

HDMI, IR, RS232 & Ethernet over Twisted Pair Extender Set



4K-100M-ADV-KIT
HDMI, IR, RS232 & Ethernet over Twisted Pair Extender Set

Version 1.2.0

Introduction

Thank you for purchasing the LightSpeed Technologies® 4K-100M-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-100M-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 receiver 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-100M-ADV-KIT transmits bi-directional IR, bi-directional RS232 and Ethernet.

Features

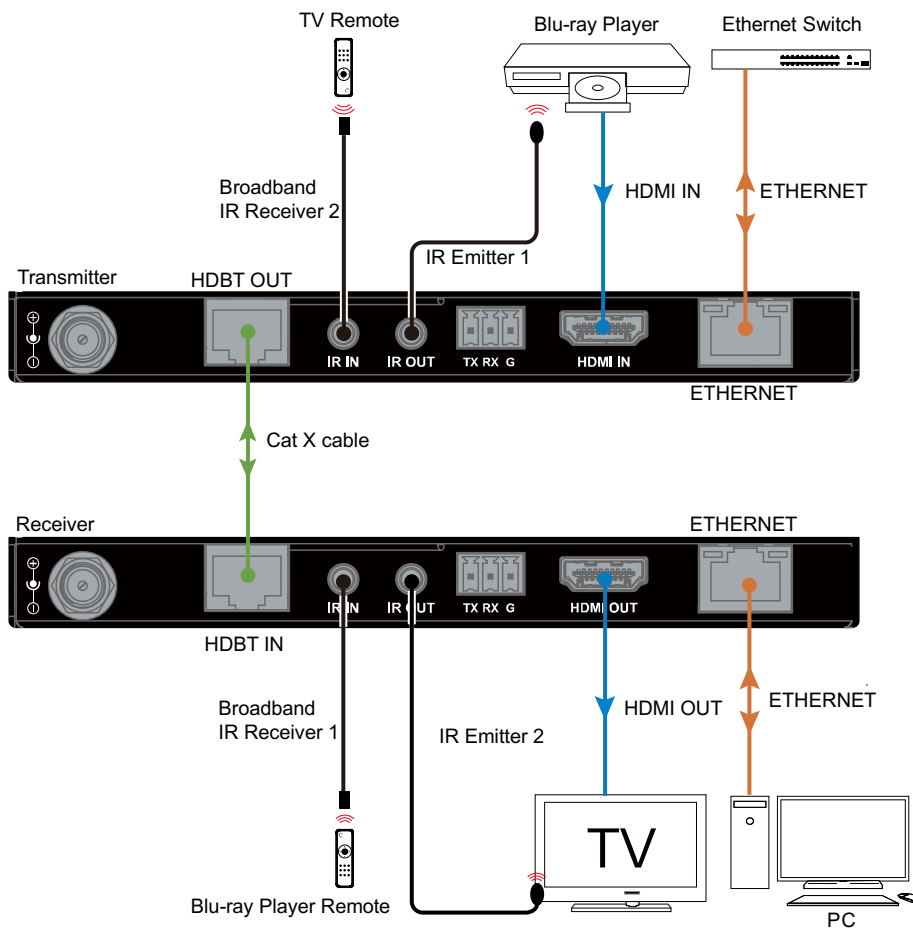
- Engineered and manufactured with genuine HDBaseT components
- Supports video resolutions up to 4K@60Hz 4:4:4 8bit
- Supports HDMI 2.0 and HDCP 2.2
- Supports HDR (High Dynamic Range), including HDR10 and Dolby Vision*
- Transmits 4K60 HDMI signals up to 100m (330ft) over CAT6A/7 and 70m (230ft) over CAT5E/6
- Transmits 1080P HDMI signals up to 100m (330ft) over CAT6A/7 and 100m (330ft) 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 Ethernet 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-100M-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 (12VDC/2A)
- 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 12VDC/2A power supply to the power port on either the transmitter *or* receiver.

Specifications

Video	
Input/Output Signal Type	HDMI 2.0, HDCP 2.2, HDR, 3D
Input/Output Resolution Supported	Up to 4096x2160@60Hz, including 4K@60Hz/4K@30Hz/1080P/1080i/720P
Deep color	4K: 8/10/12 bit 1080P: up to 16 bit
Maximum Data Rate	18 Gbps
Maximum Pixel Clock	600MHz
Supported Audio Formats	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	
CAT5E/6 (UTP or STP)	1080P/1080i/720P: 100m (330ft) 4K: 70m (230ft)
CAT6A/7 (UTP or STP)	1080P/1080i/720P: 100m (330ft) 4K: 100m (330ft)
HDMI interconnect cables	15m (49ft) for 1080P/1080i/720P 10m (33ft) for 4K60/4K60
General	
Operating Temperature	32°F to 113°F (0°C to 45°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Humidity	10% to 90%, non-condensing
ESD Protection (Human-body Model)	±8kV (Air-gap discharge) ±4kV (Contact discharge)
Power Supply	DC 12V 2A
Power Consumption (Maximum)	17.04W (Pair, PoC)
Device Dimension (W x H x D)	Transmitter: 5.91" x 0.62" x 3.75" (150 mm x 15.8 mm x 95.2 mm) Receiver: 5.91" x 0.62" x 3.75" (150 mm x 15.8 mm x 95.2 mm)
Product Weight	Transmitter: 0.57lb (0.26kg) Receiver: 0.57lb (0.26kg)

Note: T568B straight-through category cable is recommended.

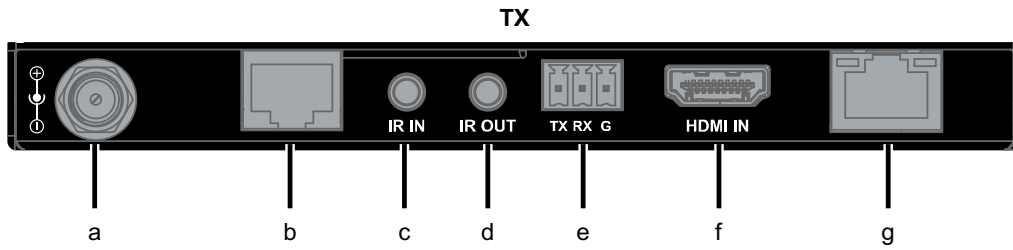
Panel & LED Descriptions

Transmitter & Receiver Front Panels



No.	Name	Description
1	POWER LED	On: The device is powered on Off: The device is powered off
2	STATUS LED	Blinking: The device is working properly Off: The device is not active or not working properly
3	HDCP LED	On: HDCP protected content is being transmitted Blinking: Non-HDCP protected content is being transmitted Off: No content is being transmitted
4	LINK LED	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

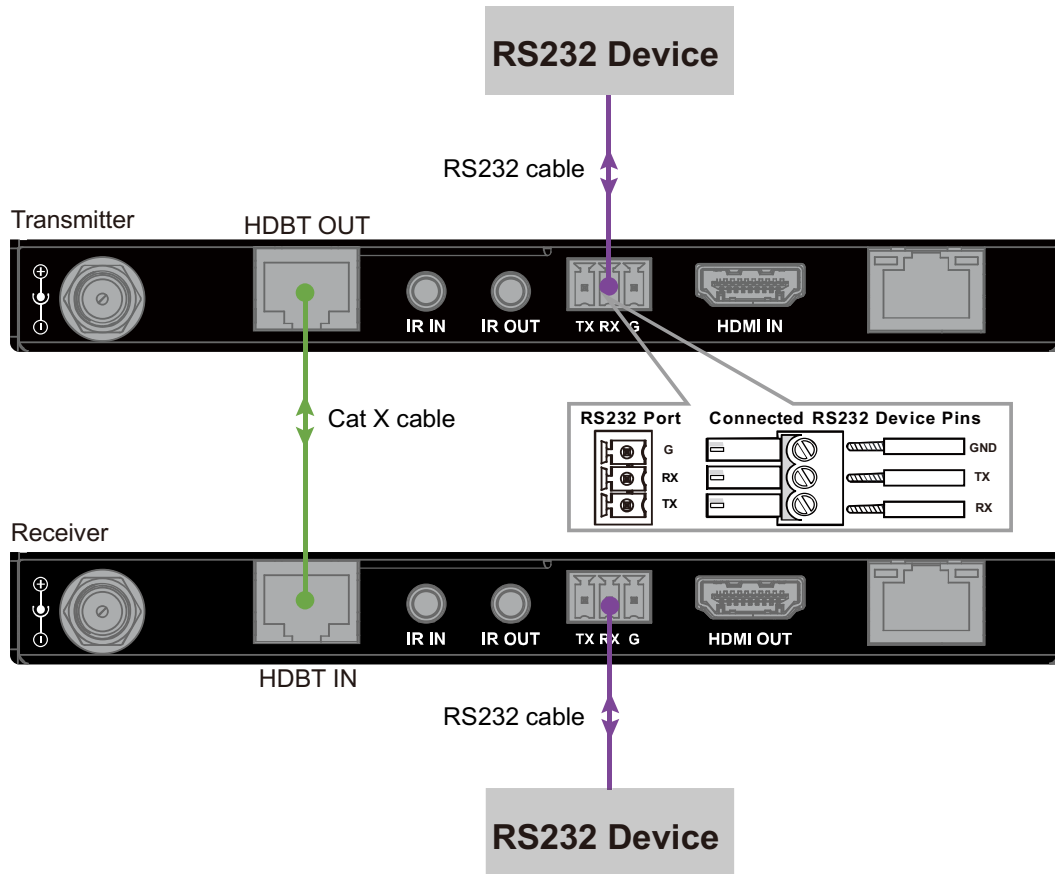


No.	Name	Description
a	DC 12V	Power adapter port (extender kit only requires power supply on transmitter or receiver)
b	HDBT OUT	Twisted pair cable connection port connecting the transmitter and receiver set
c	IR IN	IR receiver port
d	IR OUT	IR emitter port
e	RS232	RS232 port
f	HDMI IN	HDMI cable connection port
g	ETHERNET	Ethernet cable connecting the audio-visual devices for control and/or streaming media

RS232 Operation

The 4K-100M-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:

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



Troubleshooting

- 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.

1. 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.

2. 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

- Ensure all third-party devices conform to the below pin configuration:

