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EXTENDERS SPLITTERS WIRELESS
CABLES & ACCESSORIES

4K DisplayPort Extender over Single SC Fiber Optic Cable



Model #: FO-DP4K-300-EMIX

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Product Application & Market Sectors



Corporate



House Of Worship



Military



Residential



Education



Industrial



Medical



Aviation



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SECTION I: GETTING STARTED

I.1 IMPORTANT SAFEGUARDS

Please read all of these instructions carefully before you use the Fiber Optic cable. 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.

I.2 SAFETY INSTRUCTIONS

The Avenview FO-DP4K-300-EMIX, Display port Extender over fiber Optic has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all fibre optic products, the FO-DP4K-300-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.

On no account should you:

- ⚠ Look into a fiber while the system lasers are on;
- ⚠ Use unfiltered handheld magnifiers or focusing optics to inspect fiber connectors;
- ⚠ Connect a fiber to a fiberscope while the system lasers are on;
- ⚠ Touch the end of the fiber connectors;
- ⚠ Pull forcefully on the fiber cable;
- ⚠ Reuse any specified fiber cleaning material more than once;
- ⚠ Touch the clean area of a any specified fiber cleaning material;
- ⚠ Use alcohol around an open flame or spark - Alcohol is Very flammable;
- ⚠ Use alcohol or wet cleaning without a way to ensure that it does not leave residue on the polished connector;
- ⚠ Dismantle the housing or modify the connector.



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.

Warning symbols	Description
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LASER RADIATION
DO NOT STARE INTO BEAM
< 1 MILLIWATT LASER DIODE
CLASS 2 LASER PRODUCT

Risk levels increase. These lasers emit a visible beam, from 400 to 780 Nanometres (nm), with an upper power limit of 1 milliwatt. An example is a (mw) bar code scanner. Momentary viewing is not hazardous, but extended viewing is. Laser protective eyewear is recommended for even momentary viewing and necessary for extended viewing



DO NOT TAMPER WITH THE FIBER CABLE; DOING SO WILL VOID THE WARRANTY AND CONTINUED USE OF THE PRODUCT.



THE VIDEO BOARDS ARE VERY SENSITIVE TO STATIC. PLEASE ENSURE IF RACK MOUNTED OR INSTALLED ON A SURFACE, IT SHOULD BE IN A GROUNDED ENVIROMENT.

	<p>⚠ WARNING</p> <p>Read & understand user guide before using this device.</p> <p>Failure to follow the proper installation instructions could result in damage to the product and preventing expected results.</p>
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2. INTRODUCTION

The Avenview **FO-DP4K-300-EMIX-SET** ULTRA HD Extender set over single SC optical fiber cable has been designed to extend 4K (3840x2160 or 4096 x 2160) @60Hz video and multi-channel audio formats to any 4K compatible monitor up to 300m.

Video Signals: 4k2k@ 60 (ultra HD), 3D and full HD 1080p@60 Hz.

Audio signals: Multi-channel audio formats (DTS-HD Master Audio, Dolby TrueHD).

The FO-DP4K-300-EMIX-SET includes two (2) units: Sending unit (TX) FO-DP4K-300-EMIX-S and Receiving unit (RX) FO-DP4K-300-EMIX-R with one (1) FTP output port which allows the user to extend video and audio up to 300m (1000ft). The FO-DP4K-300-EMIX-SET input and output supports HBR2 cable assembly to handle upto 5.4Gbps/lane data rate.

The bonus features is the NEW box type design which can be easily installed into any enviroment, behind the monitor and rack mounted on a rack shelf. This features has been added to the unit to give the installer and user a complete solution with the new trends in rack mounted 4K sources streaming, network connected devices and new demand in Smart TV, ultra HD monitors and content.

- Input: Displayport 1.2a with 3D & ULTRAHD, 1080p,DPCP compliant;
- Bandwidth: from 21.6 Gbps;
- Video Data Rate: 5.4 Gbps;
- HD resolutions: up to ULTRA HD (3840x2160/4096 x 2160@60Hz) WQXGA 2560x1600@60Hz and 1080p (1920x1080@60Hz);
- Audio supported: IpCM 7.1CH, Dolby TrueHD, Dolby Digital plus and DTS-HD Master Audio;
- Audio transmission: (32-192kHz sample rate);
- MST (Multi-Stream) Supported;
- Distance: up to 300 meters over OM3 SC Fiber Optic cable.

NOTE:

- MST will be supported if the source device can support MST.
- A DisplayPort 1.2 MST-capable hub.
- A DisplayPort 1.2 MST-capable monitor(s).
- Displaying 4K Ultra HD resolution would require the standard Displayport1 cable and display for accurate results.



2.1 PACKAGE CONTENTS

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

1	(FO-DP4K-300-EMIX-SET) FO-DP4K-300-EMIX-S (TX) X1 FO-DP4K-300-EMIX-R (RX) X1	
2	POWER ADAPTER (5V/2A DC) X2	
3	DISPLAYPORT (COPPER CABLE - 3FT) X 2	
4	USER 'S MANUAL X 1	



3. APPLICATION DIAGRAM

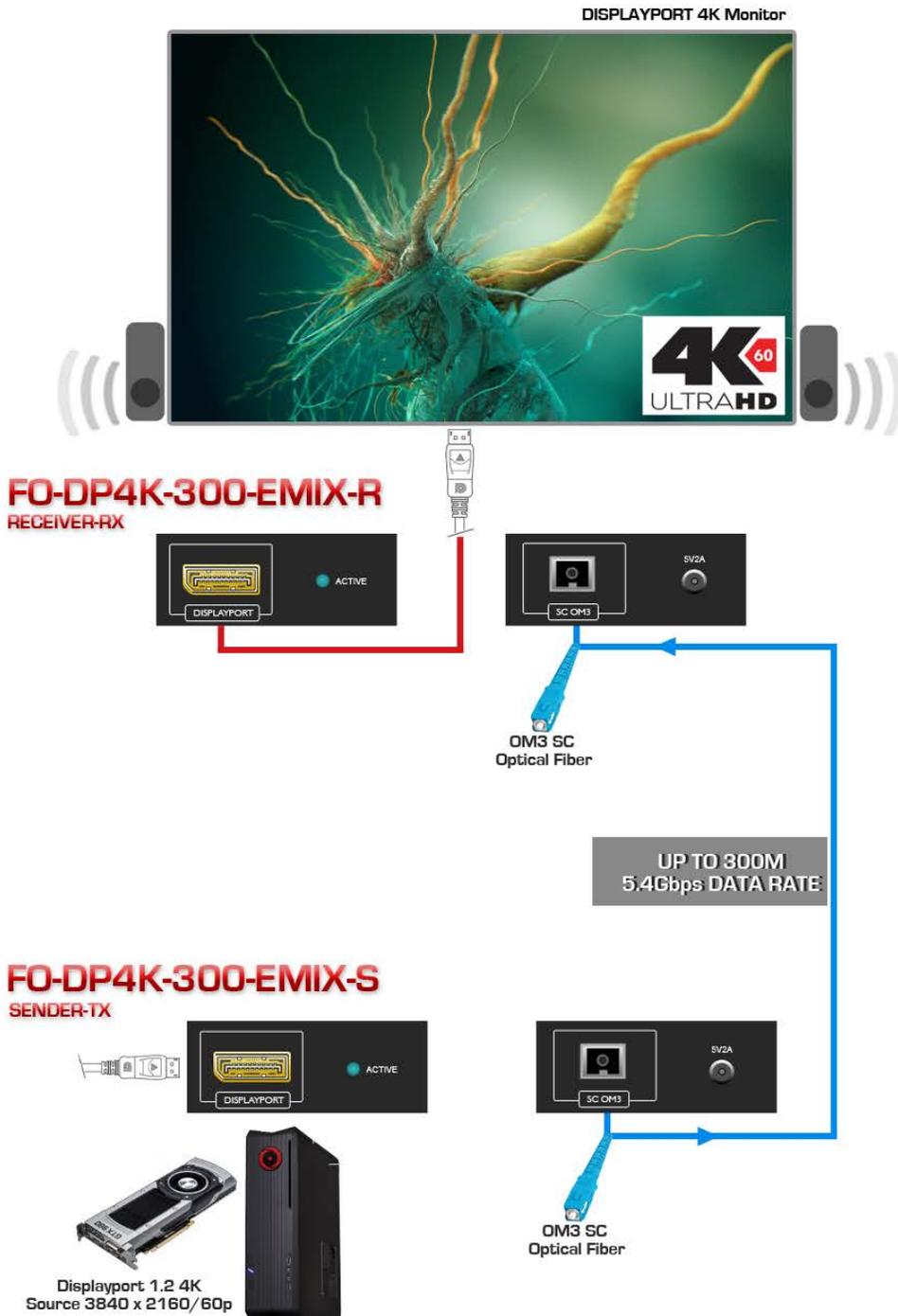
FO-DP4K-300-EMIX-SET

CABLE INDEX

- Input / Output
- OPTICAL FIBER

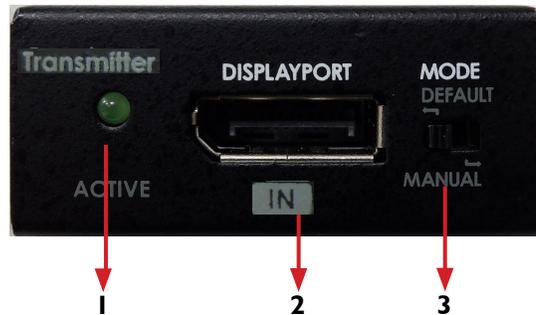
Application Diagram 1

EXTENDED POINT TO POINT
4K(3840x2160)@60Hz = 300m (1000 feet) **OM3 FIBER**



4. PANEL DESCRIPTION

4.1 FRONT PANEL (Sender, FO-DP4K-300-EMIX-S)



- | | |
|---|--|
| 1. LED LIGHT: Green light indicates an active connection. | 2. DISPLAYPORT IN: Displayport cord interface |
| 3. MODE: A. Default mode: video output level is set low to increase compatibility with equipment that is sensitive to jitter characteristics
B. Manual mode: video output level is set high to increase compatibility with equipment that is sensitive to EYE pattern characteristics | |

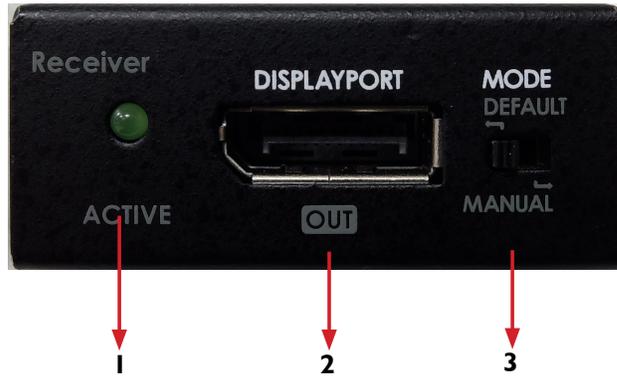
4.2 REAR PANEL (Sender, FO-DP4K-300-EMIX-S)



- | | |
|--|--|
| 1. OPTICAL OUT: Connect SC type connector OM3 rated fiber For media streaming linking to Receiver | 2. 5V 2A Power Supply Jack: Connect provided power adapter for power supply |
|--|--|



4.3 FRONT PANEL (Receiver, FO-DP4K-300-EMIX-R)



1. LED Light: Green light indicates an active connection.	2. Displayport OUT
3. MODE: A. Default mode: enable link training and automatically attempts to match the monitor output B. Manual mode: disable link training and pre-set the output signal characteristics (most compatible setting values is pre-set based on testing of different displays)	

4.4 REAR PANEL (Receiver, FO-DP4K-300-EMIX-R)

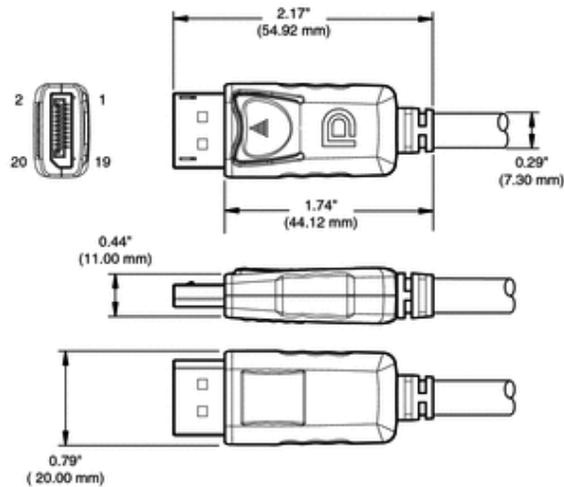


1. OPTICAL IN: Connect SC type connector OM3 rated fiber For media streaming linking to Sender	2. 5V 2A Power Supply Jack
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5. INSTALLATION

This product is composed of a Transmitter and a Receiver.

The Transmitter should be connected to the source (Computer's Displayport) and the Receiver should be connected the Displayport of the digital display device (Monitor). Avenview FO-DP4K-300-EMIX-SET Transmitter / Receiver is designed to be used with SC type standard optical cable (Multi-Mode optical fiber: 50/125, 62.5/125um)



*Note: The Transmitter and the Receiver modules must be connected to the included power supplies for proper operation.
Transmitter module must be powered on first.*



5.1 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 and supplied with the unit. If improper power supply is used the unit may malfunction and cause a fire.
- Do not twist or pull by force ends of the video cable. It can cause malfunction.

5.2 CABLE SPECIFICATIONS



To achieve best results with our FO-DP4K-300-EMIX-SET we recommend a high quality displayport cable 22-24 AWG cable with the below specifications to maintain signal integrity and distances.

NOTE: Misrepresentation with labels such as a DisplayPort 1.1 cable and DisplayPort 1.2 cable. A standard DisplayPort cable, including the label DisplayPort 1.1 cable, will work for any DisplayPort configuration including the new capabilities enabled by DisplayPort 1.2, including 4K and multi-stream capabilities. All standard DisplayPort cables support RBR, HBR (High Bit Rate), and HBR2 (High Bit Rate 2), which can support 4K at 60Hz, or up to four 1080p displays using multi-stream.

NOTE: For more reliable signal transmission we HIGHLY recommend using the MOLEX DP cable included in the package. This type of DisplayPort cable has been tested extensively and showed best compatibility with FO-DP4K-300-EMIX-SET

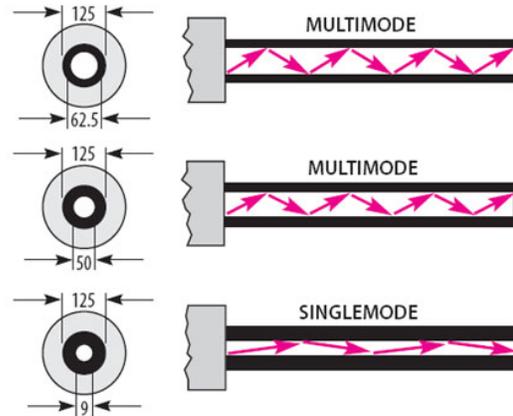
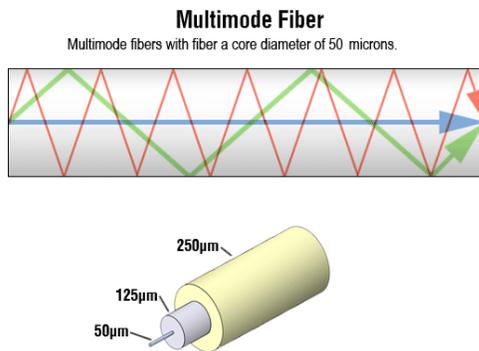
FEATURES:

- Any DisplayPort™ 1.2 Cable with latches and provides a secure, connection between your DisplayPort-equipped devices.
- Any DisplayPort™ cable that supports high resolutions of up to Ultra HD 4k x 2k (3840 x 2160/4096 x 2160) @ 60Hz with a maximum HBR2 bandwidth of 21.6 Gbps. Also supports Multi-Stream (MST) for daisy chaining multiple monitors and provides optional audio support.



5.3 Installation Steps:

1. Connect the Transmitter module to the Displayport source device.
2. Connect the Receiver module to the display.
3. Connect a single strand multi-mode SC terminated optic fiber (50/125um) from the Transmitter to the Receiver module.
4. Connect the included +5V DC power supply into the Receiver.
5. Blue LED indicator on the modules will be light up after all connections are completed.



6. OPTICAL FIBER HAZARD



- Persons installing fiber optic products must take all necessary safety precautions, such as wearing protective clothing and goggles and observing warning signs.
- To ensure that the required personnel and equipment is properly installed, secure from unnecessary failure of the components or failure of the whole system, injury to one's self and in addition to legal responsibility; everyone is responsible for his own health
- Keep exposed optical fiber ends away from skin and eyes.
- The waste fragments should be treated with care and not picked up with bare hands, but rather with special gloves.
- Dispose of waste in a suitable container via an approved agency. Make sure that the quantity of optical fiber waste is minimized.
- Closures containing termination points for optical fiber cabling must be labeled with appropriate warning signs or clearly visible text.
- Make sure that the quantity of optical fiber waste is minimized. Closures containing termination points for optical fiber cabling must be labeled with appropriate warning signs or a clearly viewable text.
- There are four Laser Classifications based on risk levels. Laser manufacturers are required to label their lasers accordingly.



7. GENERAL TROUBLESHOOTING

Problem	Possible Solutions
NO IMAGE	<ul style="list-style-type: none"> • 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. • please use DC adapter (5V, 2A) included in the package for transmitter and receiver.
LCD SCREEN DEFECTS APPEAR	<ul style="list-style-type: none"> • This product supports up to WQXGA resolution. • Check the maximum resolution range of the graphics card.

7.1 Trouble Shooting depending on LED indicator status

Problem	Possible Solutions
No display TX Solid / RX Blink	<ul style="list-style-type: none"> • Check if monitor is powered on • Check if Display port source is selected on monitor input setting
No display TX Blink / RX Solid	<ul style="list-style-type: none"> • Check if the pC and display are powered on and properly booted. • Check if optic fiber is connected properly.
No display TX Blink / RX Blink	<ul style="list-style-type: none"> • Please make sure that power supply is connected into TX and RX. • Reset the system by de-plugging and re-plugging all connections

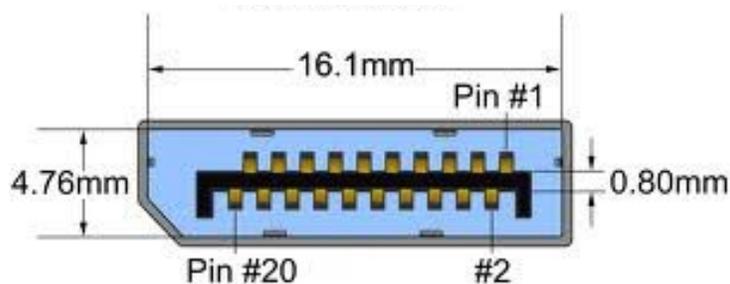
8. CAUTION

1. Do not put heavy object on top of the FO-DP4K-300-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. Use the multimode (50/125um) optical fiber.
6. Do not view directly laser module of transmitter or the end of the other side of optical cable connected to transmitter with optical instrument.
7. Do not twist or pull by force either ends of the optical cable. It can cause malfunction. Minimum bending diameter is 45mm

*NOTE: Optical fiber cords of different types and specifications should not be mixed.
Please note the color-coding of connectors for different fiber specs to make it easy to avoid confusion*



9. DISPLAYPORT PIN ASSIGNMENT



9.1 Transmitter

PIN	SIGNAL ASSIGNMENT	PIN	SIGNAL ASSIGNMENT	PIN	SIGNAL ASSIGNMENT
1	Main Link Lane 0+	8	Ground	15	Auxiliary Channel +
2	Ground	9	Main Link Lane 2-	16	Ground
3	Main Link Lane 0-	10	Main Link Lane 3+	17	Auxiliary Channel -
4	Main Link Lane +	11	Ground	18	Hot plug Detect
5	Ground	12	Main Link Lane 3-	19	Return
6	Main Link Lane 1-	13	Configuration 1	20	N/C
7	Main Link Lane 2+	14	Configuration 2		

9.2 Receiver

PIN	SIGNAL ASSIGNMENT	PIN	SIGNAL ASSIGNMENT	PIN	SIGNAL ASSIGNMENT
1	Main Link Lane 0+	8	Ground	15	Auxiliary Channel +
2	Ground	9	Main Link Lane 2-	16	Ground
3	Main Link Lane 0-	10	Main Link Lane 3+	17	Auxiliary Channel -
4	Main Link Lane 1+	11	Ground	18	Hot plug Detect
5	Ground	12	Main Link Lane 3-	19	Return
6	Main Link Lane 1-	13	Configuration 1	20	N/C
7	Main Link Lane 2+	14	Configuration 2		



10. SPECIFICATIONS

ITEM	DESCRIPTION	
MODEL	FO-DP4K-300-EMIX-S	FO-DP4K-300-EMIX-R
UNIT DESCRIPTION	Displayport Extender Transmitter	Displayport Extender Receiver
INPUT VIDEO PORT	DisplayPort	Optical
INPUT RESOLUTION	4K (3840X2160 and 4096 x 2160) @ 60Hz WQXGA (2560x1600)@60Hz and 1080p (1920x1080)@60Hz, 2560x1440, 2560x1600, 2560x1080	4K (3840X2160 and 4096 x 2160) @ 60Hz WQXGA (2560x1600)@60Hz and 1080p (1920x1080)@60Hz, 2560x1440, 2560x1600, 2560x1080
OUTPUT VIDEO PORT	Optical	DisplayPort
OUTPUT RESOLUTION	Up to 4K (3840X2160 and 4096 x 2160) @ 60Hz, 2560x1440, 2560x1600, 2560x1080	Up to 4K (3840X2160 and 4096 x 2160) @ 60Hz, 2560x1440, 2560x1600, 2560x1080
COLOR SPACE	By pass all color spaces as RGB, YPbPr, YCbCr, etc..	
CHROMA SUBSAMPLING	4K 4:2:0 10bits, 4:2:2 10/12bits, 4:4:4 8bits@60Hz	
DIMENSIONS (L X W X H)	3.2" X 2.1" X 0.97"	
POWER SUPPLY	5V 2A	
WEIGHT	1.5 lbs	

OPTICAL

OPTICAL SOURCE	850nm VCSEL
O/E CONVERTER	PIN photo Diode
FIBER	Multi-Mode optical fiber (SC Type Connector)
FIBER TYPE	50/125 μm Multi-mode glass fiber OM3 rated fiber

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)



Notes



Notes



Avenview Warranty Certificate

AVENVIEW CORP. ("Avenview") warrants Avenview-branded product(s) contained in the original packaging against defects in materials and workmanship when used normally in accordance with Avenview's enclosed manual guidelines for a period of THREE (3) YEARS from the date of original retail purchase - Warranty Period. Avenview's published guidelines include but are not limited to information contained in technical specifications, user manuals and service communications.

LABOR: During the Warranty Period of THREE (3) YEARS, Avenview will repair or replace the product(s) at no cost using new or used parts equivalent to novel performance and reliability if the product(s) is determined to have abide by Avenview's published guidelines. Cost of Labor applicable to product(s) after Warranty Period. For labor costs, please contact support@avenview.com.

PARTS: During the Warranty Period of THREE (3) YEARS, Avenview will supply new or rebuilt replacements in exchange for defective parts of the product(s) at no cost if the product(s) is determined to have abide by Avenview's published guidelines. Cost of Parts applicable to product(s) after Warranty Period. For part(s) costs, please contact support@avenview.com.

To obtain Warranty: (a) proof of purchase in the form of a bill of sale or receipted invoice reflecting that the registered product(s) is within warranty period must be presented to obtain warranty service; (b) product(s) must be registered at time of purchase. Failure to do so will result in applicable parts and labor charges. Returning product(s) must be shipped in Avenview's original packaging or in packaging pertaining equal degree of protection to Avenview's. Both Avenview and purchaser are responsible for freight charges and brokerages when shipping the product(s) to the receiver.

NOT COVERED BY THIS WARRANTY

This warranty does not apply to any non-Avenview branded product(s); non-registered Avenview product(s). This warranty does not apply: (a) to cosmetic damage, including but not limited to scratches, dents and broken cords; (b) to damage caused by use with another product; (c) to damage caused by accident, abuse, misuse, liquid contact, fire, earthquake or other external cause; (d) to damage caused by operating the Avenview product(s) outside Avenview's manuals or guidelines; (e) to damage caused by service performed by anyone who is not a representative of Avenview or an Avenview authorized personnel; (f) to defects caused by normal wear and tear or otherwise due to the normal aging of the Avenview product(s), or (g) if any serial number has been removed or defaced from the Avenview product(s).

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Some states do not allow the inclusion or limitation of incidental or consequential damages, or allow limitations on duration implements of the Warranty Period; therefore the above limitations or exclusions may not be applicable to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.



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