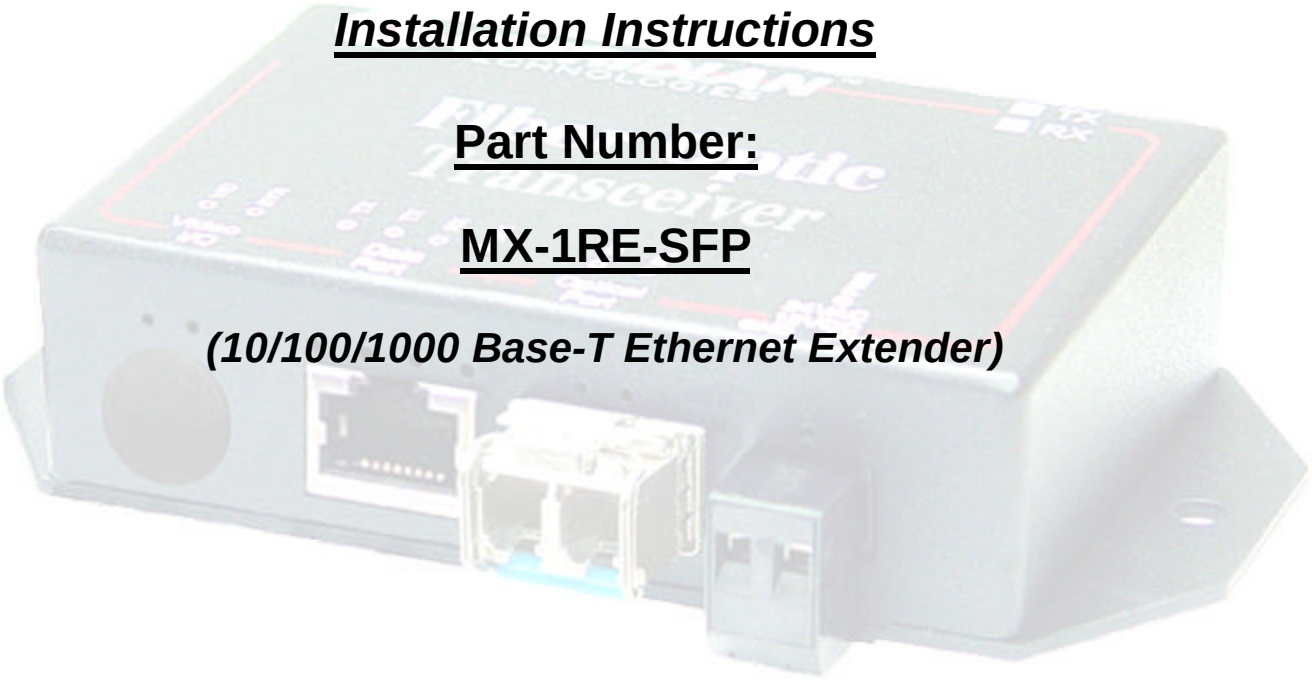
Fiber Optic 10/100/1000 Base-T Ethernet Transmission System

Installation Instructions



Part Number:

MX-1RE-SFP

(10/100/1000 Base-T Ethernet Extender)

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1.0 Product Description

Meridian's MX-1RE-SFP products are 10/100/1000 Base-T fiber optic Ethernet extender modems that transmit & receive one channel of bi-directional 10/100/1000 Base-T Ethernet data over SFP optical fiber using digital transmission technologies.
The MX-1RE-SFP is the stand-alone model. This product is powered by internal switching power supply and will accept 12-24V AC or DC. For the MX-1RE-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. For the 5VDC power option add "DC" on the end of the part number.

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 12-24V AC/DC (default) or WP-5 power supply for 5VDC (optional) 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 IEEE 802.3ab 1000Base-T
Date Rate	10/100/1000 Mb/s, Auto select
Bit Error Rate (BER)	Better than 10^{-9}
Fiber data rate	1250 Mb/s

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

3.1 Optical Specifications

The SFP series products are available for both single-mode and multimode fiber applications and ether one or two fiber versions. Recommended optical speed for this product is 1.25Gbps. 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

This product series utilizes an RJ-45 Ethernet data connector with standard pin assignments. The table below shows pin assignment configurations.

Pin #	Configuration
1	Transmit (+)_D1
2	Transmit (-)_D1
3	Receive (+)_D2
4	Bi-directional(+)_D3
5	Bi-directional(-)_D3
6	Receive (-)_D2
7	Bi-directional(+)_D4
8	Bi-directional(-)_D4

5.0 Module Pinout Diagram

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

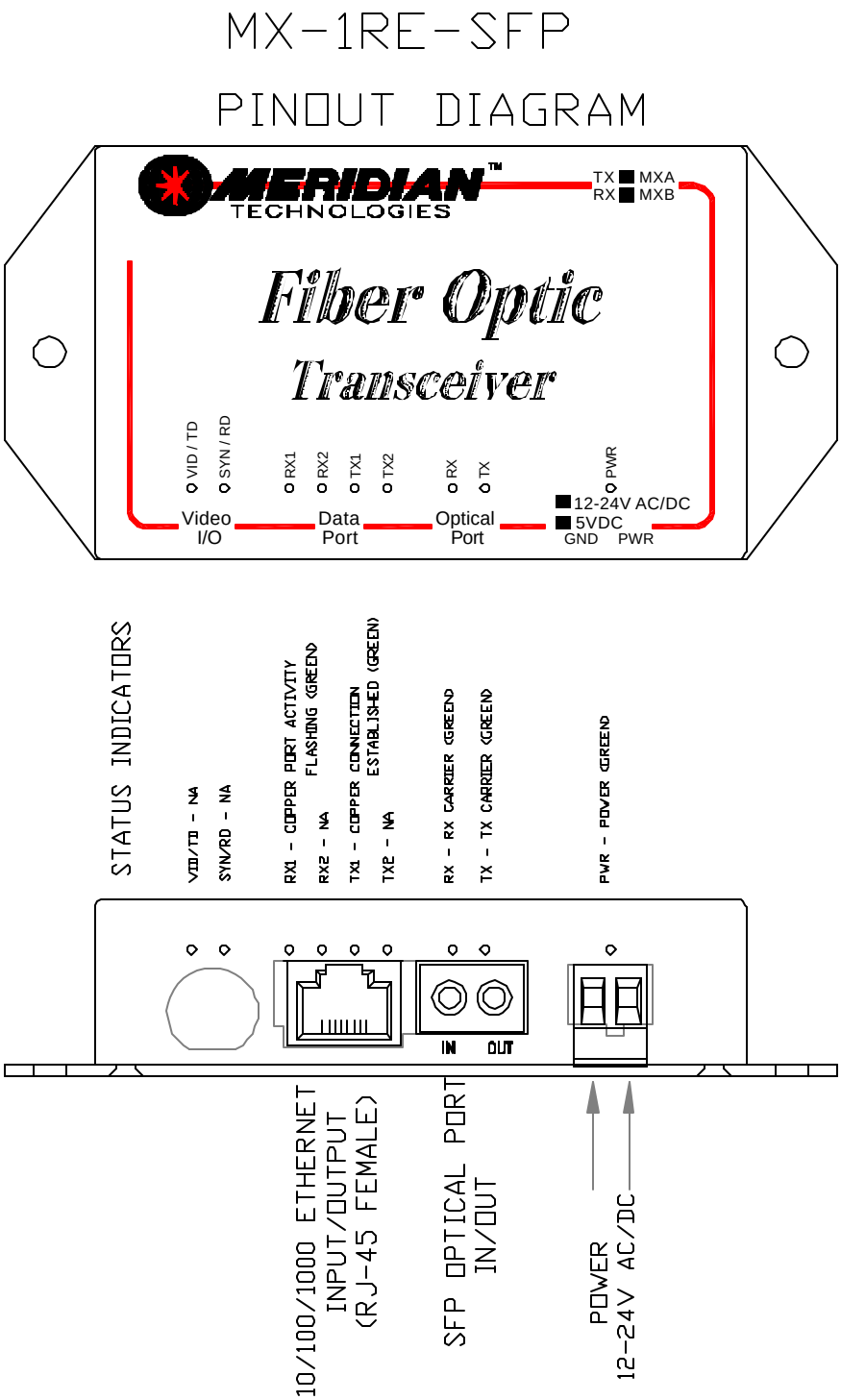

Figure 5.1

MX-1R-SFP Module Pinout Diagram

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

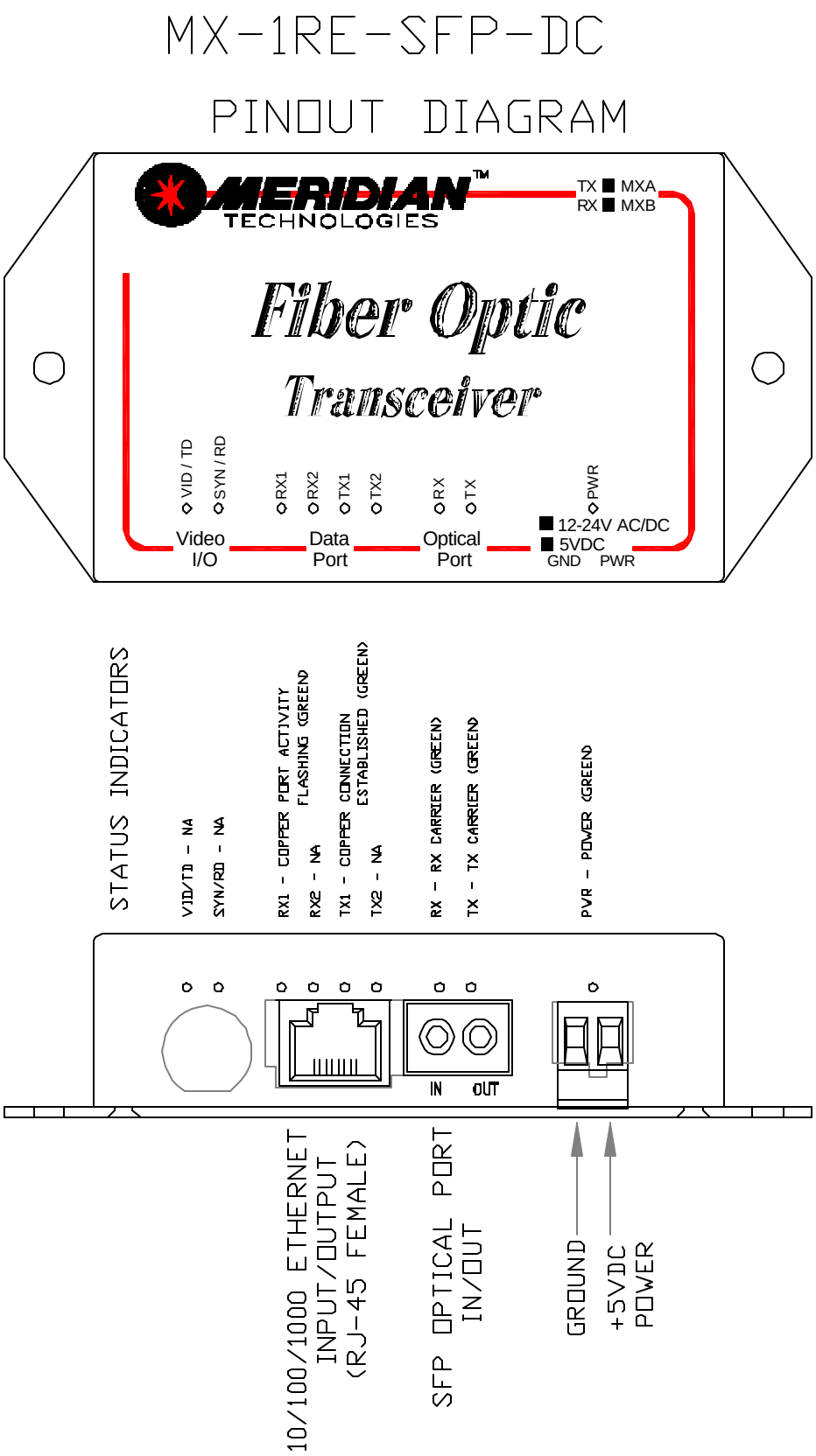

Figure 5.2

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
TX - Green – Optical carrier output
RX - Green – Optical carrier input
TX1 - Green – Copper connection established
RX1 - Green – Copper port activity flashing

6.0 Signal Conditioning Switch Settings

A group of 4 switches is located on the right side of the module's circuit card.
The first switch controls the LFPT format. The LFPT (Link Fault Pass Through) means the link fault on the one side (local side) media converter will be passed to the media converter on the other side (remote side). For example, if the media converter on side A (local side) has the copper link loss, the media converter will disable fiber port. The media converter on the side B (remote side) will know there is the link error and will also disconnect copper port. The LFP function can immediately alarm network administrators about link loss problem and provide efficient solution to monitor the network.

The second switch controls the auto select speed, by changing switch 2 to ON (down) position the data rate locks on 100Mbps.

The factory-supplied setting is LFPT Enable and Auto select data rate speed. (Switches #1-2 set in the OFF ("UP") position).

The figure and table below illustrates these switch locations on the board and how they are configured for the proper format options.

Format Selection Switch Settings		
Switch #1	LFPT Disable - ON (down)	*LFPT Enable - OFF (up)*
Switch #2	100Mbs force Enable - ON (down)	*Auto select speed - OFF (up)*

The remaining switches should be in the OFF (up) position.

Ethernet Test Signal		
	Down Position(ON)	Up Position(OFF)*
Switch #1	0-Ch.1 LFPT Disable	1-LFPT Enable
Switch #2	0-100Mbs Force Enable	1-Auto Select Speed

*Default switch settings all up-off(1).

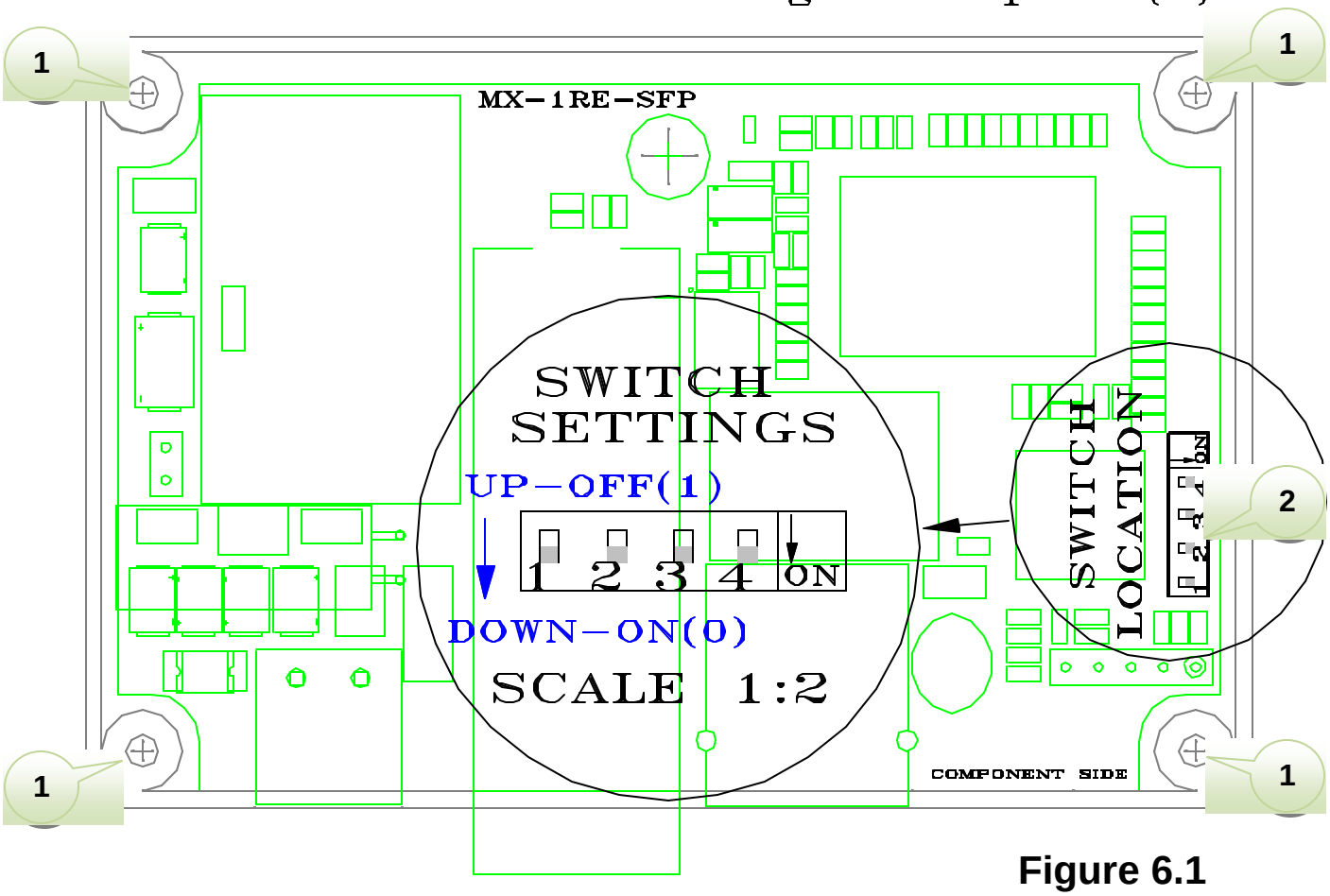

Figure 6.1
Module Switch

6.1 Changing Default Switch Settings

The factory switch settings LFPT Enable to LFPT Disable can be easily changed as follows:

1. Position the module as shown in the above photograph and remove the bottom cover by removing the 4 screws in the corners of the side cover.
2. Locate the Switch. It will be on the right side of the circuit board.
3. Configured the proper format options according to the table in Figure 6.1
4. Carefully place the bottom cover and secure with the 4 screws.
5. Repeat, as required, with the other unit.

7.0 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: *Card power LED does not light when power to the module is applied or power indicator turns on and off*
Action: Check power supply to ensure that it is plugged in and turned on.

Problem: *No Tx Carrier light*
Action: Check to see that the correct SFP module properly installed into socket.

Problem: *No Rx Carrier light*
Action: Received optical signal absent or low. Check fiber connection and optical power at receiver.

Problem: *No Data*
Action: With a two-fiber SFP, verify that the Tx and Rx fibers are connected correctly at both ends of the link (Tx to Rx & Rx to Tx)
Only Gigabit SFP modules are compatible with these cards.

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

Physical dimensions

Length ……3.6“ (9.2 cm)
Width ……. 2.4“ (6 cm)
Depth…….……. 1“ (2.5 cm)
Weight ……0.34 lb (150 gm)

Notes:

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