18Gbps 4K HDR AVX Extender with eARC, Audio Breakout & PoE

EX-100-H2-EARC

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.

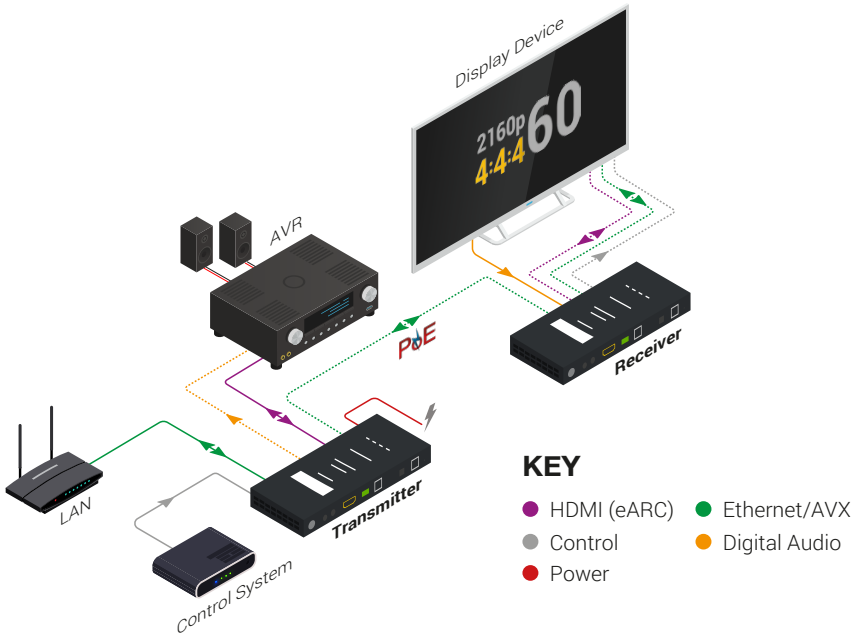
IMPORTANT! Installation Requirements

- Visit the product page to download the latest firmware, document versions, 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-100-H2-EARC Transmitter
1x EX-100-H2-EARC Receiver
1x 12V DC 3A Power Supply (US/UK/EU/AU)
1x IR Receiver
1x IR Emitter
4x Mounting Brackets with screws
2x 3-pin Terminal Blocks
1x QuickStart Guide (this document)

Basic Wiring Diagram



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

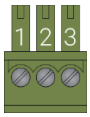
0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m
0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft

4K/HD Transmission

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

RS-232 Wiring

The EX-100-H2-EARC 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.
Refer to RS-232 Mode Settings for details on setting RS-232 modes.



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/RX Guidelines

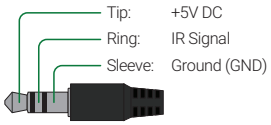
- Using WyreStorm infrared emitters and receivers is the best way to ensure that most IR coding formats are transmitted and received by the system. Other 3rd party emitters and receivers can be used; however, these devices must operate in the same manner as the WyreStorm devices.
- Due to differences 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.

IR RX Port Pinout

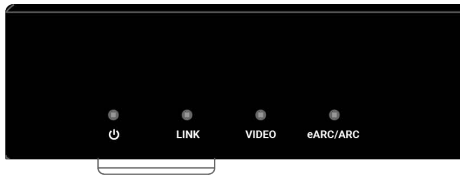
Connection for IR RX (receive) uses a 3.5mm (1/8in) stereo jack that outputs +5V DC to power the included IR receiver.



eARC/ARC LED

The EX-100-H2-EARC shares one LED to signify whether the extender is transmitting an ARC or eARC signal. Based on the transmission, the LED behavior changes as below.

Solid: eARC audio is transmitting
Flashing: ARC audio is transmitting



Dipswitch Settings

The dipswitches on the TX and RX allow for changing the audio transmitting mode. Use the table to the right to configure the extender's audio mode based on the application's requirement.

When setting a dipswitch setting, power off both the transmitter and receiver before making a change. Once set, the units can be powered back on.

Function	Transmitter	Receiver
eARC (default)		
ARC		
S/PDIF Passthrough		
TX De-embedding (via S/PDIF Out)		

Audio Formats

	eARC	ARC	S/PDIF Port	HDMI Passthrough
PCM	✓	✓	✓	✓
PCM 5.1	✓	-	-	✓
PCM 7.1	✓	-	-	✓
Dolby Digital	✓	✓	✓	✓
Dolby Digital Plus	✓	✓	-	✓
Dolby TrueHD/Atmos	✓	-	-	✓
DTS	✓	✓	✓	✓
DTS HD	✓	-	-	✓
DTS HD Master Audio	✓	-	-	✓
DTS:X	✓	-	-	✓

Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that power is being supplied to the transmitter and receiver.
- Verify that the AVX cable is properly terminated following EIA568B standard.
- Verify that the output resolution of the source and display is supported by this extender.
- If transmitting 4K, verify that the HDMI cables used are 4K rated.
- Verify that all source and AVX connections are not loose and are functioning properly

No or Intermittent 3rd party Device Control

- Verify that the IR and RS-232 cables are properly terminated following the Wiring and Connections section.
- Verify that RS-232 modes are properly selected for the desired operation. Refer to RS-232 Mode Settings for details.

Troubleshooting Tips:

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

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.

Specifications

Audio and Video				
	Transmitter		**Receiver**	
Inputs	1x HDMI In: 19-pin type A		1x AVX In: 8-pin RJ-45 Female 1x S/PDIF In: Toslink Audio	
Outputs	1x AVX Out: 8-pin RJ-45 Female 1x S/PDIF Out: Toslink Audio		1x HDMI Out: 19-pin type A	
Output Video Encoding	AVX			
Encoding Data Rate	10.2Gbps			
End to End Latency	10µs (micro seconds)			
Audio Formats	HDMI Passthrough: 2ch Analog/PCM | Multichannel: LPCM up to DTS-X and Dolby Atmos eARC: 2ch Analog/PCM | Multichannel: LPCM up to DTS-X and Dolby Atmos S/PDIF: 2ch Analog/PCM | Multichannel: LPCM up to Dolby Digital 5.1			
Video Resolutions (Max)	**Video Resolution**	**HDMI**	**Cat6**	**Cat6a/7**
	1920x1080p @120Hz 12bit	7m/23ft	70m/230ft	100m/328ft
	3840x2160p @60Hz 8bit 4:4:4	7m/23ft	70m/230ft	100m/328ft
	3840x2160p @60Hz 12bit 4:2:2 HDR	7m/23ft	70m/230ft	100m/328ft
	Note: WyreStorm recommends the use of shielded category cable to minimize signal noise and interference.			
Supported Standards	DCI | RGB | HDR | HDR10 | Low Latency Dolby Vision up to 60Hz | HLG | BT.2020 | BT.2100			
Maximum Pixel Clock	600MHz			
Communication and Control				
HDMI	HDMI | HDCP 2.2 | EDID | CEC Pass-through | DVI/D supported with adapter (not included)			
AVX	HDMI | HDCP 2.2 | EDID | Audio | 1-way PoE (TX powers RX) | Bidirectional IR/RS-232/Ethernet | CEC			
IR	1x IR RX: 3.5mm (1/8in) TRS Stereo | 1x IR TX: 3.5mm (1/8in) TS Mono (Transmitter and Receiver)			
RS-232	1x RS-232: 3-pin Phoenix (Transmitter and Receiver)			
Ethernet	1x Ethernet: 8-pin RJ-45 Female | Bidirectional over AVX (Transmitter and Receiver)			
Power				
Power Supply	12V DC 3A			
Max Power Consumption	24W			
Environmental				
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) | 10% ~ 90%, non-condensing			
Storage Temperature	-4°F to ~ 158°F (-20°C ~ +70°C) | 10% ~ 90%, non-condensing			
Maximum BTU	82 BTU/hr			
Dimensions and Weight				
Rack Units | Wall Box	<1U			
Height	25mm/0.98in			
Width	215mm/8.46in			
Depth	140mm/5.51in			
Weight	0.79kg/1.75lbs			
Regulatory				
Safety and Emission	CE | FCC | RCM | EAC | RoHS			

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