UHD-EXB230EA-K

4K HDBaseT 3.0 HDMI™ Extender (eARC, Bi-IR) - 130ft (Cat6)

USER MANUAL

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Table of Contents

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating, or adjusting this product. Keep this manual for future reference.

Important Safety Note – Surge Protection Recommended

This product contains sensitive electronic components that may be damaged by electrical spikes, surges, lightning strikes, or static discharge. To protect and extend the service life of your equipment, we strongly recommend using a surge protection device.

Registration Page

Activate your warranty by registering your product at:

→ **www.orei.com/register**

Need Technical Support? We're Here to Help.

Our experienced Technical Support Team is available to answer your questions, offer expert advice, and help troubleshoot any issues to keep your project on track—on time and on budget.

Live Support Hours (US/Canada/Mexico):

Monday–Friday | 9:00 a.m. – 5:00 p.m. Central Time

Contact Us:

Email: info@orei.com

Phone: 877-290-5530

Chat Live: www.orei.com

Send us an instant message—our team typically responds within moments during live support hours.

Introduction

UHD-EXB230EA-K is a professional-grade HDMI™ extender designed to transmit uncompressed 4K video, eARC/ARC, RS-232, and bi-directional IR over long distances using a single Cat 6A/7 cable.

Utilizing the advanced HDBaseT 3.0 VS310 chipset, this extender supports resolutions up to 4K@60Hz (YUV 4:4:4) and achieves transmission distances of up to 131 ft (40 m) and up to 230 ft (70 m) for 4K@30Hz or 1080p@60Hz signals.

The transmitter features an HDMI™ input with eARC output where you can connect your eARC enabled AVR or Soundbar. The receiver includes an HDMI™ output with eARC input where you can connect an ARC/eARC enabled TV to extract audio from and send to the AVR or Soundbar.

Bi-directional Power over Cable (PoC) simplifies installation by requiring only one end to be powered.

Engineered for both residential and commercial installations, this extender offers a reliable, all-in-one solution for long-distance AV transmission with full control and audio support.

Features

1. **HDMI™ 2.0b & HDCP 2.3 Compliant** – Ensures secure and seamless transmission of protected content.
2. **Resolutions up to 4K@60Hz** – Delivers uncompressed Ultra HD video in full detail and color clarity.
3. **18Gbps Video Bandwidth** – Provides high-performance signal quality without compression.
4. **HDBaseT 3.0 Technology (VS310 Chipset)** – Enables long-distance HDMI™ signal extension over a single Cat6A/7 cable.
5. **Transmission Range** – 4K@60Hz up to 131 ft (40 m), 4K@30Hz/1080p@60Hz up to 230 ft (70 m).
6. **eARC/ARC Pass-Through** – Allows return audio from receiver's HDMI™ output to transmitter's AV equipment.
7. **HDR Support** – Compatible with HDR10+, Dolby Vision LLM, and HLG for vibrant picture quality.
8. **Bi-directional IR & RS-232 Pass-Through** – Enables remote device control and serial communication across the extender.
9. **Bi-directional 24V PoC (Power over Cable)** – Power either transmitter or receiver; the other unit operates without additional power.
10. **Compact and Efficient Design** – Perfect for clean and discreet installations in home theater or commercial AV systems.

Package Contents

1.	UHD-EXB230EA-K Transmitter	1pcs
2.	UHD-EXB230EA-K Receiver	1pcs
3.	IR Blaster Cable (1.5m)	1pcs
4.	IR Wideband Receiver Cable (1.5m)	1pcs
5.	3pin-3.5mm Phoenix Connectors (male)	2pcs
6.	Mounting Ears	4pcs
7.	Machine Screws	8pcs
8.	Power Adapter	1pcs
9.	User Manual	1pcs

Specifications

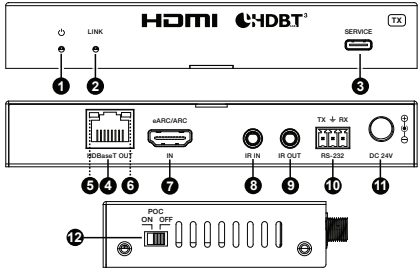
Technical	
HDMI™ Compliance	HDMI™ 2.0b
HDCP Compliance	HDCP 2.3
Video Network Bandwidth	HDBT 3.0 16Gbps
Video Bandwidth	18Gbps
Video Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 720x480i59.94Hz(480i59), 720x480p59.94Hz, (480p59), 720x576i50Hz(576i50), 720x576p50Hz(576p50), 1280x720p50Hz(720p50), 1280x720p59.94Hz(720p59), 1280x720p60Hz(720p60), 1920x1080i50Hz(1080i50), 1920x1080i59.94Hz(1080i59), 1920x1080i-60Hz(1080i60), 1920x1080p23.98Hz(1080p23), 1920x1080p24Hz(1080p24), 1920x1080p25Hz(1080p25), 1920x1080p29.97Hz(1080p29), 1920x1080p30Hz(1080p30), 1920x1080p50Hz(1080p50), 1920x1080p59.94Hz(1080p59), 1920x1080p60Hz(1080p60), 3840x2160p23.98Hz(2160p23), 3840x2160p24Hz(2160p24), 3840x2160p25Hz(2160p25), 3840x2160p29.97Hz(2160p29), 3840x2160p30Hz(2160p30), 3840x2160p50Hz(2160p50), 3840x2160p59.94Hz(2160p59), 3840x2160p60Hz(2160p60), 3840x2160p100Hz(2160p100), 3840x2160p120Hz(2160p120), 4096x2160p23.98Hz, 4096x2160p24Hz, 4096x2160p25Hz, 4096x2160p29.97Hz, 4096x2160p30Hz, 4096x2160p50Hz, 4096x2160p59.94Hz, 4096x2160p60Hz
Color Space	RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Color Depth	8-bit, 10-bit, 12-bit
Audio Formats	**HDMI™ IN/OUT:** LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
IR Level	12Vp-p
IR Frequency	Wideband 20K-60KHz
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Transmission Distance	HDMI™ passive cable: 9.8ft/3m CAT6A/7 cable: 131ft /40m@4K60 CAT6A/7 cable: 230ft/70m@4K30/1080P
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)

Specifications

Connection	
Transmitter	Input: 1x IN [HDMI™ Type A, 19-pin female, supporting eARC/ARC output] Output: 1x HDBaseT OUT [RJ45, HDBT output with 24V PoC] Control: 1x RS-232 [3pin-3.5mm phoenix connector] 1x SERVICE [USB-C with USB 2.0 only, 12-pin female] 1x IR IN [3.5mm audio jack, 12V level] 1x IR OUT [3.5mm audio jack]
Receiver	Input: 1x HDBaseT IN [RJ45, HDBT input with 24V PoC] Output: 1x OUT [HDMI™ Type A, 19-pin female, supporting eARC/ARC input]] Control: 1x RS-232 [3pin-3.5mm phoenix connector] 1x SERVICE [USB-C with USB 2.0 only, 12-pin female] 1x IR IN [3.5mm audio jack, 12V level] 1x IR OUT [3.5mm audio jack]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Transmitter/Receiver: 144mm [W] x 78mm [D] x 23mm [H]
Weight	Transmitter: 308g; Receiver: 307g
Power Supply	Input: AC 100 - 240V 50/60Hz; Output: DC 24V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	TX: 5.28W; RX: 5.52W Total: 11W (including PoC power supply)
Operating Temperature	0˚C ~ 40˚C / 32˚F ~ 104˚F
Storage Temperature	-20˚C ~ 60˚C / -4˚F ~ 140˚F
Operating Humidity	20% ~ 80% (relative humidity, no condensation)
Storage Humidity	10% ~ 90% (relative humidity, no condensation)

Operation Controls and Functions

Transmitter Panel

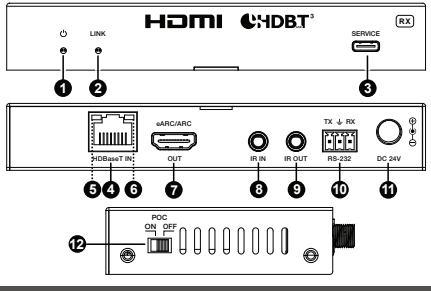


No.	Name	Function Description
1.	Power LED	The red LED will light up when the Transmitter is powered on.
2.	LINK LED	The green LED will light up when the transmitter and receiver are linked.
3.	SERVICE	USB 2.0 Type C port, used for firmware upgrade and API commands control.
4.	HDBaseT OUT	HDBaseT output port, connected to the HDBaseT IN port of the receiver with a CAT6A/7 cable.
5.	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.
6.	Link Signal Indicator (Green)	• Light on: Transmitter and receiver are linked. • Light off: Transmitter and receiver are not linked.

Operation Controls and Functions

No.	Name	Function Description
7.	eARC/ARC IN	HDMI signal input port, connected to HDMI source device/amplifier. When connected to the signal source, it can transmit video; When connected to the amplifier, it supports eARC/ARC audio return.
8.	IR IN	IR signal input port for receiving the signal of IR remote.
9.	IR OUT	IR signal output port for control of source device. This IR output signal is from the IR IN port of receiver.
10.	RS-232	RS-232 serial port, used for RS-232 signal pass-through.
11.	DC 24V	DC 24V/1A power supply input port. Note that the extender supports PoC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply.
12.	PoC switch	24V PoC on/off switch. ON: PoC is enabled (as factory default). OFF: PoC is disabled (need local DC/24V power supply).

Receiver Panel

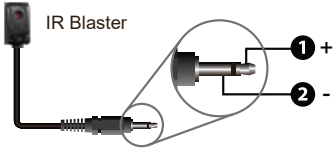


Operation Controls and Functions

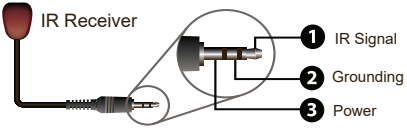
No.	Name	Function Description
1.	Power LED	The red LED will light up when the Receiver is powered on.
2.	LINK LED	The green LED will light up when the transmitter and receiver are linked.
3.	SERVICE	USB 2.0 Type C port, used for firmware upgrade and API commands control.
4.	HDBaseT IN	HDBaseT input port, connected to the HDBaseT OUT port of the transmitter with a CAT6A/7 cable.
5.	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.
6.	Link Signal Indicator (Green)	• Light on: Transmitter and receiver are linked. • Light off: Transmitter and receiver are not linked.
7.	eARC/ARC OUT	HDMI signal output port, connected to HDMI display device. When connected to a TV with eARC/ARC function, this port supports eARC/ARC audio return.
8.	IR IN	IR signal input port for receiving the signal of IR remote.
9.	IR OUT	IR signal output port for control of source device. This IR output signal is from the IR IN port of receiver.
10.	RS-232	RS-232 serial port, used for RS-232 signal pass-through.
11.	DC 24V	DC 24V/1A power supply input port. Note that the extender supports PoC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply.
12.	PoC switch	24V PoC on/off switch. ON: PoC is enabled (as factory default). OFF: PoC is disabled (need local DC/24V power supply).

IR Pin Definition

IR BLASTER



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 SERVICE port of the product to a PC with USB-C cable. Then open a serial command tool on PC to send ASCII commands to control the product.
The ASCII commands list about the product is shown as below.

ASCII Commands				
Service port (USB-C virtual RS-232) communication protocol (Internal debug supports command line operations) Baud rate: 115200 (Fixed) Data bit: 8 Stop bit: 1 Parity bit: none				
Commands	**Description**	**Example**	**Feedback**	**Default**
?	Get the list of all commands	?	List all commands	
help	Get the list of all commands	help	List all commands	
get version	Get firmware version	get version	TX: BOOT V1.00.01 MCU V1.00.01 RX: BOOT V1.00.01 MCU V1.00.01	
reboot	Reboot the device	reboot	Reboot... System Initializing... Initialization Finished! TX: BOOT V1.00.01 MCU V1.00.01	
status	Get device current status	status	Please refer to the note at the end of the list.	
get arc	Get ARC status	get arc	ARC enable	

API Commands

Commands	Description	Example	Feedback	Default
get cec	Get CEC status	get cec	REPORT_ARC_INITI-ATED	
set hdbt update	Set service to hdbt uart for fw update	set hdbt update	HDBT update...	

Notes:

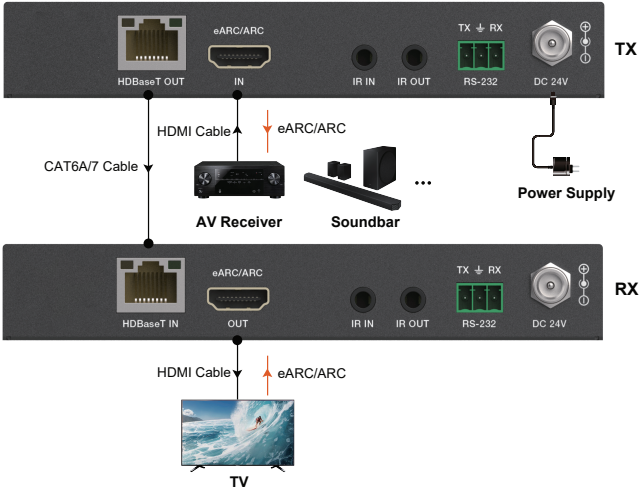
(1) The API command "set hdbt update" is for internal use only.

(2) The feedback of the command of "status" is as following.

```
==========================================================================
Status Info 4K HDMI™/eARC over HDBaseT 3.0 Extender
TX: BOOT V1.00.01 MCU V1.00.01
RX: BOOT V1.00.01 MCU V1.00.01

ARC/eARC        CEC
ARC             REPORT_ARC_INITIATED
==========================================================================
```

Application Example



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

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