

4K HDMI over HDBaseT™ 2.0 Extender Set with Ethernet | USB 2.0 | S/PDIF | IR & RS-232 (100m/328ft)

EX-100-4K-PRO



Quickstart Guide

Fully featured HDMI extender set using HDBaseT 2.0 specification allowing 4K video, HD audio, Ethernet, USB, Power and control over 100m/328ft of Cat6 cable.

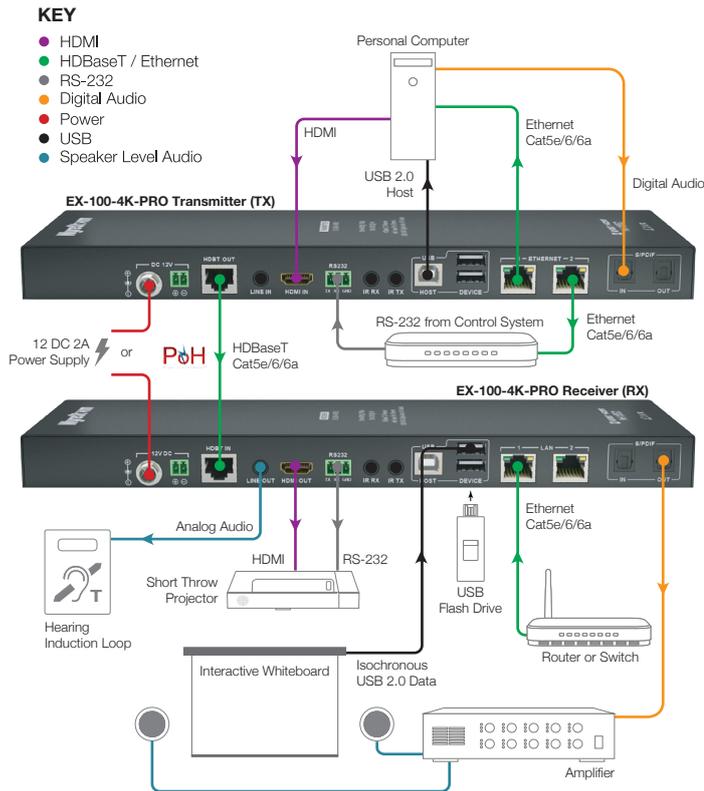
WyreStorm recommends reading through this document in its entirety to become familiar with the product's features prior to starting the installation process.



In the Box

- 1x EX-100-4K-PRO Transmitter
- 1x EX-100-4K-PRO Receiver
- 1x 12V DC 2A Power Supply (US/UK/EU)
- 2x 2-pin Screw Down Phoenix Connectors
- 2x 3-pin Screw Down Phoenix Connectors
- 2x IR Emitters
- 2x Wide-band IR Receivers (30-50KHz)
- 4x Mounting Brackets (1pr for TX and 1pr for RX)
- 1x Quickstart Guide (this document)

Basic Wiring Diagram



IMPORTANT!

Do not connect or disconnect (hot plug) the HDMI, or HDBaseT connections while the transmitter or receiver is powered on. Doing so may cause damage to the units or connected devices.

Disconnecting and connecting (hot plugging) HDMI or HDBaseT while devices are powered on may cause damage. WyreStorm recommends powering off devices before disconnecting these connections.

Before Beginning

WyreStorm recommends visiting the product page before installing this product for updates to this Quickstart Guide as well as other information about this product.

Verify that all items are included in the packaging per the [In The Box](#) list.

Pre Wire

1. Run a Cat5e/6/6a cable from the transmitter location to the receiver location. Terminate the cable per the [HDBaseT Wiring](#) section.
2. (Optional) If using IR emitters or 3rd party connecting blocks at either the transmitter or receiver, run the wire and terminate per the [IR TX \(Emitter\) Wiring](#) section.
3. (Optional) If using IR receivers or an IR control system at either the transmitter or receiver, run the wire and terminate per the [IR RX \(Receiver\) Wiring](#) section.
4. (Optional) If using RS-232 pass-through, run the wire and terminate per the [RS-232 Wiring](#) section.

Transmitter Installation

1. Connect an HDMI source to the **HDMI In** on the transmitter using an HDMI cable from a high quality brand such as [WyreStorm Express](#).
2. Using the cable created in [Pre Wire](#) step 1, connect the 8-pin RJ-45 female plug to the **HDBT Out** jack on the transmitter.
3. (Optional) Place an IR emitter onto the source device near the device's IR sensor and connect the opposite end to an **IR TX** port.
4. (Optional) Connect an IR Receiver to the transmitters **IR RX** port. If using a control system, connect it to an **IR RX** port on the transmitter using the [WyreStorm CAB-IR-LINK](#) or the cable created in [Pre Wire](#) step 3.
5. (Optional) Using the cable created in [Pre Wire](#) step 4, connect the 3-pin connector to the **RS-232** port on the transmitter and the opposite end to a port on a control system.
6. (Optional) If using audio sent from the remote display via HDBaseT, connect the **S/PDIF Out** to a TosLink digital input on an AV Receiver or amplifier.
7. If using PoH from the transmitter to power the receiver, connect the included 12V DC 2A power supply to the **DC 12V** jack.

Receiver Installation

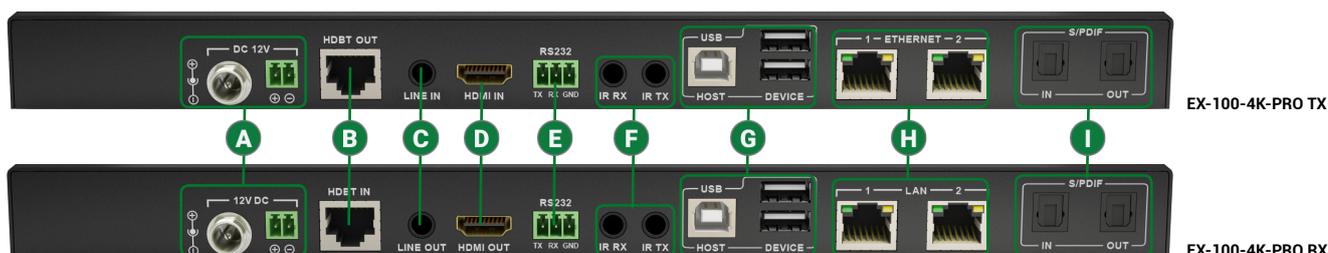
1. Connect the **HDMI Out** on the receiver to an input on the display using an HDMI cable from a high quality brand such as [WyreStorm Express](#).
2. Using the cable created in [Pre Wire](#) step 1, connect the 8-pin RJ-45 female plug to the **HDBT In** jack on the receiver.
3. (Optional) Place an IR emitter onto the display device near the device's IR sensor and connect the opposite end to an **IR TX** port.
4. (Optional) Connect an IR Receiver to the receivers **IR RX** port. If using a control system, connect it to an **IR RX** port on the receiver using the [WyreStorm CAB-IR-LINK](#) or the cable created in [Pre Wire](#) step 3.
5. (Optional) Using the cable created in [Pre Wire](#) step 4, connect the 3-pin connector to the **RS-232** port on the receiver and the opposite end to the port on the display device.
6. If using PoH from the receiver to power the transmitter, connect the included 12V DC 2A power supply to the **DC 12V** jack.

Front Panel (TX/RX)



A Set	3 Position Dipswitch: Used to enables/disable long cable mode, configure RS-232 port, and configure USB mode. See Dipswitch Settings .
B Power LED	Solid: The transmitter is powered On Off: The transmitter is powered Off
C Status LED	Flashing: The transmitter is operating normally Off: The transmitter is Not operating normally
D HDCP LED	Solid: Audio and Video signal is HDCP protected. Flashing: Audio and Video signal is not HDCP protected. Off: No Audio and Video signal.
E LINK LED	Solid: Link to receiver has been established. Flashing: Link to receiver has not been established.

Rear Panel (TX/RX)



A Power In	5.5mm Male Barrel Jack 2-pin Screw Down Phoenix Connector Connect to the included 12V DC 2A power supply. Only connect to either the transmitter or receiver when using PoH. See Power Supply Wiring .
B HDBT Out (TX) HDBT In (RX)	8-pin RJ-45 female Connect the transmitter HDBT Out to receiver HDBT In using the cable created in Pre Wire step 1.
C Line In (TX) Line Out (RX)	3.5mm (1/8in) Stereo Jack In: Connect to the analog audio output of a device to send audio to the remote display location via HDBaseT. Out: Connect to an analog audio input of a device to receive audio from the remote display location via HDBaseT.
D HDMI In (TX) HDMI Out (RX)	19-pin type A HDMI female digital video/audio: Supports HDMI and DVI/D (requires adapter-not included). Limited to 297MHz pixel clock
E RS-232	3-pin Screw Down Phoenix Connector Used to send and receive RS-232 signals to/from the source and remote locations via HDBaseT and firmware updates. See RS-232 Wiring .
F IR TX/RX	3.5mm (1/8in) Mono Plug IR TX: Connect to the supplied IR emitter to control a local device from the remote display location via HDBaseT. IR RX: Connect to the supplied IR receiver to send IR to the remote display location via HDBaseT. See IR Wiring .
G USB	Host: Connect to a PC or other device to control via USB peripherals Device: Connect USB peripherals to control a device connected to USB Host
H LAN	8-pin RJ-45 female 10/100 Mbps auto-negotiating Connect to a Local Area Network or network device for Ethernet pass-through via HDBaseT.
I S/PDIF In/Out	TOSLink (Digital Optical) In: Connect to the S/PDIF digital audio output of a device to send audio to the remote display location via HDBaseT. Out: Connect to the S/PDIF digital audio input of a device to receive audio the remote display location via HDBaseT.

HDBaseT Wiring



IMPORTANT! Wiring Guidelines

- 4K UHD resolutions require more bandwidth than 1080p, for this reason Wyrestorm recommends using Cat6 or higher cable to ensure proper 4K UHD transmission.
- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference can have an adverse effect on HDMI and HDBaseT transmission limiting performance.
- If a patch panel is being used, Cat6a or higher cable must be used from the matrix to the receiver as well as inside the panel to avoid loss of signal.
- While similar in nature, the HDBaseT protocol is different than Ethernet and voltages provided for PoH can be higher than those provided by PoE. For this reason, never connect an HDBaseT link to an Ethernet router or switch to avoid damaging the connected devices.

Wiring for HDBaseT follows the EIA T568B standard.



Resolution Distances

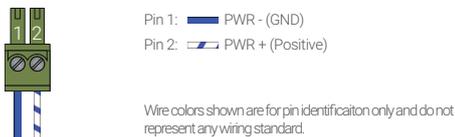
The type of category cable used and the distance between the matrix and receiver can restrict the available video resolution. Refer to **Video Resolutions** in the **Specifications** table for the max distance based on resolution.

Note:

- Transmitter and receiver must have long cable mode enabled to reach 150m/492ft. See Dipswitch Settings.
- When connected to a class B HDBaseT receiver, the supported distance is limited to 70m/230ft 1080p.

Power Supply Wiring

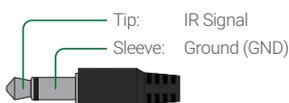
The EX-100-4K-PRO can supply power via PoH to the receiver or transmitter. The included power supply must be used on either the transmitter or receiver in order for PoH to power the opposite device. The power supply can connect using either the attached barrel connector or the included 2-pin Screw Down Phoenix Connector.



IR Wiring

IR TX (Emitter) Wiring

Connection for IR TX (transmit) uses a 3.5mm (1/8in) mono plug.



IR RX (Receiver) Wiring

Connection for IR RX (receive) uses a 3.5mm (1/8in) stereo jack that outputs +5V DC to power the included IR receiver.

IMPORTANT! IR TX Connection Guidelines

3rd party IR receivers may require a different voltage, refer to the documentation provided with the IR receiver before making any connections to avoid damaging the device.

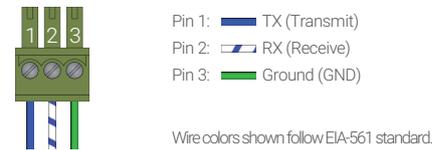
When connecting to an IR control system use the **WyreStorm CAB-IR-LINK** stereo to mono cable to remove the sleeve +5V DC.



RS-232 Wiring

RS-232 Connection Guidelines

Most control systems and computers are DTE where pin 2 is RX, this can vary from device to device. Refer to the documentation for the connected device for pin functionality to ensure that the correct connections can be made.



Line In/Out Wiring

Connection for Line In/Out uses a 3.5mm (1/8in) stereo jack.



Dipswitch Settings

The dipswitches on the front panel configure various functions within the EX-100-4K-PRO.

Note:

- Switches that are greyed out can be in any position for the desired function.

RS-232 Passthrough		RS-232 Firmware Update	
USB Host		USB Device	
Long Cable Mode Disabled		Long Cable Mode Enabled	

Specifications

Audio and Video	
Inputs	Transmitter 1x HDMI 19-pin type A 1x Line In 3.5mm (1/8in) Stereo Jack 1x S/PDIF In TOSLINK (Digital Optical)
	Receiver 1x S/PDIF In TOSLINK (Digital Optical)
Outputs	Transmitter 1x S/PDIF Out TOSLINK (Digital Optical)
	Receiver 1x HDMI 19-pin type A 1x Line Out 3.5mm (1/8in) Stereo Jack 1x S/PDIF Out TOSLINK (Digital Optical)
Audio Formats	2ch PCM Up to 7.1 DTS-X and Dolby Atmos
Video Resolution (Max)	HDMI 1920x1080 @60Hz 48bit (15m/50ft) 4096x2160p @60Hz 24bit 4:2:0 (7m/23ft)
	Using Cat5/5e 1920x1080@60Hz 36bit (100m/328ft) 1920x1080@60Hz 3D 36bit (100m/328ft)
	Using Cat6/6a 1920x1080@60Hz 36bit (150m/492ft) 1920x1080@60Hz 3D 36bit (150m/492ft)
	3840x2160p@24/25/30Hz 4:4:4 24bit (100m/328ft) 4096x2160p@60Hz 4:2:0 24bit (100m/328ft)
	3840x2160p@60Hz 4:2:0 24bit (100m/328ft)
Color Depth	1080p: 48bit 4K UHD: 24bit
Maximum Pixel Clock	297 MHz
Communication and Control	
HDMI	HDCP 2.2 CEC DVI/D supported with adapter (not included)
HDBaseT	1x 8-pin RJ-45 female HDCP 2.2 CEC PoH (2-way) Bidirectional IR and RS-232
Ethernet	2x 8-pin RJ-45 female 10/100 Mbps auto-negotiating
IR	1x 3.5mm (1/8in) Mono – IR TX 1x 3.5mm (1/8in) Stereo – IR RX Bidirectional over HDBaseT
RS-232	1x 3-pin Screw Down Phoenix Connector Bidirectional over HDBaseT
USB 2.0	1x USB Type A: Local Host Control 2x USB Type B: Remote Host over HDBaseT

Warranty Information

This product is covered by a 3 year limited parts and labor warranty. During this period there will be no charge for unit repair, component replacement or complete product replacement in the event of malfunction. The decision to repair or replace will be made by the manufacturer. This limited warranty only covers defects in materials or workmanship and excludes normal wear and tear or cosmetic damage.

Visit the product page located at wyrestorm.com for additional information on this product including important technical information not provided in this document and warranty terms & conditions.

Power	
Power Supply	1x 5.5mm Male Barrel Jack
	1x 2-pin Screw Down Phoenix Connector Input: 100~240V AC 50/60Hz Output: 12V DC 2A
Max Power Consumption	26.5W
PoH (2-way)	48V 15.4W
Environmental	
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) 10% ~ 90%, non-condensing
Storage Temperature	-4°F to ~ 158°F (-20°C ~ +70°C) 10% ~ 90%, non-condensing
Dimensions and Weight	
Height	20mm/0.79in
Width	272mm/10.70in
Depth	99mm/3.89in
Weight	0.72kg/1.58lbs
Regulatory	
Safety and Emission	CE FCC

Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that power is connected to the transmitter and receiving device. If using a display with a built in receiver, verify that the device is powered on.

Note: When using PoH, to power the transmitter, verify that the HDBaseT cable is properly terminated per the [HDBaseT Wiring](#) section.

- Verify that the matrix, receiver, and display support the output resolution of the source. Refer to [Video Resolutions](#) in the [Specifications](#) table.
- Verify that the HDBaseT cable is properly terminated per the [HDBaseT Wiring](#) section.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.

No or Intermittent 3rd party Device Control

- Verify that the IR cable(s) is properly terminated. See [IR Wiring](#)
- Verify that the IR emitter is located near the IR receiver on the device.

Troubleshooting Tips:

- WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.
- Use a flashlight to locate the IR receiver behind any tinted panels on the device being control.

