

4K HDMI & USB Extender Kit over HDBaseT 2.0 with PoH

EX-100-KVM

💡 WyreStorm recommends reading through this document in its entirety to become familiar with the product's features prior to starting the installation process.

4K HDR HDBaseT™ HDMI HDCP 2.2 PoH

⚠️ IMPORTANT! Installation Requirements

- Visit the product page to download the latest firmware, document versions, additional documentation, and configuration tools.
- Read through the [Wiring and Connections](#) section for important wiring guidelines before creating or choosing premade cables.
- While this product supports CEC, WyreStorm cannot guarantee compatibility with all forms of CEC communication.

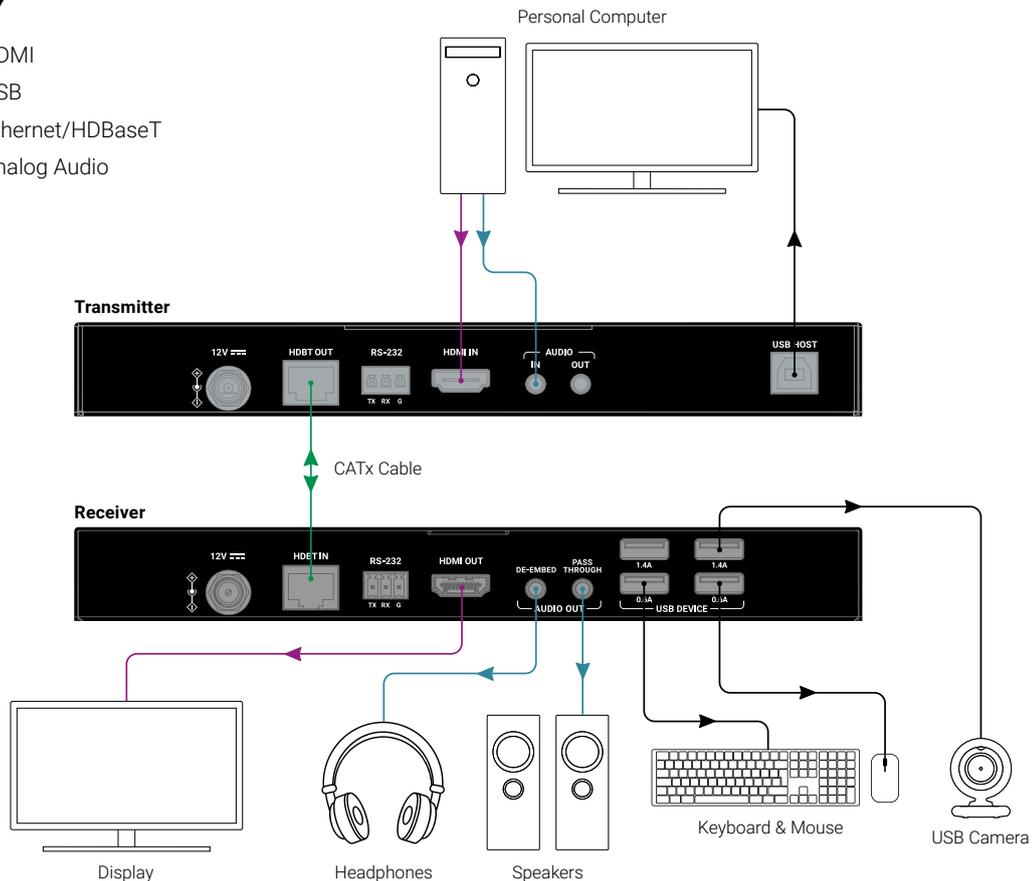
In the Box

- 1x Extender Set
- 1x DC 12V 3A Power Supply (US/EU/UK/AU)
- 4x Mounting Brackets with Screws
- 2x 3-pin 3.5mm Phoenix Connectors
- 1x Quickstart Guide (this document)

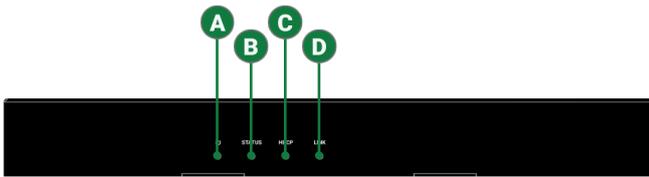
Basic Wiring Diagram

KEY

- HDMI
- USB
- Ethernet/HDBaseT
- Analog Audio

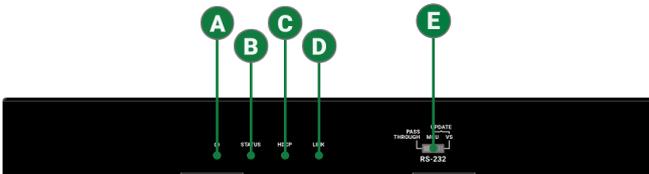


EX-100-KVM Transmitter (Front)



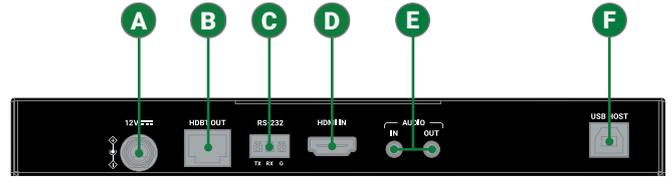
A Power LED	Solid: The device is powered On Off: The device is powered Off
B Status LED	Blinking: Device is working properly Off: Device is not working properly
C HDCP LED	On: HDCP protected content is being transmitted Blinking: Non-HDCP protected content is being transmitted Off: No content is being transmitted
D Link LED	On: HDBT link is normal Off/Blinking: No link or link error

EX-100-KVM Receiver (Front)



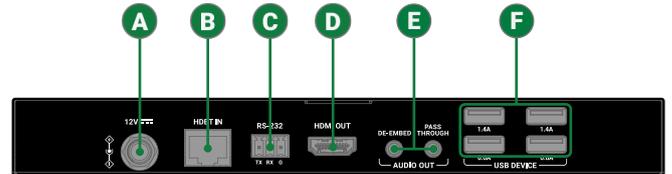
A Power LED	Solid: The device is powered On Off: The device is powered Off
B Status LED	Blinking: Device is working properly Off: Device is not working properly
C HDCP LED	On: HDCP protected content is being transmitted Blinking: Non-HDCP protected content is being transmitted Off: No content is being transmitted
D Link LED	On: HDBT link is normal Off/Blinking: No link or link error
E RS-232 DIP Switch	Set the function of RS232 port: <ul style="list-style-type: none"> • PASS-THROUGH (Default): RS232 port is used to RS232 commands pass-through over HDBT • MCU: RS232 port is used to update its MCU firmware • VS: RS232 port is used to update HDBaseT firmware of transmitter and receiver

EX-100-KVM Transmitter (Rear)



A DC 12V	Connect to the power adapter provided With PoH, one power adapter is needed to connect to the receiver to power both units
B HDBT Output	Connect to HDBT IN port of receiver
C RS-232	For RS232 pass-through
D HDMI Input	Connect to an HDMI source
E Audio IN/OUT	<ul style="list-style-type: none"> • AUDIO IN: Connect to an audio source • AUDIO OUT: reserved
F USB Host	Connect to a USB HOST device, such as a PC

EX-100-KVM Receiver (Rear)



A DC 12V	Connect to the power adapter provided With PoH, one power adapter is needed to connect to the receiver to power both units
B HDBT Input	Connect to HDBT OUT port of transmitter via a CATx cable
C RS-232	For RS232 pass-through or firmware upgrade
D HDMI Output	Connect to an HDMI display
E Audio Output	Unbalanced stereo audio output: <ul style="list-style-type: none"> • PASS-THROUGH: For audio pass-through from Audio IN port on the transmitter to this port • DE-EMBED: For audio de-embedding from the HDMI output
F USB Device	Connect to USB devices (e.g. keyboard, mouse, USB camera, USB flash drive, etc.) Note: USB ports support the USB 2.0 standard with a maximum of 1.4A for the top two ports and 0.6A on the bottom two ports. Before connecting a USB 3.0 device, confirm the compatibility with USB 2.0.

Wiring and Connections

WyreStorm recommends that all wiring for the installation is run and terminated prior to making connections to the switcher. Read through this section in its entirety before running or terminating any wires to ensure proper operation and to avoid damaging the equipment.

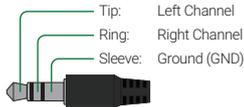
IMPORTANT! Wiring Guidelines

- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference will have an adverse effect on signal transmission which may limit performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends the use of shielded category cable to minimize signal noise and interference.
- WyreStorm recommends using pre-terminated HDMI cables due to the complexity of these connector types. Using pre-terminated cables will ensure that these connections are accurate and will not interfere with the performance of the product.

RS-232 Wiring

The EX-100-KVM uses a 3-pin RS-232 with no hardware flow control. Most control systems and computers are DTE where pin 2 is RX, this can vary from device to device. Refer to the documentation for the connected device for pin functionality to ensure that the correct connections can be made. Refer to [RS-232 Mode Settings](#) for details on setting RS-232 modes.

Audio Connections



Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that power is being supplied to the transmitter and receiver.
- Verify that the HDBaseT cable is properly terminated following EIA568B standard.
- Verify that the output resolution of the source and display is supported by this extender.
- If transmitting 4K, verify that the HDMI cables used are 4K rated.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.

Cat6 Cable Performance Guide

0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft

 4K/HD Transmission

WyreStorm recommends the use of shielded cable to minimize signal noise and interference



WyreStorm Connector		3rd Party Device
Pin 1 TX (Transmit)	---> To --->	RX (Receive)
Pin 2 RX (Receive)	---> To --->	TX (Transmit)
Pin 3 G (Ground)	---> To --->	G (Ground)

No or Intermittent 3rd party Device Control

- Verify that the RS-232 cables are properly terminated following the [Wiring and Connections](#) section.
- Verify that RS-232 modes are properly selected for the desired operation. Refer to [RS-232 Mode Settings](#) for details.

Troubleshooting Tips:

WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.

Specifications

Audio and Video			
Input/Output Ports	Transmitter: 1x HDMI IN, 1x HDBT OUT, 1x RS232, 1x AUDIO IN, 1x AUDIO OUT, 1x USB HOST, 1x DC 12V IN Receiver: 1x HDBT IN, 1x HDMI OUT, 1x RS232, 2x AUDIO OUT (One for De-embed and another one for Pass-through), 4x USB DEVICE, 1 x DC 12V IN		
Input/Output Signal Type	Transmitter: Input: HDMI 1.4 with 4K@60Hz 4:2:0 8bit, HDCP 2.2 Output: HDBT 2.0 Receiver: Input: HDBT 2.0 Output: HDMI 1.4 with 4K@60Hz 4:2:0 8bit, HDCP 2.2		
Supported Resolution	VESA: 800x600 ⁹ , 1024x768 ⁹ , 1280x768 ⁹ , 1280x800 ⁹ , 1360x768 ⁹ , 1366x768 ⁹ , 1440x900 ⁹ , 1600x900 ⁹ , 1600x1200 ⁹ , 1680x1050 ⁹ , 1920x1200 ⁹ 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} 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		
Output Video Encoding	HDBaseT Class C		
Encoding Data Rate	10.2Gbps		
End to End Latency	10µs (micro seconds)		
Supported Standards	DCI RGB HDR HDR10 Dolby Vision up to 30Hz HLG BT.2020 BT.2100		
Maximum Pixel Clock	340MHz		
Audio Formats	HDMI: Supports multi-channel audio formats, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X AUDIO IN/OUT: Stereo		
Transmission Distance	Cat 5e:	100m/330ft	1080p@60Hz
		90m/295ft	4K@30Hz 4:4:4, 24bpp 4K@60Hz 4:2:0, 24bpp
	Cat 6/6A/7:	100m/330ft	4K@30Hz 4:4:4, 24bpp 4K@60Hz 4:2:0, 24bpp 3840x2160p @30Hz 12bit 4:2:2 HDR
Communication and Control			
HDMI	HDMI HDCP 2.2 EDID CEC Pass-through DVI/D supported with adapter (not included)		
HDBaseT	HDMI HDCP 2.2 EDID Line Audio 1-way PoH (TX powers RX) Bidirectional RS-232 CEC		
RS-232	1x RS-232: 3-pin Phoenix (Transmitter and Receiver)		
USB	1x Type B (host) 4x Type A (device) Maximum uplink speed: 190Mbps		
Power			
Power Supply	DC 12V/3A		
Power Consumption (Maximum)	19W		
Environmental			
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)		
Dimensions			
Height	17mm / 0.67in		
Width	136mm / 5.35in		
Depth	85mm / 3.35in		
Weight	Transmitter: 0.44kg/0.97lb Receiver: 0.48kg/1.06lbs		
Regulatory			
Safety and Emission	CE FCC RoHS RCM EAC UKCA		

Note: WyreStorm reserves the right to change product specification, appearance or dimensions of this product at any time without prior notice.

Warranty Information

WyreStorm Technologies ProAV Corporation warrants that its products to be free from defects in material and workmanship under normal use for a period of five (5) years from the date of purchase. Refer to the Product Warranty page on wyrestorm.com for more details on our limited product warranty.

