DisplayPort 1.2a Fiber Extender Kit

Installation Guide

500502

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. Introduction

1.1 Introduction to the 500502

The DisplayPort 1.2a Fiber Extender Kit, 500502 enables the user to transmit WQUXGA (3840x22400) video at 60Hz signal up to 660ft (200m), with any form of scaling or data compression being applied to the signal.   This device support a total data throughput of 21.6Gbps (5.4Gbps per lane).

The unit supports two (2) LC connectors 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. The 500502 may be powered via USB power (with the included power supply), or from the 3.3V supplied from pin #20 of the DisplayPort connector of the source and display equipment. Note that if the source or display equipment does not adequately supply this power on its DisplayPort connector, then the included power supply must be used.

1.2 Features

- Supports the DisplayPort 1.2a standard
- Up to 660ft (200m) over 50/125μm multi-mode fiber (OM3 or OM4) at WQUXGA (3840x2400) resolution, @ 60Hz refresh rate
- Bandwidth of 21.6Gbps, supporting up to WQUXGA 3840X2400 @ 60Hz
- Supports Dual-Mode DP (DP++)
- Supports auxiliary/I^{2}C channel over fiber
- Compact Metal Enclosure for a robust and easy installation

1.3 Package Contents

- One (1) DisplayPort 1.2a Fiber Transmitter
- One (1) DisplayPort 1.2a Fiber Receiver
- Two (2) Power Supplies, 5VDC @ 1A with interchangeable US, UK & Euro Blades
- Two (2) USB type A to micro USB cables
- One (1) User Manual

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

2. Specifications

Environment	DisplayPort 1.2a
Devices	Plasma, projectors, monitors, PC, laptops, and servers supporting DisplayPort.
Transmission	Transparent to the user
Video Bandwidth	21.6 Gbps (5.4 Gbps per lane)
Video Resolution	Up to 3840x2400 @ 60Hz
Signals	DisplayPort 1.2a
Connectors	One (1) DisplayPort Male Connector Two (2) LC Optical Connectors One (1) Micro USB connector for external power
Maximum Distance	660ft (200 m) over 50/125μm multi-mode fiber (OM3 or OM4)
Cable	Two (2) LC multi-mode fibers, having a 50/125μm core
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	Metal
Dimensions	1.02" x 2.83" x 0.57" (26 x 72 x 15 mm)
Weight	1.0 lbs (0.45 kg)
Compliance	Regulatory: FCC, CE, RoHS
Warranty	2 years
Order Information	500502 DisplayPort 1.2a Fiber Extender Kit

3. System Requirement for Installation

3.1 Hardware requirements

1) A DisplayPort source and display is required, supporting the graphic resolution of the DisplayPort 1.2a Fiber Extender Kit.

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

3.2 Software requirements

No special restrictions, considering that the DisplayPort 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 DisplayPort interface of the source and sink device typically provides 3.3VDC on pin #20 of the DisplayPort connector, the USB power supply option is recommended as a more stable power source for both the Transmitter and Receiver.

# 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
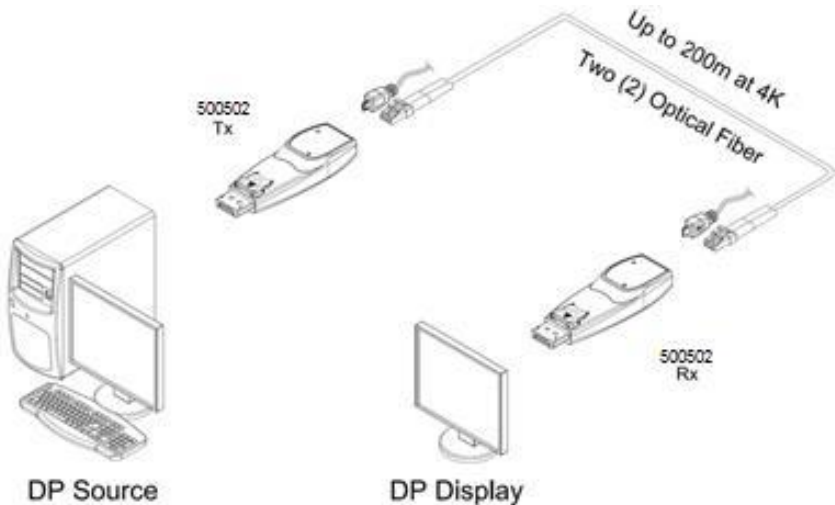
4.3 Connection Procedure

a)   Connect the Transmitter to the source equipment (such as the PC), and connect the Receiver to the sink equipment (such as a display). Power on the DisplayPort source and display. Both the Transmitter and Receiver will be turned on due to the 3.3V supplied by pin #20 of DisplayPort interface. Even though the units are being powered, it is recommended that the USB Power Supplies be used as well as a more stable power source for both the Transmitter and Receiver, since some source and display equipment may not be capable of providing sufficient power.

b)   The Power LED will illuminate when the 500502 is connected to the DisplayPort interface of the source and display, and the Status LED will blink three (3) times. After which the Status LED will blink again once a reliable link is established with the end equipment.

Position of the LEDs
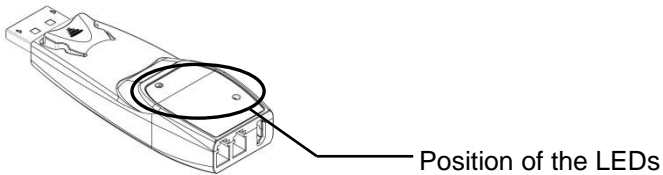
c)   Connect an LC terminated duplex optical fiber between the Transmitter and Receiver, where each of the individual fibers are connected as (A) to (A) and (B) to (B). Ensure the duplex connectors are fully inserted and the top LED will begin to blink.

500502-TX

Duplex Optical Fiber

500502-RX
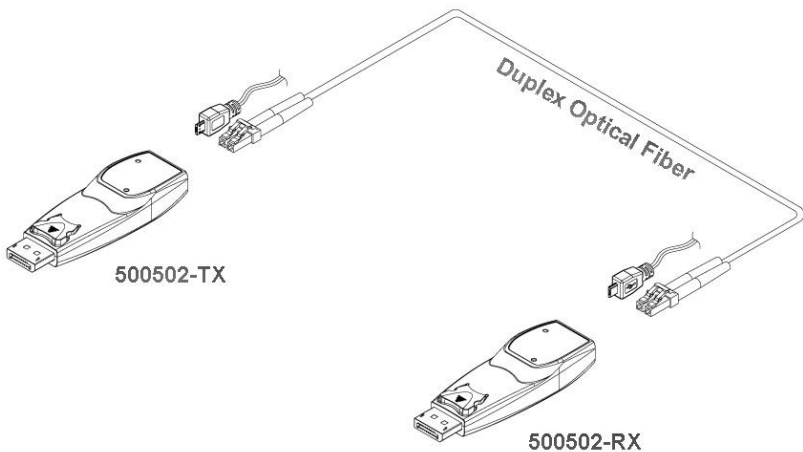
Note1: DO NOT look directly into the LC receptacles of the Transmitter, while it is powered on, even though this product is strictly regulated to operate under LASER Class I, classified by CDRH/FDA for eye safety.

Note2: Units support an extension distance up to 200m using OM3 or OM4 multimode fiber.

Note3: Do not make use of any intermediate cable or adapter between these units or between these units and the end equipment to avoid any undesirable performance degradation.

   a) Connect the Transmitter directly to the DisplayPort connector of the source (Computer).

   b) Connect the Receiver directly to the DisplayPort connector of the display.

   c) These units should be connected together with a single length of duplex multimode fiber cable, while ensuring that the optical LC connector end-faces are clean.

   d) To ensure proper connectivity, confirm that the Status LEDs on both the Transmitter and Receiver are ON.

5. Troubleshooting & Maintenance

The following section describes some of the symptoms, probable causes and possible solutions in regard to the installation of the 500502 DisplayPort 1.2a 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 DisplayPort connectors are firmly plugged into the DisplayPort connector of the computer and display.

- Ensure that the Transmitter and Receiver modules are plugged in the correct order to the computer and display, respectively (reversing the order will not work).

- Check if the computer and display are powered on and properly booted.

- Ensure that the duplex fiber is properly inserted into both the Transmitter and Receiver.

- Reset the system by disconnecting and reconnecting the Transmitter DisplayPort or Receiver DisplayPort 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 DisplayPort 1.2a Fiber Extender Kit.

Screen is distorted or the display is noisy.

- Check if the graphic resolution is properly set. Go to the display properties of the Operating System (such as Windows) and confirm the settings.

- Ensure that the resolution is set to within WQUXGA (3840x2400) at 60Hz refresh ratio.

- Reset the system.

- Disconnect and reconnect the DisplayPort 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 DisplayPort 1.2a Fiber Extender Kit and power adapters. Ensure that the DisplayPort modules and power adapters are stored or used in an environment free from high humidity or dust/dirt contamination.

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 videoease@muxlab.com or visit MuxLab's website at www.muxlab.com

Certification of Eye Safety

This laser component is using the following wavelength: 825, 850, 930, 950, 980nm LD Transceivers, which are all certified by CDRH/FDA referred as classified in Laser Class 1 (IEC60825-1).

CLASS 1 LASER PRODUCT

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

Regulatory Compliance

Disclaimer

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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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