CH-506TX & RX

HDBaseT™ HDMI over Single CAT5e/6/7 Extender

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	12/12/11	Preliminary release
VS1	26/04/12	Updated format, diagrams and statements
VS2	26/07/12	IR cable updated
VR3	28/09/12	Add HDBaseT Lite version
VR4	10/04/14	HDMI I/O cable distance
VR5	13/03/14	IR cable quantity
VR6	28/04/15	Supported resolution

CONTENTS

1. INTRODUCTION

This HDBaseT™ HDMI over Single CAT5e/6/7 Transmitter and Receiver Set can send uncompressed audio/video over a single run of CAT5e/6/7 cable up to 100m (1080p) and has the added benefit of control through the built-in RS-232 and 2-way IR.

2. APPLICATIONS

- Domestic HDMI installation
- University lecturing systems
- Retail showroom systems
- Conference presentation and control

3. PACKAGE CONTENTS

- 1×HDMI over Single CAT5e/6/7 Transmitter
- 1×HDMI over Single CAT5e/6/7 Receiver
- 1×IR Blaster
- 1×IR Extender
- 1×3.5 mm Mini-jack to RS-232 Female Cable
- 1×3.5 mm Mini-jack to RS-232 Male Cable
- 2×5 V/2.6 A DC Power Adaptor
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

HDMI source equipment such as a DVD or Blu-ray player and HDMI equipped display (TV or monitor). HDMI and CAT5e/5/7 connection cables.
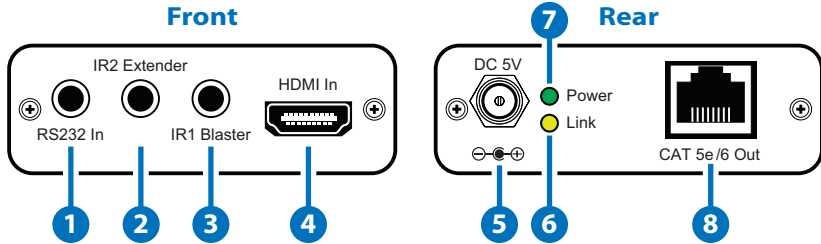
5. FEATURES

- HDMI including 3D and 4K2K (Ultra HD) support, HDCP and DVI compliant
- Supports HDCP repeater and CEC functions
- Simultaneous transmission of uncompressed data over a single CAT5e/6/7 cable up to 100 m/328 ft (1080p@60 Hz/8-bit), 40m (3D) or 20m (4K2K)
- Supports HD resolutions up to 1080p@60Hz/36-bit and Ultra HD (4K2K)
- Audio support up to LPCM 7.1CH, Dolby TrueHD and DTS-HD Master Audio
- Supports HDBaseT Technology including 2-way IR and RS-232
- Installation friendly

Note: This system was tested with CAT6/23AWG cable. Results may vary with cables of different specifications.
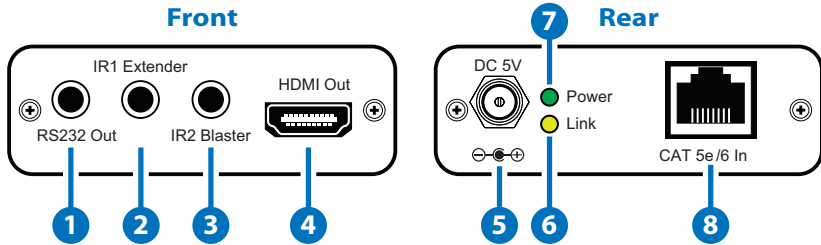
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front and Rear Panels

Front

IR2 Extender

HDMI In

RS232 In

IR1 Blaster

7 **Rear**

DC 5V

Power

Link

CAT 5e/6 Out

1 **2** **3** **4** **5** **6** **8**

1 **RS232 In:** Connect to a PC/laptop or RS-232 enabled device (with supplied 3.5mm mini-jack to D-sub 9-pin adaptor) for the transmission of RS-232 commands.

2 **IR2 Extender:** Connect to the supplied IR extender cable for IR signal reception. Ensure that remote control being used is within the direct line-of-sight of the IR extender.

3 **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.

4 **HDMI In:** Connect to the HDMI source equipment such as a DVD or Blu-ray player.

5 **DC 5V:** Connect the 5V DC power supply to the unit and plug the adaptor into an AC outlet.

6 **Link LED:** The yellow LED will illuminate when both the input and output CAT5e/6/7 signals are connected.

7 **Power LED:** This green LED will illuminate when the device is connected to a power supply.

8 **CAT5e/6 Out:** Connect to the receiver unit with a single CAT5e/6/7 cable for transmission of all data signals.
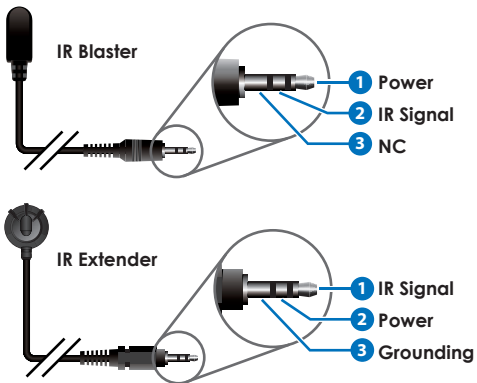
6.2 Receiver Front and Rear Panels

Front

IR1 Extender

HDMI Out

RS232 Out   IR2 Blaster

7   **Rear**

DC 5V

Power

Link

CAT 5e/6 In

1   **2**   **3**   **4**

5   **6**   **8**

1 **RS232 Out:** Connect to the device that is to be controlled (with the supplied 3.5mm mini-jack to D-sub 9-pin adaptor) by RS-232 commands.

2 **IR1 Extender:** Connect to the supplied IR extender cable for IR signal reception. Ensure that the remote being used is within the direct line-of-sight of the IR extender.

3 **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.

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

5 **DC 5V:** Plug the 5 V DC power supply into the unit and connect the adaptor to an AC outlet.

6 **Link LED:** The yellow LED will illuminate when both the input and output CAT5e/6/7 signals are connected.

7 **Power LED:** This green LED will illuminate when the device is connected to a power supply.

8 **CAT5e/6 In:** Connect to the transmitter unit with a Single CAT5e/6/7 cable for transmission of all data signals.

6.3 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

6.4 IR Cable Pin Assignment

IR Blaster
1 Power
2 IR Signal
3 NC

IR Extender
1 IR Signal
2 Power
3 Grounding

7. CONNECTION DIAGRAM

RS-232 Equipped
PC or Notebook

DVD/Blu-ray Player

HDMI
Input

1.5m
60°

IR Blaster 1

RS-232

3m   7m   3m
60°

IR Extender 2

TX

Power Supply

CAT5e/6/7
Cable (100m)

Power Supply

IR Extender 1

RX

IR Blaster 2
60°
1.5m

RS-232

RS-232 Device to
be Controlled

HDMI
Output

3m   7m   3m
60°

Display
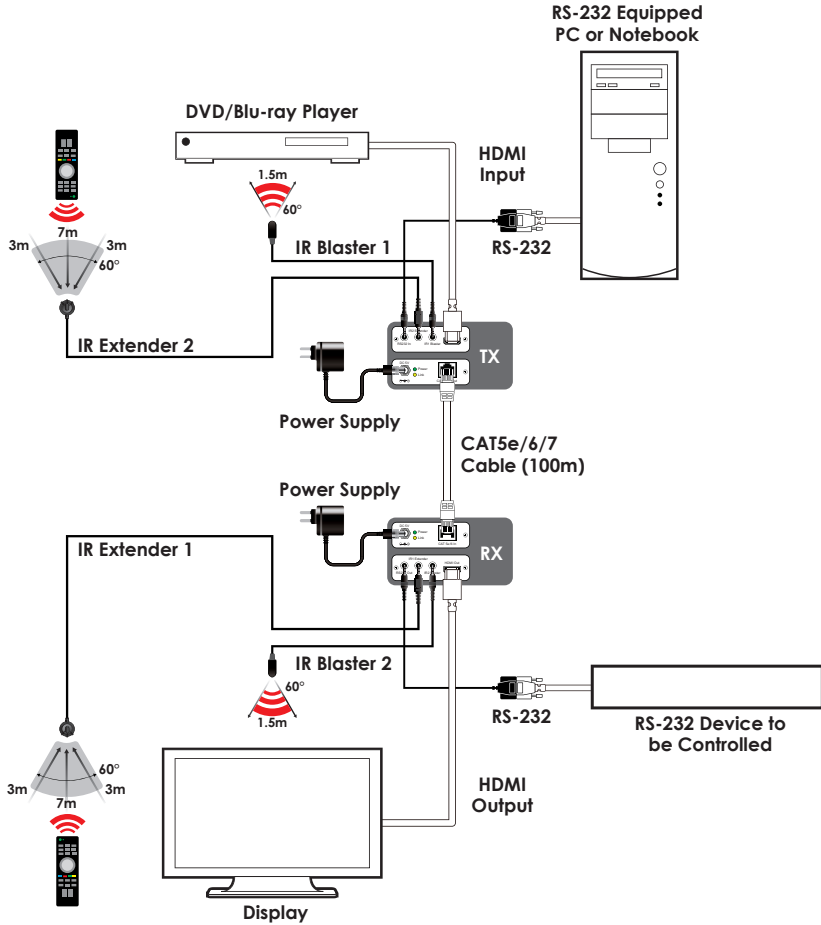
8. SPECIFICATIONS

Video Bandwidth	340 MHz/10.2 Gbps
Transmitter	
Input Ports	1×HDMI, 1×IR Extender, 1×RS-232
Output Ports	1×CAT5e/6/7, 1×IR Blaster
Receiver	
Input Ports	1×CAT5e/6/7, 1×IR Extender
Output Ports	1×HDMI, 1×IR Blaster, 1×RS-232
CAT5e/6/7 Cable Distance	Up to 100 m
HDMI Cable Input Distance	10 m@8-bit, 6 m@12-bit
HDMI Cable Output Distance	10 m@8-bit, 6 m@12-bit
ESD Protection	Human-body Model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
Power Supply	5 V/2.6 A DC (US/EU standards, CE/FCC/UL certified)
IR Frequency	30~50 kHz
Dimensions	71 mm (W)×79 mm (D)×23 mm (H)/Each
Weight	240 g/TX, 245 g/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	3 W/TX, 6 W/RX

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
IR	Infrared