AV Access

Simplify your life

4KEX70-L

HDBase-T Lite Extender

User Manual

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Business inquiry: **services@avaccess.com**

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Important Safety Instructions

- Do not expose this device to rain, moisture, dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the device.
- Do not install or place this unit in a bookcase, built-in cabinet, or in another confined space. Ensure the unit is well ventilated.
- To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, or similar items.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other device (including amplifiers) that produce heat.
- Do not place sources of naked flames, such as lighted candles, on the unit.
- Clean this device only with dry cloth.
- Unplug this device during lightning storms or when unused for long periods of time.
- Protect the power cord from being walked on or pinched, particularly at plugs.
- Only use attachments / accessories specified by the manufacturer.
- Refer all servicing to qualified service personnel.

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Instructions

Overview

The 4KEX70-L HDMI extender is a slim transmitter receiver pair which is designed to extend HDMI 1080P@60Hz signals up to 70m/230ft and 4K@60Hz signals up to 40m/131ft via a single Cat 6a/7 cable. The transmitter and receiver can supply power to each other reciprocally. When either side is plugged in the power, both sides are powered on. You can control the source from the display's location or control the display from source's location via IR pass-through function. The transmitter and receiver are easy to install. They are space saving and offer solutions for home, office, digital entertainment centers, control centers, conference rooms, school and corporate training environments.

- Slim appearance and space saving
- Bi-directional POE, when either side (transmitter or receiver) is plugged in the power, both sides are powered on.
- Transfers bi-directional infrared control signal together with the HDMI signal
- Use the transmitter and receiver pair to extend HDMI signals without additional settings
- Via Cat 6a/7 cables, 4Kx2K@60Hz (4:2:0) output up to 40m/131ft, 1080P@60Hz up to 70m/230ft
- Via Cat 5e cable, 4Kx2K@60Hz (4:2:0) output up to 35m/115ft, 1080P@60Hz up to 60m/197ft
- HDMI 1.4 with 4K and HDCP 2.2 compliant
- Supports Bi-directional RS232 pass through

Package Contents

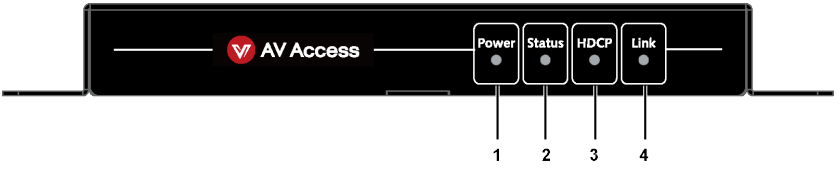
Before you start the installation of the product, please check the package contents:

- Transmitter 4KEX70-L x1
- Receiver 4KEX70-L x1
- DC 18V1A Power Adapter x1
- IR Emitter Cable x1
- IR Receiver Cable x1
- 3.5mm 3 Pin Phoenix Connector x2
- User Manual x1

Panel

Front Panel

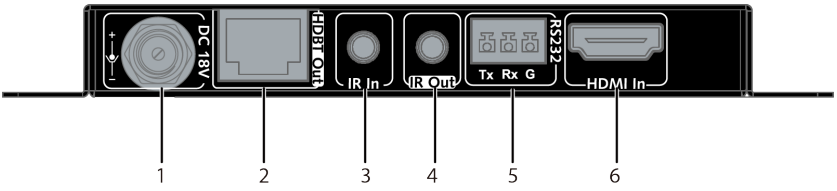
Transmitter/Receiver



No.	Name	Description
1	Power (Red)	**On:** The device is powered on. **Off:** The device is powered off.
2	Status (Green)	**Blinking:** The device is working properly. **Off**: The device is not working properly.
3	HDCP (Blue)	**On:** Audio and Video signal is HDCP protected. **Blinking:** Audio and Video signal is not HDCP protected. This is normal and will not affect operation. **Off:** No Audio and Video signal
4	Link (Green)	**On:** Link between transmitter and receiver has been established. **Off/Blinking:** Connection exceptions exist between transmitter and receiver.

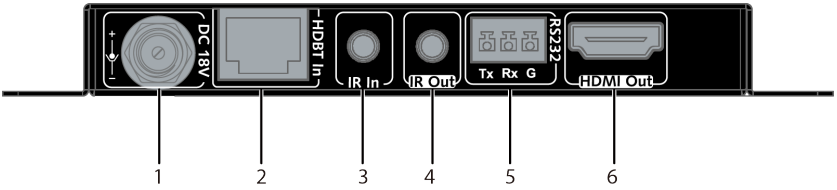
Rear Panel

Transmitter



No.	Name	Description
1	DC 18V	Connects to a DC 18V 1A power adapter. **Note:** If transmitter is connected to a power supply, the receiver is adapter free.
2	HDBT Out	Connects to the receiver via a Cat5e/6 cable.
3	IR In	Connects to an IR receiver cable. Secure the IR receiver with adhesive.
4	IR Out	Connects to an IR emitter cable. Secure the IR emitter on the IR receiving sensor of source device with adhesive.
5	RS232	RS232 pass-through
6	HDMI In	Connects to a source device via an HDMI cable.

Receiver



No.	Name	Description
1	DC 18V	Connects to a DC 18V 1A power adapter. **Note:** If receiver is connected to a power supply, transmitter is adapter free.
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3	IR In	Connects to an IR receiver cable. Secure the IR receiver with adhesive.
4	IR Out	Connects to an IR emitter cable. Secure the IR emitter on the IR receiving sensor of display device with adhesive.
5	RS232	RS232 pass-through
6	HDMI Out	Connects to a display via an HDMI cable.

Installation Instructions

The product packaging includes one pair of IR cables, please refer to the following two applied installations.

IR Cable Operation

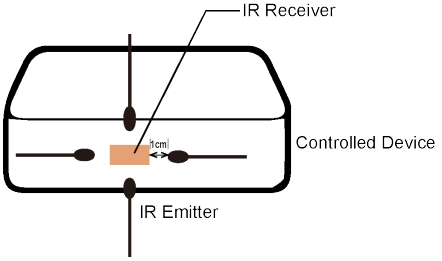
Cable Type

- IR Emitter: Connect to the "IR Out" port of the device.

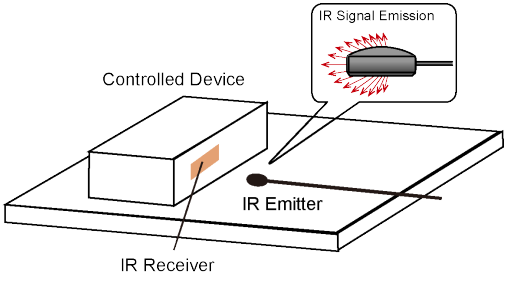
- Broadband IR Receiver (30-50 KHz): connect to the "IR In" port of the device.

Using the IR Emitter

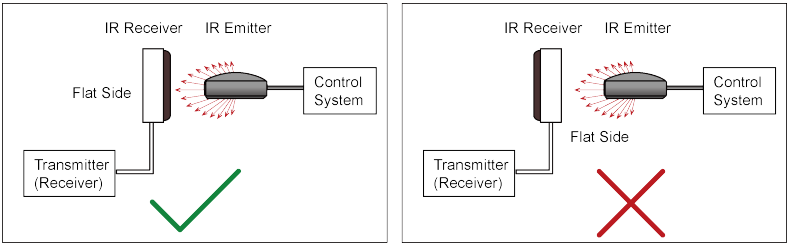
1. Insert the IR emitter plug into the “IR Out” jack located on the transmitter or receiver.
2. Example 1: Attach the IR emitter head directly with the adhesive tape provided near the IR receiver window (e.g. at the distance of 1cm) on the device you want to control.



Example 2: You can also place the IR emitter in front of the IR receiver window on the controlled device.

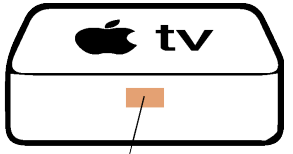


Example 3: When connected to control system, ensure the IR emitter is over against the IR receiver's front side instead of its flat side (see below picture):



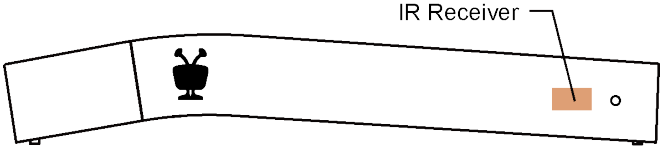
Please refer to your device's user guide to find out where the IR receiver is on your connected device.

For example, the IR receiver for Apple TV/Amazon Fire TV/TIVO BOLT is shown as below:



Apple TV (3rd/4th generation)

Amazon Fire TV



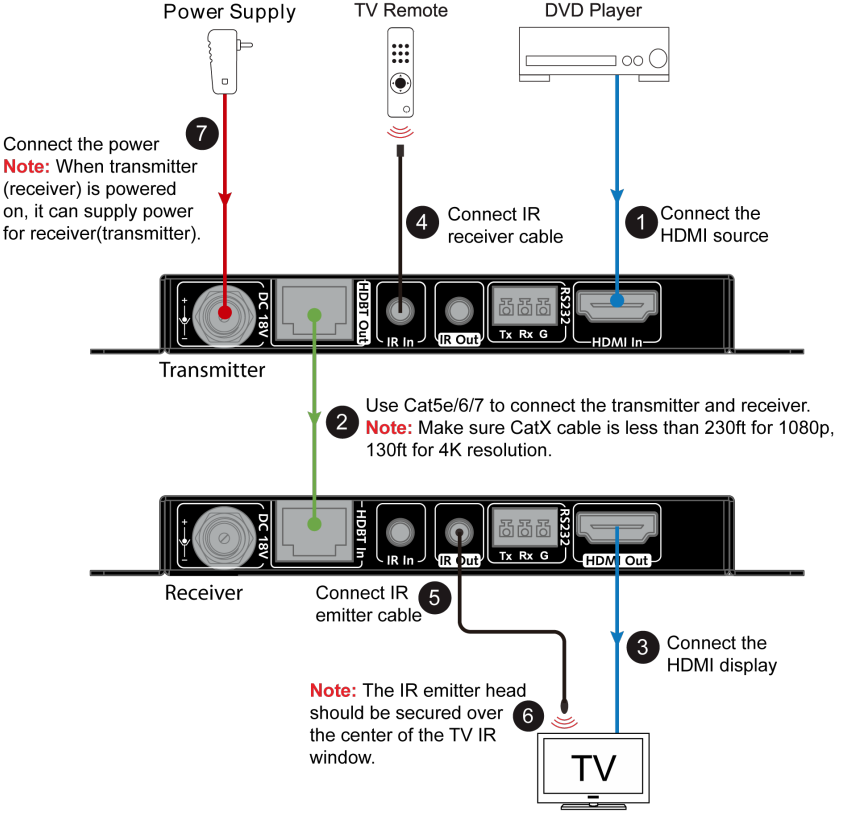
TIVO BOLT

Note: Products from AV Access do not support Bluetooth control, the introduction above applies to device with IR control capability only. Here is a list about different devices' control method.

No.	Device	Control Method
1	NVDIA 2571 Player	Bluetooth/USB
2	Amazon Fire TV with UHD HDR	Bluetooth
3	**Amazon Fire TV**	**IR**
4	ROKU Ultra Player	Bluetooth
5	**Apple TV 3rd**	**IR**
6	**Apple TV 4th**	**IR**
7	Apple 4K TV 5th	Bluetooth
8	Xbox one S	Bluetooth/USB
9	Xbox one X	Bluetooth/USB
10	**TIVO BOLT**	**IR**
11	NINTENDO SWITCH HAC-001 Game Console	Bluetooth/USB
12	PS4 Pro	Bluetooth/USB
13	Blu-ray Player	**IR**

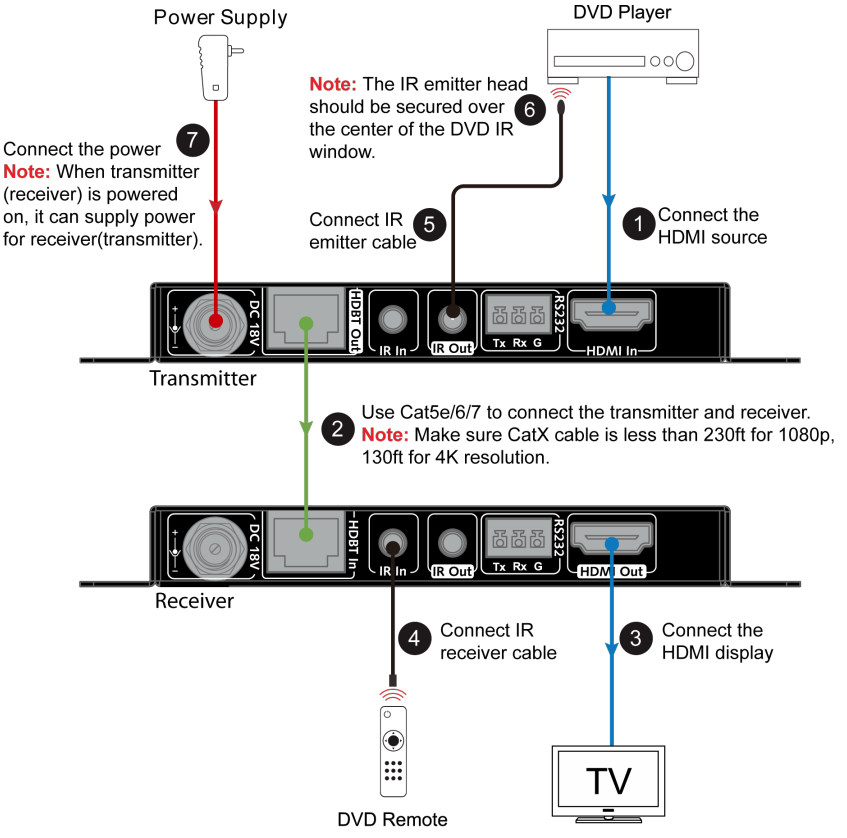
Applications

Applied installation 1:



Control the TV at DVD side by TV remote control. (4KEX70-L)

Applied installation 2:



Control the DVD at TV side by DVD remote control. (4KEX70-L)

Trouble Shooting

Five Steps of Regular Troubleshooting Routine

1 **Power:** Please make sure all devices are powered on. (source, extender, display devices)

2 **Indicator:** Please make sure LED indicators of transmitter and receiver are normal according to user manual.

3 **Devices**: Please make sure picture can be shown normally when connecting source to display devices directly.

4 **Cable**: Plug in and out HDMI/Cat X cable or try another HDMI/Cat X cable.

- Cat 5e/6/6a/7 cable is recommended, do not use Cat 5 cable.
- Please make sure Cat X cable is less than 70m/230ft for 1080P, 40m/131ft for 4K resolution.
- Please make sure the two connectors of one Cat X cable are same standard (EIA/TIA 568B).

5 **Compatibility:** Please test other source and display devices to determine whether it is a compatibility issue. There may be potential incompatibility between source devices and 4KEX70-L(like Roku 4, Amazon Fire TV and Cisco cable box). For more compatible extenders, we recommend 4KEX70-R (Amazon ASIN: B01M3QVXS0).

Typical questions

1. How to deal with video flash or cut off during the installation?

- Power indicator should be solid on and status indicator should be blinking. If not, please check if the power adapter is well connected.
- Link indicator should be solid on, if it is blinking or off, it is likely a problem with your Ethernet cable, please change to a qualified cable (Cat5e/6/7, EIA/TIA 568B) and make sure the cable length is within the maximum distance (230ft for 1080P, 130ft for 4K).
- HDCP indicator should be solid on or blinking, if it is off, it means no signal pass through, please check if the HDMI cables are well connected to the source and TV, or the Ethernet cable that connects transmitter to receiver is normal. Try to change to a better HDMI cable or Ethernet cable. Also, make sure that your source and TV are under 4K@60 (4:2:0 8bit).

2. How to deal with a weak or not working IR signal?

- Make sure the IR cables are correctly installed according to the diagram above.
- Check if the IR emitter head is secured over the center of the device IR receiver window. The best position may vary depending on the device, please refer to the device user manual. If the signal is weak, please try adjusting the position.
- Pay attention to the control angle and distance as below: The control signal will be better when your controller is pointed at the IR receiver head directly.

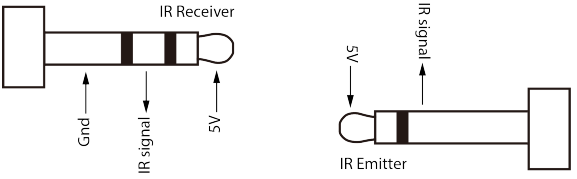
Enabled Angle	**0°**	**30°(Horizontal)**	**15°(Vertical)**
Distance	8m(Max)	4.5m(Max)	3m(Max)

3. Why all led indicators are normal but the display cannot output signal?

- Since the extender 4KEX70-L supports 4K@60Hz 4:2:0 8bit, when both HDMI source and display device support 4K@60Hz 4:4:4 8bit, the display device cannot output signal even if all led indicators of the transmitter and receiver are normal.
- To fix this, please configure the HDMI source resolution to 4K@60Hz 4:2:0 8bit or 1080P.
- Please ask help from TV supplier for TV configuration update. We have received feedbacks from some customers that their Vizio TVs could display well after they got updated on configuration from TV supplier.

4. How can I make the IR work with third party control devices?

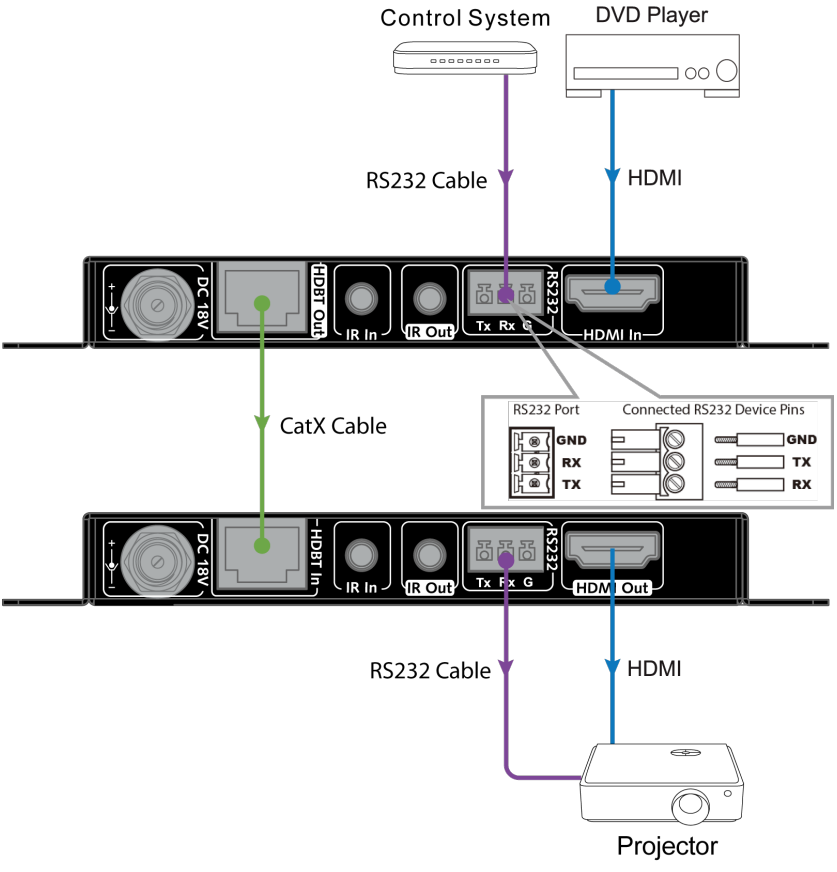
- Please make sure the third party device follows our pin definition as below:



- You can purchase a AV Access universal IR cable that will be compliant with any third party device.(Amazon ASIN: "B01MYX46IC")

5. How to use the RS232 port in the extender?

The RS232 port provides a channel to pass through protocol commands to control third party devices such as your source or display. RS232 uses the three pins that are labeled transmitter, receiver and GND. Connect a host computer or control system to the RS232 connector. Please refer to the following pin definition of RS232 during your installation.


Control System
DVD Player
RS232 Cable
HDMI
DC 18V
HDBT Out
IR In
IR Out
Tx Rx G
RS232
HDMI In
CatX Cable
RS232 Port
Connected RS232 Device Pins
GND
RX
TX
GND
TX
RX
DC 18V
HDBT In
IR In
IR Out
Tx Rx G
RS232
HDMI Out
RS232 Cable
HDMI
Projector

Specification

Technical	
Video Signal Type	HDMI 1.4, HDCP2.2
Audio Format	Stereo, PCM 2.1/5.1/7.1, DTS, Dolby, pass through
Input/Output Resolution Support	SMPTE: 1280x720P[1,2,3,4,5,6,7,8], 1920x1080I[6,8], 1920x1080P[1,2,3,4,5,6,7,8], 3840x2160[2,3,5,6,8], 4096x2160[2,3,5,6,8] VESA: 800x600[8], 1024x768[8], 1280x768[8], 1280x800[8], 1280x960[8], 1280x1024[8], 1360x768[8], 1366x768[8], 1400x1050[8], 1440x900[8], 1600x900[8], 1600x1200[8], 1680x1050[8], 1920x1200[8] 1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz; **NOTE:** 4096x2160/3840x2160@50Hz/60Hz is based on chroma sub-sampling 4:2:0 8-bit only
Maximum Data Rate	10.2Gbps

General	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	±8kV (Air-gap discharge)/ ±4kV (Contact discharge)
Surge Protection	Voltage: ±1 kV
Power Consumption (Maximum)	≤8.88 W (Pair)
Device Dimensions (W x H x D)	108.8 mm ×15 mm ×64.2 mm 4.29'' x 0.59'' x 2.52''
Product Weight	Transmitter: 0.18kg/0.40lb Receiver: 0.18kg/0.40lb

Transmission Distance:

Note: AV Access recommends the use of T568B straight-through Category cables.

Cable Type	Range	Supported Video
HDMI Cable	Up to 15m/50ft	1080P@60 Hz
	HDMI In: Up to 10m/33ft HDMI Out: Up to 15m/50ft	4K@30 Hz 4:4:4 4K@60 Hz 4:2:0
CAT5e/CAT6	60 m/197ft	1080P, 60 Hz 36 bpp
	35 m/115ft	1080P, 60 Hz 48 bpp 1080P, 60 Hz 3D 3840 x 2160@60 Hz 4:2:0
CAT6a/CAT7	70 m/230ft	1080P, 60 Hz 36 bpp
	40 m/131ft	1080P, 60 Hz 48 bpp 1080P, 60 Hz 3D 3840 x 2160@60 Hz 4:2:0

Warranty

Products are backed by a limited 3-year parts and labor warranty. For the following cases AV Access Technology Limited shall charge for the service(s) claimed for the product if the product is still remediable and the warranty card becomes unenforceable or inapplicable.

1. The original serial number (specified by AV Access Technology Limited) labeled on the product has been removed, erased, replaced, defaced or is illegible.
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