HDMI over IP H.264/H.265 PoE Transmitter, 4K/60

Quick Installation Guide

500764-TX-V2

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1. Safety Precautions

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for future reference.

- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burns.
- Do not open or remove the housing of the device as you may be exposed to dangerous voltage or other hazards.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture and do not install this product near water. Keep the product away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on the housing, unplug the module immediately.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Using supplies or parts not meeting the product specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- Install the device in a place with adequate ventilation to avoid damage caused by overheat.
- Unplug the power when left unused for a long period of time.
- Information on disposal of devices: do not burn or mix with general household waste, please treat them as normal electrical waste.

2. Introduction

The HDMI over IP H.264/H.265 PoE Transmitter, 4K/60 (Model: 500764-TX-V2) allows HDMI source equipment to be extended locally up to 330ft (100m) at up to 4K @ 60Hz resolution via Cat5e/6 cable and is compatible with the Muxlab 500762-RX-V2 Receiver to support point-to-point, point-to-multipoint and multipoint-to-multipoint configurations, Video Wall and Multiview capabilities in a low bandwidth expandable and cost effective manner, without the need to install dedicated cabling systems. The exceptionally low bandwidth requirements of this device in the H.264/H.265 video codec setting allows for streaming audio/video content over a local network. The unit also supports a MotionJPG (MJPG) video codec setting for low latency applications. The transmitter accepts a 4K video @ 60Hz and streams the content to an H.264/H.265 Receiver, such as the MuxLab 500762-RX-V2, to be displayed on a 4K monitor. The Transmitter may also send H.264/H.265 video streams to other H.264/H.265 compatible Receiving devices. The device supports PoE (PD) and may be powered by a PoE (PSE) Ethernet Switch.

3. Features

- Supports up to 4K @ 60Hz video resolution
- Extends local audio/video transmission up to 330ft (100m) over Cat5e/6
- H.264/265 video codec, excellent for LAN and Internet transmission
- High image quality and 200ms latency in low latency mode with H.265
- Supports Multicast, RTSP, RTMP, HLS, FLV, and TS
- PoE powered, via PoE (PSE) Ethernet Switch
- Compatible with the MuxLab 500762-RX-V2 Receiver to support Matrix connectivity, Video Wall and Multiview capabilities
- Managed via Pro Digital Network Controller (500812) and Muximus Network Controller (500813)

4. Package Contents

- One (1) HDMI over IP H.264/H.265 PoE Transmitter, 4K/60
- One (1) User manual (available via download)

Notes: Confirm that the product and accessories are all included. If not, please contact the supplier from which you purchased the unit.

5. Specifications

Specifications	
Environment	HDMI 2.0, resolution of up to 4K/60 (4:4:4)
Devices	Blu-Ray, Set Top Boxes, Media Players/Streamers, monitors, TVs, supporting HDMI.
Signal Protocol/Standard	HDMI 2.0 and HDCP 2.2
Video Bandwidth	594MHz
Network Bandwidth	32Kbps to 60Mbps for H.264/H.265, and 32Kbps to 200Mbps for MJPG.
Latency	200ms (in low latency mode with H.265)
Protocols	Supports Multicast, RTSP, RTMP (H.264), HLS, FLV (H.264) & TS
Connectors	Two (2) HDMI connectors for AV input and AV Loop-out. One (1) RJ45S for Ethernet connection. Two (2) 3.5mm connectors for 2CH audio embedding and loop-out. One (1) 3.5mm connector for directional IR (direction controllable via software). One (1) RS232 3-Pin Phoenix connector for controlling end devices. One (1) 2.1mm locking power connector.
Maximum Distance	Cat5e/6: 330ft (100m) from Ethernet Switch. Unlimited over the Internet **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.
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	IEEE 802.3af
Power Consumption	7.8W
Temperature	Operating: 0° to 40°C Storage: -20° to 85°C Humidity: Up to 95% non-condensing
Unit Dimensions	6.1" x 4.4" x 1.0" (154mm x 111mm x 25mm)
Shipping Weight	1.1lbs (0.5kg)
Compliance	Regulatory: FCC, CE, RoHS Flammability: 94V0
Warranty	3 years
Order Information	500764-TX-V2 HDMI over IP H.264/H.265 PoE Transmitter, 4K60 (UPC: 627699917640)
Accessories (These items are sold separately)	500920 16-Port Rackmount Transceiver Chassis 500917 Wall Mount Transceiver Bracket Kit 500990 IR Emitter, and 500994 IR Sensor 500993 Univ. Locking Power Supply 5VDC/2.6A US/UK/EU Blade

6. Installation

Note: The following instructions are for the 500764-TX-V2 Transmitter and a compatible Receiver such as the MuxLab 500762-RX-V2 Receiver.

1. 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 on the 500764-TX-V2.

2. To install the Transmitter:

   2a. Connect the HDMI video source to the HDMI IN port of the 500764-TX-V2 transmitter using an HDMI compatible cable and, if necessary, connect a TV to the HDMI OUT port of the 500764-TX-V2 using an HDMI compatible cable.
   2b. If the application is point-to-point, then connect one (1) length of Cat5e/6 (or higher) grade UTP cable to the RJ45 LINK connector on the 500764-TX-V2 Transmitter. If transmitting over the network, use an Ethernet Switch between the TX & RX unit.

3. To install a compatible Receiver, such as the MuxLab 500762-RX-V2:

   3a. Connect the 500762-RX-V2 Receiver to the HDMI display equipment with an HDMI compliant cable.
   3b. If the application is point-to-point, then connect one (1) Cat5e/6 cable coming from the 500764-TX-V2 Transmitter, to the RJ45 LINK connector on the 500762-RX-V2 Receiver. If transmitting over the network, use an Ethernet Switch between the TX & RX unit.

4. If the configuration is a point-to-multipoint or multipoint-to-multipoint:

   4a. You will need to use an Ethernet Switch with Gigabit ports and DHCP Server support. In addition IGMP Protocol support is required for the multipoint-to-multipoint case. Verify that the Ethernet Switch is configured correctly, that the DHCP Server is enabled, and that the IGMP Protocol is enabled for multipoint-to-multipoint applications. See the Ethernet Switch operating manual for more information about configuring the Ethernet Switch.
   4b. Connect all 500764-TX-V2 Transmitters and 500762-RX-V2 Receivers to the Ethernet Switch.
   4c. Use the DIP Switches to select a unique Device ID for each 500764-TX Transmitter present on the network and configure each 500762-RX-V2 Receiver Device ID to the corresponding selected Transmitter. Note: This step is not necessary if the MuxLab Network Controller (500812 or 500813) is used.

5. 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 to each Receiver and to an AC power outlet. Next connect each Transmitter in the same manner. If power is present, the blue power LED on each Transmitter and Receiver will illuminate.

   Note: Power 'ON' the HDMI 500764-TX Transmitter and 500762-RX-V2 Receiver only after all connections have been made.

6. Power 'ON' the HDMI equipment and verify the image quality.

7. This product supports IR 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 (PN: 500994) to the 3.5mm IR Jack of the 500762-RX-V2 Receiver and the IR Emitter (PN: 500998) to the 3.5mm IR Jack of the 500764-TX-V2 Transmitter. Set the IR direction via the MuxLab Network Controller (500812 or 500813).

   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).

8. 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.

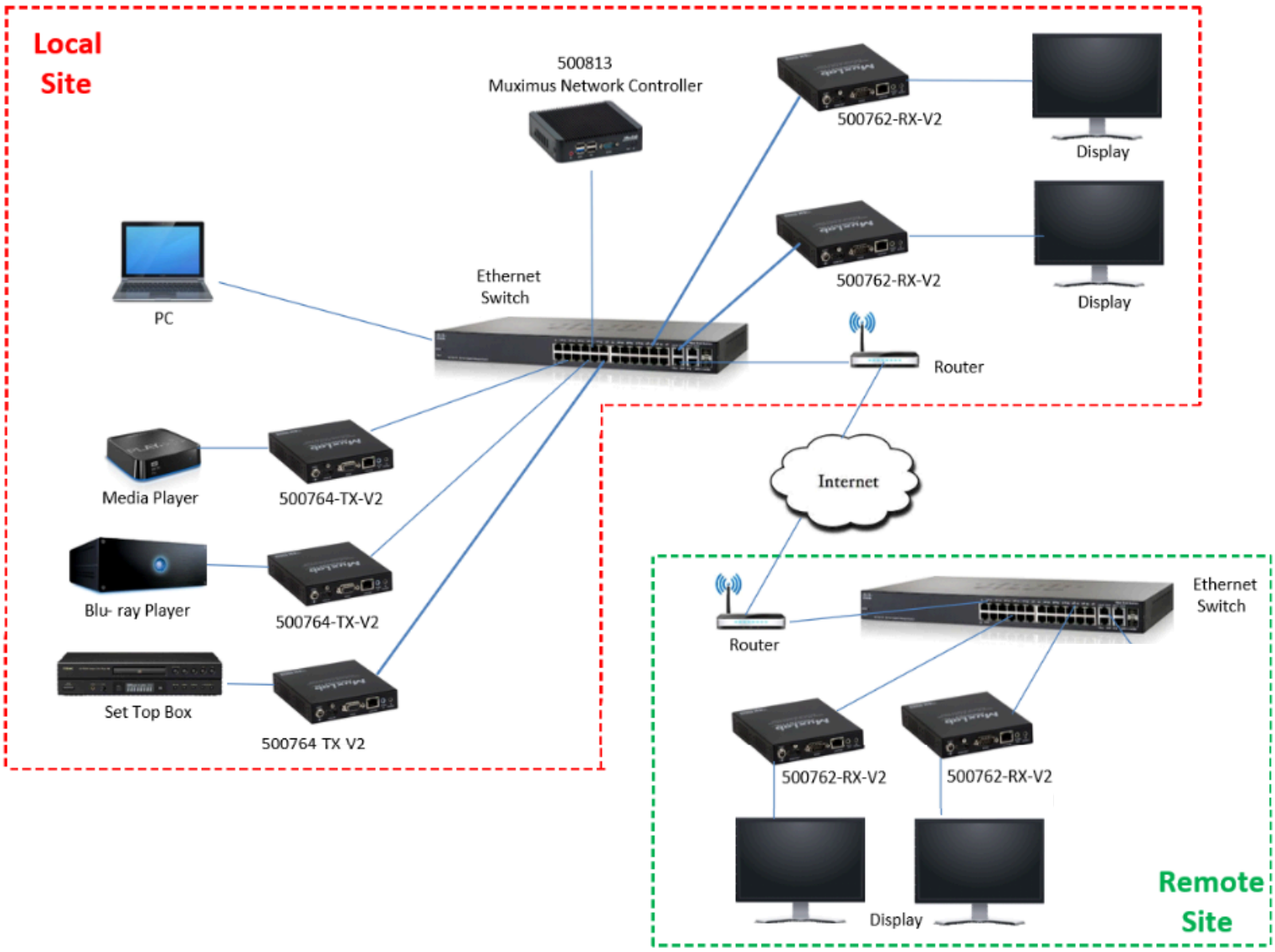
9. Position the IR Emitter as close as possible to the source's IR Sensor (i.e. Blu-Ray player). For a clear IR signal reception, the IR Emitter can be glued on the source's IR Sensor. The IR Emitter's signal is transmitted from the side of the enclosure.

10. This product supports RS232 bidirectional communication. On the 500764-TX-V2 Transmitter, the RS232 port is configured as a DCE; and on the 500762-RX-V2 Receiver as a DTE. Please connect your RS232 cable accordingly. The default settings are 115.2K, N, 8, 1.

11. The HDMI & 2CH Audio loop-out ports may be used to connect to local compatible devices.

12. This unit supports a Factory Reset function, if ever required. Note however that and saved unit configuration data will be lost. To perform a Factory Reset, press and hold the reset button located on the front between 6 to 10 seconds, until the LED starts to flash. If you just want to reset (reboot) the unit, then simply momentarily press the reset button for 1 second.

13. The following diagram illustrates a typical configuration.


Local Site
500813
Muximus Network Controller
500762-RX-V2
Display
500762-RX-V2
Display
PC
Ethernet Switch
Router
Media Player
500764-TX-V2
Internet
Blu- ray Player
500764-TX-V2
Set Top Box
500764 TX V2
Router
Ethernet Switch
500762-RX-V2
500762-RX-V2
Display
Remote Site

7. Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in regard to the installation of the 500764-TX-V2 Transmitter in combination with the 500762-RX-V2 Receiver:

Symptom	Transmitter LEDs		Receiver LEDs		Probable Cause	Possible Solutions
	Power	Link	Power	Link		
No Image	OFF	OFF	OFF	OFF	No power	• Check power connections • Check PoE Ethernet Switch Setup
No Image	BLINK	OFF	BLINK	ON	Booting	• Wait until booting process is finished
No Image	ON	OFF	ON	OFF	No Ethernet Link	• Check Ethernet Switch Status • Check UTP Cables
Info Screen	ON	OFF	ON	BLINK	UTP Cable	• Check the Transmitter UTP cable
Info Screen	ON	ON	ON	OFF	UTP Cable	• Check the Receiver UTP cable.
Info Screen	ON	BLINK	ON	BLINK	No Data Connection	• Check if DIP Switch settings match
Info Screen	ON	ON	ON	BLINK	Wrong setting on Receiver	• Check DIP Switch address of the Receiver
Choppy Video	ON	ON	ON	ON	Configuration	• Check cable length • Check the HDMI Cable Quality • Check if IGMP is enabled on the Ethernet Switch
Image flickers when powering up nearby equipment	ON	ON	ON	ON	Interference	• Use STP cables
IR not functioning *	ON	ON	ON	ON	Interference from sunlight, Fluorescent, Neon or Halogen lights	• Place the IR equipment away for the interfering light
IR not functioning *	ON	ON	ON	ON	Interference from RF radiation from the TV	• Place the IR equipment away for the RF radiation

** 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).

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