



**Comprehensive**<sup>®</sup>  
Connectivity Company

## CHE-HDBT300

HDMI over CAT5e/6/7 Extender with LAN/IR/RS-232/  
PoE – Transmitter and Receiver



**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
RDV1	19/09/14	Preliminary 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 330 Feet. It has the added benefit of control through the built-in RS-232 and IR ports and a bi-directional 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 to CAT5e/6/7 (with LAN/IR/RS-232) Transmitter
- 1×CAT5e/6/7 to HDMI (with LAN/IR/RS-232) Receiver
- 1×IR Blaster
- 1×IR Extender
- 1×48 V/0.83 A DC Power Adaptor
- Operation Manual

## 4. SYSTEM REQUIREMENTS

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

## 5. FEATURES

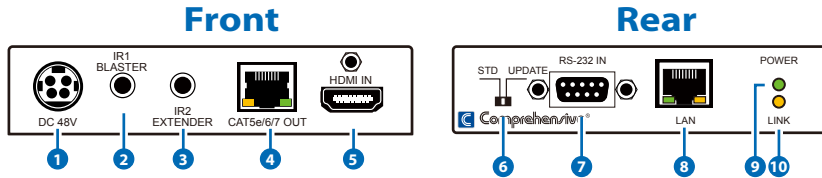
- HDMI with 3D, 4K2K support, HDMI & DVI Compliant
- Supports CEC bypass
- Simultaneous transmission of uncompressed data over a single 328ft CAT5e/6/7 cable
- 5Play™ convergence: HDMI, LAN, PoE & Control (IR & RS-2232)
- Supports resolution up to 4K2K@50/60 & YUV\_420 and 21:9
- Supports standard 48V from Transmitter (PSE) to Receiver (PD)
- Installation Friendly
- Supports HDMI Input/Output cable distance up to 5m at 4K2K@50/60 & YUV\_420

### **Note:**

1. *The standard 48V PoE function is designed for powering compatible Receiver units only---non-PoE Receivers will need their own power supply. Receivers of another brand may not be compatible.*
2. *Displaying HDMI 3D and 4K2K contents, equivalent source signal and HDMI cable are required in order to secure the quality.*

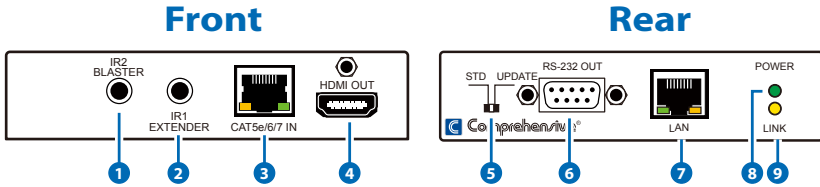
## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Transmitter Front and Rear Panels



- 1 DC 48V:** Plug the 48V DC power supply into the unit and connect the adaptor to an AC outlet.
- 2 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.
- 3 IR2 EXTENDER:** 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.
- 4 CAT5e/6/7 OUT:** Connect to the Receiver unit with a single CAT5e/6/7 cable for transmission of all data signals.
- 5 HDMI IN:** Connect to HDMI source equipment such as a DVD or Blu-ray player.
- 6 STD/UPDATE Switch:** This switch is reserved for factory use only.
- 7 RS-232 IN:** Connect to a PC or Laptop with D-Sub 9-pin male cable for the transmission of RS-232 commands.
- 8 LAN:** Connect to an internet or network system.
- 9 POWER LED:** This LED will illuminate when the device is connected to a power supply.
- 10 LINK LED:** This LED will illuminate when both the input source and output display signals are connected through CAT cable. When it blinks regularly it states the display is NOT sending signals to Receiver but the Transmitter and Receiver are linked and if it blinks irregularly it states an error has occurred.

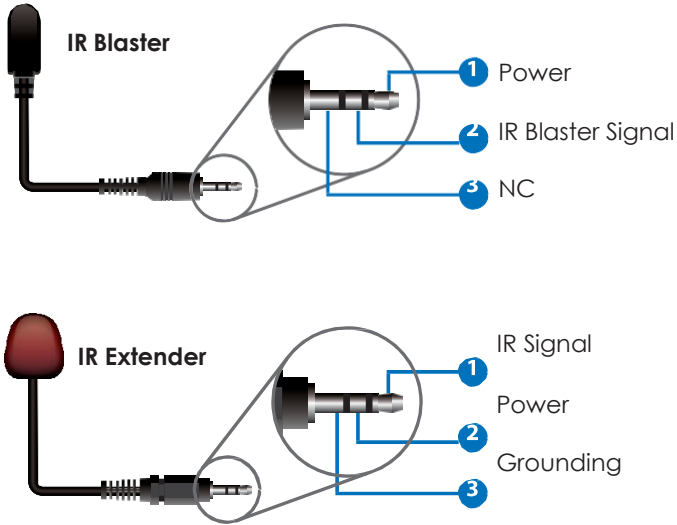
## 6.2 Receiver Front and Rear Panels



- 1 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.
- 2 IR1 EXTENDER:** 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 CAT5e/6/7:** Connect to the Transmitter unit with a single CAT5e/6/7 cable for transmission of all data signals.
- 4 HDMI OUT:** Connect to a HDMI equipped TV/monitor for display of the HDMI input signal.
- 5 STD/UPDATE Switch:** This switch is reserved for factory use only.
- 6 RS-232 OUT:** Connect to the device that is to be controlled (via D-Sub 9-pin female cable) by RS-232 commands.
- 7 LAN:** Connect to a PC or Laptop to utilize the Internet or network function.
- 8 POWER LED:** This LED will illuminate when the device is connected to a power supply.
- 9 LINK LED:** This LED will illuminate when both the input source and output display signals are connected through CAT cable. When it blinks regularly it states the display is NOT sending signals to Receiver but the Transmitter and Receiver are linked and if it blinks irregularly it states an error has occurred.



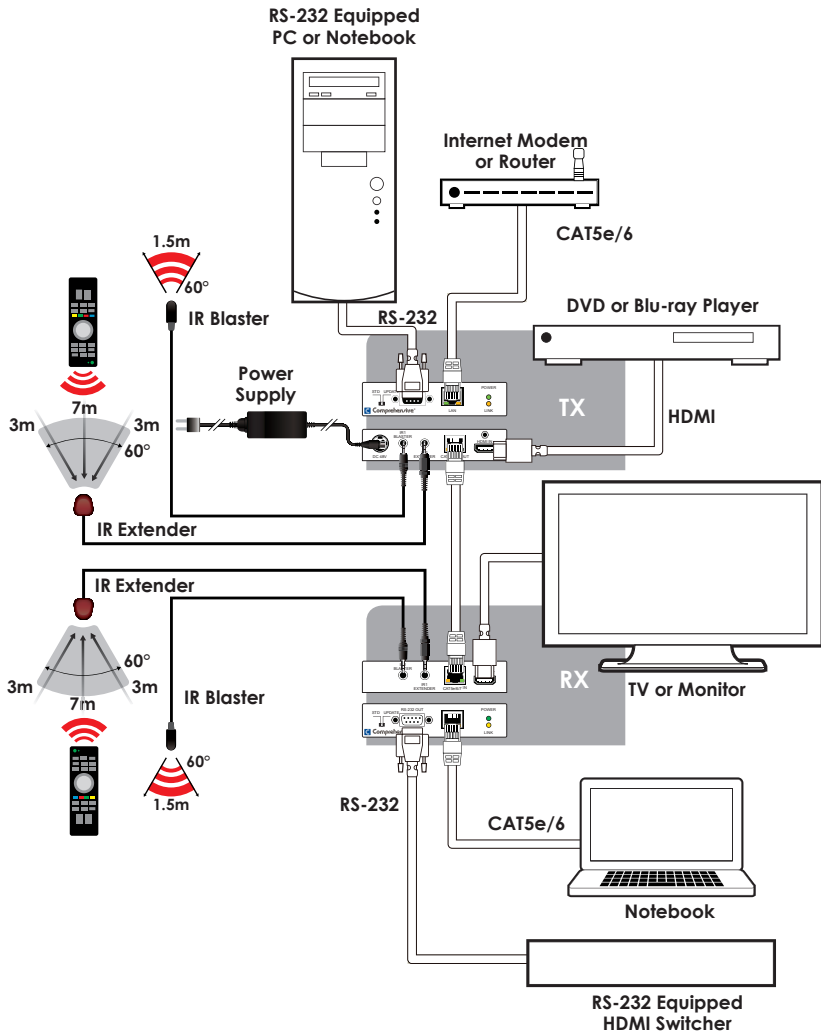
### 6.3. IR Cable Pin Assignment



### 6.4. D-Sub 9 Pin Definitions

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

<b>Video Bandwidth</b>	340MHz / 10.2Gbps
<b>Transmitter</b>	
<b>Inputs</b>	1 x HDMI 1 x IR Extender 1 x RS-232 1 x LAN
<b>Outputs</b>	1 x CAT5e/6/7 1 x IR Blaster
<b>Receiver</b>	
<b>Inputs</b>	1 x CAT5e/6/7, 1 x IR Extender
<b>Outputs</b>	1 x HDMI, 1 x RS-232, 1 X IR Blaster, 1 x LAN
<b>HDMI I/O Resolution</b>	HD: 480i~4K2K@24/25/30/50/60 & YUV_420 PC: VGA ~ WUXGA (RB)
<b>HDMI I/O Cable Distance</b>	In: 10m/1080p@8-bit or 12-bit and 5m@4K2K Out: 10m/1080p@8-bit, 5m/1080p@12-bit and 5m@4K2K
<b>CAT5e/6/7 I/O Cable Distance</b>	Up to 330 ft
<b>IR Frequency</b>	30~50kHz
<b>ESD Protection</b>	Human Body Model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Power Supply</b>	48 V/0.83 A DC (US/EU Standards, CE/FCC/UL certified)
<b>Dimensions</b>	4" x 4.4" x 0.9" Transmitter 4" x 4.2" x 0.9" Receiver
<b>Weight</b>	0.81lbs/TX, 0.80lbs/RX
<b>Chassis Material</b>	Metal
<b>Silkscreen Color</b>	Black
<b>Power Consumption</b>	15w (Max)

**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)

## 8.1 CAT5e/6/7 Cable Specification

Cable Type	Range	Pixel clock rate	Video Data Rate	Supported Video
CAT5e/6/7	330 ft	<=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).
	230 ft/ CAT5e/6 330 ft/CAT7	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

## 8.2 Timing Support Chart

	INPUT	OUTPUT
640x480@60/72/75/85	√	√
800x600@56/60/72/75/85	√	√
1024x768@60/70/75/85	√	√
1280x720@60	√	√
1280x1024@60	√	√
1600x1200@60	√	√
1920x1200@60RB	√	√
3840x2160p@24/25/30	√	√
4096x2160p@24	√	√
4096x2160p@50/60(YUV_420)	√	√
480i/576i	√	√

480P/576P	✓	✓
720P@50/60	✓	✓
1080I@50/60	✓	✓
1080P@50/60	✓	✓
1080P@24/25/30	✓	✓

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>CAT5e</b>	Category 5 Cable
<b>CAT6</b>	Category 6 Cable
<b>CAT7</b>	Category 7 Cable
<b>CEC</b>	Consumer Electronics Control
<b>DVI</b>	Digital Visual Interface
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High Definition Multimedia Interface
<b>IR</b>	Infrared
<b>PD</b>	Powered Device
<b>PSE</b>	Power Sourcing Equipment



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