EX-4KU

HDMI 2.0 Wall-Plate with USB & RS-232 over HDBaseT™ Kit

Part Number	Function
EX-4KU-WP	Single Gang Decora Wall-Plate Transmitter
UHB-R	Receiver with HDMI, USB, and RS-232

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$\mathsf{C}\,\mathsf{E}$ FCC   RoHS Compliant

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:
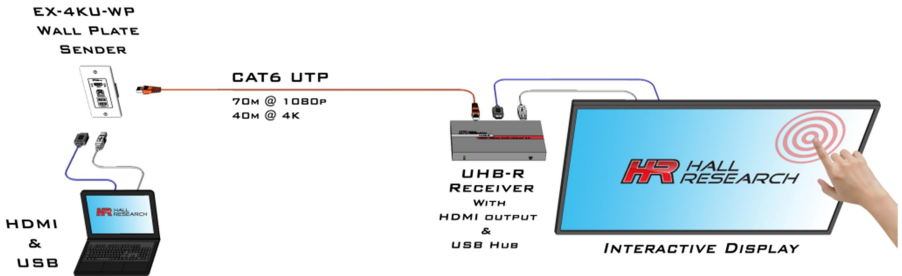1. This device may not cause harmful interference.
2. This device must accept any interference even if it causes undesired operation.

This equipment has been desinged to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

1.0 Introduction

The EX-4KU is a kit comprised of a Single Gang Decora style wall plate transmitter (EX-4KU-WP) and a receiver (UHB-R). The transmitter accepts an HDMI input with resolutions up to 4K UHD. It also features a USB 2.0 HOST port, two USB Charging ports, and bi-directional RS-232.

The video, USB, and RS-232 transmit over a single CAT6 cable up to 70 m/230' at 1080p, or 40 m/131' for 4K UHD.

Typical Connection Diagram

The USB Extension enables use with keyboard, mouse, touch-screen, or any other USB 1.1 and 2.0 devices including Smartboards, interactive displays, and USB webcams. Two USB Charging ports are on the wall plate for convenience.

EX-4KU HDBaseT Wall Plate Extender is perfect for all commercial AV and Educational (K-12) installations and supports HDMI, USB 2.0 and RS-232 control within a standard Single Gang Decora wall plate.

Power transmits from the receiver to the transmitter, simplifying installation by eliminating the need to run extra cables.

This versatile extender includes one wall plate transmitter and one box style receiver.

Features

- HDMI and USB inputs on wall plate
- HDMI input supports HDMI 2.0b - 18 Gbps or 4Kx2K 60 Hz with HDR
- Uses HDBaseT 2.0 to 40 m @ 4K/60 Hz(4:4:4) or 70 m @ 1080p/60 Hz
- Extends RS-232 and USB 2.0
- Single Gang Decora Wall Plate transmitter is powered from the receiver
- HDCP 2.2 compliant
- Supports 7.1 channels HD audio format
- 3 Year warranty

2.0 Package Contents

Model EX-4KU-WP
> (x1) Single Gang HDBaseT™ transmitter (EX-4KU-WP)
> (x1) Decora faceplate (white)
> (x1) Phoenix connector (3-pin)

Model UHB-R
> (x1) HDBaseT™ receiver (UHB-R)
> (x2) Mounting Brackets
> (x1) Phoenix connector (3-pin)
> (x1) IR detector (wideband) (not used)
> (x1) IR emitter (wideband) (not used)
> (x1) Power Supply (universal)

3.0 Setup

Installation

- Connect the video source(s) to the EX-4KU-WP transmitter.
- Connect the USB Host (PC) to the transmitter using a USB A/B cable.
- Connect the display to the UHB-R receiver.
- Connect the USB devices to the receiver.
- Optionally, connect the RS-232 to extend control signals between transmitter and receiver.
- Connect CAT6 or better cable between transmitter and receiver.

> NOTE   Do not exceed 40 m/131' if the extender is using 4K UHD. Otherwise, do not exceed 70 m/230' total length, including patch cables. If using shielded cable, ensure the shields connect to shielded connectors at both ends.

- Plug in the supplied power supply to the receiver. The transmitter will receive its power through the CAT6 cable.

4.0 Connector and Indicator Functions

Model EX-4KU-WP FRONT

1) HDMI IN: Connect to HDMI source, such as a PC or media player.
2) USB HOST: Connect to a USB Host, such as a PC.
3) USB CHARGE: +5v power for charging USB devices
4) LEDS:
   a. POWER: Lights Green when power is applied.
   b. SIGNAL: Lights Red when video signal source is active.

Model EX-4KU-WP REAR

1) HDBaseT OUT: Connect to UHB-R receiver using CAT6 cable.
2) RS-232: Use supplied terminal block to extend RS-232 between transmitter and receiver.

Model UHB-R FRONT

1) POWER: LED indicates the receiver is powered.
2) SERVICE: Micro USB connection for updating firmware. Firmware update decided by position of DIP switch on bottom of receiver. Set DIP switch to "0" for normal operation.

Model UHB-R REAR

1) DC 24V: Power input. Use the included power supply with the locking connector. The transmitter receives power via PoC from the receiver.
2) HDBaseT IN: Connect to EX-4KU-WP using CAT6 cable.
3) IR IN / IR OUT: Not supported with EX-4KU-WP transmitter.
4) HDMI OUT: Connect to HDMI display, such as a TV or projector.
5) USB: Connect to USB devices, such as keyboards, mice, or touchscreens.
6) RS-232: Use the supplied terminal block to extend RS-232 between the transmitter and receiver.

5.0 Troubleshooting

If you are experiencing problems getting the EX-4KU to work properly, please use the following troubleshooting suggestions.

- Ensure the CAT6 cable terminates correctly and that the total length does not exceed the rating for the resolution used. (See NOTE in Section 3.)

- Replace the CAT6 extension cable with a shorter patch cord. Ensure wiring is straight through, using either EIA/TIA 568A or 568B at both ends.

- The USB Host (PC) connects to the EX-4KU-WP.

- USB Devices (keyboard/mouse) connect to the UHB-R.

    The connections cannot be reversed.

- Try resetting the system by unplugging the power supply, waiting 5 seconds and plugging it back.

Contacting Hall Research

If you determine that your EX-4KU is malfunctioning, do not attempt to repair the unit. Instead, contact Hall Research Technical Support at 714-641-6607. To return the unit to Hall Research you must first get a Return Authorization (RMA) number. Package the unit carefully, if returning. We recommend that you use the original container.

6.0 Specifications

Video

Standards	HDMI 2.0b HDCP 2.2, 1.4 DVI (single link)

Connectors	**EX-4KU-WP**	**UHB-R**
	(1) HDMI Input	(1) HDMI Output
	(1) USB-B Host	(2) USB-A Device
	(2) USB-A Charging Port	(1) IR IN – 3.5 mm (not used)
	(1) HDBaseT OUT – RJ45	(1) IR OUT – 3.5 mm (not used)
	(1) RS-232 – 3 pin Phoenix	(1) HDBaseT IN – RJ45
		(1) RS-232 – 3 pin Phoenix
		(1) USB-Mini Service
		(1) DC 24 V 2.0 mm Locking Jack

Resolutions	HDTV signal	480p through 4K60 4:4:4 (4096 x 2160)
	DVI signal	VGA (640x480) thru WUXGA (1920x1200)

Audio

Formats	LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio DSD

Other Signals

RS-232	(1)	RX, TX and GND on Terminal Strip
	(2)	

General

Power Supply	100 VAC to 240 VAC, 50-60 Hz, External; 24 VDC 1 A
Temp/humidity	Storage: -4 to +140 °F (-20 to +60 °C) / 10% to 90%, non-condensing Operating: +32 to +104 °F (0 to +40 °C) / 10% to 90%, non-condensing
Typical DC Current Draw	24 VDC, 1.0 A Power Supply ~313 mADC (7.5 W)
Cooling	Convection
Enclosure type	Metal
Dimensions	EX-4KU-WP - 2.60" H x 1.30" W x 1.80" D (66 mm H x 33 mm W x 45.8 mm D) EX-HDU-R - 0.97" H x 6.77" W x 3.84" D (20 mm H x 172 mm W x 97.5 mm D)

Product weight	Model Only EX-4KU-WP - 0.7 lb
	              UHB-R - 0.93 lb
	Shipping EX-4KU-WP - 1.2 lb.
	              UHB-R - 2.25 lb.
	              EX-4KU-WP + UHB-R - 3.0 lb

Safety	CE
EMI/EMC	CE, FCC Class A
MTBF	90,000 hours (estimate)
Warranty	3 years parts and labor

Specifications are subject to change without notice

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