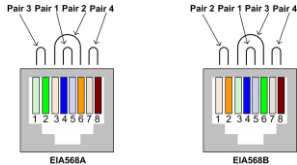# Specifications

Environment	HDMI 1.3a (Supports the 3D feature of HDMI 1.4).
Devices	DVD, plasma, projectors, monitors, TV, PC, laptops, servers supporting HDMI.
Transmission	Transparent to the user.
Bandwidth	340 MHz.
Signals	HDMI 1.3a protocol.
Connectors *Cables not included.*	One (1) HDMI receptacle. One (1) RJ45S for Cat 5e/6 unshielded or shielded twisted pair. Two (2) 3.5mm jacks for IR emitter and sensor. One (1) DB9 Connector for RS-232.
Maximum Distance *Based on a maximum length of 6.6 ft (2 m) of HDMI cable per end.*	Cat 5e/6: 230 ft (70 m) up to 1080P Deep Color 115 ft (35 m) for 4K; 3840 X 2160/24,25,30 Hz *Note: When installed in an electrically noisy environment, an STP cable must be used. Also, cross-connection reduces the effective distance depending on the grade of twisted cable used.*
RJ45 Pin Configuration *Reverse Polarity Sensitive. Use EIA/TIA 568A or 586B straight-through wiring.*	**RJ45 Link** Pin 1 (R) Pin 2 (T) Pin 3 (R) Pin 6 (T) Pin 4 (R) Pin 5 (T) Pin 7 (R) Pin 8 (T) Pair 3 Pair 1 Pair 2 Pair 4 Pair 2 Pair 1 Pair 3 Pair 4 EIA568A EIA568B
Cable	One (1) Cat 5e/6 or better twisted pair cable required
Power Supply	One (1) 110-240V/48VDC power supply 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 Flammability: 94V0
Warranty	2 years
Order Information	500454-POE HDMI/RS232 Extender Kit, POE, HDBT, UHD-4K 500454-POE-RX HDMI/RS232 Receiver, PoE, HDBT, UHD-4K

HDMI/RS232 Extender Kit, PoE, HDBT, UHD-4K

500454-POE (Kit), 500454-POE-RX (Receiver only)

Quick Installation Guide

Overview

The HDMI/RS232 Extender Kit, PoE, HDBT, UHD-4K (500454-POE) allows HDMI equipment to be connected up to 230 ft (70 m) @ 1080p via one (1) Cat 5e/6 unshielded twisted pair cable in a point-to-point configuration. The 500454-PoE includes one (1) Transmitter and one (1) Receiver as well as an IR Emitter (500998) and IR Sensor (500999) for remote control applications. The unit comes with one (1) power supply, as it only require power on the Transmitter or Receiver side and provides PoE/PoC power to the opposite end extender. The 500454-POE-RX receivers may be used in conjunction with MuxLab's HDMI Matrix Switch. For installation instructions, please refer to the HDMI Matrix Switch Installation Guide.

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 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.

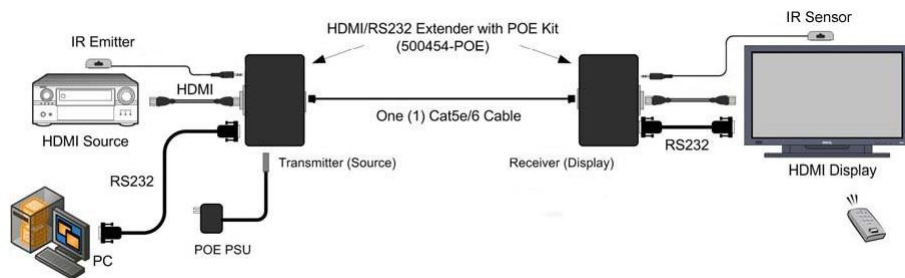4b. Connect one (1) Cat 5e/6 cable to the RJ45 LINK connector on the Receiver.

5. Connect the 48VDC power supply to either the Transmitter or Receiver first, and then plug the power supply into an AC power outlet. Only one end (TX or RX end) needs to be connected to a power supply, which then powers the extender at the opposite end. 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, PoE, HDBT, UHD-4K only after all connections are made.

6. Power-up the HDMI equipment and verify the image quality.

7. This product support 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 500454-PoE also supports RS232 pass-thru in order to allows 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, PoE, 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.

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).