4K@60Hz 150m KVM HDBaseT Extender with Loop Out

4KEX150-KVM



User Manual

AV Access

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Introduction

Overview

This product is a 4K@60Hz 4:4:4 KVM HDBaseT extender with DSC compression for high-quality video transmission. It supports HDMI 2.0 and HDCP 2.3, and can transmit 4K@60Hz signals up to 100m/330ft in HDBaseT mode or up to 150m/492ft in Long-Reach Mode (LRM) over a single Cat 5e/6/6A/7 cable.

The extender also supports USB 2.0 extension for KVM applications with four USB downstream ports, including two 1.5A high-power ports and two 0.6A standard-power ports.

Additional features include RS232 pass-through and firmware upgrade, HDBaseT/LRM mode selection, EDID management, HDMI loop-out, audio pass-through and de-embedding, bi-directional IR pass-through, and one-way PoC power supply (from the receiver to the transmitter).

Features

- Supports resolutions up to 4K@60Hz 4:4:4 for superior image quality.
- HDCP 2.3 compatibility.
- Supports transmission of 4K signals up to 100m/330ft over a single Cat 5e/6/6A/7 cable in HDBaseT mode, and up to 150m/492ft over a single Cat 5e/6/6A/7 cable in Long-Reach Mode (LRM); the two modes can be switched via DIP switches on the transmitter and receivers.
- Supports HDMI loop-out.
- Supports EDID management via the DIP switch on transmitter side.
- Supports test pattern function, and can be enable/disable via the DIP switch on transmitter side.
- Supports audio pass-through from the transmitter to the receiver.
- Supports USB 2.0 extension for KVM peripheral devices with four downstream USB ports, including two high-power (1.5A) and two standard-power (0.6A) outputs.
- Supports de-embed audio output on receiver side.
- Supports bi-direction RS232 pass-through and IR Pass-through.
- Support one-way PoC, one power source is needed to be connected to the receiver to power both units.
- Supports firmware upgrade for easy maintenance.

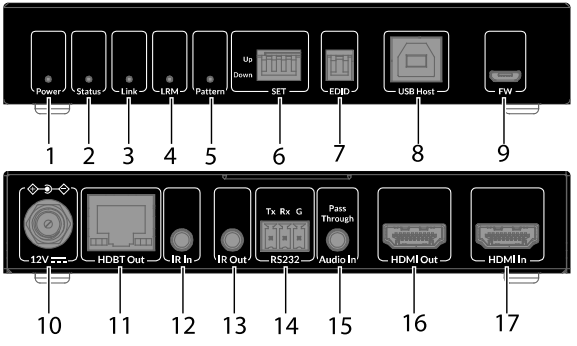
Package Contents

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

- Transmitter × 1
- Receiver × 1
- DC 12V Power Adapter × 1
- USB Type-A to USB Type-B Cable x 1
- IR Emitter × 1
- IR Receiver × 1
- Phoenix Male Connector (3.5mm, 3-Pin) × 2
- Phoenix Male Connector (3.5mm, 5-Pin) × 1
- Mounting Bracket (with Screws) × 4
- User Manual x 1

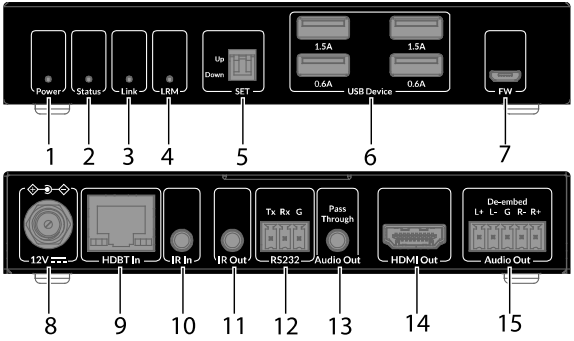
Panel

Transmitter



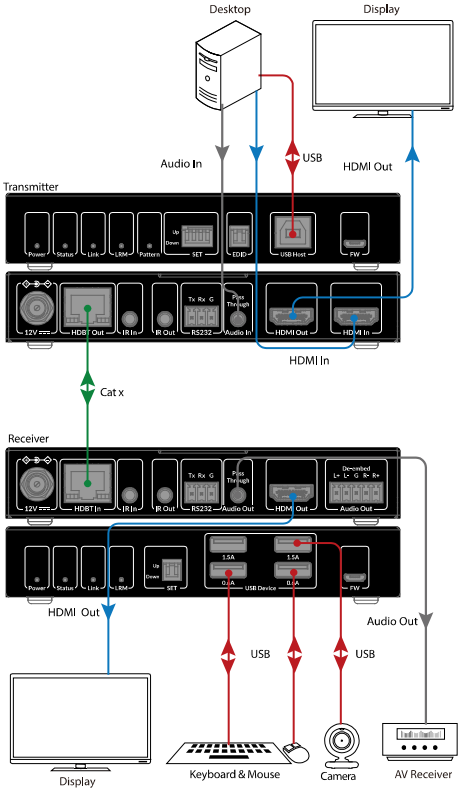
#	Name	Description
1	Power LED	On: The device is powered on. Off: The device is powered off.
2	Status LED	Blinking: The device is working properly. Off: The device is not working properly or the device is not powered on.
3	Link LED	On: HDBT link is normal. Off: No HDBT link or link error.
4	LRM LED	On: The device is working in Long-reach mode. Off: The device is working in HDBaseT mode.
5	Pattern LED	On: Test pattern function is set to on. When enable test pattern, the HDMI IN source is replaced with a test signal, and the display shows a red image Off: Test pattern function is set to off.
6	SET	4-pin DIP switch. It is used to set RS232 function (pass-through or Valens firmware upgrade), select LRM mode or HDBaseT mode, and enable/disable test pattern mode. Detail information, please refer to “DIP Switch Control” section.
7	EDID	2-pin DIP switch. It is used to manage EDID. Detail information, please refer to “DIP Switch Control” section.
8	USB Host	USB 2.0 Type-B port. Connect to a USB host device.
9	FW	Micro-USB port, used for MCU firmware upgrade.
10	12V	Connect to the power adapter provided. With one-way PoC, one power adapter is needed to be connected to the receiver to power both units.
11	HDBT Out	Connect to HDBT IN port of the receiver.
12	IR In	Connect to the provided IR receiver.
13	IR Out	Connect to the provided IR emitter.
14	RS232	Connect to a RS232 enabled device.
15	Audio In (Pass Through)	Connect to an audio source for audio pass-through from the transmitter to the receiver.
16	HDMI Out	Connect to an HDMI display for loop-out.
17	HDMI In	Connect to an HDMI source.

Receiver



#	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 working properly or powered off.
3	Link LED	On: HDBT link is normal. Off: No HDBT link or link error.
4	LRM LED	On: The device is working in Long-reach mode. Off: The device is working in HDBaseT mode.
5	SET	2-pin DIP switch. It is used to set RS232 function (pass-through or Valens firmware upgrade), and select LRM mode or HDBaseT mode. Detail information, please refer to "DIP Switch Control" section.
6	USB Device	USB 2.0 Type-A ports. The upper two USB ports support a maximum output current of 1.5A, and can be connected to high-power USB devices such as USB camera. The lower two USB-A ports support a maximum output current of 0.6A, can be connected to low-power USB devices such as keyboard, mouse.
7	FW	Micro-USB port, for MCU firmware upgrade.
8	12V	Connect to the power adapter provided. With one-way PoC, one power adapter is needed to be connected to the receiver to power both units.
9	HDBT In	Connect to the HDBT OUT port of the transmitter.
10	IR In	Connect to the provided IR receiver.
11	IR Out	Connect to the provided IR emitter.
12	RS232	Connect to RS232 enabled device.
13	Audio Out (Pass Through)	Connect to an audio receiver for audio pass-through from the transmitter to the receiver.
14	HDMI Out	Connect to an HDMI display.
15	Audio Out (De-embed)	Connect to an audio receiver (e.g., AV Receiver) for audio de-embedding output.

Application



DIP Switch Control

The transmitter is equipped with a four-pin DIP switch (“SET”) for configuring RS232 functions, selecting Long-Reach or HDBaseT mode, and enabling or disabling the test pattern, as well as a two-pin DIP switch (“EDID”) for EDID management. The receiver includes a two-pin DIP switch (“SET”) for configuring RS232 functions and selecting Long-Reach or HDBaseT mode. Please refer to the table below for detailed settings:

Transmitter:

SET:

Function	Pin 1	Pin 2	Pin 3	Pin 4
Test Pattern OFF	Up	-		-
Test Pattern ON	Down	-		-
HDBaseT Mode (default)	-	Up	-	-
Long-Reach Mode (LRM)	-	Down	-	-
RS232 Pass-through (default)	-	-	Up	-
HDBaseT FW Update	-	-	Down	-

EDID:

Function	Pin 1	Pin 2
Copy from RX HDMI OUT (default)	Up	Up
Copy from TX HDMI OUT	Up	Down
Fixed 4K@60Hz 2CH	Down	Up
Fixed 1080P@60Hz 2CH	Down	Down

Receiver:

SET:

Function	Pin 1	Pin 2
HDBaseT Mode (default)	Up	-
Long-Reach Mode (LRM)	Down	-
RS232 Pass-through	-	Up
HDBaseT FW Update	-	Down

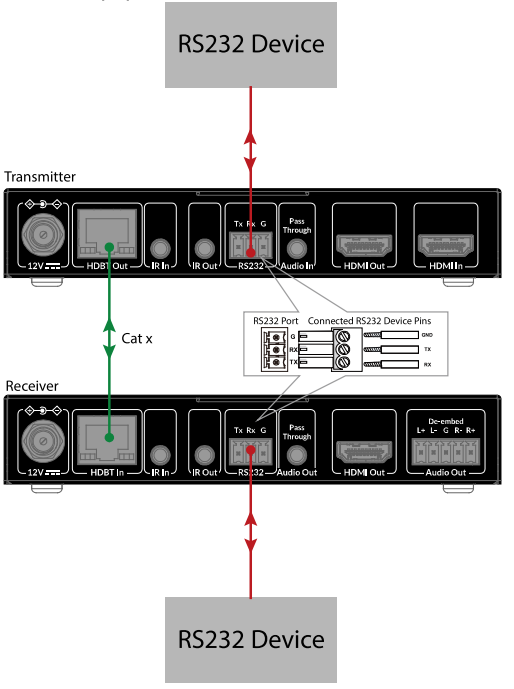
Note:

- "-" indicates the position of this pin doesn't affect the current function.
- Both Valens firmware of the transmitter and receiver can be upgraded through RS232 port of the transmitter/receiver. Set the Pin 3 of "SET" DIP switch on the transmitter/receiver to "Down". Connect a PC to RS232 port of the transmitter/receiver, and connect the transmitter and receiver, users can upgrade Valens firmware of transmitter and receiver through the RS232 port of the transmitter/receiver.
- When set the Pin 1 of the "SET" DIP switch on the transmitter to "Down" position, the HDMI IN source is replaced with a test signal, and the display shows a red image.
- To set the kit to HDBaseT mode / Long-Reach mode, it is sufficient to configure either the transmitter or the receiver DIP switch to HDBaseT mode / Long-Reach mode.

RS232 Pass-Through

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

Set both the Pin 3 of the "SET" DIP Switches on the transmitter and receiver to "Up" position.



Specifications

Technical	
Input / Output Signal Type	HDMI 2.0 with 4K@60Hz 4:4:4, HDCP 2.3
Input / Output Resolution	**VESA:** 800 x 600[6], 1024 x 768[6], 1280 x 768[6], 1280 x 800[6], 1280 x 960[6], 1280 x 1024[6], 1360 x 768[6], 1366 x 768[6], 1440 x 900[6], 1600 x 900[6], 1600 x 1200[6], 1680 x 1050[6], 1920 x 1200[6], 2048 x 1152[6], 2560 x 1440[5,6], 2560x1600[6], 3440 x 1440[6], 3840x1080[6] **CTA:** 1280x720P[5,6,7,8,9], 1920x1080P[1,2,3,5,6,7,8,9], 3840x2160P[1,2,3,5,6], 4096x2160P[1,2,3,5,6] 1 = at 24 (23.98) Hz, 2 = at 25 Hz, 3 = at 30 (29.97) Hz, 4 = at 48 Hz, 5 = at 50 Hz, 6 = 60 (59.94) Hz, 7 = 75Hz, 8 = 100Hz, 9 = 120Hz
Maximum Data Rate	HDMI: 18Gbps USB: 255Mbps
Audio Format Supported	HDMI In/Out: Up to 7.1ch, including PCM 2.0/5.1/7.1ch, Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS 5.1, DTS-HD Master Audio and DTS:X. Audio Out: PCM 2.0

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	Human-body Model: ±8kV (Air-gap discharge)/±4kV (Contact discharge)
Power Supply	12V/3A
Power Consumption (Max)	29.52W
Device Dimension (W x H x D)	Transmitter/Receiver: 140mm x 25mm x 100mm / 5.51" × 0.98" × 3.94"
Product Weight	Transmitter: 0.33kg / 0.73lb Receiver: 0.34kg / 0.75lb

Transmission Distance

Note: Straight-through category cable wired to T568B standard is recommended.

The device supports HDBaseT mode and Long-Reach mode, and can be set via DIP Switches on the transmitter and receiver. Detail setting information, please refer to "DIP Switch Control" section.

HDBaseT Mode (default):

Cable Type	Range	Supported Video
Cat 5e	100m / 330ft	1080P@60Hz
	90m / 295ft	4K@30Hz 4:4:4
Cat 6/6A/7	100m / 330ft	4K@60Hz 4:4: 4

Long-Reach Mode:

Cable Type	Range	Supported Video
Cat 5e/6/6A/7	150m / 492ft	1080P@60Hz 4K@60Hz

HDMI:

Cable Type	Range	Supported Video
HDMI	Input / Output: 15m / 49ft	1080P@60Hz 4K@30Hz 4:4:4
	Input / Output: 10m / 33ft	4K@60Hz 4:4:4

Warranty

Products are backed by a limited 1-year parts and labor warranty. For the following cases AV Access 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) 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 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 preserves the right for interpretation of these cases above and to make changes to them at any time without notice.

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Customer/Technical Support: support@avaccess.com



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