



Fiber Optic 10/100 Base-T Ethernet Transmission System

Installation Instructions

Part Numbers:

MX-1R-SFP

(10/100 Base-T Ethernet Extender)

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Table of Contents

1.0	Product Description	3
2.0	Installation	3
3.0	Product Signal Format & Specifications	3
3.1	Optical Specifications	4
4.0	Data Connector Pin Assignment & MDI/MDI-X Configuration	4
5.0	Module Pinout Diagram	6
6.0	Troubleshooting	8

MX-1R-SFP

10/100 Base-T Ethernet Data Transmission System

Installation Instructions

1.0 Product Description

Meridian's MX-1R-SFP products are 10/100 Base-T fiber optic Ethernet extender modems that transmit & receive one channel of bi-directional 10/100 Base-T Ethernet data over SFP optical fiber using digital transmission technologies. The MX-1R-SFP is the stand-alone model. This product is powered by internal switching power supply and will accept 12-24VAC or DC. For the MX-1X1-SFP-DC the power supply is 5VDC. This power input is optional for this module and it's available only if it is specified in the order.

SFP optical modules are supported. This SFP gives you the option for singlemode, multimode or CWDM wavelength selections by simply plugging in the appropriate SFP module.

Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

The MX-1R-SFP is a shelf mount module and can be mounted in either a horizontal or vertical configuration. There are two mounting holes for # 8 (maximum) hardware. A 2-pin plug-in connector is located on the side of the module for power. For proper operation of this module Meridian recommends the WP-24 power supply for 12-24VAC/DC or WP-5 power supply for 5VDC power input.

3.0 Product Signal Format & Specifications

The tables below identify the specifications for the various signals that these modems transmit/receive.

Data	
Formats	IEEE 802.3 CSMA/CD IEEE 802.3i 10Base-T IEEE 802.3u 100Base-T
Date Rate	10/100 Mb/s, Auto select
Bit Error Rate (BER)	Better than 10^{-9}

Connectors	
Data	RJ-45
Optical	LC, SC – SFP dependent

3.1 Optical Specifications

The SFP series products are available for both single-mode and multimode fiber applications and either one or two fiber versions. Recommended optical speed for this product 155 Mbps. Refer to optical SFP table in for complete part and ordering information.

For more specifications on a SFP optic devices refer to SFP data sheet on Meridian website:

http://www.meridian-tech.com/downloads/datasheets/datasheet_SFP_optical_devices-x.pdf

4.0 Data Connector Pin Assignment & MDI/MDI-X Configuration

This product series utilizes an RJ-45 Ethernet data connector with standard pin assignments. In addition, these Meridian modems can be configured for both MDI & MDI-X (cross-connect) configurations. The table below shows these pin assignments for both MDI and MDI-X configurations.

Pin #	MDI Configuration	MDI-X Configuration
1	Transmit (+)	Receive (+)
2	Transmit (-)	Receive (-)
3	Receive (+)	Transmit (+)
4	N/A	N/A
5	N/A	N/A
6	Receive (-)	Transmit (-)
7	N/A	N/A
8	N/A	N/A

MXA-1R-x module come pre-configured for MDI connection that connects to LAN. And MXB-1R-x module come pre-configured for MDI-X connection that connects to Computer. Changing to an MDI or MDI-X configuration is simple. See the photograph below in Figure 4.1 for the jumper location that is used to convert the module from an MDI to and MDI-X configuration.

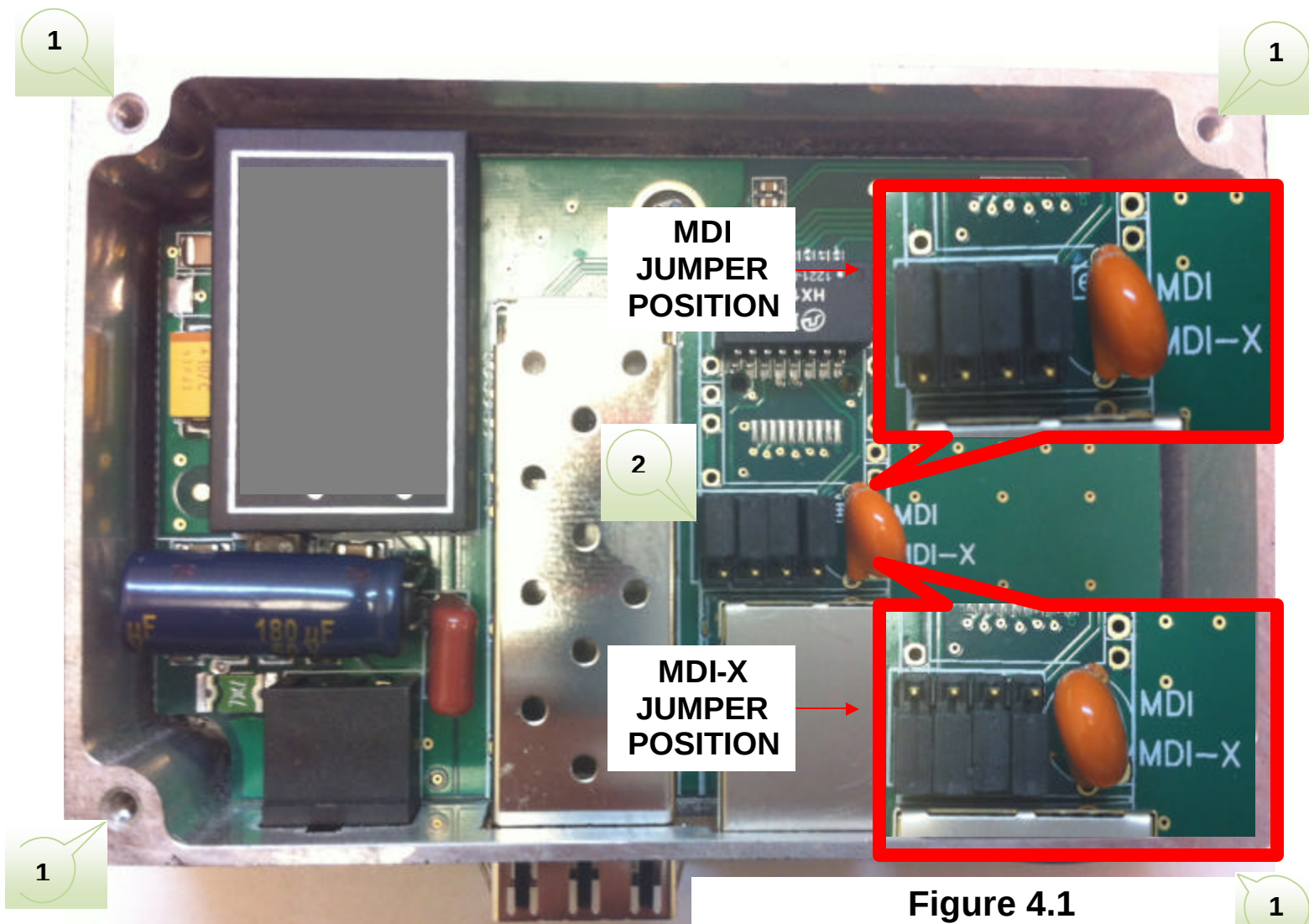


Figure 4.1
Ethernet Module MDI/MDI-X
Jumper Location

Directly behind the RJ-45 Ethernet connector is the four jumpers that converts the module from its MDI configuration to the MDI-X (cross connect) configuration. Follow the steps below to change connection configurations

1. Position the module as shown in the above photograph and remove the side cover by removing the 4 screws in the corners of the side cover.
2. Locate the jumpers on it. This will be directly behind the RJ-45 connector and pull directly upwards (away from the circuit board) being careful not to bend the pins on the circuit board.
3. Move the jumpers toward the RJ-45 connector and place back on the header, being careful not to bend the jumper leads on the circuit board. Seat firmly on the leads.
4. Replace side cover and secure with the 4 screws.
5. Repeat, as required, with the other unit.

5.0 Module Pinout Diagram

Figures 5.1 & 5.2 below show the module, LED lights and SFP optical ports location for MX-1R-SFP.

MX-1R-SFP

PINOUT DIAGRAM

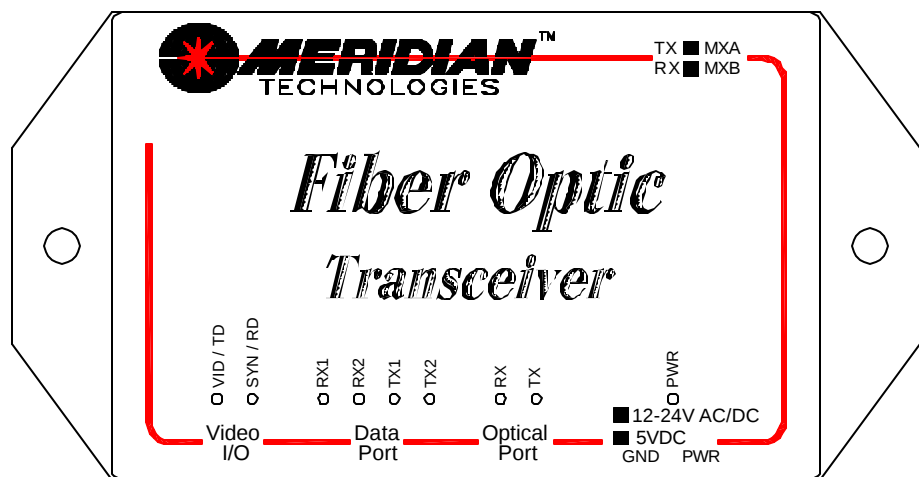
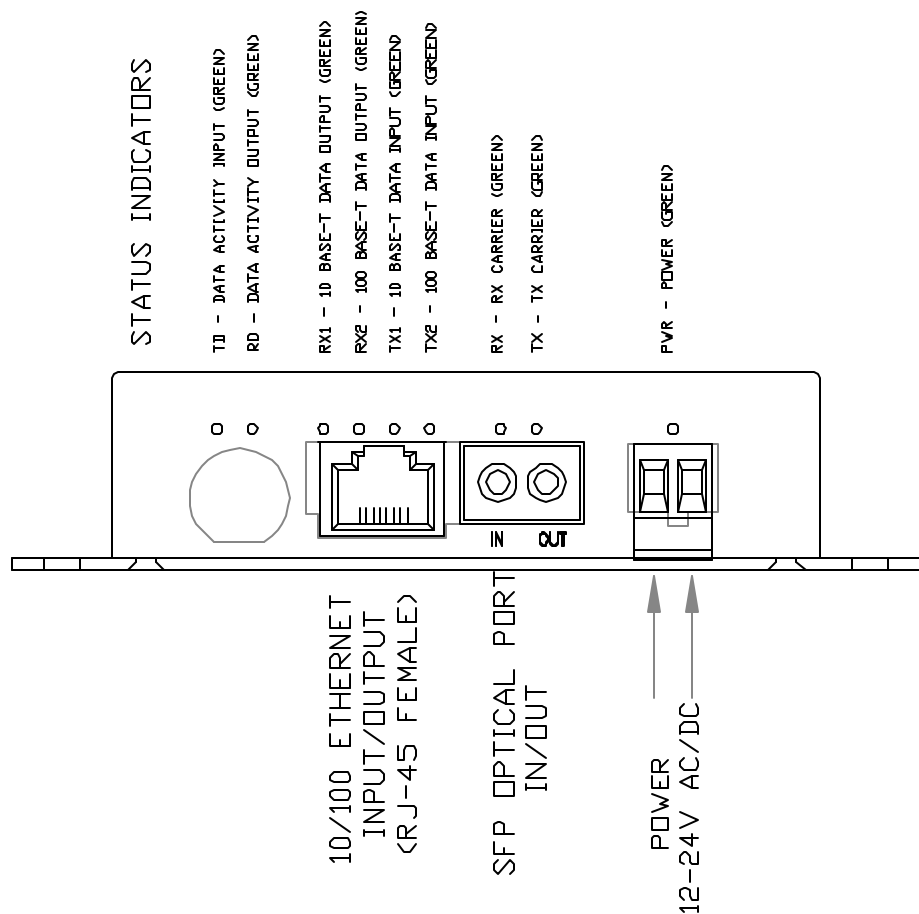


Figure 5.1

MX-1R-SFP Module Pinout Diagram

(With standard 12-24V
AC/DC Power)



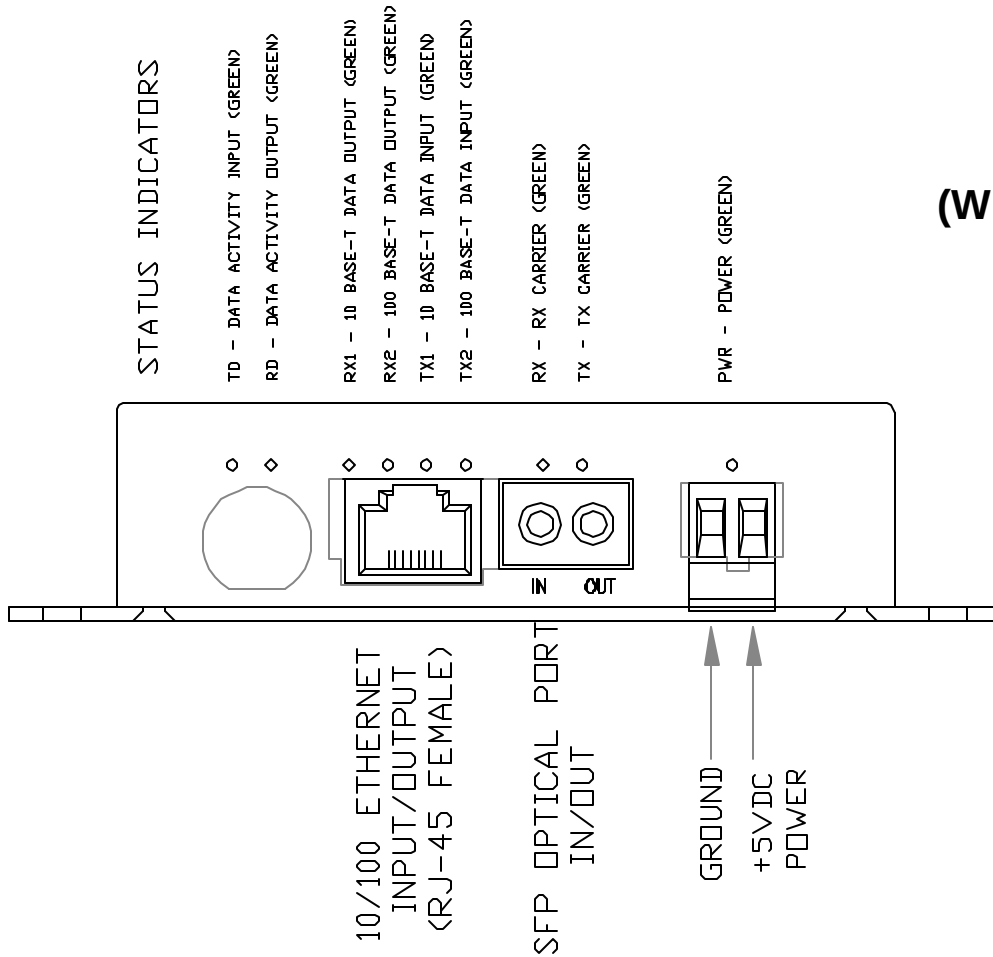
MX-1R-SFP-DC

Figure 5.2

PINOUT DIAGRAM

MX-1R-SFP-DC Module Pinout Diagram

(With optional 5V DC
Power)



5.1 LED Status Indicators

The modules diagram shown in section 5.0 There are a number of indicator lights that provide visual operational status of the modules and link.

The function of these LED indicators is as follows:

- PWR - Green (normal) - when power is applied to the module
- TD - TX Data Green flashing (normal) when data is being transmitted out of module
- RD - RX Data Green flashing (normal) when data is being received into module
- RX1 - Green – when receiving 10 Base-T data
- RX2 - Green – when receiving 100 Base-T data
- TX1 - Green – when transmitting 10 Base-T data
- TX2 - Green – when transmitting 100 Base-T data
- Rx - Optical signal input Green – OK
- Tx - Optical laser driver output Green – OK

6.0 Troubleshooting

Below is a listing of several problems that may arise during the installation & operation of the modules. If you are having difficulty installing or operating the modules please refer to this list below.

Problem: *No Data*

Action: 1 – One fiber units (MXA/MXB) – Check to ensure that an MXA unit is optically connected to an MXB unit. An MXA or an MXB will not communicate with a module of the same type MXA or MXB.
2 - Check that both of the modules have the MDI/MDI-X jumpers set correctly for the application.

Problem: *No Tx laser driver light*

Action: Check to see that the correct SFP module properly installed into socket.

Problem: *No Rx optical signal light*

Action: Received optical signal absent or low. Check fiber connection and optical power at receiver.

If the problem still persists after reviewing the above items, please contact Meridian technical support (+1-516-285-0570).

Physical dimensions

Length3.5" (9 cm)
Width 2.3" (6 cm)
Depth..... 1" (2.5 cm)
Weight0.5 lb (213 gm)

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