



Installation/Operating Instructions

Fiber Optic Contact Transmission System

8/12 channel Contact Closure w/Optical Power Alarms Transmitter & Receiver

(ST/SR-xC-y & ST/SR-xC-yE63 series)

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ST/SR-xC-y & ST/SR-xC-yE63

Fiber Optic Contact Closure Transmission System

Installation Instructions

1.0 Product Description

Meridian's ST/SR-xC & E63 product series are fiber optic modems that transmit & receive either eight (8) or twelve (12) uni-directional contact closures over one optical fiber using digital transmission technologies. The E63 option has two additional local alarm output contacts on the transmitter and receiver to monitor the card's power supply and presence of either the laser's output (Tx) or optical input (Rx) signals.

Both singlemode and multimode versions are supported and designated by the part number. An ST optical connector interface is available for both multimode and singlemode fiber applications. The FC optical interface is available only for singlemode products. Optional conformal coating provides an additional level of protection from environments with exceptionally high condensation.

Refer to Appendix 1 at the back of this manual for the applicable module part numbers.

2.0 Installation

Series ST/SR-xC products are one-slot wide cards and, as such, occupy one slot in Meridian's standard chassis (SR-500/S, SR-1000/S, SR-1001/S, SR-1200/S, SR-1500/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 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 ST/SR-x & ST/SR-xE63 series products can transmit and receive the following signals:

Signal Type	Channels
Contact Mapping	8 or 12 (uni-directional)
Contact output (Tx) *	Laser output signal *
Contact output (Tx) *	Card power supply monitor *
Contact output (Rx) *	Optical input signal *
Contact output (Rx) *	Card power supply monitor *

Note: * The ST/SR-x-x-E63 series product includes optional alarm contact features: 2 local output contacts per ST & SR unit on 4-pin screw terminal connector see figure 4.3 and 4.4 for connector location and pinout diagram.

Again, refer to Appendix 1 for the product part number and associated functional description. The number of contacts will vary based on the product part number.

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

Contacts	
Contact Input	Closed input to ground (max input impedance is 4Kohm)
Contact Output & Alarms	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	
Contact Mapping	DB25F (25 pin Female 'D' style connector)
Alarm outputs (E63 option)	4-pin screw terminals
Optical	Singlemode – ST or FC Multimode - ST

Contact mapping LED indicators: Each contact input and output has a front panel LED associated with it to indicate its status (active or inactive). When each contact input is activated (closed contact to ground) the front panel LED associated with that input channel on the transmit card will light. Simultaneously, in a properly operating link, the respective channel's output contact LED on the receiver card will light.

4.0 Contact Mapping Connector Pin Assignment

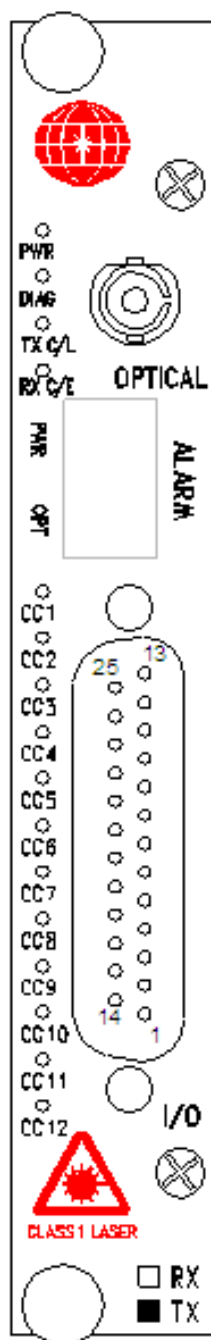
The DB25F connectors on the front of the module are used for the contact input/output interfaces. The diagrams below indicate the contact connection terminals for both the standard contact card (Figures 4.1 & 4.2) and the E63 version with local alarm contacts (Figures 4.3 & 4.4).

Note, the contact pinouts are shown for the 12-ch contact card. When using the 8-ch contact card only contacts 1 through 8 will be active.

STATUS INDICATORS

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

CC1 - (CH.1) CC INPUT
 CC2 - (CH.2) CC INPUT
 CC3 - (CH.3) CC INPUT
 CC4 - (CH.4) CC INPUT
 CC5 - (CH.5) CC INPUT
 CC6 - (CH.6) CC INPUT
 CC7 - (CH.7) CC INPUT
 CC8 - (CH.8) CC INPUT
 CC9 - (CH.9) CC INPUT
 CC10 - (CH.10) CC INPUT
 CC11 - (CH.11) CC INPUT
 CC12 - (CH.12) CC INPUT



ST-12C-X PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

CC INPUT (DB-25 FEMALE)

12. (CH.1) CC INPUT
 25. (CH.1) CC GND
 11. (CH.2) CC INPUT
 24. (CH.2) CC GND
 10. (CH.3) CC INPUT
 23. (CH.3) CC GND
 9. (CH.4) CC INPUT
 22. (CH.4) CC GND
 8. (CH.5) CC INPUT
 21. (CH.5) CC GND
 7. (CH.6) CC INPUT
 20. (CH.6) CC GND
 6. (CH.7) CC INPUT
 19. (CH.7) CC GND
 5. (CH.8) CC INPUT
 18. (CH.8) CC GND
 4. (CH.9) CC INPUT
 17. (CH.9) CC GND
 3. (CH.10) CC INPUT
 16. (CH.10) CC GND
 2. (CH.11) CC INPUT
 15. (CH.11) CC GND
 1. (CH.12) CC INPUT
 14. (CH.12) CC GND

Figure 4.1
 ST-xC-x 1-Slot Module Front Panel Diagram

STATUS INDICATORS

PWR - POWER (GREEN)

DIAG - NA

TX C/L - NA

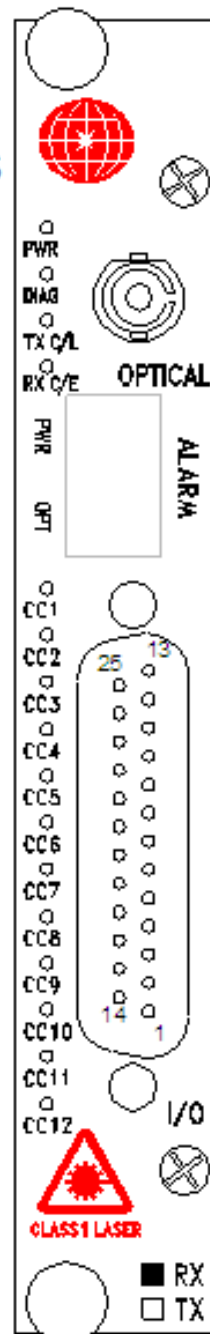
RX C/E - RX CARRIER (GREEN)
/ERROR (RED)

CC1 - (CH.1) CC OUTPUT
CC2 - (CH.2) CC OUTPUT
CC3 - (CH.3) CC OUTPUT
CC4 - (CH.4) CC OUTPUT
CC5 - (CH.5) CC OUTPUT
CC6 - (CH.6) CC OUTPUT
CC7 - (CH.7) CC OUTPUT
CC8 - (CH.8) CC OUTPUT
CC9 - (CH.9) CC OUTPUT
CC10 - (CH.10) CC OUTPUT
CC11 - (CH.11) CC OUTPUT
CC12 - (CH.12) CC OUTPUT

SR-12C-X PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

CC OUTPUT
(DB-25 FEMALE)



12. (CH.1) CC OUTPUT
25. (CH.1) CC OUTPUT
11. (CH.2) CC OUTPUT
24. (CH.2) CC OUTPUT
10. (CH.3) CC OUTPUT
23. (CH.3) CC OUTPUT
9. (CH.4) CC OUTPUT
22. (CH.4) CC OUTPUT
8. (CH.5) CC OUTPUT
21. (CH.5) CC OUTPUT
7. (CH.6) CC OUTPUT
20. (CH.6) CC OUTPUT
6. (CH.7) CC OUTPUT
19. (CH.7) CC OUTPUT
5. (CH.8) CC OUTPUT
18. (CH.8) CC OUTPUT
4. (CH.9) CC OUTPUT
17. (CH.9) CC OUTPUT
3. (CH.10) CC OUTPUT
16. (CH.10) CC OUTPUT
2. (CH.11) CC OUTPUT
15. (CH.11) CC OUTPUT
1. (CH.12) CC OUTPUT
14. (CH.12) CC OUTPUT

Figure 4.2
SR-xC-x 1-Slot Module Front Panel Diagram

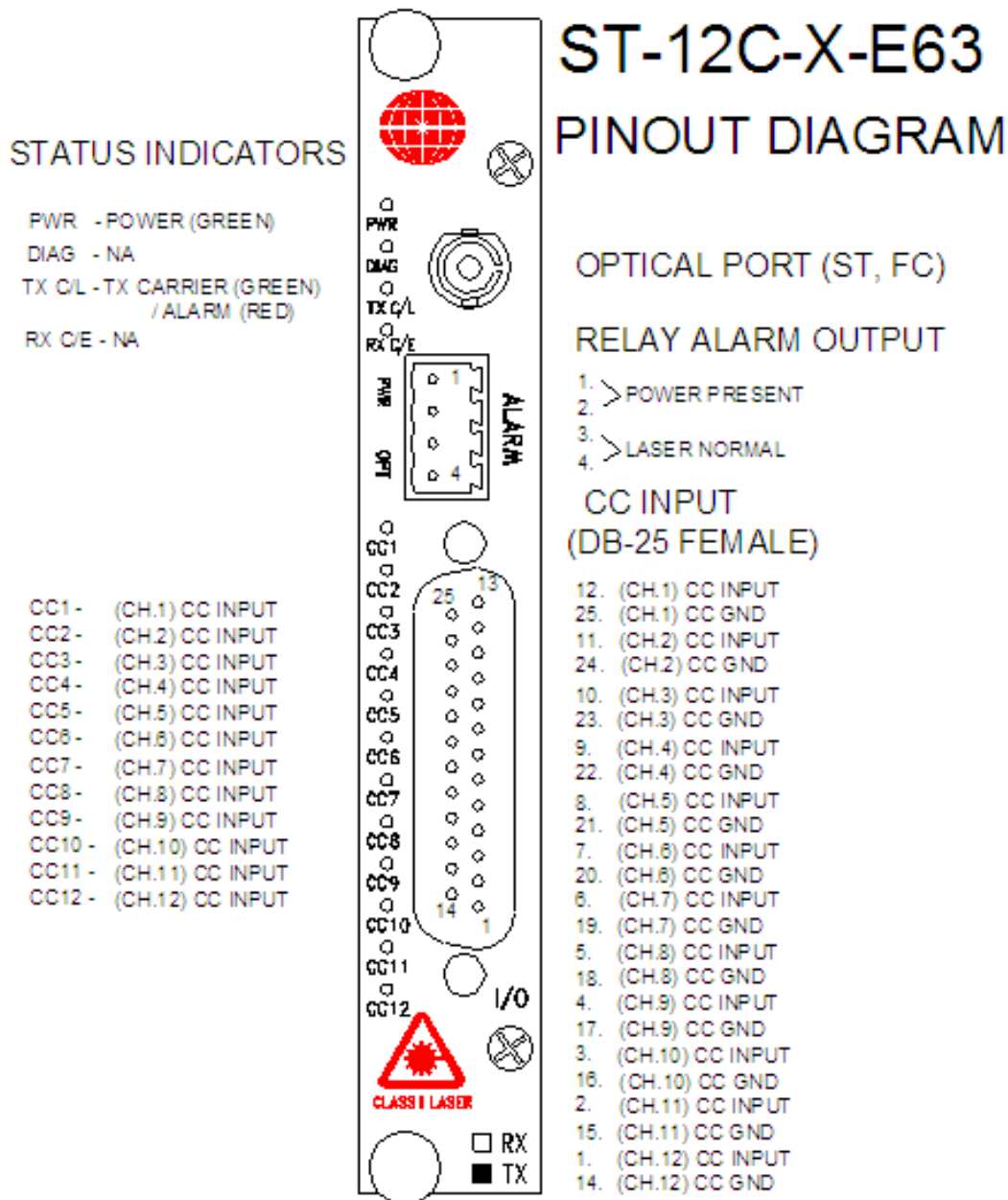
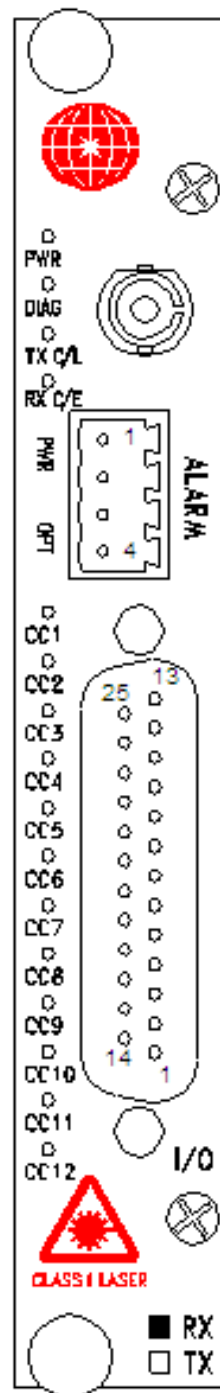


Figure 4.3
ST-xC-xE63 1-Slot Module Front Panel Diagram

STATUS INDICATORS

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

CC1 - (CH.1) CC OUTPUT
 CC2 - (CH.2) CC OUTPUT
 CC3 - (CH.3) CC OUTPUT
 CC4 - (CH.4) CC OUTPUT
 CC5 - (CH.5) CC OUTPUT
 CC6 - (CH.6) CC OUTPUT
 CC7 - (CH.7) CC OUTPUT
 CC8 - (CH.8) CC OUTPUT
 CC9 - (CH.9) CC OUTPUT
 CC10 - (CH.10) CC OUTPUT
 CC11 - (CH.11) CC OUTPUT
 CC12 - (CH.12) CC OUTPUT



SR-12C-X-E63 PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

RELAY ALARM OUTPUT

1. > POWER PRESENT
2. > RX OPTICAL SIGNAL PRESENT

CC OUTPUT (DB-25 FEMALE)

12. (CH.1) CC OUTPUT
25. (CH.1) CC OUTPUT
11. (CH.2) CC OUTPUT
24. (CH.2) CC OUTPUT
10. (CH.3) CC OUTPUT
23. (CH.3) CC OUTPUT
9. (CH.4) CC OUTPUT
22. (CH.4) CC OUTPUT
8. (CH.5) CC OUTPUT
21. (CH.5) CC OUTPUT
7. (CH.6) CC OUTPUT
20. (CH.6) CC OUTPUT
6. (CH.7) CC OUTPUT
19. (CH.7) CC OUTPUT
5. (CH.8) CC OUTPUT
18. (CH.8) CC OUTPUT
4. (CH.9) CC OUTPUT
17. (CH.9) CC OUTPUT
3. (CH.10) CC OUTPUT
16. (CH.10) CC OUTPUT
2. (CH.11) CC OUTPUT
15. (CH.11) CC OUTPUT
1. (CH.12) CC OUTPUT
14. (CH.12) CC OUTPUT

Figure 4.4
 SR-xC-xE63 1-Slot Module Front Panel Diagram

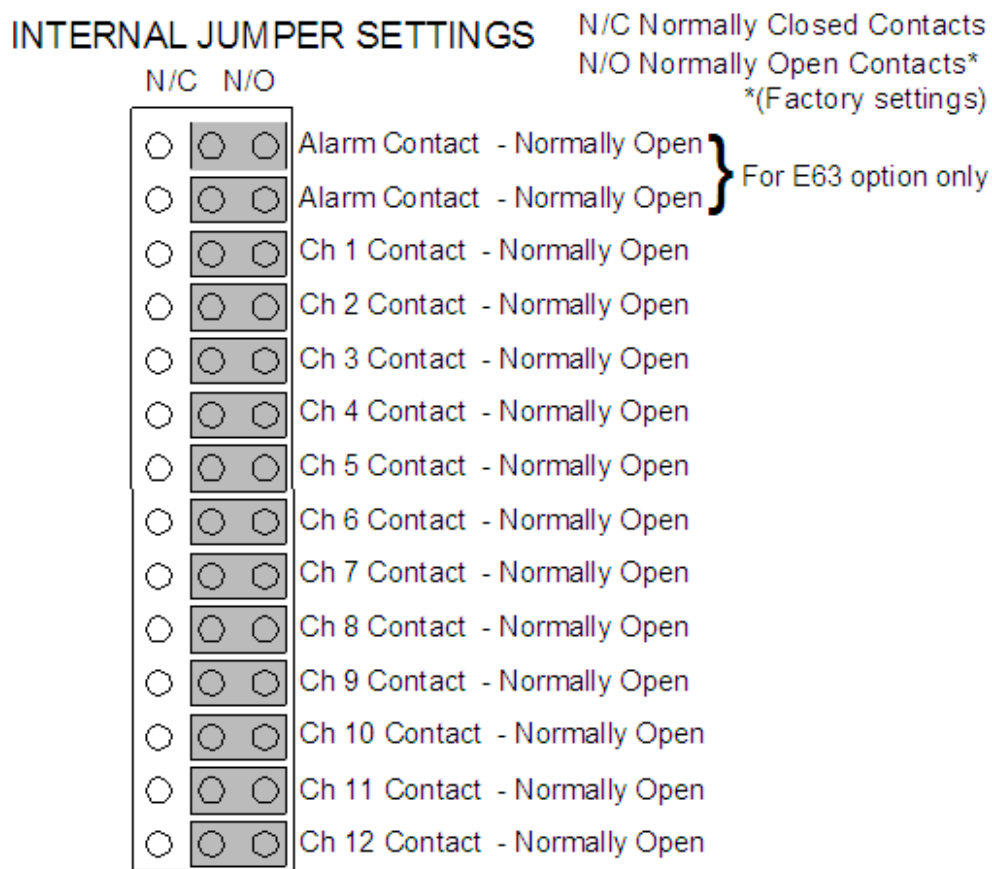
5.0 Contact Mapping Selection Jumpers

Contact Mapping - There are fourteen (14) 3-pin jumpers located directly behind the DB25F front-panel mounted connector on the main circuit card of the SR-xC unit (receiver). The jumpers 3-14 are used to select the power-on state of the individual contacts (NO or NC). Jumpers 1 & 2 are reserved for the local alarm contacts on the E63 card version (ST & SR units).

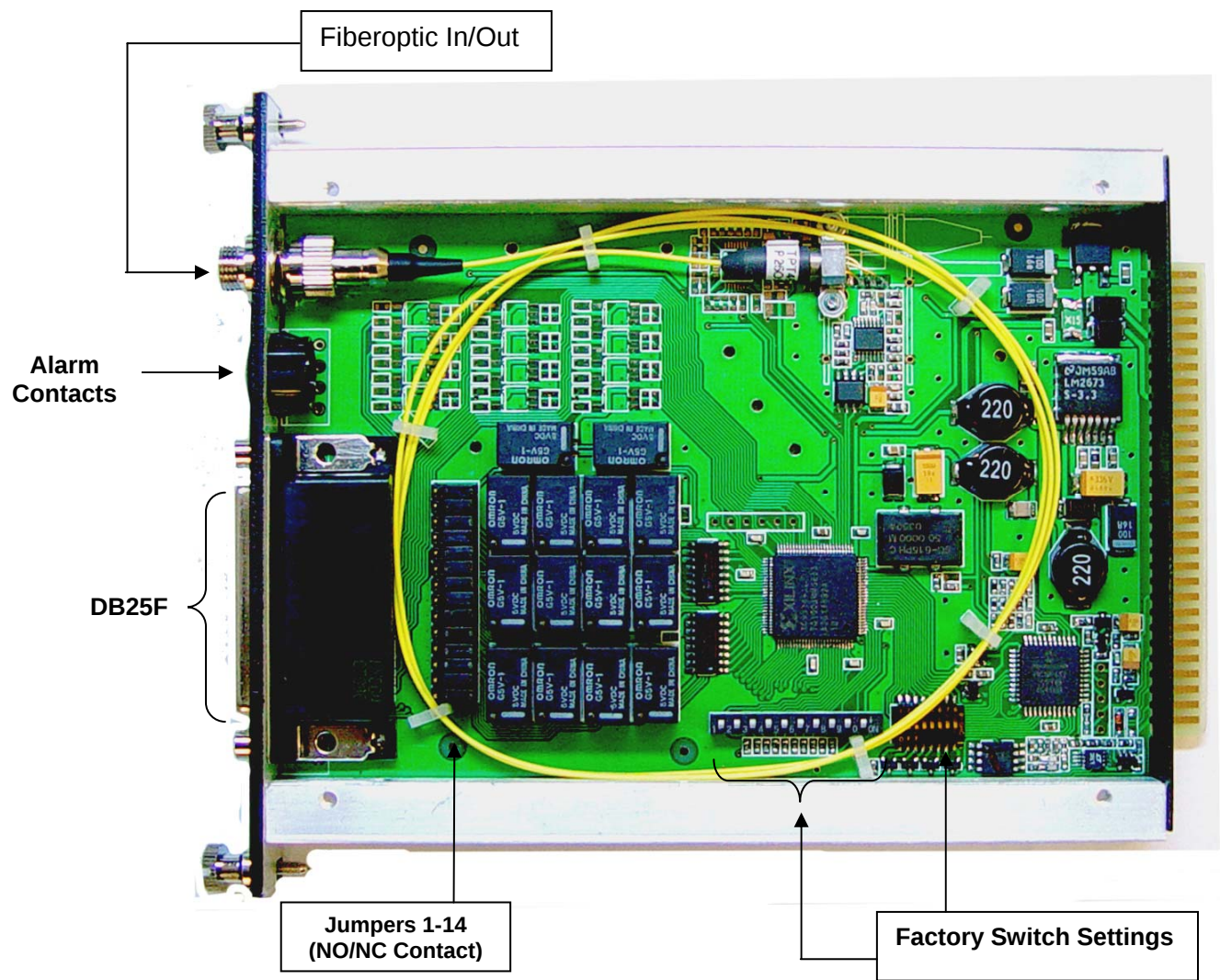
The output state of each individual contact on the receiver card (SR-xC) can be changed from Normally-Open (NO) to Normally-Closed (NC) by properly selecting the jumpers (Ch 1 through Ch 12). A NO contact on the receiver (SR) closes when the corresponding contact input on the transmit module (ST) is closed to ground. The default contact setting is NO (normally-open). To change the state of the default output contact, simply move the jumper of the subject contact from the right two pins to the left two pins on the jumper block. This will then provide a normally-closed (NC) contact to the appropriate output pins.

Similarly, the output state of the alarm contacts can also be changed from NO to NC by moving the appropriate jumper (#1 or #2) to the opposite position on the jumper block.

The illustration below describes the function of each of these 14 jumpers. The jumpers are shown in their default condition.



1-Slot Module Data Format Selection Switch & Jumper Location



6.0 Optical Specifications

The table below lists the optical specifications for both singlemode 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	-6	-26	20	1300	ST	24
Singlemode (FP Laser) 9/125	-6	-26	20	1310	ST, FC	24

Note: Please consult factory for other wavelengths and output power available to suit your requirements.

7.0 Product Part Numbers

See Appendix 1 for a listing of the product part numbers and their description that pertain to this document.

8.0 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. The Meridian “Globe” logo 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*

Action: Check power supply to ensure that it is plugged in and turned on.

Problem: *Contact closure not working*

Action: Input (Tx) side – Ensure that the input contact is connected between the appropriate input connection and ground. Verify that the contact is closed by viewing the associated input contact status LED. If it is off when the contact is closed, verify that the closed circuit input impedance is with the specifications listed.

- Verify that the laser Tx light is green

Output side – Confirm that the output contact status LED is on and that the optical input power LED is on. If not, check the optical path or measure the input optical power to verify that it is within the specified input levels.

Ensure that the terminal device is connected to the proper output contact pinouts and that the individual contact channel jumpers are set to the appropriate normally-open or normally-closed position

- Verify that the Rx light on the front panel is green

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

Appendix 1 – Applicable Part Number Variations

Transmitter Part #	Receiver Part #	# of Contact Channels	Description
SR-8C-1 (E63)	SR-8C-1 (E63)	8	8-Ch Contact Mapping Tx/Rx, multimode, 1-slot rack mount card
ST-8C-3 (E63)	SR-8C-3 (E63)		8-Ch Contact Mapping Tx/Rx, singlemode, 1-slot rack mount card
ST-12C-1 (E63)	SR-12C-1 (E63)	12	12-Ch Contact Mapping Tx/Rx, multimode, 1-slot rack mount card
ST-12C-3 (E63)	SR-12C-3 (E63)		12-Ch Contact Mapping Tx/Rx, singlemode, 1-slot rack mount card