Fiber Optic 100 Mbps Ethernet Transceiver

**Description**

The MAXCOM MX100 is a Fast Ethernet media converter that translates transmission signals from a twisted-pair 100BASE-TX cable to 100BASE-FX fiber optic cable. The MX100 can be configured to transmit over one or two fiber strands.

The MX100 expands network data transmission distances beyond the 100 meter limitation of copper wire to a maximum of 80 kilometers by using fiber optic cable in full duplex mode.

**Features**

- 100Mbps Full Duplex
- One 100BaseT Port
- One 100BaseFX Fiber Port
- 80 Km Transmission Range
- 1 or 2 Fiber Strand Transmission
- Provide full wire-rate 200Mbps Duplex Transmission for greater network performance
- Plug-n-Play Ethernet & Fast Ethernet Switch
- IEEE 802.3u Compliant
- Guaranteed Switch performance and hardware compatibility with other Switches, Hubs and Adapter

**Model Selection Guide**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX100-1S-SCA-40</td>
<td>100Base Fiber Optic Ethernet Transceiver, 2 Port, 1 Fiber, SC/APC Connector, 40 Km</td>
</tr>
<tr>
<td>MX100-1S-SCA-80</td>
<td>100Base Fiber Optic Ethernet Transceiver, 2 Port, 1 Fiber, SC/APC Connector, 80 Km</td>
</tr>
<tr>
<td>MX100-2S-SCA-60</td>
<td>100Base Fiber Optic Ethernet Transceiver, 2 Port, 2 Fiber, SC/APC Connector, 60 Km</td>
</tr>
<tr>
<td>MX100-2S-SCA-110</td>
<td>100Base Fiber Optic Ethernet Transceiver, 2 Port, 2 Fiber, SC/APC Connector, 110 Km</td>
</tr>
<tr>
<td>MX100-IM-SC-2</td>
<td>100Base Fiber Optic Ethernet Transceiver, 2 Port, 1 Fiber, SC/PC Connector, 2 Km</td>
</tr>
</tbody>
</table>

Other Connectors and Distances Available Upon Request
Standards | IEEE 802.3u 100BASE-TX/FX Fast Ethernet
---|---
Connection Ports | 1 Port UTP & 1 Port Fiber Switch; 1 RJ-45 100Mbps UTP port and 1 100Base-FX fiber port
Network Media | 100 BaseT: UTP category 5 100 BaseT: SC 62.5/125 microns multi-mode Fiber cable
Crossover Push Button | 1 crossover button for the UTP port
LED indicators | Power, Link/Activity, Full Duplex/Collision, 100Mbps
Physical Dimensions | 260mm x 44mm x 145mm
Environment | Temperature: Operating: 0°C to 40°C Storage: -20°C to 70°C Humidity: Operating: 10% to 90% RH Storage: 5% to 90% RH
Input Power Requirements: | Voltage: 110/220V Auto-sense Internal Power, USA
Registration | FCC Part 15 Class A, CE, UL, CUL, TUV, VCCI 1

Package Includes
- Two Port 100TX - 100FX Transceiver
- Power Cord
- Rack-mountable hardware
- Easy to follow owner’s manual

System Requirements
- IEEE 802.3 10BaseT Ethernet or IEEE 802.3u 100BaseTX Fast Ethernet

Warranty
- 5 year limited warranty
User’s Manual

MX100 Series

Fiber Optic Fast Ethernet Transceiver
MX100 Users Manual and Installation Guide

Section 1: Overview

Section 2: Installation Guide

Section 3: Switch Configuration Procedure

Section 4: Specifications
MX100 Overview

Product Features

- One-channel media conversion between 100BASE-TX and 100BASE-FX
- Fiber media allows:
  - multi-mode fiber using SC, ST, VF-45 or MT-RJ connector; single-mode fiber using SC connector
- Auto negotiation of speed and duplex mode on TX port
- One DIP switch for configuring fixed speed and full duplex modes
- Store-and-forward mechanism
- Full wire-speed forwarding rate
- Back-pressure & IEEE802.3x compliant flow control
- Front panel status LEDs
- One push button for uplink purpose
- Used as a stand-alone device or with a chassis
- Hot-swappable when used with a chassis

Ports

The Converter provides one TX port and one FX port. For the FX port, it provides options of either multi-mode or single-mode fiber and a wide range of connectors. For the TX port, it uses RJ-45 connector and full duplex 100Mbps.
Front Panel & LEDs

**MDI/MDI-X button**

There is one MDI/MDI-X button next to the TX port for uplink use. Push the button to enable the uplink function.

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**Front Panel - Single Fiber with SC/APC Fiber Optic Connectors**

Figure 2: Front Panel of MX100
**LED Indicators**

The LED indicators give you instant feedback on status of the converter:

<table>
<thead>
<tr>
<th>LEDs</th>
<th>State</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Steady</td>
<td>Power on</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>Power off</td>
</tr>
<tr>
<td>100 (Mbps)</td>
<td>Steady</td>
<td>Connection at speed of 100Mbps</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>Connection at speed of 10Mbps</td>
</tr>
<tr>
<td>LNK/ACT</td>
<td>Steady</td>
<td>A valid network connection established</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LNK stands for LINK</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td>Transmitting or receiving data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACT stands for ACTIVITY</td>
</tr>
<tr>
<td>FDX/COL</td>
<td>Steady</td>
<td>Connection in full duplex mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FDX stands for FULL-DUPLEX</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td>Collision occurred</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COL stands for COLLISION</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>Connection in half-duplex mode</td>
</tr>
</tbody>
</table>

**Upper Row:**
Fiber Optic Port LEDs

**Lower Row:**
100BaseTX LED Status
**Installation Procedure:**

1. Mount the unit in either an EIA 19" Rack, desk top or wallmount configuration.

2. Ensure that the unit is properly ventilated.

3. Connect AC power to the IEC Power Connector located in the rear of the unit.

4. Connect the Fiber Optic Connectors to the Fiber Span. Verify that the Link LED is Green when a compatible 100BaseFX transceiver is transmitting over the fiber.

5. Connect the 100Base-TX port to either a PC, HUB or Switch that supports 100Base-TX Links. Verify that the LINK LED is GREEN. If the LINK LED is NOT GREEN, toggle the front panel's MDI front from straight connection to a crossover connection.

6. When both the 100Base-TX LINK LED is GREEN and the 100Base-FX LINK LED is GREEN, test the link by PINGing a known IP address on the remote end.

**Troubleshooting Tips**

1. **100Base-TX LINK LED is NOT GREEN**
   a. Try toggling the front panel MDI switch
   b. Try a different CAT-5 Jumper

2. **100Base-FX LED is NOT GREEN**
   a. Verify that an Optical Signal is present
   b. Try looping back a fiber optic jumper from the TX port to the RX Port
Special Installation Note For MX100-1S-SCA-80 Models

The MX100-1S-SCA-80 model transmits full duplex on 1 fiber by using two wavelengths: 1310 and 1550. The following table indicates the wavelength for each version:

<table>
<thead>
<tr>
<th>Model</th>
<th>Wavelength</th>
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<tbody>
<tr>
<td>MX100-1S-SCA-80-13</td>
<td>1310 nm</td>
</tr>
<tr>
<td>MX100-1S-SCA-80-15</td>
<td>1550 nm</td>
</tr>
</tbody>
</table>

When installing MX100-1S-SCA-80 version, install the 1310nm version at one end of the link and the 1550nm version at the other end of the link, as shown.

*Note: The MX100s WILL NOT operate correctly if the same version is installed at both ends.*
Installation Procedure for Units with Configuration Switches:

1. Remove Power from Unit, remove AC power cord and remove Top Cover

2. Locate Configuration Switches.
   *If Configuration Switches not present, use the installation procedure for units without switches*

3. **For units with configuration switches:**
   a. turn S1, S3, S5 and S6 to ON (UP).
   b. Verify that Switches S2 and S4 are OFF (DOWN).

4. Replace Top Cover and re-install the unit