GENERAL FEATURES:
- Fiber Point to Point 2KM MM Configuration
- Plug-and-Play (hot-pluggable)
- Externally Powered
- Fiber optic range of up to 1.2 miles (2.0 KM)
- Available with ST or SC type connectors
- Data direction auto-turnaround - no flow control necessary
- Built-in surge and static protection
- 5-year replacement manufacturer’s warranty
- CE, FCC, RoHS and REACH certified

DESCRIPTION:
The SerialComm ETH-FIBER-MM is a bi-directional externally powered 10/100M Ethernet to Multi-Mode Fiber Optic Converter which converts a standard 10/100BaseTX to 100BaseFX Multi-mode SC or ST connector type fiber optic link. A data direction auto-turnaround feature automatically enables the Ethernet transmit and receive data signals when data is present, avoiding the need for software drivers, and making the device fully plug-and-play. The ETH-FIBER-MM supports straight-through (MDI) or crossover (MDX) cable configurations. The ETH-FIBER-MM has a RJ45 connector for the 10/100M Ethernet port, and either an ST type or SC type connector for the fiber optic link. The unit extends the maximum distance of any 10/100M Ethernet signal up 1.2 miles (2.0 KM) using MM fiber optic cable. The unit is enclosed in a rugged steel housing. An external power supply is included.

CERTIFICATIONS:
- CE, FCC, RoHS and REACH certified

APPLICATIONS:
- Multi-Mode 1.2 MILES (2KM) SC or ST CONNECTOR TYPE

SPECIFICATIONS:

**COMMUNICATION**

STANDARDS:
- IEEE 802.1 10Base-T, IEEE 802.3u 100Base-T and IEEE 802.3 100Base-FX Standards

MODEL NUMBERS:
- ETH-FIBER-MM-ST - ST Connector Version
- ETH-FIBER-MM-SC - SC Connector Version

BAUD RATES:
- 10/100 mbps Half-duplex, 20/200 mbps Full-duplex

CONNECTOR TYPES:
- DC Input: Male Jack, Ethernet Side: RJ45 Female and Fiber Side: either 2 X ST Connectors or 2 X SC Connectors

DISTANCE:
- 10BaseT or 100BaseT Side: 328 ft (100m) and Multi-mode Side: 1.2 miles (2 KM)

CABLING:
- CAT 3, 4, or 5, 5e, 6

**ELECTRICAL**

POWER SOURCE:
- 5VDC

DC/AC POWER ADAPTER:
- 5VDC / (100 - 240VAC 50/60hz US Type A Plug) 500 mA

POWER CONSUMPTION:
- 4 Watts

STATIC PROTECTION:
- 15KV Electric Static Discharge (ESD) Protection

SURGE PROTECTION:
- 600W Surge Protection

**FIBER OPTIC**

FIBER OPTIC OPERATION:
- Point to Point Fiber 2KM Multi-Mode Configuration

FIBER OPTIC CABLING:
- 50/125µm and 62.5/125µm MM Fiber Cable

WAVELENGTH:
- 850nm

OUTPUT LEVEL (MIN):
- -14 dBm

OUTPUT LEVEL (MAX):
- -3 dBm

FIBER SENSITIVITY:
- -30 dBm

**MECHANICAL**

HOUSING:
- Heavy Duty Steel Housing

DIN RAIL:
- Optional DIN Rail Mounts

WEIGHT:
- With ST Connector: 8.11oz (230.0 grams)
- With SC Connector: 7.82oz (221.6 grams)

DIMENSIONS:
- With ST Connector: 4.30” X 3.75” X 1.05” (109.0 mm X 95.0 mm X 26.6 mm)
- With SC Connector: 3.90” X 3.75” X 1.05” (99.0 mm X 95.0 mm X 26.6 mm)

**ENVIRONMENTAL**

OPERATING TEMP:
- -4° F to 167° F (-20°C to 75°C)

STORAGE TEMP:
- -40° F to 185° F (-40°C to 85°C)

OPERATING HUMIDITY:
- 5% To 95% - No Condensation

**QUALITY**

PRODUCT SAFETY:
- CE, FCC, RoHS and REACH Third-party Certified

QUALITY MANAGEMENT:
- Manufactured and Distributed to ISO 9001:2015 QMS

RELIABILITY:
- Low Failure Rate ~ 99+% Reliability Since Inception

WARRANTY:
- 5 Year Replacement Warranty
**ETHERNET RJ45 PIN ASSIGNMENT:**

<table>
<thead>
<tr>
<th>PIN NUMBER</th>
<th>MDI SIGNAL</th>
<th>MDI-X SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td>RX+</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
<td>RX-</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td>TX+</td>
</tr>
<tr>
<td>4</td>
<td>RX-</td>
<td>TX-</td>
</tr>
<tr>
<td>5</td>
<td>Not Connected</td>
<td>Not Connected</td>
</tr>
<tr>
<td>6</td>
<td>Not Connected</td>
<td>Not Connected</td>
</tr>
<tr>
<td>7</td>
<td>Not Connected</td>
<td>Not Connected</td>
</tr>
<tr>
<td>8</td>
<td>Not Connected</td>
<td>Not Connected</td>
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</table>

**INDICATOR LED TABLE:**

<table>
<thead>
<tr>
<th>LED</th>
<th>STATE</th>
<th>INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWR</td>
<td>OFF</td>
<td>Power Off</td>
</tr>
<tr>
<td></td>
<td>SOLID</td>
<td>Power On</td>
</tr>
<tr>
<td>100</td>
<td>OFF</td>
<td>10M Ethernet</td>
</tr>
<tr>
<td></td>
<td>SOLID</td>
<td>100M Ethernet</td>
</tr>
<tr>
<td>FX</td>
<td>OFF</td>
<td>Fiber Optic Unit is Faulty</td>
</tr>
<tr>
<td></td>
<td>SOLID</td>
<td>Fiber Optic Unit is Functional</td>
</tr>
<tr>
<td>LNK/ACT (TX)</td>
<td>OFF</td>
<td>Ethernet is Not Connected</td>
</tr>
<tr>
<td></td>
<td>FLASHING</td>
<td>Transmitting or Receiving Data</td>
</tr>
<tr>
<td></td>
<td>SOLID</td>
<td>Ethernet is Connected</td>
</tr>
<tr>
<td>LNK/ACT (FX)</td>
<td>OFF</td>
<td>Fiber Links are not Connected</td>
</tr>
<tr>
<td></td>
<td>FLASHING</td>
<td>Transmitting or Receiving Data</td>
</tr>
<tr>
<td></td>
<td>SOLID</td>
<td>Fiber Links are Connected</td>
</tr>
<tr>
<td>FDX</td>
<td>OFF</td>
<td>Half-Duplex Mode or Network Disconnected</td>
</tr>
<tr>
<td></td>
<td>FLASHING</td>
<td>Data Collision Detected</td>
</tr>
<tr>
<td></td>
<td>SOLID</td>
<td>Full-Duplex Mode</td>
</tr>
</tbody>
</table>

**TROUBLESHOOTING INSTRUCTIONS:**

**Using one ETH-FIBER-MM unit:**

1. Perform a loop back test on one unit:
   a) Plug the power connector to the converter.
   b) Connect the Ethernet port to a PC. Connect fiber in to fiber out.
   c) Running a Ethernet Analyzer program on the PC, send ASCII characters to the ETH-FIBER-MM converter from one PC port, and check that the characters are received at the same PC port. This tests that the transmit and receive functions of the ETH-FIBER-MM unit is working properly.

**Using two ETH-FIBER-MM units:**

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on two units:
   a) Plug the power connector to both converters.
   b) Connect the fiber optic in of one converter and fiber optic out to the other converter.
   c) Connect the fiber optic out of one converter and fiber optic in to the other converter.
   d) Connect the Ethernet connections to two Ethernet ports.
   e) Running Ethernet Analyzer programs on both PCs, send ASCII characters to the ETH-FIBER-MM converter from one PC port, and check that the characters are received at the 2nd PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both ETH-FIBER-MM units are working properly.