4K HDMI over HDBaseT™ Receiver with ARC (100m/328ft)

RX-70-4K-ARC

WyreStorm

Quickstart Guide

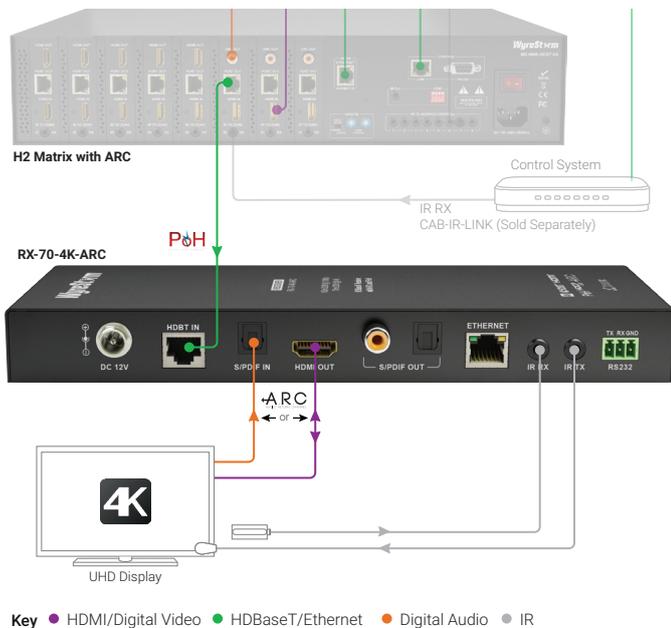Class A HDBaseT Receiver 4K over 70m/230ft with support for ARC or optical audio return.

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

4K · HDBT™ · HDMI® · HDCP 2.2 · PoH · ARC AUDIO RETURN CHANNEL

In the Box
1x RX-70-4K-ARC 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

H2 Matrix with ARC

Control System

IR RX
CAB-IR-LINK (Sold Separately)

RX-70-4K-ARC

PoH

DC 12V | HDBT IN | S/PDIF IN | HDMI OUT | S/PDIF OUT | ETHERNET | IR RX | IR TX | TX RX GND RS232

ARC or

4K

UHD Display

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.
- **MX-0606-HDBT-H2/MX-0808-HDBT-H2 Matrix Switcher** – 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.
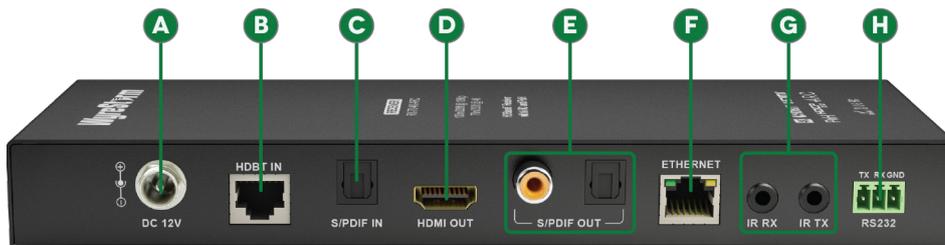
Receiver Installation
1. Connect the **HDMI Out** on the receiver to an input on the display using an HDMI cable from a high quality brand such as WyreStorm Express.
2. Using the cable created in Pre Wire step 1, connect the 8-pin RJ-45 female plug to the **HDBT In** jack.
3. (Optional) Place an IR emitter 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 ARC 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
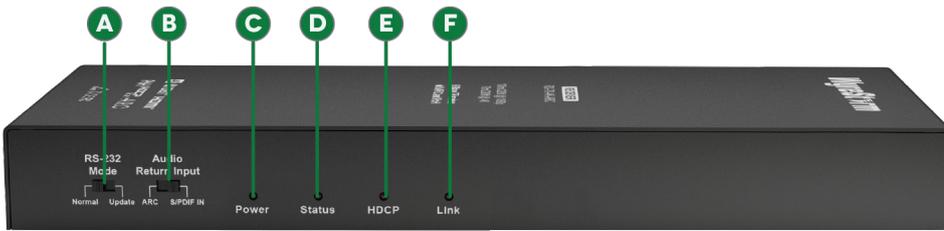
A	RS-232	Switches the mode for the RS-232 port. **Normal:** RS-232 HDBaseT pass-through. **Update:** RS-232 firmware update.
B	Audio Return Input	Selects the input (HDMI or S/PDIF In) to use for returning audio back to the matrix/transmitter. See Audio Return Input Settings.
C	Power LED	**Solid:** The receiver is powered On **Off**: The receiver is powered Off
D	Status LED	**Flashing:** The receiver is operating normally. **Off:** The receiver is Not operating normally.
E	HDCP LED	**Solid:** Audio and Video signal is HDCP protected. **Flashing:** Audio and Video signal is not HDCP protected. **Off:** No Audio and Video signal.
F	LINK LED	**Solid:** Link to receiver has been established. **Flashing:** Link to receiver has not been established.

Rear Panel

A	Power In	5.5mm Male Barrel Jack Connection to this jack is not required when using PoH. See Power Supply Wiring for details.
B	HDBT In	8-pin RJ-45 female Connect to the **HDBT Out** of a matrix or HDBaseT transmitter. See HDMI/HDBaseT Wiring for important wiring guidelines.
C	S/PDIF In	TOSLINK (Digital Optical) Connect to the S/PDIF audio output of the display when ARC is not supported. See Audio Return Input Settings.
D	HDMI Out	19-pin type A HDMI female: Supports HDMI and DVI/D (requires adapter-not included).
E	S/PDIF Out	RCA Female (Digital Coax) TOSLINK (Digital Optical) Outputs audio signal from local source or ARC audio from remote display.
F	Ethernet	8-pin RJ-45 female	10/100 Mbps auto-negotiating Connect to the Ethernet port on a network enabled display.
G	IR TX/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 via HDBaseT. See IR Wiring.
H	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 RS-232 Wiring.

HDMI/HDBaseT Wiring

Cat5e/6 Cable Performance Guide   RX-70-4K-ARC

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

⚠ 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.

Pin 1   Pin 8

Pin 1:	White/Orange	Pin 5:	White/Blue
Pin 2:	Orange	Pin 6:	Green
Pin 3:	White/Green	Pin 7:	White/Brown
Pin 4:	Blue	Pin 8:	Brown

Wire colors shown follow EIA/TIA-568B standard.

Supported Video Resolutions

The type of category cable used and the distance between the transmitter and receiver can restrict the available video resolution.

Cable Type	Range	Supported Resolution
Cat5/5e/6	100m/328ft	1080p@60Hz 36bit
	70m/230ft	1080p@60Hz 3D 4K@60Hz 4:2:0
Cat6a	100m/328ft	1080p@60Hz 36bit 1080p@60Hz 48bit 1080p@60Hz 3D

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

The source for the audio signal to return to the matrix/transmitter can be configured for ARC from HDMI or digital audio from the S/PDIF input.

ARC (HDMI): Audio from the device connected to the receivers **HDMI Out** is sent to the matrix/transmitter over HDBaseT.

Audio Return Input

ARC   S/PDIF IN

S/PDIF In: Audio from the device connected to the receivers **S/PDIF In** is sent to the matrix/transmitter over HDBaseT.

Audio Return Input

ARC   S/PDIF IN

IR Wiring

IR TX (Emitter) Wiring

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

Tip:	IR Signal
Sleeve:	Ground (GND)

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.

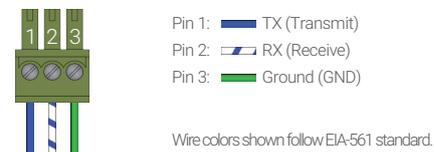| Tip:	+5V DC
Ring:	IR Signal
Sleeve:	Ground (GND)

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 functionally to ensure that the correct connections can be made.

Pin 1:	TX (Transmit)
Pin 2:	RX (Receive)
Pin 3:	Ground (GND)

Wire colors shown follow EIA-561 standard.

S/PDIF Out (Digital Coax) Wiring

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

Tip:	Audio Postive (+)
Shield:	Audio Negative (-)

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.

Specifications

Audio and Video

Inputs	1x HDBaseT 8-pin RJ-45 female
Outputs	1x HDMI 19-pin type A
Audio Formats	2ch analog and Up to 7.1 DTS-HD Master Audio and Dolby TrueHD
Video Resolution	1920x1080@60Hz (1080p60) 4096x2160@60Hz 4:2:0 (4K)
Color Depth	1080p: 48bit | 4K: 24bit
Maximum Pixel Clock	297 MHz

Communication and Control

HDMI	HDCP 2.2 | EDID DVI/D supported with adapter (not included)
HDBaseT	HDCP 2.2 | EDID | ARC | PoH | Bi-directional IR, RS-232 and Ethernet
Ethernet	Web UI | IP Control | Bi-directional over HDBaseT
IR	1x 3.5mm (1/8in) Stereo (IR RX) 1x 3.5mm (1/8in) Mono(IR TX) Bi-directional over HDBaseT
RS-232	1x 3-pin Phoenix Connector Bi-directional over HDBaseT
Audio Return Channel (ARC)	Returns audio to source location from remote display via HDBaseT

Power

Power Supply	Input: 100~240V AC 50/60Hz Output: 12V DC 2A
PoH	48V
Max Power Consumption	7.2W

Environmental

Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) 10% ~ 90%, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C ~ +70°C) 10% ~ 90%, non-condensing
Maximum BTU	60 BTU/hr

Dimensions and Weight

Height	24.9mm/0.98in
Width	220mm/8.66in
Depth	89.9mm/3.54in
Weight	0.58kg/1.28lbs

Regulatory

Safety and Emission	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, receiving device, and display support the output resolution of the source. See Supported Video Resolutions.
- 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 HDBaseT Wiring section.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.

No or Intermittent 3rd 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.

💡 **Troubleshooting Tips:**
- WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.
- Use a flashlight to locate the IR receiver behind any tinted panels on the device being controlled. It will likely appear as a small round disc.

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** for additional information on this product including important technical information not provided in this document and warranty terms & conditions.

3 YEARS WARRANTY ★★★ WYRESTORM®