Installation/Operation Instructions

Fiber Optic Data Transmission System

Part Number:

DXA-xC-x & DXB-xC-x

(Multi-Channel Contact Closure Transceiver)
(For modules with 2 to 16 data channels)

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1.0 Product Description

Meridian's product series DXA-xC and DXB-xC are fiber optic modems that transmit and receive bi-directional Contact Closures over one optical fiber using digital transmission technologies. This product series uses Meridian's standard 2-slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-1000/S, SR-1001/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment chassis.

The digital modules consist of various plug-in personality function 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. Each of the four remaining SIM locations contains four bi-directional contact closure circuits for a total of 16 (4 channels per SIM card is installed starting at the bottom of the module) depending on part number (See Appendix 1). Each of these SIM cards has a high-density 15-pin female 'D' style connector. Up to 16 bi-directional contact closures can be transmitted over one fiber (DXA-16C & DXB-16C).

2.0 Installation

Series DXA-xC and DXB-xC products are two-slot wide cards and, as such, occupy two slots in Meridian's standard chassis (SR-1000/S. SR-1001/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment chassis). To install in 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 use tools to secure these and do not over tighten.

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 Signal Format & Specifications

The DXA-xC and DXB-xC series products transmit and receive the following signals:

Signal Type	Qty	Transmit	Receive
Dry contact	2-16	Yes	Yes

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

Contact Closures	
Input	Contact closure to ground
Output	Isolated contact closure outputs
Output Contact	0.3A @ 30VAC/DC
Contact bounce time	5msec
Connectors	High Density DB15 Female

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	-3	-24	21	1300/850	ST	24
Singlemode (FP Laser) 9/125	-3	-24	21	1310/1550	ST, FC	24
Singlemode (DFB Laser) 9/125	+3	-24	27	1310/1550	ST, FC	24

4.0 Connector Pin Assignment

The table below identifies the input/output functions and associated connector pinouts for each SIM card.

Pinouts (Each SIM Card)	
Pin #	**Function**
1 & 5 (Gnd)	(Ch 1) Input
2 & 5 (Gnd)	(Ch 2) Input
3 & 5(Gnd)	(Ch 3) Input
4 & 5(Gnd)	(Ch 4) Input
5	Gnd
6	(Ch 1) Output
7	(Ch 1) Output
8	(Ch 2) Output
9	(Ch 2) Output
10	(Ch 3) Output
11	(Ch 3) Output
12	(Ch 4) Output
13	(Ch 4) Output
14	N/A
15	N/A

4.1 External Connections Configuration

Contact closure communication between the DXA and DXB units is done in the following manner:

Inputs 1 through 4 on each contact closure SIM card –

1. Connect each contact input between the input pins (1-4) and ground (pin 5) for each respective contact input channel.
2. The corresponding isolated contact outputs on the receive module are available on pins 6 & 7, 8 & 9, 10 & 11, 12 & 13 (for channels 1, 2, 3, 4, respectively).
3. Note that the input/output contacts are located on the same SIM location on the DXA & DXB modules. For example, if the contact inputs are connected to the bottom SIM card on the DXA module, the corresponding outputs on the DXB modules are located on the SIM card in the same bottom location.

4.2 Module Transmission Status Indicators

Each module has various LEDs to indicate the input/output status of the optical and transmission carrier signals. These are identified below:

Indicator	Function	State
Power	Indicates power to the module	OK = Green
TX Carrier	Presence of optical output	OK = Green
RX optical signal	Received optical power within budget	OK = Green
RX carrier	Indicates reception of carrier signal	OK = Green Error = Red

Each contact closure input/output has indicator lights to visually show the status of each contact. Below each contact electrical connector are 8 small LEDs (1 through 8). The table below shows the contact input/output state and the corresponding LED state.

Contact (Input/output) – LED Relationship								
	LED # 1	LED # 2	LED # 3	LED # 4	LED # 5	LED # 6	LED # 7	LED # 8
Input # 1	X							
Output # 1		X						
Input # 2			X					
Output # 2				X				
Input # 3					X			
Output # 3						X		
Input # 4							X	
Output # 4								X

(X indicates a closed contact input and corresponding ‘ON’ LED)

5.0 Front Panel Pinout Assignment Diagram

DXA,DXB-16C/16C-X

PINOUT DIAGRAM

STATUS INDICATORS

1. POWER (GREEN)
2. NA

STATUS INDICATORS

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

DATA (PORT 1)

(HD-15 FEMALE)

1. (CH.1) INPUT
2. (CH.2) INPUT
3. (CH.3) INPUT
4. (CH.4) INPUT
5. GND
6. (CH.1) OUTPUT
7. (CH.1) OUTPUT
8. (CH.2) OUTPUT
9. (CH.2) OUTPUT
10. (CH.3) OUTPUT
11. (CH.3) OUTPUT
12. (CH.4) OUTPUT
13. (CH.4) OUTPUT
14. NA
15. NA

DATA (PORT 2)

(HD-15 FEMALE)

1. (CH.5) INPUT
2. (CH.6) INPUT
3. (CH.7) INPUT
4. (CH.8) INPUT
5. GND
6. (CH.5) OUTPUT
7. (CH.5) OUTPUT
8. (CH.6) OUTPUT
9. (CH.6) OUTPUT
10. (CH.7) OUTPUT
11. (CH.7) OUTPUT
12. (CH.8) OUTPUT
13. (CH.8) OUTPUT
14. NA
15. NA

DATA (PORT 3)

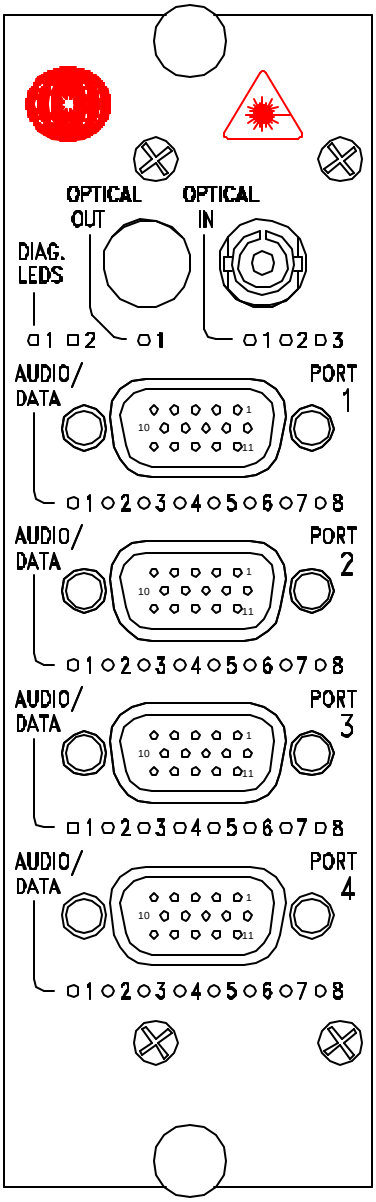
(HD-15 FEMALE)

1. (CH.9) INPUT
2. (CH.10) INPUT
3. (CH.11) INPUT
4. (CH.12) INPUT
5. GND
6. (CH.9) OUTPUT
7. (CH.9) OUTPUT
8. (CH.10) OUTPUT
9. (CH.10) OUTPUT
10. (CH.11) OUTPUT
11. (CH.11) OUTPUT
12. (CH.12) OUTPUT
13. (CH.12) OUTPUT
14. NA
15. NA

DATA (PORT 4)

(HD-15 FEMALE)

1. (CH.13) INPUT
2. (CH.14) INPUT
3. (CH.15) INPUT
4. (CH.16) INPUT
5. GND
6. (CH.13) OUTPUT
7. (CH.13) OUTPUT
8. (CH.14) OUTPUT
9. (CH.14) OUTPUT
10. (CH.15) OUTPUT
11. (CH.15) OUTPUT
12. (CH.16) OUTPUT
13. (CH.16) OUTPUT
14. NA
15. NA



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

STATUS INDICATORS (PORT 2)

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

STATUS INDICATORS (PORT 3)

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

STATUS INDICATORS (PORT 4)

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

5.0 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 Contact Closure transmission*
Action: Check the individual contact closure channel input status indicator lights # 1, 3, 5, 7 to ensure that the lights toggle on and off as the contact is closed and opened. These lights are located below the corresponding DB15. Also check the corresponding contact closure output lights (# 2, 4, 6, 8) on the other module to see if the corresponding lights are activated when the corresponding input contact is closed. 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).

7.0 Appendix 1 – Applicable Product Part Number Variations

Transmitter	Receiver	# BI-DI Channels	# Fibers & Type	Wavelength
DXA-2C/2C-2	DXB-2C/2C-2	2	1 (MM)	1310/850nm
DXA-2C/2C-5	DXB-2C/2C-5	2	1 (SM)	1310/1550nm
DXA-4C/4C-2	DXA-4C/4C-2	4	1 (MM)	1310/850nm
DXA-4C/4C-5	DXA-4C/4C-5	4	1 (SM)	1310/1550nm
DXA-6C/6C-2	DXA-6C/6C-2	6	1 (MM)	1310/850nm
DXA-6C/6C-5	DXA-6C/6C-5	6	1 (SM)	1310/1550nm
DXA-8C/8C-2	DXA-8C/8C-2	8	1 (MM)	1310/850nm
DXA-8C/8C-5	DXA-8C/8C-5	8	1 (SM)	1310/1550nm
DXA-10C/10C-2	DXA-10C/10C-2	10	1 (MM)	1310/850nm
DXA-10C/6C-5	DXA-10C/10C-5	10	1 (SM)	1310/1550nm
DXA-12C/12C-2	DXA-12C/12C-2	12	1 (MM)	1310/850nm
DXA-12C/12C-5	DXA-12C/12C-5	12	1 (SM)	1310/1550nm
DXA-14C/6C-2	DXA-14C/14C-2	14	1 (MM)	1310/850nm
DXA-14C/6C-5	DXA-14C/14C-5	14	1 (SM)	1310/1550nm
DXA-16C/16C-2	DXA-16C/16C-2	16	1 (MM)	1310/850nm
DXA-16C/16C-5	DXA-16C/16C-5	16	1 (SM)	1310/1550nm

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