



# CH-513TXLN/RXLN

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



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

## VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
VR0	2014/07/14	Preliminary release

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## 1. INTRODUCTION

The HDMI Extender over single CAT5e/6/7 incorporating IR and RS-232 signal transfer allows for a more efficient system setup and is easy to install.

Uncompressed video and audio can be transmitted to distances of up to 60 meters (1080p) and supports High Definition Audio and 3D signals.

Designed with HDBaseT™ technology for greater flexibility in custom installations with full HDMI and control signal transfer over a single CAT5e/6/7 cable.

## 2. APPLICATIONS

- Residential entertainment sharing and control
- University lecture hall display and control
- Retail sales display and control
- Meeting room presentation and control
- Commercial advertising display and control

## 3. PACKAGE CONTENTS

- 1×HDMI over CAT5e/6 Transmitter with IR/RS-232
- 1×HDMI over CAT5e/6 Receiver with IR/RS-232
- 1×IR Blaster
- 1×IR Extender
- 1×3.5mm mini-jack to RS-232 female cable
- 1×3.5mm mini-jack to RS-232 male cable
- 2×5V/2.6A DC Power Adaptor
- Operation Manual

## 4. SYSTEM REQUIREMENTS

HDMI source equipment such as DVD/Blu-ray player/PC and TV/monitor/projector with HDMI input and HDMI to CAT5e/6/7 cables.

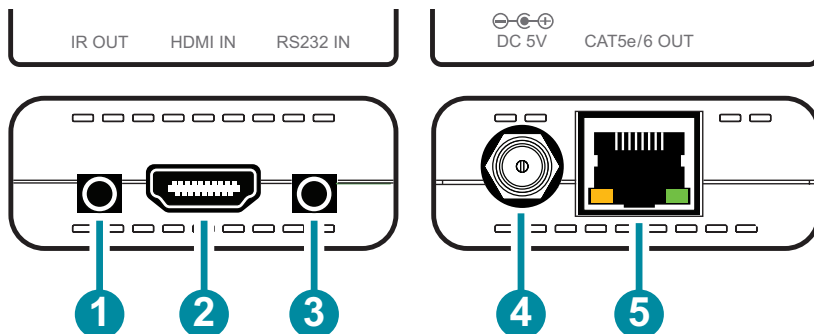
## 5. FEATURES

- HDMI with 3D, 4K2K support, HDCP and DVI compliant
- Supports HDMI (including HDCP) over a single CAT5e/6/7 up to 60m
- Full HD resolution support (1080p@60Hz/36-bit), 3D and 4Kx2K@24/25/30 & 4K2K YUV420 over over 35m and PC resolution support (VGA to WUXGA) over CAT5e/6/7 cable
- HDMI input up to 6m with 8/12-bit resolution or 5m with 4K2K resolution
- HDMI output up to 6 m with 8/12-bit resolution or 5m with 4K2K resolution
- Multiple control interfaces such as RS-232 with baud rate up to 115200/sec and IR
- Supports HDCP repeater and CEC bypass
- Supports High Definition LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission
- Compact size with stylish design

*Note: 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 IR OUT/Blaster:

Connect to the supplied IR Blaster for IR signal transmission to the source equipment. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

#### 2 HDMI IN:

Connect to the HDMI input source devices such as a DVD player or a Set-top Box with HDMI cable or DVI to HDMI cable.

#### 3 RS232 IN:

Connect the 3.5mm mini-jack to D-Sub 9-pin female adaptor cable (included in the package) to a PC or laptop for the transmission of RS-232 commands.

#### 4 DC 5V:

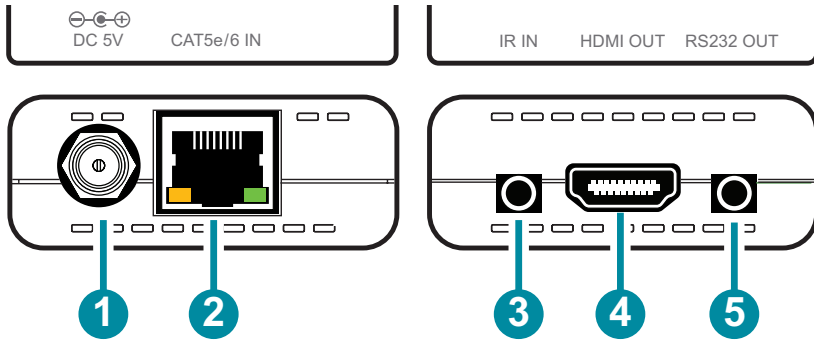
Plug the 5V DC power supply into the unit and connect the adaptor to an AC outlet.

#### 5 CAT5e/6 OUT:

Connect to the Receiver unit with a single CAT5e/6 cable for transmission of all data signals. The yellow LED will illuminate when both Transmitter and Receiver are connected together with power supply. The green LED will illuminate when the power supply is connected to the device.



## 6.2 Receiver Front and Rear Panels



### 1 DC 5V:

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

### 2 CAT5e/6 IN:

Connect to the Transmitter unit with a single CAT5e/6/7 cable for transmission of all data signals. The yellow LED will illuminate when both Transmitter and Receiver are connected together with power supply. The green LED will illuminate when the power supply is connected to the device.

### 3 IR IN/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.

### 4 HDMI OUT:

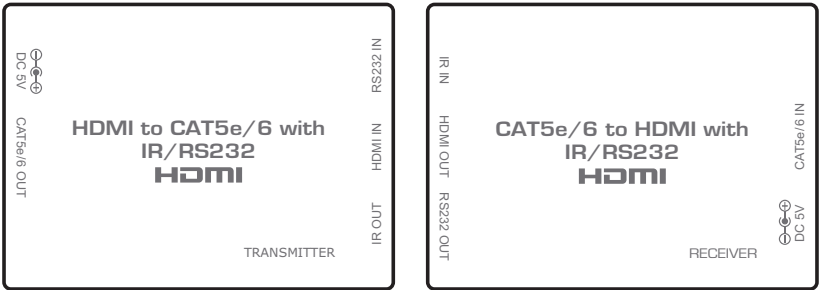
Connect to a HDMI equipped TV/monitor for display of the HDMI input source signal.

*Note: If the connected TV/monitor support only 8bits but the input source signal contain 10/12bits it may cause no signal display.*

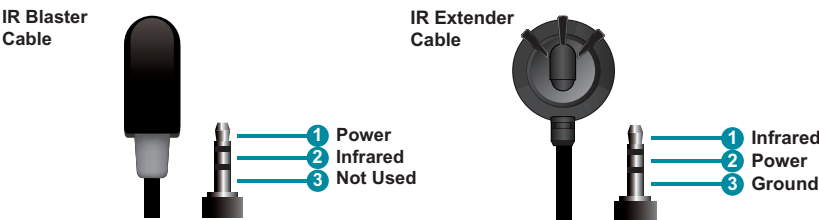
### 5 RS232 OUT:

Connect the 3.5mm mini-jack to D-Sub 9-pin male adaptor cable (included in the package) to RS-232 device for the reception RS-232 commands.

### 6.3 Transmitter and Receiver Top Panels



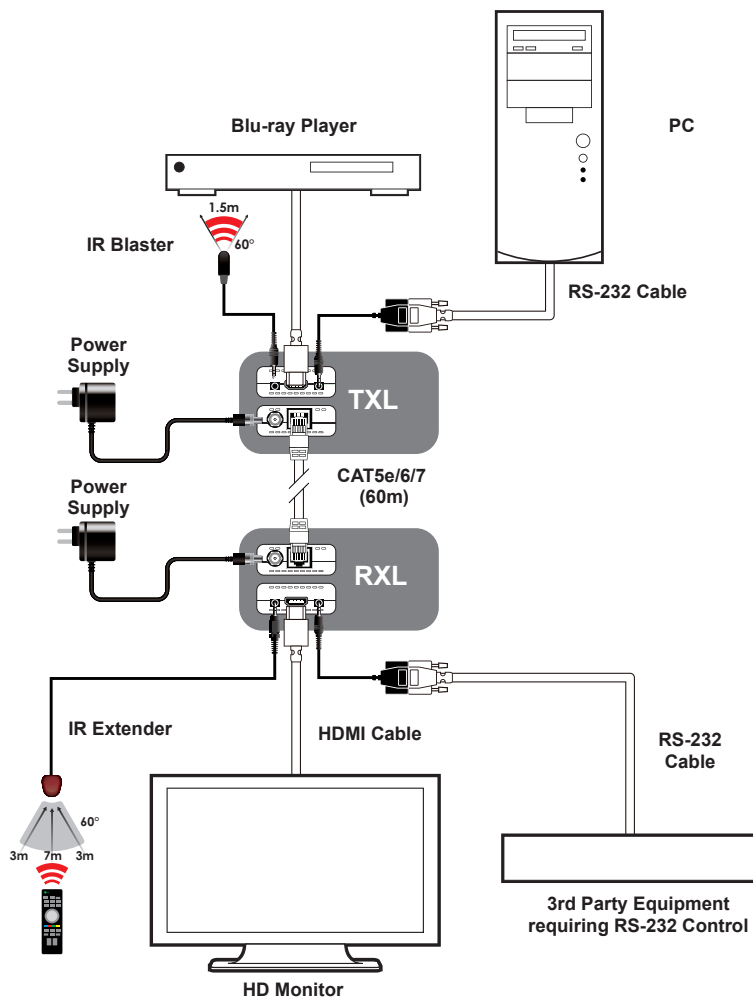
### 6.4 IR Pin Assignment



## 6.5 D-Sub 9-Pin Definitions

PIN	DEFINITIONS
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>	340 MHz/10.2 Gbps
<b><i>Transmitter</i></b>	
<b>Inputs</b>	1×HDMI, 1×RS-232
<b>Outputs</b>	1×RJ45, 1×IR Blaster
<b><i>Receiver</i></b>	
<b>Inputs</b>	1×RJ45, 1×IR Extender
<b>Outputs</b>	1×HDMI, 1×RS-232
<b>ESD Protection</b>	Human Body Model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Power Supply</b>	2×5 V/2.6 A DC (US/EU standards, CE/FCC/UL certified)
<b>Dimensions</b>	55 mm (W)×75.5 mm(D)×22.5 mm (H)/Jacks Excluded55 mm (W)×82.2 mm(D)×22.5 mm (H)/ each
<b>Weight</b>	60 g (TX), 66 g (RX)
<b>Chassis Material</b>	Plastic
<b>Silkscreen Color</b>	White
<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>	2.6 W (TX), 5.06 W (RX)

## 8.1 CAT5e/6/7 Cable Specification

Cable Type	Range	Pixel clock rate	Video Data Rate	Supported Video
CAT5e/CAT6	60 m	<=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).
	35 m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats
CAT6A/7	40 m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

## 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





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