



Fiber Optic 10/100/1000 Base-T Ethernet

Installation Instructions

Part Number:

SX-2RE-SFP

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

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SX-2RE-SFP

10/100/1000 Base-T Ethernet Data Transmission System

Installation Instructions

1.0 Product Description

Meridian's SX-2RE-SFP products are SFP based 10/100/1000 Base-T fiber optic Ethernet extender modems that transmit & receive two channels of bi-directional 10/100/1000 Base-T Ethernet data over four optical fibers using digital transmission technologies. This product series uses Meridian's standard 1-slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-500/S, SR-1000/S, SR-1001/S, SR-1002/S, SR-1200/S, SR-1500/S, SR-1600/S and SR-2001 & SR-2000 series equipment chassis.

SFP optical modules are supported. Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series SX-2RE-SFP products are one-slot wide cards and, as such, occupy one slot in Meridian's standard chassis. To install in these chassis, orient the card with the Meridian logo at the top of the module and slide onto the top and bottom card guides in the chassis. Press securely on the top and bottom of the module to ensure that it is fully seated in the chassis so that the electrical connector mates with the chassis-mounted motherboard. Once installed, manually tighten the two thumbscrews located at the top and bottom of the card. Do not use tools to secure these and do not over tighten.

Note: A fully loaded 19" subrack should have forced-air cooling to avoid excessive heat generation inside the chassis. A fan assembly tray (P/N FA-2000) with three (3) fans is available and should be installed under the 19" SR-2000/1 whenever possible.

3.0 Product Part Number Description

The SX-2RE-SFP series products are available in either one or two fiber versions. Refer to optical SFP table in figure 6.0 for complete part and ordering information.

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

Connectors	
Data	RJ-45
Optical	SFP
Fiber data rate	1250 Mb/s

4.0 Data Connector Pin Assignment

This product series utilizes an RJ-45 Ethernet data connector with standard pin assignments.

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

5.0 Operation/Front Panel LED Indicators

The front panel diagram is shown below. 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
- DIAG - NA
- GREEN - Green steady – when copper connection established
 - Green flashing – when copper port activity
 - Green OFF – when fault detected
- AMBER - Green steady – when fiber connection established
 - Green flashing – when fiber port activity
 - Green OFF – when fault detected

SX-2RE-SFP

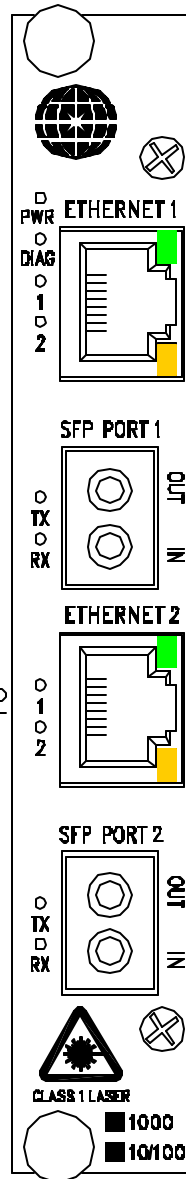
PINOUT DIAGRAM

1000 ETHERNET INPUT/OUTPUT CH.1
(RJ-45 FEMALE)

OPTICAL PORT IN/OUT CH.1

1000 ETHERNET INPUT/OUTPUT CH.2
(RJ-45 FEMALE)

OPTICAL PORT IN/OUT CH.2



STATUS INDICATORS

PWR - POWER (GREEN)

DIAG - NA

GREEN STEADY - COPPER CONNECTION ESTABLISHED
FLASHING - COPPER PORT ACTIVITY
OFF - FAULT DETECTED

AMBER STEADY - FIBER CONNECTION ESTABLISHED
FLASHING - FIBER PORT ACTIVITY
OFF - FAULT DETECTED

GREEN STEADY - COPPER CONNECTION ESTABLISHED
FLASHING - COPPER PORT ACTIVITY
OFF - FAULT DETECTED

AMBER STEADY - FIBER CONNECTION ESTABLISHED
FLASHING - FIBER PORT ACTIVITY
OFF - FAULT DETECTED

Figure 5.1
10/100/1000 Ethernet Module Front Panel

6.0 Optical Specifications

The table below lists the SFP optical specifications for both singlemode and multimode fiber applications.

Meridian Model #	Speed	Fiber*	Optical							Distance
			Wavelength Tx (nm)	Launch Power (dbm)	Wavelength Rx (nm)	Rx Sensitivity (dbm)	Budget (dbm)	Fibers	Connector	
MM1313F2	155Mbps	MM	1310	-19	1310	-31	11	2	LC	2km
MM1315F2	155Mbps	MM	1310	-15	1550	-30	15	1	SC	2km
MM1513F2	155Mbps	MM	1550	-15	1310	-30	15	1	SC	2km
SM1313F20	155Mbps	SM	1310	-15	1310	-31	16	2	LC	20km
SM1313F40	155Mbps	SM	1310	-14	1310	-34	20	2	LC	40km
SM1313F60	155Mbps	SM	1310	-5	1310	-34	29	2	LC	60km
SM1315F20	155Mbps	SM	1310	-12	1550	-33	21	1	SC	20km
SM1513F20	155Mbps	SM	1550	-12	1310	-33	21	1	SC	20km
SM1315F40	155Mbps	SM	1310	-8	1550	-33	25	1	SC	40km
SM1513F40	155Mbps	SM	1550	-8	1310	-33	25	1	SC	40km
SM1315F60	155Mbps	SM	1310	-5	1550	-34	29	1	SC	60km
SM1513F60	155Mbps	SM	1550	-6	1310	-34	28	1	SC	60km
MM8585G	1.25Gbps	MM	850	-9	850	-17	8	2	LC	550 Meters**
MM1315G	1.25Gbps	MM	1310	-10	1550	-17	7	1	SC	550 Meters**
MM1513G	1.25Gbps	MM	1550	-10	1310	-17	7	1	SC	550 Meters**
SM1313G20	1.25Gbps	SM	1310	-6	1310	-22	16	2	LC	20km
SM1313G40	1.25Gbps	SM	1310	-2	1310	-24	22	2	LC	40km
SM1313G60	1.25Gbps	SM	1550	-5	1550	-24	19	2	LC	60km
SM1315G20	1.25Gbps	SM	1310	-8	1550	-22	14	1	SC	20km
SM1513G20	1.25Gbps	SM	1550	-8	1310	-22	14	1	SC	20km
SM1315G40	1.25Gbps	SM	1310	-3	1550	-23	20	1	SC	40km
SM1513G40	1.25Gbps	SM	1550	-3	1310	-23	20	1	SC	40km
SM1315G60	1.25Gbps	SM	1310	-1	1550	-26	25	1	SC	60km
SM1513G60	1.25Gbps	SM	1550	-3	1310	-26	23	1	SC	60km
SM1514G20	1.25Gbps	SM	1550	-5	1490	-24	19	1	SC	20km
SM1415G20	1.25Gbps	SM	1490	-5	1550	-24	19	1	SC	20km

Figure 6.1

The table below lists the CWDM SFP optical specifications for singlemode application.

Meridian Model #	Speed	Fiber*	Optical							Distance
			Wavelength Tx (nm)	Launch Power (dbm)	Wavelength Rx (nm)	Rx Sensitivity (dbm)	Budget (dbm)	Fibers	Connector	
SMC1270G20	1.25Gbps	SM	1270	-5	1270-1610	-24	19	2	LC	20km
SMC1290G20	1.25Gbps	SM	1290	-5	1270-1610	-24	19	2	LC	20km
SMC1310G20	1.25Gbps	SM	1310	-5	1270-1610	-24	19	2	LC	20km
SMC1330G20	1.25Gbps	SM	1330	-5	1270-1610	-24	19	2	LC	20km
SMC1350G20	1.25Gbps	SM	1350	-5	1270-1610	-24	19	2	LC	20km
SMC1370G20	1.25Gbps	SM	1370	-5	1270-1610	-24	19	2	LC	20km
SMC1390G20	1.25Gbps	SM	1390	-5	1270-1610	-24	19	2	LC	20km
SMC1410G20	1.25Gbps	SM	1410	-5	1270-1610	-24	19	2	LC	20km
SMC1470G20	1.25Gbps	SM	1470	-5	1270-1610	-24	19	2	LC	20km
SMC1490G20	1.25Gbps	SM	1490	-5	1270-1610	-24	19	2	LC	20km
SMC1510G20	1.25Gbps	SM	1510	-5	1270-1610	-24	19	2	LC	20km
SMC1530G20	1.25Gbps	SM	1530	-5	1270-1610	-24	19	2	LC	20km
SMC1550G20	1.25Gbps	SM	1550	-5	1270-1610	-24	19	2	LC	20km
SMC1570G20	1.25Gbps	SM	1570	-5	1270-1610	-24	19	2	LC	20km
SMC1590G20	1.25Gbps	SM	1590	-5	1270-1610	-24	19	2	LC	20km
SMC1610G20	1.25Gbps	SM	1610	-5	1270-1610	-24	19	2	LC	20km
SMC1270G24	1.25Gbps	SM	1270	-5	1270-1610	-24	24	2	LC	40km
SMC1290G24	1.25Gbps	SM	1290	0	1270-1610	-24	24	2	LC	40km
SMC1310G24	1.25Gbps	SM	1310	0	1270-1610	-24	24	2	LC	40km
SMC1330G24	1.25Gbps	SM	1330	0	1270-1610	-24	24	2	LC	40km
SMC1350G24	1.25Gbps	SM	1350	0	1270-1610	-24	24	2	LC	40km
SMC1370G24	1.25Gbps	SM	1370	0	1270-1610	-24	24	2	LC	40km
SMC1390G24	1.25Gbps	SM	1390	0	1270-1610	-24	24	2	LC	40km
SMC1410G24	1.25Gbps	SM	1410	0	1270-1610	-24	24	2	LC	40km
SMC1470G24	1.25Gbps	SM	1470	0	1270-1610	-24	24	2	LC	40km
SMC1490G24	1.25Gbps	SM	1490	0	1270-1610	-24	24	2	LC	40km
SMC1510G24	1.25Gbps	SM	1510	0	1270-1610	-24	24	2	LC	40km
SMC1530G24	1.25Gbps	SM	1530	0	1270-1610	-24	24	2	LC	40km
SMC1550G24	1.25Gbps	SM	1550	0	1270-1610	-24	24	2	LC	40km
SMC1570G24	1.25Gbps	SM	1570	0	1270-1610	-24	24	2	LC	40km
SMC1590G24	1.25Gbps	SM	1590	0	1270-1610	-24	24	2	LC	40km
SMC1610G24	1.25Gbps	SM	1610	0	1270-1610	-24	24	2	LC	40km

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: *Module does not fit in chassis slots*

Action: Check module orientation. Meridian “Globe” must be oriented on the top left hand side of the module. Make sure the card guides in the chassis are aligned with the extrusion on the module.

Problem: *Card power LED does not light when power to the module/subrack is applied or power indicator turns on and off*

Action: Check power supply to ensure that it is plugged in and turned on. If flashing continues, move module to another chassis or location in the same chassis, if available.

Problem: *No Data*

Action: Check to see that the correct SFP modules are installed properly into their sockets.

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 (516-285-1000).

Notes:

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