



**4K HDR HDMI 2.0 & USB 2.0  
Extender Over HDBaseT  
with RS-232 & IR  
User Reference Guide**



# Introduction

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The *4K HDR HDMI 2.0 & USB 2.0 Extender Over HDBaseT with RS-232 & IR* extends HDMI transmission distance up to 330ft (100m) at 1080p or 230ft (70m) at 4K over an economical CAT5e/6 cable. Plus, bi-directional extension of IR, RS232 and USB 2.0 for advanced and interactive applications.

## Features and Benefits

- Supports video resolutions up to 4Kx2K @60Hz (4:4:4 8bit) or HDR 4Kx2K @60Hz (4:2:0 10bit) to deliver crystal clear images
- 7.1 Digital sound capabilities as well as uncompressed LPCM and compressed DTS-HD & Dolby True HD for a state-of-the-art entertainment experience
- PoC (Power over Cable) feature, only one power adapter is required to power both the transmitter and receiver units
- Bi-directional IR sensors allow you to remotely control the HDMI source device from the remote display side or control the remote display from the source device side
- Supports 3D, CEC, HDMI 2.0 and HDCP 2.2 protocols. Bandwidth up to 18Gb/s
- ARC feature allows you to free the audio from on-demand content within a Smart TV with ARC
- Premium metal housing with ventilation panels improve heat dissipation for enhanced safety and stability
- Built-in phoenix connector for RS232 control signal transmission or firmware update. Included mounting ears for easy installation

# Specifications

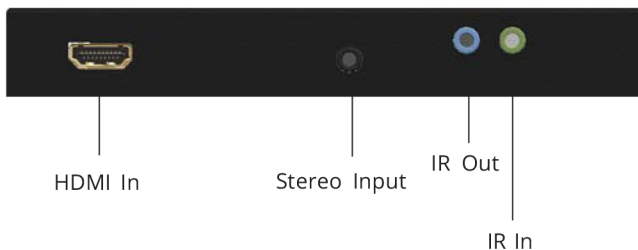
Compliance	HDMI 2.0a / HDCP 2.2
Resolution	HDR 4Kx2K @60Hz (4:2:0 10bit) / 4Kx2K@60Hz (4:4:4 8bit)
Audio	LPCM, DTS-HD and Dolby True HD (7.1CH)
Transmission Distance	HDR 4Kx2K @60Hz: Up to 70m 1080p @60Hz: Up to 100m
IR Signal Frequency	20KHz to 60KHz
Connectors	<u>TX:</u> 1x 19-pin HDMI Type-A, Female 1x 3.5mm audio jack (Stereo) 1x 3.5mm IR Blaster 1x 3.5mm IR Receiver 1x 9-pin USB Type-A, Female (Device) 1x Micro USB, Female (Host) 1x Dip switch 1x 3-pin phoenix connector (RS-232) 3x LED indicator (Power/Link/Signal) 1x 8-pin RJ45 1x Power jack <u>RX:</u> 1x 19-pin HDMI Type-A, Female 1x 3.5mm audio jack (Stereo) 1x S/PDIF output 1x 3.5mm IR Blaster 1x 3.5mm IR Receiver 1x 9-pin USB Type-A, Female (Device) 1x Micro USB, Female (Host) 1x Dip switch 1x 3-pin phoenix connector (RS-232) 3x LED indicator (Power/Link/Signal) 1x 8-pin RJ45 1x Power jack
Housing Material	Metal
Power Adapter	Input: AC 100-240V/ 50~60Hz Output: DC 24V / 1A

## Package Contents

- *4K HDR HDMI 2.0 & USB 2.0 Extender (TX & RX)*
- Power adapter
- IR blaster extension cable & IR receiver extension cable
- Mounting ears & Screw kit
- Terminal block
- User Reference Guide

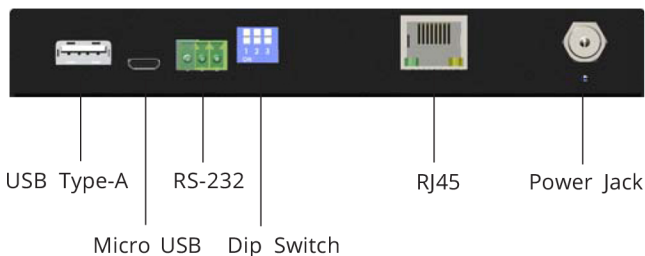
# Layout

**Note:** With PoC technology, only one power adapter is needed to power both the Transmitter and Receiver.



**Figure 1: Transmitter (TX) - front**

- **HDMI In:** Connect your HDMI source here with an HDMI cable (cable not included)
- **Stereo Input:** Provides a channel to extend an external analog audio to receiver over HDBaseT
- **IR Out:** Infrared 3.5mm socket. Plug IR Blaster extension cable here. See instructions on page 8.
- **IR In:** Infrared 3.5mm socket. Plug IR Receiver extension cable here. See instructions on page 8.



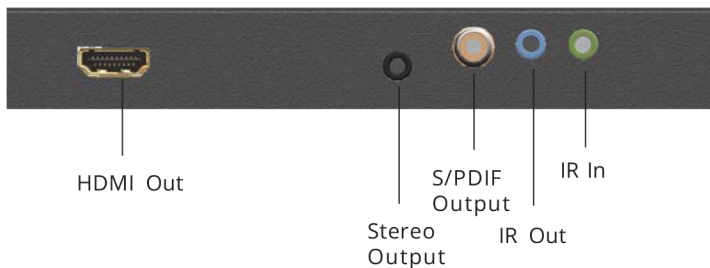
**Figure 2: Transmitter (TX) - rear**



- **USB Type-A:** Connect to USB Device
- **Micro USB:** Connect to USB Host
- **Phoenix connector (RS232):** Connect to the included terminal block and RS-232 connector (not included), then connect to a serial port device or computer for data transferring
- **Dip Switch:** Refer to below table for configuration
  - ON: In lower position
  - OFF: In upper position

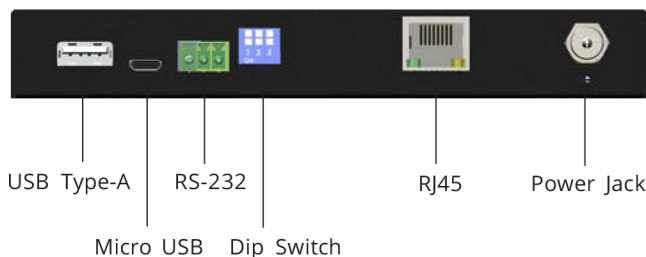
DIP Switch Position			Description
Pin 1 (option 1)	TX	On (default)	Connect Micro USB port to USB Host
	RX	OFF (default)	Connect USB device to Type-A port
Pin 1 (option 2)	TX	OFF	Connect USB device to Type-A port
	RX	ON	Connect Micro USB port to USB Host
Pin 2 & 3	Pin 2 (TX & RX)	Pin 3 (TX & RX)	
	ON	ON	HDBaseT firmware update
	ON	OFF	HDBaseT monitor mode
	OFF	ON	System firmware update
	OFF (default)	OFF (default)	HDMI extender mode

- **RJ45 (HDBT Out):** Connect the Cat5e/6 cable
- **Power Jack:** Connect the included 24V DC power adapter here (or the Receiver's power jack)



**Figure 3: Receiver (RX) - front**

- **HDMI Out:** Connect your HDMI display with an HDMI cable (cable not included)
- **Stereo Output:** External analog audio output from transmitter over HDBaseT
- **S/PDIF Output:** Local ARC output
- **IR Out:** Infrared 3.5mm socket. Plug [IR Blaster](#) extension cable here. See instructions on page 8.
- **IR In:** Infrared 3.5mm socket. Plug [IR Receiver](#) extension cable here. See instructions on port 8.



**Figure 4: Receiver (RX) - rear**

- **USB Type-A:** Connect to USB Device
- **Micro USB:** Connect to USB Host
- **Phoenix connector (RS232):** Connect to the included terminal block and RS-232 connector (not included), then connect to a serial port device or computer for data transferring
- **Dip Switch:** Refer to the table on page 5 for details.
- **RJ45 (HDBT In):** Connect the Cat5e/6 cable
- **Power Jack:** Connect the included 24V DC power adapter here (or the Transmitter's power jack)

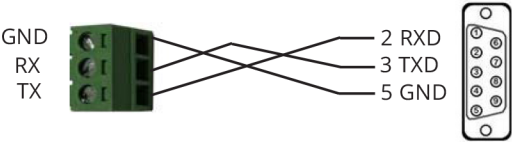
# RS-232 Wire Connection

- 1. Insert the included terminal block to **Phoenix connector**.



Figure 5

- 2. Connect the wires (not included) to the included Terminal Block and the RS232 connector as below diagram.
  - Via pin to pin (Parallel) connector or cable:



- Via null connector or cable:

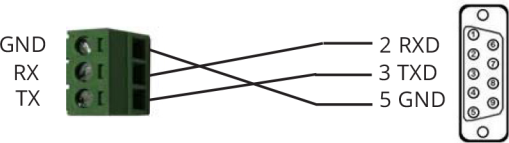


Figure 6

## IR Extenders (20~60kHz IR devices supported)



Figure 7: IR Blaster cable  
(Connect to IR Out)



Figure 8: IR Receiver cable  
(Connect to IR In)

- **IR Blaster cable:** Plug into the Transmitter's or Receiver's IR Out to emit IR signals
- **IR Receiver cable:** Plug into the Receiver's or Transmitter's IR In to receive IR signals

Control your media player (such as DVD) at the TV side using the media player's remote controller

- Plug the **IR Receiver** cable to the **Receiver's IR In** port
- Plug the **IR Blaster** cable to the **Transmitter's IR Out** port.

Control your TV at the media player side using the TV's remote controller

- Plug the **IR Receiver** cable to the **Transmitter's IR In** port.
- Plug the **IR Blaster** cable to the **Receiver's IR Out** port.

**Important Note:** Incorrect placement of IR Receiver and IR Blaster cables may result in cable failures. Please check carefully before plugging in the IR cables to proper IR sockets.

## Hardware Installation

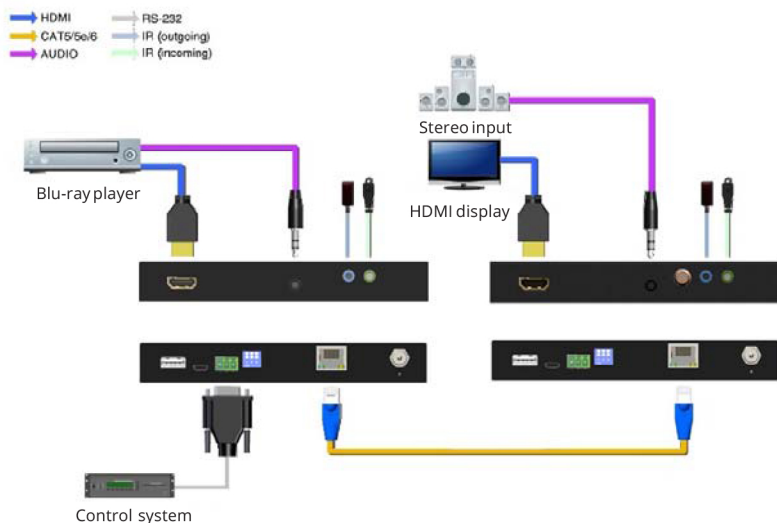
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**Note:** To achieve optimal performance, a shielded 100% copper wire CAT6/7 cable is recommended.

1. Power off all devices including your HDMI source and display.
2. Connect your HDMI source to the Transmitter's **HDMI IN** connector with an HDMI cable (not included).
3. Optional: Connect the IR Receiver or Blaster extension cable according to the instructions on page 8.
4. Connect USB Host/Device to both TX and RX units.
5. Connect audio source to TX and audio receiver/speaker to RX unit.
6. Connect your HDMI display to the Receiver's **HDMI OUT** connector with a HDMI cable (not included).
7. Optional: Connect the IR Receiver or Blaster extension cable according to the instructions on page 8.
8. Connect and link the Transmitter and Receiver by a CAT5e/6 cable.
9. Plug the included power adapter into the Transmitter's or Receiver's **Power Jack**, then plug the power adapter into a reliable power outlet. (Note: It's recommended to connect it to the Transmitter)
10. Power on your HDMI device and HDMI display.
11. The HDMI Extender is ready for use.

## Application

Extends HDMI signals such as game consoles, DVD players or computers up to 100m (330ft). Equipped with bi-directional IR pass-through path, RS-232 serial port control and USB 2.0, offers the convenient path for interactive applications, such as touch panels. Makes it a great solution for digital signage with long distance A/V transmission.



\* When using the remote control, please make sure its distance to the IR Receiver extension cable is within 5m (16.4ft) and without obstructions.

### Figure 9: Application