



Fiber Optic Data Transmission System

Installation Instructions

SX-2C2F/2C2F-x

Data & Contact Closure Transceiver

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1.0 Product Description

Meridian's product series ***SX-2C2F/2C2F-x*** is fiber optic modem that transmit & receive two bi-directional RS-422 Data and two bi-directional Contact Closure channels over two 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-1002/S, SR-1600/S, and SR-2001 & SR-2000 series 19" equipment chassis.

Both ST and FC optical connectors are supported, depending on the part number.

An ST optical interface is available for both multimode and single-mode fiber applications.

The FC optical interface is available only for single-mode products. Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series ***SX-2C2F/2C2F-x*** products are one-slot wide cards and occupy one slot in Meridian's standard chassis (SR-500/S, SR-1002/S, SR-1600/S, and SR-2001 & SR-2000 series 19" equipment chassis). To install in these chassis, orient the card with the Meridian logo at the top of the module and slide it in 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 Signal Format & Specifications

The ***SX-2C2F/2C2F-x*** series products can be configured to transmit and receive the following signals:

Signal Type	Channels
RS-422 Data (Tx & Rx)	2
Contact Mapping (Tx & Rx)	2

Specifications:

Data	
Formats	RS-422, Manchester, Bi- Phase
Data Rate (RS-422)	DC to 300Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

Contact Mapping	
Contact type	Relay, normally-open, normally-closed, jumper selectable, Isolated contacts
Contact rating	0.3amps, 30 VAC/VDC
Contact bounce	5 msec
Max switching rate	10Hz

Connectors	
Data / Contact	DB25F (25 pin Female 'D' style connector)
Optical	Single-mode – ST or FC Multimode - ST

3.1 Optical Specifications

The table below lists the optical specifications for both single-mode and multimode fiber applications.

Optical Specifications						
Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)
Multimode (FP Laser) 62.5/125	-5	-26	21	1300/850	ST	24
Single-mode (FP Laser) 9/125	-5	-26	21	1310/1550	ST, FC	24
Single-mode (FP Laser) 9/125	-5	-26	21	1550/1570	ST, FC	24

4.0 Data Connector Pin Assignment

The 25-pin connector on the front of the module is used for both, Data and Contact interfaces. Refer to the table below for the signal pin-outs.

Pin #	RS-422	Contact Closures
1	GND	GND
2	Ch 2 IN (-)	-----
3	Ch 2 OUT (-)	-----
4	Ch 1 IN (-)	-----
5	Ch 1 OUT (-)	-----
6	-----	Ch 1 IN
7	GND	GND
8	-----	Ch 1 OUT
9	-----	Ch 2 OUT
10	-----	-----
11	-----	-----
12	-----	-----
13	-----	-----
14	Ch 2 IN (+)	-----
15	Ch 2 OUT (+)	-----
16	Ch 1 IN (+)	-----
17	Ch 1 OUT (+)	-----
18	-----	Ch 2 IN
19	-----	+5VDC
20	-----	Ch 1 OUT
21	-----	Ch 2 OUT
22	-----	-----
23	-----	-----
24	-----	-----
25	-----	-----

5.0 Signal Conditioning Switch/Jumper Settings

The sections below illustrate how to change the various data format and contact mapping conditions.

5.1 Data Format Selection

A group of 10 switches is located on the bottom center of the module's circuit card (see figure below). The left three (3) switches control the data format that is transmitted/received. These switches on both the ST & SR modules must be set the same in order to have proper data communications format between them.

The ***SX-2C2F/2C2F-x product*** setting is for RS-422 Data channels.

Data Format Selection Switch Settings				
	Switch #1	Switch #2	Switch #3	Switch #4
RS-422	ON (down)	ON (down)	OFF (up)	OFF (up)

The remaining Switches 5 through 10 should be in the OFF (up) position.

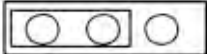
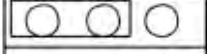
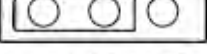
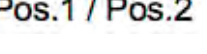
5.2 Contact Mapping and Data Selection jumpers

Contact Mapping - The output state of each of the contacts can be changed from Normally-Open (NO) to Normally-Closed (NC) by properly selecting the jumpers. The receiving side NO contact closes when the contact on the transmitting side is closed to ground. The default contact setting is NO (Normally-Open).

There are sixteen (16) 3-pin jumpers located directly behind the DB25 front-panel mounted connector.

The jumpers 9 and 10 are used to select the Power-On state of the Contacts (NO or NC). The jumpers 13 and 16 are used for configuring 120 Ohm load on the RS-422 input channels.

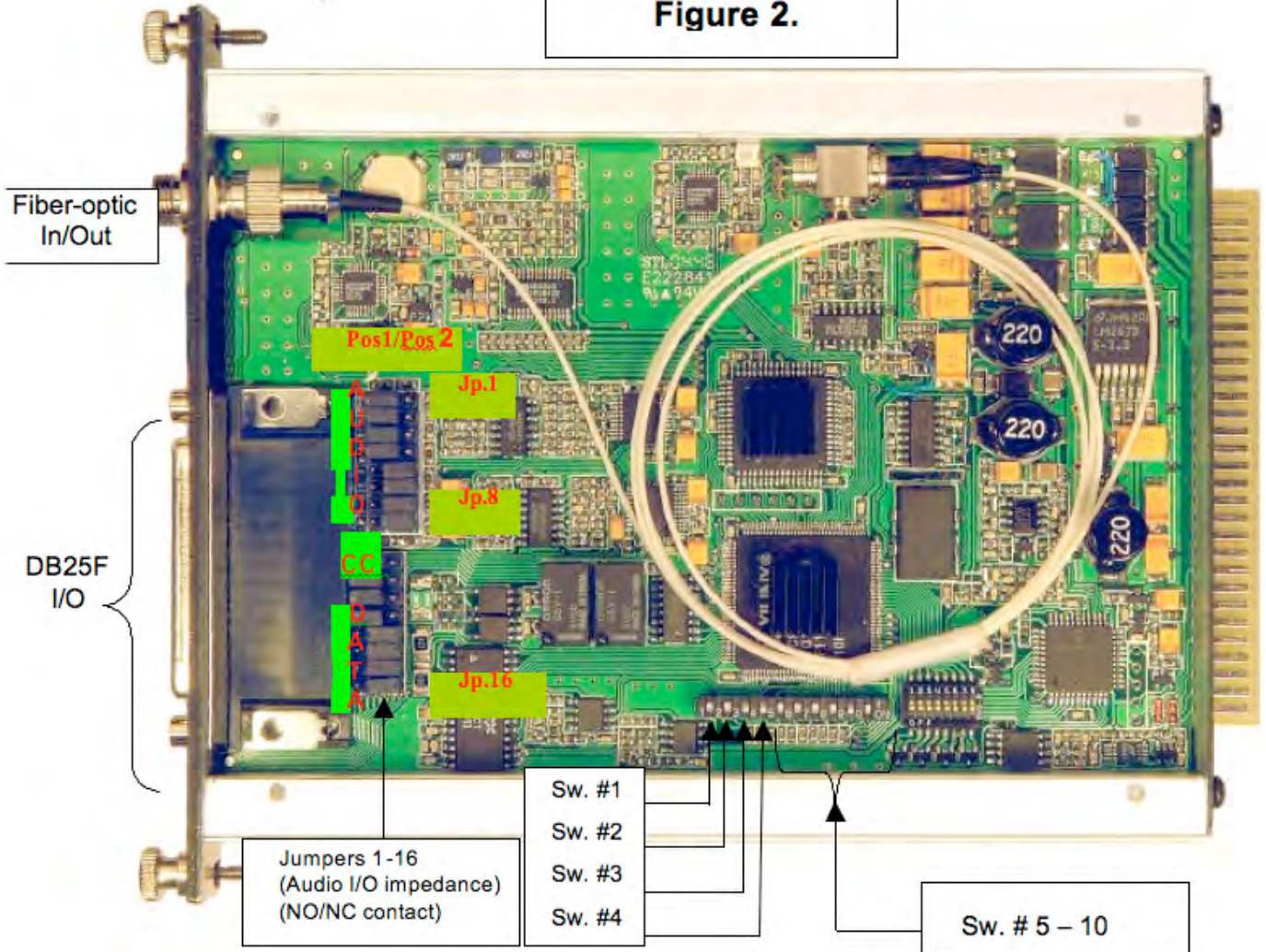
The jumpers are shown in their default condition.

Jumper 1		N/A
Jumper 2		N/A
Jumper 3		N/A
Jumper 4		N/A
Jumper 5		N/A
Jumper 6		N/A
Jumper 7		N/A
Jumper 8		N/A
Jumper 9		Contact Ch. 2 (OUT) – Normally Open (NO) - default
Jumper 10		Contact Ch. 1 (OUT) – Normally Open (NO) - default
Jumper 11		N/A
Jumper 12		N/A
Jumper 13		RS-422 Ch. 1 (IN) – 120 Ohm load – ON default
Jumper 14		N/A
Jumper 15		N/A
Jumper 16		RS-422 Ch. 2 (IN) – 120 Ohm load – ON default

Pos.1 / Pos.2

Figure 1.

Figure 2.



6.0 Pin-out & Indicator Lights

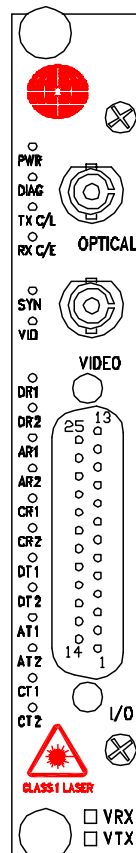
SX-2C2F-X PINOUT DIAGRAM

STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - NA
 TX C/L - TX CARRIER (GREEN)
 /OVERLOAD (RED)
 RX C/E - RX CARRIER (GREEN)
 /ERROR (RED)

SYN - NA
 VID - NA

DR1 - (CH.1) DATA OUTPUT
 DR2 - (CH.2) DATA OUTPUT
 AR1 - NA
 AR2 - NA
 CR1 - (CH.1) C/C OUTPUT
 CR2 - (CH.2) C/C OUTPUT
 DT1 - (CH.1) DATA INPUT
 DT2 - (CH.2) DATA INPUT
 AT1 - NA
 AT2 - NA
 CT1 - (CH.1) C/C INPUT
 CT2 - (CH.2) C/C INPUT



OPTICAL PORT IN (ST, FC)

OPTICAL PORT OUT (ST, FC)

DATA INPUT/OUTPUT
 (DB-25 FEMALE)

6. (CH.1) CC INPUT
 20. (CH.1) CC OUTPUT-
 8. (CH.1) CC OUTPUT+
 18. (CH.2) CC INPUT
 21. (CH.2) CC OUTPUT-
 9. (CH.2) CC OUTPUT+
 4. (CH.1) RS422 INPUT-
 16. (CH.1) RS422 INPUT+
 5. (CH.1) RS422 OUTPUT-
 17. (CH.1) RS422 OUTPUT+
 2. (CH.2) RS422 INPUT-
 14. (CH.2) RS422 INPUT+
 3. (CH.2) RS422 OUTPUT-
 15. (CH.2) RS422 OUTPUT+
 19. +5V
 1. GND
 7. GND

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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 that both the transmitter and receiver modules are set to transmit/receive the same data format and that the data connections are correct. Check to ensure that the data source is operating properly.

If the problem still persists after reviewing the above items, please contact Meridian technical support (516-285-1000).



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