



Installation/Operation Instructions

Fiber Optic Data Transmission System

DX-xD/xD-SFP

Multi-Channel RS-232 Data, SFP Transceiver

For cards with 4, 8, 12 or 16 RS-232 Data channels

Meridian Technologies, Inc.

700 Elmont Road, Elmont NY 11003, USA

Telephone: +1. 516. 285. 1000 Fax: +1. 516. 285. 6300

E-mail: sales@meridian-tech.com Web: www.meridian-tech.com

Document Version 1.0

10/2019

Table of Contents

1.0 Product Description	3
2.0 Installation	3
3.0 Product Signal Format & Specifications	4
3.1 Optical Specifications	4
4.0 Operation	5
5.0 Status indicators & pinouts	5
5.1 Common Status indicators	5
5.2 RS-232 SIM Signal Assignment (Pinouts) & Indicator Lights	6
5.0 Front Panel Pinout Assignment Diagrams	7
6.0 Troubleshooting	11

1.0 Product Description

Meridian's product series DX-xD-SFP are fiber optic modems that transmit multi-channel bi-directional RS-232 Data using the industry standard Small Form Pluggable (SFP) optical device. This product series uses Meridian's standard 2-slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-1002/S, SR-1600/S and SR-2001 & SR-2000 series 19" equipment chassis.

The digital modules consist of plug-in personality cards or SIMs.

The top card is the optical card that contains the fiber optic interface. The optical input & output connectors are located on the right side of the module. The ports 1 thru 4 contains Bi-directional RS-232 Data SIMs.

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

2.0 Installation

Series DX-xD-SFP products occupy two slots in Meridian's standard chassis. To install in to the 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 overtight.

Note: A fully loaded 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 DXA/DXB-xF-SFP series products transmit and receive following signals:

Part Number	Signal Type	Channels	Signal Direction
DX-4D-SFP	RS-232 DATA	4	Transmit/Receive
DX-8D-SFP	RS-232 DATA	8	Transmit/Receive
DX-12D-SFP	RS-232 DATA	12	Transmit/Receive
DX-16D-SFP	RS-232 DATA	16	Transmit/Receive

The tables below identify the various specifications for these modems.

Data

Formats	RS-232
Data Rate	DC to 125Kb/s
Bit Error Rate (BER)	> 10 ⁻⁹

Connectors

RS-232 Data	DB9 Female
Optical	LC, SC (SFP Dependent)

3.1 Optical Specifications

The SFP modules are available for both single-mode and multimode fiber applications, either one or two fiber versions.

Recommended optical speed for this product 155Mb/s.

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 Operation

Data – Connect the Data IN/OUT for each of the data channels to the appropriate Tx/Rx pins on the Data connector as shown below.

5.0 Status indicators & pinouts

5.1 Common Status indicators

The front panel pinout diagrams in section 7.0 show the connector and LED indicator locations on the transmitter and receiver modules.

Common indicators show the operational status of the module's power and optical carriers. These indicators can be used for troubleshooting the module, electrical and optical connections.

Common Transceiver LED Indicators

Indicator	Location	Function
Power	Left side of module	Green – ON
Card Diagnostic*	Left side of module	Green – OK, Red – Alarm
Tx carrier	Under optical output connector	Optical output (Green – OK, Red – error)
Rx Optical signal	Under optical input connector	Optical input (Green – OK, Red – error)
Rx Carrier	Under optical input connector	Optical Carrier input (Green – OK, Red – error)

*Note: The Card Diagnostic is optional and LED present only if applied.

5.2 RS-232 SIM Signal Assignment (Pinouts) & Indicator Lights

Each Data SIMs transmit up-to four Bi-directional RS-232 Data channels.

The table below shows the pinout for the Data connectors (DB-9 Female connector):

RS-232 Data Connector Pinout Assignment (DB-9 Female)	
Pin #	DX-xD-SFP
1	Ch 4 INPUT
2	Ch 1 OUTPUT
3	Ch 1 INPUT
4	Ch 2 INPUT
5	GND
6	Ch 2 OUTPUT
7	Ch 3 INPUT
8	Ch 3 OUTPUT
9	Ch 4 OUTPUT

Each of the input/output Data channels has indicators associated with them to provide quick visual indications of the channel activity.

RS-232 Data Connector Status Indicators (each SIM is identical)	
LED #	DX-xD- SFP
1	Input 1 – Green – data present
2	Output1 – Green - data present
3	Input 2 – Green - data present
4	Output2 – Green - data present
5	Input 3 – Green - data present
6	Output3 – Green - data present
7	Input 4 – Green - data present
8	Output4 – Green - data present

There are no jumpers or switches for the user to configure for this data card.

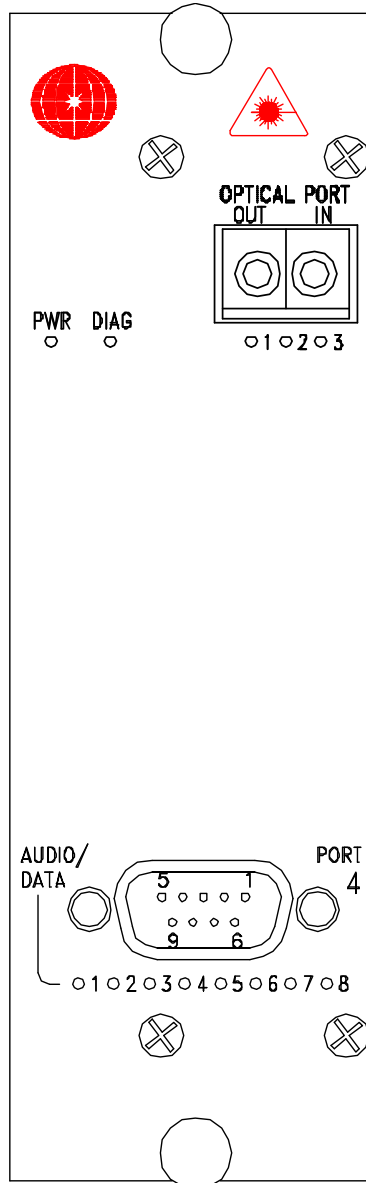
5.0 Front Panel Pinout Assignment Diagrams

STATUS INDICATORS

1. POWER (GREEN)
2. NA

STATUS INDICATORS

1. TX CARRIER (GREEN)/ERROR (RED)



DATA RS232 IN/OUT (PORT 4) (DB-9 FEMALE)

1. (CH.4) INPUT (CD)
2. (CH.1) OUTPUT (TD)
3. (CH.1) INPUT (RD)
4. (CH.2) INPUT (DTR)
5. GND
6. (CH.2) OUTPUT (DSR)
7. (CH.3) INPUT (RTS)
8. (CH.3) OUTPUT (CTS)
9. (CH.4) OUTPUT (RI)

DX-4D/4D-x PINOUT DIAGRAM

OPTICAL PORT STATUS INDICATORS

1. NA
2. RX OPTICAL SIGNAL (GREEN)/ABSENT (RED)
3. RX CARRIER (GREEN)/ERROR (RED)

STATUS INDICATORS (PORT 4)

1. (CH.1) DATA INPUT
2. (CH.1) DATA OUTPUT
3. (CH.2) DATA INPUT
4. (CH.2) DATA OUTPUT
5. (CH.3) DATA INPUT
6. (CH.3) DATA OUTPUT
7. (CH.4) DATA INPUT
8. (CH.4) DATA OUTPUT

DX-8D/8D-x

PINOUT DIAGRAM

STATUS INDICATORS

1. POWER (GREEN)
2. NA

STATUS INDICATORS

1. TX CARRIER (GREEN)/ERROR (RED)

OPTICAL PORT STATUS INDICATORS

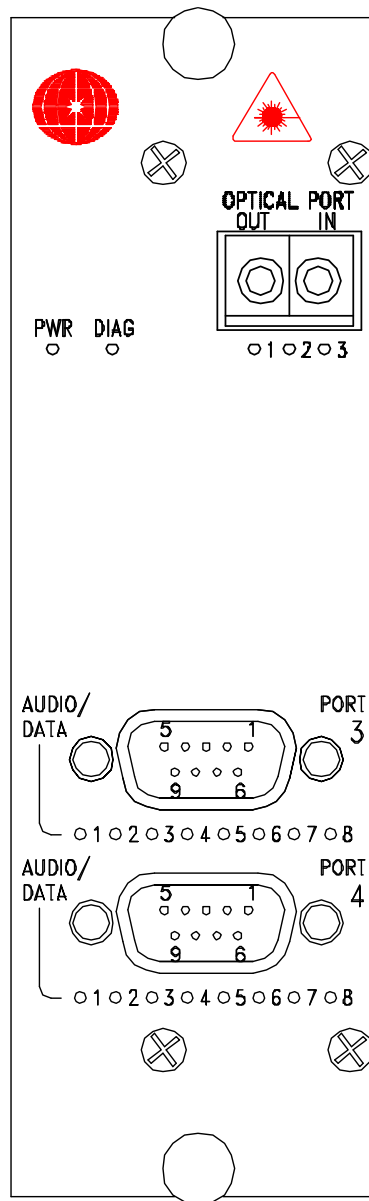
1. NA
2. RX OPTICAL SIGNAL (GREEN)/ABSENT (RED)
3. RX CARRIER (GREEN)/ERROR (RED)

DATA RS232 IN/OUT (PORT 3) (DB-9 FEMALE)

1. (CH.4) INPUT (CD)
2. (CH.1) OUTPUT (TD)
3. (CH.1) INPUT (RD)
4. (CH.2) INPUT (DTR)
5. GND
6. (CH.2) OUTPUT (DSR)
7. (CH.3) INPUT (RTS)
8. (CH.3) OUTPUT (CTS)
9. (CH.4) OUTPUT (RI)

DATA RS232 IN/OUT (PORT 4) (DB-9 FEMALE)

1. (CH.8) INPUT (CD)
2. (CH.5) OUTPUT (TD)
3. (CH.5) INPUT (RD)
4. (CH.6) INPUT (DTR)
5. GND
6. (CH.7) OUTPUT (DSR)
7. (CH.7) INPUT (RTS)
8. (CH.6) OUTPUT (CTS)
9. (CH.8) OUTPUT (RI)



STATUS INDICATORS (PORT 3)

1. (CH.1) DATA INPUT
2. (CH.1) DATA OUTPUT
3. (CH.2) DATA INPUT
4. (CH.2) DATA OUTPUT
5. (CH.3) DATA INPUT
6. (CH.3) DATA OUTPUT
7. (CH.4) DATA INPUT
8. (CH.4) DATA OUTPUT

STATUS INDICATORS (PORT 4)

1. (CH.5) DATA INPUT
2. (CH.5) DATA OUTPUT
3. (CH.6) DATA INPUT
4. (CH.6) DATA OUTPUT
5. (CH.7) DATA INPUT
6. (CH.7) DATA OUTPUT
7. (CH.8) DATA INPUT
8. (CH.8) DATA OUTPUT

DX-12D/12D-x

PINOUT DIAGRAM

STATUS INDICATORS

1. POWER (GREEN)
2. NA

STATUS INDICATORS

1. TX CARRIER (GREEN)/ERROR (RED)

DATA RS232 IN/OUT (PORT 2) (DB-9 FEMALE)

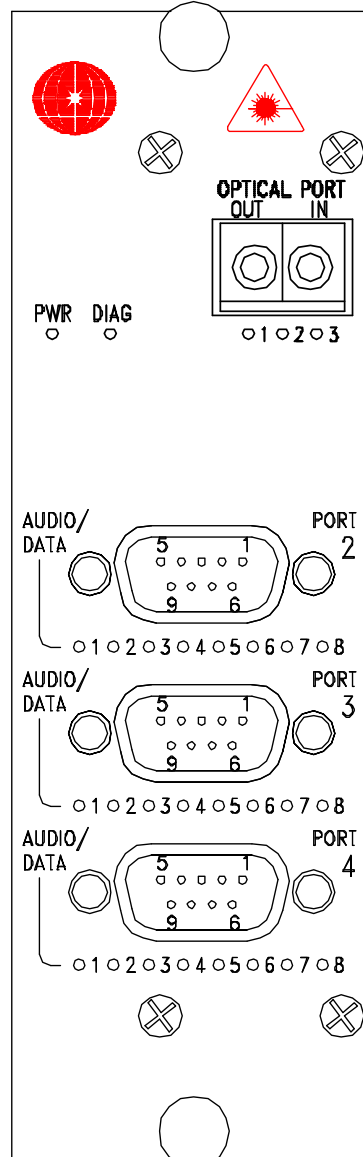
1. (CH.4) INPUT (CD)
2. (CH.1) OUTPUT (TD)
3. (CH.1) INPUT (RD)
4. (CH.2) INPUT (DTR)
5. GND
6. (CH.2) OUTPUT (DSR)
7. (CH.3) INPUT (RTS)
8. (CH.3) OUTPUT (CTS)
9. (CH.4) OUTPUT (RI)

DATA RS232 IN/OUT (PORT 3) (DB-9 FEMALE)

1. (CH.8) INPUT (CD)
2. (CH.5) OUTPUT (TD)
3. (CH.5) INPUT (RD)
4. (CH.6) INPUT (DTR)
5. GND
6. (CH.7) OUTPUT (DSR)
7. (CH.7) INPUT (RTS)
8. (CH.6) OUTPUT (CTS)
9. (CH.8) OUTPUT (RI)

DATA RS232 IN/OUT (PORT 4) (DB-9 FEMALE)

1. (CH.12) INPUT (CD)
2. (CH.9) OUTPUT (TD)
3. (CH.9) INPUT (RD)
4. (CH.10) INPUT (DTR)
5. GND
6. (CH.10) OUTPUT (DSR)
7. (CH.11) INPUT (RTS)
8. (CH.11) OUTPUT (CTS)
9. (CH.12) OUTPUT (RI)



OPTICAL PORT

STATUS INDICATORS

1. NA
2. RX OPTICAL SIGNAL (GREEN)/ABSENT (RED)
3. RX CARRIER (GREEN)/ERROR (RED)

STATUS INDICATORS (PORT 2)

1. (CH.1) DATA INPUT
2. (CH.1) DATA OUTPUT
3. (CH.2) DATA INPUT
4. (CH.2) DATA OUTPUT
5. (CH.3) DATA INPUT
6. (CH.3) DATA OUTPUT
7. (CH.4) DATA INPUT
8. (CH.4) DATA OUTPUT

STATUS INDICATORS (PORT 3)

1. (CH.5) DATA INPUT
2. (CH.5) DATA OUTPUT
3. (CH.6) DATA INPUT
4. (CH.6) DATA OUTPUT
5. (CH.7) DATA INPUT
6. (CH.7) DATA OUTPUT
7. (CH.8) DATA INPUT
8. (CH.8) DATA OUTPUT

STATUS INDICATORS (PORT 4)

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

STATUS INDICATORS

1. POWER (GREEN)
2. NA

STATUS INDICATORS

1. TX CARRIER (GREEN)/ERROR (RED)

DATA RS232 IN/OUT (PORT 1) (DB-9 FEMALE)

1. (CH.4) INPUT (CD)
2. (CH.1) OUTPUT (TD)
3. (CH.1) INPUT (RD)
4. (CH.2) INPUT (DTR)
5. GND
6. (CH.2) OUTPUT (DSR)
7. (CH.3) INPUT (RTS)
8. (CH.3) OUTPUT (CTS)
9. (CH.4) OUTPUT (RI)

DATA RS232 IN/OUT (PORT 2) (DB-9 FEMALE)

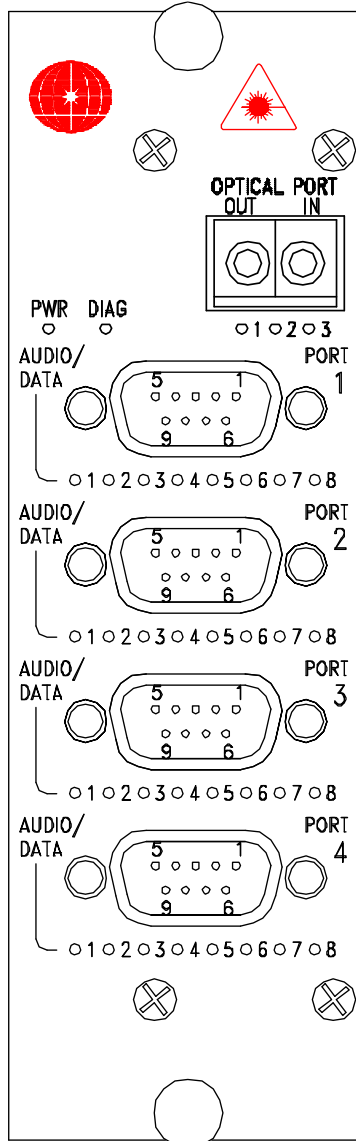
1. (CH.8) INPUT (CD)
2. (CH.5) OUTPUT (TD)
3. (CH.5) INPUT (RD)
4. (CH.6) INPUT (DTR)
5. GND
6. (CH.7) OUTPUT (DSR)
7. (CH.7) INPUT (RTS)
8. (CH.6) OUTPUT (CTS)
9. (CH.8) OUTPUT (RI)

DATA RS232 IN/OUT (PORT 3) (DB-9 FEMALE)

1. (CH.12) INPUT (CD)
2. (CH.9) OUTPUT (TD)
3. (CH.9) INPUT (RD)
4. (CH.10) INPUT (DTR)
5. GND
6. (CH.10) OUTPUT (DSR)
7. (CH.11) INPUT (RTS)
8. (CH.11) OUTPUT (CTS)
9. (CH.12) OUTPUT (RI)

DATA RS232 IN/OUT (PORT 4) (DB-9 FEMALE)

1. (CH.16) INPUT (CD)
2. (CH.13) OUTPUT (TD)
3. (CH.13) INPUT (RD)
4. (CH.14) INPUT (DTR)
5. GND
6. (CH.14) OUTPUT (DSR)
7. (CH.15) INPUT (RTS)
8. (CH.15) OUTPUT (CTS)
9. (CH.16) OUTPUT (RI)



DX-16D/16D-x PINOUT DIAGRAM

OPTICAL PORT STATUS INDICATORS

1. NA
2. RX OPTICAL SIGNAL (GREEN)/ABSENT (RED)
3. RX CARRIER (GREEN)/ERROR (RED)

STATUS INDICATORS (PORT 1)

1. (CH.1) DATA INPUT
2. (CH.1) DATA OUTPUT
3. (CH.2) DATA INPUT
4. (CH.2) DATA OUTPUT
5. (CH.3) DATA INPUT
6. (CH.3) DATA OUTPUT
7. (CH.4) DATA INPUT
8. (CH.4) DATA OUTPUT

STATUS INDICATORS (PORT 2)

1. (CH.5) DATA INPUT
2. (CH.5) DATA OUTPUT
3. (CH.6) DATA INPUT
4. (CH.6) DATA OUTPUT
5. (CH.7) DATA INPUT
6. (CH.7) DATA OUTPUT
7. (CH.8) DATA INPUT
8. (CH.8) DATA OUTPUT

STATUS INDICATORS (PORT 3)

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

STATUS INDICATORS (PORT 4)

1. (CH.13) DATA INPUT
2. (CH.13) DATA OUTPUT
3. (CH.14) DATA INPUT
4. (CH.14) DATA OUTPUT
5. (CH.15) DATA INPUT
6. (CH.15) DATA OUTPUT
7. (CH.16) DATA INPUT
8. (CH.16) DATA OUTPUT

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: *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 the data input status indicator lights below data connector to ensure it is on (indicating a data input signal). Also check the associated data output status indicator lights on the corresponding receiver module to ensure that the signal is being transmitted and received. If not, please check the data input/output and fiber connections.

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



Meridian Technologies, Inc.
700 Elmont Road, Elmont NY 11003
Telephone: 516-285-1000 Fax: 516-285-6300
E-mail: sales@meridian-tech.com
Web: www.meridian-tech.com