4096×2160p@24	√	√
480i/576i	√	√
480p/576p	√	√
720p@50/60	√	√
1080i@50/60	√	√
1080p@50/60	√	√
1080p@24	√	√

8.3 CAT5e/6/7 Cable Specifications

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@60 Hz, 36-bit, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
CAT7	100m	>225 MHz	>5.3 Gbps (Ultra HD Video)	4K2K@30 Hz video formats
CAT5e/6	70m			

9. ACRONYMS

ACRONYM	COMPLETE TERM
CAT5e	Category 5 Cable
CAT6	Category 6 Cable
CAT7	Category 7 Cable
CEC	Consumer Electronics Control
DVI	Digital Visual Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
IP	Internet Protocol
IR	Infrared
LAN	Local Area Network
PD	Powered Device
PoE	Power over Ethernet
PSE	Power Sourcing Equipment
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduce Blanking)



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