



## ***Optical HDMI Module***

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*User's Manual  
for the M1-2R2H-TR*



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# Welcome!

Congratulations on your purchase of the M1-2R2H-TR, Optical HDMI Module. This manual contains information that will assist you in installing and operating the product.

## Product Description

The M1-2R2H-TR module offers 100 meters extension of high-resolution digital graphic data and multi-channel audio data over fiber, directly connected between computers or media receivers and displays. Two boxes, located one in the media receiver and the other in the display are connected to each of them by a 1.0 m HDMI copper cable. Between two boxes, the 4 LC patch cord fiber bundled cable enables to transmit 4 channels (R,G,B,Clk) of graphic data and multi-channel audio data over it and the HDMI Digital Display Channel (DDC2B) interface is performed over a bundled copper cable, so called as DDC cable, which optionally has RJ-45C connectors.

## Shipping Group of M1-2R2H-TR Optical HDMI Module

- ❑ **Tx and Rx boxes:** One (1) Transmitter (Tx) Box and One (1) Receiver (Rx) Box.
- ❑ **HDMI copper cable :** 2 pcs x 1m HDMI copper cable.
- ❑ **Option: DDC cable with RJ-45C.**
- ❑ **Option: 4 LC Patch Cord fiber bundled cable (Multimode glass fiber).**
- ❑ **AC/DC power adapter:** One (1) +12V units
- ❑ **User's Manual**
- ❑ **Quick Installation Note**

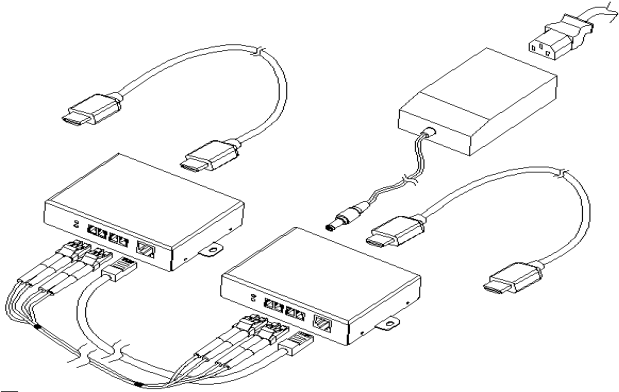


Figure 1 – Overall Optical HDMI Module

## System Requirements for Setup

### □ Hardware requirements

- You have a Media Receiver or a graphic controller card with a HDMI (High Definition Multimedia Interface) 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 HDMI graphic controller and display peripheral are operational with the platform's OS and application.

### □ AC/DC Power Adapter Technical Advisory

The power of M1-2R2H-TR is designed to supply to both modules of Tx and Rx over the DDC cable by plugging the power jack to either of their power plugs.

## 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.

### Step 2

With system power turned **off**, connect the upstream Transmitter box to the HDMI receptacle of a media receiver or a computer by one HDMI copper cable in the shipping group.

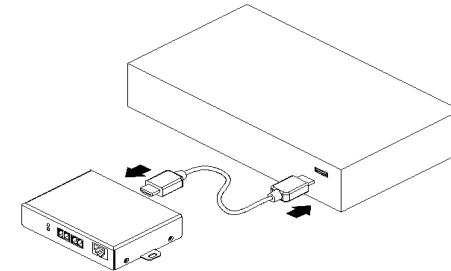


Figure 2 – Connection of HDMI cable between Transmitter box and media receiver

### Step 3

In the same way as above, connect the Receiver box into the HDMI receptacle of the display by the other HDMI copper cable.

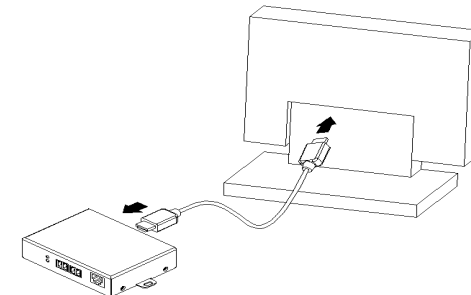


Figure 3 – Connection of HDMI cable between Receiver box and display

**Notice:** Please DO NOT look directly into the LC receptacles of the Transmitter box, while it is powered on, although this product is regulated strictly enough to operate under the Laser Class I, classified by CDRH/FDA for eye safety.

#### Step 4

Remove the module dust covers and connect each duplex LC fiber cable one by one to each of 4 LC receptacles of the Transmitter and Receiver boxes, as shown in Fig. 2. Plug A to A and B to B. Carefully recheck polarities and ensure the duplex connectors are fully engaged.

#### Step 5

Connect each RJ-45C plug of the DDC cable to each RJ-45C receptacle of the Transmitter and Receiver boxes.

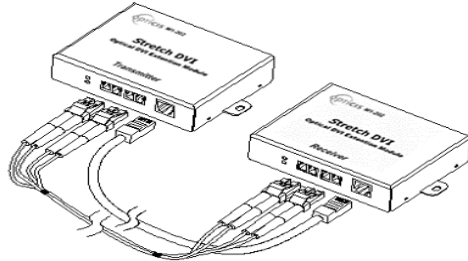


Figure 4 – Connection of 2 duplex LC fiber cables

#### Step 6

Connect an AC/DC power adapter to either of the Transmitter and Receiver boxes as your availability of AC outlets.

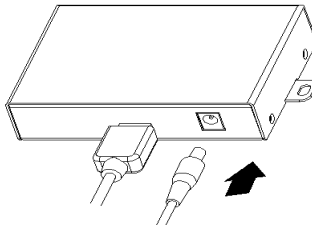


Figure 5 – Connection of AC/DC power adaptor

#### Step 7

Power on the media receiver or computer and display.

**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 Tx/Rx boxes are powered in.

**Tip 2:** Avoid “hot plugging” the Tx or Rx boxes as this is not recommended practice with live digital voltages.

## 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 bars are live.
- Ensure that the Tx and Rx boxes plug correctly to the media receiver or computer and display, respectively.
- Check if the media receiver or computer and display are powered on and properly booted.
- Re-boot up the system after reconnecting the optical system cable.

### *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 UXGA (1,600x1,200) at 60Hz refresh ratio.
- Reset the system.
- Power down, disconnect and reconnect the optical system cable or DC power adaptors, and power up.

## Maintenance

No special maintenance is required for the optical system cables and power supplies. Ensure that the cables and power modules are 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](mailto:techsupp@opticis.com) or visit its website at [www.opticis.com](http://www.opticis.com).

## Product Specifications

### M1-2R2H-TR Optical HDMI Module

- **Compliance with HDMI standard:** supports HDMI 1.0, using fiber-optic communication links and DDC2B.
- **Extension limit:** 100m (330feet) for WUXGA (1,920x1,200) at 60Hz refresh rate in ultimate operation.
- **Graphic Transmission Bandwidth:** supports up to 1.65Gbps bandwidth per graphic channel at WUXGA at 60Hz.
- **Fiber-optic Connection:** The transmitter and receiver boxes of M1-2R2H-TR have 2 duplex LC receptacles connected to four 62.5/125µm or 50/125µm Multi-Mode glass fibers cables.
- **Mechanical specifications of Tx and Rx boxes**
  - **Dimensions:** 38mm / 19mm / 72mm (W/H/D)
  - **Weight:** 46.0 ± 1.5 gr for each of Tx and Rx.
- **Environmental Specifications**
  - Operating temperature: 0°C to 50°C
  - Storage temperature: - 10°C to 85°C
  - Humidity: 5% to 85%

### 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 HDMI module 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.

### Dispose of Old Electrical & Electronic Equipment

(Applicable in the European Union and other European countries with separate systems)



This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

## **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 850nm VCSEL (Vertical Cavity Surface Emitting Laser) Transceivers, manufactured by Opticis Co., Ltd., which are all certified by CDRH/FDA referred in Accession Number 0210774 as classified in Laser Class 1.

## **1-8 Regulatory Statements**

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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](http://www.opticis.com) or contact [techsupp@opticis.com](mailto:techsupp@opticis.com)