



Installation / Operation Instructions

Fiber Optic Contact Mapping Transmission System Multi-Channel Contact Closure Transceiver

DXA-16C/16C-x & DXB-16C/16C-x

16 Bi-directional Contact Closure Channels

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1.0 Product Description

Meridian's product series DXA-16C/16C-x and DXB-16C/16C-x are fiber optic modems that transmit and receive 16 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-1002/S, SR-1600/S, and SR-2001 & SR-2000 series 19" equipment chassis.

The product series cards consist of various plug-in personality function cards. Let's call them SIMs. The top SIM is the optical module that contains the fiber optic interface. The optical input/output connector is located on this module.

The SIM cards in locations 1, 2, 3 and 4 will contain 4 Bi-directional Contact Closure channels each, for a total count of 16 Bi-directional Contact Closures. Each of these SIM cards has a high-density DB-15 (15-pin female) data connector.

Up to 16 Bi-directional Contact Closures can be transmitted over one fiber (DXA-16C/16C & DXB-16C/16C).

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

2.0 Installation

Series DXA-16C/16C and DXB-16C/16C units are two-slot wide cards and will occupy two slots in Meridian's standard 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 sub-rack 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-16C/16C-x and DXB-16C/16C-x series products transmit and receive the following signals:

Signal Type	Qty	Transmit	Receive
Dry contact closure	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 Rating	0.3A @ 30VAC/DC
Contact bounce time	5msec
Connectors	High Density DB15 Female

Optical Specifications							
Meridian Optical Code	Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)
2	Multimode (FP Laser) 62.5/125	-3	-24	21	850/1300	ST	24
5	Single-mode (FP Laser) 9/125	-3	-24	21	1310/1550	ST, FC	24
18	Single-mode (DFB Laser) 9/125	+3	-24	27	1310/1550	ST, FC	24

4.0 Connector Pin Assignment

The table below shows the input/output pinouts for each Contact Closure SIM card. In order to activate Contact Input, connect (close) each contact Input between the Input Pins (1-4) and the Ground (pin 5) for each respective Contact channel Input.

Pinouts (Each SIM Card)			
Input Pin #	Function	Output Pin #	Function
between 1 & 5 (Gnd)	(Ch 1) Input	6	(Ch 1) Output
between 2 & 5 (Gnd)	(Ch 2) Input	7	(Ch 1) Output
between 3 & 5 (Gnd)	(Ch 3) Input	8	(Ch 2) Output
between 4 & 5 (Gnd)	(Ch 4) Input	9	(Ch 2) Output
5	Gnd	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 for channels 1 through 4 on each contact closure SIM card is done in the following manner:

1. Connect (close) each Contact input between the input pins (1-4) and the 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:

<i>Indicator</i>	<i>Function</i>	<i>State</i>
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

Figures 5.1 below show the front panel layout, connector location and pinout assignment the module.

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)

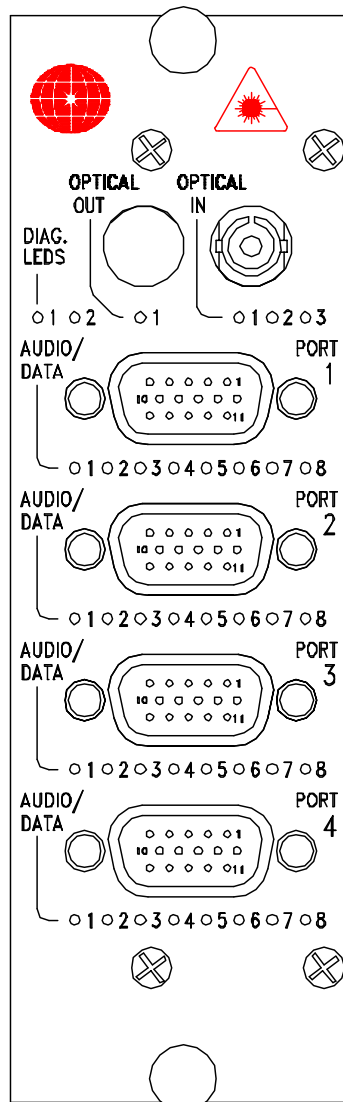
1. (CH.5) INPUT
2. (CH.6) INPUT
3. (CH.7) INPUT
4. (CH.8) INPUT
5. GND
6. (CH.5) OUTPUT
7. (CH.5) OUTPUT
8. (CH.6) OUTPUT
9. (CH.6) OUTPUT
10. (CH.7) OUTPUT
11. (CH.7) OUTPUT
12. (CH.8) OUTPUT
13. (CH.8) OUTPUT
14. NA
15. NA

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

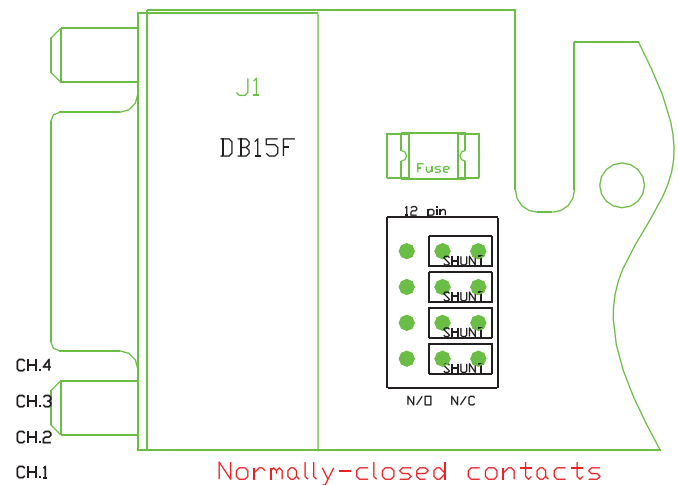
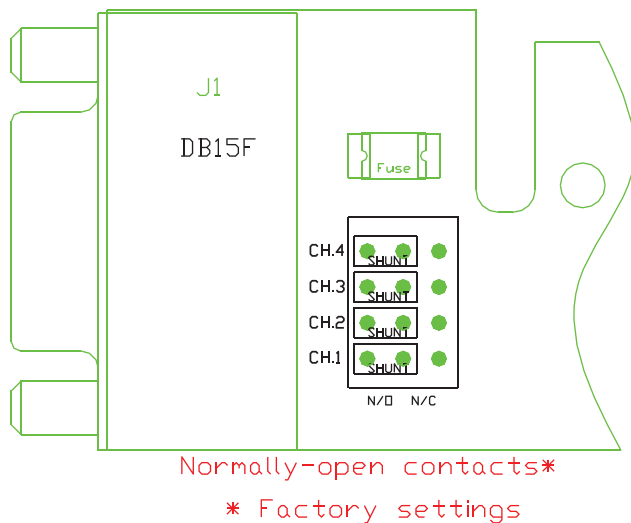
6.0 Contact Mapping SIM Jumper Settings

The Contact Closure SIM has 4 jumpers on it (located directly behind the DB15 connector), one for each channel. These jumpers are used to set the input/output Contact Mapping settings for Normally-Open or Normally-Close contacts.

The default setting is Normally-Open.

The figures below illustrate these jumpers and how they are configured:

Jumper Setting For Contact Closure Bi-Di



Contact Mapping jumper settings
for Normally-Open contacts
Input/Output
***Factory Settings**

Contact Mapping jumper settings
for Normally-Closed contacts
Input/Output

6.1 Changing the SIM jumpers

The jumpers to change the data from Normally-Open to Normally-Closed format can be easily changed as follows:

1. Lay the module on its side with the front panel facing to the left.
2. If there is a side cover on the module, remove the screws in each of the 4 corners of the side cover and carefully remove the cover.
3. Refer to the above drawing to locate the 4 jumpers that are located near the DB-15 connector.
4. Using a small tool, carefully remove the jumper and place it on the appropriate pins to properly select the data format (see table above)
5. Carefully replace the side cover and secure with the screws.
6. The jumper selection needs to be the same for DXA and DXB units.

7.0 Troubleshooting

Below is a list 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: *The Power LED is off 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 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 indicator lights toggle on and off as the contact is closed and opened.

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 fiber connections.

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

8.0 Appendix 1 –Product Part Numbers

<i>Transmitter</i>	<i>Receiver</i>	<i># BI-DI Channels</i>	<i>Optical Connector</i>	<i># Fibers & Type</i>	<i>Wavelength</i>
DXA-16C/16C-2	DXB-16C/16C-2	16	ST	1 fiber (MM), Laser	1310/850nm
DXA-16C/16C-5/ST	DXB-16C/16C-5/ST	16	ST	1 fiber (SM), FP Laser	1310/1550nm
DXA-16C/16C-5/FC	DXB-16C/16C-5/FC	16	FC	1 fiber (SM), FP Laser	1310/1550nm
DXA-16C/16C-18/ST	DXB-16C/16C-18/ST	16	ST	1 fiber (SM), DFB Laser	1310/1550nm
DXA-16C/16C-18/FC	DXB-16C/16C-18/FC	16	FC	1 fiber (SM), DFB Laser	1310/1550nm



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