



# HDMI, IR & RS232 over Twisted Pair Extender Set



**PN: 4K-40M-ADV-KIT**  
Version: V1.2.0

**Installation & Specification Guide**

## Introduction

Thank you for purchasing the LightSpeed Technologies® 4K-40M-ADV-KIT HDMI, IR and RS232 extender set. For proper installation and optimum performance, please read the instructions in this manual carefully.

The LightSpeed Technologies 4K-40M-ADV-KIT includes one twisted pair transmitter, one twisted pair receiver, one power supply that provides flexible power to the extender set from either the transmit or receive side, IR and RS232 accessories and mounting brackets.

The extender set features a slim, easy-to-install chassis and powerful signal performance, including HDCP 2.2, HDMI 2.0 and 4K60 4:4:4 compatibility. In addition to HDMI, the 4K-40M-ADV-KIT transmits bi-directional IR and RS232.

## Features

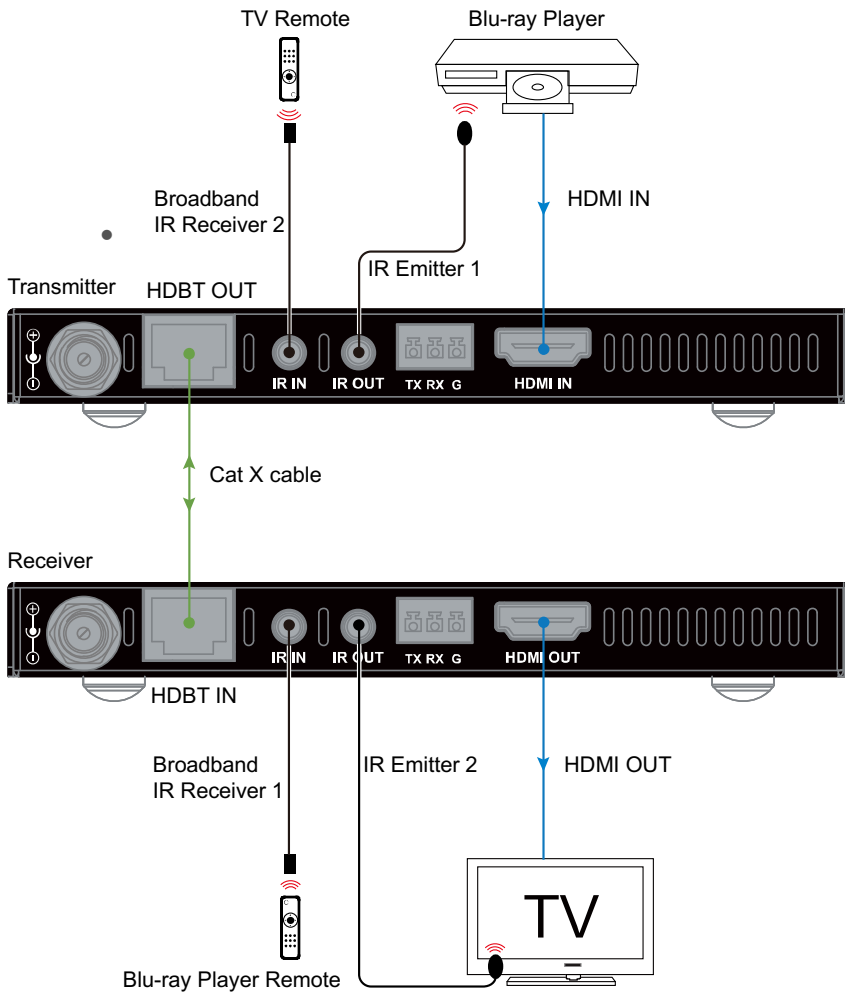
- Engineered and manufactured with genuine HDBaseT components
- Supports video resolutions up to 4K@60Hz 4:4:4 8bit
- Supports HDMI 2.0 and HDCP 2.2
- Supports HDR (High Dynamic Range), including HDR10 and Dolby Vision\*
- Transmits 4K60 HDMI signals up to 40m (130ft) over CAT6A/7 and 35m (115ft) over CAT5E/6
- Transmits 1080P HDMI signals up to 70m (230ft) over CAT6A/7 and 60m (200ft) over CAT5E/6
- Supports audio formats in the HDMI 2.0 specification, including PCM, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X
- Supports bi-directional IR and RS232 pass-through
- Supports bi-directional power (PoC compatible) from either the receiver or transmitter
- Slim chassis with optional mounting brackets for easy installation

\*Note: The 4K-40M-ADV-KIT supports Dolby Vision only if the data rate is less than or equal to 10.2Gbps.

## Package Contents

- 1 x twisted pair transmitter
- 1 x twisted pair receiver
- 1 x power supply (18VDC/1A)
- 1 x IR emitter
- 1 x IR receiver (rated for broadband 30-50KHz)
- 2 x Phoenix-style male connectors (3.5mm, 3 pin)
- 4 x mounting brackets and screws

## Typical Application Diagram



### Installation Notes:

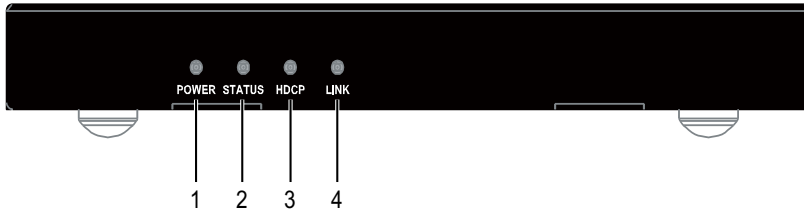
1. Connect the IR receiver to the IR IN port on the transmitter and the IR emitter to the IR OUT port on the receiver.
2. Connect the included 18VDC/1A power supply to the power port on either the transmitter or receiver.

## Specifications

Video	
<b>Input/Output Signal Type</b>	HDMI 2.0, HDCP 2.2, HDR, 3D
<b>Input/Output Resolution Supported</b>	Up to 4096x2160@60Hz, including 4K@60Hz/4K@30Hz/1080P/1080i/720P
<b>Deep color</b>	4K: 8/10/12 bit 1080P: up to 16 bit
<b>Maximum Data Rate</b>	18 Gbps
<b>Maximum Pixel Clock</b>	600MHz
<b>Supported Audio Formats</b>	Fully supports audio formats in the HDMI 2.0 specification, including PCM, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X
Max Distance	
<b>CAT5E/6 (UTP or STP)</b>	1080P/1080i/720P: 60m (200ft) 4K: 35m (115ft)
<b>CAT6A/7 (UTP or STP)</b>	1080P/1080i/720P: 70m (230ft) 4K: 40m (130ft)
<b>HDMI interconnect cables</b>	15m (49ft) for 1080P/1080i/720P 10m (33ft) for 4K60/4K60
General	
<b>Operating Temperature</b>	32°F to 113°F (0°C to 45°C)
<b>Storage Temperature</b>	-4°F to 158°F (-20°C to 70°C)
<b>Humidity</b>	10% to 90%, non-condensing
<b>ESD Protection (Human-body Model)</b>	±8kV (Air-gap discharge) ±4kV (Contact discharge)
<b>Power Supply</b>	18VDC 1A
<b>Power Consumption (Maximum)</b>	13W (Pair, PoC)
<b>Device Dimension (W x H x D)</b>	Transmitter: 5.39" x 0.61" x 2.93" (136.8 mm x 15.4 mm x 74.5 mm) Receiver: 5.39" x 0.61" x 2.93" (136.8 mm x 15.4 mm x 74.5 mm)
<b>Product Weight</b>	Transmitter: 0.53lb (0.24kg) Receiver: 0.53lb (0.24kg)

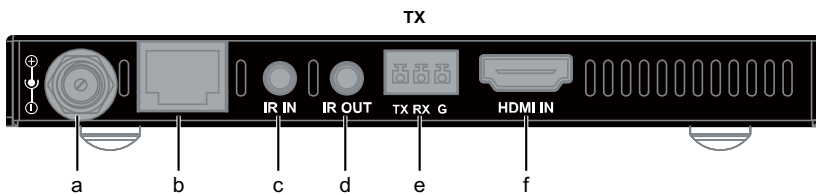
## Panel Descriptions

### Transmitter & Receiver Front Panels



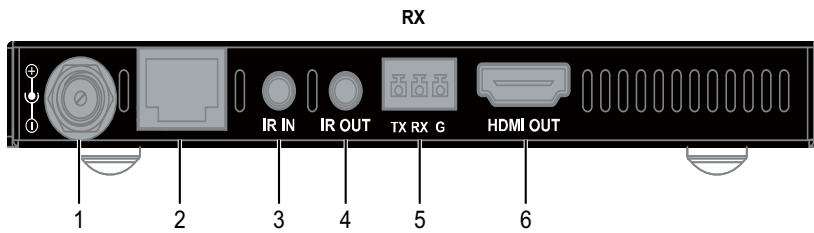
No.	Name	Description
1	<b>POWER LED</b>	On: The device is powered on Off: The device is powered off
2	<b>STATUS LED</b>	Blinking: The device is working properly Off: The device is not active or not working properly
3	<b>HDCP LED</b>	On: HDCP protected content is being transmitted Blinking: Non-HDCP protected content is being transmitted Off: No content is being transmitted
4	<b>LINK LED</b>	On: The link between the transmitter and receiver is normal Blinking/Off: There isn't a link between the transmitter and receiver, or the link has errors

### Transmitter Rear Panel



No.	Name	Description
a	<b>DC 18V</b>	<b>Power adapter port (extender kit only requires power supply on transmitter or receiver)</b>
b	<b>HDBT OUT</b>	<b>Twisted pair cable connection port</b>
c	<b>IR IN</b>	<b>IR receiver port</b>
d	<b>IR OUT</b>	<b>IR emitter port</b>
e	<b>RS232</b>	<b>RS232 port</b>
f	<b>HDMI IN</b>	<b>HDMI cable connection port</b>

**Receiver Rear Panel**

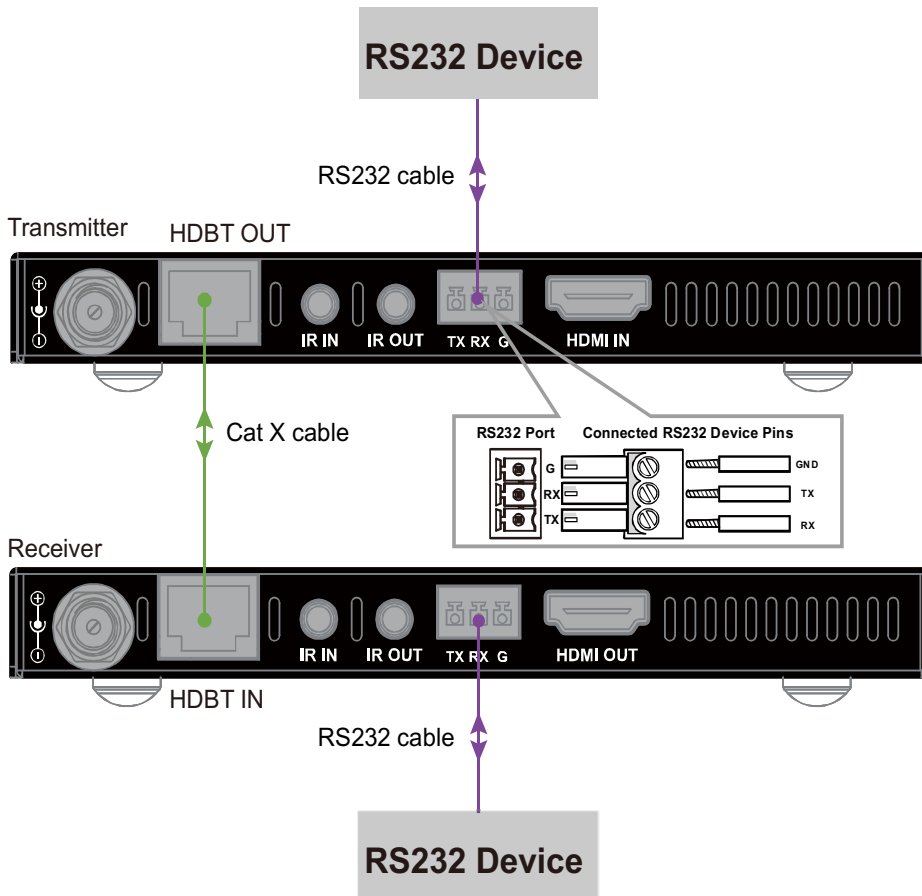


No.	Name	Description
1	DC 18V	Power adapter port (extender kit only requires power supply on transmitter or receiver)
2	HDBT IN	Twisted pair cable connection port
3	IR IN	IR receiver port
4	IR OUT	IR emitter port
5	RS232	RS232 port
6	HDMI OUT	HDMI cable connection port

## RS232 Operation

- G = Ground
- RX = Receive
- TX = Transmit

The 4K-40M-ADV-KIT supports bi-directional RS232 control when connected to RS232-enabled devices and control systems via the Phoenix-style connector. Three pins are present:



## Troubleshooting

### 1. No Power

- Ensure the power is on.
- Ensure the power adapter provided in the package is connected to either the transmitter or receiver
- If power is present on one end only (either the transmitter or receiver), verify the twisted pair cable is connected and terminated according to T568B straight-through standards.

### 2. No Picture or Video Flash

- Ensure all devices are on, and all cables are qualified and connected properly. Ensure all the cables' length are within the maximum distance (refer to **Specification Table** in this manual).
- Ensure all the LED indicators are normal.
- Remove the twisted pair extender set and connect the video source directly to the video display to ensure proper settings and performance.
- Ensure the input resolution is supported by the device.
- Ensure the input resolution is within 4K@30Hz bandwidth (10.2Gbps) when a Dolby Vision signal is transmitted.

### 3. No or Intermittent IR Signal

- Ensure the devices support IR control (not Bluetooth/WIFI).
- Ensure the IR cables provided in the package are being used.
- Ensure the IR cables are installed correctly according to the **Application Diagram** in this manual.
- Verify and, if needed, adjust the control angle and distance of the IR accessories:

IR Cable	IR Emitter	IR Receiver
Suggested Angle	0°	0°
Distance (Max)	30cm	8m

