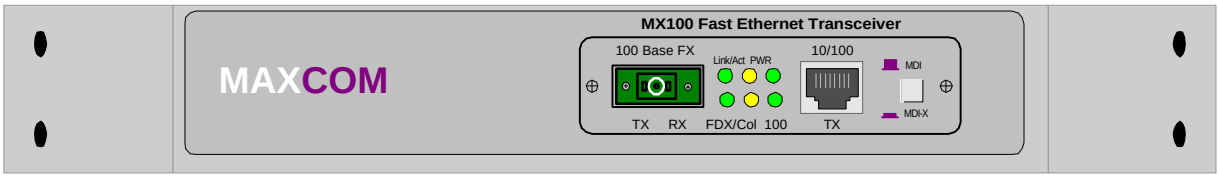
Fiber Optic 100 Mbps Ethernet Transceiver

Model MX100



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.

The MX100 provides auto-sensing detection of full duplex or half duplex signaling. It has easy-to-read diagnostic LED's for continuous status reports on network speed, duplex media access control connection, and network traffic. The MX100 uses standard RJ-45 UTP/STP and SC or SC/APC fiber optic connectors and is IEEE 802.3u 100BASE-TX/FX compliant and operates with all devices that adhere to this standard.

Features

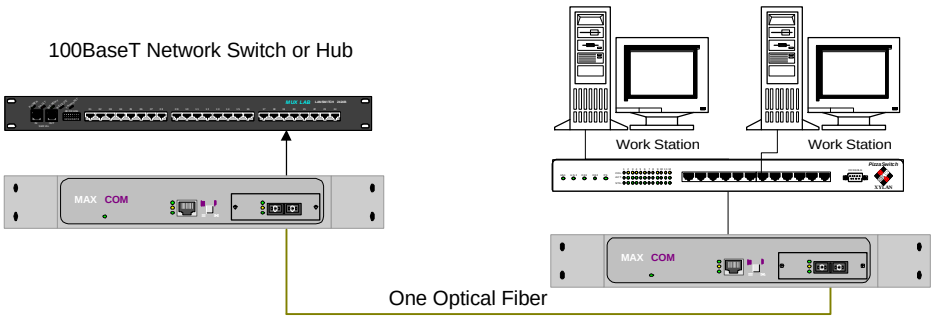
- 100Mbps Full Duplex
- One 100BaseT Port
- One 100BaseFX Fiber Port
- 80 Km Transmission Range
- 1 or 2 Fiber Strand Transmission
- Provide full wire-rate 200Mbps Duplex Transmission for greater network performance
- Plug-n-Play Ethernet & Fast Ethernet Switch
- IEEE 802.3u Compliant
- Guaranteed Switch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

Model Selection Guide

Model	*Description*
MX100-1S-SCA-40	100Base Fiber Optic Ethernet Transceiver, 2 Port, 1 Fiber, SC/APC Connector, 40 Km
MX100-1S-SCA-80	100Base Fiber Optic Ethernet Transceiver, 2 Port, 1 Fiber, SC/APC Connector, 80 Km
MX100-2S-SCA-60	100Base Fiber Optic Ethernet Transceiver, 2 Port, 2 Fiber, SC/APC Connector, 60 Km
MX100-2S-SCA-110	100Base Fiber Optic Ethernet Transceiver, 2 Port, 2 Fiber, SC/APC Connector, 110 Km
MX100-1M-SC-2	100Base Fiber Optic Ethernet Transceiver, 2 Port, 1 Fiber, SC/PC Connector, 2 Km

Other Connectors and Distances Available Upon Request

Application Drawing



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: 0C to 40C Storage: -20C to 70C 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.u 100BaseTX Fast Ethernet

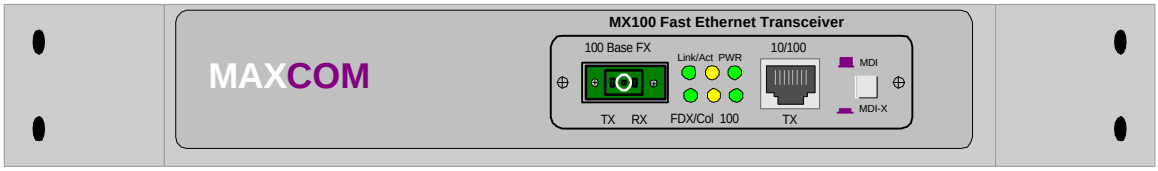
Warranty

- ***5 year limited warranty***

MAXCOM
711 S. Carson St.
Carson City, NV 89701
Tel: (800) 493-2167
Fax: (209) 333-0388

User's Manual

MX100 Series



Fiber Optic Fast Ethernet Transceiver

MX100 Users Manual and Installation Guide

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.

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

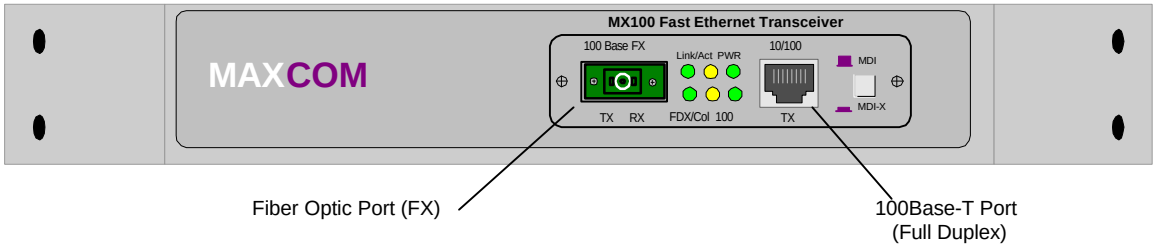


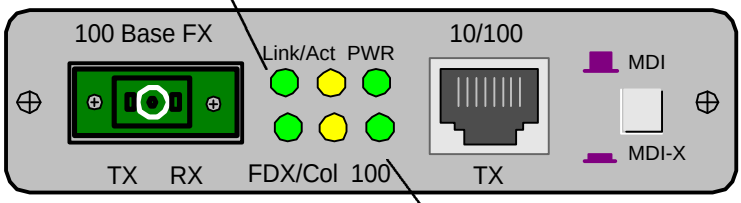
Figure 2: Front Panel of MX100

LED Indicators

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

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

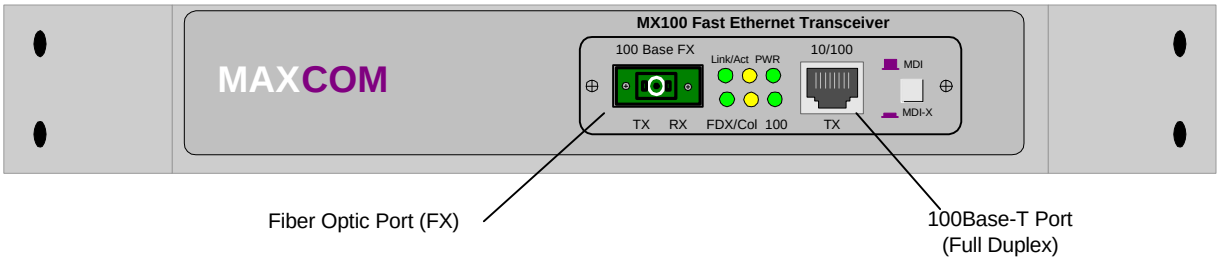
Upper Row:
Fiber Optic Port LEDs



Lower Row:
100BaseTX LED Status

MX100 Installation Guide

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



Fiber Optic Port (FX)

100Base-T Port
(Full Duplex)

Rear Panel

On / Off Switch

AC Power Connector

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

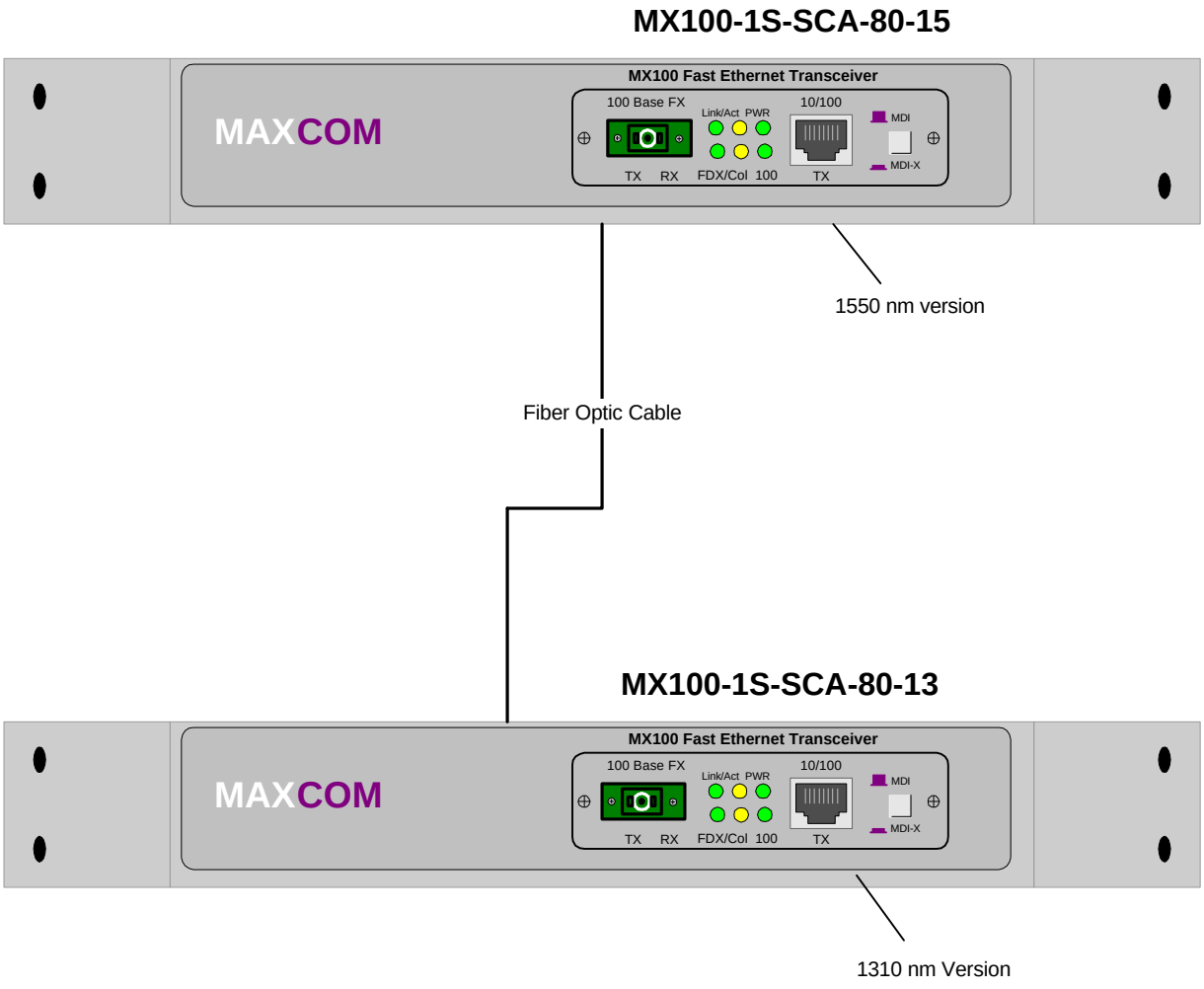
2. ***100Base-FX LED is NOT GREEN***
   a. Verify that an Optical Signal is present
   b. Try looping back a fiber optic jumper from the TX port to the RX Port

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:

Model	Wavelength
MX100-1S-SCA-80-13	1310 nm
MX100-1S-SCA-80-15	1550 nm

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.

MX100 Configuration:
100Base Transceiver, Full Duplex Switch Settings

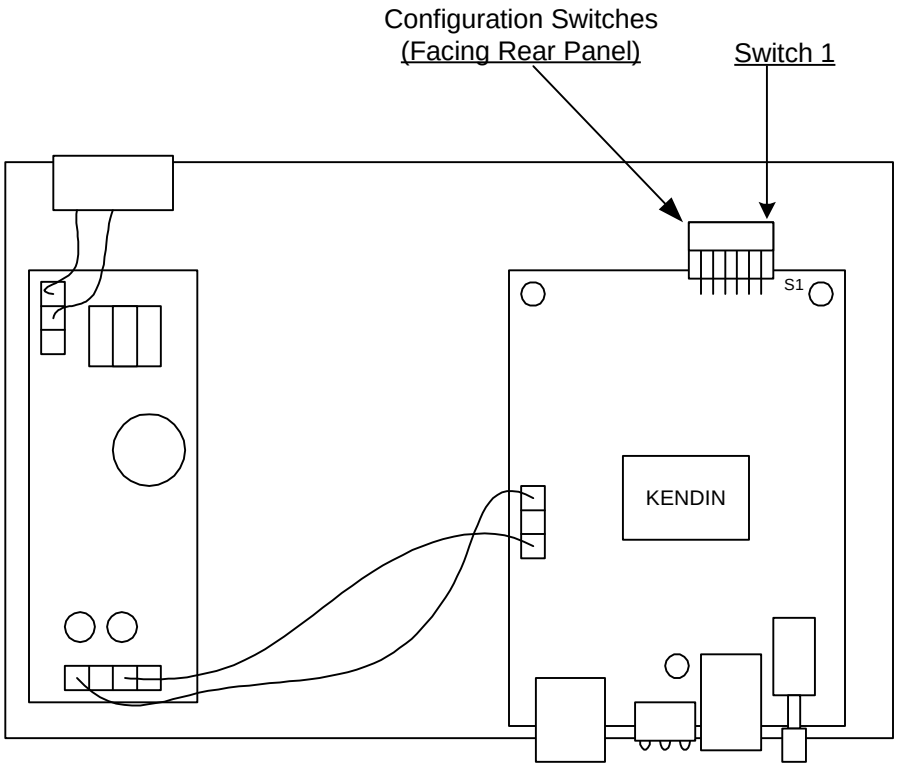
Installation Procedure for Units with Configuration Switches:

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

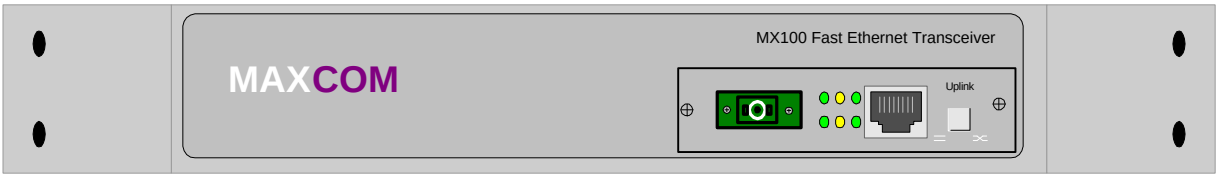
2. Locate Configuration Switches.
   If Configuration Switches not present, *use the installation procedure for units without switches*

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



Top View



MX100 Front Panel