



UHD **HDBT** **4K60 18GB** **4:4:4** **SPACE** **HDCP 2.2** **HDMI** **⇔** **USB 2.0**

UHB-SW2

HDMI/VGA Auto-Switching Wall-Plate
with USB, IR, & RS-232 over HDBaseT™ Kit

Part Number	Function
UHB-SW2-WP	2-Gang Decora Wall-Plate Transmitter
UHB-R	Receiver with HDMI, USB, IR, and RS-232 out

UMA1284 REV N/C

**CUSTOMER
SUPPORT
INFORMATION**

Order toll-free in the U.S. 800-959-6439
 FREE technical support: 714-641-6607 or support@hallresearch.com
Hall Research, 1163 Warner Ave. Tustin, CA 92780
 www.hallresearch.com

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FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

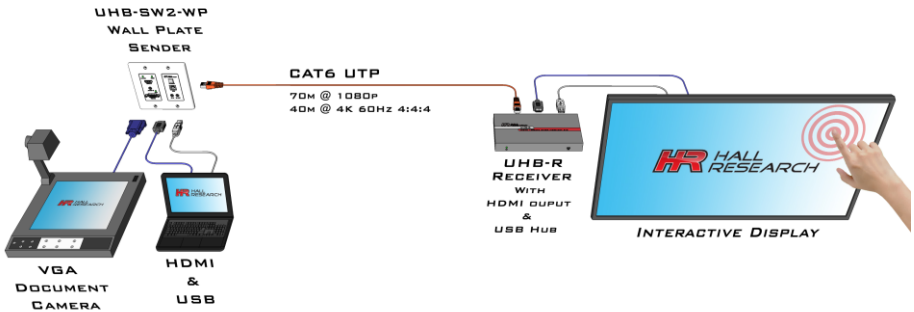
1. This device may not cause harmful interference.
2. This device must accept any interference even if it causes undesired operation.

This equipment has been designed 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 UHB-SW2 is a kit comprised of a 2-Gang Decora style wallplate transmitter (UHB-SW2-WP) and a receiver (UHB-R). The transmitter accepts an HDMI input with resolutions up to 4K UHD, or a VGA input up to 1920x1080 with analog audio that is converted to HDMI. The transmitter wallplate also features a USB HOST port, IR input, IR output and bi-directional RS-232.

The video, USB, and control signals are all transmitted over a single CAT6 cable up to 70m/230' at 1080p, or 40m/131' for 4K UHD.



Typical Connection Diagram

Auto switching will select and display the last connected input (HDMI or VGA), however a button is provided to easily override and select the desired input if required. 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.

UHB-SW2 HDBaseT Wall Plate Extender is perfect for all commercial AV and Educational (K-12) installations and supports HDMI, USB 2.0 and VGA with audio inputs within a standard 2-Gang Decora wall plate.

Power is sent from one end to the other allowing easy connection of the supply to either end.

This versatile extender includes 1 wall plate transmitter and 1 box style receiver.

Features

- HDMI, VGA, and USB inputs on wall plate
- HDMI input supports 18 Gbps or 4Kx2K 60Hz with HDR
- VGA input accommodates resolutions to 1080p
- Uses HDBaseT 2.0 to 40m @ 4K/60Hz(4:4:4) or 70m @ 1080p/60Hz
- Stereo audio input to embed in VGA video
- VGA video is converted to HDMI and Scaled to 1080p
- Video automatically switches to the last plugged (VGA or HDMI)
- Button to override the automatic input selection
- Extends IR, RS-232 and USB 2.0
- 2-Gang Decora Wall Plate Sender is powered from the Receiver
- HDCP 2.2 compliant
- Supports 7.1 channels HD audio format
- 3 Year warranty

2.0 Package Contents

Model UHB-SW2-WP

- (x1) 2-Gang HDBaseT™ transmitter (UHB-SW2-WP)
- (x1) Phoenix connector (2-pin)
- (x1) Phoenix connector (3-pin)
- (x1) IR detector (wideband)
- (x1) IR emitter (wideband)

Model UHB-R

- (x1) HDBaseT™ receiver (UHB-R)
- (x1) Phoenix connector (2-pin)
- (x1) Phoenix connector (3-pin)
- (x1) IR detector (wideband)
- (x1) IR emitter (wideband)
- (x1) Power Supply

3.0 Setup

Installation

- Connect the video source(s) to the UHB-SW2-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 or IR detector/emitter pair to extend control signals between transmitter and receiver.
- Connect CAT6 or better cable between transmitter and receiver.

NOTE Do not exceed 40m/131' if the extender is to be used with 4K UHD. Otherwise, do not exceed 70m/230' total length, including patch cables. If using shielded cable, ensure shields are connected 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.

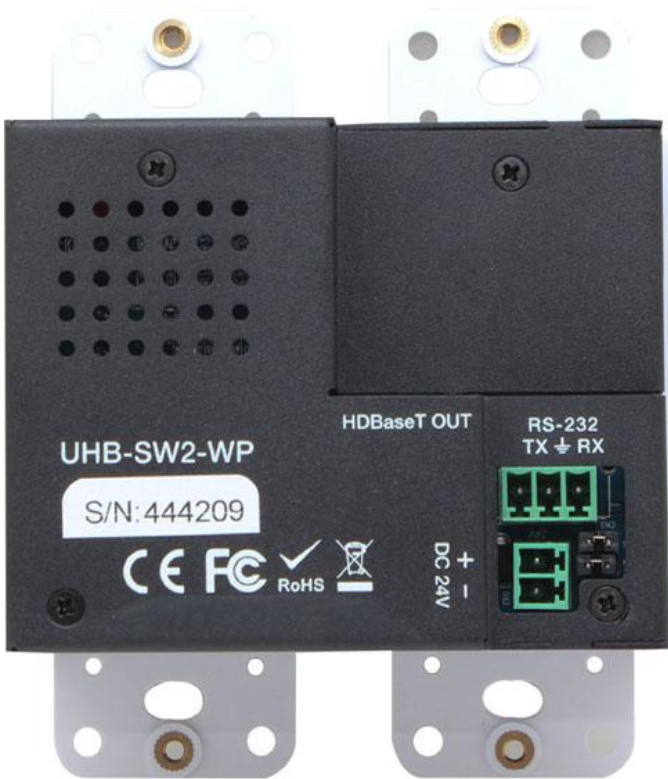
4.0 Connector and Indicator Functions

Model UHB-SW2-WP FRONT



- 1) HDMI IN: Connect to HDMI source, such as a PC or media player.
- 2) VGA IN / AUDIO IN: Legacy input. Connect to VGA and line level analog audio source.
- 3) USB: Connect to a USB Host, such as a PC.
- 4) IR IN / IR OUT: Connect the IR detector to the IR IN or the IR emitter to the IR OUT, to extend IR (must use corresponding IR cable at receiver.)
- 5) Source Button: Press to manually switch between HDMI and VGA.
- 6) LEDs:
 - a. ACTIVE: Shows presense of an active video signal on the selected input.
 - b. HDMI / VGA: Shows which video input is selected for extension.

Model UHB-SW2-WP REAR



- 1) HDBaseT OUT: Connect to UHB-R receiver using CAT6 cable.
- 2) RS-232: Use supplied terminal block to extend RS-232 control signals between Transmitter and Receiver.
- 3) DC 24V: Optional power connection, if power is unavailable at UHB-R receiver side. Only one power supply is needed.

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:
 - a. Position 0: Update HDBaseT Firmware.
 - b. Position 1: Update MCU firmware.

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 UHB-SW2-WP using CAT6 cable.
- 3) IR IN / IR OUT: Connect the IR detector to the IR IN, or the IR Emitter to the IR OUT, to extend IR (you must use corresponding IR cable at 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 control signals between the transmitter and receiver.

5.0 Troubleshooting

If you are experiencing problems getting the UHB-SW2 to work properly, please use the following troubleshooting suggestions.

- Ensure the CAT6 cable is properly terminated 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) must be plugged into the UHB-SW2-WP.
- USB Devices (keyboard/mouse) must be plugged into the UHB-R.

The connections cannot be reversed.

- IR: Ensure the IR detector is plugged into the port labeled “IR IN,” and the IR emitter is plugged into the port labeled “IR OUT.”
- Try resetting the system by unplugging the power supply, waiting 5 seconds and plugging it back.

Contacting Hall Research

If you determine that your UHB-SW2 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)
VGA

Connectors

UHB-SW2-WP

(1) HDMI Input
(1) VGA Input
(1) Analog Audio Input – 3.5mm
(1) USB-B Host
(1) IR IN – 3.5mm
(1) IR OUT – 3.5mm
(1) HDBaseT OUT – RJ45
(1) RS-232 – 3 pin Phoenix
(1) DC 24V – 2 pin Phoenix
(1) USB-Mini Service

UHB-R

(1) HDMI Output
(2) USB-A Device
(1) IR IN – 3.5mm
(1) IR OUT – 3.5mm
(1) HDBaseT IN – RJ45
(1) RS-232 – 3 pin Phoenix
(1) USB-Mini Service
(1) DC 24V 2.0 mm Locking Jack

Resolutions

HDTV signal 480p through 4K60 4:4:4 (4096 x 2160)
DVI signal VGA (640x480) thru WUXGA (1920x1200)
VGA 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
IR (2) IR IN, IR OUT on 3.5mm Jacks

General

Power Supply 100 VAC to 240 VAC, 50-60 Hz, External; 24 VDC 1 A
Temp/humidity Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, non-condensing
Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, non-condensing
Typical DC 24 VDC, 1.0 A Power Supply
Current Draw ~500 mADC
Cooling Convection
Enclosure type Metal
Dimensions UHB-SW2-WP - 4.13" H x 3.61" W x 1.57" D (105 mm H x 91.8 mm W x 40 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 UHB-SW2-WP - 0.47 lb
UHB-R - 0.93 lb
Shipping UHB-SW2-WP - 1.5 lb
UHB-R - 2.25 lb
UHB-SW2-WP + UHB-R - 3.3 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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