



**HDMI 2.0 Fiber
Extender Kit
Installation Guide**

500464-V2



SAFETY PRECAUTIONS

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

- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or may burn.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or 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 to 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's specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- Install the device in a place with good ventilation to avoid damage caused by overheating.
- Unplug the power cord when left unused for a long period of time.
- Do not put any heavy items on the unit.
- Do not remove the housing of the device as you may be exposed to dangerous voltage or other hazards.
- Do not twist or pull with force ends of the optical cable attached to the unit, as it may cause damage.
- Information on disposal of devices: do not burn or mix with general household waste, please treat this device as normal electrical wastes.
- Unpack the equipment carefully and save the original box and packing material for possible future shipment

NOTICE:

- Please read this user manual carefully before using the product.

Contents

- 1. Introduction4
 - 1.1 Introduction to the 500464-V24
 - 1.2 Features4
 - 1.3 Package Contents4
- 2. Specifications.....5
- 3. System Requirement for Installation5
 - 3.1 Hardware requirements5
 - 3.2 Software requirements6
 - 3.3 AC/DC Power Adapter (Technical Advisory)6
- 4. System Connection.....6
 - 4.1 Safety Precautions6
 - 4.2 System Diagram6
 - 4.3 Connection Procedure.....7
- 5. Troubleshooting & Maintenance9
 - Maintenance10
 - Technical Support and Service10
 - Certification of Eye Safety10
- Regulatory Compliance11

1. Introduction

1.1 Introduction to the 500464-V2

The HDMI 2.0 Fiber Extender Kit, 500464-V2 enables the user to transmit 4K (4096x2160) video at 60Hz signal up to 3300ft (1000m) with OM4 multimode fiber, with any form of scaling or data compression being applied to the signal. This device supports a total data throughput of 18Gbps (6Gbps per lane).

The unit supports one (1) SC connector and may be connected with OM3 or OM4 multi-mode fiber between the Transmitter and Receiver, providing a clean, secure and easy installation with ideal electrical isolation, and immune to electrical hazard and interference. Maximum distance will be achieved with OM4 fiber. The 500464-V2 Transmitter may be powered via USB power (with the included power supply), or from the 5V supplied from pin #18 of the HDMI connector of the source side only. Note that if the source does not adequately supply this power on its HDMI connector, then the included power supply must be used. This kits includes two (2) 1m HDMI 2.0 Premium Certified Cables to connect to source and sink devices.

1.2 Features

- Supports the HDMI 2.0 standard
- Up to 3300ft (1000m) over 50/125 μ m multi-mode fiber at 4K (4096x2160) resolution, @ 60Hz refresh rate
- Bandwidth of 18Gbps, supporting up to 4K (4096X2160) @ 60Hz
- Supports CEC, ARC, EDID and HDCP 1.4 & 2.2
- Supports HDR formats, including HDR10+, Dolby Vision, and HLG
- Includes two (2) 1m HDMI 2.0 Premium Certified Cables
- Compact enclosure for tight spaces

1.3 Package Contents

- One (1) HDMI 2.0 Fiber Transmitter
- One (1) HDMI 2.0 Fiber Receiver
- Two (2) Power Supplies, 5VDC @ 1A with interchangeable US, UK & Euro Blades
- Two (2) 1m HDMI 2.0 Premium Certified Cables
- Two (2) USB type A to micro USB cables
- One (1) User Manual (available via download from the MuxLab website)

Notes: Confirm that the product and accessories are all included, if not please contact your dealer.

2. Specifications

Environment	HDMI 2.0
Devices	Plasma, projectors, monitors, Television, PC, laptops, and servers supporting HDMI.
Transmission	Transparent to the user
Video Bandwidth	18 Gbps (6 Gbps per lane)
Video Resolution	Up to 4096x2160 @ 60Hz
Signals	HDMI 2.0
Connectors per unit	One (1) HDMI Female Connector One (1) SC Optical Connector One (1) Micro USB connector for external power
Maximum Distance	3300ft (1000 m) over 50/125 μ m multi-mode OM4 fiber. (OM3 fiber may also be used, but with slightly less distance)
Cable	<ul style="list-style-type: none"> Includes two (2) 1m HDMI 2.0 Premium Certified Cables Requires one (1) SC multi-mode fiber, having a 50/125μm core for the link connection (fiber cable not included)
Power Supply	Two (2) 110-240V to 5VDC, 1A power supply with interchangeable blades for US, UK & Euro
Temperature	Operating: 0° to 50°C Storage: -30° to 70°C Humidity: Up to 85% non-condensing
Enclosure	Plastic
Dimensions	2.49" x 1.37" x 0.57" (63 x 35 x 15 mm)
Weight	0.70 lbs (0.32 kg)
Compliance	Regulatory: FCC, CE, RoHS
Safety	Optical Fiber Communication System Class 1 Eye Safety per IEC 60825-1
Warranty	2 years
Order Information	500464-V2 HDMI 2.0 Fiber Extender Kit

3. System Requirement for Installation

3.1 Hardware requirements

1) A HDMI source and display is required, supporting the graphic resolution of the

HDMI 2.0 Fiber Extender Kit.

- 2) No special requirements for memory size, CPU speed and chipsets are needed, assuming the HDMI graphic controllers/cards have already been properly installed.

3.2 Software requirements

No special restrictions, considering that the HDMI graphic controller and OS have already been properly installed.

3.3 AC/DC Power Adapter (Technical Advisory)

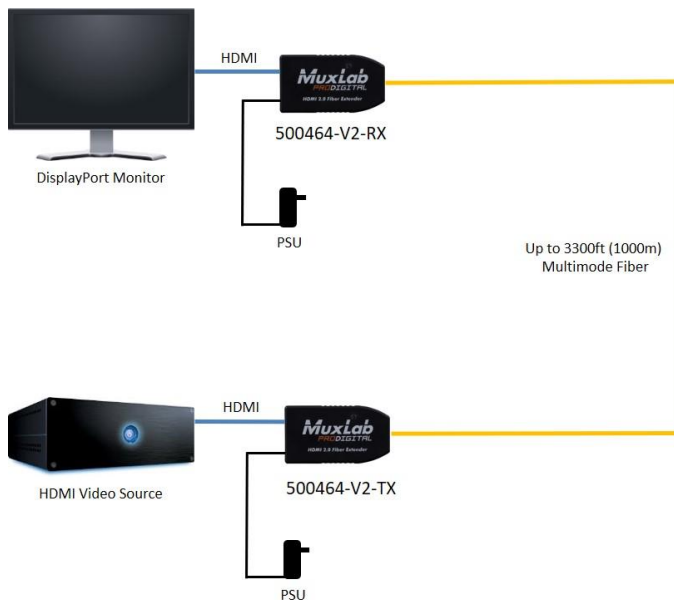
The included power supply adaptors and USB cables can provide power to both the Transmitter and Receiver. Although the HDMI interface of the source typically provides 5VDC on pin #18 of the HDMI connector, the USB power supply option is recommended as a more stable power source for the Transmitter.

4. System Connection

4.1 Safety Precautions

This system should be installed in a clean environment with temperature and humidity within the specified operating levels (see the specifications table).

4.2 System Diagram



4.3 Connection Procedure

- a) Connect the Transmitter to the source equipment (such as a Blu-Ray Player), and connect the Receiver to the sink equipment (such as a display). Use the two (2) included 1m HDMI 2.0 Premium Certified cables to connect the Transmitter and Receiver to source devices and Displays, respectively. Connect the USB Power Supply to the Receiver. Power on the HDMI source and display. The Transmitter will be turned on due to the 5V supplied by pin #18 of HDMI interface of the source. Even though the units are being powered, it is recommended that the USB Power Supply be used as well for a more stable power source for the Transmitter, since some sources may not be capable of providing sufficient power.
- b) The Power LED will illuminate when the 500464-V2 is connected to the HDMI interface of the source and display via the included HDMI cables.
- c) Connect an SC terminated multimode optical fiber between the Transmitter and Receiver. Ensure the connectors are fully inserted.
- d) The LED changes colors depending on the unit status. The table below describes the colors and their meaning.

LED Color Status Indicators

LED Color	Link Status
OFF	Extender end has no power.
Red	Extender detects an open fiber connection and has disabled the lasers.
Yellow	Fiber link detected, but HDMI initialization failed.
White	Video active, without HDCP encryption.
Green	Video active, with HDCP 1.x encryption.
Blue	Video active, with HDCP 2.x encryption.
Purple	Fiber connection is open and lasers have been disabled. Bootloader connected for firmware upgrade.

Note: The status LED will turn OFF after 2 minutes of no status change, however the LED will re-illuminate when the status changes.

Note1: DO NOT look directly into the SC receptacles of the Transmitter, while it is powered on, even though this product is strictly regulated to operate under LASER Class I, classified by CDRH/FDA for eye safety.

Note2: Units support an extension distance up to 1000m using OM4 multimode fiber. OM3 fiber may also be used, but your distance may be slightly reduced.

Note3: Use the included 1m HDMI 2.0 Premium Certified cables to connect these devices to the end equipment (such as Blu-ray Players, Media Players, etc., and TVs).

- a) Connect the Transmitter to the HDMI connector of the source using the included 1m HDMI 2.0 Premium Certified cable.
- b) Connect the Receiver to the HDMI connector of the display using the included 1m HDMI 2.0 Premium Certified cable.
- c) These units should be connected together with a single length of multimode fiber cable (sold separately) meeting the spec herein, while ensuring that the optical SC connector end-faces are clean.
- d) To ensure proper connectivity, confirm that the LEDs on both the Transmitter and Receiver are indicating proper operation, see the LED Color Status Indicator table above.

5. Troubleshooting & Maintenance

The following section describes some of the symptoms, probable causes and possible solutions in regard to the installation of the 500464-V2 HDMI 2.0 Fiber Extender Kit.

The display only shows a blank (black) screen.

- Ensure that the USB power supplies are firmly connected and that both Transmitter and Receiver Power LEDs are ON.
- Ensure that the HDMI connectors are firmly plugged into the HDMI connector of the source and display using the two (2) included 1m HDMI 2.0 Premium Certified cables.
- Ensure that the Transmitter and Receiver modules are plugged in the correct order to the source and display, respectively (reversing the order will not work).
- Check if the source and display are powered on.
- Ensure that the multimode fiber SC connector is properly inserted into both the Transmitter and Receiver.
- Reset the system by disconnecting and reconnecting the Transmitter HDMI or Receiver HDMI side units, or by disconnecting and reconnecting the USB power cables that are plugged in the Transmitter and Receiver modules.
- If necessary try to re-boot the system and re-connect the HDMI 2.0 Fiber Extender Kit.

Screen is distorted or the display is noisy.

- Check if the graphic resolution is properly set. Go to the display properties and confirm the settings.
- Ensure that the resolution is set to a maximum of 4K (4096x2160) at 60Hz refresh ratio.
- Reset the system.
- Disconnect and reconnect the HDMI Fiber Extender Kit units or their power supply adapters.

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).

Maintenance

No special maintenance is required for the HDMI 2.0 Fiber Extender Kit and power adapters. Ensure that the HDMI modules and power adapters are stored or used in an environment free from high temperature, humidity or dust/dirt contamination. Use accordingly to the specifications.

There are no user serviceable parts inside these units. Refer all service and repair issues to MuxLab.

Technical Support and Service

For commercial or general product support, contact your reseller. For technical service, contact MuxLab by email info@muxlab.com or visit MuxLab's website at www.muxlab.com

Certification of Eye Safety

This laser component is certified by CDRH/FDA referred as classified in Laser Class 1 (IEC60825-1).



Caution – Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Regulatory Compliance

Disclaimer

Information in this document is subject to change without notice. The manufacturer does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any other commercial damage, including but not limited to special, incidental, consequential, or other damages.

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CE/FCC & Recycling Information

CE Certification

This equipment complies with the requirements relating to Electromagnetic Compatibility Standards EN55022/EN55024 and the further Standards cited therein. It must be used with shielded cables only. It has been manufactured under the scope of RoHS compliance.

FCC Certification

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation



WEEE (Waste of Electrical and Electronic Equipment), Recycling of Electronic Products

In 2006 the European Union introduced regulations (WEEE) for the collection and recycling of all waste electrical and electronic equipment. It is no longer allowable to simply throw away electrical and electronic equipment. Instead, these products must enter the recycling process.

Each individual EU member state has implemented the WEEE regulations into national law in slightly different ways. Please follow your national law when you want to dispose of any electrical or electronic products. More details can be obtained from your national WEEE recycling agency.





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