ET58100XT & ET58100XR

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



Operation Manual

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack or 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 module openings or empty slots, as you may damage parts.
- Do not attach the power supply cabling to building surfaces.
- Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it.
- To protect the equipment from overheating, do not block the slots and openings in the module housing that provide ventilation.

REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
VR0	20/10/15	Preliminary Release
VR1	01/12/15	Add HDBT Spec. Table

CONTENTS

1. Introduction **1**
2. Applications **1**
3. Package Contents **1**
4. System Requirements **1**
5. Features **2**
6. Operation Controls and Functions **3**
6.1 Transmitter's Front Panel 3
6.3 Receiver's Front Panel 5
6.4 Receiver's Rear Panel 6
6.5 IR Cable Pin Assignment 8
6.6 D-Sub 9-Pin Assignment 8
7. Connection Diagram **9**
8. Specifications **10**
8.1 Technical Specification 10
8.2 CAT5e/6/7 Cable Specification ... 11
8.3 HDBT Specification 11
8.4 Supported Resolutions 12
9. Acronyms **13**

1. INTRODUCTION

This HDMI and Audio over Single CAT5e/6/7 Transmitter and Receiver set can send uncompressed audio/video along with controls, IP and USB data 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 and a bidirectional LAN serving connection. There is a bidirectional digital audio capability that gives users the convenience of an additional audio connection. This system also allows the connection of any USB host, enabling a USB connection to up to 2 USB ports, giving the Receiver the ability to act like a USB hub. The 48V PoH design can power the Receiver (PD) from the Transmitter (PSE), eliminating the need for a separate power supply for the Receiver.

2. APPLICATIONS

- 48V PoH 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 x HDMI/Audio over CAT5e/6/7 Transmitter
- 1 x CAT5e/6/7 to HDMI/Audio Receiver
- 1 x IR Blaster
- 1 x IR Extender
- 1 x 48 DC Power adaptor
- 1 x Power Cord
- 1 x Operational Manual

4. SYSTEM REQUIREMENTS

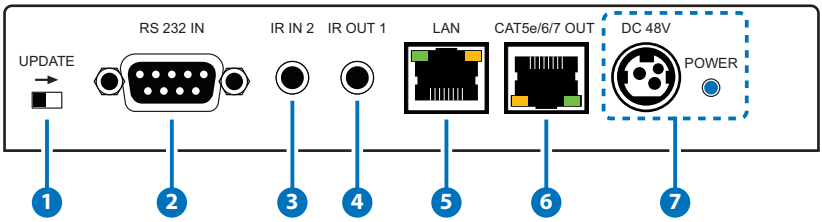
Input source equipment such as DVD/Blu-ray player, host PC/Laptop and HDMI equipped output display (TV or monitor) with amplifier or active speakers.

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
- Fully compliant with HDMI 1.4, and compatible with HDMI 2.0 (4K2K 60Hz with 4:2:0)
- Receiver features 2 USB 2.0 ports
- HDMI (with 3D & 4Kx2K support), HDCP and DVI compliant
- HDBaseT 5Play™ convergence: High-Definition (HD) Video and Audio, 100BaseT Ethernet, PoH and Control (Bidirectional IR/RS-232 pass-through)
- Supports pass-through of audio formats: LPCM2/5.1/7.1CH, Dolby Digital 2~5.1Ch, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio
- Supports coaxial cable up to 2 meter with sampling rate up to 48kHz
- Supports Ethernet network connection
- Bidirectional LAN and external digital audio capability
- Supports RS-232 baud rate from 110~115200bps

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter's Front Panel



1 Update Switch

Switch this deep switch to right for firmware update use, under normal operation, leave the switch on left.

2 RS-232 IN

Connect to a PC or Laptop with D-Sub 9- pin female cable for the transmission of RS-232 commands.

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 LAN

Connect to internet or network service system to this slot or to the LAN port slot of the equipment device for a total sharing rate of 100Mbps within the link. 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.

6 CAT5e/6/7 OUT

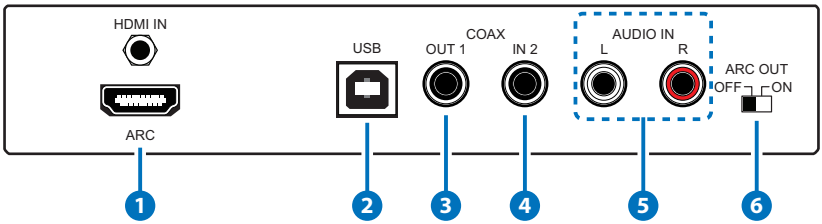
Connect to the Receiver unit with CAT5e/6/7 cable for transmission of all data signals. The yellow LED will illuminate to represent the link between Transmitter and Receiver is steady, when it blink

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 activation.

7 DC 48V & POWER LED

Plug the 48V DC power supply into the unit and connect the adaptor to an AC outlet and the LED will illuminate.

6.2 Transmitter's Rear Panel



1 HDMI IN

Connect to HDMI source equipment such as a DVD or Blu-ray player.

2 USB

Connect from PC or Laptop for data transmit to or control from the Receiver's USB slots.

3 COAX OUT 1

Connect to speaker with coaxial input for audio signal output from Receiver's COAX IN 1.

4 COAX IN 2

Connect to audio source equipment such as DVD or Blu-ray player for audio signal sending to Receiver's COAX OUT2.

5 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.

6 ARC OUT ON/OFF

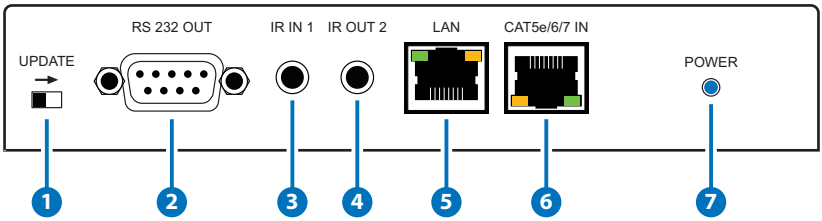
Switch this dip switch to allows ARC (Audio Return Channel)

function to be activate or not. Switch to OFF to disable ARC function.

Switch to ON allows Receiver's HDMI output/COAX IN audio to be routed back and output to both HDMI IN and COAX OUT 1 on the Transmitter side.

Note: *When ARC switch to ON, depending on the connected devices of the HDMI OUT & Coaxial in from Receiver and the connected device of the HDMI In & Coaxial Out at the Transmitter the audio format and behavior may be varied. The ARC input/ output transmission distance may be varied too, it is suggested to use cable within 2 meters long to ensure the best audio quality.*

6.3 Receiver's Front Panel



1 Update Switch

Switch this deep switch to right for firmware update use, under normal operation, leave the switch on left.

2 RS-232 OUT

Connect to the device that is to be controlled (via D-Sub 9-pin male cable) by RS-232 commands.

3 IR IN1

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 LAN

Connect to internet or network service system to this slot or to

the LAN port slot of the equipment device for a total sharing rate of100Mbps within the link. 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. The green LED will illuminate to represent the Ethernet speed is with 100Mbit/s.

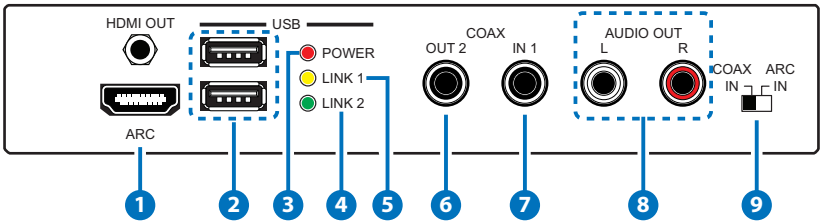
6 CAT5e/6/7 IN

Connect to the Transmitter unit with CAT5e/6/7 cable for transmission of all data signals. The yellow LED will illuminate to represent the link between Transmitter and 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 PoH activation.

7 POWER LED

This LED will illuminate when the device is connected with power supply.

6.4 Receiver's Rear Panel



1 HDMI OUT

Connect to a HDMI equipped TV/monitor for display of the HDMI input source signal.

2 USB

Connect to USB peripheral devices such as printer, keyboard, flash driver or …etc. for data receiving or sending back to Transmitter.

3 POWER LED

This LED will illuminate when device is connected with USB power supply.

4 LINK 2

This LED will illuminated when the lower USB slot is connected with signal activated.

5 LINK 1

This LED will illuminated when the upper USB slot is connected with signal activated.

6 COAX OUT 2

Connect to speaker with coaxial input for audio signal output from Transmitter's COAX IN 2.

7 COAX IN 1

Connect to audio source equipment such as DVD or Blu-ray player for audio signal sending to Transmitter's COAX OUT1

8 AUDIO L/R OUT

Connect to speaker with RCA input for audio signal output.

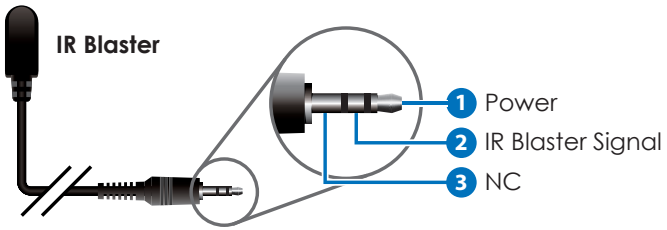
9 ARC IN/COAX IN

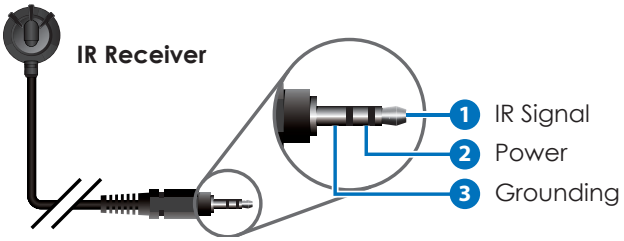
Switch this switch to select ARC channel. Switch to ARC IN to use HDMI OUT's audio or switch to COAX IN to use COAX IN 1's audio.

The audio will be routed back and output to both HDMI IN and Coaxial OUT on the Transmitter side.

Note: *When ARC switch to ON, depending on the connected devices of the HDMI OUT & Coaxial in from Receiver and the connected device of the HDMI In & Coaxial Out at the Transmitter the audio format and behavior may be varied. The ARC input/ output transmission distance may be varied too, it is suggested to use cable within 2 meters long to ensure the best audio quality.*

6.5 IR Cable Pin Assignment

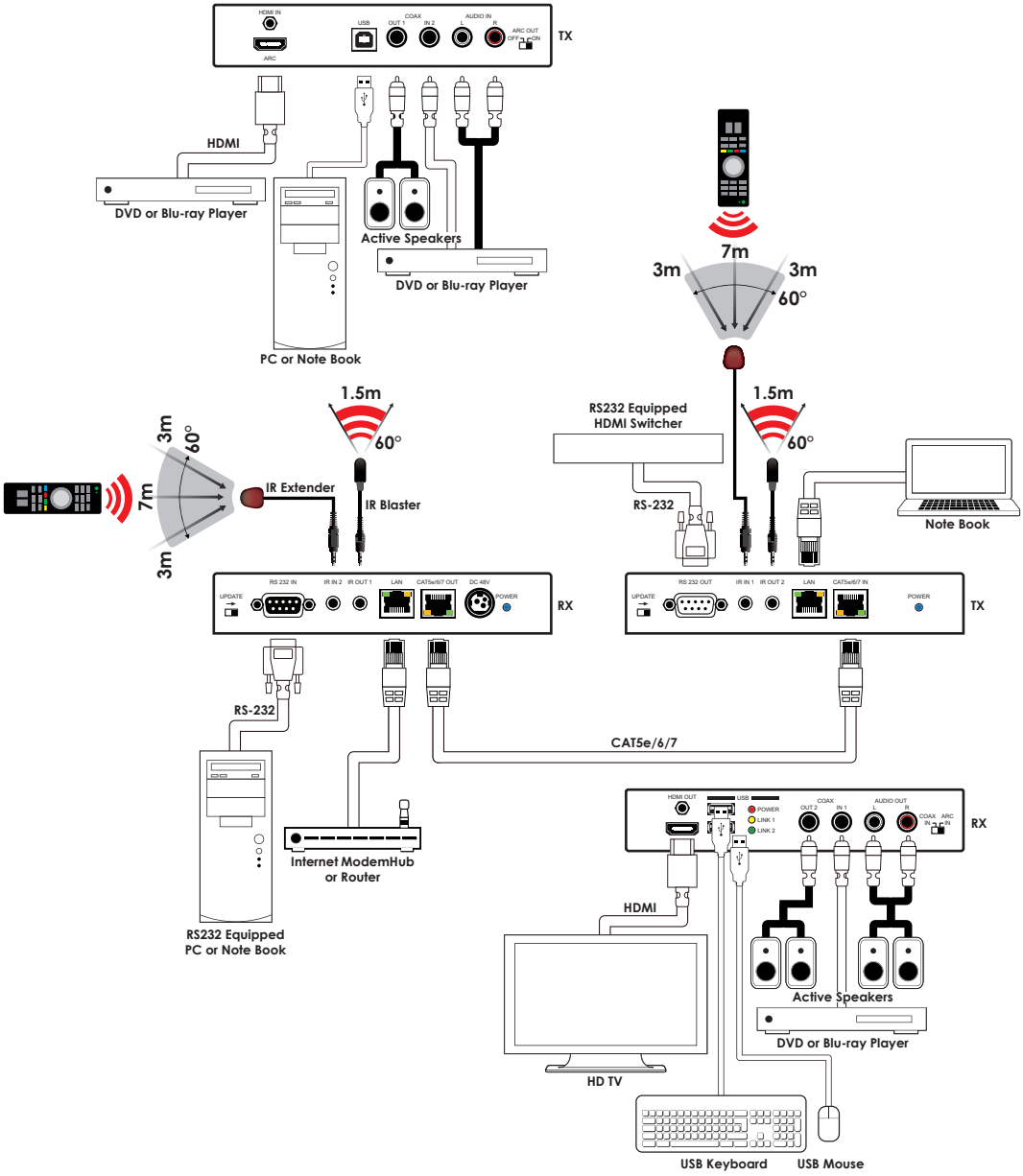




6.6 D-Sub 9-Pin Assignment

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 Specification

Video Bandwidth	340MHz/10.2Gbps
Transmitter	
Input Ports	1 x HDMI 1 x LAN, 1 x RS-232, 1 x IR, 1 x USB, 1 x Coaxial, 1 x L/R
Output ports	1 x CAT5e/6/7, 1 x IR 1 x Coaxial
Receiver	
Input Ports	1 x CAT5e/6/7, 1 x IR, 1 x Coaxial
Output Ports	1 x HDMI, 1 x RS-232, 1 x LAN, 1 x Coaxial, 1 x IR, 2 x USB, 1 x L/R
HDMI Cable Length	I:10M/1080p@12 bits, 5M/4K2K O:15M/1080p@12 bits, 5M/4K2K
IR Frequency	30~50kHz
Baud Rate	Up to 115200bps
Power Supply	48VDC/0.83A (US/EU standards, CE/FCC/ UL certified)
ESD Protection	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Dimensions	160mm (W) x 130mm (D) x 30mm (H)/ Jacks Excluded 165mm (W) x 141mm (D) x 33mm (H)/ Jacks Included
Weight	624g/Tx, 618g/Rx
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	19w

8.2 CAT5e/6/7 Cable Specification

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

8.3 HDBT Specification

HDBT FEATURE	SUPPORT
ARC	Yes
Video & Audio	Yes
LAN	Yes
IR	Yes
RS-232	Yes
Send Power to TX	No
Send Power to RX	Yes
USB	Yes

8.4 Supported Resolutions

Resolution	Input	Output
640×480@60	√	√
720×480@60	√	√
720×576p@50	√	√
800×600@60	√	√
1024×768@60	√	√
1280×720@50	√	√
1280×720p@50	√	√
1280×720p@60	√	√
1280×1024@60	√	√
1360x 768@60	V	V
1600×1200@60	√	√
1920×1080i@50	√	√
1920×1080i@60	√	√
1920×1080p@24	√	√
1920×1080p@25	√	√
1920×1080p@30	√	√
1920×1080p@50	√	√
1920×1080p@60	√	√
1920×1200@60 (RB)	√	√
3840×2160@24	√	√
3840×2160@25	√	√
3840×2160@30	√	√
3840×2160@60	√	√
3840×2160@60 (YUV420)	√	√
4096×2160@24	√	√

9. ACRONYMS

ACRONYM	COMPLETE TERM
DTS	Digital Theater System
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
LCM	Liquid Crystal Monitor
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA	Wide Ultra Extended Graphics Array