CH-501TX & RX

HDMI over Single CAT5e/6/7 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
VS1	08/12/11	First Release
VR2	16/04/12	Add IR Distance
VS3	12/06/14	Updated texts/diagrams

CONTENTS

1. INTRODUCTION

The HDMI over Single CAT5e/6/7 Transmitter and Receiver set can send uncompressed video/audio and IP data over a single run of CAT5e/6/7 cable up to 100m at 1080p and 70m at 4K. It has the added benefit of control through the built-in RS-232 pass-through and 2-way IR control. It also features a HDMI bypass function that allows for local testing of the HDMI source.

2. APPLICATIONS

• Home entertainment sharing and control

• Lecture room display and control

• Showroom display and control

• Meeting room presentation and control

• Classroom display and control

• Any Smart AV Installation System

3. PACKAGE CONTENTS

• 1×HDMI over Single CAT5e/CAT6 Transmitter

• 1×HDMI over Single CAT5e/CAT6 Receiver

• 1× IR Blaster

• 1× IR Extender

• 2× 5 V/2.6 A DC Power Adaptor

• 1×Operation Manual

4. SYSTEM REQUIREMENTS

HDMI source device such as a DVD/Blu-ray player and an HDMI equipped display (TV or monitor).

5. FEATURES

- HDMI (with 3D format and 4K2K resolution support), HDCP and DVI compliant

- Supports CEC bypass function

- Simultaneous transmission of uncompressed video/audio and data over a single CAT5e or CAT6 cable up to 100m/328ft at 1080p and 70m/229ft at 4K

- Supports uncompressed video up to 4K@60Hz (YUV 4:2:0, 8-bit) and WUXGA@60Hz (RB)

- Supports pass-through of high-definition audio formats: LPCM 7.1CH, Dolby TrueHD and DTS-HD Mater Audio

- HDBaseT™ 3Play convergence: uncompressed high-definition Video and Audio and IR/RS-232 Control pass-through

- Installation friendly

Note:

1. *This system was tested with CAT6/23AWG cables, results may vary with cables of a different specification.*

2. *For playback of 4K×2K HDMI source signals, a 4K×2K capable display and High Speed HDMI cables are required.*

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front and Rear Panels
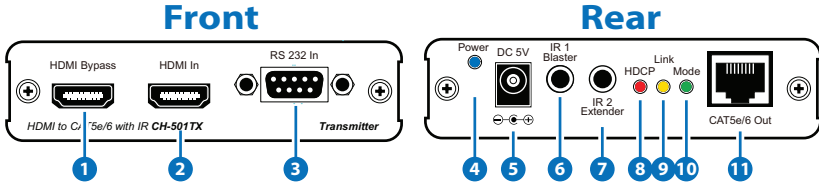
1 HDMI Bypass: Connect to a HDTV/monitor to test the HDMI input source signal. When the HDMI Bypass output is connected, signal transmission from the CAT5e/6 output is disabled. Ensure that it is not connected during normal use.

2 HDMI In: Connect to an HDMI source device such as DVD or Blu-ray player.

3 RS-232 In: Connect to a PC/laptop or RS-232 control system with D-sub 9-pin male cable for the transmission of RS-232 commands.

4 Power LED: This LED will illuminate when the transmitter is connected to a power supply.

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

6 IR 1 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.

7 IR 2 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.

8 HDCP LED: This LED will illuminate when the input source signal contains HDCP data and when it blink it means the input source signal is without HDCP data.

9 Link LED: This LED will illuminate when both the CAT5e/6 input and output signals are connected.

10 Mode LED: This LED will blink when the unit is processing data.

11 CAT5e/6 Out: Connect to the receiver unit with a single CAT5e/6 cable for all data transmission.

6.2 Receiver Front and Rear Panels
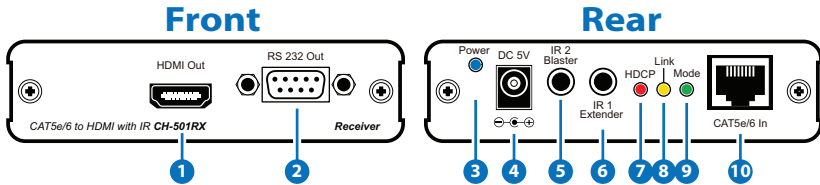
1. **HDMI Out:** Connect to an HDMI equipped TV/monitor of display the HDMI input source signal.

2. **RS-232 Out:** Connect to the device that is to be controlled (via D-sub 9-pin female cable) by RS-232 commands.

3. **Power LED:** This LED will illuminate when the receiver is connected to a power supply.

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

5. **IR 2 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.

6. **IR 1 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.

7. **HDCP LED:** This LED will illuminate when the input source signal contains HDCP data and when it blink it means the input source signal is without HDCP data.

8. **Link LED:** This LED will illuminate when the both CAT5e/6 input and output signals are connected.

9. **Mode LED:** This LED will blinking when the unit is processing data.

10. **CAT5e/6 In:** Connect to the transmitter unit with a single CAT5e/6 cable for all data transmission.

6.3 IR Cable Pin Assignment

IR Blaster

1. Power 5 V
2. IR Blaster Signal
3. NC

IR Extender

1. IR Signal
2. Power 5 V
3. Grounding
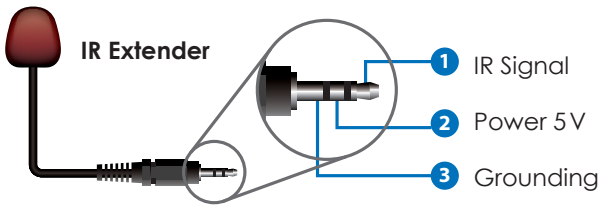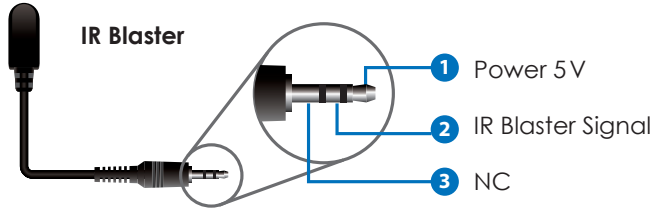
6.4 RS-232 Cable Pin Definitions

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

DVD or Blu-ray Player

TV/Monitor

HDMI Bypass Output

HDMI Input

RS-232 Equipped PC or Notebook

RS-232

IR Blaster

1.5m
60°

7m

3m   3m
60°

Power Supply

TX

IR Extender

IR Extender

Power Supply

RX

Single CAT5e/6/7 Cable

60°
3m   3m

7m

60°
1.5m

IR Blaster

RS-232

RS-232 Equipped HDMI Switcher

HDMI Output

TV/Monitor
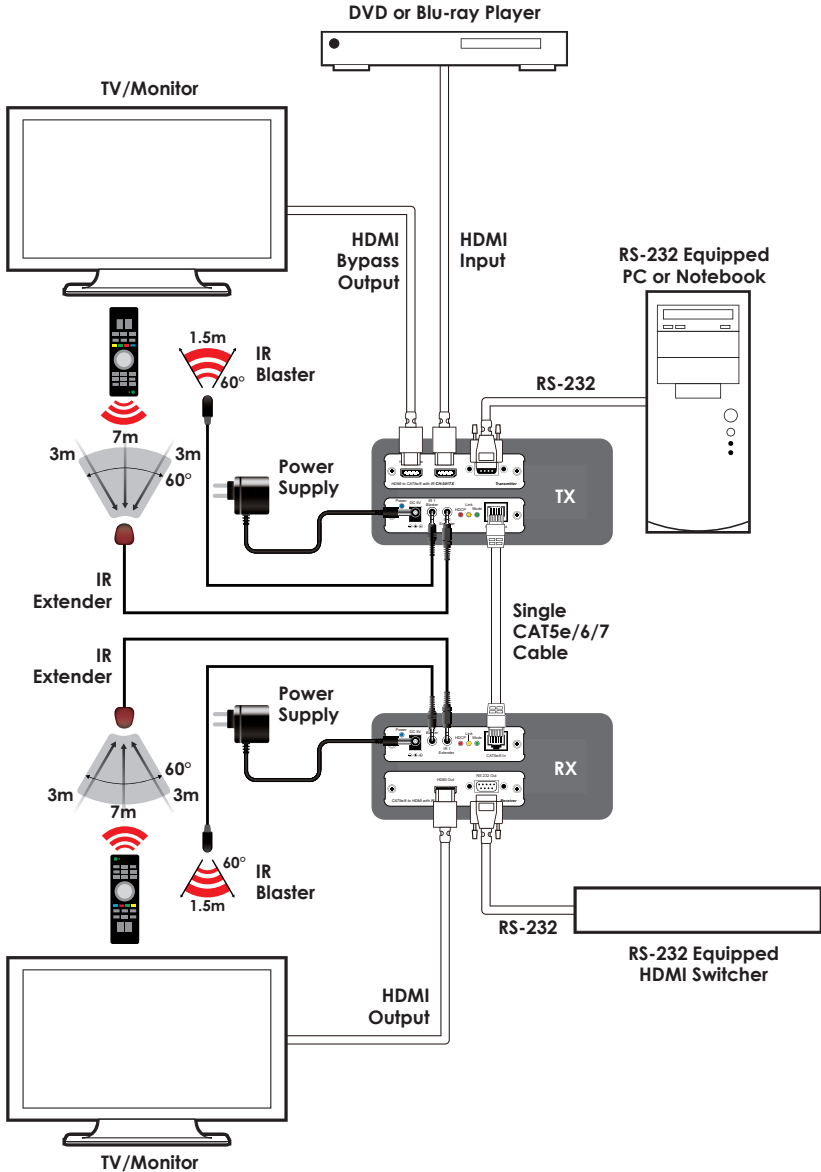
8. SPECIFICATIONS

Video Bandwidth	300 MHz/9 Gbps
Transmitter	
Input	1×HDMI, 1×IR Extender, 1×RS-232
Output	1×CAT5e/6, 1×HDMI Bypass, 1×IR Blaster
Receiver	
Input	1×CAT5e/6, 1×IR Extender
Output	1×HDMI, 1×IR Blaster, 1×RS-232
CAT6 Cable Distances	100m (1080p@60Hz, 12-bit)
	70m (4K@60Hz, 4:2:0, 8-bit)
HDMI Cable Distances	10m (1080p@60Hz, 12-bit)
	5m(4K@60Hz, 4:2:0, 8-bit)
HDMI Resolutions	480i~4K@60Hz (YUV 4:2:0, 8-bit) & VGA~WUXGA@60Hz(RB)
IR Frequency	30~50 kHz
Power Supply	5 V/2.6 A DC (US/EU Standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
Dimensions	102 mm (W)×107 mm (D)×25 mm (H)/Each
Weight	240 g/TX, 245 g/RX
Chassis Material	Aluminum
Silkscreen Color	Silver
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	2 W/TX, 6 W/RX

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

MPM-CH501TXRX