



**BK-EXB330EAU-K**

**8K HDMI & KVM Extender  
over HDBaseT 3.0**

**USER MANUAL**

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# Table of Contents

<b>Introduction</b>	<b>04</b>
<b>Features</b>	<b>05</b>
<b>Package Contents</b>	<b>06</b>
<b>Specifications</b>	<b>07</b>
<b>Operation Controls and Functions</b>	<b>09</b>
Transmitter Panel	09
Receiver Panel	12
USB Mode Applications	15
IR Pin Definition	16
<b>Application Example</b>	<b>17</b>
<b>FAQs &amp; Troubleshooting</b>	<b>19</b>

## **Thank you for purchasing this product**

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

## **Surge protection device recommended**

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the service life of your equipment.

# Registration Page

Please Activate your warranty by registering our product through the link below - [www.orei.com/register](http://www.orei.com/register)

## **Technical Support**

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Our experienced Technical Support Team is here for you to answer your questions, give technical advice or help troubleshoot your project to get you installed on time and on budget. Call, email or chat with us now.

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Or

### **Chat Live on [www.orei.com](http://www.orei.com)**

Send us an instant message now. Our Technical Support Team will respond momentarily. Available during live support hours.

# Introduction

The BK-EXB330EAU-K HDMI extender is a versatile gadget that can send uncompressed HD/UHD video, audio, eARC/ARC, RS-232, bi-directional IR, 1GbE Ethernet, and USB 2.0 signals up to 330 feet with just a single CAT 6A/7 cable. It features support for video resolutions up to 8K@30Hz and 4K@120Hz. ARC/eARC function allows you to connect an eARC-enabled TV and AVR even if they are far apart. It also features Bi-directional IR and PoC with HDBaseT 3.0 technology. It is a perfect solution for home theatre set-ups.



1. HDMI 2.1 & HDCP 2.3 compliant
2. 40Gbps FRL & 18Gbps TMDS video bandwidth
3. Video resolutions up to 8K@30Hz and 4K@120Hz
4. HDBaseT 3.0 technology
5. ARC/eARC Audio Extraction
6. VRR, ALLM, FVA support
7. HDR10+, Dolby Vision, and HLG pass-through
8. USB 2.0 KVM function with speeds up to 350Mbps
9. HDMI audio formats: Dolby Atmos, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio
10. Advanced EDID management through EDID DIP switch
11. Bi-directional 24V POC(Power Over Cable) function

# Package Contents

1.	UBK-EXB330EAU-K Transmitter	1 pcs
2.	BK-EXB330EAU-K Receiver	1 pcs
3.	IR Blaster Cable (1.5m)	1 pcs
4.	IR Wideband Receiver Cable (1.5m)	1 pcs
5.	3pin-3.81mm Phoenix Connector	2 pcs
6.	Mounting Ear	4 pcs
7.	Machine Screw	8 pcs
8.	Rubber Feet	8 pcs
9.	24V/2.7A Locking Power Supply	1 pcs
10.	User Manual	1 pcs

# Specifications

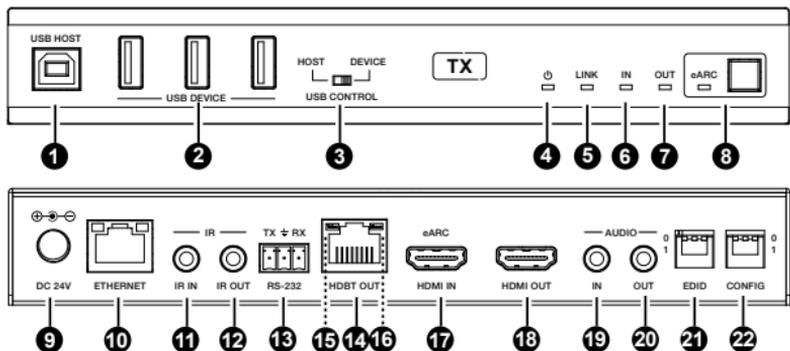
Technical	
HDCP Compliance	HDCP 2.3
Video Bandwidth	Up to 40Gbps FRL and 18Gbps TMDS
USB Bandwidth	Up to 350Mbps
Video Resolution	Up to 8K@30 4:4:4 10bit, 4K@120Hz 4:4:4 10bit
IR Level	5Vp-p/12Vp-p
IR Frequency	20K - 60KHz
Color Depth	8/10/12bit
Color Space	RGB 4:4:4, YCbCr 4:4:4 / 4:2:2, YCbCr 4:2:0
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
HDMI Audio Formats	<b>HDMI:</b> PCM 2.0, LPCM 5.1, LPCM 7.1, (32K/44.1K/48K/88.2K/96K/176.4K/192K) (16/20/24); Dolby Digital, Dolby Digital plus, Dolby TrueHD, Dolby Atmos; DTS Surround, 96/24, ES, DTS Express, DTS-HD HRA, DTS HD Master, DTS:X <b>Analog:</b> PCM 2.0 48K
Transmission Distance	MAX: CAT 6 -- 60m/197ft CAT 6A/7 -- 90m/295ft
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Transmitter	Input: 1 × HDMI IN [Type A, 19-pin female] 1 × AUDIO IN [3.5mm Stereo Mini-jack] Output: 1 × HDMI OUT [Type A, 19-pin female] 1 × HDBT OUT [RJ45, 8-pin female] 1 × AUDIO OUT [3.5mm Stereo Mini-jack] Control: 1 × IR IN [3.5mm Stereo Mini-jack] 1 × IR OUT [3.5mm Stereo Mini-jack] 1 × RS-232 [3pin-3.81 mm Phoenix jack] 1 × USB HOST [USB Type B] 3 × USB DEVICE [USB Type A] 1 × ETHERNET [RJ45]

# Specifications

Connection				
Receiver	Input: 1 × HDMI IN [Type A, 19-pin female] 1 × HDBT IN [RJ45, 8-pin female] 1 × AUDIO IN [3.5mm Stereo Mini-jack] Output: 1 × HDMI OUT [Type A, 19-pin female] 1 × AUDIO OUT [3.5mm Stereo Mini-jack] Control: 1 × IR IN [3.5mm Stereo Mini-jack] 1 × IR OUT [3.5mm Stereo Mini-jack] 1 × RS-232 [3pin-3.81 mm Phoenix jack] 1 × USB HOST [USB Type B] 3 × USB DEVICE [USB Type A] 1 × ETHERNET [RJ45]			
Mechanical				
Housing	Front Panel – Aluminium Enclosure; Case – Metal Enclosure			
Color	Black			
Dimensions	Transmitter / Receiver: 200mm [L] × 100mm [W] × 30mm [H]			
Weight	Transmitter & Receiver: 571g / 20.14oz			
Power Supply	Input: AC 100 - 240V 50/60Hz; Output: DC 24V/2.7A (US/EU standard, CE/FCC/UL certified)			
Power Consumption	Total power consumption: 20.4W (POC) TX/RX full load: 9.36W/9.84W; TX/RX no-load: 2.46W/3.36W			
Operating Temperature	32 - 104°F / 0 - 40°C			
Storage Temperature	-4 - 140°F / -20 - 60°C			
Relative Humidity	20 - 90% RH (no-condensing)			
Video Resolution	8K30	4K60	4K24	1080P60
HDMI Cable Length (HDMI IN / OUT)	3m/9.8ft	5m/16ft	10m/32ft	20m/66ft
The use of "Premium High Speed HDMI" cable is highly recommended.				

# Operation Controls and Functions

## Transmitter Panel



No.	Name	Function Description
1.	USB HOST	Connect to a PC or Laptop using a USB-B to A cable.
2.	USB DEVICE	Three USB extension ports, connected to a USB drive, mouse or keyboard.
3.	HOST/ DEVICE USB CONTROL switch	Switch to left (HOST), the USB HOST mode is enabled; Switch to right (DEVICE), the USB DEVICE mode is enabled. <b>Note:</b> If the transmitter is set to USB HOST mode, the receiver must be set to USB DEVICE mode.
4.	Power LED	<ul style="list-style-type: none"> <li>• <b>On:</b> The transmitter is powered on.</li> <li>• <b>Off:</b> The transmitter is powered off.</li> </ul>
5.	LINK LED	<ul style="list-style-type: none"> <li>• <b>On:</b> Transmitter and receiver are in good connection status.</li> <li>• <b>Flashing:</b> Transmitter and receiver are in poor connection status or connected to the same device.</li> <li>• <b>Off:</b> Transmitter and receiver are not connected.</li> </ul>
6.	IN LED	Video signal input indicator. <ul style="list-style-type: none"> <li>• <b>On:</b> There is HDMI signal input.</li> <li>• <b>Off:</b> There is no HDMI input or the system is powered off.</li> </ul>

# Operation Controls and Functions

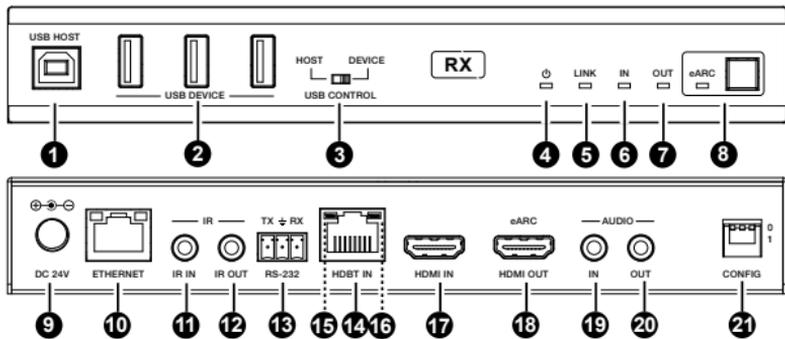
No.	Name	Function Description
7.	OUT LED	Video signal output indicator. <ul style="list-style-type: none"> <li>• <b>On:</b> There is HDMI signal output.</li> <li>• <b>Off:</b> There is no HDMI output or the system is powered off.</li> </ul>
8.	eARC LED & button	Press the eARC button to enable/disable the eARC/ARC function, and the eARC LED will indicate the status as following. <ul style="list-style-type: none"> <li>• <b>On:</b> The eARC/ARC mode is enabled, and the device is working normally.</li> <li>• <b>Flashing:</b> The eARC/ARC mode is enabled, but the device is working abnormally.</li> <li>• <b>Off:</b> The eARC/ARC mode is disabled.</li> </ul>
9.	DC 24V	DC 24V/2.7A power supply input port. Note that the extender supports POC function, it means that either transmitter or receiver is powered on by the included power adapter, the other one doesn't need power supply.
10.	ETHERNET port & indicators	Ethernet port with adaptive broadband rate. For example, if the transmitter is connected to a PC with a 100M rate, and the receiver is connected to a Gigabit router, the device can automatically switch the 100M rate of the transmitter to Gigabit rate. (Note: If the connected device only supports 100M rate, the extender cannot switch to Gigabit rate.) Ethernet Indicators: <ul style="list-style-type: none"> <li>• <b>Light in green:</b> the Ethernet rate is 1000 Mbit/s.</li> <li>• <b>Light in yellow:</b> the Ethernet rate is 100 Mbit/s.</li> </ul>
11.	IR IN port	IR signal input port, connected to IR Receiver cable.
12.	IR OUT port	IR signal output port, connected to IR Blaster cable.
13.	RS-232 port	The RS-232 serial port features different functions through the setting of the CONFIG DIP switch: (1) RS-232 signal pass-through (2) Control & FW upgrade (3) VS3000 FW upgrade (4) Debug
14.	HDBT OUT port	HDBaseT Network port, connected to the HDBT IN port of the receiver with a CAT 6A/7 cable.

# Operation Controls and Functions

No.	Name	Function Description
15.	Data Signal Indicator (Yellow)	<ul style="list-style-type: none"> <li>• <b>On:</b> HDMI signal with HDCP.</li> <li>• <b>Flashing:</b> HDMI signal without HDCP.</li> <li>• <b>Off:</b> No HDMI signal.</li> </ul>
16.	Link Signal Indicator (Green)	<ul style="list-style-type: none"> <li>• <b>On:</b> Transmitter and receiver are in good connection status.</li> <li>• <b>Flashing:</b> Transmitter and receiver are in poor connection status or connected to the same device.</li> <li>• <b>Off:</b> Transmitter and receiver are not connected.</li> </ul>
17.	eARC/HDMI IN port	This port features two functions: (1) HDMI signal input port, connected to HDMI source device; (2) eARC/ARC audio port, connected to eARC/ARC amplifier.
18.	HDMI OUT port	HDMI video signal output port. It can loop out the local video signal or output the video signal returned from the receiver.
19.	AUDIO IN port	Analog audio input port. The audio from this port can be output through the AUDIO OUT port of the receiver.
20.	AUDIO OUT port	Analog audio output port. It can output the audio from the AUDIO IN port of the receiver.
21.	EDID DIP switch	<p>The DIP switch is used for EDID setting. (Set to 000 by default.) [DIP]=000: Copy RX HDMI OUT port sink EDID <b>(Note:</b> If there is no TV connected to the receiver, it will copy the EDID of the local loopout video.)</p> <p>[DIP]=001: HDMI 1080p@60Hz, Audio 2ch PCM [DIP]=010: HDMI 4K@60Hz 4:4:4, Audio 2ch PCM [DIP]=011: HDMI 4K@60Hz 4:4:4, Audio 5.1ch PCM/DTS/DOLBY [DIP]=100: HDMI 4K@60Hz 4:4:4, Audio 7.1ch PCM/DTS/ DOLBY/HD [DIP]=101: HDMI 8K@30Hz 4:4:4+4K@120Hz 4:4:4, Audio 2ch PCM [DIP]=110: HDMI 8K@30Hz 4:4:4+4K@120Hz 4:4:4, Audio 5.1ch PCM/DTS/DOLBY [DIP]=111: HDMI 8K@30Hz 4:4:4+4K@120Hz 4:4:4, Audio 7.1ch PCM/DTS/DOLBY/HD</p>
22.	CONFIG DIP switch	<p>The DIP switch is used to set IR level and serial port access.</p> <p>DIP SW1=0: The IR level is set to 12V. DIP SW1=1: The IR level is set to 5V.</p> <p>DIP SW2/SW3=00: The RS-232 port is used for RS-232 signal pass-through. DIP SW2/SW3=01: The RS-232 port is used for Control &amp; FW upgrade. DIP SW2/SW3=10: The RS-232 port is used for VS3000 FW upgrade. DIP SW2/SW3=11: The RS-232 port is used for debugging.</p>

# Operation Controls and Functions

## Receiver Panel



No.	Name	Function Description
1.	USB HOST	Connect to a PC or Laptop using a USB-B to A cable.
2.	USB DEVICE	Three USB extension ports, connected to a USB drive, mouse or keyboard.
3.	HOST/ DEVICE USB CONTROL switch	Switch to left (HOST), the USB HOST mode is enabled; Switch to right (DEVICE), the USB DEVICE mode is enabled. Note: If the transmitter is set to USB HOST mode, the receiver must be set to USB DEVICE mode.
4.	Power LED	<ul style="list-style-type: none"> <li>• <b>On:</b> The receiver is powered on.</li> <li>• <b>Off:</b> The receiver is powered off.</li> </ul>
5.	LINK LED	<ul style="list-style-type: none"> <li>• <b>On:</b> Transmitter and receiver are in good connection status.</li> <li>• <b>Flashing:</b> Transmitter and receiver are in poor connection status or connected to the same device.</li> <li>• <b>Off:</b> Transmitter and receiver are not connected.</li> </ul>
6.	IN LED	Video signal input indicator. <ul style="list-style-type: none"> <li>• <b>On:</b> There is HDMI signal input.</li> <li>• <b>Off:</b> There is no HDMI input or the system is powered off.</li> </ul>
7.	OUT LED	Video signal output indicator. <ul style="list-style-type: none"> <li>• <b>On:</b> There is HDMI signal output.</li> <li>• <b>Off:</b> There is no HDMI output or the system is powered off.</li> </ul>

# Operation Controls and Functions

No.	Name	Function Description
8.	eARC LED & button	Press the eARC button to enable/disable the eARC/ARC function, and the eARC LED will indicate the status as following. <ul style="list-style-type: none"><li>• <b>On:</b> The eARC/ARC mode is enabled, and the device is working normally.</li><li>• <b>Flashing:</b> The eARC/ARC mode is enabled, but the device is working abnormally.</li><li>• <b>Off:</b> The eARC/ARC mode is disabled.</li></ul>
9.	DC 24V	DC 24V/2.7A power supply input port. Note that the extender supports POC function, it means that either transmitter or receiver is powered on by the included power adapter, the other one doesn't need power supply
10.	ETHERNET port & indicators	Ethernet port with adaptive broadband rate. For example, if the transmitter is connected to a PC with a 100M rate, and the receiver is connected to a Gigabit router, the device can automatically switch the 100M rate of the transmitter to Gigabit rate. (Note: If the connected device only supports 100M rate, the extender cannot switch to Gigabit rate.) Ethernet Indicators: <ul style="list-style-type: none"><li>• <b>Light in green:</b> the Ethernet rate is 1000 Mbit/s.</li><li>• <b>Light in yellow:</b> the Ethernet rate is 100 Mbit/s.</li></ul>
11.	IR IN port	IR signal input port, connected to IR Receiver cable.
12.	IR OUT port	IR signal output port, connected to IR Blaster cable.
13.	RS-232 port	The RS-232 serial port features different functions through the setting of the CONFIG DIP switch: (1) RS-232 signal pass-through (2) Control & FW upgrade (3) VS3000 FW upgrade (4) Debug
14.	HDBT OUT port	HDBaseT Network port, connected to the HDBT IN port of the receiver with a CAT 6A/7 cable. It is used for various signals pass-through.

# Operation Controls and Functions

No.	Name	Function Description
15.	Data Signal Indicator (Yellow)	<ul style="list-style-type: none"> <li>▪ <b>On:</b> HDMI signal with HDCP.</li> <li>▪ <b>Flashing:</b> HDMI signal without HDCP.</li> <li>▪ <b>Off:</b> No HDMI signal.</li> </ul>
16.	Link Signal Indicator (Green)	<ul style="list-style-type: none"> <li>▪ <b>On:</b> Transmitter and receiver are in good connection status.</li> <li>▪ <b>Flashing:</b> Transmitter and receiver are in poor connection status or connected to the same device.</li> <li>▪ <b>Off:</b> Transmitter and receiver are not connected.</li> </ul>
17.	HDMI IN port	<p>HDMI signal input port, connected to HDMI source device. It can transmit video with resolution of 1080P 24Hz in reverse to the HDMI OUT port of the transmitter.</p> <p>Note: It is a reserved port, being closed by default. Before using this port, you need to turn on it through command control, and make sure that the eARC function is disabled.</p>
18.	eARC/HDMI OUT port	<p>This port features two functions:</p> <p>(1) HDMI signal output port, connected to HDMI display device;</p> <p>(2) eARC/ARC audio port, connected to TV with eARC/ARC function.</p>
19.	AUDIO IN port	Analog audio input port. The audio from this port can be output through the AUDIO OUT port of the transmitter.
20.	AUDIO OUT port	Analog audio output port. It can output the audio from the AUDIO IN port of the transmitter.
21.	CONFIG DIP switch	<p>The DIP switch is used to set IR level and serial port access.</p> <p>DIP SW1=0: The IR level is set to 12V.</p> <p>DIP SW1=1: The IR level is set to 5V.</p> <p>DIP SW2/SW3=00: The RS-232 port is used for RS-232 signal pass-through.</p> <p>DIP SW2/SW3=01: The RS-232 port is used for Control &amp; FW upgrade.</p> <p>DIP SW2/SW3=10: The RS-232 port is used for VS3000 FW upgrade.</p> <p>DIP SW2/SW3=11: The RS-232 port is used for dubbing.</p>

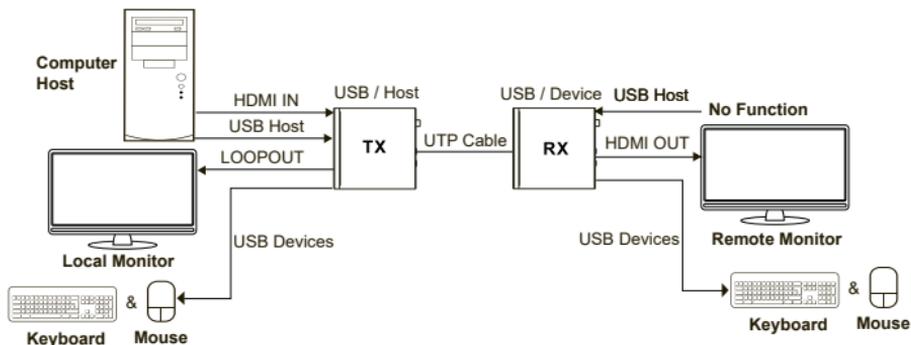
# Operation Controls and Functions

## USB Mode Applications

The Extender supports USB2.0 transmission, and Host/Device is configurable.

### Mode 1: USB forward from TX to RX

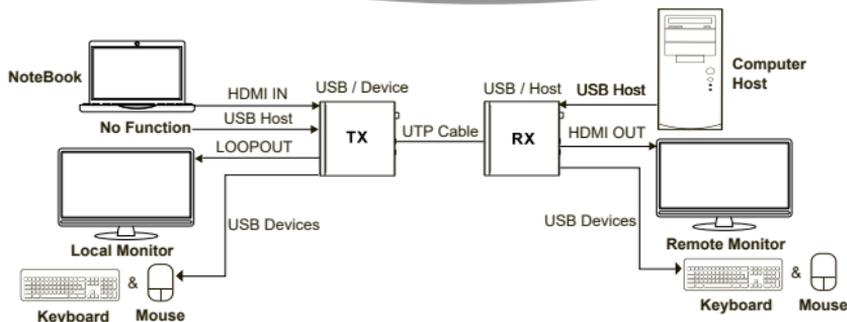
Switch the HOST/DEVICE USB CONTROL switch to left, then power off and reboot the transmitter to set to USB Host mode. Meanwhile, switch the HOST/DEVICE USB CONTROL switch to right, then power off and reboot the receiver to set to USB Device mode.



### Mode 2: USB reverse from RX to TX

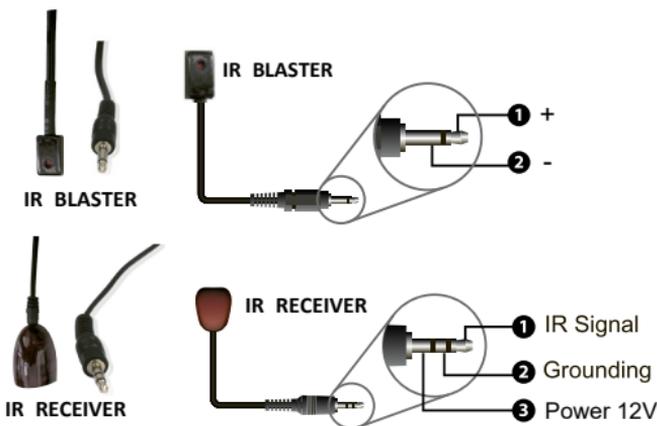
Switch the HOST/DEVICE USB CONTROL switch to right, then power off and reboot the transmitter to set to USB Device mode. Meanwhile, switch the HOST/DEVICE USB CONTROL switch to left, then power off and reboot the receiver to set to USB Host mode.

# Operation Controls and Functions



## IR Pin Definition

IR Receiver and Blaster pin's definition as below:

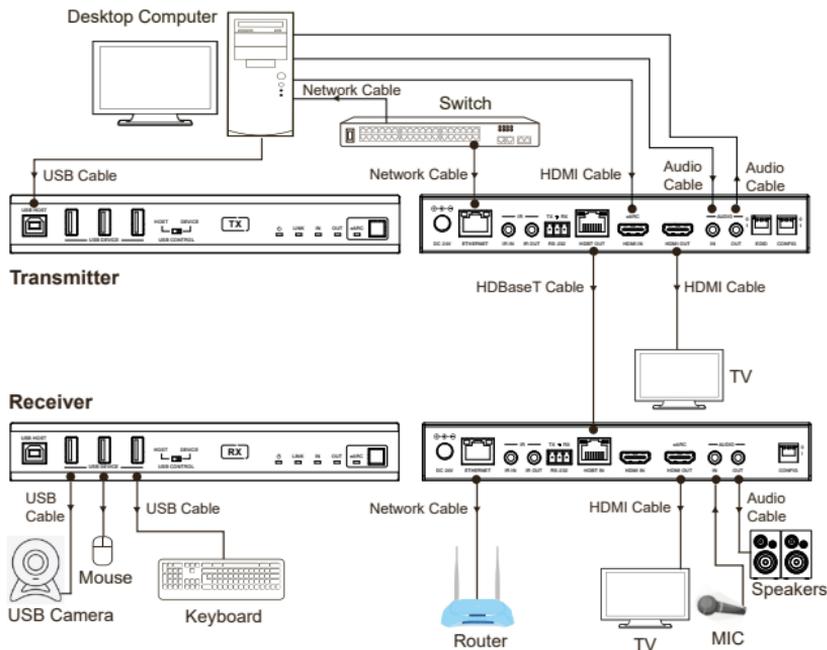


**Note:** When the angle between the IR receiver and the remote control is  $\pm 45^\circ$ , the transmission distance is 0-5 meters; when the angle between the IR receiver and the remote control is  $\pm 90^\circ$ , the transmission distance is 0-8 meters.



# Application Example

## Mode 2: Ordinary Connection Application



**Note:** Please press the eARC buttons on the front panel of the transmitter and receiver to disable the eARC/ARC function before operating the system.



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# FAQs & Troubleshooting

## 1. What is the maximum length of cable I can use with this device?

The maximum length of cable you can use with this model is 330 feet.

## 2. Does this only work with CAT6/7? What if I have a CAT 5e cable?

Our devices work with a CAT 5e cable as well. But, we recommend using CAT6.

## 3. Can I connect a USB hard disk to access it's data remotely?

Yes, you can connect all kinds of USB devices such as Pen drives, hard disks, etc.

## 4. Can I connect this to my home or office network?

Unfortunately, this model will not work over a network switch. It requires a direct connection between the Transmitter and Receiver.

## 5. No video or audio output

Check the status of the Green and Yellow indicators on both ends  
Try connecting a display to the HDMI OUT on the Transmitter to check if it works  
Change the CAT cable  
Chekc the status of the LEDs on the device

### ***Still have some questions?***

Please feel free to contact us at: [info@orei.com](mailto:info@orei.com). OR Fill out the form on the 'Contact Us' page on the website.

Our team will be more than happy to help you.



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over HDBaseT 3.0**

**BK-EXB330EAU-K**

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