4K HDBaseT Extender Set
with Bi-directional IR | RS-232 | PoH (35m/115ft)

EX-35-4K
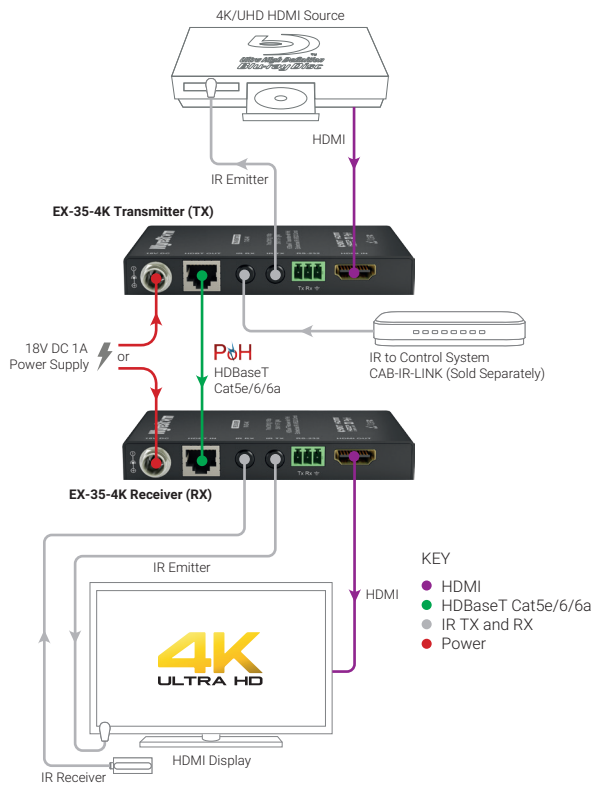
WyreStorm
Quickstart Guide

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

4K ULTRA HD | **HDBT** | **HDMI** | **HDCP 2.2** | **PoH**

In the Box

1x TX-35-4K Transmitter
1x RX-35-4K Receiver
1x 18V DC 1A Power Supply (US/UK/EU)
2x 3-pin Screw Down Phoenix Connectors
2x Wide-band 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

4K/UHD HDMI Source
HDMI
IR Emitter
EX-35-4K Transmitter (TX)
18V DC 1A Power Supply   or
PoH
HDBaseT Cat5e/6/6a
IR to Control System CAB-IR-LINK (Sold Separately)
EX-35-4K Receiver (RX)
IR Emitter
HDMI
KEY
● HDMI
● HDBaseT Cat5e/6/6a
● IR TX and RX
● Power
4K ULTRA HD
HDMI Display
IR Receiver

⚠ **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.

Additional Information

This Quickstart Guide provides the basic steps for the common uses of this product. Refer to the Installation Guide and other documentation on the product page for additional information.

Installation

Before Beginning

- WyreStorm recommends visiting the product page before installing this product for updates to this Quickstart Guide as well as other information about the 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 3rd party IR emitters or connecting blocks at either the transmitter or receiver, run the wire and terminate per the IR TX (Emitter) Wiring section.
3. (Optional) If using RS-232 pass-through, run the wire and terminate per the RS-232 Wiring section.
4. (Optional) If using 3rd party IR receivers at either the transmitter or receiver, run the wire and terminate per the IR RX (Receiver) 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. (Optional) Place an IR emitter onto the source device near the device's IR receiver and connect it the **IR TX** port.
3. Connect the cable created in Pre Wire step 1 to the **HDBT Out**.
4. (Optional) Connect the 3-pin connector to the **RS-232** port on the transmitter and the opposite end to a port on a control system.
5. If using PoH from the transmitter to power the receiver, connect the included 18V DC 1A power supply to the **18V DC 1A** 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. (Optional) Place an IR emitter onto the source device near the device's IR receiver and connect it the **IR TX** port.
3. Connect the cable created in Pre Wire step 1 to the **HDBT In**.
4. (Optional) If using RS-232 pass-through, connect the 3-pin connector to the **RS-232** port on the receiver and the opposite end to a port on the device being controlled.
5. If not using PoH from the receiver to power the transmitter, connect the included 18V DC 1A power supply to the **18V DC 1A** jack.
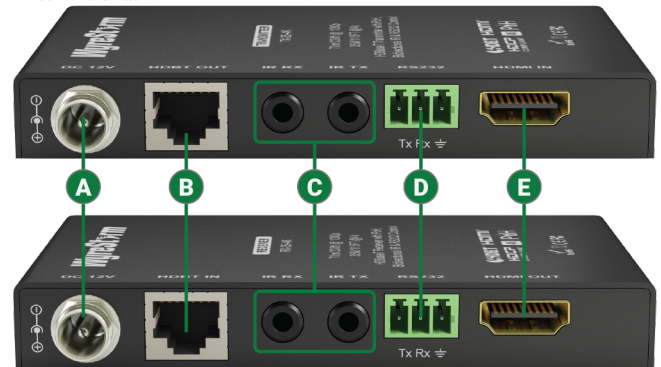
Front Panel (TX/RX)

TX-35-4K Transmitter

RX-35-4K Receiver

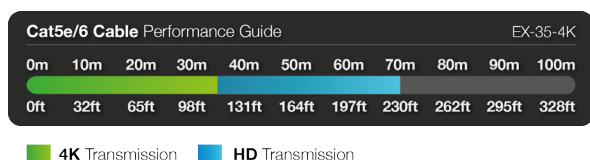|		
A	RS-232 Mode	Switches the mode for the RS-232 port. **Normal:** RS-232 HDBaseT pass-through **Update:** RS-232 firmware update
B	Power LED	**Solid:** The transmitter is powered On **Off:** The transmitter is powered Off
C	Status LED	**Flashing:** The transmitter is operating normally. **Off:** The transmitter is Not operating normally.
D	LINK LED	**Solid:** Link to receiver has been established. **Flashing:** Link to receiver has not been established.
E	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.

Rear Panel (TX/RX)

TX-35-4K Transmitter

RX-35-4K Receiver

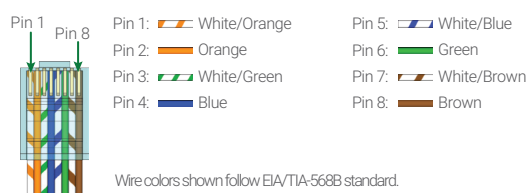|		
A	Power In	5.5mm Male Barrel Jack Connect to the included 18V DC 1A power supply. Only connect to the transmitter when using PoH. See Power Supply Wiring.
B	HDBT Out (TX) HDBT In (RX)	8-pin RJ-45 female Connect the transmitter **HDBT Out** to receiver **HDBT In**. See HDBaseT Wiring.
C	IR TX/RX	3.5mm (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 via HDBaseT. See IR Wiring.
D	RS-232	3-pin Screw Down Phoenix Connector Used to send and receive RS-232 signals to/from the source location via HDBaseT and firmware updates. See RS-232 Wiring.
E	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

HDBaseT Wiring

Cat5e/6 Cable Performance Guide   EX-35-4K

0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft

■ **4K** Transmission   ■ **HD** Transmission

⚠ **IMPORTANT! Wiring Guidelines**
- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference can have an adverse effect on HDBaseT transmission limiting performance. Steps should be taken to minimize these factors (or remove completely) during installation for best results.
- 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.

Pin 1   Pin 8

Pin 1:	White/Orange	Pin 5:	White/Blue
Pin 2:	Orange	Pin 6:	Green
Pin 3:	White/Green	Pin 7:	White/Brown
Pin 4:	Blue	Pin 8:	Brown

Wire colors shown follow EIA/TIA-568B standard.

Supported Video Resolutions

The type of category cable used and the distance between the transmitter and receiver can restrict the available video resolution.

Cable Type	Range	Supported Resolution
Cat5/5e/6	60m/197ft	1080p@60Hz 36bit
	35m/115ft	1080p@60Hz 3D 4K@60Hz 4:2:0
Cat6a	70m/230ft	1080p@60Hz 36bit
	40m/131ft	1080p@60Hz 36bit 1080p@60Hz 3D
	35m/115ft	4K@60Hz 4:2:0

IR Wiring

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

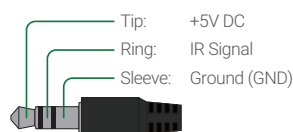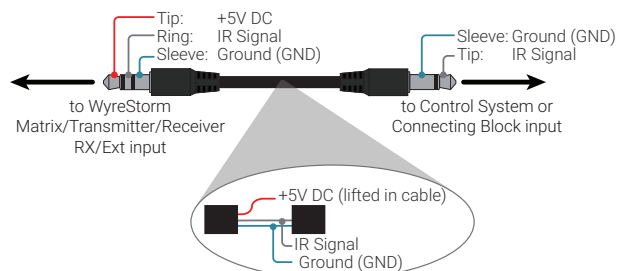| Tip:	IR Signal
Sleeve:	Ground (GND)

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 Guidlines**
- 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.

Tip:	+5V DC
Ring:	IR Signal
Sleeve:	Ground (GND)

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

Tip: +5V DC
Ring: IR Signal
Sleeve: Ground (GND)

Sleeve: Ground (GND)
Tip: IR Signal

to WyreStorm Matrix/Transmitter/Receiver RX/Ext input

to Control System or Connecting Block input

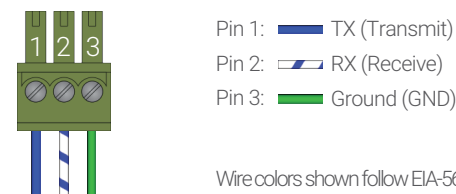+5V DC (lifted in cable)
IR Signal
Ground (GND)

RS-232 Wiring

RS-232 Connection Guidelines
The following wiring diagram shows the pinouts for the extender set. While not shown, connect the TX (transmit) to RX (receive) pins at the control system or PC side of the cable.

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 functionally to ensure that the correct connections can be made.

1 2 3

Pin 1:	TX (Transmit)
Pin 2:	RX (Receive)
Pin 3:	Ground (GND)

Wire colors shown follow EIA-561 standard.

Power Supply Wiring
The EX-35-4K can supply power via PoH to the receiver or transmitter. The included power supply must be used on the transmitter in order for PoH to power the receiver device.

Specifications

Audio and Video

	Transmitter	**Receiver**
Inputs	1x HDMI 19-pin type A	1x HDBT 8-pin RJ-45 female
Outputs	**Transmitter** 1x HDBT 8-pin RJ-45 female	**Receiver** 1x HDMI 19-pin type A
Audio Formats	2ch PCM | Up to DTS-X and Dolby Atmos	
Video Resolutions (Max)	**HDMI** 1920x1080p @60Hz 48bit (15m/50ft) 3840x2160p @24/25/30Hz 4:4:4 24bit (7m/23ft) 3840x2160p @24Hz 4:2:0 HDR 10bit per channel (3m/9.8ft) 4096x2160p @60Hz 24bit 4:2:0 (7m/23ft)	**Using Cat6/6a/7** 1920x1080p @60Hz 36bit (70m/230ft) 3840x2160p @24/25/30Hz 4:4:4 24bit (35m/115ft) 3840x2160p @24Hz 4:2:0 HDR 10bit per channel (35m/115ft) 4096x2160p @60Hz 4:2:0 24bit (35m/115ft)
Color Depth	1080p: 36bit | 4K UHD: 24bit | HDR @24p: 10bit per channel BT.2020	
Maximum Pixel Clock	297MHz	

Communication and Control

HDMI	HDCP 2.2 | EDID | CEC Pass-through | DVI/D supported with adapter (not included)
HDBaseT	HDCP 2.2 | EDID | PoH (1-way TX to RX) | Bidirectional IR and RS-232
IR	1x IR TX 3.5mm (1/8in) Mono | Bidirectional over HDBaseT 1x IR RX 3.5mm (1/8in) Stereo | Bidirectional over HDBaseT
RS-232	1x 3-pin Screw Down Phoenix Connector | Bidirectional over HDBaseT

Power

Power Supply	Input: 100~240V AC 50/60Hz | Output: 18V DC 1A
Max Power Consumption	8.88W
PoH	48V 15.4W

Environmental

Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) 10% ~ 90%, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C ~ +70°C) 10% ~ 90%, non-condensing
Maximum BTU	30.30 BTU/hr

Dimensions and Weight

Height	15mm/0.6in
Width	109mm/4.3in
Depth	64mm/2.52in
Weight	0.17Kg/0.37lbs

Regulatory

Safety and Emission	CE | FCC | RoHS

Troubleshooting

No or Poor Quality Picture (snow or noisy image)
- Verify that power is being supplied to the transmitter and receiving device and that both devices are powered on.

Note:
When using PoH, to power the receiver, verify that the HDBaseT cable is properly terminated per the HDBaseT Wiring section.

- Verify that the transmitter, receiving device, and display support the output resolution of the source. See Supported Video Resolutions.
- Verify that the receiving device and display support the output resolution of the source.
- If transmitting 3D or 4K, verify that the HDMI cables used are 3D or 4K rated.

- 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 sensor behind any tinted panels on the device being controlled. It will likely appear as a small round disc.

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.