VGA/HDMI over HDBaseT Extender Set with Ethernet | IR | Serial | 2-way PoH (100m/328ft)

EX-SW-0201-4K

WyreStorm

Quickstart Guide

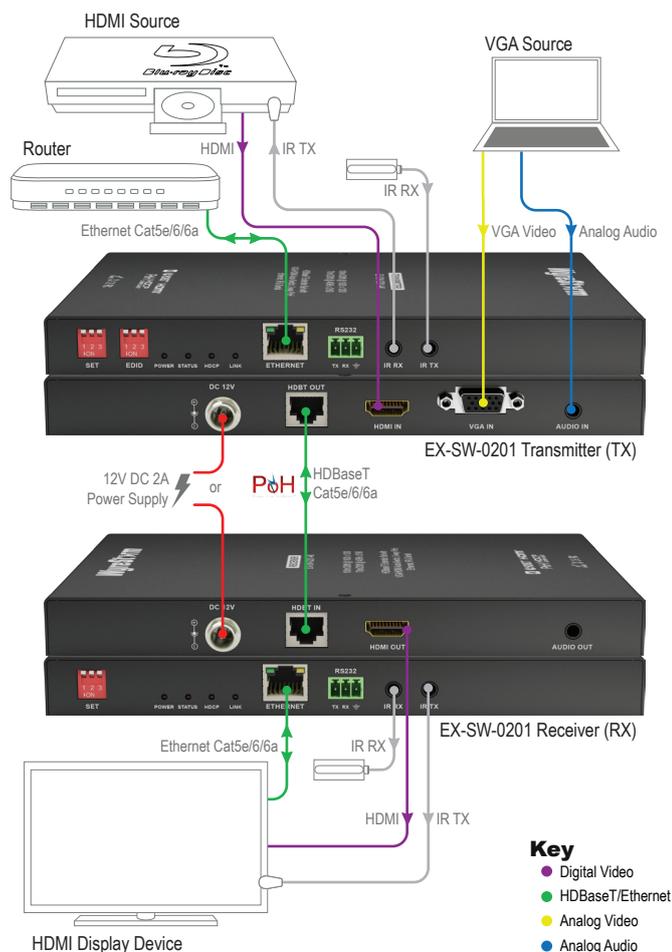A full-featured 5-Play HDBaseT extender set with the added feature of a VGA/HDMI auto-switching transmitter.

WyreStorm recommends reading through this document in its entirety to become familiar with the product's features prior to starting the installation process.

HDBT · **HDMI** · **HDCP 2.2** · **PoH**

In the Box
1x EX-SW-0201-4K Transmitter
1x EX-SW-0201-4K Receiver
1x 12V DC 2A Power Supply (US/UK/EU)
2 x 3-pin Screw Down Phoenix Connectors
2x IR Emitters
2x Wide-band IR Receivers (30-50KHz)
4x Mounting Brackets (1pr for TX and 1pr for RX)
1x Quickstart Guide (this document)

Basic Wiring Diagram

HDMI Source
VGA Source
Router
HDMI
IR TX
IR RX
VGA Video
Analog Audio
Ethernet Cat5e/6/6a
EX-SW-0201 Transmitter (TX)
12V DC 2A Power Supply   or   PoH   HDBaseT Cat5e/6/6a
EX-SW-0201 Receiver (RX)
Ethernet Cat5e/6/6a
IR RX
HDMI
IR TX
HDMI Display Device

Key
- ● Digital Video
- ● HDBaseT/Ethernet
- ● Analog Video
- ● Analog Audio

⚠ IMPORTANT! Do not connect or disconnect (hot plug) the HDMI, or HDBaseT connections while the transmitter or receiver is powered on. Doing so may cause damage to the units or connected devices.

Additional Information
This Quickstart Guide provides the basic steps for the common uses of this product. Refer to the Installation Guide and other documentation on the product page for additional information.

Installation

Before Beginning
Verify that all items are included in the packaging per the In The Box list.

Pre Wire
1. Run a Cat5e/6/6a cable from the transmitter location to the receiver location. Terminate the cable per the HDBaseT Wiring section.
2. (Optional) If using 3rd party IR emitters or connecting blocks at either the transmitter or receiver, run the wire and terminate per the IR TX (Emitter) Wiring section.
3. (Optional) If using RS-232 pass-through, run the wire and terminate per the RS-232 Wiring section.
4. (Optional) If using 3rd party IR receivers at either the transmitter or receiver, run the wire and terminate per the IR RX (Receiver) Wiring section.

### Transmitter Installation
1. Connect an HDMI source to the **HDMI In** on the transmitter using an HDMI cable from a high quality brand such as WyreStorm Express.
2. (Optional) Connect the VGA Out from a VGA source to the **VGA In**. Connect the audio out for the VGA source to the Audio In using a cable terminated per the Audio In/Out Wiring section.
3. (Optional) Place an IR emitter onto the source device near the device's IR receiver and connect it the **IR TX** port.
4. Connect the cable created in Pre Wire step 1 to the **HDBT Out**.
5. (Optional) Connect the 3-pin connector to the **RS-232** port on the transmitter and the opposite end to a port on a control system.
6. If using PoH from the transmitter to power the receiver, connect the included 12V DC 2A power supply to the **DC 12V** jack.

Receiver Installation
1. Connect the HDMI Out on the receiver to an input on the display using an HDMI cable from a high quality brand such as WyreStorm Express.
2. (Optional) Place an IR emitter onto the source device near the device's IR receiver and connect it the **IR TX** port.
3. Connect the cable created in Pre Wire step 1 to the **HDBT In**.
4. (Optional) If using RS-232 pass-through, connect the 3-pin connector to the **RS-232** port on the receiver and the opposite end to a port on the device being controlled.
5. If using PoH from the receiver to power the transmitter, connect the included 12V DC 2A power supply to the **DC 12V** jack.

Front Panel (TX/RX)

EX-SW-0201-4K TX

EX-SW-0201-4K RX

Rear Panel (TX/RX)

EX-SW-0201-4K TX
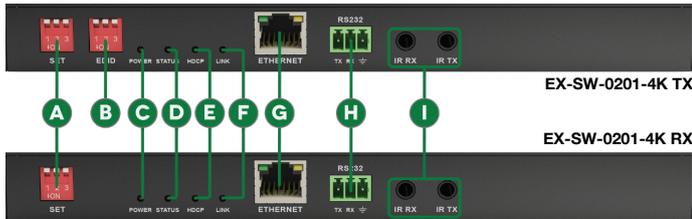
EX-SW-0201-4K RX
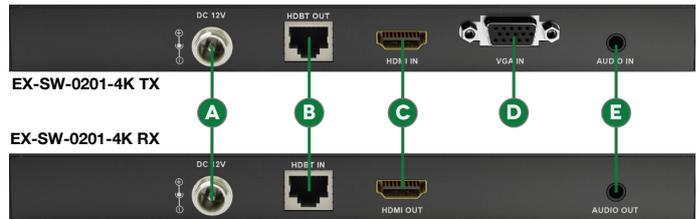
A	Set	3 Position Dipswitch: Used to enables/disable long cable mode, configure RS-232 port, and configure USB mode. See Dipswitch Settings.
B	EDID Settings (TX Only)	3 Position Dipswitch: Used to set EDIDs to correct resolution conflicts between the source and the display. See EDID Settings.
C	Power LED	**Solid:** The transmitter is powered On **Off:** The transmitter is powered Off
D	Status LED	**Flashing:** The transmitter is operating normally. **Off:** The transmitter is Not operating normally.
E	HDCP LED	**Solid:** Audio and Video signal is HDCP protected. **Flashing:** Audio and Video signal is not HDCP protected. **Off:** No Audio and Video signal.
F	Link LED	**Solid:** Link to receiver has been established. **Flashing:** Link to receiver has not been established.
G	Ethernet	8-pin RJ-45 female | 10/100 Mbps auto-negotiating Connect to a Local Area Network or network device for Ethernet pass-through over HDBaseT.
H	RS-232	3-pin Screw Down Phoenix Connector Used to send and receive RS-232 signals to/from the source location via HDBaseT and firmware updates. See RS-232 Wiring.
I	IR RX/TX	3.5mm (1/8in) Mono Plug IR TX: Connect to the supplied IR emitter. IR RX: Connect to the supplied IR receiver. See IR Wiring.

A	Power In	5.5mm Male Barrel Jack Connect to the included 12V DC 2A power supply. Only connect to either the transmitter or receiver when using PoH.
B	HDBT Out (TX) HDBT In (RX)	8-pin RJ-45 female Connect the transmitter **HDBT Out** to receiver **HDBT In** using the cable created in Pre Wire step 1.
C	HDMI In (TX) HDMI Out (RX)	19-pin type A HDMI female digital video/audio: Supports HDMI and DVI/D (requires adapter-not included). Limited to 297MHz pixel clock
D	VGA In (TX Only)	15-pin VGA VESA (D-SUB 15): Connect to D-SUB 15 VGA output of a device such as a computer. 15-pin VGA cable is required.
E	Audio In (TX) Audio Out (RX)	3.5mm (1/8in) Stereo Jack **In:** Connect to the analog audio output of a device to send audio over HDBaseT. **Out:** Connect to an analog audio input of a device to play audio received over HDBaseT.

HDBaseT Wiring

Cat5e/6 Cable Performance Guide								EX-SW-0201-4K		
0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft

■ **4K** Transmission   ■ **HD** Transmission

⚠ **IMPORTANT! Wiring Guidelines**

• The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference can have an adverse effect on HDBaseT transmission limiting performance. Steps should be taken to minimize these factors (or remove completely) during installation for best results.

• While similar in nature, the HDBaseT protocol is different than Ethernet and voltages provided for PoH can be higher than those provided by PoE. For this reason, never connect an HDBaseT link to an Ethernet router or switch to avoid damaging the connected devices.

Wiring for HDBaseT follows the EIA T568B standard.

Pin 1   Pin 8

Pin 1: ▬ White/Orange	Pin 5: ▬ White/Blue
Pin 2: ▬ Orange	Pin 6: ▬ Green
Pin 3: ▬ White/Green	Pin 7: ▬ White/Brown
Pin 4: ▬ Blue	Pin 8: ▬ Brown

Wire colors shown follow EIA/TIA-568B standard.

Supported Video Resolutions

The type of category cable used and the distance between the transmitter and receiver can restrict the available video resolution.

Cable Type	Range	Supported Resolution
Cat5/5e/6	100m/328ft	4K@30Hz 4:4:4, 4K@60Hz 4:2:0
	70m/230ft	1080p@60Hz 3D 4K@30Hz 4:4:4, 4K@60Hz 4:2:0
Cat6a	100m/328ft	1080p@60Hz 48bit 1080p@60Hz 3D 4K@30Hz 4:4:4 | 4k@60Hz 4:2:0

Note: When connected to a class B HDBaseT receiver, the supported resolution is limited to 70m/230ft 1080p.

Dipswitch Settings

The dipswitches on the front panel configure various functions within the EX-SW-0201-4K.

Note: Switches that are greyed out can be in any position for the desired function.

RS-232 Pass-through (Default)	[dipswitch]	RS-232 HDBT Update	[dipswitch]
RS-232 Firmware Update	[dipswitch]		
Long Cable Mode Disabled	[dipswitch]	Long Cable Mode Enabled	[dipswitch]

IR Wiring

IR TX (Emitter) Wiring

Connection for IR TX (transmit) uses a 3.5mm (1/8in) mono plug.

Tip:	IR Signal
Sleeve:	Ground (GND)

IR RX (Receiver) Wiring

Connection for IR RX (receive) uses a 3.5mm (1/8in) stereo jack that outputs +5V DC to power the included IR receiver.

⚠ **IMPORTANT!** 3rd party IR receivers may require a different voltage, refer to the documentation provided with the IR receiver before making any connections to avoid damaging the device.
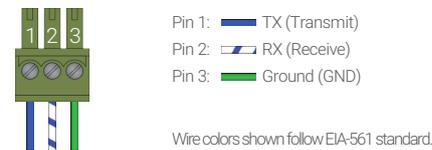
Tip:	+5V DC
Ring:	IR Signal
Sleeve:	Ground (GND)

RS-232 Wiring

RS-232 Connection Guidelines

The following wiring diagram shows the pinouts for the extender set. While not shown, connect the TX (transmit) to RX (receive) pins at the control system or PC side of the cable.

Most control systems and computers are DTE where pin 2 is RX, this can vary from device to device. Refer to the documentation for the connected device for pin functionally to ensure that the correct connections can be made.

Pin 1: ▬	TX (Transmit)
Pin 2: ▬	RX (Receive)
Pin 3: ▬	Ground (GND)

Wire colors shown follow EIA-561 standard.

Audio In/Out Wiring

Connection for Line In/Out uses a 3.5mm (1/8in) stereo jack.

Tip:	Left Channel
Ring:	Right Channel
Sleeve:	Ground (GND)

EDID Settings

EDIDs can be configured to resolve issues with video output on displays that may not accept the maximum resolution available from the source.

800x600	[dipswitch]	1024x768	[dipswitch]
1280x800	[dipswitch]	1920x1200	[dipswitch]
1920x1080	[dipswitch]	1280x720	[dipswitch]

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Specifications

Audio and Video

Audio Formats	2ch analog and Up to 7.1 DTS Master HD and Dolby True HD
Maximum Video Resolution	**HDMI (up to)** 1920x1080@60Hz (1080p60) 4096x2160p@60Hz 4:2:0 (4K) **VGA (up to)** Up to 1920 x 1200@60Hz
Color Depth	48bit
Maximum Pixel Clock	297 MHz

Communication and Control

HDBaseT	HDCP 2.2	EDID	Bi-directional PoH	Bi-directional IR and RS-232
HDMI	HDCP 2.2	EDID	DVI/D supported with adapter (not included)
Ethernet	10/100 Mbps auto-negotiating
IR	Bi-directional over HDBaseT
RS-232	Bi-directional over HDBaseT

Power

Power Supply	Input: 100~240V AC 50/50Hz Output: 12V DC 2A
Max Power Consumption	26.5W
PoH	48V 15.4W

Environmental

Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) 10% ~ 90%, non-condensing
Storage Temperature	-4°F ~ 140°F (-20°C ~ 70°C) 10% ~ 90%, non-condensing

Dimensions and Weight

Height	20mm/0.79in
Width	200mm/7.87in
Depth	134mm/5.28in
Weight	0.6kg/1.32lbs

Regulatory

Safety and Emission	CE	FCC
RoHS	Compliant

Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that power is connected to the transmitter and receiving device. If using a display with a built in receiver, verify that the device is powered on.

Note: When using PoH, to power the transmitter, verify that the HDBaseT cable is properly terminated per the HDBaseT Wiring section.

- Verify that the transmitter supports the output resolution of the source. See Supported Video Resolutions.
- Verify that the receiving device and display support the output resolution of the source. Configure EDID Settings to a lower resolution. If transmitting 3D or 4K, verify that the HDMI cables used are 3D or 4K rated.
- Verify that the HDBaseT cable is properly terminated per the HDBaseT Wiring section.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.

No or Intermittent 3rd party Device Control

- Verify that the IR cable(s) is properly terminated. See IR Wiring
- Verify that the IR emitter is located near the IR receiver on the device.

Troubleshooting Tips:
- WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.
- Use a flashlight to locate the IR receiver behind any tinted panels on the device being control.

Warranty Information

This product is covered by a 2 year limited parts and labor warranty. During this period there will be no charge for unit repair, component replacement or complete product replacement in the event of malfunction. The decision to repair or replace will be made by the manufacturer. This limited warranty only covers defects in materials or workmanship and excludes normal wear and tear or cosmetic damage.

Visit the product page located at wyrestorm.com for additional information on this product including important technical information not provided in this document and warranty terms & conditions.