Avenview

Control Your Video

VIDEO WALLS VIDEO PROCESSORS
VIDEO MATRIX SWITCHES
EXTENDERS SPLITTERS WIRELESS
CABLES & ACCESSORIES

# DisplayPort Extender over Fiber Optic Cable

4K ULTRAHD | FIBER | DISPLAY PORT | UHD 3860x2160 | CERTIFIED | RoHS Compliant | FC CE

**Model #: FO-DP4K-XX-MM**

## Product Application & Market Sectors


Corporate


House Of Worship


Military


Residential


Education


Industrial


Medical


Aviation

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# SECTION 1: GETTING STARTED

## 1.1 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.

## 1.2 SAFETY INSTRUCTIONS

The Avenview FO-DP4K-XX-MM, DisplayPort 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-DP4K-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.

On no account should you:

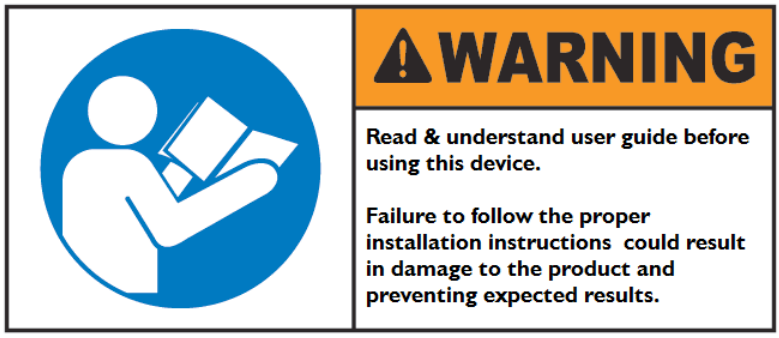
- ⚠ Do not dismantle the housing or modify the module.
- ⚠ Dismantling the housing or modifying the module may result in electrical shock or burn.
- ⚠ Refer all servicing to qualified service personnel.
- ⚠ Do not attempt to service this product yourself as opening or removing housing may expose you 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.

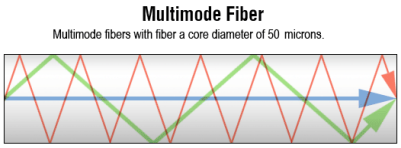
| Warning symbols | Description |
|---|---|
|  | LASER RADIATION<br>DO NOT STARE INTO BEAM<br>< 1 MILLIWATT LASER DIODE<br>CLASS 2 LASER PRODUCT<br><br>Risk levels increase. These lasers emit a visible beam, from 400 to 780 Nanometres (nm), with an upper power limit of 1 milliwatt. An example is a (mw) 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. |
|  | LASER BEAM USED IN OPTICAL COMMUNICATIONS ARE INVISIBLE AND CAN SERIOUSLY DAMAGE THE EYES. VIEWING IT DIRECTLY DOES NOT CAUSE ANY PAIN TO THE EYE BUT SERIOUS DAMAGE CAN BE DONE TO THE RETINA OF THE EYE |

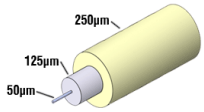


## 2. INTRODUCTION

Avenview FO-DP4K-XX-MM 4K Series fiber optic cable system lets you extend DisplayPort 1.2 digital signal up to 60 meters (196 feet) at 4K@60Hz (3860x2160) resolution.

- High Speed and long distance transmission by Optical fiber
- Compatible with Displayport standard v1.2a
- HBR(High Bit Rate) Cable Assembly (up to 5.4 Gbs Data Rate)
- Supports up to 4K@60Hz (3860x2160) resolution
- Main-link video signal / AUX data and Hot Plug Detection signal is transmitted by 1ch multi-mode fiber - DpCp & HDCp compliant( HDCp are not part of the Displayport standard)
- MMF optical fiber /copper hybrid cable structure




## 2.1 MODEL DESCRIPTION

### Available Models

**10 meters**
**15 meters**
**20 meters**
**25 meters**
**30 meters**
**35 meters**
**40 meters**

**FO-DP4K-XX-MM**

**Model Name**

**Length in Meters**
**(5 = 5 meters, 10 = 10 meters)**

**EXAMPLE: FO-DP4K-10-MM**

## 2.2 PACKAGE CONTENTS

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

| | | | |
|---|---|---|---|
| 1 | DisplayPort Extender Cable with Transmitter and Receiver | X 1 |  |
| 2 | User's Manual | X 1 |  |

## 2.3 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.

## 3. 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.

## 4. INSTALLATION

Avenview FO-DP4K-XX-MM is composed of a TX/RX, theTransmitter converts the video/audio signal of an input such as a computer over the Optical Fiber to the Receiver. The RX then decodes the trasmitted data to the connected monitor via the displayport connector.

The Transmitter should be connected to source (Computer/media player) DisplayPort connector and the Receiver should be connected to a monitor/TV with DisplayPort connector.

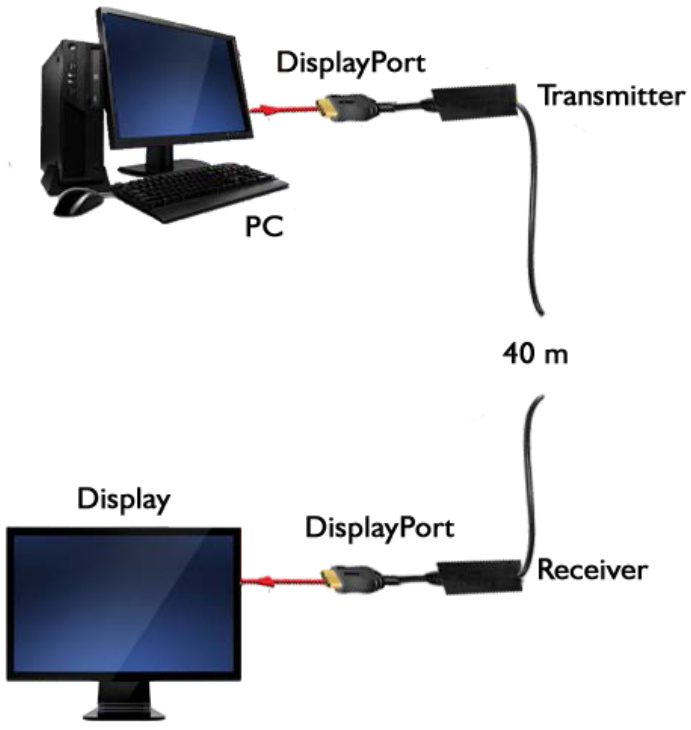
Avenview FO-DP4K-XX-MM is designed to self-detect the resolution of the monitor and adapt to the resolution accordingly. Follow these steps for connecting to a device:

1. Power on your display.
2. Connect Transmitter DP Male connector to the Source device (Laptop/PC).
3. Connect the Receiver DP Male connector to the Display/Monitor.
4. Once all connections are completed the BLUE LED indicator on both connectors will be activated.

***NOTE: Ensure when installing this product you carefully read the labels an do not mix the connections in the opposite direction.***

**FO-DP4K-XX-MM**

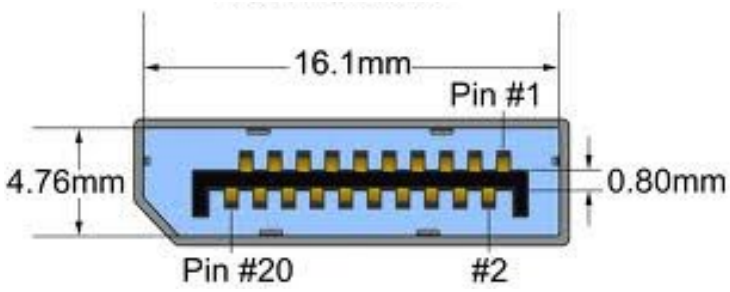
4K@60 = 40 M (130 FT)
Up to 5.4Gbs Data Transfer Rate



## 5. SPECIFICATIONS

| ITEM | DESCRIPTION | |
|---|---|---|
| **UNITS** | FO-DP4K-XX-MM (Transmitter) | FO-DP4K-XX-MM (Receiver) |
| **UNIT DESCRIPTION** | Displayport fiber Optic Transmitter | Displayport fiber Optic Receiver |
| **INPUT/OUTPUT SIGNAL** | Displayport Signal v1.2a | |
| **VIDEO BANDWIDTH** | 21.6Gbps | |
| **DATA RATE** | 5.4Gbs | |
| **SUPPORTED RESOLUTION & DISTANCE*** | 4K@60Hz 3860 x 2160 @ 40 meters (130 feet) | |
| **ELECTRICAL CONNECTOR** | 20 pin Displayport plug | |
| **DIMENSIONS (L × W × H)*** | 2.95" × 1.0" × 0.8" | 2.16" × 1.0" × 0.8" |
| **LENGTH AND WEIGHT** | (FO-DP4K-10-MM) 10 meters / 33 feet (3.5lbs)<br>(FO-DP4K-15-MM) 15 meters / 49 feet (4 lbs)<br>(FO-DP4K-20-MM) 20 meters / 66 feet (4.5lbs)<br>(FO-DP4K-25-MM) 25 meters / 82 feet (5.75lbs)<br>(FO-DP4K-30-MM) 30 meters / 100 feet (6.85lbs)<br>(FO-DP4K-35-MM) 35 meters / 115 feet (7.3lbs)<br>(FO-DP4K-40-MM) 40 meters / 132 feet (7.95lbs) | |
| **POWER CONSUMPTION** | 0.3W | 1.39W |
| *OPTICAL* | | |
| **OPTICAL SOURCE** | 850nm VCSEl | |
| **O/E CONVERTER** | PIN photo Diode | |
| **CABLE TYPE** | Optical Hybrid + Copper | |
| **FIBER TYPE** | 50/125 $\mu$m Multi-mode glass fiber OM2 or 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) | |

## 6. DISPLAYPORT PIN ASSIGNMENT




### 6.1 Transmitter

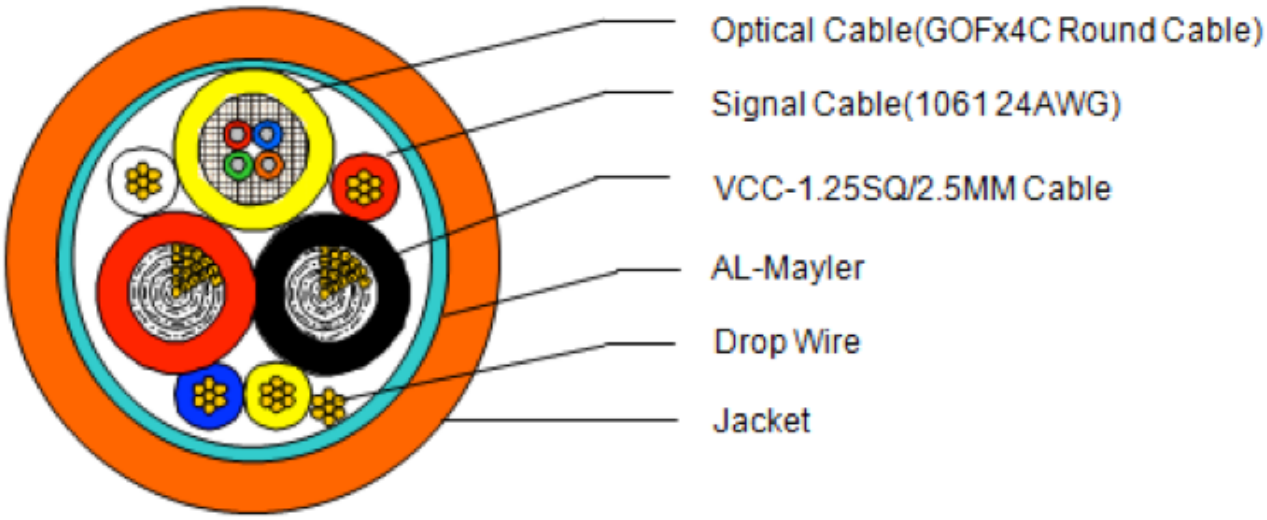
| PIN | SIGNAL ASSIGNMENT | PIN | SIGNAL ASSIGNMENT | PIN | SIGNAL ASSIGNMENT |
|---|---|---|---|---|---|
| 1 | Main l ink l ane 0+ | 8 | Ground | 15 | Auxiliary Channel + |
| 2 | Ground | 9 | Main l ink l ane 2- | 16 | Ground |
| 3 | Main l ink l ane 0- | 10 | Main l ink l ane 3+ | 17 | Auxiliary Channe l - |
| 4 | Main l ink l ane + | 11 | Ground | 18 | Hot plug Detect |
| 5 | Ground | 12 | Main l ink l ane 3- | 19 | Return |
| 6 | Main l ink l ane 1- | 13 | Configuration 1 | 20 | Connector power (3.3V,500mA) |
| 7 | Main l ink l ane 2+ | 14 | Configuration 2 | | |

### 6.2 Receiver

| PIN | SIGNAL ASSIGNMENT | PIN | SIGNAL ASSIGNMENT | PIN | SIGNAL ASSIGNMENT |
|---|---|---|---|---|---|
| 1 | Main l ink l ane 0+ | 8 | Ground | 15 | Auxiliary Channel + |
| 2 | Ground | 9 | Main l ink l ane 2- | 16 | Ground |
| 3 | Main l ink l ane 0- | 10 | Main l ink l ane 3+ | 17 | Auxiliary Channe - |
| 4 | Main l ink l ane 1+ | 11 | Ground | 18 | Hot plug Detect |
| 5 | Ground | 12 | Main l ink l ane 3- | 19 | Return |
| 6 | Main l ink l ane 1- | 13 | Configuration 1 | 20 | Connector power (3.3V,500mA) |
| 7 | Main l ink l ane 2+ | 14 | Configuration 2 | | |

## 7. FO-DP4K-XX-MM CABLE CONSTRUCTION

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



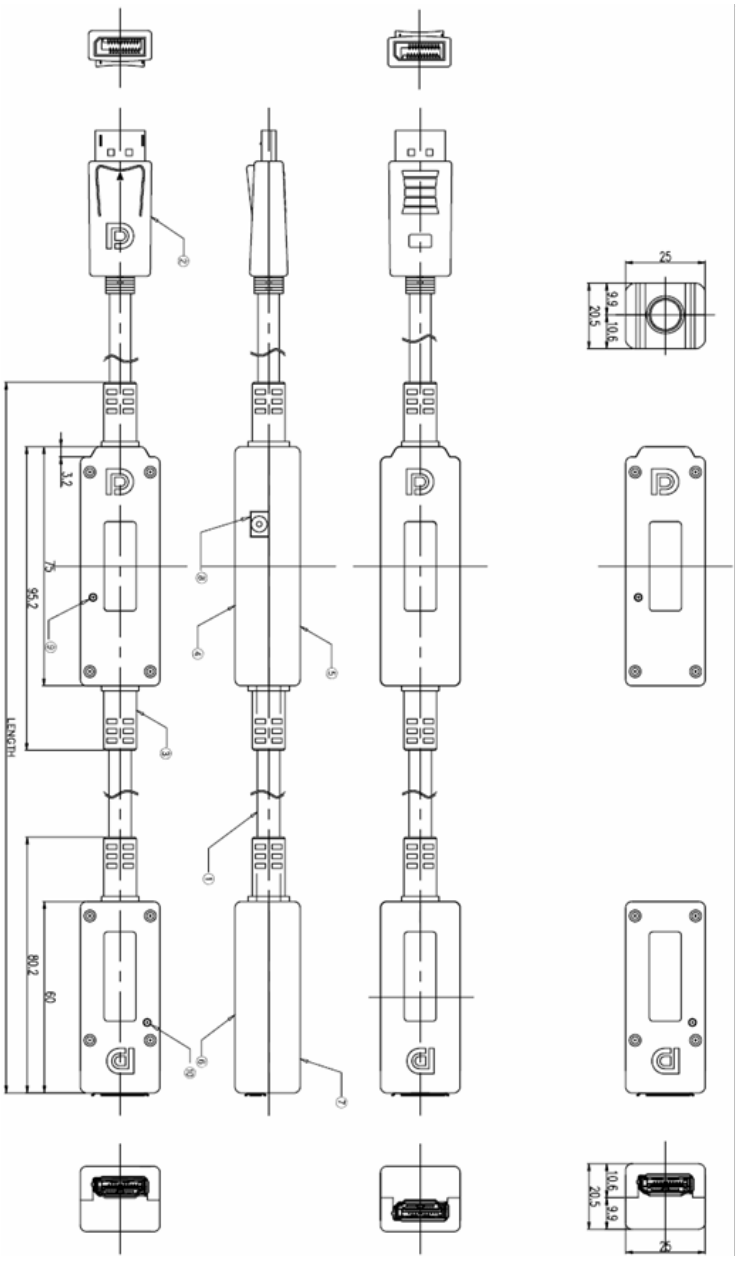

| The Dimension of FO-HDM-XX-MM Cable | | |
|---|---|---|
| **ITEMS** | unit | Specification |
| **DVI CABLE MAKE-UP** | - | Layer Stranding |
| **DRAIN WIRES (SIZE/STRANDED)** | mm(AWG) | -0.203/7 (24) |
| **AL-MYLAR SCREEN SHIELD** | - | Ahelically |
| **CABLE OUTER DIAMETER** | mm | 7.40±0.20 |
| **JACKET COLOR** | - | FR-PVC(Orange, Blue, Black) |
| **CABLE MARKING** | - | If needed |

fIBER CABI E CONSTRu CTION

| Item | | Description |
|---|---|---|
| **OPTICAL FIBER** | Number | 4 |
| | Structure | Figure I |
| **STRENGTH MEMBER** | | Aramid yarn |
| **OUTER JACKET** | Material | FR-PVC(yellow) |
| | Approx.Thickness | I.6mm |
| **NOMINAL OUTSIDE DIAMETER** | | Ø4.0±0.4mm |
| **APPROXIMATE NET WEIGHT** | | I0kg/km |
| **CABLE IDENTIFICATION** | | OPTICAI HDMB CABLE |

# 8. MECHANICAL SPECIFICATIONS

## 8.1 Case Dimensions



## 8.2 Optical Cable Info

| DIMENSIONS OF DISPLAYPORT CABLE | | |
|---|---|---|
| **ITEMS** | **UNIT** | **SPECIFICATIONS** |
| DisplayPort 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 | - | Black |

| FIBER CABLE CHARACTERISTICS | | | |
|---|---|---|---|
| **ITEM** | **SPECIFICATIONS** | **UNIT** | **CONDITION** |
| Storage Temperature | -20 ~ 70 | °C | Spooled |
| Operational Test | 0 ~ 50 | °C | - |
| Max. Tensile Load | 245 | N | |
| Min. Radius Bend | 25 | mm | |
| | 40 | | |
| Crush Resistance | 490 | N/50mm | |

## 9. GENERAL TROUBLESHOOTING

| Problem | Possible Solutions |
|---|---|
| **NO IMAGE** | • Check if the Source power is on<br>• Check if connection to the computer and the monitor are correct<br>• Recycle the PC power off and on again<br>• Some graphics cards are not compatible with this unit Ensure it is 60Hz |
| **LCD SCREEN DEFECTS APPEAR** | • This product supports up to 4K@60Hz (3860x2160) resolution.<br>• Check the maximum resolution range of the graphics card. |

### Trouble Shooting depending on LED indicator status

No display TX Solid / RX Solid

- Check if monitor is powered on/Reboot Monitor
- Unplug and Reconnect the Transmitter Displayport Male connector.

No display TX Solid / RX Off

- Unplug and Reconnect the Transmitter Displayport Male connector.

## 10. CAUTION

1. Do not put heavy object on top of the FO-DP4K-XX-MM. 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. Do not twist or pull by force either ends of the optical cable. It can cause malfunction. Minimum bending diameter is 45mm.

*NOTE: Using Mini DP or HDMI/DVI converters with this unit may vary in the performance of the specified tested results.*

## 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 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).

AVENVIEW IS NOT LIABLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOSS OF USE; LOSS OF REVENUE; LOSS OF ACTUAL OR ANTICIPATED PROFITS (INCLUDING LOSS OF PROFITS ON CONTRACTS); LOSS OF THE USE OF MONEY; LOSS OF ANTICIPATED SAVINGS; LOSS OF BUSINESS; LOSS OF OPPORTUNITY; LOSS OF GOODWILL; LOSS OF REPUTATION; LOSS OF, DAMAGE TO, COMPROMISE OR CORRUPTION OF DATA; OR ANY INDIRECT OR CONSEQUENTIAL LOSS OR DAMAGE REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER.

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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AV Connectivity, Distribution And Beyond...

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