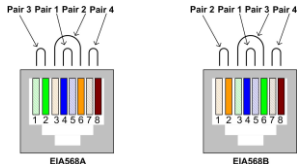


Specifications

Environment	HDMI 2.0b
Devices	DVDs, Blu-ray players, projectors, monitors, TVs, PCs, laptops, servers supporting HDMI.
Transmission	Transparent to the user
Bandwidth	340 MHz
Signals	HDMI 2.0b protocol
Connectors	One (1) HDMI receptacle. One (1) RJ45S for Cat5e/6 unshielded or shielded twisted pair. One (1) DB9 connector for RS232. One (1) TosLink Optical Connector for Audio Return. Two (2) 3.5mm sockets for IR Sensor & Emitter (carrier-wave). One (1) 2.1mm locking power connector.
<i>Cables not included.</i>	
Maximum Distance	4K/30 (4:4:4): Cat 5e/6: 131ft (40m) 4K/60 (4:2:0): Cat 5e/6: 131ft (40m) 1080p/60: Cat 5e/6: 230ft (70m)
<i>Based on a maximum length of 6.6 ft (2 m) of HDMI cable per end.</i>	<i>When installed in an electrically noisy environment, STP cable must be used. Also, cross-connection reduces the effective distance depending on the grade of twisted cable used.</i>
RJ45 Pin Configuration	<p>RJ45 Link</p> <p>Pin 1 (R) Pin 2 (T) Pin 3 (R) Pin 6 (T) Pin 4 (R) Pin 5 (T) Pin 7 (R) Pin 8 (T)</p>  <p>Reverse Polarity Sensitive. Use EIA/TIA 568A or 568B straight-through wiring.</p>
Cable	One (1) Category 5e or better twisted pair cable required.
Power Supply	Two (2) 110-240V/5VDC power supplies with interchangeable blades
Power Consumption	Transmitter: 1.6 Watt Receiver: 3.2 Watt
Temperature	Operating: 0° to 40°C Storage: -20° to 85°C Humidity: Up to 95% non-condensing
Enclosure	Metal
Dimensions	4.40" x 3.00" x 1.00" (11.2 x 7.6 x 2.5 cm)
Weight	1.4 lb (0.6 kg)
Compliance	Regulatory: FCC, CE, RoHS
Warranty	2 years
Order Information	500458-ARC HDMI/RS232 Extender Kit with ARC, HDBT, UHD-4K
Accessories	500905 Rackmount Transceiver Chassis 3 Port 500920 Rackmount Transceiver Chassis 16 Port



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HDMI/RS232 Extender Kit with ARC, HDBT, UHD-4K (500458-ARC) Quick Installation Guide

Overview

The HDMI/RS232 Extender Kit with ARC, HDBT, UHD-4K (500458-ARC) allows HDMI equipment to be connected up to 131ft (40m) at 4K/30 (4:4:4) and 4K/60 (4:2:0) resolution, or 230ft (70m) at resolutions up to 1080p via one (1) Cat 5e/6 unshielded twisted pair cable in a point-to-point configuration. The kit supports Audio Return Channel (ARC), allowing the Receiver to return audio from a sink device such as a smart TV back to the Transmitter and on to an audio system. The originating ARC signal may be received via the HDMI (ARC) or TosLink-in port of the 500458-ARC-RX and transmitted via the TosLink-out port of the 500458-ARC-TX. The kit includes one (1) transmitter, one (1) receiver, one (1) IR Emitter, one (1) IR sensor, and two (2) power supplies.

Applications

Applications include digital signage, commercial and residential AV systems, classroom projector systems, boardroom systems, collaborative PC systems, and medical information systems.

Installation

1. Identify the connectors on the Transmitter and Receiver as indicated on the product end panels.
2. Verify that the distance between the HDMI Transmitter and Receiver is within MuxLab specifications (see specifications table).
3. To install the Transmitter:
 - 3a. Connect the Transmitter to the HDMI video source with an HDMI compliant cable.
 - 3b. Connect the Transmitter Audio Out to the audio equipment using a compliant optical audio cable.
 - 3c. Connect one (1) length of Cat 5e/6 (or higher) grade UTP cable to the RJ45 LINK connector on the Transmitter.

4. To install the Receiver:
 - 4a. Connect the Receiver to the HDMI display equipment with an HDMI compliant cable.

Note: When used with MuxLab's HDMI Matrix Switch, please consult the Matrix Switch Installation Guide.

- 4b. If the TV does not support ARC on the HDMI port, connect an optical audio cable from the TV optical TosLink port to the Audio In of the Receiver.
 - 4c. Connect one (1) Cat 5e/6 cable to the RJ45 LINK connector on the Receiver.

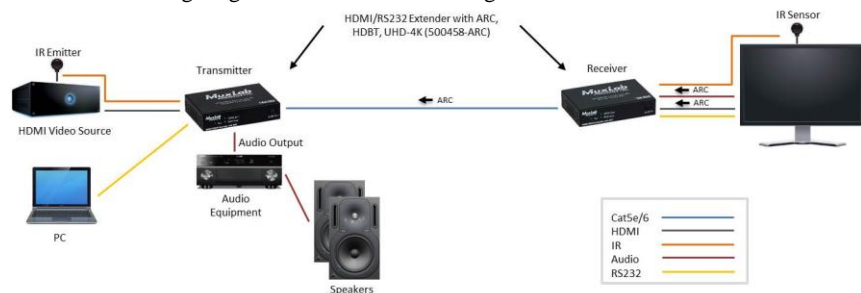
5. Connect the 5VDC power supply to the Receiver first, and then plug the power supply into an AC power outlet. Connect the 5VDC power supply to the Transmitter first, and then plug the power supply into an AC power outlet. If power is present, the green power LED of the Transmitter and the Receiver will be ON.

Note: Power-up the HDMI/RS232 Extender Kit with ARC, HDBT, UHD-4K only after all connections are made.

6. Power-up the HDMI equipment and verify the image quality.
7. This product supports bi-directional IR control. If infrared remote control is needed to control the Source equipment from the Display, connect the IR Sensor to the 3.5mm Stereo Jack of the receiver and the IR Emitter to the 3.5mm Mono Jack of the Transmitter.

Note: The IR Sensor can be distinguished from the IR Emitter by looking at the 3.5-mm plug. The IR Sensor has a 3.5mm stereo plug (3 Contacts) and the IR Emitter has a 3.5mm mono plug (2 Contacts).

8. Position the IR Sensor so that it is aimed toward the hand-held remote control. For clear IR signal reception, aim the hand-held remote control toward the top of the IR Sensor enclosure.
9. Position the IR Emitter as close as possible to the source's IR Sensor (i.e. DVD, Blu-ray, or media player). For a clear IR signal reception, the IR Emitter may be affixed to the source's IR Sensor. The IR Emitter's signal is transmitted from the side of the enclosure.
10. If infrared remote control is needed to control the Display equipment from the Source, connect the IR Emitter to the Receiver's 3.5mm stereo jack and connect the IR Sensor to the Transmitter's 3.5mm mono jack.
11. The 500458-ARC also supports RS232 pass-thru in order to allow a device such as commercial monitors to be controlled as in digital signage application. Please refer to the following diagram for the cabling connection.
12. The following diagram shows the final configuration.



Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in regard to the installation of the HDMI/RS232 Extender Kit with ARC, HDBT, UHD-4K:

Symptom	Tx LEDs			Rx LEDs			Probable Cause	Possible Solutions
	Power	HDMI	RJ45	Power	HDMI	RJ45		
No Image	OFF	OFF	OFF	OFF	OFF	OFF	No power	• Check power connections.
No Image	ON	OFF	OFF	ON	OFF	OFF	UTP Cable	• Check the UTP cables.
No Image	ON	OFF	ON	ON	OFF	ON	HDMI Cable	• Check the HDMI Cable.
No Image	ON	ON	ON	ON	ON	ON	Synchronisation	• Check cable length.
Flickering Image	ON	ON	ON	ON	ON	ON	Synchronisation	• Check cable length. • Check the HDMI Cable Quality.
Choppy sound	ON	ON	ON	ON	ON	ON	Synchronisation	• Check cable length. • Check the HDMI Cable Quality.
Green or pink hue	ON	ON	ON	ON	ON	ON	DDC communication	• Cycle power of the HDMI Extender. • Check UTP cables and replace.
Image flickers when powering up nearby equipment	ON	ON	ON	ON	ON	ON	Interference	• Use STP cables.
IR not functioning	ON	ON	ON	ON	ON	ON	Remote control not directed to the IR Sensor or IR Emitter not directed to the source.	• Make sure the IR Sensor is directed towards the remote and the IR Emitter to the equipment.
IR not functioning	ON	ON	ON	ON	ON	ON	Interference from sunlight, Fluorescent, Neon or Halogen lights.	• Place the IR equipment away from the interfering light.
IR not functioning	ON	ON	ON	ON	ON	ON	Interference from RF radiation from the TV.	• Place the IR equipment away from the RF radiation.
ARC not functioning	ON	ON	ON	ON	ON	ON	TV may not support ARC or TosLink cable issue	• Validate TV ARC support and TosLink Cable

If you still cannot diagnose the problem, please call MuxLab Customer Technical Support at 877-689-5228 (toll-free in North America) or (+1) 514-905-0588 (International).