

# 4K UHD HDBaseT 5-Play HDCP 2.2 Receiver with ARC and 2-way PoH (4K: 70m/230ft | 1080p: 100m/328ft)

**RX-70-4K-ARC v2**



## Quickstart Guide

Receives UHD and HDR content from up to 70m/230ft (1080p to 100m/328ft) using Class A HDBaseT technology. Additional features include 2-way PoH, bidirectional Ethernet, IR & RS-232 pass-through, and Audio Return Channel (ARC).

### Note:

The following information applies to version 2 of this product as identified by v2 after the model number on the product label.

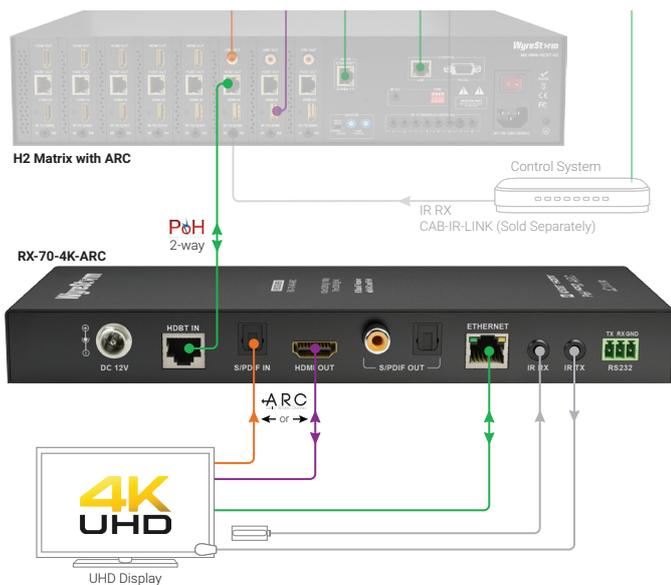
WyreStorm recommends reading through this document in its entirety to become familiar with the product's features prior to starting the installation process.



### In the Box

- 1x RX-70-4K-ARC v2 Receiver
- 1x IR Emitter
- 1x Wide-band IR Receiver (30-50KHz)
- 2x Mounting Brackets
- 1x 3-pin Phoenix Connector
- 1x Quickstart Guide (this document)

### Basic Wiring Diagram



Key ● HDMI/Digital Video ● HDBaseT/Ethernet ● Digital Audio ● IR

### 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.

### Recommended Products

To take full advantage of the features of this receiver, WyreStorm recommends the following products be used within the system.

- **H2 Series HDBT Matrix Switchers** - Certain output cards on these switchers have an ARC function which is supported by the RX-70-4K-ARC. Other receivers may not support ARC.
- **CAB-IR-LINK** - Use this cable when using an IR control system for matrix control of HDBaseT pass-through.

### 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.

### Before Beginning

- WyreStorm recommends visiting the product page before installing this product for updates to this Quickstart Guide as well as other information about the product.
- Verify that all items are included in the packaging per the **In The Box** list.

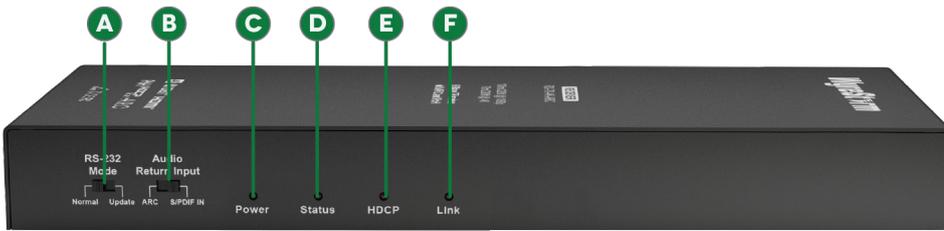
### Pre Wire

1. Run a Cat5e/6/6a cable from the transmitter location to the receiver location no longer than 70m/230ft (4K) and 100m/328ft (1080p). Terminate the cable per the **HDMI/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.

### Receiver Installation

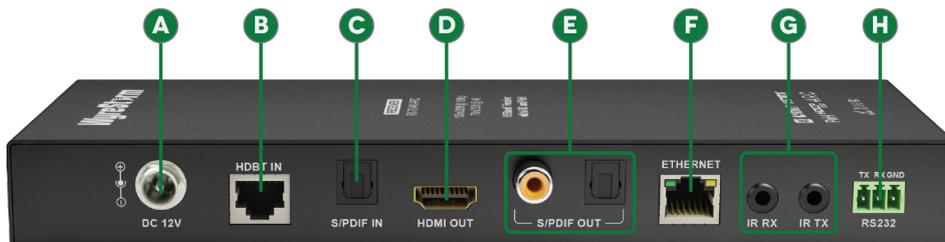
1. Connect the **HDMI Out** on the receiver to an input on the display using an HDMI cable from a high quality brand such as **WyreStorm Express**.
2. Using the cable created in **Pre Wire** step 1, connect the 8-pin RJ-45 female plug to the **HDBT In** jack.
3. (Optional) Place an IR emitter onto the display device near the device's IR sensor and connect it the **IR TX** port.
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. (Optional) If using the display devices digital audio output, connect a TOSLINK cable from the display device to the **S/PDIF In** on the receiver.
6. If using ARC via HDMI or the audio inputs and outputs, see **Audio Return Input Settings** for switch configuration.

## Front Panel



<b>A</b> RS-232	Switches the mode for the RS-232 port. <b>Normal:</b> RS-232 HDBaseT pass-through. <b>Update:</b> RS-232 firmware update.
<b>B</b> Audio Return Input	Selects the input (HDMI or S/PDIF In) to use for returning audio back to the matrix/transmitter. See <a href="#">Audio Return Input Settings</a> .
<b>C</b> Power LED	<b>Solid:</b> The receiver is powered On <b>Off:</b> The receiver is powered Off
<b>D</b> Status LED	<b>Flashing:</b> The receiver is operating normally. <b>Off:</b> The receiver is Not operating normally.
<b>E</b> HDCP LED	<b>Solid:</b> Audio and Video signal is HDCP protected. <b>Flashing:</b> Audio and Video signal is not HDCP protected. <b>Off:</b> No Audio and Video signal.
<b>F</b> LINK LED	<b>Solid:</b> Link to receiver has been established. <b>Flashing:</b> Link to receiver has not been established.

## Rear Panel



<b>A</b> Power In	5.5mm Male Barrel Jack Connection to this jack is not required when using PoH. See <a href="#">Power Supply Wiring</a> for details.
<b>B</b> HDBT In	8-pin RJ-45 female Connect to the <b>HDBT Out</b> of a matrix or HDBaseT transmitter. See <a href="#">HDMI/HDBaseT Wiring</a> for important wiring guidelines.
<b>C</b> S/PDIF In	TOSLINK (Digital Optical) Connect to the S/PDIF audio output of the display when ARC is not supported. See <a href="#">Audio Return Input Settings</a> .
<b>D</b> HDMI Out	19-pin type A HDMI female: Supports HDMI and DVI/D (requires adapter-not included).
<b>E</b> S/PDIF Out	RCA Female (Digital Coax) TOSLINK (Digital Optical) Outputs audio signal from local source or ARC audio from remote display.
<b>F</b> Ethernet	8-pin RJ-45 female   10/100 Mbps auto-negotiating Connect to the Ethernet port on a network enabled display.
<b>G</b> IR TX/RX	<b>IR TX</b> - 3.5mm (1/8in) Mono Jack: Connect to the supplied IR emitter to control a local device from the remote display location via HDBaseT. <b>IR RX</b> - 3.5mm (1/8in) Stereo Jack: Connect to the supplied IR receiver to send IR to the remote display via HDBaseT. See <a href="#">IR Wiring</a> .
<b>H</b> RS-232	3-pin Phoenix Connector Used to send and receive RS-232 signals to/from the source location via HDBaseT and firmware updates. See <a href="#">RS-232 Wiring</a> .

## HDMI/HDBaseT Wiring



### 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 HDMI or 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.



## Resolution Distances

The type of category cable used and the distance between the matrix and receiver can restrict the available video resolution. Refer to Video Resolutions in the Specifications table for the max distance based on resolution.

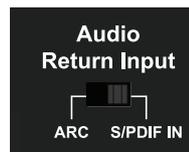
### Note:

When connected to a class B HDBaseT receiver, the supported resolution is limited to 70m/230ft (1080p) and 35m/114ft (4K).

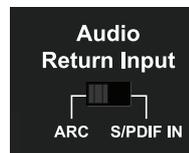
## Audio Return Input Settings

ARC and the audio inputs and outputs can be configured to send audio over HDMI or to local devices. Set the switches based on the connected devices.

Set the switch to ARC to send the audio returned from the display connected to the receivers HDMI Out back to the transmitter.



Set the switch to the S/PDIF In to send the audio from the displays S/PDIF Out back to the transmitter.



## S/PDIF Out (Digital Coax) Wiring

The S/PDIF out digital coax uses an RCA Male connector.



## Power Supply Wiring

The RX-70-4K-ARC can receive power via PoH from a compatible HDBaseT matrix. Should the distance or other factors prevent PoH from being used, connect a 12V DC 2A power supply (sold separately) to the receiver.

## IR Wiring

### IR TX (Emitter) Wiring

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

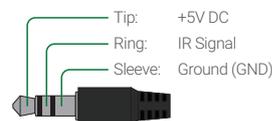


### IR RX (Receiver) Wiring

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.

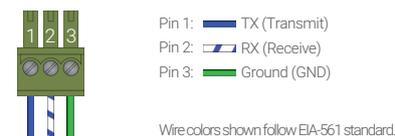


## RS-232 Wiring

### 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.

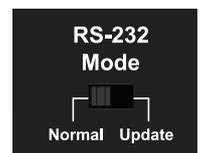
Most control systems and computers are DTE where pin 2 is RX, this can vary from device to device. Refer to the documentation for the connected device for pin functionality to ensure that the correct connections can be made.



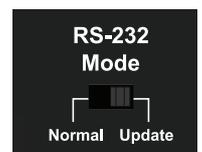
### RS-232 Mode Settings

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.

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

<b>Audio and Video</b>		
<b>Inputs</b>	1x HDBaseT 8-pin RJ-45 female	
<b>Outputs</b>	1x HDMI 19-pin type A	
<b>Audio Formats</b>	HDMI: 2ch and Up to DTS-X and Dolby Atmos   RX S/PDIF IN: 2ch PCM   Up to DTS digital and Dolby digital	
<b>Video Resolutions (Max)</b>	<b>Using HDMI</b> 1920x1080p @60Hz 12bit (15m/50ft)   16bit (7m/23ft) 3840x2160p @30Hz 4:4:4 8bit (7m/23ft)   @24Hz 4:2:0 HDR 10bit (3m/9.8ft) 4096x2160p @60Hz 8bit 4:2:0 (7m/23ft)   @60Hz 8bit 4:4:4 (7m/23ft)	
	<b>Using Cat6</b> 1920x1080 @60Hz 12bit (100m/328ft)   @60Hz 16bit (70m/230ft) 3840x2160p @30Hz 4:4:4 8bit (70m/230ft)   @24Hz 4:2:0 HDR 10bit (70m/230ft) 4096x2160p @60Hz 4:2:0 8bit (70m/230ft)	
	<b>Using Cat6a/7</b> 1920x1080 @60Hz 12bit (100m/328ft) 3840x2160p @30Hz 4:4:4 8bit (100m/328ft)   @24Hz 4:2:0 HDR 10bit (100m/328ft) 4096x2160p @60Hz 4:2:0 8bit (100m/328ft)	
	<b>Color Depth</b>	1080p: 48bit   4K UHD: 24bit   HDR @24p: 10bit BT.2020
	<b>Maximum Pixel Clock</b>	297MHz
<b>Communication and Control</b>		
<b>HDMI</b>	HDCP 2.2   EDID   DVI/D supported with adapter (not included)	
<b>HDBaseT</b>	HDCP 2.2   EDID   2-way PoH   Bidirectional IR, RS-232, and Ethernet	
<b>IR</b>	1x IR TX 3.5mm (1/8in) Mono   Bidirectional over HDBaseT   1x IR RX 3.5mm (1/8in) Stereo   Bidirectional over HDBaseT	
<b>RS-232</b>	1x 3-pin Phoenix Connector   Bidirectional over HDBaseT	
<b>Ethernet</b>	1x 8-pin RJ-45 female   10/100 Mbps auto-negotiating   Bidirectional over HDBaseT	
<b>Audio Return Channel (ARC)</b>	Returns audio to source location from remote display via HDBaseT	
<b>Power</b>		
<b>Power Supply</b>	Input: 100~240V AC 50/60Hz Output: 12V DC 2A	
<b>Max Power Consumption</b>	7.2W	
<b>PoH</b>	48V	
<b>Environmental</b>		
<b>Operating Temperature</b>	32°F ~ 113°F (0°C ~ 45°C) 10% ~ 90%, non-condensing	
<b>Storage Temperature</b>	-4°F ~ 158°F (-20°C ~ 70°C) 10% ~ 90%, non-condensing	
<b>Maximum BTU</b>	60 BTU/hr	
<b>Dimensions and Weight</b>		
<b>Height</b>	24.9mm/0.98in	
<b>Width</b>	220mm/8.66in	
<b>Depth</b>	89.9mm/3.54in	
<b>Weight</b>	0.58kg/1.28lbs	
<b>Regulatory</b>		
<b>Safety and Emission</b>	CE   FCC   RoHS	

## Troubleshooting

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

- Verify that power is being supplied to the transmitter and receiving device and that both devices are powered on.

**Note:** When using PoH, to power the transmitter, verify that the HDBaseT cable is properly terminated per the [HDMI/HDBaseT Wiring](#) section.

- Verify that the transmitter supports the output resolution of the source Refer to Video Resolutions in the [Specifications table](#) for the max distance based on resolution.
- Verify that the receiving device and display support the output resolution of the source.
- Configure TX or source to output 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 [HDMI/HDBaseT Wiring](#) section.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.

### No or Intermittent 3<sup>rd</sup> 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.

## Warranty Information

This product is covered by a 3 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](http://wyrestorm.com) for additional information on this product including important technical information not provided in this document and warranty terms & conditions.

