

4K/UHD HDMI® Over HDBaseT TX with Control and PoE AT-OPUS-70C-KIT



The Atlona **AT-OPUS-70C-KIT** is an HDBaseT™ transmitter/receiver kit for HDMI transmission up to 230 feet (70 meters) over category cable with RS-232 and IR control plus Power over Ethernet capability. The kit transmits video signals up to 4K/UHD @ 60Hz with embedded multi-channel audio and remote 48V power for the receiver. HDCP 2.2 compliance ensures compatibility with the latest copy protection requirements and EDID communication is supported. Included brackets allow the devices to be surface mounted on furniture or behind a display. For higher density applications, the transmitter's compact enclosure allows four to be mounted in a single 1U rack tray, and they support power chaining for powering multiple units from one power supply. The AT-OPUS-70C-KIT is ideal for use in residential or commercial point to point applications that require HDBaseT signal transmission over greater distances than HDMI® can support.

Package Contents

AT-UHD-EX-70C-TX

- 1 x AT-UHD-EX-70C-TX
- 2 x Mounting brackets
- 4 x Mounting screws
- 1 x 3-pin captive screw connector
- 1 x 4-pin captive screw connector
- 1 x 2-pin captive screw connector
- 1 x 48 V / 0.83 A DC power supply

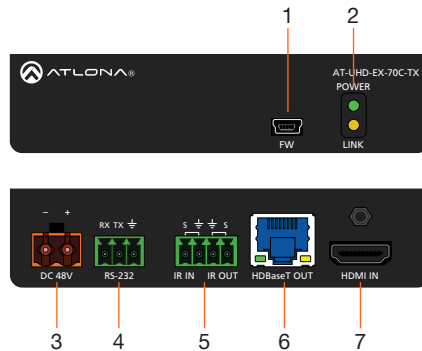
AT-OPUS-RX

- 1 x AT-OPUS-RX
- 2 x Mounting brackets
- 4 x Mounting screws
- 1 x IR Emitter
- 1 x 3-pin captive screw connector
- 1 x 5-pin captive screw connector



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

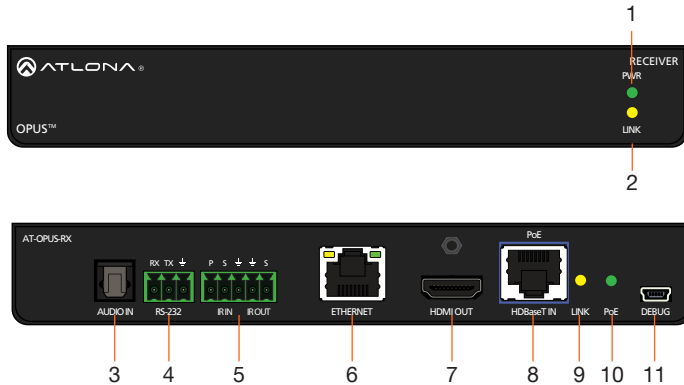
Panel Descriptions (AT-UHD-EX-70C-TX)



- 1 FW**
Connect a mini-USB to USB-A type cable from this port to a computer, to update the firmware.
- 2 POWER / LINK**
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.
- 3 DC 48V**
Connect the included power supply to this port.
- 4 RS-232**
Bidirectional control port, used for pass through of commands to or from the receiver.
- 5 IR IN / IR OUT**
Connect an IR receiver to the **IR IN** port. Connect an IR emitter from the **IR OUT** port to the included 4-pin captive screw connector.
- 6 HDBaseT OUT**
Connect an HDBaseT cable from this port to the **HDBaseT IN** port on the receiver.
- 7 HDMI IN**
Connect an HDMI cable from a source to this port.



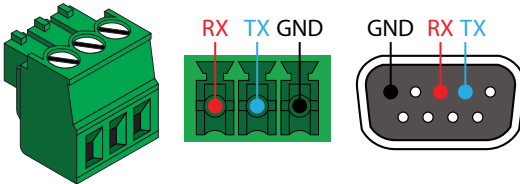
Panel Descriptions (AT-OPUS-RX)



- | | |
|--|--|
| 1 POWER
This LED indicator glows solid green when the unit is powered. | 7 HDMI OUT
Connect an HDMI cable from this port to a display. |
| 2 LINK
This LED indicator glows solid amber when an HDMI output is connected and a solid link is established between the transmitter and receiver. | 8 HDBaseT IN
Connect to an OPUS series matrix switcher output, using a 568B terminated cable. |
| 3 AUDIO IN
This port is not supported. | 9 LINK
This LED indicator glows solid amber when an HDMI output is connected and a solid link is established between the transmitter and receiver. |
| 4 RS-232
Connect the included 3-pin captive screw connector to this port for bidirectional RS-232. | 10 POWER
This LED indicator glows solid green when the unit is receiving power from the transmitter. |
| 5 IR
Connect the included 5-pin captive screw connector to this port for IR pass through. | 11 DEBUG
Connect this port to a PC for troubleshooting. |
| 6 Ethernet
Connect a LAN cable from this port to either a network switch or Ethernet capable display. | |

RS-232 (AT-UHD-EX-70C-TX)

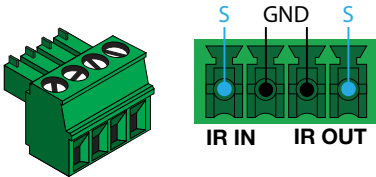
A 3-pin captive screw connector for RS-232 is included.



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

IR (AT-UHD-EX-70C-TX)

A 4-pin captive screw connector for IR is included.

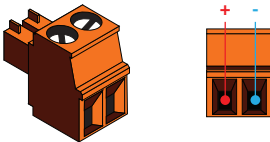


IR IN is connected by a signal and ground wire. Use a 12V IR receiver with it (e.g. AT-IR-CS-RX purchasable through atlona.com).

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

POWER (AT-UHD-EX-70C-TX)

A single 2-pin captive screw connector is provided to connect the power supply to the unit.



Mounting Instructions (AT-UHD-EX-70C-TX)

The AT-UHD-EX-70C-TX 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.

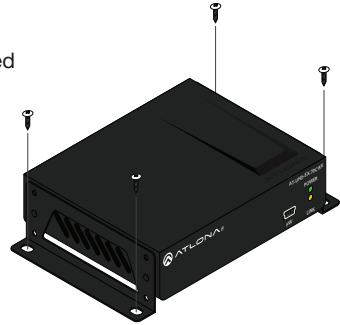




4. Mount the unit using the oval-shaped holes, on each mounting bracket. If using a drywall surface, a #6 drywall screw is recommended.

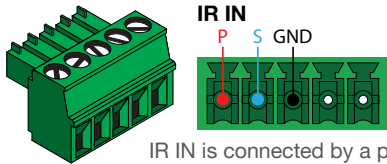


NOTE: Mounting brackets can also be inverted to mount the unit under a table or other flat surface.



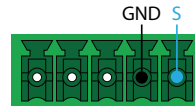
IR (AT-OPUS-RX)

A 5-pin captive screw connector for IR control has been included. The first three terminals are IR inputs to be used with an IR receiver (AT-IR-CS-RX purchased separately through atlona.com), the last two terminals are for IR outputs to be used with the included IR emitter.



IR IN is connected by a power, signal, and ground wire. Use with IR receivers to pass IR signals back to the transmitter.

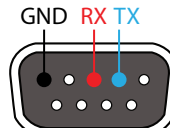
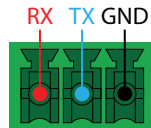
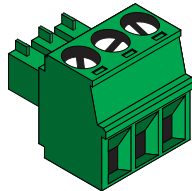
IR OUT



IR OUT is connected by a ground and signal wire. Use with the included IR emitter to pass signals to the display from a control system.

RS-232 (AT-OPUS-RX)

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



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

Mounting Instructions (AT-OPUS-RX)

The AT-OPUS-RX includes two mounting brackets and four mounting screws, which can be used to attach the units to any flat surface.

1. Remove the top 2 case screws on the side of the unit.
2. Align the mounting brackets to the side of the units.
3. Use the previously removed case screws to secure the mounting bracket to the enclosure.
4. Repeat the steps for the other side of the unit.



Installation

1. Connect a source to the **HDMI IN** port on the AT-UHD-EX-70C-TX.
2. Connect a display to the **HDMI OUT** port on the AT-OPUS-RX.
3. Connect an HDBaseT cable, from the **HDBaseT OUT** port on the AT-UHD-EX-70C-TX to the **HDBaseT IN** port on the AT-OPUS-RX.
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 AT-UHD-EX-70C-TX.
6. OPTIONAL: Connect an IR emitter to the **IR OUT** port of the AT-UHD-EX-70C-TX or AT-OPUS-RX.
7. Connect the included 48V power supply from an AC outlet to the **DC 48V** port on the AT-UHD-EX-70C-TX.

Cable Recommendation Guidelines

Refer to the tables below for recommended cabling when using Atlona products with HDBaseT. The orange 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.



Updating Firmware (AT-OPUS-RX)

Requirements:

- AT-UHD-EX-70C-TX
- AT-OPUS-RX
- Computer with firmware file
- USB-A to USB mini-B cable

1. Download the update tool from <http://www.atlona.com/at-opus-70c-kit>.
2. Extract the contents of the file to a location on your computer.



IMPORTANT: Do not use Windows Explorer to extract the file, containing the firmware. Winzip, 7-Zip, or other file decompression programs must be used.

3. Connect a category cable from the **HDBaseT IN** port on the AT-OPUS-RX and the **HDBaseT OUT** port on the AT-UHD-EX-70C-TX.
4. Connect the 48 V DC power supply to the AT-UHD-EX-70C-TX.
5. Connect a USB-A to USB mini-B cable from the **DEBUG** port on the AT-OPUS-RX to an available USB-A port on the PC.
6. Go to the folder containing the contents of the compressed file (Step 2) and double-click the `ProgRun.bat` file to execute it.

If the following error message is received, double check that the PC is connected to the **DEBUG** port on the AT-OPUS-RX and that the AT-OPUS-RX is powered.

```
COM6: starting discovery...  
COM6: nothing detected  
No local VS2K device detected. Please make sure that only one such device is connected  
Press any key to continue . . .
```

7. Press the ENTER key when prompted, to begin the firmware update.
8. Press the ENTER or "Y" key when prompted Do you want to continue with programming (Y/N).

(continued on next page)


```

C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX>ProgRun.bat
ValueCmd 2.37.6.24315 version
Firmware file not found: 'C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX\None'
Checking old USBH firmware will be skipped
Checking old UPT will be skipped
Firmware file not found: 'C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX\None'
Programming USBH firmware will be skipped
Programming UPT will be skipped
COM5: starting discovery...
COM5: nothing detected
COM6: starting discovery...
COM6: nothing detected
COM21: starting discovery...
COM21: nothing detected
COM22: starting discovery...
COM22: setup with 3 device(s) detected: Dan Lattice Ayalon
Local Chip 000000000000 0000 FFFF: Dan RX running FW=7.2.4 - Chip about to program

Atlona Extender FW upgrader for local VS2K
1. Please make sure that the Extender Host side '12V IN' is connected to Power Adapter
2. Please connect your PC COMH port to the UART Debug port at the Extender Host Side
3. Do not disconnect power or interrupt programming until it finished
4. Press Enter to start programming
Programming of bank 3 USBH is skipped due to missing new image file
Verifying image against bank 4 USBH...
The actual image in bank 4 USBH does not match to specified old image 'C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX\Colligo_RX_USBD_7.5.21.ihex'
Do you want to continue with programming (Y/N)
Working with C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX\Colligo_RX_USBD_7.5.21.ihex (bank 4)...
Erase Started...
Burn Started...
Verify Started...
Programming of C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX\Colligo_RX_USBD_7.5.21.ihex (bank 4) performed successfully
Programming of bank 1 UPT is skipped due to missing new image file
FW upgrade Done Successfully
Press any key to continue . . .
C:\Users\RonaldCheng\Downloads\AT110123 - OPUS-RX>
  
```

9. When the message `FW upgrade Done Successfully` has been displayed, power cycle the AT-OPUS-RX by disconnecting/reconnected the HDBaseT cable.

Updating Firmware (AT-UHD-EX-70C-TX)

Requirements:

- AT-UHD-EX-70C-TX
- AT-OPUS-RX
- Computer with firmware file
- USB-A to USB mini-B cable

1. Connect a USB to mini-USB cable from the FW port on the unit to an available USB port on the computer.



NOTE: The AT-UHD-EX Series can be powered over USB during the firmware update procedure. Therefore, connection of an external power supply (or HDBaseT) is not required.

2. Identify the correct batch (.bat) script for the product that is being updated, from the table below. Note that there are separate scripts for both TX and RX units.

Valens (VS010)	
UpdateVS010RX_[version].bat	AT-UHD-EX-70-2PS (RX) AT-UHD-EX-70-RX AT-UHD-EX-70C-RX
UpdateVS010TX_[version].bat	AT-UHD-EX-70-2PS (TX) AT-UHD-EX-70-TX AT-UHD-EX-70C-TX
Valens (VS100)	
UpdateVS100RX_[version].bat	AT-UHD-EX-100-CE-RX AT-UHD-EX-100CE-RX-PSE
UpdateVS100TX_[version].bat	AT-UHD-EX-100CE-TX AT-UHD-EX-100CE-TX-PD

3. Double-click the batch file to execute it.



IMPORTANT: Do not disconnect the USB cable during the update process.

4. After the update procedure is complete, the software will go through the verification process and then display the following message:

Verification succeeded!!! :-)



Notes

Warranty

To view the product warranty, use the following link or QR code:

<https://atlona.com/warranty/>.



English Declaration of Conformity

The English version can be found under the resources tab at:

<https://atlona.com/product/at-opus-70c-kit/>.



Chinese Declaration of Conformity 中国RoHS合格声明

由SKU列出於:

<https://atlona.com/about-us/china-rohs/>.



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