Avenview

USER GUIDE

DVI Extender over Single Fiber Optic Cable with Self-Detecting EDID and EMI Shielding

Model #: FO-DVI-1000M-EMIX

HD ready 1080p WUXGA 1920x1200 dvi digital visual interface

Table of Contents

Section 1: Getting Started

1.1 Important Safeguards

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
    - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
    - Repair or attempted repair by anyone not authorized by us.
    - Any damage of the product due to shipment.
    - Removal or installation of the product.
    - Causes external to the product, such as electric power fluctuation or failure.
    - Use of supplies or parts not meeting our specifications.
    - Normal wear and tear.
    - Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

1.2 Safety Instructions

The Avenview FO-DVI-1000M-EMIX, DVI Extender over Fiber Optic has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment's, the FO-DVI-1000M-EMIX should be used with care. Read the following safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Do not dismantle the housing or modify the module.
- Dismantling the housing or modifying the module may result in electrical shock or burn.
- Refer all servicing to qualified service personnel.
- Do not attempt to service this product yourself as opening or removing housing may expose you to dangerous voltage or other hazards
- Keep the module 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.
- Have the module checked by a qualified service engineer before using it again.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

1.3 Regulatory Notices Federal Communications Commission (FCC)

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

1.4 Introduction

Avenview FO-DVI-1000M-EMIX DVI Extender over Fiber lets you extend digital flat panel signal up to 500 meters (1650 feet) at 1920 x 1200 and 1000 meters (3300 feet) at 1280 x 1024 away from host by TMDS digital signal and EDID transmission with only 1 fiber.

- High Speed and long distance transmission by SC type Multi-Mode 1 fiber
- R, G, B, Clock signal is transmitted by 1 Multi-Mode optical Fiber
- EDID data is transmitted by 1 Multi-Mode optical Fiber
- Supports 12bit deep color
- Standard DVI plug and SC Fiber connector
- Supports up to WUXGA (1920 x 1200) resolution
- HDCP compliant
- Optional external power supply (Automatic Power switch is included)

1.5 Package Contents

Before you start the installation of FO-DVI-1000M-EMIX, please check the package contents.

- Transmitter x 1
- Receiver x 1
- Power Adapter (5VDC, 2A) x 1

  User's Manual x 1

1.6 Before Installation

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power adapter with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.

1.7 Installation

This product is composed of a Transmitter and a Receiver. The Transmitter should be connected to the computer's DVI Port and the Receiver should be connected the DVI Port of the digital display device. Avenview FO-DVI-1000M-EMIX Transmitter / Receiver is designed to be used with SC type standard optical cable (Multi-Mode optical fiber: 50/125, 62.5/125um).

Avenview FO-DVI-1000M-EMIX is designed to self-detect the resolution of the monitor and change the resolution accordingly. Follow these steps for connecting to a device:

1. Power on your Display
2. Connect Transmitter to the DVI Source and Receiver to the Display.
3. Connect the optical fiber between Transmitter and Receiver.
4. Connect DC power to the Receiver
5. Restart the computer.

1.8 Troubleshooting

Problem	Possible Solution
No Image	• Check if the PC Power is on • Check if connection to the computer and the monitor are correct. • Turn the PC Power off and on again.
Screen Defects Appear	• This product supports up to WUXGA resolution. • Check the maximum resolution range of the graphics card.

1.9 Caution

1. Do not put heavy object on top of the FO-DVI-1000M-EMIX. It may cause product malfunction.
2. Put the product on even and stable location. If the product falls down or dropped, it may get damaged.
3. Keep away from high temperature (over 50°C), low temperature (under 0°C) or high humidity. It may cause a fire and injury by electrical shock.
4. Use DC power adapter with correct specification. Otherwise it may cause fire.
5. Do not twist or pull by force either ends of the optical cable. It can cause malfunction. Minimum bending diameter is 75mm.
6. Use the multimode (50/125um, 62.5/125um) optical fiber.

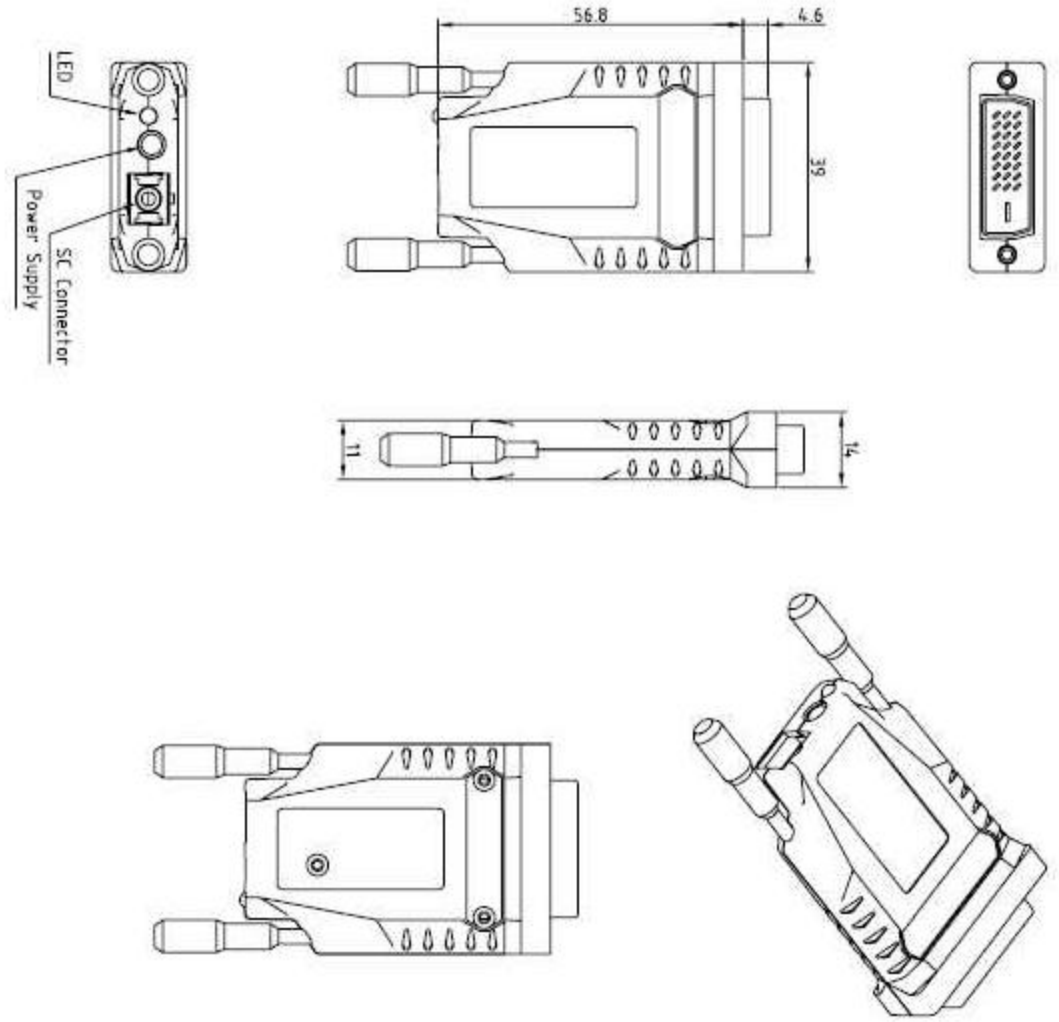
Section 2: Specifications

Item	Description	
Units	FO-DVI-1000M-EMIX (Transmitter)	FO-DVI-1000M-EMIX (Receiver)
Unit Description	DVI Transmitter over Fiber Optic	DVI Receiver over Fiber
DVI Compliance	DVI 1.0	
HDCP Compliance	HDCP 1.1	
Video Bandwidth	2.25 Gbps Single Link	
Supported Resolution & Distance	WUXGA 1920 x 1200 @ 500 meters (1650 feet) UXGA 1600 x 1200 @ 700 meters (2300 feet) SXGA 1280 x 1024 @ 1000 meters (3300 feet)	
Optical Converter	4 Ch 850 nm Transmit OSA 911nm, 1 Ch VCSEL 980nm, 1 Ch PIN P/D Diode	4 Ch 850 nm Transmit OSA 911nm, 1 Ch VCSEL 980nm, 1 Ch PIN P/D Diode
DVI Connector	24 pin DVI-D Plug	
Optical Connector	1 SC Connector	
Fiber Type	50/125 µm Multi-mode glass fiber	
Power Consumption	1.0W (max)	0.75W (max)
Power Supply	100 ~ 240V 5V 2A DC	
Dimensions (L x W x H)	2.4” x 1.5” x 0.6”	

Environmental

Operating Temperature	32˚ ~ 104˚F (0˚ to 40˚C)
Storage Temperature	-4˚ ~ 140˚F (-20˚ ~ 60˚C)
Relative Humidity	20~90% RH (no condensation)

2.1 Case Dimensions



2.2 Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Power Supply	VCC	-0.3	+5.5	V
Operating Temperature	VOT	0	+50	°C
Storage Temperature	VST	-20	+70	°C
Relative Humidity	HRH	10	80	RH

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

2.3 Electrical Specifications

2.3.1 Transmitter Module

	Parameter	Symbol	Min	Type	Max	Units
Power	**Supply Voltage (Optional External Power)**	V_{cc}	4.5	5	5.5	V
	Supply Current	I_{cc}	-	220	225	mA
	Power Dissipation	P_o	-	1.1	1.24	W
TMDS	**Reference Voltage for Graphic Signal**	V_{REF}	3.1	3.3	3.5	V
	Signal ended High Level Input Voltage	VH	V_{REF} -0.01		V_{REF} +0.01	V
	Signal ended Low Level Input Voltage	VL	V_{REF} -0.6		V_{REF} -0.4	V
	Signal ended Input Swing Voltage	V_{ISWING}	0.4		0.6	V
	Signal ended Standby Input Voltage		V_{REF} -0.01		V_{REF} +0.01	V
	Data Output Load	RLD		50		Ω

Transmitter module of Model DSP includes 4 channel VCSEL(Vertical Surface Emitting Laser Diode) with 850nm, 911 nm invisible laser radiation.

2.3.1 Receiver Module

	Parameter	Symbol	Min	Type	Max	Units
Power	Supply Voltage (External Power)	V_{CC}	4.5	5	5.5	V
	Supply Current	I_{CC}	-	150	155	mA
	Power Dissipation	P_O	-	0.75	0.853	W
TMDS	Reference Voltage for Graphic Signal	V_{REF}	3.1	3.3	3.5	V
	Signal ended Input Swing Voltage	V_{OSWING}	0.4		0.6	V
	Data Input Load	RLD		50		Ω

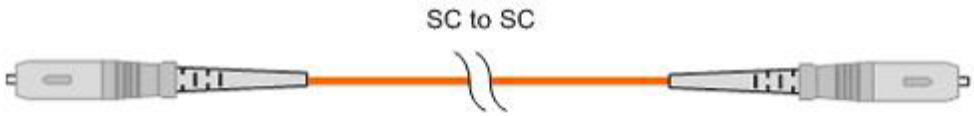
2.4 Signal Pin Assignment

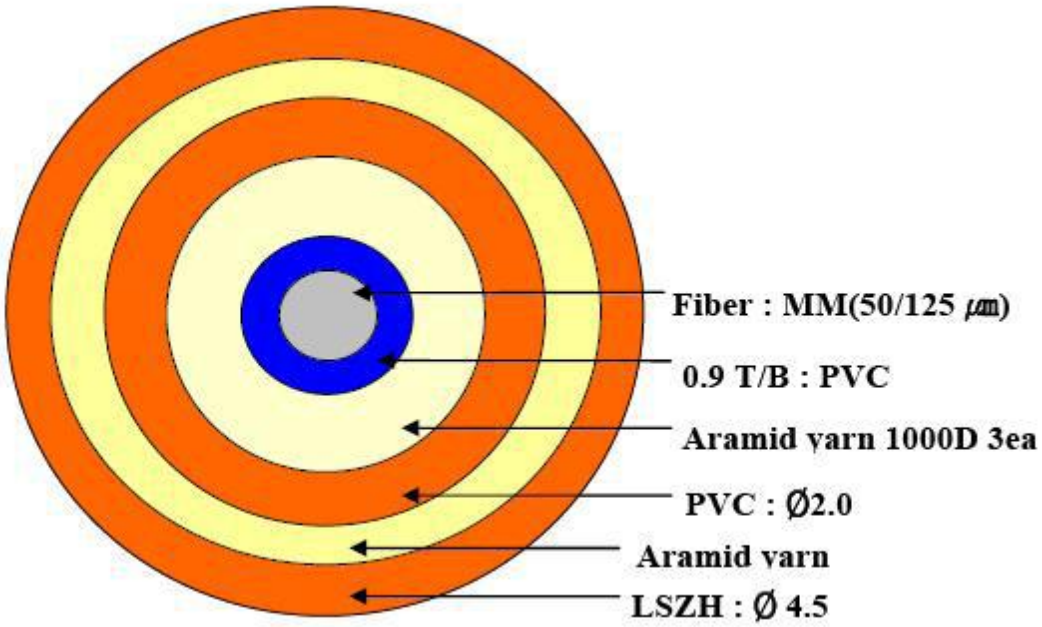
Transmitter / Receiver

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2 Shield	11	T.M.D.S. Data1 Shield	19	T.M.D.S. Data0 Shield
4	No Connect	12	No Connect	20	No Connect
5	No Connect	13	No Connect	21	No Connect
6	DDC Clock (SCL)	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data (SDA)	15	Ground (for +5V)	23	T.M.D.S. Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S. Clock-

2.5Optical Fiber Cable

The construction of 4 Optical Fibers and 4 Copper wires cable shall be in accordance with Figure and Table below:





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