



CH-506TXWP & RXWP

HDMI & IR over Single CAT5e/CAT6



Operation Manual

HDMI[®]
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.

REVISION HISTORY

| VERSION NO. | DATE DD/MM/YY | SUMMARY OF CHANGE |
|-------------|---------------|----------------------------------|
| RDV1 | 14/02/12 | Preliminary Release |
| RDV2 | 25/07/19 | Update Format and Cable Distance |



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1. INTRODUCTION

The device that can make your home or office more efficient, this unit of HDMI over Single CAT5e/6/7 can transmit and receive uncompressed audio/video, control through the built-in RS-232 and IR ports and Power on Cable (PoC) over 100 meters at 1080p or 70 meters at 4K with all plate design. Hence, if you want to make your home or office more efficient, get the HDMI & IR over single CAT5e/6/7 and prepare to be amazed.

2. APPLICATIONS

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

3. PACKAGE CONTENTS

- HDMI & IR over Single CAT5e/CAT6 Transmitter x 1
- HDMI & IR over Single CAT5e/CAT6 Receiver x 1
- IR Blaster x 1
- IR Receiver x 1
- 3.5Ø to RS-232 female cable x 1 for transmitter
- 3.5Ø to RS-232 male cable x 1 for receiver
- 24V/1.25A DC Power Adaptor x 1
- Operation Manual

4. SYSTEM REQUIREMENTS

Input HDMI source equipment such as DVD/Blue-Ray player and output display with HDMI input jack.

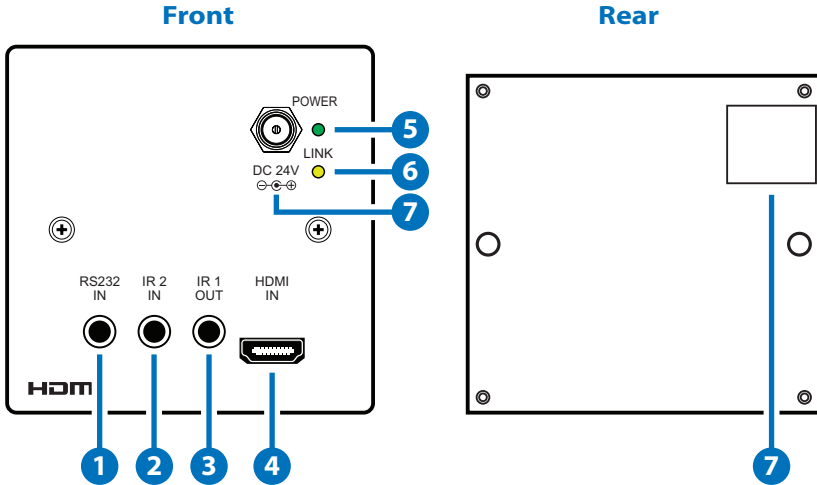
5. FEATURES

- 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 100m/328ft at 1080p and 70m/229ft 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
- 4Play™ convergence: HDMI, PoC & Control (IR & RS232)
- Wall plate design and Installation Friendly

Note: *This system was tested with CAT6/23AWG cable, so if using cables of another type, results may vary.*

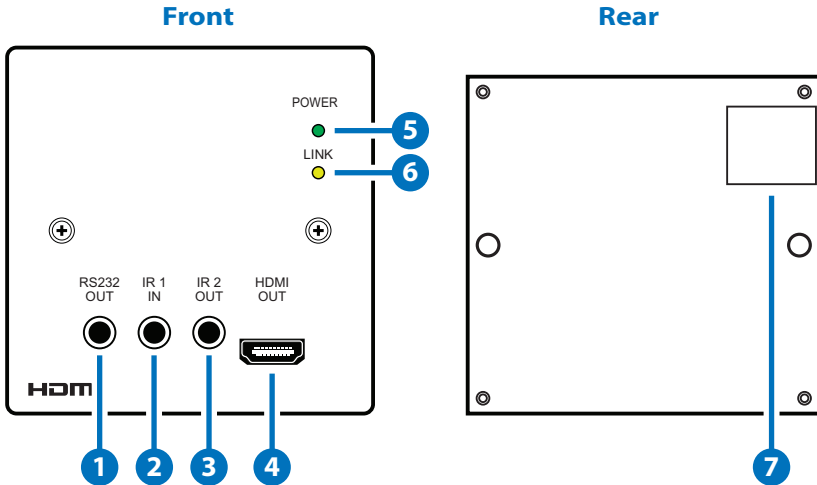
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter



- 1 **RS-232 IN:** This slot is to connect with 3.5Ø phone jack RS-232 cable from PC/NB equipment for sending RS-232 commands.
- 2 **IR 2 IN:** This slot is to connect with the IR receiver cable included in the package for IR signal receiving.
- 3 **IR 1 OUT:** This slot is to connect with the IR blaster cable included in the package for IR signal transmitting.
- 4 **HDMI IN:** This slot is to connect with HDMI source equipment such as DVD/Blu-ray player.
- 5 **POWER LED:** This green LED will illuminate when the device is attached with power supply.
- 6 **LINK LED:** This yellow LED will illuminate when the both CAT5e/6/7 input and output signal is connected.
- 7 **DC 24V:** This slot is where you plug the 24V DC power supply into the unit and connect the adaptor to an AC outlet.
- 8 **CAT5e/6/7 Out:** Connect to the receiver unit with a single CAT5e/6/7 cable for transmission of all data signals.

6.2 Receiver



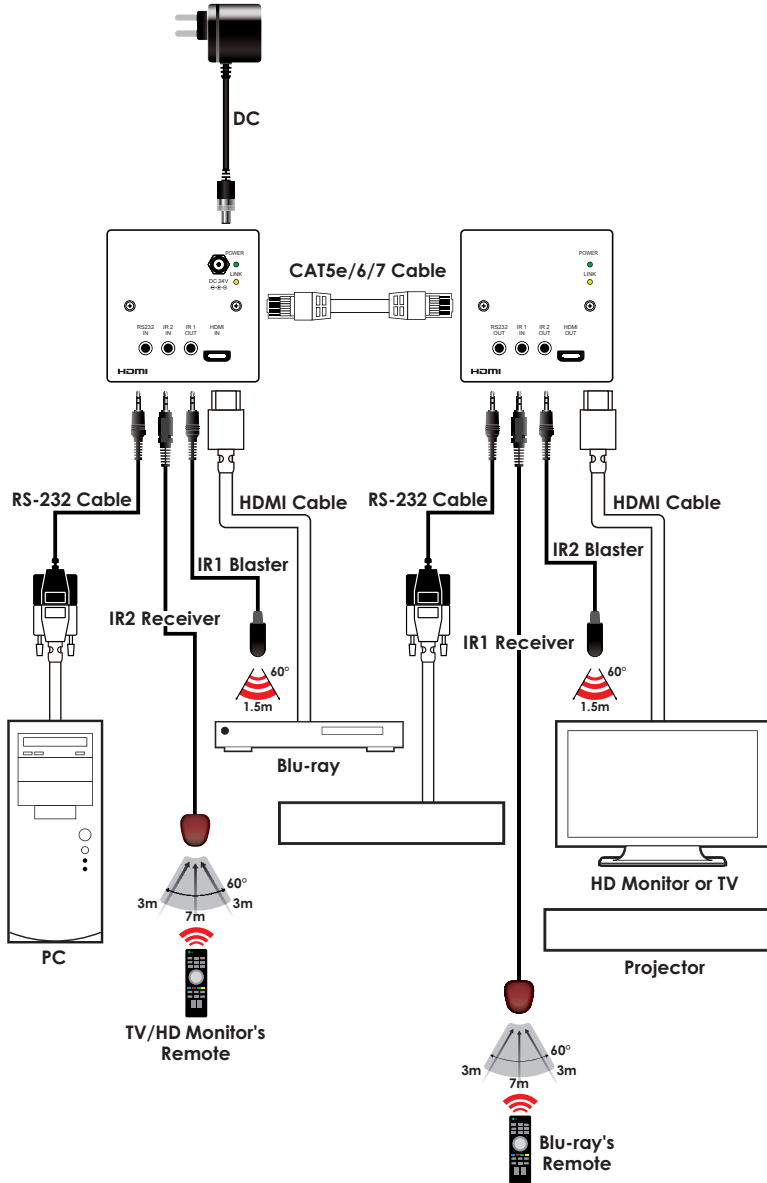
- 1 **RS-232 OUT:** This slot is to connect with 3.5Ø phone jack RS-232 cable from device equipment for receiving RS-232 commands.
- 2 **IR 1 IN:** This slot is to connect with the IR receiver cable included in the package for IR signal receiving.
- 3 **IR 2 OUT:** This slot is to connect with the IR blaster cable included in the package for IR signal transmitting.
- 4 **HDMI OUT:** This slot is to connect with HDMI TV/monitor for display HDMI input source signal.
- 5 **Power LED:** This green LED will illuminate when the device is connected to a power supply.
- 6 **LINK LED:** This yellow LED will illuminate when the both CAT5e/6/7 input and output signal is connected.
- 7 **CAT5e/6/7 In:** This slot is to be connected with a single CAT5e/6/7 cable from transmitter side for data transmitting.



7. 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 |

8. CONNECTION DIAGRAM





9. SPECIFICATIONS

| | |
|------------------------------|---|
| HDMI Bandwidth | 10.2Gbps |
| HDBaseT Bandwidth | 10.2Gbps |
| 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×RS-232, 1×IR Blaster |
| IR Frequency | 30 - 50kHz (30 - 60kHz under ideal conditions) |
| Baud Rate | up to 115200/sec |
| Power Supply | 24V / 1.25A DC (US/EU standards, CE/FCC/ UL certified) |
| ESD Protection | Human-body Model: ±8kV (air-gap discharge) ±4kV (contact discharge) |
| Dimensions (mm) | 87(W) x 87(D) x 31(H)/Tx 87(W) x 87(D) x 29(H)/Rx |
| Weight (g) | 200 |
| Chassis Material | Aluminum |
| Silkscreen Color | Black |
| Power Consumption | TX: 3W ; RX: 6W |
| 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) |

9.1 Cable Specifications

| Cable Length | 1080p | | 4K30 | 4K60 |
|------------------------------|-------|--------|---------------|---------------|
| | 8-bit | 12-bit | 8-bit (4:4:4) | 8-bit (4:2:0) |
| High Speed HDMI Cable | | | | |
| HDMI Input | 15m | 10m | 5m | 5m |
| HDMI Output | 15m | 10m | 5m | 5m |
| Ethernet Cable | | | | |
| Cat.5e/6/7 | 100m | | 70m | |

- **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



10. 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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