

4K HDR HDMI Over HDBaseT TX/RX Kit

AT-HDR-EX-70C-KIT



The Atlona AT-HDR-EX-70C-KIT is an HDBaseT transmitter/receiver kit for high dynamic range (HDR) formats. The kit is HDCP 2.2 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI data rates up to 18 Gbps. The HDR-EX-70C-KIT provides transmission of HDMI, as well as bidirectional IR and RS-232 control signals up to 230 feet (70 meters) for 1080p video, and up to 130 feet (40 meters) for 4K HDR over CAT6a/7 cable. This extender kit features visually lossless compression with no latency to enable HDR and 4K/60 4:4:4 video signal extension over HDBaseT. For additional integration convenience, the transmitter remotely powers the receiver through Power over Ethernet (PoE). The HDR-EX-70C-KIT delivers a cost-effective solution for HDMI and control signal extension, and includes surface mounting hardware for discrete installation.

Package Contents

- 1 x AT-HDR-EX-70C-TX
- 1 x AT-HDR-EX-70C-RX
- 4 x Mounting brackets
- 8 x Mounting screws
- 1 x 48V DC power supply
- 1 x IR emitter

- 1 x 2-pin captive screw connector
- 2 x 3-pin captive screw connector
- 1 x 4-pin captive screw connector
- 1 x 5-pin captive screw connector
- 1 x Installation Guide



IMPORTANT: Visit <http://www.atlona.com/product/AT-HDR-EX-70C-KIT> for the latest firmware updates and Installation Guide.



Panel Descriptions



1 TEST

Quick and easy test for cables. Use the button to start the test and the LED to determine pass or fail.

2 UTILITY

Connect a mini-USB to USB-A cable from this port to a computer for updating and testing. Rotate the dial to set the unit into different modes.

3 POWER and LINK LEDs

The power LED will illuminate green when receiving power. The link LED will glow yellow when signal is being sent/received between the transmitter and the receiver.

4 DC 48V

Connect the included power supply to this port.

5 RS-232

Bidirectional control port, used for pass through of commands to or from the receiver.

6 IR

Connect a 3rd party controller to the IR IN port or an IR emitter to the IR OUT port.

7 HDBaseT OUT

Connect an HDBaseT cable from this port to the **HDBaseT IN** port on the receiver.

8 HDMI IN

Connect an HDMI cable from a source to this port. e.g. HDR BluRay Player

9 FW

Connect a mini-USB to USB-A type cable from this port to a computer, to update the firmware.

10 POWER and LINK LEDs

The power LED will illuminate green when receiving power. The link LED will glow yellow when signal is being sent/received between the transmitter and the receiver.

11 RS-232

Bidirectional control port, used for pass through of commands to or from the receiver.

12 IR

Connect an IR receiver to the IR IN port or an IR emitter to the IR OUT port.

13 HDBaseT IN

Connect an HDBaseT cable from this port to the **HDBaseT OUT** port on the transmitter.

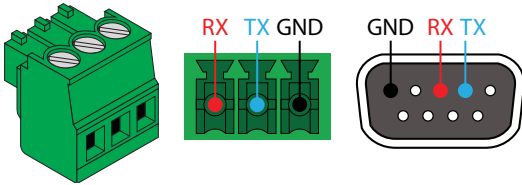
14 HDMI OUT

Connect an HDMI cable from this port to an HDMI display.



RS-232

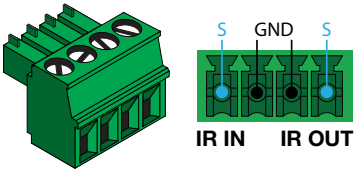
A 3-pin captive screw connector for RS-232 has been included.



Pin out will be determined by the RS-232 cable and connect as RX (receive), TX (transmit) and \perp (Ground).

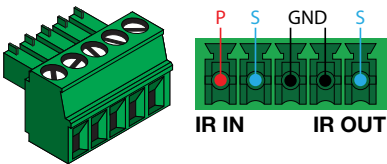
IR

Two captive screw connectors for IR have been included. A 4-pin connector for the transmitter and a 3-pin connector for the receiver.



IR IN is connected by a ground and signal wire. Use with 3rd party control systems. For easy termination, Atlona recommends using the 2 meter IR cable AT-LC-CS-IR-2M (purchasable through atlona.com).

IR OUT is connected by a ground and signal wire. Use the included IR emitter with this port.



IR IN is connected by a power, ground, and signal wire. Use a 12V IR receiver with it (e.g. AT-IR-CS-RX purchasable through atlona.com).

IR OUT is connected by a ground and signal wire. Use the included IR emitter with this port.

Mounting Instructions

The AT-HDR-EX-70C-KIT includes two mounting brackets and four mounting screws each, which can be used to attach the units to any flat surface.

1. Position one of the mounting brackets, as shown below, aligning the holes on the side of the enclosure with one set of holes on the mounting bracket.
2. Use the enclosure screws to secure the mounting bracket to the enclosure.
3. Repeat the above steps to attach the second mounting bracket to the opposite side of the unit.





4. Mount the unit using the oval-shaped holes, on each mounting bracket. If using a drywall surface, a #6 drywall screw is recommended.



NOTE: Mounting brackets can also be inverted to mount the unit under a table or other flat surface.

Installation

1. Connect an HDR source to the **HDMI IN** port on the transmitter.
2. Connect an HDR display to the **HDMI OUT** port on the receiver.
3. Connect an HDBaseT cable, from the **HDBaseT OUT** port on the transmitter, to the **HDBaseT IN** port on the receiver.
4. ***Optional*** Connect a 3rd party controller to the transmitter using either the 3-pin RS-232 or the 2-pin IR IN ports.
5. ***Optional*** Connect an IR receiver to the IR IN port of the receiver.
6. ***Optional*** Connect an IR emitter to the IR OUT port of the transmitter or receiver.
7. Connect the included 48V power supply into the transmitter.
8. Connect power supply to an AC outlet.

Cable Recommendation Guidelines

Refer to the tables below for recommended cabling when using Atlona products with HDBaseT. The green bars indicate the signal quality when using each type of cable. Higher-quality signals are represented by more bars.

Core	Shielding	CAT5e	CAT6	CAT6a	CAT7
Solid	UTP (unshielded)	■	■■■	■■■■	N/A
	STP (shielded)	■■	■■■■	■■■■■	■■■■■
Performance Rating (MHz)		350	500	600	800



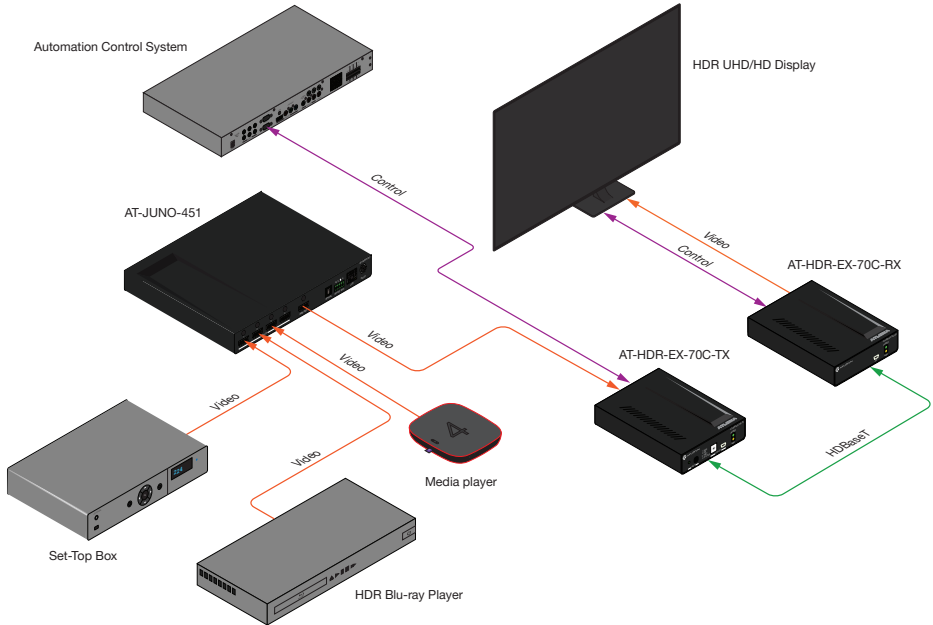
IMPORTANT: Stranded or patch cables are not recommended due to performance issues.

Cable*	Max. Distance @ 4K	Max. Distance @ 1080p
CAT5e / CAT6	115 feet (35 meters)	200 feet (60 meters)
CAT6a / CAT7	130 feet (40 meters)	230 feet (70 meters)

*Atlona recommends TIA/EIA 568-B termination for optimal performance.



Connection Diagram



TEST

The HDR-EX-70C-TX has the ability to test the HDBaseT cable quality through the front panel. Press the test button on the front panel of the transmitter to start the test.



Button:

- Blue Blinking: The test is running properly.
- Red Light: There is no signal for the test to check.

LED:

- No Light: There is no HDBaseT cable plugged in.
- Blinking: There is no HDBaseT signal coming through.
- Green: The HDBaseT cable is good.
- Yellow: One or two HDBaseT pairs are not working, reterminate the cable.
- Red: Multiple pairs are not working. Reterminate the cable and if the LED turns yellow or red again, replace the cable.

UTILITY

The utility port and dial are used for updating firmware, HDBaseT cable testing/debugging, and 5V lock. Use the Dial to switch between modes.



Mode 1: Link

This is the default position of the dial and puts the unit into normal operation.

Mode 2: FW

This mode sets the transmitter into firmware updating mode. View Firmware Updating instructions on the next page for manual updating.



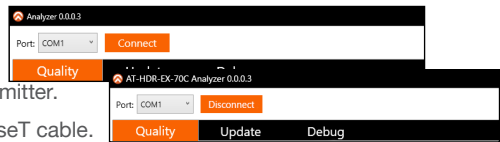
NOTE: Before setting the unit to mode 3 (TEST), the Atlona Analyzer should be downloaded from the resource tab located at <http://www.atlona.com/products/AT-HDR-EX-70C-KIT>

Mode 3: TEST

This mode sets the transmitter into HDBaseT testing and debugging mode. Firmware may also be updated in this mode using the Atlona Analyzer software.

Quality Testing

1. Open the Analyzer software.
2. Plug in the power supply of the transmitter.
3. Connect the receiver using an HDBaseT cable.
4. Connect an active source to the transmitter and an active display to the receiver. Set the source to the highest resolution.
5. Set the Utility dial to **3**.
6. Connect the transmitter's Utility mini USB port to a PC using a mini USB to USB A cable.
7. Select the COM port in the Analyzer software and press the connect button.
8. Once connected, press the **Start** button. The link information and cable pairing test results will display. Follow the instructions on the Analyzer software for any pair failures.
9. When complete, set the utility dial back to **1** or **4** for normal operation.



Firmware Updating (Analyzer software only)

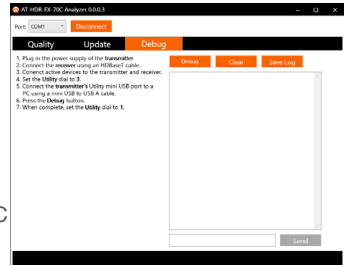
1. Download the firmware file from the firmware tab located at <http://www.atlona.com/AT-HDR-EX-70C-KIT>.
2. Set the dial to **3**.
3. Open the Analyzer software.
4. Connect the transmitter's Utility mini USB port to a PC using a mini USB to USB A cable.
5. Select the COM port and press the connect button.
6. Select Update from the top navigation.
7. Press the **Browse** button and a new window will open.
8. Select the firmware file for the transmitter and press open.
9. Press the **Load** button. The progress bar will display the update progress.
10. Once the update is complete, set the dial back to 1 or 4 to return to normal operation.





Debug

1. Open the Analyzer software.
2. Select **Debug** from the top navigation.
3. Plug in the power supply of the transmitter.
4. Connect the receiver using an HDBaseT cable.
5. Connect an active source to the transmitter and an active display to the receiver. Set the source to the highest resolution
6. Set the Utility dial to **3**.
7. Connect the transmitter's Utility mini USB port to a PC using a mini USB to USB A cable.
8. Select the COM port and press the connect button.
9. Press the Debug button. Information will appear in the box field if there is any data that can be logged. The log can be saved to the local computer if needed.
10. Set the dial back to 1 or 4 for normal operation.



Mode 4: 5V Lock

This mode sets the +5V and the HPD signal of the transmitter and receiver to high. This allows the source and display to have a consistent connection, even if there are issues with the source and display signals.

Updating Firmware (manually)

The following procedure covers manually updating the firmware. This method will be required if not using the Atlona Analyzer. If using the Atlona Analyzer, refer to **Firmware Updating (Analyzer software only)**, on page 6.

1. Download the firmware .zip file from the firmware tab located at <http://www.atlona.com/AT-HDR-EX-70C-KIT>.
2. Extract the firmware, from the archive file, to the Windows desktop or other folder.
3. Make sure the included 48 V DC power supply is connected to the transmitter and that an Ethernet cable is connected between the **HDBaseT OUT** and **HDBaseT IN** ports on the transmitter and receiver, respectively.

Transmitter only:

- a. Set the **UTILITY** dial to **2**.
- b. Disconnect the 48 V DC power supply from the transmitter.
- c. Connect a mini-USB to USB-A cable from the **UTILITY** port, on the transmitter, to the computer with the firmware file.
- d. Reconnect the power supply to the transmitter. The USB Drive folder should be displayed after a few seconds. If the folder is not displayed select the USB drive from Windows Explorer.
- e. Go to step 4.



Receiver only:

- a. Disconnect the Ethernet cable from the **HDBaseT IN** port on the receiver.
 - b. Connect a mini-USB to USB-A cable from the **FW** port on the receiver, to the computer with the firmware file.
 - c. Reconnect the Ethernet cable to the **HDBaseT IN** port on the receiver. The USB Drive folder should be displayed after a few seconds. If the folder is not displayed select the USB drive from Windows Explorer.
 - d. Go to step 4.
4. Delete all files from the USB Drive folder, if any are present.
 5. Drag and drop the firmware file to the drive. While the firmware loads to the unit, the green power LED on the front panel will flash.
 6. Once the LED is solid green, disconnect the unit from the computer.

Transmitter only:

- f. Set the **UTILITY** dial to **1** to resume normal operation.
7. The firmware update process is complete.

