

### Description

The M1-2R2 (H) -TR DVI / HDMI Module is a new member of the Opticis family of products that stretches your DVI/HDMI connectivity. The M1-2xy-TR offers an option of DDC connection over a copper cable with industrial secure connectors, which makes it easier to install.

The reality of high-speed digital graphic interconnections mandates products to maintain video quality and cost effectiveness of integrated display systems. Optical technology for gigabit digital transmission makes it simple to extend digital graphic data above the extension limits of copper wires providing pure signal integrity for an ideal visual experience, no EMI/RFI emissions, light weight, rugged cabling and connectors, low power consumption and installation ease.

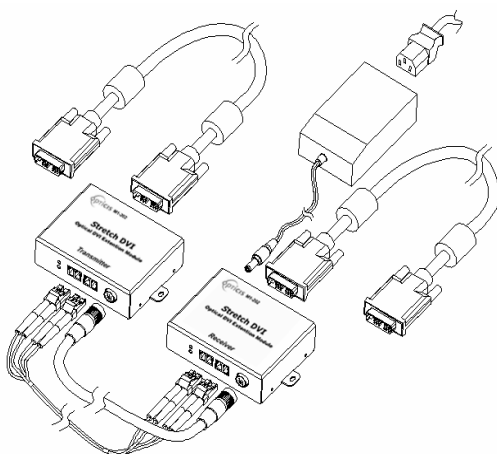
The extension system consists of transmitter and receiver module boxes with female DVI-D/HDMI plugs, being able to connect PCs (Media Receiver) and displays (HDTV/LCD/PDP etc.) by DVI-D/HDMI copper cables respectively. LC patch cords fiber optic cable enables to transmit graphic data and UTP cable with RJ-45C plugs enables to manage power and EDID/HDCP parameters. Internally, Opticis optical technology - the transmitter's 850nm VCSEL array and the receiver's Pin-PD array, are concealed within the connector housings.

### Features

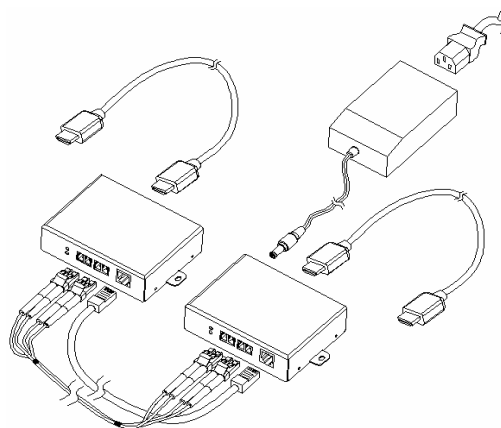
- ◆ Support up to UXGA resolution at 60Hz refresh rate with 1 pixel/clock mode.
- ◆ Support up to 1080P resolution.
- ◆ Two models:
  - **M1-2R2 (DVI)** uses two duplex LC patch cord fiber cables for graphic data with RJ-45C UTP cable for EDID/HDCP parameter control and power management.
  - **M1-2R2H (HDMI)** uses two duplex LC patch cord fiber cables for graphic data with RJ-45C UTP cable for EDID/HDCP parameter control and power management.
- ◆ Extension distances
  - **M1-2R2** : 100 meters (328 feet)
  - **M1-2R2H**: 100 meters (328 feet)
- ◆ Light weight detachable cables with secure connectors for fiber and copper
- ◆ No software to install - plug & play simplicity
- ◆ Low EMI/RFI emissions and inherent fiber data security

### Applications

- ◆ Medical, military, aerospace, factory, and traffic control integrated digital display systems
- ◆ Digital TFT-LCD and plasma flat panel displays and projectors for conference room, auditorium and kiosk systems.
- ◆ Color LED signboards and panel information displays for airports, stadiums and outdoor advertising.
- ◆ Digital Home Theatre Systems



M1-2R2-TR for DVI



M1-2R2H-TR for HDMI

# Optical DVI / HDMI Extension Module (M1-2R2 (H)-TR)

## DC Power Supply for Modules

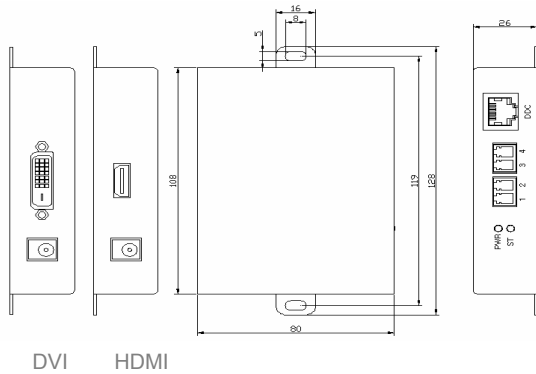
**M1-2R2 (H)** includes a universal 100-240VAC 50/60Hz external AC/DC adapter to power the transmitter and receiver housings.

## Compliance with International Standards

**M1-2R2 (H)** is designed and tested to meet the requirements of the world product standards for material specifications, RFI/EMI emissions, and electrical safety.

## Drawing

Dimension [mm]



## Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Units
Ambient Operating Temperature	$T_A$	0	25	+ 50	°C
Storage Temperature	$T_s$	-30		+ 70	°C
Storage Humidity	$H_s$	10		85	RH%

## Electrical Power Supply Characteristics

( $T_A = 0\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$ , unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Units	
Supply Voltage		$V_{CC}$	4.5	5	5.5	V
Supply Current	TX	$I_{TCC}$	-	170	200	mA
	RX	$I_{RCC}$	-	130	150	mA
Power Dissipation	TX	$P_{TX}$		0.85	1.1	W
	RX	$P_{RX}$	-	0.75	0.825	W

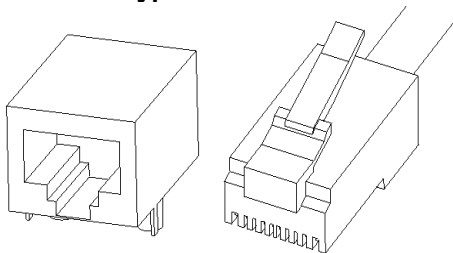
## Shipping Group;

- + 1ea x DVI or HDMI Transmitter Module
- + 1ea x DVI or HDMI Receiver Module
- + 2ea x DVI or HDMI Copper Cable
- + 1ea x Power supply Adapter (100-200VAC 50/60Hz)
- + 1ea x AC Cord (US Type or EU type)
- + 1ea x User Manual

## Terminology:

- VESA** Video Electronics Standards Association
- DDC** Display Data Channel. Latest specification is DDC2B
- EDID** Extended Display Identification Data. EDID parameters are sent over the DDC link.
- DVI-D** Digital Visual Interface. Digital connection only – no analog.
- HDMI** High Definition Multimedia Interface. Support High-Definition Video and Multi-channel Audio.
- HDCP** High-bandwidth Digital Content Protection. These parameters are part of the 2002 High Definition Multimedia Interface (HDMI) specification for Consumer Electronics.

## Connector types of DDC cable



(Receptacle and plug of RJ-45C)

## Ordering Information

Model number: M1-2R2 (H)

- \* **M1-2R2-TR**: Optical DVI Extension module system.
- \* **M1-2R2H-TR**: Optical HDMI Extension module system

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