



# CH-506TXPL & RXPL

## HDMI to CAT5e/6 Extender



**Operation Manual**



**HDMI**<sup>®</sup>  
HIGH-DEFINITION MULTIMEDIA INTERFACE

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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.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

## VERSION HISTORY

| REV. | DATE       | SUMMARY OF CHANGE                |
|------|------------|----------------------------------|
| VR0  | 2013/01/18 | Preliminary Release              |
| VR1  | 2014/11/21 | Package Contents                 |
| VR2  | 2019/07/25 | Update Format and Cable Distance |

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## 1. INTRODUCTION

The HDBaseT™ HDMI over single CAT5e/6 with bidirectional IR, RS-232 & PoC Transmitter and Receiver set can make your home or office set-up more efficient and easy to use. Uncompressed video and audio can be transmitted up to 70 meters at 1080p or 40 meters at 4K. with the PoC function and added benefit of controls through the built-in RS-232 and IR ports. This family design of HDBaseT™ technology allows a full usage of HDMI and controls over CAT5e/6/7.

## 2. APPLICATIONS

- Household entertainment sharing and control
- Lecture room display and control
- Showroom display and control
- Meeting room presentation and control for projector
- Classroom display and control

## 3. PACKAGE CONTENTS

- HDMI to CAT5e/6 with IR/RS232 & PoE Transmitter x 1
- CAT5e/6 to HDMI with IR/RS232 & PoE Receiver x 1
- IR Blaster x 1(in Transmitter)
- IR Extender x 1(in Receiver)
- 3.5Ø to RS-232 female cable x 1(in Transmitter)
- 3.5Ø to RS-232 male cable x 1(in Receiver)
- 24V/1.25A DC Power Adaptor x 1(in Transmitter)
- Operation Manual

## 4. SYSTEM REQUIREMENTS

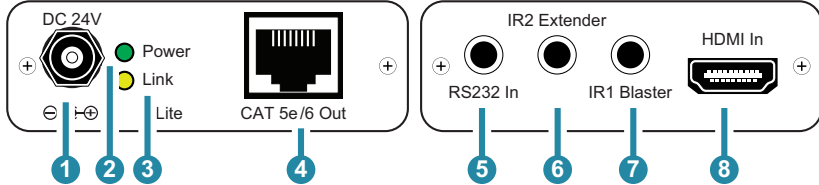
Input HDMI source equipment such as DVD/Blu-ray player/PC, output display with HDMI input jack and connection cables of HDMI and CAT5e/6/7.

## 5. FEATURES

- HDMI 1.x and DVI 1.0 compliant
- HDCP compliant
- Supports HDMI 3D and 4K x 2K features
- Supports HDCP repeater and CEC bypass
- Supports distance up to 70m/229ft at 1080p and 40m/131ft at 4K through CAT5e/6/7 cable
- HDMI input resolutions up to 4K@60Hz (YUV 4:2:0, 8-bit) or 4K@30Hz (YUV 4:4:4, 8-bit)
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, and Bitstream over HDMI
- Supports HDBaseT Lite Technology

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Transmitter Front and Rear Panels



#### 1 DC 24V

Plug the 24V DC power supply into the unit and connect the adaptor to an AC outlet.

#### 2 Power LED

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

#### 3 LINK LED

This LED will illuminate when the device is connected with a CAT5e/6 cable from the Receiver side. When the data transmission accrue with error the LED will be blinking.

#### 4 CAT5e/6/7 Out

Connect to the Receiver unit with a single CAT5e/6/7 cable for transmission of all data signals.

#### 5 RS232 In

Plug the 3.5Ø to D-Sub 9 pin female cable included in the package and connect to a PC or laptop for RS-232 commands transmission.

#### 6 IR2 Extender

Connect to the IR Extender cable for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

#### 7 IR1 Blaster

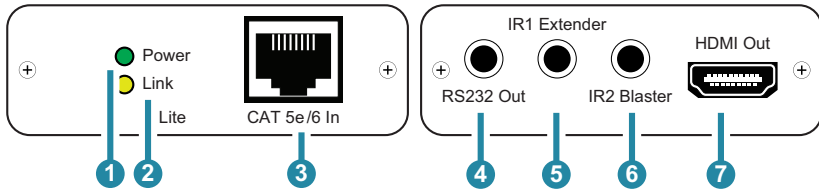
Plug the IR Blaster for IR signal sending from the Receiver side. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

#### 8 HDMI In

Connect with source equipment such as DVD/Blu-ray player or any HDMI equipped source device for input signal sending.



## 6.2 Receiver Front and Rear Panels



### 1 Power LED

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

### 2 LINK LED

This LED will illuminate when the devices are connected with a CAT5e/6 cable from the Transmitter side. When the data transmission accrue with error the LED will be blinking.

### 3 CAT5e/6/7 In

Connect to the Transmitter unit with a single CAT5e/6/7 cable for transmission of all data signals.

### 4 RS232 Out

Plug the 3.5Ø to D-Sub 9 pin male cable included in the package and connect to the device that is to be controlled by RS-232 commands

### 5 IR1 Extender

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.

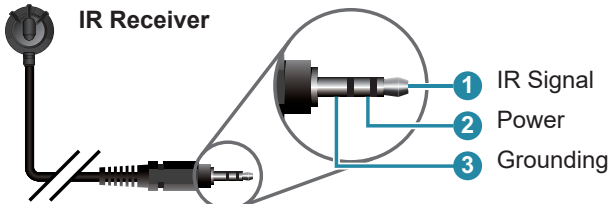
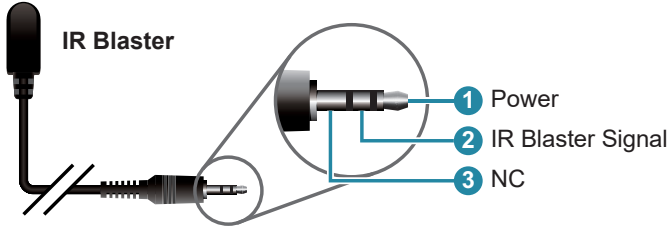
### 6 IR2 Blaster

Plug the IR Blaster included in the package for IR signal sending from the Receiver side. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

## 7 HDMI Out

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

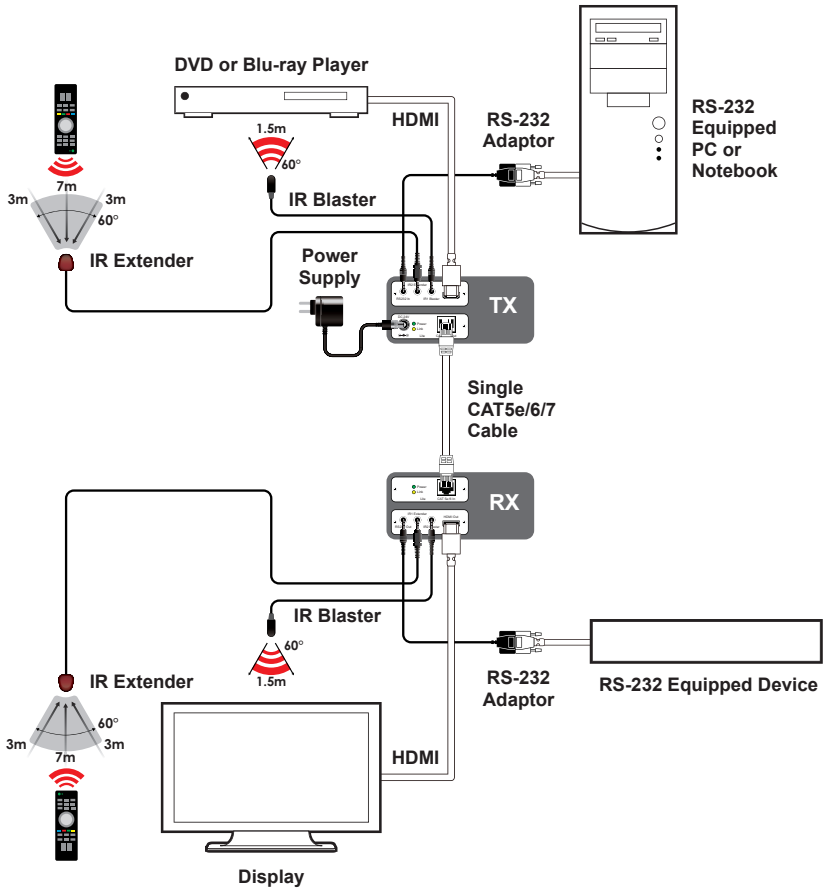
### 6.3 IR Pin Assignment



## 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            |
| 9   | NC             |

## 7. CONNECTION AND INSTALLATION



## 8. SPECIFICATIONS

|                              |  |
|------------------------------|--|
| <b>HDMI Bandwidth</b>        | 10.2Gbps   |
| <b>HDBaseT Bandwidth</b>     | 10.2Gbps   |
| <b>Transmitter</b>           |  |
| <b>Input Ports</b>           | 1×HDMI, 1×IR Extender, 1×RS-232  |
| <b>Output Ports</b>          | 1×CAT5e/6/7, 1×IR Blaster  |
| <b>Receiver</b>              |  |
| <b>Input Ports</b>           | 1×CAT5e/6/7, 1×IR Extender   |
| <b>Output Ports</b>          | 1×HDMI, 1×RS-232, 1×IR Blaster   |
| <b>IR Frequency</b>          | 30 - 50kHz<br>(30 - 60kHz under ideal conditions)                            |
| <b>Baud Rate</b>             | up to 115200/sec   |
| <b>Power Supply</b>          | 24V/1.25A DC (US/EU standards, CE/FCC/<br>UL certified)                      |
| <b>ESD Protection</b>        | Human Body Model:<br>±8kV (air-gap discharge)<br>±4kV (contact discharge)    |
| <b>Dimensions</b>            | 71 mm(W) x 79 mm(D) x 23 mm(H)/each<br>71 mm(W) x 73.5 mm(D) x 23 mm(H)/each |
| <b>Weight</b>                | 120 g/TX, 126 g/RX   |
| <b>Chassis Material</b>      | Metal  |
| <b>Silkscreen Color</b>      | Black  |
| <b>Operating Temperature</b> | 0°C ~ 40°C / 32 °F ~ 104 °F  |
| <b>Storage Temperature</b>   | -20°C ~ 60°C / -4 °F ~ 140 °F  |
| <b>Relative Humidity</b>     | 20 ~ 90% RH (non-condensing)   |
| <b>Power Consumption</b>     | 3W/TX, 6W/RX   |

## 8.1 CAT5e/6/7 Cable Specification

| Cable Length                 | 1080p |        | 4K30             | 4K60             |
|------------------------------|-------|--------|------------------|------------------|
|                              | 8-bit | 12-bit | (4:4:4)<br>8-bit | (4:4:4)<br>8-bit |
| <b>High Speed HDMI Cable</b> |       |        |                  |                  |
| <b>HDMI Input</b>            | 15m   | 10m    | 5m               | 5m               |
| <b>HDMI Output</b>           | 15m   | 10m    | 5m               | 5m               |
| <b>Ethernet Cable</b>        |       |        |                  |                  |
| <b>Cat.5e/6</b>              | 60m   |        | 35m              |                  |
| <b>Cat.6a/7</b>              | 70m   |        | 40m              |                  |

- 1080p (FHD Video)
  - Up to 1080p@60Hz, 12-bit color
  - Data rates lower than 5.3Gbps or below 225MHz TMDS clock
- 4K30 (UHD Video)
  - 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit color
  - Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps

## 9. ACRONYMS

| ACRONYM      | COMPLETE TERM                             |
|--------------|---|
| <b>CAT5e</b> | Category 5 Cable                          |
| <b>CAT6</b>  | Category 6 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                                  |



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