



# HDMI Extender over Fiber Optic Cable



Model #: FO-HDM-XX-MM

**HDMI WUXGA**  
**HDCP 1920x1200**

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## 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-HDM-XX-MM, HDMI Extender System over Fiber Optic, has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment's, the FO-HDM-XX-MM 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-HDM-XX-MM Series with fiber optic cable system lets you extend digital flat panel signal up to 100 meters (330 feet) without signal degradation by at 1080p resolution.

- High Speed and long distance transmission by Optical fiber
- Fully compatible with HDMI 1.3
- Supports 12 bit Deep Color
- Uses standard Type A HDMI receptacle
- DDC and CEC signal and 5V power line are transmitter by copper line
- HDCP Compliant

## FO-HDM-xx-MM

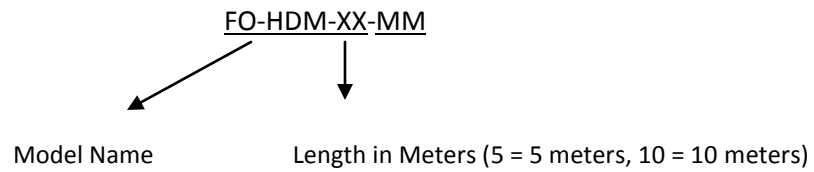
Maximum length of 100m at 1920x1080 resolution

#### CABLE INDEX

- Output
- Input / Source



## 1.5 Model Description



## 1.6 Package Contents

Before you start the installation of the converter, please check the package contents.

- HDMI Optical Cable with Transmitter and Receiver x 1
- User's Manual x 1

## 1.7 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.



## 1.8 Installation

Avenview FO-HDM-XX-MM is composed of a Transmitter converting the graphic signal of a computer to optical and Optical Fiber propagating the optical signal and Receiver supplying electrical signal to monitor converted from the optical signal to electrical signal. The Transmitter should be connected to computer and the Receiver should be connected to a monitor.

Avenview FO-HDM-XX-MM is designed to self-detect the resolution of the monitor and change the resolution accordingly. Follow these steps for connecting to a device:

To setup Avenview FO-HDM-XX-MM follow these steps for connecting to a device:

1. Power on your display
2. Connect Transmitter to the PC and Receiver to the Display.
3. Connect the optical fiber between Transmitter and Receiver.
4. Restart the computer.

*Use the DC power adapter (optional) with correct specification. The Transmitter which is connected to a computer uses power from the computer.*

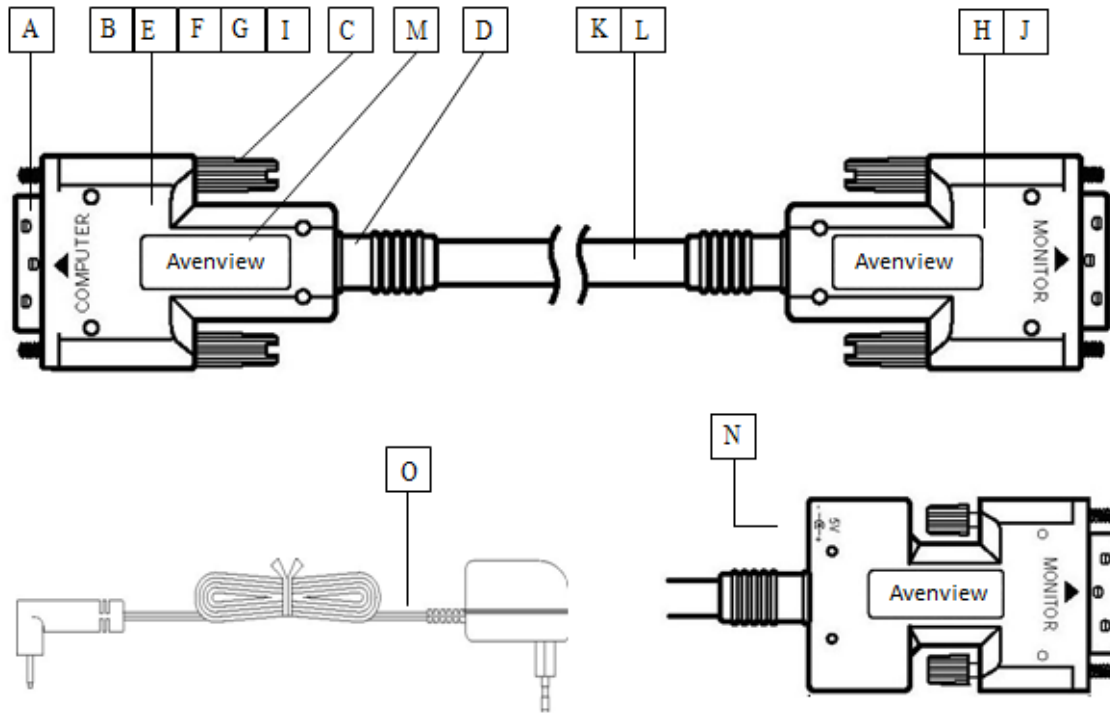
*Do not twist or pull by force the both ends of the optical cable. It may cause malfunction*

## Section 2: Specifications

Item	Description	
<b>Units</b>	FO-HDM-XX-MM (Transmitter)	FO-HDM-XX-MM (Receiver)
<b>Unit Description</b>	HDMI Fiber Optic Transmitter	HDMI Fiber Optic Receiver
<b>HDMI Compliance</b>	HDMI 1.3	
<b>DVI Compliance</b>	DVI 1.0	
<b>HDCP Rev</b>	1.1	
<b>Input Signal</b>	TMDS Signal (HDMI 1.3 Standard)	
<b>Output Signal</b>	TMDS Signal (HDMI 1.3 Standard)	
<b>Video Bandwidth</b>	12bit Deep Color / 60Hz	
<b>Supported Resolution &amp; Distance</b>	Up to WUXGA (1920x1200), 1080p @ 100 meters ( 330 feet)	
<b>Optical Converter</b>	4 ch 850 nm Multi-Mode VCSEL	4 ch GaAs PIN photo Diode
<b>HDMI Connector</b>	19 pin HDMI Plug	
<b>Fiber Type</b>	50/125 μm Multi-mode glass fiber	
<b>Power Consumption</b>	0.8W (max)	1.05W (max)
<b>Bending Radius</b>	70mm	
<b>Dimensions (L x W x H)</b>	(XX + (Tx: 3" Rx: 2.1")) x (Tx: 0.9" Rx: 0.9") x (Tx: 0.7" Rx: 0.7")	
<b>Environmental</b>		
<b>Operating Temperature</b>	32° ~ 104°F (0° to 40°C)	
<b>Storage Temperature</b>	-4° ~ 140°F (-20° ~ 60°C)	
<b>Relative Humidity</b>	20~90% RH (no condensation)	

*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.*

## 2.1 Part List



Item	Description	Q'ty	Material
A	DVI-D Single Link 18 Plug	2	Glass filled thermoplastic UL94V-0
B	DVI Case-Top, Bottom	2	Glass filled PC UL94V-0
C	DVI Thumb Screw	4	SUM 24L+ABS
D	Stopper	2	PVC 55%
E	Epoxy Printed Circuit Board for Tx	1	FR-4, 1.5t UL94V-0
F	Optical Connector for VCSEL,PD	2	PA46 UL94V-0 + C5210
G	Optical Connector for fiber	2	PA46 UL94V-0
H	Epoxy Printed Circuit Board for Rx	1	FR-4, 1.5t UL94V-0
I	Vertical Surface Emitting Laser Diode	4	GaAs
J	Photo Detector	4	GaAs
K	4 fiber 5 copper DVI Optic Cable	1	See Section 4
L	4 fiber DVI Optic Cable	1	See Section 4
M	Label	4	Polyester-matte 3.3mil
N	DC Power Jack	2	Polyamide 6/6
O	DC Power Adaptor	1	E191362 (UL No)



## 2.2 Power Consumption and DDC Power Requirements

Power consumption of FO-HDM-XX-MM Transmitter and Receiver Module

Item	maximum	unit
Transmitter	0.8	Watt
Receiver	1.05	Watt

Transmitter module of FO-HDM-XX-MM without external power supply is operated by drawing out power for DDC from the computer and receiver module of FO-HDM-XX-MM cable also utilize the DDC power delivered via copper wire.

*If graphic board of the computer does not supply over 0.6A, 5V, FO-HDM-XX-MM cable may not operate normally.*

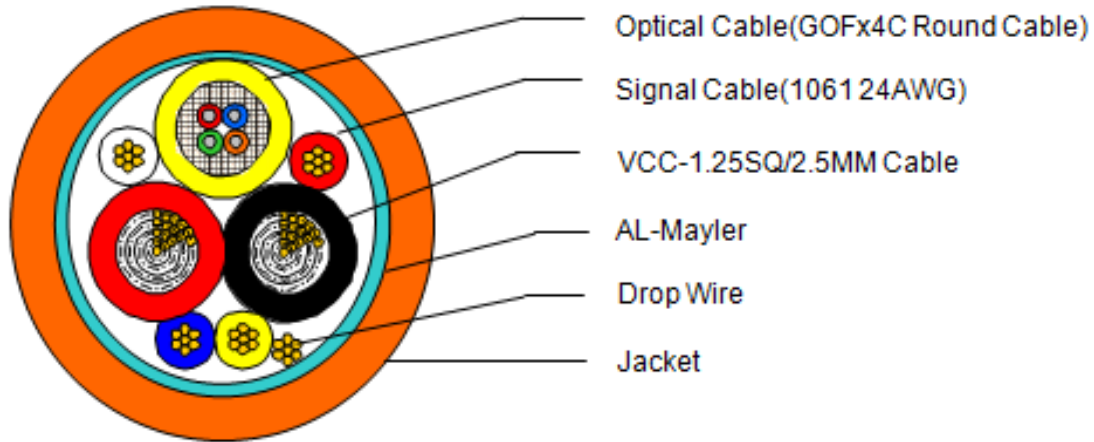
## 2.3 Signal Pin Assignment

### Transmitter / Receiver

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2+	9	T.M.D.S. Data0-	17	DDC/CEC Ground
2	T.M.D.S. Data2 Shield	10	T.M.D.S. Clock+	18	+5V Power
3	T.M.D.S. Data2-	11	T.M.D.S. Clock Shield	19	Hot Plug Detect
4	T.M.D.S. Data 1+	12	T.M.D.S. Clock-		
5	T.M.D.S. Data 1 Shield	13	CEC		
6	T.M.D.S. Data 1-	14	Reserved (N.C on device)		
7	T.M.D.S. Data 0+	15	SCL		
8	T.M.D.S. Data 0 Shield	16	SDA		

## 2.4 FO-HDM-XX-MM Cable Construction

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

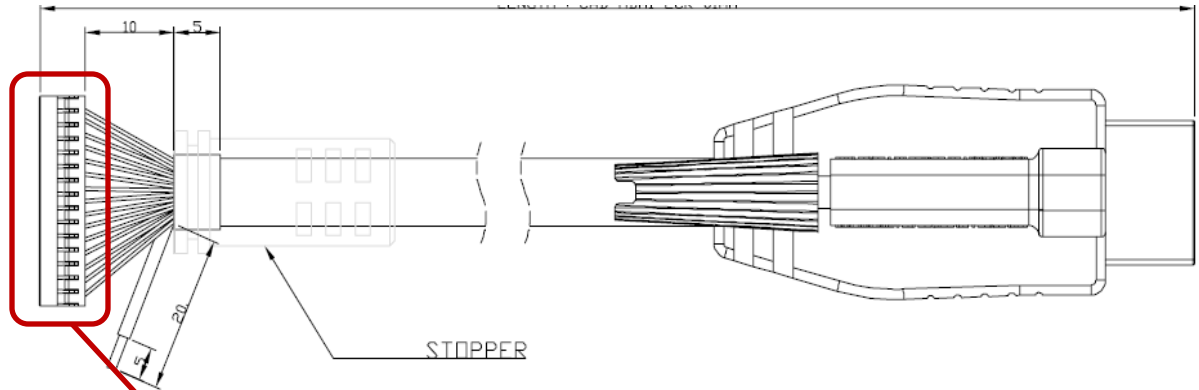


The Dimension of FO-HDM-XX-MM Cable		
Items	Unit	Specification
DVI Cable Make-up	-	Layer Stranding
Drain Wires (Size/Stranded)	mm(AWG)	-0.203/7 (24)
AL-Mylar Screen Shield	-	A helically
Cable Outer Diameter	mm	7.40±0.20
Jacket Color	-	FR-PVC(Orange, Blue, Black)
Cable Marking	-	If need

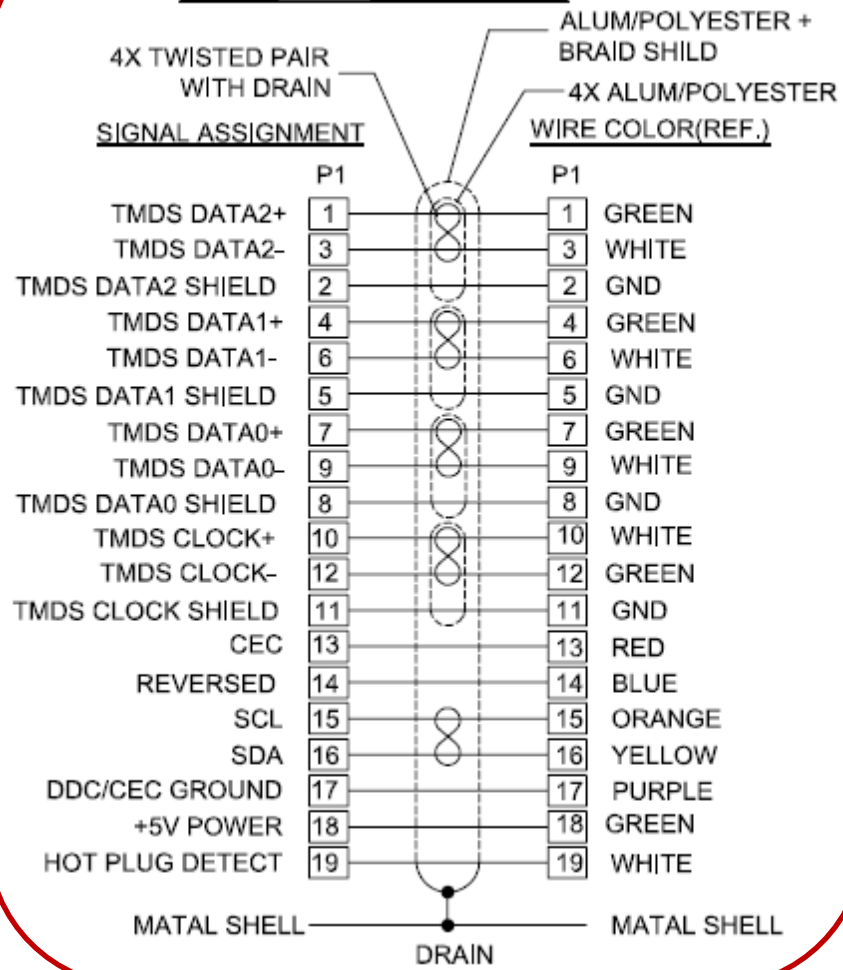
### Fiber Cable Construction

Item		Description
Optical Fiber	Number	4
	Structure	Figure 1
Strength Member		Aramid Yarn
Outer Jacket	Material	FR-PVC(Yellow)
	Approx.Thickness	1.6mm
Nominal Outside Diameter		φ4.0±0.4mm
Approximate Net Weight		10kg/km
Cable Identification		OPTICAL HDMB CABLE

## 2.4.1 Wiring Diagram



### WIRING DIAGRAM:





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