

18Gbps 4K HDR HDBaseT Extender with HDCP 2.2 and 2-way PoH

EX-35-H2



Quickstart Guide

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



! IMPORTANT! Installation Requirements

- This product was released in 2 different versions which contain different chassis designs and feature sets.
- See Identifying Product Versions for details.
- Visit the product page to download the latest firmware, document version, additional documentation, and configuration tools.
- Read through the [Wiring and Connections](#) section for important wiring guidelines before creating or choosing premade cables.
- While this product supports CEC, WyreStorm cannot guarantee compatibility with all forms of CEC communication.

In the Box

- 1x EX-35-H2 Transmitter
- 1x EX-35-H2 Receiver
- 1x 18V DC 1A Power Supply (US/UK/EU)
- 2x 3-pin Screw Down Phoenix Connectors
- 1x IR Emitter
- 1x IR Receiver
- 4x Mounting Brackets (2x for TX | 2x for RX)
- 1x Quickstart Guide (this document)

Identifying Product Versions

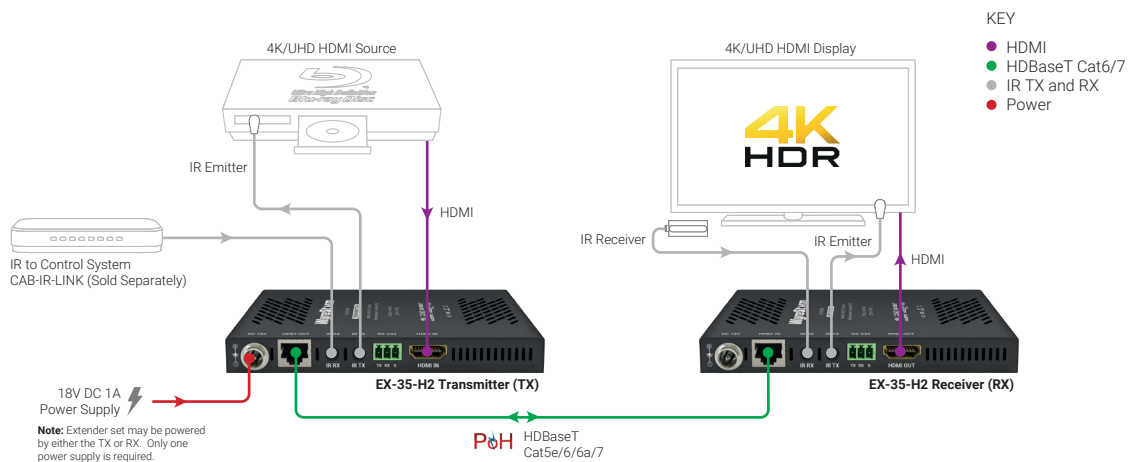
This product was released in 2 different versions which contain different chassis designs and feature sets. The differences are identified throughout this document in order to make installation and use easier.

Versions can be identified by a v# after the model number on the product chassis model number sticker. Note that version 1 of this product may not contain a v1 after the product while all version 2s will contain a v2 after the model number.

Operational Differences

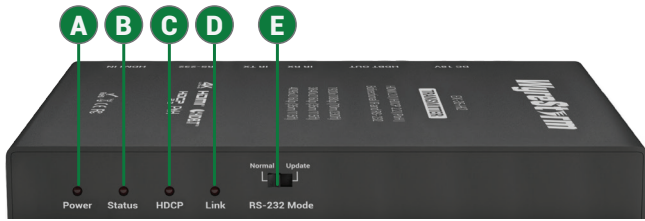
Feature	Version 1	Version 2
RS-232 Mode Switch	Yes	No – Changes made this switch unnecessary
3840x2160p @60Hz 10bit 4:2:0 HDR 4096x2160p @60Hz 8bit 4:4:4	Not Supported on Category Cable (HDBaseT)	Supported on Category Cable (HDBaseT)

Basic Wiring Diagram

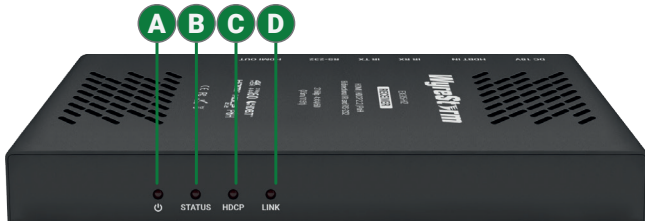


Front Panel (TX/RX)

Version 1 Front Panel

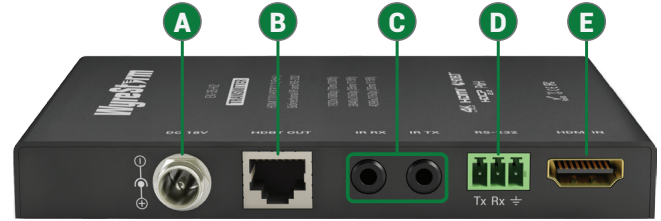


Version 2 Front Panel

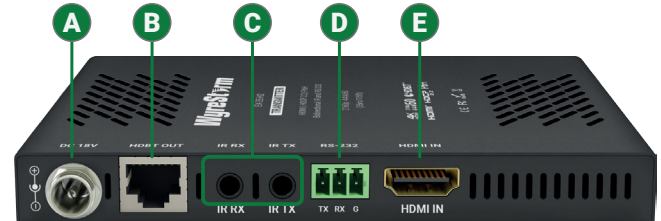


Rear Panel (TX/RX)

Version 1 Rear Panel



Version 2 Rear Panel



A Power LED	Solid: The receiver is powered On Off: The receiver is powered Off
B Status LED	Flashing: The receiver is operating normally. Off: The receiver is Not operating normally.
C HDCP LED	Solid: HDCP content is present. Flashing: HDCP content is not present. Off: No signal.
D LINK LED	Solid: Link to receiver has been established. Flashing: Link to receiver has not been established.
E RS-232 Mode Version 1 Only	Switches the mode for the RS-232 port. Normal: RS-232 HDBaseT pass-through. Update: RS-232 firmware update.

A Power In	5.5mm Screw Down Barrel Jack Connect to the included 18V DC 1A power supply. to the transmitter. A power supply is not required on the receiver as it will be powered using PoH. See Power Supply Wiring for important information.
B HDBT In HDBT Out	8-pin RJ-45 female Connect the transmitters HDBT Out to receivers HDBT In .
C IR TX IR RX	IR TX - 3.5mm (1/8in) Mono Jack: Connect to the supplied IR emitter to control a local device from the remote display location via HDBaseT. IR RX - 3.5mm (1/8in) Stereo Jack: Connect to the supplied IR receiver to send IR to the remote display location via HDBaseT. See IR TX/RX Guidelines for more information.
D RS-232	1x RS-232: 3-pin Phoenix
E HDMI In HDMI Out	19-pin type A HDMI female Supports HDMI and DVI/D with adapter

Wiring and Connections

WyreStorm recommends that all wiring for the installation is run and terminated prior to making connections to the switcher. Read through this section in its entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

IMPORTANT! Wiring Guidelines

- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference will have an adverse effect on signal transmission which may limit performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends using pre-terminated HDMI cables due to the complexity of these connector types. Using pre-terminated cables will ensure that these connections are accurate and will not interfere with the performance of the product.

RS-232 Wiring

The EX-35-H2 uses a 3-pin RS-232 with no hardware flow control. 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 functionality to ensure that the correct connections can be made.

IR TX/RX Guidelines

- Using WyreStorm infrared emitters and receivers is the best way to ensure that most IR coding formats are transmitted and received by the NetworkHD system. Other 3rd party emitters and receivers can be used; however, these devices must operate in the same manner as the WyreStorm devices.
- Due to differences in IR across 3rd party control systems their IR ports should never be connected directly to a NetworkHD system as an incompatibility may exist. WyreStorm offers a cable that compensates for voltage differences as well adjusts for differences in the pins used within the port. Refer to the [CAB-IR-LINK](#) product page for more information.

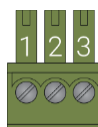
RS-232 Mode Settings

The RS-232 connector is used to transmit RS-232 over HDBaseT to the remote location and for firmware updates. Ensure that the RS-232 Mode switch in the proper position for the operation being performed. This connection is only available on version 1 of this product.

Power Supply Wiring

The EX-35-H2 can supply power from the transmitter to the receiver using PoH on the same category cable that transmits audio and video. The included power must be connected to the transmitter in order to power the receiver. Should distance of the category cable or other factors prevent PoH from being used, connect an 18V DC 1A power supply to both devices. Additional power supplies may be purchased from WyreStorm.

Cat6 Cable Performance Guide



WyreStorm Connector		3rd Party Device
Pin 1	TX (Transmit)	---> To ---> RX (Receive)
Pin 2	RX (Receive)	---> To ---> TX (Transmit)
Pin 3	G (Ground)	---> To ---> G (Ground)

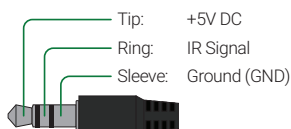
IR TX Port Pinout

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

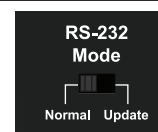


IR RX Port Pinout

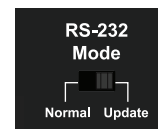
Connection for IR RX (receive) uses a 3.5mm (1/8in) stereo jack that outputs +5V DC to power the included IR receiver.



Set the mode switch to Normal to transmit RS-232 signals from the TX to the RX for controlling devices in the remote location.



Set the mode switch to the Update position to install a firmware update in either the TX or RX.



Specifications

Audio and Video						
	Transmitter	Receiver				
Inputs	1x HDMI In: 19-pin type A	1x HDBT In: 8-pin RJ-45 Female				
Outputs	1x HDBT Out: 8-pin RJ-45 Female	1x HDMI Out: 19-pin type A				
Output Video Encoding	HDBaseT Class B					
Encoding Data Rate	9.2Gbps					
End to End Latency (Max)	10µs (micro seconds)					
Audio Formats	2ch Analog/PCM Multichannel: LPCM					
Video Resolutions (Max)	Video Resolution	HDMI	Cat6		Cat6a/7	
		v1/2	v1	v2	v1	v2
	1920x1080p @60Hz 12bit	15m/49ft	70m/230ft	70m/230ft	70m/230ft	70m/230ft
	1920x1080p @60Hz 16bit	7m/23ft	70m/230ft	70m/230ft	70m/230ft	70m/230ft
	3840x2160p @24Hz 10bit 4:2:0 HDR	3m/10ft	35m/115ft	35m/115ft	35m/115ft	35m/115ft
	3840x2160p @30Hz 8bit 4:4:4	7m/23ft	35m/115ft	35m/115ft	35m/115ft	35m/115ft
	3840x2160p @60Hz 10bit 4:2:0 HDR	3m/10ft	NA	35m/115ft	NA	35m/115ft
	4096x2160p @60Hz 8bit 4:2:0	7m/23ft	35m/115ft	35m/115ft	35m/115ft	35m/115ft
4096x2160p @60Hz 8bit 4:4:4	7m/23ft	NA	35m/115ft	NA	35m/115ft	
Supported Standards	DCI RGB HDR HDR10 Dolby Vision up to 30Hz HLG BT.2020 BT.2100					
Maximum Pixel Clock	HDMI: 600MHz HDBaseT: 297MHz					
Communication and Control						
HDMI	HDMI 2.0 HDCP 2.2 EDID CEC Pass-through DVI/D supported with adapter (not included)					
HDBaseT	HDMI 2.0 HDCP 2.2 EDID 2-way PoH Bidirectional IR and RS-232					
CEC	CEC Pass-through – Requires CEC compatibility between source and display					
IR	1x IR TX 3.5mm (1/8in) Mono Bidirectional over HDBaseT 1x IR RX 3.5mm (1/8in) Stereo Bidirectional over HDBaseT					
RS-232	1x 3-pin Screw Down Phoenix Connector Bidirectional over HDBaseT					
Power						
Power Supply	18V DC 1A					
PoH	48V 15.4W					
Max Power Consumption	8.88W					
Environmental						
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing					
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing					
Maximum BTU	30.30 BTU/hr					
Dimensions and Weight						
	Version 1		Version 2			
Rack Units/Wall Box	<1U		<1U			
Height	17mm/0.67in		15.2mm/0.6in			
Width	140mm/5.52in		136.4mm/5.38in			
Depth	90.2mm/3.563in		74.2mm/2.93in			
Weight	0.36kg/0.79lbs		0.22kg/0.48lbs			
Regulatory						
Safety and Emission	CE FCC RoHS RCM					

Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that all HDMI and HDBaseT connections are not loose and are functioning properly
- Verify that the HDBaseT cable is properly terminated following EIA568B standard
- Verify that the output resolution of the source and display is supported by this extender
- Configure EDID Settings to a lower resolution.
- If transmitting 3D or 4K, verify that the HDMI cables used are 3D or 4K rated.

No or Intermittent 3rd party Device Control

- Verify that the IR and RS-232 cables are properly terminated following the [Wiring and Connections](#) section.

Troubleshooting Tips:

- WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.

Note: WyreStorm reserves the right to change product specification, appearance or dimensions of this product at any time without prior notice.