

# 100m 4K 60 4:4:4 HDBaseT 3.0 Extender with eARC

## EX3-100-EARC

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

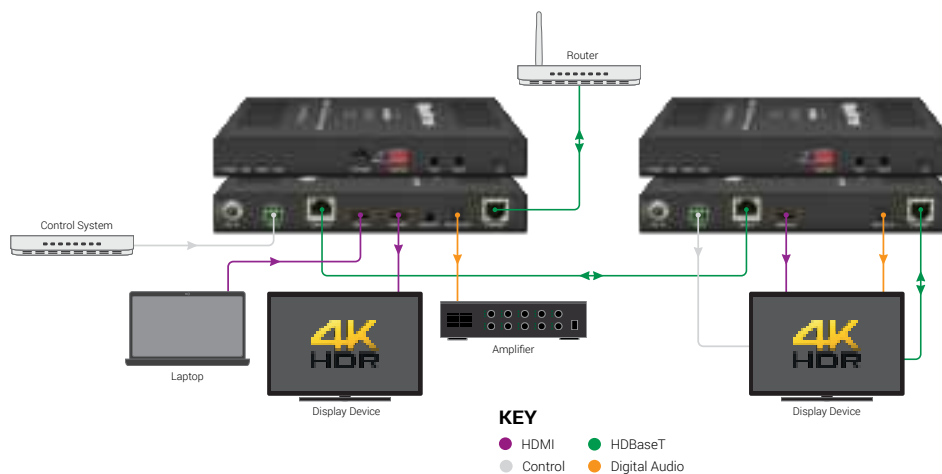
### IMPORTANT! Installation Requirements

- Visit the product page to download the latest firmware, document version, additional documentation, and configuration tools.
- Read through the [Wiring and Connections](#) section for important wiring guidelines before creating or choosing pre-made cables.
- While this product supports CEC, WyreStorm cannot guarantee compatibility with all forms of CEC communication.

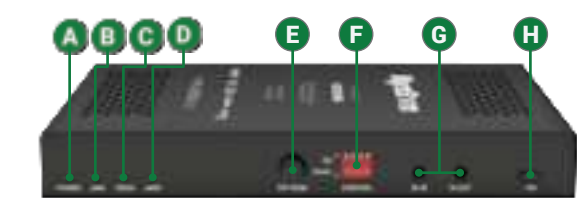
### In the Box

- 1x EX3-100-EARC
- 1x 12V Power Supply (US/UK/EU/AU)
- 1x IR Receiver Cable
- 1x IR Emitter Cable
- 4x Mounting Ears with screws
- 2x 3-pin Phoenix Connector
- 1x Quickstart Guide (This Document)

## Basic Wiring Diagram

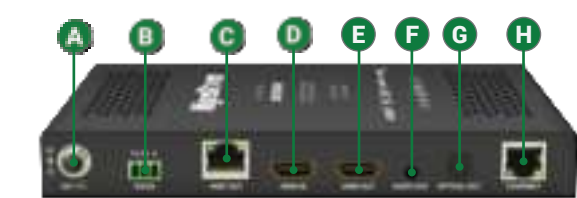


EX3-100-EARC Transmitter (Front)



|                           |                                                                                                                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b> Power LED        | <b>Solid:</b> The unit is powered On<br><b>Off:</b> The unit is powered Off                                                                                                                            |
| <b>B</b> Link LED         | <b>On:</b> Indicates link with receiving device<br><b>Off:</b> No link with receiver/powered off                                                                                                       |
| <b>C</b> Video LED        | <b>Green:</b> Source video is being transmitted<br><b>Red:</b> Pattern is being transmitted with HDCP<br><b>BLUE:</b> Pattern is being transmitted without HDCP<br><b>OFF:</b> No video is transmitted |
| <b>D</b> eARC LED         | <b>ON:</b> EARC Audio is transmitted<br><b>OFF:</b> No eARC audio is transmitted                                                                                                                       |
| <b>E</b> Pattern Select   | Press to manually change pattern                                                                                                                                                                       |
| <b>F</b> SET Dip Switches | Adjust RS-232 Function                                                                                                                                                                                 |
| <b>G</b> IR IN/OUT        | 3.5mm jack: Bidirectional IR                                                                                                                                                                           |
| <b>H</b> Firmware Update  | USB-C for firmware updates                                                                                                                                                                             |

EX3-100-EARC Transmitter (Rear)



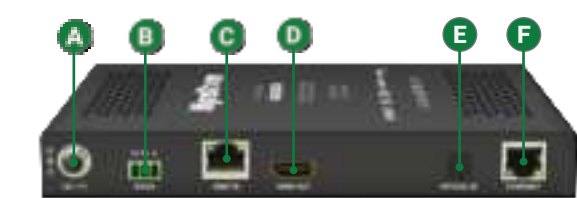
|                         |                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------|
| <b>A</b> Power Input    | 12V 6A Screw Down Jack                                                                         |
| <b>B</b> RS-232         | 3-pin Phoenix: Passthrough Serial Input                                                        |
| <b>C</b> HDBT Output    | 8-pin RJ-45 female<br>Connect the transmitter's <b>HDBT OUT</b> to receiver's <b>HDBT IN</b> . |
| <b>D</b> HDMI Input     | 19-pin type A HDMI female<br>Supports HDMI and DVI/D with adapter                              |
| <b>E</b> HDMI Output    | 19-pin type A HDMI female<br>Supports HDMI and DVI/D with adapter                              |
| <b>F</b> Audio Output   | 3.5mm jack: 2ch analog audio input                                                             |
| <b>G</b> Optical Output | Supports up to 5.1ch when used as passthrough. 2ch when used for audio de-embed                |
| <b>H</b> Ethernet       | Passthrough ethernet connection                                                                |

EX3-100-EARC Receiver (Front)



|                           |                                                                                                                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b> Power LED        | <b>Solid:</b> The unit is powered On<br><b>Off:</b> The unit is powered Off                                                                                                                            |
| <b>B</b> Link LED         | <b>On:</b> Indicates link with receiving device<br><b>Off:</b> No link with receiver/powered off                                                                                                       |
| <b>C</b> Video LED        | <b>Green:</b> Source video is being transmitted<br><b>Red:</b> Pattern is being transmitted with HDCP<br><b>BLUE:</b> Pattern is being transmitted without HDCP<br><b>OFF:</b> No video is transmitted |
| <b>D</b> eARC LED         | <b>ON:</b> EARC Audio is transmitted<br><b>OFF:</b> No eARC audio is transmitted                                                                                                                       |
| <b>E</b> SET Dip Switches | Adjust RS-232 Function                                                                                                                                                                                 |
| <b>F</b> IR IN/OUT        | 3.5mm jack: Bidirectional IR                                                                                                                                                                           |
| <b>G</b> Firmware Update  | USB-C for firmware updates                                                                                                                                                                             |

EX3-100-EARC Receiver (Rear)



|                        |                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------|
| <b>A</b> Power Input   | 12V 6A Screw Down Jack                                                                         |
| <b>B</b> RS-232        | 3-pin Phoenix: Passthrough Serial Input                                                        |
| <b>C</b> HDBT Input    | 8-pin RJ-45 female<br>Connect the receiver's <b>HDBT IN</b> to transmitter's <b>HDBT OUT</b> . |
| <b>D</b> HDMI Output   | 19-pin type A HDMI female<br>Supports HDMI and DVI/D with adapter                              |
| <b>E</b> Optical Input | Supports up to 5.1ch                                                                           |
| <b>F</b> Ethernet      | Passthrough ethernet connection                                                                |

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 using pre-terminated HDMI and USB 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 EX3-100-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.



| 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)       |

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.

**Note:** When DIP is switched to Optical De-embed, extender will automatically filter EDID and only support PCM 2CH.

| Functions              | Setting |
|------------------------|---------|
| eARC/ARC               |         |
| Optical Audio Return   |         |
| Optical Audio De-embed |         |
| FW Update Valens       |         |
| FW Update - MCU        |         |
| High Bandwidth Mode    |         |
| Low Bandwidth Mode     |         |

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.
- Ensure eARC/ARC is enabled in the display device
- 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.

No or Intermittent 3rd party Device Control

- Verify that the 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

| Audio and Video                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
|                                     | Transmitter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Receiver                             |
| Inputs                              | 1x HDMI: 19-pin Type A Female                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1x HDBT: 8-pin RJ45<br>1x Optical In |
| Outputs                             | 1x HDBT: 8-pin RJ45<br>1x HDMI: 19-pin Type A Female<br>1x Optical Out                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1x HDMI: 19-pin Type A Female        |
| Max. Video Resolution by Cable Type | <b>Cat 5e/6 (UTP):</b> 40m/131ft - 4K@60Hz 4:4:4 24bpp<br><b>Cat 6A (F/FTP or U/FTP)</b> 100m/330ft - 4K@60Hz 4:4:4 24bpp<br><br><b>Note:</b> When the extender is set to Low-bandwidth mode (set the pin3 of the DIP switch on the transmitter to “Down” position):<br><br><b>Cat 5e/6 (UTP)</b> 70m/230ft - 4K@60Hz 4:4:4 24bpp<br><b>Cat 6A (F/FTP or U/FTP)</b> 100m/330ft - 4K@60Hz 4:4:4 24bpp                                                                                                                                                                                                                      |                                      |
| Output Video Encoding               | Format: HDBaseT<br>Encoding Data Rate: 18Gbps<br>End to End Latency: 10µs (microseconds)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                      |
| Audio Formats                       | <b>HDMI:</b> HDMI 2.0 formats including multi-channel PCM, Dolby True-HD and DTS-HD master audio<br><b>ARC Mode:</b> 5.1-ch compressed audio (such as Dolby Digital, DTS 5.1, and Dolby Digital Plus), and 2.0-ch uncompressed PCM audio<br><b>eARC Mode:</b> Up to 8-ch L-PCM of 24 bit, 192kHz audio. Supports encoded audio formats, such as Dolby Atmos and DTS-X<br><b>OPTICAL Audio Return Mode:</b> 5.1-ch compressed audio, such as Dolby Digital, DTS 5.1, and Dolby Digital Plus, and 2.0-ch uncompressed PCM audio<br><b>OPTICAL De-embed Mode:</b> 2.0-ch uncompressed PCM audio<br><b>AUDIO OUT:</b> PCM 2.0 |                                      |
| HDR Support                         | HDR 10, HDR 10+, HLG, and Dolby Vision (low-latency mode)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                      |
| Supported Standards                 | DCI   RGB   HDR10   Dolby Vision   HLG   BT.2020   BT.2100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                      |
| Maximum Pixel Clock                 | 600Mhz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                      |
| Communication and Control           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |
| HDMI                                | HDMI   HDCP 2.3   EDID   CEC Pass-through                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                      |
| HDBaseT                             | HDMI   HDCP 2.3   EDID   RS-232 Pass-through   IR Pass-Through  2- WAY PoH   CEC Pass-through                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |
| 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                            | Ethernet Pass-through of up to 1Gb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                      |
| Power                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |
| Power Supply                        | 12V DC 2A (Sold separately)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                      |
| Power Consumption                   | 20.04W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                      |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                      |
| Dimensions                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |
| Length x Width x Height             | 300mm x 180mm x 25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                      |
| Weight                              | 0.59Kg/1.30lbs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                      |
| Regulatory                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |
| Safety and Emission                 | CE   FCC   RoHS   RCM   EAC   UKCA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                      |

**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](https://www.wyrestorm.com) for more details on our limited product warranty.

