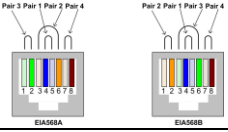


Specifications

Environment	HDMI 2.0
Devices	Computers and servers with HDMI monitor ports.
Transmission	Transparent to the user
Bandwidth (HDMI)	597MHz
Signals	HDMI 2.0 protocol, HDCP 1.4, HDCP 2.2
Connectors	One (1) HDMI receptacle. One (1) RJ45S for Cat 5e/6 unshielded or shielded twisted pair. Two (2) 3.5mm jacks for audio-in and audio-out (TX)/audio-out and Mic-In (RX). One (1) 3.5mm jack for directional Infrared port. One (1) DB9 for RS232 One (1) 2.1mm locking barrel jack for power. One (1) or Four (4) USB Connector(s) for Host (TX)/Client (RX) Four (4) DIP Switches for device ID addressing.
<i>Note: Cables not included.</i>	
Maximum Distance	Cat5e/6: 330ft (100m) up to 4K @ 60 Hz (4:4:4) <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>	
Latency	One (1) Frame (16ms), maximum 2 frames (33ms)
Compression	JPEG 2000
Bandwidth	Up to 850 Mbps
Network Requirement	1000BaseT with PoE
RJ45 Pin Configuration	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) 
<i>Reverse Polarity Sensitive. Use EIA/TIA 568A or 586B straight-through wiring.</i>	
Cable	One (1) Cat 5e/6 or better twisted pair cables required
Power Source	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.
PoE Standard	IEEE 802.3af
Power Consumption	Transmitter: 6Watts Receiver: 8Watts
Temperature	Operating: 0° to 40°C Storage: -20° to 85°C Humidity: Up to 95% non-condensing
Dimensions	6.38" x 5.51" x 1.00" (162mm x 140mm x 25mm)
Weight	1.5lbs (0.68kg)
Compliance	Regulatory: FCC, CE, RoHS Flammability: 94V0
Warranty	3 years
Order Information	500880-TX KVM HDMI over IP PoE Extender TX, 4K/60 (UPC: 627699908006) 500880-RX KVM HDMI over IP PoE Extender RX, 4K/60 (UPC: 627699808009)
Accessories (These items are sold separately)	500923 16 Port Rackmount Transceiver Chassis 4.5U 500993 Univ. Locking Power Supply 5VDC/2.6A US/UK/EU Blade



KVM HDMI over IP PoE Extender, 4K@60 500800 Quick Installation Guide

Overview

The KVM HDMI over IP PoE Extender, 4K@60 allows HDMI & USB equipment to be connected up to 330ft (100m) over an Ethernet LAN, supports HDMI up to 4K @ 60Hz (4:4:4) via Cat5e/6 cable in multiple point-to-point and point-to-multipoint configurations, it also allows creating a Video Wall of user configurable size (X by Y) supporting 100's of screens, depending on network bandwidth, utilizing one Receiver for each display in the array.

The Transmitter terminates via HDMI, Audio In/Out and USB ports to a computer server/workstation. The Receiver terminates via HDMI, Audio In/Out, and USB ports to a display, mic & amplified speakers (or headset with mic) respectively, and up to 4 USB devices such as a keyboard, mouse, printer, drawing pad, storage device, camera, etc. A single Receiver can be switched via hotkey sequences to any Transmitter on the network, allowing a single operator to manage numerous servers/workstations, in a distributed KVM application.

For multiple point-to-point (including point-to-multipoint) configurations the Ethernet Switch must support Gigabit ports, Jumbo Frame capability and DHCP Server capability. MuxLab recommends using the Cisco CBS350 Series Managed Switches.

The MuxLab ProDigital Network Controller (500812) is available to simplify the configuration and utilization of the 500800 and other MuxLab IP based products via an Ethernet web interface.

Applications

Applications include management of multi-server systems supporting HDMI displays in IT Departments within corporations, Educational Institutions, CAD Design, Graphic Design, Media Servers, and Data Centers.

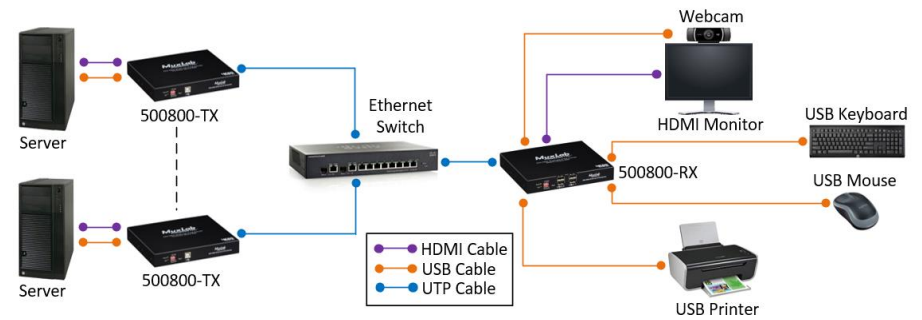
Installation

- 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 computer server/workstation HDMI video source with an HDMI compliant cable.
 - Connect the Transmitter USB Port to the computer server/workstation USB port, using a compliant Type A to Type B USB Cable.



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- 3c. If required, connect the computer audio-out and mic-in port to the Transmitter audio-in and mic-out port, respectively.
- 3d. 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 HDMI port to the Monitor HDMI port with a HDMI compliant cable.
 - 4b. Connect the two Receiver USB 1.1 ports to a USB keyboard and mouse.
 - 4c. Connect the two Receiver USB 2.0 ports to other USB devices, such as a printer, drawing pad, storage device, camera, etc.
 - 4d. If required, connect the Receiver audio-out and mic-in port to an amplified speaker and to a mic system (or headset with mic) respectively.
 - 4e. 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 multiple point-to-point (including point-to-multipoint) architecture:
 - 5a. You will need to use an Ethernet Switch with Gigabit ports and DHCP Server support. In addition Jumbo Frame support is required. **Verify that the Ethernet Switch is configured correctly and that the DHCP Server is enabled 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 (500812) is used.
6. The Transmitter and Receiver supports a directional IR port and RS232 port that can be utilized if required to transport control signals to control end devices.
7. 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 KVM HDMI over IP PoE Extender, 4K@60 only after all connections have been made.
8. Power 'ON' the HDMI equipment and verify the image quality, sound if applicable, keyboard and mouse functionality, as well as any additional USB connected devices.
9. Please download and reference the 500800 Operation Manual found on the MuxLab website (under the 500800 webpage) for further instructions on how to operate this device
10. The following diagram illustrates a typical KVM LAN configuration.



Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in regard to the installation of the KVM HDMI over IP PoE Extender, 4K@60:

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"> Check power connections Check PoE Ethernet Switch Setup
No Image	BLINK	OFF	BLINK	ON	Booting	<ul style="list-style-type: none"> Wait until booting process is finished
No Image	ON	OFF	ON	OFF	No Ethernet Link	<ul style="list-style-type: none"> Check Ethernet Switch Status Check UTP Cables
Info Screen	ON	OFF	ON	BLINK	UTP Cable	<ul style="list-style-type: none"> Check the Transmitter UTP cable
Info Screen	ON	ON	ON	OFF	UTP Cable	<ul style="list-style-type: none"> Check the Receiver UTP cable.
Info Screen	ON	BLINK	ON	BLINK	No Data Connection	<ul style="list-style-type: none"> Check if DIP Switch settings match
Info Screen	ON	ON	ON	BLINK	Wrong setting on Receiver	<ul style="list-style-type: none"> Check DIP Switch address of the Receiver
Choppy Video	ON	ON	ON	ON	Configuration	<ul style="list-style-type: none"> Check cable length Check the DVI Cable Quality Check if Jumbo Frame is enabled on the Ethernet Switch
Image flickers when powering up nearby equipment	ON	ON	ON	ON	Interference	<ul style="list-style-type: none"> Use STP cables
Mouse or Keyboard not working	ON	ON	ON	ON	USB Cable	<ul style="list-style-type: none"> Check the USB Cable Quality Check that the Keyboard and mouse are connected to the USB 1.1 Port.
USB Speed Slow	ON	ON	ON	ON	Wrong Port	<ul style="list-style-type: none"> Check that any additional USB devices are connect to the USB 2.0 Port

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).