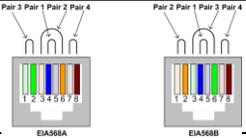


# Specifications

<b>Environment</b>	HDMI 1.4
<b>Devices</b>	Blu-Ray, projectors, monitors, TV, PC, laptops, servers supporting HDMI.
<b>Transmission</b>	Transparent to the user
<b>Bandwidth</b>	300MHz
<b>Signals</b>	HDMI 1.4 protocol
<b>Connectors</b>	One (1) HDMI receptacle. One (1) RJ45S for Cat 5e/6 unshielded or shielded twisted pair. Two (2) 3.5mm jacks for IR emitter (on TX)/sensor (on RX). Two (2) 3.5mm jacks for audio insert (on TX)/audio extract (on RX). One (1) DB9 Serial Port for RS232. Four (4) DIP Switches for device ID addressing.
<i>Note: Cables not included.</i>	
<b>Maximum Distance</b>	Cat5e/6: 330ft (100m) up to 4K @ 30Hz <i>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.</i>
<i>Based on a maximum length of 6.6ft (2m) of HDMI cable per end.</i>	
<b>Latency</b>	Typical one (1) Frame (16ms), maximum 2 frames (33ms)
<b>Compression</b>	Proprietary Compression
<b>Bandwidth</b>	Up to 850Mbps
<b>Network Requirement</b>	1000BaseT with Jumbo Frame
<b>IR Frequency</b>	38 to 56KHz
<b>RJ45 Pin Configuration</b>	<p><b>RJ45 Link</b></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>Diagram 1 (EIA568A): Pair 3 (Pair 1), Pair 2 (Pair 4), Pair 1 (Pair 3), Pair 4 (Pair 2). Diagram 2 (EIA568B): Pair 2 (Pair 1), Pair 3 (Pair 4), Pair 1 (Pair 3), Pair 4 (Pair 2).</p>
<i>Reverse Polarity Sensitive. Use EIA/TIA 568A or 586B straight-through wiring.</i>	
<b>Cable</b>	One (1) Cat 5e/6 or better twisted pair cables required
<b>Power Source</b>	This device supports PoE (PD), an external power supply is not included. It is intended to be powered via a PoE (PSE) Ethernet Switch. If required, an optional power supply (500993) may be purchased separately.
<b>PoE Standard</b>	IEEE 802.3af
<b>Power Consumption</b>	Transmitter: 2.85Watt Receiver: 2.55Watt
<b>Temperature</b>	Operating: 0° to 40°C Storage: -20° to 85°C Humidity: Up to 95% non-condensing
<b>Dimensions</b>	4.40" x 5.08" x 1.00" (112mm x 129mm x 25mm)
<b>Weight</b>	1.5lbs (0.68kg)
<b>Compliance</b>	Regulatory: FCC, CE, RoHS Flammability: 94V0
<b>Warranty</b>	2 years
<b>Order Information</b>	500758 HDMI 4K over IP PoE Extender Kit 500758-TX HDMI 4K over IP PoE Extender TX 500758-RX HDMI 4K over IP PoE Extender RX
<b>Accessories</b> (These items are sold separately)	500920 16-Port Rackmount Transceiver Chassis 500917 Wall Mount Transceiver Bracket Kit 500990 IR Emitter, and 500991 IR Sensor 500993 Univ. Locking Power Supply 5VDC/2.6A US/UK/EU Blade



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## HDMI 4K over IP PoE Extender Kit 500758 Quick Installation Guide

### Overview

The HDMI 4K over IP PoE Extender Kit allows HDMI equipment to be connected up to 330ft (100m) up to 4K (3840x2160) resolution @ 30Hz via one (1) Cat5e/6 unshielded twisted pair cable in a point-to-point configuration. Point-to-multipoint and multipoint-to-multipoint configurations are also possible by connecting several Transmitters and Receivers to the same local Ethernet IP network via an Ethernet Switch. The Transmitter (500758-TX) and Receiver (500758-RX) also support PoE (PD) if used with a PoE (PSE) Ethernet Switch. The kit comes with one (1) Transmitter and one (1) Receiver. IR Emitter and IR Sensor, if required, may be purchased separately for IR based remote control applications. Additional Transmitters and Receivers may be purchased as kits or purchased separately depending on the intended application and number of units required.

For the point-to-multipoint and multipoint-to-multipoint configuration the Ethernet Switch must have Gigabit ports, Jumbo Frame capability and DHCP Server capability, and additionally support the IGMP communication protocol for the multipoint-to-multipoint case. MuxLab recommends using the Cisco SG300 Series Managed Switches.

The MuxLab ProDigital Network Controller (500811) is available to simplify the configuration and utilization of the 500758 and other MuxLab IP based products via an Ethernet web interface.

### Applications

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

### Installation

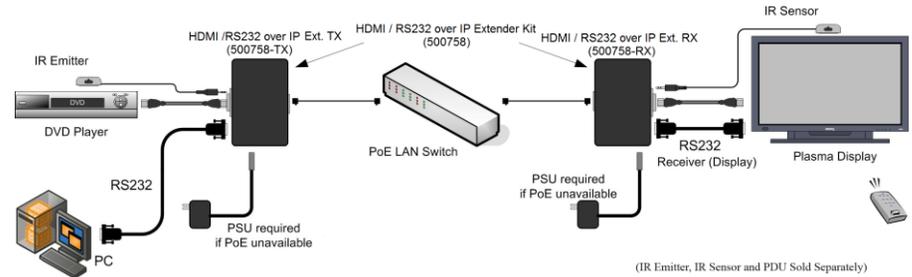
- Identify the connectors on the Transmitter and Receiver as indicated on the product labels, see the above front and rear product views for further details.
- Verify that the distance between the HDMI Transmitter and Receiver is within MuxLab specifications (see Specifications table for more details).
- To install the Transmitter:
  - Connect the Transmitter to the HDMI video source with an HDMI compliant cable.
  - If the application is point-to-point, then connect one (1) length of Cat 5e/6 (or higher) grade UTP cable to the RJ45 LINK connector on the Transmitter. If transmitting over the network, use an Ethernet Switch between Transmitter and Receiver.

4. To install the Receiver:
  - 4a. Connect the Receiver to the HDMI display equipment with an HDMI compliant cable.
  - 4b. If the application is point-to-point, then connect one (1) Cat 5e/6 cable (or higher) coming from the Transmitter, to the RJ45 LINK connector on the Receiver. If transmitting over the network, use an Ethernet Switch between Transmitter and Receiver.
5. If the configuration is a point-to-multipoint or multipoint-to-multipoint:
  - 5a. You will need to use an Ethernet Switch with Gigabit ports and DHCP Server support. In addition Jumbo Frame support is required and IGMP Protocol support is required for the multipoint-to-multipoint case. **Verify that the Ethernet Switch is configured correctly and that the DHCP Server is enabled, that the IGMP Protocol is enabled for multipoint-to-multipoint applications, and that Jumbo Frame is enabled.** See the operating manual for more information about configuring the Ethernet Switch.
  - 5b. Connect all Transmitters and Receivers to the Ethernet Switch.
  - 5c. Use the DIP Switches to select a unique Device ID for each Transmitter present on the network and configure each Receiver Device ID to the corresponding selected Transmitter.
 

**Note:** This step is not necessary if the MuxLab Pro Digital Network Controller (500811) is used.
6. Powering the Transmitter or Receiver via an external power supply is only necessary where PoE (PSE) is unavailable. If PoE is unavailable, connect a 5 VDC power supply (500993 - sold separately) to each Receiver and to an AC power outlet. Next connect each Transmitter in the same manner. If power is present, the green power LED on each Transmitter and Receiver will illuminate..
 

**Note: Power 'ON' the HDMI 4K over IP PoE Extender Kit only after all connections have been made.**
7. Power 'ON' the HDMI equipment and verify the image quality.
8. This product supports IR pass-thru control. IR Emitter and Sensor are not included, and are sold separately. 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: You can differentiate the IR Sensor and the IR Emitter by looking at the 3.5 mm plug. The IR Sensor is using a Stereo Plug (3 Contacts) and the IR Emitter a mono plug (2 Contacts).**
9. Position the IR Sensor so that it is directed at the hand-held remote control. For a clear IR signal reception, aim the hand-held remote control at the top of the IR Sensor enclosure.
10. Position the IR Emitter as close as possible to the source's IR Sensor (i.e. DVD player). For a clear IR signal reception, the IR Emitter can be glued on the source's IR Sensor. The IR Emitter's signal is transmitted from the side of the enclosure.
11. This product supports RS232 bidirectional communication. On the Transmitter, the RS232 port is configured as a DCE; and on the Receiver as a DTE. Please connect your RS232 cable accordingly. Configure the RS232 communications setting via the device web interface.
12. Commands or messages may be sent via RS232 by connecting a PC to the RS232 port of the HDMI 4K over IP PoE Extender, or over the network via IP. This communications is meant to be machine to machine.
13. The following diagram illustrates a typical point-to-point LAN configuration.



## Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in regard to the installation of the HDMI 4K over IP PoE Extender Kit:

Symptom	Transmitter LEDs		Receiver LEDs		Probable Cause	Possible Solutions
	Power	Link	Power	Link		
No Image	OFF	OFF	OFF	OFF	No power	<ul style="list-style-type: none"> <li>• Check power connections</li> <li>• Check PoE Ethernet Switch Setup</li> </ul>
No Image	BLINK	OFF	BLINK	ON	Booting	<ul style="list-style-type: none"> <li>• Wait until booting process is finished</li> </ul>
No Image	ON	OFF	ON	OFF	No Ethernet Link	<ul style="list-style-type: none"> <li>• Check Ethernet Switch Status</li> <li>• Check UTP Cables</li> </ul>
Info Screen	ON	OFF	ON	BLINK	UTP Cable	<ul style="list-style-type: none"> <li>• Check the Transmitter UTP cable</li> </ul>
Info Screen	ON	ON	ON	OFF	UTP Cable	<ul style="list-style-type: none"> <li>• Check the Receiver UTP cable.</li> </ul>
Info Screen	ON	BLINK	ON	BLINK	No Data Connection	<ul style="list-style-type: none"> <li>• Check if DIP Switch settings match</li> </ul>
Info Screen	ON	ON	ON	BLINK	Wrong setting on Receiver	<ul style="list-style-type: none"> <li>• Check DIP Switch address of the Receiver</li> </ul>
Choppy Video	ON	ON	ON	ON	Configuration	<ul style="list-style-type: none"> <li>• Check cable length</li> <li>• Check the HDMI Cable Quality</li> <li>• Check if Jumbo Frame and IGMP are enabled on the Ethernet Switch</li> </ul>
Image flickers when powering up nearby equipment	ON	ON	ON	ON	Interference	<ul style="list-style-type: none"> <li>• Use STP cables</li> </ul>
IR not functioning *	ON	ON	ON	ON	Interference from sunlight, Fluorescent, Neon or Halogen lights	<ul style="list-style-type: none"> <li>• Place the IR equipment away for the interfering light</li> </ul>
IR not functioning *	ON	ON	ON	ON	Interference from RF radiation from the TV	<ul style="list-style-type: none"> <li>• Place the IR equipment away for the RF radiation</li> </ul>

\* IR Emitter and IR Sensor sold separately.

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).