CH-513TXLN/RXLN

HDMI over CAT5e/6 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.

REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
RDV1	12/02/14	Preliminary Release

CONTENTS

1. INTRODUCTION

The HDMI Extender over single CAT5e/6 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 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 cables.

5. FEATURES

- HDMI with 3D, 4K×2K support, HDCP and DVI compliant
- Supports HDMI (including HDCP) over a single CAT5e/6 up to 60m
- Full HD resolution support (1080p@60Hz/36-bit), 3D and 4Kx2K over 40m and PC resolution support (VGA to WUXGA) over CAT5e/6 cable
- HDMI input up to 15m with 8-bit resolution or 10 m with 12-bit resolution
- HDMI output up to 15 m with 8/12-bit 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 4k x 2k resolution require the standard 4kx2k HDMI cable and display in order for proper image displaying.

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front and Rear Panels
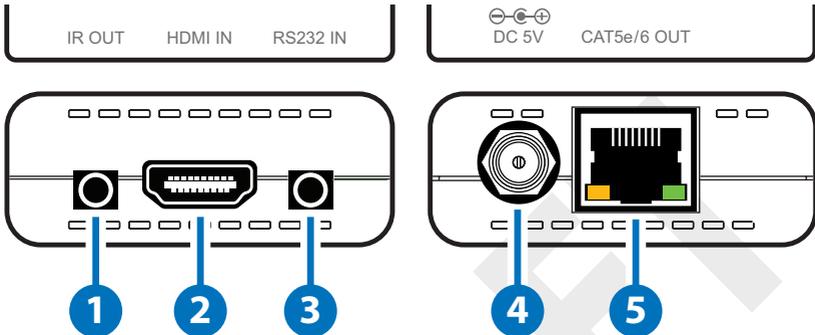
1 IR OUT/Blaster:
Connect to the supplied IR Blaster for IR signal transmission to the source equipment. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

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.

6.2 Receiver Front and Rear Panels
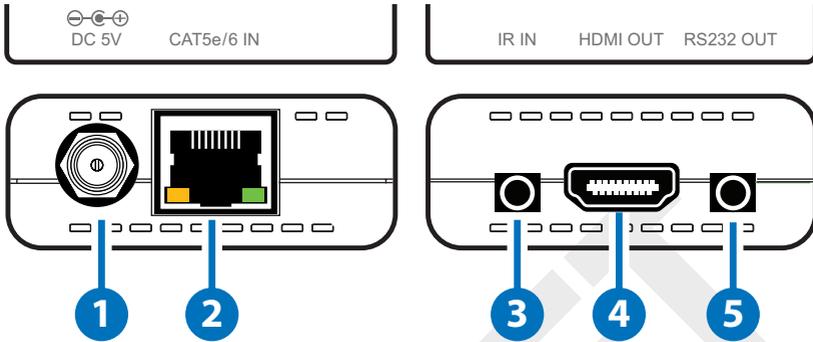
1 **DC 5V:**

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 cable for transmission of all data signals.

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.

5 **RS232 OUT:**

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

6.3 Transmitter and Receiver Top Panels

6.4 IR Pin Assignment

IR Blaster

1 Power 3.3 V
2 IR Blaster Signal
3 NC

IR Extender

1 IR Signal
2 Power 3.3V
3 Ground
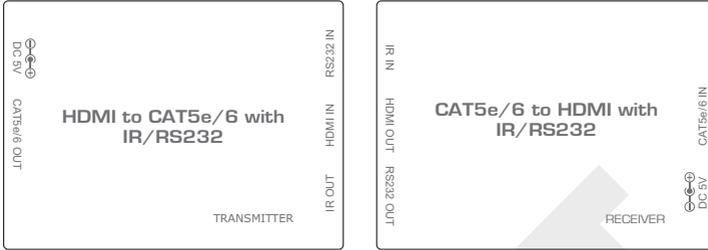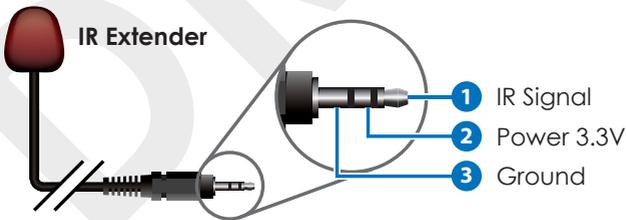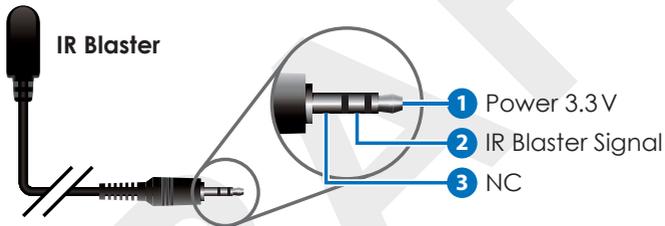
6.5 D-Sub 9-Pin Definitions

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

Blu-ray Player

PC

IR Blaster

1.5m
60°

RS-232 Cable

Power Supply

TXLN

Power Supply

CAT5e/6 (60m)

RXLN

IR Extender

HDMI Cable

RS-232 Cable

60°
3m   7m   3m

3rd Party Equipment requiring RS-232 Control

HD Monitor
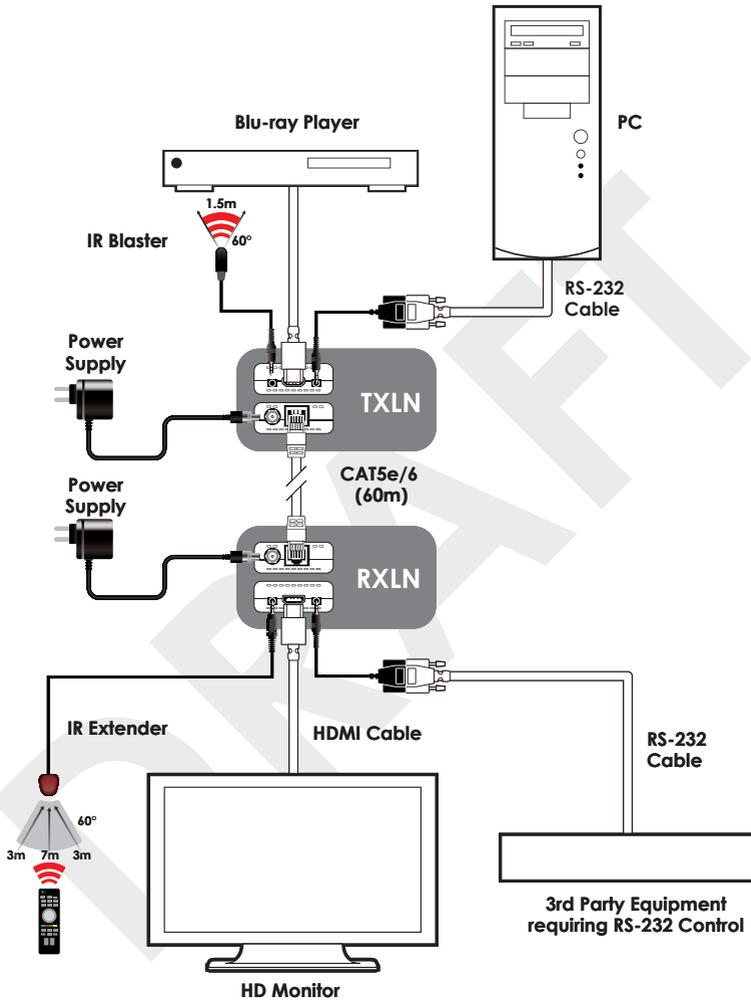
8. SPECIFICATIONS

Video Bandwidth	340 MHz/10.2 Gbps
Transmitter	
Inputs	1×HDMI, 1×RS-232
Outputs	1×RJ45, 1×IR Blaster
Receiver	
Inputs	1×RJ45, 1×IR Extender
Outputs	1×HDMI, 1×RS-232
ESD Protection	Human Body Model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Power Supply	2×5 V/2.6 A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	55 mm (W)×75.5 mm(D)×22.5 mm (H)/Jacks Excluded55mm (W)×82.2mm(D)×22.5mm (H)/each
Weight	60 g (TX), 66 g (RX)
Chassis Material	Plastic
Silkscreen Color	White
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), 5.5 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	60 m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

9. ACRONYMS

ACRONYM	COMPLETE TERM
CAT5e	Category 5 Cable
CAT6	Category 6 Cable
CEC	Consumer Electronics Control
DVI	Digital Visual Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition multimedia Interface
IR	Infrared

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