®OREI

UHD-EXB330CU-K

4K HDMI/USB-C KVM Extender Over HDBaseT 3.0

USER MANUAL

Table of Contents

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.

Please Activate your warranty by registering our product through the link below - **www.orei.com/register**

Technical Support

Need Help?
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.

OREI Live Technical Support Hours
US team (US/Canada/Mexico): Monday-Friday, 9 a.m. - 6 p.m. Central Time **Support Email** - info@orei.com |
Support Number - 877-290-5530
Or
Chat Live on www.orei.com
Send us an instant message now. Our Technical Support Team will respond momentarily. Available during live support hours.

Introduction

The UHD-EXB330CU-K HDMI extender is a versatile gadget that can send uncompressed audio-video signals up to 330 feet with just a single CAT 6/6A/7 cable. It features support for video resolutions up to 4K@60Hz. The device also features a USB-C input, which makes it compatible with the latest laptops and other devices. KVM function allows you to control a laptop or PC from the Receiver location. It also features Bi-directional IR and PoC with HDBaseT 3.0 technology. It also supports 4K to 1080p Downscaling on the HDMI output. This device is perfect for home office and home theatre setups.

Features

1. HDMI 2.0b & HDCP 2.3 compliant
2. 18Gbps video bandwidth
3. Video resolutions up to 4K@60Hz at 330 feet
4. Reach up to 490 feet distance at 1080p resolution with the flick of a switch
5. HDBaseT 3.0 technology
6. USB-C and HDMI Inputs
7. DP-ALT mode support and charging up to 60 watts on the USB-C port
8. HDR10+, Dolby Vision, and HLG pass-through
9. 4K to 1080p Downscaling on HDMI Output
10. Analog audio output on both ends for Audio Extraction
11. Each USB-A port provides power up to 5V/500mA
12. Power over Cable technology for easy and flexible installation

Package Contents

1.	UHD-EXB330CU-K Transmitter	1pcs
2.	UHD-EXB330CU-K Receiver	1pcs
3.	IR Blaster Cable (1.5m)	1pcs
4.	IR Wideband Receiver Cable (1.5m)	1pcs
5.	3pin-3.81mm Phoenix Connector (male)	2pcs
6.	Mounting Ear	4pcs
7.	Machine Screw (KM3*4)	8pcs
8.	24V/3.75A Desktop Power Supply	1pcs
9.	User Manual	1pcs

Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.3
USB Compliance	USB 2.0
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@60Hz 4:4:4
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12 bit
IR Level	12Vp-p
IR Frequency	Wideband 20K-60KHz
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Audio Formats	**HDMI/USB-C/HDBT:** LPCM 2/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD **3.5mm Analog Audio:** LPCM 2CH
Transmission Distance	**HDBT Standard Mode (4K60/4K30/1080P):** 328ft/100m (CAT6A/7) **HDBT Long Reach Mode (1080P 8bit):** 492ft/150m (CAT6A/7)
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 × USB-C IN [USB Type C, 24-pin female]
	Output: 1 × HDBaseT OUT [RJ45, 8-pin female]
	          1 × L/R 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-3.81mm phoenix connector]
	          1 × SERVICE [Micro USB, 5-pin female]
	          1 × USB HOST [USB Type B, 4-pin female]
	          3 × USB Devices [USB Type A, 4-pin female]

Connection			

Receiver	Input: 1 × HDBaseT IN [RJ45, 8-pin female]
	Output: 1 × HDMI OUT [Type A, 19-pin female]
	         1 × L/R 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-3.81mm phoenix connector]
	         1 × SERVICE [Micro USB, 5-pin female]
	         2 × USB Devices [USB Type A, 4-pin female]		

Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	Transmitter: 170mm [L] × 102mm [W] × 22mm [H] Receiver: 144mm [L] × 78mm [W] × 23mm [H]		
Weight	Transmitter: 484g / 17oz, Receiver: 318g / 11.2oz		
Power Supply	Input: AC 100 - 240V 50/60Hz, Output: DC 24V/3.75A (US/EU standard, CE/FCC/UL certified)		
Power Consumption	94.32W (Power supply from TX, 60W USB-C charging, POC to RX) 10.8W (Power supply from TX or RX, without USB-C charging)		
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	4K60	4K24	1080P60
HDMI Cable Length (HDMI IN / OUT)	8m/26ft	12m/39ft	15m/50ft
The use of "Premium High Speed HDMI" cable is highly recommended.			

Operation Controls and Functions

Transmitter Panel

No.	Name	Function Description
1.	Power LED	The LED will light up Red when the Transmitter is powered on.
2.	LINK LED (Green)	▪ Light on: Transmitter and receiver are in good connection status. ▪ Light flashing: Transmitter and receiver are in poor connection status. ▪ Light off: Transmitter and receiver are not connected.
3.	USB-C LED (Green)	The LED will light up when USB-C is selected as the input source.
4.	HDMI LED (Green)	The LED will light up when HDMI is selected as the input source.

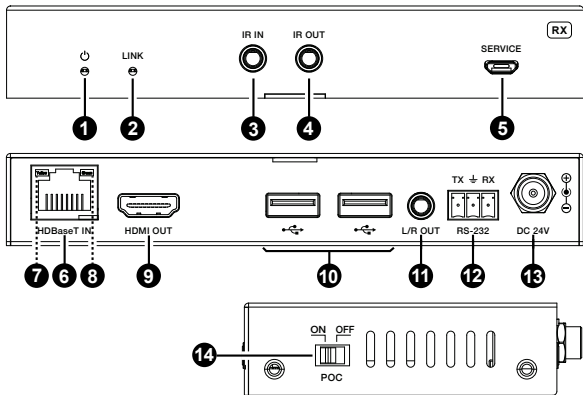| No.	Name	Function Description
6.	MODE switch	Used to switch HDBT mode. **Switch to "STD":** The HDBT Standard Mode (as factory default) is enabled, it can extend 4K60/4K30/1080P signal between the transmitter and the receiver up to 100m via a single CAT6A/7 cable. **Switch to "LRM":** The HDBT Long Reach Mode is enabled, it can extend 1080P 8bit signal between the transmitter and the receiver up to 150m via a single CAT6A/7 cable.
7.	EDID DIP switch	Used for EDID setting: 00- Copy display's EDID (as factory default) 01- 4K30 4:4:4 10- 1080p60 4:4:4 11- 1200p60 4:4:4
8.	USB Device ports	3 USB 2.0 extension ports to connect a Mouse, Keyboard or USB Drive. Max. power supply: 500mA
9.	SERVICE	Firmware update and API command control port.
10.	HDBaseT OUT	Connect a CAT6/7 cable. The other end connects to the Receiver HDBaseT IN.
11.	Data Signal Indicator (Yellow)	▪ Light on: There is video signal transmission with HDCP encryption. ▪ Light flashing: There is video signal transmission without HDCP encryption. ▪ Light off: There is no video signal transmission.

Note: In the HDBT Long Reach Mode, due to bandwidth limitations, USB cannot transmit USB 2.0 devices, but only can transmit USB HID devices (such as mice and keyboards). When using the USB pass-through function, the serial baud rate may also be limited.

Operation Controls and Functions

No.	Name	Function Description
12.	Link Signal Indicator (Green)	▪ Light on: Transmitter and receiver are in good connection status. ▪ Light flashing: Transmitter and receiver are in poor connection status. ▪ Light off: Transmitter and receiver are not connected.
13.	HDMI IN	Connect a media source device such as a DVD Player, set-top box, etc.
14.	USB-C port	USB Type C port with following three functions: (1) Signal Input Port: Connect a Laptop or PC as a source device. (2) Host Port: When the USB-C port is selected as the video signal input channel, it can also be used as a USB 2.0 signal transmission port simultaneously. (3) Charging Port: Only when TX is connected to the 24V/3.75A power supply, the USB-C port can provide 60W charging power for external USB-C devices. (When TX is not connected to the power supply and RX is connected to the power supply, the USB-C port can not provide charging function.)
15.	USB HOST	USB host port, connected to a PC. It follows the HDMI IN port. When the HDMI IN port is selected as the input channel, the USB 2.0 signal can only be output through the USB HOST port.
16.	L/R OUT	Analog audio output port for audio extraction
17.	IR IN	Connect the included IR Receiver cable
18.	IR OUT	Connect the included IR Blaster cable
19.	RS-232	RS-232 port used for command control through a PC
20.	DC 24V	DC 24V/3.75A 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.
21.	POC switch	Use the switch to turn on/off the POC function.

Rear Panel

| No.	Name	Function Description
1	Power LED	The LED will light up Red when the Transmitter is powered on.
2	LINK LED (Green)	• Light on: Transmitter and receiver are in good connection status. • Light flashing: Transmitter and receiver are in poor connection status. • Light off: Transmitter and receiver are not connected.
3	IR IN	Connect the included IR Receiver cable
4	IR OUT	Connect the included IR Blaster cable
5	SERVICE	Firmware update and API command control port.

Operation Controls and Functions

No.	Name	Function Description
6.	HDBaseT IN	Connect a CAT6/7 cable. The other end connects to the Transmitter HDBaseT OUT.
7.	Data Signal Indicator (Yellow)	• Light on: There is video signal transmission with HDCP encryption. • Light flashing: There is video signal transmission without HDCP encryption. • Light off: There is no video signal transmission.
8.	Link Signal Indicator (Green)	• Light on: Transmitter and receiver are in good connection status. • Light flashing: Transmitter and receiver are in poor connection status. • Light off: Transmitter and receiver are not connected.
9.	HDMI OUT	Connect a display device such as a TV, Monitor, etc.
10.	USB Device ports	2 USB 2.0 extension ports to connect a Mouse, Keyboard or USB Drive. Max. power supply: 500mA
11.	L/R OUT	Analog audio output port for audio extraction
12.	RS-232	RS-232 port used for command control through a PC
13.	DC 24V	DC 24V/3.75A 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.
14.	POC switch	Use the switch to turn on/off the POC function.

IR Receiver and Blaster pin's definition as below:

IR BLASTER

1 +

2 -

IR BLASTER

IR RECEIVER

1 IR Signal

2 Grounding

3 Power 12V
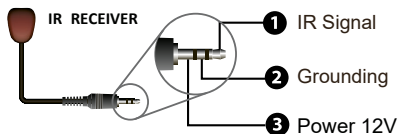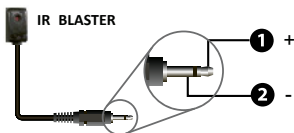
IR RECEIVER

Note: When the angle between the IR receiver and the remote control is ± 45 ˚, the transmission distance is 0-5 meters; when the angle between the IR receiver and the remote control is ± 90 ˚, the transmission distance is 0-8 meters.

API Commands

The product also supports API commands control. Connect the RS-232 port of the product to a PC or control system with a 3-pin phoenix connector cable, or connect the SERVICE port of the product to a PC with a Micro USB cable. Then, open a serial command tool on PC to send ASCII commands to control the product. The ASCII commands are listed below.

ASCII Commands				
Baud rate: 115200; Data bit: 8; Stop bit: 1; Parity bit: none. The end mark of command is "<CR><LF>".				
Command Code	**Function Description**	**Example**	**Feedback**	**Default**
help	Get the list of all commands	help	====================== Help Info FW Version:TX 1.00.02 RX 1.00.02 000. help 001. r fw version 002. s reboot 003. s reset 004. r status 005. s tx input x 006. r tx input 007. s tx autoswitch x 008. r tx autoswitch 009. s tx autoswitch mode x 010. r tx autoswitch mode 011. s rx downscale x 012. r rx downscale 013. s tx audio mute x 014. r tx audio mute 015. s rx audio mute x 016. r rx audio mute 017. s edid x to y 018. r edid x 019. r edid data x 020. s user edid x <y> 021. r user edid x ======================	

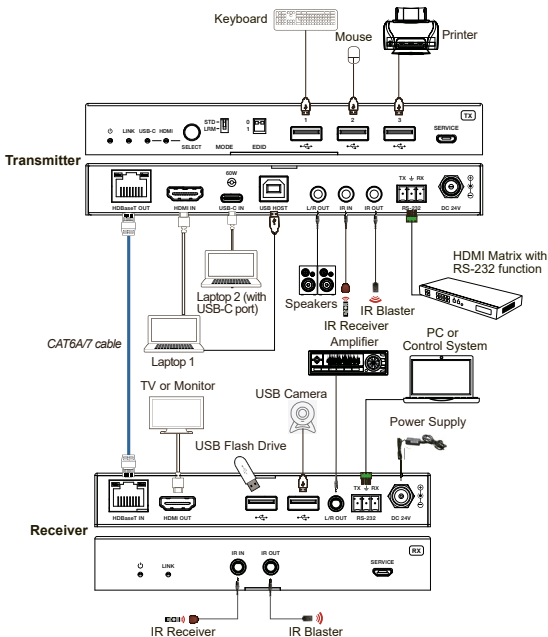| Command Code	Function Description	Example	Feedback	Default
r fw version	Get the firmware version	r fw version	TX 1.0.0 RX 1.0.0	
s reboot	Reboot the device	s reboot	Reboot... System Initializing... Initialization Finished! TX 1.0.0 RX 1.0.0	
s reset	Reset to factory defaults	s reset	Sure to RESET to default settings? Type "Yes" after next prompt to confirm...	
r status	Get system status	r status	Input: USB-C Video: 1920x1080p60 Audio: 48K PCM 2CH HDCP: 1.4 USB Host: Connected HDBT Link: ON HDBT Signal: ON EDID: DIP_00 (Copy display's EDID)	
s tx input x	Set TX input video x = USBC, HDMI, AVMUTE, OFF	s tx input USBC	Set tx input from USBC	USBC
r tx input	Get TX input port	r tx input	USBC	
s tx autoswitch x	Set TX auto-switching on/off x = ON, OFF	s tx autoswitch ON	Set tx autoswitch ON	ON
r tx autoswitch	Get TX auto-switching status	r tx autoswitch	ON	
s tx autoswitch mode x	Set TX auto-switching mode x = 0: 5V detection 1: signal detection	s tx autoswitch mode 1	Set tx autoswitch mode 1: signal detection	1: signal detection

API Commands

Command Code	Function Description	Example	Feedback	Default
r tx autoswitch mode	Get TX auto-switching mode status	r tx autoswitch mode	TMDS	
s rx downscale x	Set RX downscaling mode, x= AUTO: automatically according to display's capability ON: force 4K to 1080p OFF: bypass video	s rx downscale AUTO	Set rx downscale AUTO	AUTO
r rx downscale	Get RX downscaling mode	r rx downscale	AUTO	
s tx audio mute x	Set TX de-embedding audio mute on/off x = ON, OFF	s tx audio mute ON	Set tx audio mute ON	OFF
r tx audio mute	Get TX de-embedding audio mute status	r tx audio mute	OFF	
s rx audio mute x	Set RX de-embedding audio mute on/off x = ON, OFF	s rx audio mute ON	Set rx audio mute ON	OFF
r rx audio mute	Get RX de-embedding audio mute status	r rx audio mute	OFF	
r edid x	Get input ports EDID x = USBC, HDMI	r edid USBC	00 - EDID dipswitch (default)	
r edid data x	Get input ports EDID data x = USBC, HDMI	r edid data USBC	USBC EDID <00 FF FF FF....>	

Command Code	Function Description	Example	Feedback	Default
s edid x to y	Set input ports EDID x = USBC, HDMI, ALL y = 00 - EDID dip switch (default) 01 - 1920x1080@60 8bit Stereo 02 - WUXGA 1920x1200 03 - 1920x1080@60 8bit High Definition Audio 04 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 05 - 3840x2160@60Hz Deep Color Stereo Audio 06 - 3840x2160@30Hz 8bit Stereo Audio 07 - 3840x2160@60Hz Deep Color High Definition Audio 08 - 3840x2160@60Hz Deep Color HDR LPCM 6CH 09 - copy EDID from RX HDMI output 10 - User Defined 1 11 - User Defined 2	s edid USBC to 00	Set edid USBC to 00 - EDID dipswitch (default)	00
s user edid x <y>	Set user defined EDID x = 1 (User Defined 1) x = 2 (User Defined 2) y = 00 FF FF FF ..... (y is 256 bytes EDID data)	s user edid 1 <00 FF FF FF....>	User edid 1 is loaded	
r user edid x	Get user defined EDID x = 1 (User Defined 1) x = 2 (User Defined 2)	r user edid 1	User edid 1 <00 FF FF FF....>	
s hdbt update	Set Micro USB (UART) to HDBT UART for FW update	s hdbt update	Hdbt update	

Note: The API command "s hdbt update" is for internal use only.

Keyboard

Mouse

Printer

Transmitter

HDMI Matrix with RS-232 function

Laptop 2 (with USB-C port)

Speakers

IR Blaster

IR Receiver

Amplifier

PC or Control System

CAT6A/7 cable

Laptop 1

TV or Monitor

USB Camera

USB Flash Drive

Power Supply

Receiver

IR Receiver

IR Blaster

The terms HDMI and HDMI High-Definition Multimedia interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Connection Instructions: -

1. Connect the HDMI output from the media source(DVD Player, set-top box, PC) to the Transmitter HDMI IN.

2. Connect the HDMI input port from the TV or monitor to the Receiver HDMI OUT.

3. Connect both devices with a CAT6/6A/7 cable.

4. Connect the IR Blaster cable to the Transmitter IR OUT and the IR Receiver cable to the Receiver IR IN. (Only required if using the IR control. It will not affect the signal in any way.)

5. Connect the USB HOST port to a USB port on the PC using a USB-B to A cable.

6. Connect the Keyboard, Mouse and other USB device to the USB 2.0 ports on the Receiver.

7. Connect the included power adapters to power the devices.

FAQs & Troubleshooting

No Video Output from the Receiver End

Try the following:
1. Check if the Power and Link indication LEDs are lighting on both ends
2. Change the HDMI cable going to the display
3. Change the CAT cable
4. Check if the HDMI OUT on the Transmitter is working or not
5. Try pressing the Reset button on the Receiver

Not getting 4K@60Hz output on the Receiver end

Try the following:
1. Check if the settings on the display are set to 4K
2. Change the HDMI cable to one that supports 4K@60Hz
3. Check the length of the CAT cable. If it is longer than 120M, 4K resolution will not transmit perfectly
4. Check if the HDMI OUT on the Transmitter is working or not
5. Check if the video output setting from the source is set to 4K

Can I extend multiple screen with this product?

No, this product does not extend to multiple screens. It will duplicate the input sources to multple outputs.

Why is there only one power adapter in the box?

This device only requires one power adapter that can be connected to either the Transmitter end or the Receiver end. The other unit will receive power over the CAT6/7 cable.

How can I upgrade the firmware?

You can upgrade the firmware by connecting the PC & this device via a Micro-USB cable. Check the 'Downloads' section on the product page on the website for firmware updates.

What types of HDMI & CAT cables I should use with this product?

We recommend you to use High-Quality HDMI cables under 30 feet& Round-Shielded CAT6 cables.

I am unable to get the remote to work with IR, how to connect the IR Blaster & IR Receiver?

The IR Blaster should be connected to the IR out port on the Transmitter and the IR Receiver should be connected to the IR in on the Receiver.

Here's a quick overview of how the IR connection works on our extenders:

Still have some questions?

Please feel free to contact us at: 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.

OREI Live Technical Support Hours

US team (US/Canada/Mexico): Monday-Friday, 9 a.m. - 6 p.m. Central Time **Support Email** - info@orei.com |**Support Number** - 877-290-5530

OREI®

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