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

## EX-70-H2 v2

**WyreStorm**

# 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-70-H2 v2 Transmitter
1x EX-70-H2 v2 Receiver
1x IR Emitter
1x IR Receiver
2x 3-pin Terminal Block
1x 18V DC 1A Power Supply (US/UK/EU)
4x Mounting Brackets (2x for TX | 2x for RX)
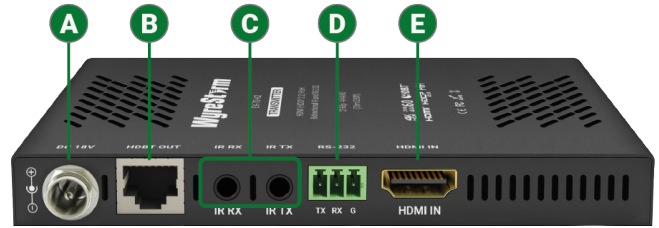1x Quickstart Guide (this document)

## Basic Wiring Diagram

UK: +44 (0) 1793 230 343 | ROW: 844.280.WYRE (9973)
support@wyrestorm.com
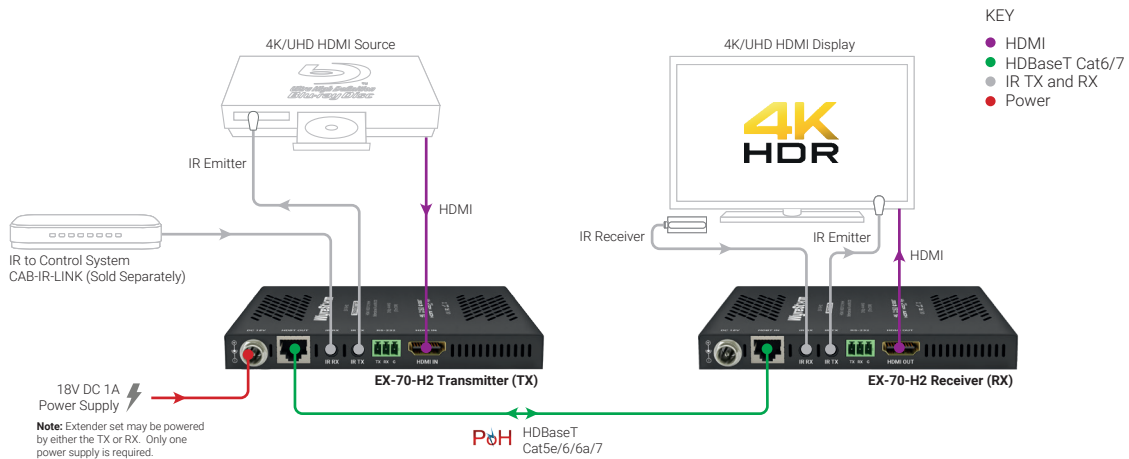
## Front Panel (TX/RX)

| | | |
|---|---|---|
| **A** | **Power LED** | **Solid:** The receiver is powered On<br>**Off:** The receiver is powered Off |
| **B** | **Status LED** | **Flashing:** The receiver is operating normally.<br>**Off:** The receiver is Not operating normally. |
| **C** | **HDCP LED** | **Solid:** HDCP content is present.<br>**Flashing:** HDCP content is not present.<br>**Off:** No signal. |
| **D** | **LINK LED** | **Solid:** Link to receiver has been established.<br>**Flashing:** Link to receiver has not been established. |

## Rear Panel (TX/RX)

| | | |
|---|---|---|
| **A** | **Power In** | 5.5mm Screw Down Barrel Jack<br>Connect to the included 18V DC 1A power supply to the transmitter or receiver. A power supply is not required on the other end as it will be powered using PoH. |
| **B** | **HDBT In**<br>**HDBT Out** | 8-pin RJ-45 female<br>Connect the transmitters **HDBT Out** to receivers **HDBT In.** |
| **C** | **IR TX**<br>**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.<br>**IR RX** - 3.5mm (1/8in) Stereo Jack: Connect to the supplied IR receiver to send IR to the remote display location via HDBaseT.<br>See IR TX/RX Guidelines for more information. |
| **D** | **RS-232** | 1x RS-232: 3-pin Phoenix |
| **E** | **HDMI In**<br>**HDMI Out** | 19-pin type A HDMI female<br>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 it's entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.
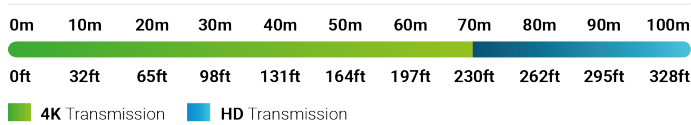
⚠ **IMPORTANT! Wiring Guidelines**

- 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 the use of shielded category cable to minimize signal noise and interference.
- 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.

**Cat6 Cable** Performance Guide

| 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

*WyreStorm recommends the use of shielded cable to minimize signal noise and interference*

## 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.

### IR TX Port Pinout

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

Tip: Anode
Sleeve: Cathode (IR Signal)

### 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.

Tip: +5V DC
Ring: IR Signal
Sleeve: Ground (GND)
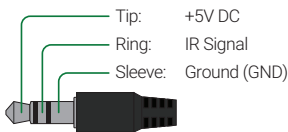
## RS-232 Wiring

The EX-70-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 functionally to ensure that the correct connections can be made.

| 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) |

## Troubleshooting

**No or Poor Quality Picture (snow or noisy image)**

- Verify that power is being supplied to the transmitter and receiving device
- 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
- 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.

## Specifications

|  | Transmitter | Receiver |
|---|---|---|
| **Audio and Video** | | |
| **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 A | |
| **Encoding Data Rate** | 9.2Gbps | |
| **End to End Latency (Max)** | 10μs (micro seconds) | |
| **Audio Formats** | 2ch PCM \| Multichannel up to DTS-X and Dolby Atmos | |

| | Video Resolution | HDMI | Cat6 | Cat6a/7 |
|---|---|---|---|---|
| **Video Resolutions (Max)** | 1920x1080p @60Hz 12bit | 15m/49ft | 100m/328ft | 100m/328ft |
| | 3840x2160p @24Hz 10bit 4:2:0 HDR | 7m/23ft | 70m/230ft | 100m/328ft |
| | 3840x2160p @30Hz 8bit 4:4:4 | 7m/23ft | 70m/230ft | 100m/328ft |
| | 3840x2160p @60Hz 10bit 4:2:0 HDR | 3m/10ft | 70m/230ft | 70m/230ft |
| | 4096x2160p @60Hz 8bit 4:2:0 | 7m/23ft | 70m/230ft | 100m/328ft |
| | 4096x2160p @60Hz 8bit 4:4:4 | 3m/10ft | 70m/230ft | 70m/230ft |
| | Note: WyreStorm recommends the use of shielded category cable to minimize signal noise and interference | | | |

|  | | |
|---|---|---|
| **Supported Standards** | DCI \| RGB \| Dolby Vision @ 30Hz \| HLG \| HDR-10 | |
| **Maximum Pixel Clock** | HDMI: 600MHz \| HDBaseT: 297MHz | |
| **Communication and Control** | | |
| **HDMI** | HDMI \| HDCP 2.2 \| EDID \| DVI/D supported with adapter (not included) | |
| **HDBaseT** | HDMI \| HDCP 2.2 \| EDID \| 2-way PoH \| Bidirectional IR, RS-232, and Ethernet | |
| **CEC** | CEC Pass-through – Requires CEC compatibility between source and display | |
| **IR** | 1x IR TX: 3.5mm (1/8in) TS Mono \| 1x IR RX: 3.5mm (1/8in) TRS Stereo | |
| **RS-232** | 1x RS-232: 3-pin Terminal Block | |
| **Power** | | |
| **Power Supply** | 18V DC 1A | |
| **PoH** | IEEE 802.3af 48V 15.4W Max \| 2-way | |
| **Max Power Consumption** | 4.68W | 6.84W |
| **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** | 16 BTU/hr | 24 BTU/hr |
| **Dimensions and Weight** | | |
| **Rack Units/Wall Box** | <1U | |
| **Height** | 15.2mm/0.6in | |
| **Width** | 136.4mm/5.38in | |
| **Depth** | 74.2mm/2.93in | |
| **Weight** | 0.24Kg/0.53lbs | |
| **Regulatory** | | |
| **Safety and Emission** | CE \| FCC \| RoHS \| RCM | |

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

**Warranty Information**

WyreStorm Technologies LLC warrants that its products to be free from defects in material and workmanship under normal use for a period of five (5) years from the date of purchase. Refer to the Product Warranty page on wyrestorm.com for more details on our limited product warranty.