AV Access

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4KEX100-KVM-H2

HDMI 2.0 HDBaseT Extender with USB 2.0



User Manual

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Contact Us

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

Technical problems: **support@avaccess.com**

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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Introduction

Overview

4KEX100-KVM-H2 is a 100m/330ft 4K@60 444 HDR HDBaseT Extender. The kit is HDCP 2.2 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI data rates up to 18 Gbps. It provides HDMI transmission up to 330 feet (100 meters) over category cable. It supports bi-directional Ethernet pass-through, RS-232, bi-directional IR control and bi-direction analog audio. Built-in one-way PoH, the receiver can be powered by the transmitter. The extender features visually lossless VESA Display Stream Compression (DSC) to enable HDR and 4K/60 4:4:4 video signal extension over HDBaseT. It also supports one USB host and 4 USB device ports switchable for KVM usage.

Features

- HDMI Input/Output supports resolutions up to 4K@60Hz 4:4:4 8 bit
- Visual lossless DSC compression solution
- HDCP 2.2 compliant
- Supports HDR formats including HDR10 and Dolby Vision
- Transmits HDBaseT signal up to 100m/330ft for 4K and 1080P via a single Cat 6/6a/7 cable
- Transmits HDBaseT signal up to 90m/295ft for 4K and 100m/330ft for 1080P via a single Cat 5e cable
- Bi-directional IR, RS232 pass-through over HDBaseT
- Provides one USB Host and four USB Device ports for remote KVM control
- Supports one-way standard PoH, one power adapter on the transmitter can power both units
- Automatic EDID management

Note: The kit supports Dolby Vision only if the resolution is less than or equal to 4K@30Hz.

Package Contents

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

- Transmitter x 1
- Receiver x1
- Power Adapter (DC 12V 3A) x 1
- AC Power Cord with US Pins x 1
- IR Emitter x1
- Broadband IR Receiver (30 KHz ~ 50 KHz) x 1
- Phoenix Male Connectors (3.5mm, 3 Pins) x 2
- USB 2.0 Type-B to Type-A Cable (L=1.5m) x 1
- Mounting Brackets (with Screws) x 4
- User Manual x 1

Panel

Front Panel

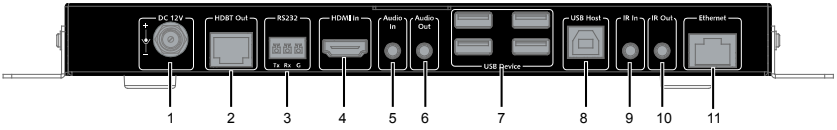
Transmitter & Receiver



No.	Name	Description
1	USB Control	Switch to USB Host or USB Device mode.
2	Power LED	**On:** Transmitter (or Receiver) is powered on. **Off:** Transmitter (or Receiver) is powered off.
3	Status LED	**Blinking:** Transmitter (or Receiver) is working properly. **Off:** Transmitter (or Receiver) is not working properly.
4	HDCP LED	**On:** HDCP-protected content is being transmitted. **Blinking:** Non-HDCP protected content is being transmitted. **Off:** No content is being transmitted.
5	Link LED	**On:** The link between transmitter and receiver is normal. **Blinking/Off:** Link error or no link.
6	RS232	**Program:** Upgrade the transmitter/receiver through RS232 port. **Pass Through (Default Setting):** RS232 port is used for RS232 pass-through.

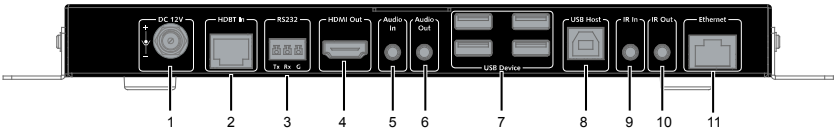
Rear Panel

Transmitter



No.	Name	Description
1	DC 12V	Connect to the power adapter provided.
2	HDBT Out	Connect to HDBT In port of the receiver with a Cat 5e/6/6a/7 cable.
3	RS232	For RS232 pass-through or firmware upgrade.
4	HDMI In	Connect to an HDMI source using an HDMI cable.
5	Audio In	Analog audio input, connect to an audio source device.
6	Audio Out	Analog audio output, connect to an audio receiving device.
7	USB Device	Connect to USB devices (e.g. keyboard, mouse, interactive whiteboard). **Note:** Ensure the USB Mode Switch on front panel is set to "USB Device" position.
8	USB Host	Connect to a USB-host device (e.g. PC). **Note:** Ensure the USB Mode Switch on front panel is set to "USB Host" position.
9	IR In	Connect the broadband IR receiver provided.
10	IR Out	Connect to the IR emitter provided.
11	Ethernet	Connect an Ethernet device for ethernet pass through.

Receiver



No.	Name	Description
1	DC 12V	Connect to the power adapter provided.
2	HDBT In	Connect to HDBT Out of the transmitter with a Cat 5e/6/6a/7 cable.
3	RS232	For RS232 pass-through or firmware upgrade.
4	HDMI Out	Connect to an HDMI display using an HDMI cable.
5	Audio In	Analog audio input, connect to an audio source device.
6	Audio Out	Analog audio output, connect to an audio receiving device.
7	USB Device	Connect to USB devices (e.g. keyboard, mouse, interactive whiteboard). **Note:** Ensure the USB Mode Switch on front panel is set to "USB Device" position.
8	USB Host	Connect to a USB-host device (e.g. PC). **Note:** Ensure the USB Mode Switch on front panel is set to "USB Host" position.
9	IR In	Connect the broadband IR receiver provided.
10	IR Out	Connect to the IR emitter provided.
11	Ethernet	Connect an Ethernet device for ethernet pass through.

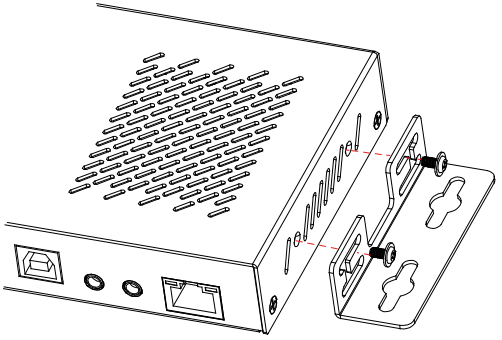
Installation and Application

Brackets Installation

Note: Before installation, please ensure 4KEX100-KVM-H2 is disconnected from the power source.

Steps to install the device in a suitable location

1. Attach the installation bracket to the enclosure using the screws that were provided in the package separately. The bracket height can be adjusted up/down or bracket face up or down.
2. The bracket is attached to the enclosure as shown.



3. Repeat steps from 1 to 2 for the other side of the unit.
4. Attach the brackets to the surface you want to hold the unit against using the screws (provided by others).
5. Repeat steps from 1 to 4 to install the receiver.

IR Cable Operation

Cable Type

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

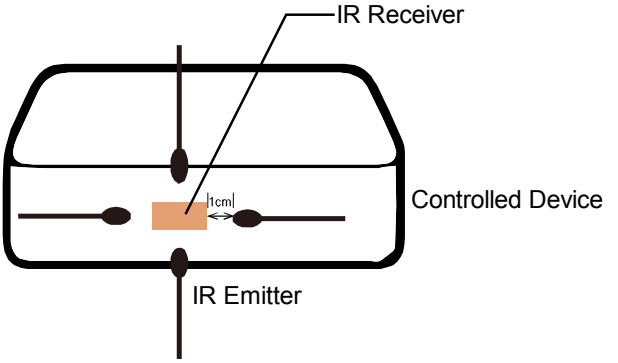


- Broadband IR Receiver (30-50 KHz): Connect to the "IR In" port of the device.

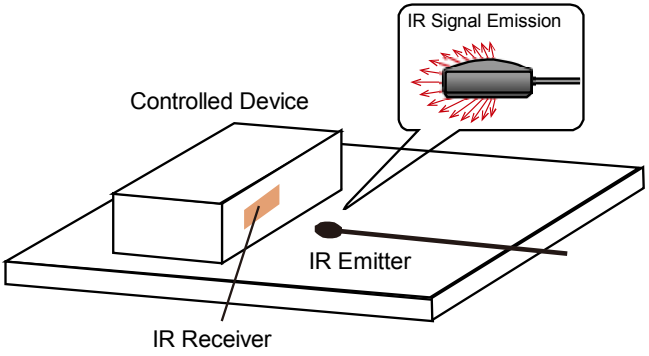


Using the IR Emitter

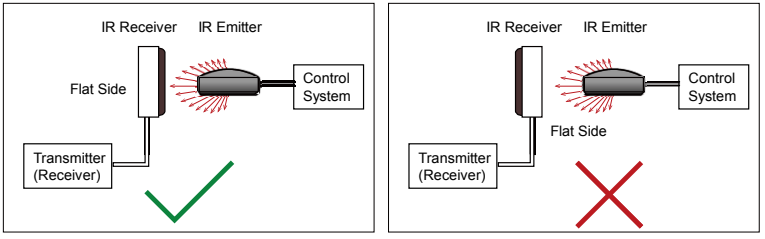
1. Insert the IR emitter plug into the “IR Out” jack located on the transmitter or receiver.
2. Example 1: Attach the IR emitter head directly with the adhesive tape provided near the IR receiver window (e.g. at the distance of 1cm) on the device you want to control.



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

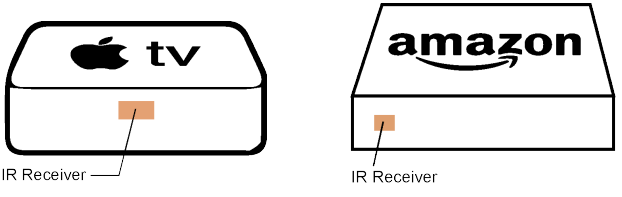


Example 3: When connected to control system, ensure the IR emitter is over against the IR receiver's front side instead of its flat side (see below picture):



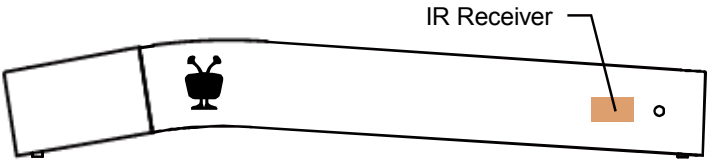
Please refer to your device's user guide to find out where the IR receiver is on your connected device.

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

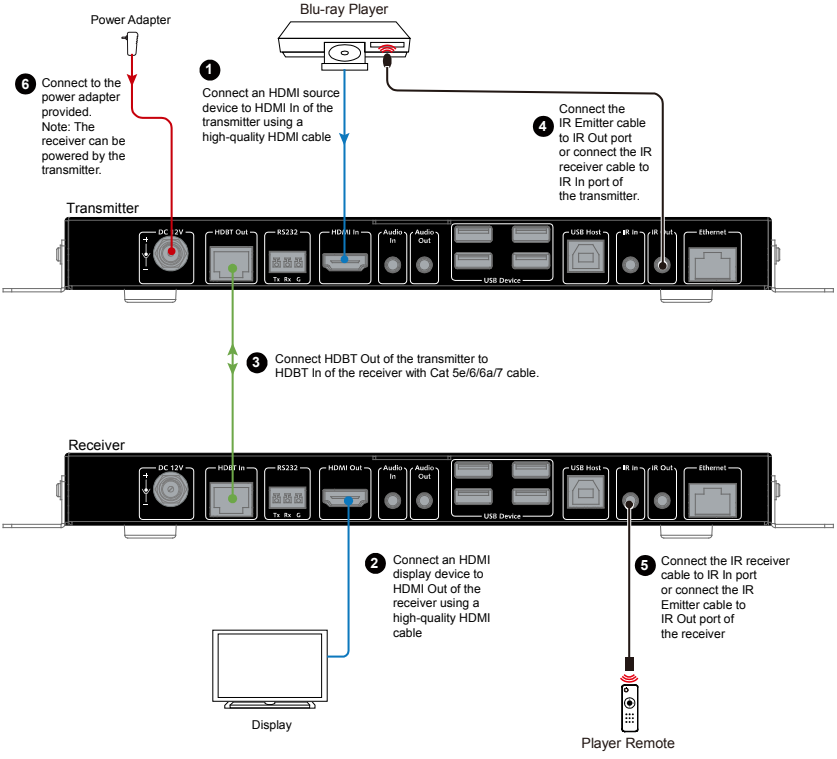


TIVO BOLT

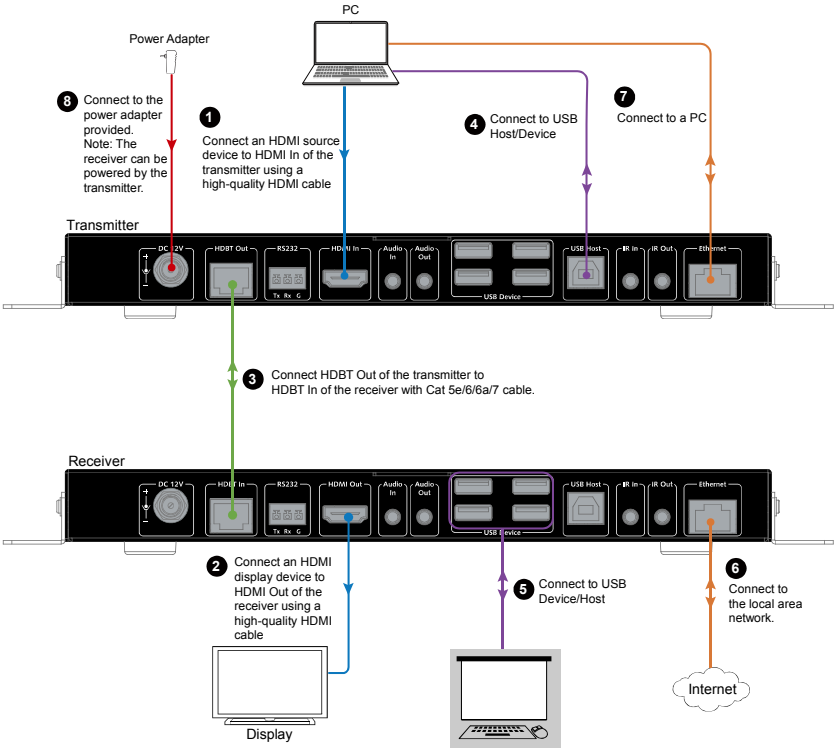
Note: Products from AV Access do not support Bluetooth control, the introduction above applies to device with IR control capability only. Here is a list about different devices' control method.

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**

Application



Application 1



Application 2

Warnings:

- Before wiring, disconnect the power from all devices.
- During wiring, connect and disconnect the cables gently.

Additional Control Options:

1. Connect USB Host/Device:
   - Switch to "USB Host" mode on transmitter's front panel (ensure the connected receiver is switched to "USB Device" mode): Connect a USB host device to USB Host port of the transmitter and USB devices to USB Device port of the receiver for remote KVM control.
   - Switch to "USB Device" mode on transmitter's front panel (ensure the connected receiver is switched to "USB Host" mode): Connect USB

devices to USB Device port of the transmitter and a USB host device to USB Host port of the receiver for remote KVM control.

2. Ethernet Pass-through
   - Connect the Ethernet port of the transmitter/receiver to the local area network.
   - Connect a PC to the “Ethernet port of the receiver/transmitter, the PC can connect to the local area network.

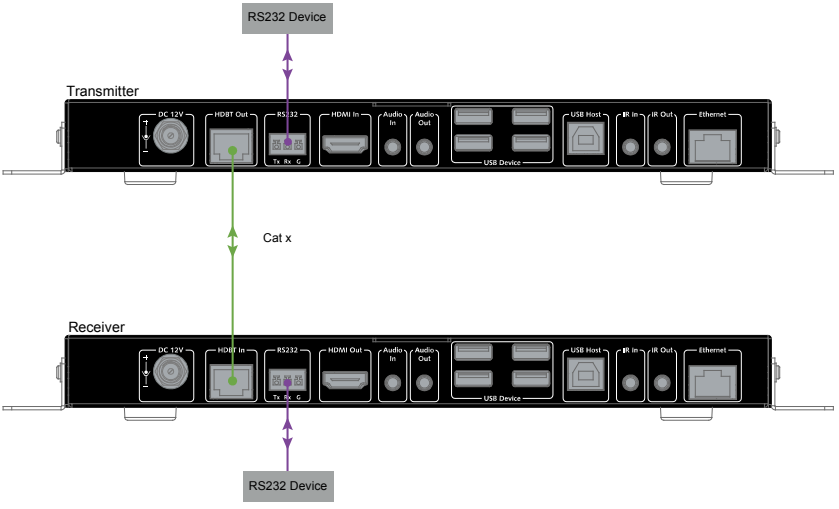
RS232 Pass-Through

RS232 port can be used for bi-directional RS232 signal pass-through between transmitter and receiver.

Steps to set up for RS232 pass-through:

- Switch the "RS232" on front panel of the transmitter and receiver to "**Pass Through**" mode.
- Connect a RS232 Master (or Slave) Device to RS232 port of transmitter with a RS232 cable.
- Connect a RS232 Slave (or Master) Device to RS232 port of receiver with a RS232 cable.
- Connect HDBT Out of the transmitter to HDBT In of the receiver with a Cat 5e/6/7 cable.

When all is set, RS232 signal can be passed through bi-directionally between two RS232 devices.



Specifications

Technical	
Video Signal	HDMI with 4K@60Hz 4:4:4, HDCP 2.2
Input/Output Resolution Support	800x600[8], 1024x768[8], 1280x720[8], 1280x768[8], 1280x800[8], 1280x960[8], 1280x1024[8], 1360x768[8], 1366x768[8], 1440x900[8], 1600x900[8], 1600x1200[8], 1680x1050[8], 1920x1080[8], 1920x1200[8], 2560x1440[8], 2560x1600[8], 3840x2160P[2,3,5,6,8] 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 = 60 Hz;
HDR Format Supported	• HDR 10 • Dolby Vision (with resolutions under 4K@30Hz)
Audio Format Supported	• **HDMI:** Fully supports audio formats in HDMI 2.0 specification, including PCM, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X • **3.5mm Mini Jack:** stereo
Max Data Rate	18 Gbps
General	
Operating Temperature	0°C to + 45°C (32 to + 113 °F)
Storage Temperature	-20 to +70°C (-4 to + 158 °F)
Humidity	20% to 90%, non-condensing
Power Consumption (Maximum)	17.8W (pair)
Device Dimensions (W x H x D)	245mm x 25mm x 90.2mm/ 9.6" x 1" x 3.55"
Product Weight	Transmitter/Receiver: 0.66kg/1.45lb

Transmission Distance

Note: Straight-through Category cables wired to T568B standard is recommended.

Cable	Range	Supported Video
Cat 5e	100m/330ft	1080P@60Hz 36bpp
	90m/295ft	1080P@60Hz 48bpp
Cat 6/6a/7	100m/330ft	1080P@60Hz 3D 4K@30Hz 4K@60Hz
HDMI	Input/Output:15m/50ft	1080P@60Hz 24bpp
	Input: 10m/33ft Output: 15m/50ft	4K@30Hz
	Input/Output: 5m/16ft	4K@60Hz

Trouble Shooting

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/USB cable or try another HDMI/Cat X/USB cable.

- Cat 5e/6/6a cable is recommended.
- Please make sure Cat X cable is less than 330ft/100m.
- Please make sure the two connectors of one Cat X cable are under the same standard (IEEE 568B).

5 **Compatibility:** Please test other source and display devices to determine whether it is a compatibility issue.

Typical Questions

How to deal with cutting off when you connect USB device to receiver?

- The extender supports bi-directional USB pass-through.
- If the PoH is not able to power on your USB device such as hard disk:
  a. When set the transmitter to USB Host mode, set the receiver to USB Device mode, please connect both the transmitter and receiver to the power adapters.
  b. When transmitter is in USB device mode, connect the transmitter to the power adapter, and the receiver can be powered by transmitter with PoH function.

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.
2. The warranty has expired.
3. The defects are caused by the fact that the product is repaired, dismantled or altered by anyone that is not from an AV Access Technology Limited authorized service partner. The defects are caused by the fact that the product is used or handled improperly, roughly or not as instructed in the applicable User Guide.
4. The defects are caused by any force majeure including but not limited to accidents, fire, earthquake, lightning, tsunami and war.
5. The service, configuration and gifts promised by salesman only but not covered by normal contract.
6. AV Access Technology Limited preserves the right for interpretation of these cases above and to make changes to them at any time without notice.

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