



Optical DVI+Audio Extender

*User's Manual
for the M5-1002*



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Welcome!

Congratulations on your purchase of the M5-1002, Optical DVI+Audio extender. This manual contains information that will assist you in installing and operating the product.

Product Description

The M5-1002 module offers up to 2 Km extension of DVI digital graphic data, audio and RS232C serial data over fiber, directly connected between computers and displays or audio or RS232C devices. Two modules, located one in the PC side and the other in the display or devices side are connected to each of them by a 1.0 m DVI copper cable or audio cable or RS232C cables. Between the two modules, the SC terminated optical fiber enables to transmit not only TMDS graphic data and audio signal over it but also the Digital Display Channel (DDC2B) interface and Hot-plug function are performed over the same optical fiber.

Shipping Group of M5-1002 Optical DVI + Audio extender

- Tx and Rx boxes:** One Uplink module & One Downlink module.
- AC/DC power adapter:** Two +12V/3A units (including AC cord).
- User's Manual**
- Option:** Duplex SC fiber (Single mode glass fiber).

System Requirements for Setup

Hardware requirements

- You have a graphic controller card with a DVI port in your Windows/Mac (Mac is option), or SUN system. It should support the maximum graphic resolution feature of the display to be connected.
- In case of using a computer, no special memory size, CPU speed and chipsets are required.
- Proper initial trial of the entire platform with its application using a short length copper cable is recommended prior to install with the optical link.

Software requirements

- No special needs, if the DVI graphic controller and display peripheral are operational with the platform's OS and application.

AC/DC Power Adapter Technical Advisory

The power of M5-1002 is designed to supply to each module of Uplink and Downlink modules by plugging to each of the power plugs.

Figure 1 – Overall Optical DVI+Audio Extender system

Installation

Important: Please use the installation procedure below. Improper, or no operation may result if the start-up sequence is not correctly followed.

Step 1

Carefully unpack the contents of the shipping group. Before next step, ensure that your graphic card is set at no higher than SXGA (1,280x1,024) 60Hz in direct connection of copper DVI cables.

Step 2

With system power turned **off**, connect the Uplink module to the DVI receptacle of PC by a DVI copper cable. If necessary, connect the RS232 cable plugs to each D-sub 9-pin connector on PC and Uplink module.

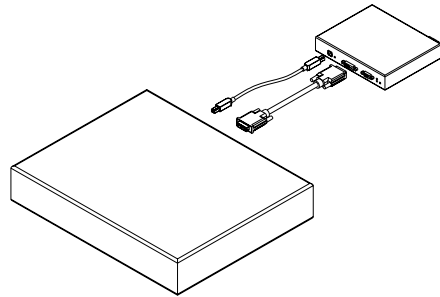


Figure 2 – Connection of DVI and RS232 cables to Uplink module

Step 3

In the same way as above, connect the Downlink module to the display by DVI copper cable. The RS232 devices near the display can be connected by RS232 copper cables also.

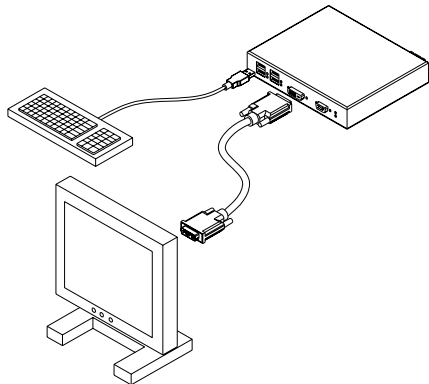


Figure 3 – Connection of DVI, RS232 cables to Downlink module

1-3 Installation

Step 4

Remove dust covers and connect a duplex SC fiber to SC receptacles of the Uplink and Downlink modules, as shown in Fig. 4. Carefully ensure the duplex SC connector is fully engaged.

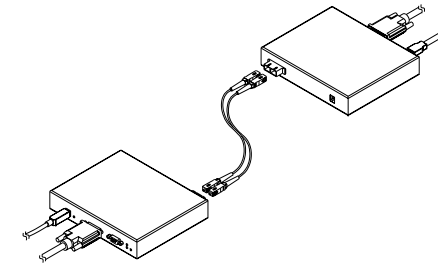


Figure 4 – Connection of duplex SC fiber

Notice: Please DO NOT look directly into the SC receptacles of both Uplink and Downlink modules, while they are powered on, although they are regulated strictly enough to operate under the Laser Class I, classified by CDRH/FDA for eye safety.

Step 5

Connect an AC/DC power adapter to both Uplink and Downlink modules as your availability of AC outlets. You can find power indication LED lit on in the both modules.

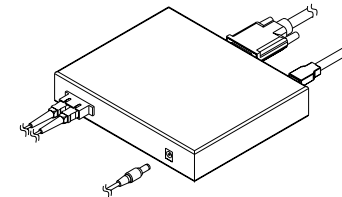


Figure 5 – Connection of AC/DC power adapter

Step 6

Power ON the PC and display or connected RS-232 devices. Ensure the link indication LED lit ON, representing secure connection of SC duplex fiber and the DVI indication LED in the Uplink module lit ON, representing secure connection of the DVI cable.

Tip 1: After initial installation as guided in the above, we recommend you to power On and Off while all connections are set and the Uplink and Downlink modules are powered in.

Tip 2: Avoid “hot plugging” the Uplink as this is not recommended practice with live digital voltages.

1-4 Installation (continued)

Troubleshooting

The display displays only black screen.

- Check that all AC and DC plugs and jacks used by external power supplies (both Opticis and others) are firmly connected.
- Ensure that power LED lit ON.
- Ensure that the Uplink and Downlink modules connected correctly to the PC and display, respectively.
- Check if the PC and display are powered on and properly booted.
- Reset the M5-1002 using Reset button on Uplink and Downlink modules.
- Ensure your graphic card is set at no higher than SXGA (1,280x1,024) at 60Hz refresh ratio.
- Re-boot up the system after reconnecting the SC optical fiber.

Screen is distorted or displays noises.

- Check if the graphic resolution is properly set. Go to the display properties and tap the settings. Ensure that the resolution sets less than SXGA (1,280x1,024) at 60Hz refresh ratio.
- Reset the M5-1002 using Reset button on Uplink and Downlink modules.
- Reset the system.
- Power down, disconnect and reconnect the SC optical fiber or DC power adaptors, and power up.

Maintenance

No special maintenance is required for this product. Ensure that this product is stored or used in a benign environment free from liquid or dirt contamination.

There are no user serviceable parts. Refer all service and repair issues to Opticis or its authorized distributor.

Technical Support and Service

For commercial or general product support, contact your reseller. For technical service, contact Opticis by email techsupp@opticis.com or visit its website at www.opticis.com.

Product Specifications

M5-1002 Optical DVI + Audio Extender

- **Compliance with DVI standard:** supports DVI 1.0 of DDWG, using fiber-optic communication links and DDC2B.
- **Extension limit:** 2km (6,560feet) for SXGA (1,280x1,024) 24bit color at 60Hz refresh rate in ultimate operation. Distances up to 10km (32,800feet) using Virtual DDC-EEPROM.
- **Audio:** 3.5mm Stereo jack.
- **RS232C:** supports D-sub 9 Pin connectors for RS232C.
- **Fiber-optic Connection:** The transmitter and receiver boxes of M5-1001 have duplex SC receptacles connected to two 8/125µm or Single Mode glass fibers cables.
- **Mechanical specifications of Uplink and Downlink boxes**
 - **Dimensions:** 180mm / 120mm / 30mm (W/H/D)
 - **Weight:** 835.0 ± 3.0 gram for each of Uplink and Downlink modules.
- **Environmental Specifications**
 - Operating temperature: 0°C to 50°C
 - Storage temperature: - 20°C to 70°C

AC/DC Power Adapter

- **Power Input:** Universal AC 85-264V, 50/60Hz, AC power cord with power jack.
- **Power Output:** +12 V, 3.0 A SMPS DC-power Adapter
- **Cord DC Jack & length:** Core is 12 V and outer cylinder is GND. Length is 18.5 cm
- **AC Cord length:** 1.8m
- **Certification:** PSE, UL, cUL, FCC, CE, TUV-GS



Warranty Information

1 (One) Year Warranty

Opticis warrants this optical DVI+Audio Extender to be free from defects in workmanship and materials, under normal use and service, for a period of one (1) year from the date of purchase from Opticis or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Opticis shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product.

All products that are replaced will become the property of Opticis.

Replacement products may be new or reconditioned.

Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

Opticis shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to Opticis for repair under warranty or not.

Warranty Limitation and Exclusion

Opticis shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by Opticis or its authorized agents, causes other than from ordinary use or failure to properly use the product in the application for which said product is intended.

FCC/CE Statement for regulation of Electro-magnetic emission

This device complies with part 15 of 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. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 and 2 of FCC Rules, EN 55022/55024/61000-3 for CE certification. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a service representative for help.

Properly shielded and grounded cables and connectors must be used in order to comply with FCC/CE emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Certification for Safety

The extension system is certified pursuant to IEC60065 and its AC/DC power adapter is certified by UL1310, 1950, 60950 for North America, cUL or CSA for Canada, TUV-CE & GS for EU and PSE for Japan.

Certification of Eye Safety

This laser product is inside implemented by using 1310nm/1550nm Bi-di Transceivers, manufactured by Opticis Co., Ltd., which are all certified by CDRH/FDA referred in Accession Number 0210774 as classified in Laser Class1.

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For order support, please contact your Distributor or Reseller.

For technical support, check with the Opticis web site www.opticis.com or
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