



Fiber Optic Data Transmission System

Installation Instructions

Part Number:

FXA-2J/2J-x (ST/FC)

FXB-2J/2J-x (ST/FC)

2-Ch. RS-485 (2-wire) Bi-directional Data

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1.0 Product Description

Meridian's FXA/FXB-2J/2J-x products are fiber optic modems that transmit two channels of bi-directional RS-485 (2-wire) data signals over one optical fiber 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-1001/S, SR-1002/S, SR-1200/S, SR- 1500/S, SR-1600/S and SR-2001 & SR-2000 series 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. Conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series FXA/FXB-2J/2J-x 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 Signal Format & Specifications

The FXA/FXB-2J/2J-x series products transmit and receive the following signals:

Signal Type	Channels	Transmit	Receive
RS-485 (2-wire)	2	Yes	Yes

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

Data	
Formats	RS-485 (2-wire)
Data Rate (RS-485)	DC to 250 Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

Connectors	
Data	Screw terminals
Optical	Single-mode – ST or FC Multimode - ST

3.1 Optical Specifications

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

Optical Specifications								
Optical code	Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical Dynamic Range (dB)	Optical connector	Estimated Maximum Distance (km)
2	Multimode (FP Laser) 62.5 / 125	-5	-25	20	1300/850	25	ST	5.5
5	Single-mode (FP Laser) 9 / 125	-5	-25	20	1310/1550	25	ST, FC	55

4.0 Data Connector Pin Assignment

The Screw Terminal connectors on the front of the card is used for data interface. This module supports the following data formats: Two channels RS-485(2 - wire) See pinout diagram Figure 4.1 for the reference.

Channel 1 Data Connector Pinout (PORT 3)	
PORT 3 Pin #	RS-485 (2-wire)
1	IN/OUT (+)
2	IN/OUT (-)
3	
4	
5	GND
Channel 2 Data Connector Pinout (PORT 1)	
PORT 1 Pin #	RS-485 (2-wire)
1	IN/OUT (+-)
2	IN/OUT (-)
3	
4	
5	GND

4.1 Front Panel Indicator Lights

The LED indicators, on the left side of the card, show the operation status of the module's power, optical carriers and data channels (see Figure 4.1 below). These indicators can be used for troubleshooting the module, electrical and optical connections.

FXA/FXB-2J/2J-X

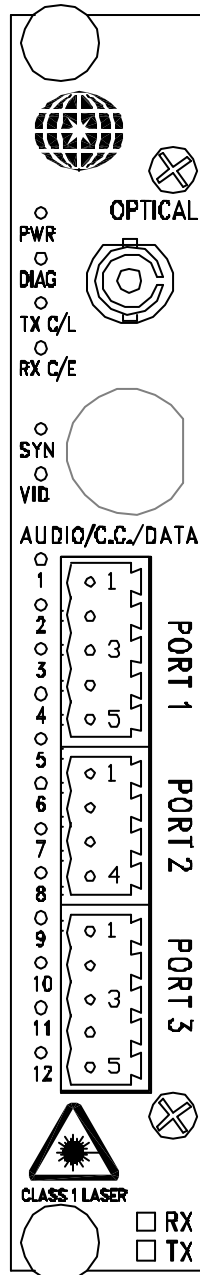
PINOUT DIAGRAM

STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - CARD DIAGNOSTIC*
 (GREEN-OK, RED-ALARM)
 TX C/L - TX CARRIER (GREEN)
 /OVERLOAD (RED)
 RX C/E - RX CARRIER (GREEN)
 /ERROR (RED)
 SYN - NA
 VID - NA

STATUS INDICATORS

1 - NA
 2 - NA
 3 - NA
 4 - NA
 5 - NA
 6 - NA
 7 - NA
 8 - NA
 9 - (CH.1) DATA INPUT
 10 - (CH.2) DATA INPUT
 11 - (CH.1) DATA OUTPUT
 12 - (CH.2) DATA OUTPUT



OPTICAL PORT (ST, FC)

DATA INPUT/OUTPUT

CHANNEL 2 (PORT1)

1. DATA INPUT/OUTPUT +
 2. DATA INPUT/OUTPUT -
 3. NA
 4. NA
 5. GND

CHANNEL 1 (PORT3)

1. DATA INPUT/OUTPUT +
 2. DATA INPUT/OUTPUT -
 3. NA
 4. NA
 5. GND

* CARD DIAGNOSTIC IF APPLICABLE

Figure 4.1
FXA-2G/2G-x Front Panel Layout Diagram

5.0 Data Format Selection

A group of 10 switches is located on the bottom center of the card (see Figure 5.2). The left four (4) of these switches control the Data format settings. These switches on both the transmitter and receiver must be set identically in order to have proper data communications between them.

Please refer to the table and figure below for switch locations on the board and configuration for the RS-485 (2-wire) Data format.

Data Format Selection Switch Settings				
Ch.1			Ch.2	
	Switch #1	Switch #2	Switch #3	Switch #4
RS-485 (2-wire)	ON (down)	OFF (up)	ON (down)	OFF (up)

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

5.1 Data Selection jumpers

There are sixteen (16) 3-pin jumpers located directly behind the Data connector. The bottom 6 jumpers are used to set Data format.

Jumpers 11,12,13 for ch.1 & 14,15,16 for ch.2 (as shown below) are preset to the position shown to set RS-485 (2-wire) Data.

DATA JUMPER SETTINGS

RS-485 (2W)

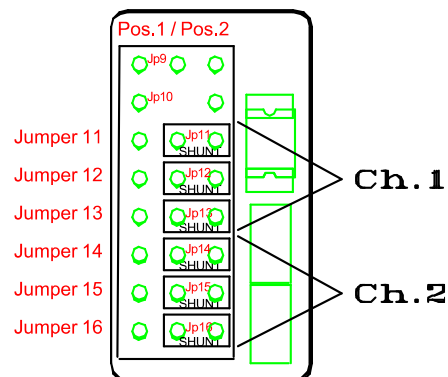
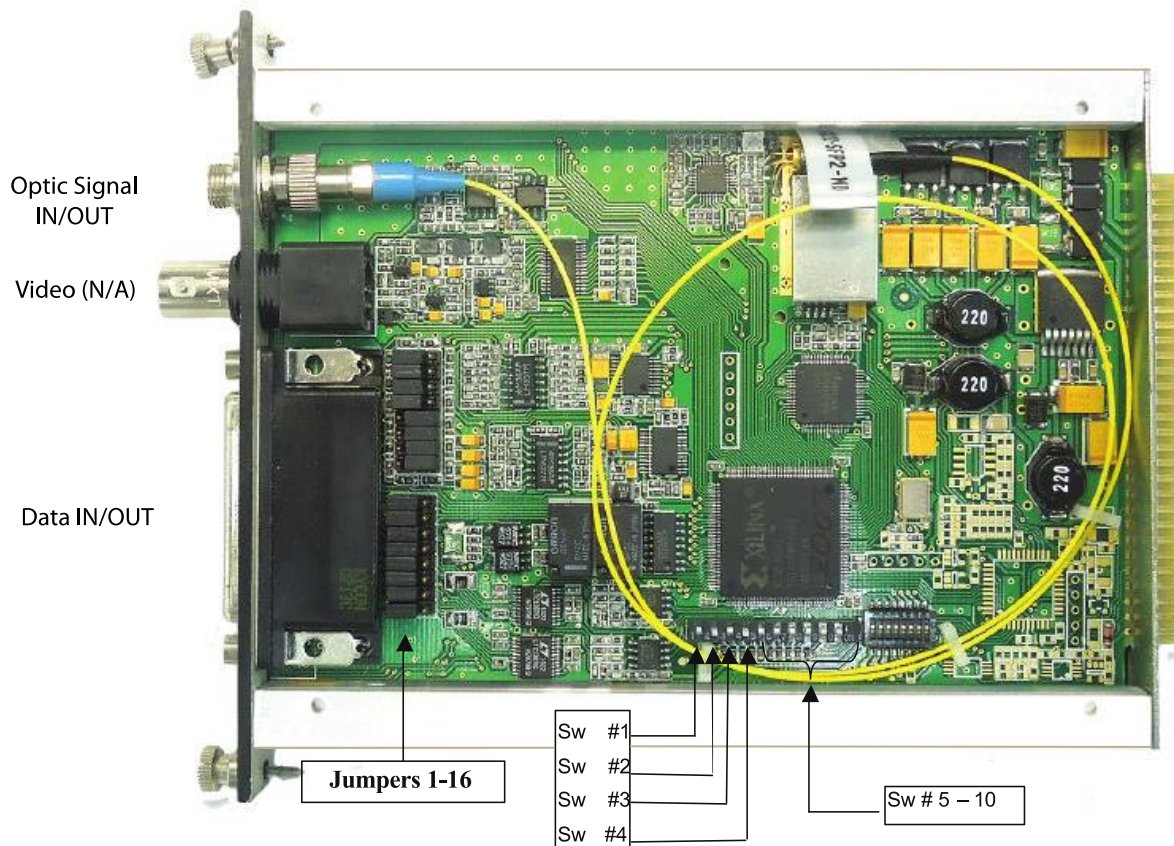


Figure 5.1
Data Jumper Settings



Jumpers 1-16 is shown in RS-232 Data Configuration position, which may not match your preset Data Configuration. Please refer to Data Selection Jumpers Setting of this manual for your particular setting.

Figure 5.2
1-Slot card Data Selection Switch locations

6.0 Product Part Number Variations

The table below lists the various part numbers and description that are available for this series of products.

Product Part Number Guide			
Part Number Side A	Part Number Side B	Fiber Interface	Optical Connector
FXA-2J/2J-2	FXB-2J/2J-2	Multimode	ST
FXA-2J/2J-5	FXB-2J/2J-5	Single-mode	FC
FXA-2J/2J-5ST	FXB-2J/2J-5ST	Single-mode	ST

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 lit when power is applied or power indicator is flashing*

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

Problem: *No Data Transmission*

Action: Check that both the transmit and receive modules are set to transmit/receive the same data format (see section 5.0 for switch settings).
Verify that the PWR, Tx C/L and Rx C/L lights on both modems are on GREEN.
Confirm that the data pinouts/connections are correct (see section 4.0 for data pinout connections).
Confirm the internal DIP switch and jumpers are set correctly for the data protocol.
Verify that the DT1 light flashes when transmitting data and that the corresponding DR1 light on the other modem is flashing.

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

Notes:



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