



DigiSlim

Fiber Optic Audio/Data Transmission System

Installation Instructions

Part Number:

SXA/SXB-1A1C1D/1A1C1D-xS

**(1-channel Audio, 1-channel Contact Closure
& 1-Channel Multi-Protocol Data Transceiver)**

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

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SXA/SXB-1A1C1D/1A1C1D-xS **Fiber Optic Audio/Data Transmission System** **Installation Instructions**

1.0 Product Description

Meridian's product series SXA/SXB-1A1C1D/1A1C1D-xS are fiber optic modems that transmit & receive one channel of bi-directional audio channel, one channel of bi-directional contact closure and one channel of user-selectable RS-232, RS-422 or RS-485 data signal 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-1000/S, 1001/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment chassis.

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

Both ST and FC optical connectors are supported, depending on the part number. An ST optical 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 high humidity.

2.0 Installation

Series SXA/SXB-1A1C1D/1A1C1D-xS 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 SXA/SXB-1A1C1D/1A1C1D-xS series products can transmit and receive the following signals:

Signal Type	Channels
Audio	1
Contact Mapping	1
Data	1

Refer to Appendix 1 for the product part number and associated functional description. The above number and type of signals will vary based on the product part number.

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

Audio	
In/Out Impedance	600 Ohm, unbalanced/unbalanced
Frequency Response	10Hz to 20KHz
SNR	>90dB (weighted) @ 1KHz
In/Out Level	-8 to +8 dBm (4Vp-p, max)
THD	<0.01% @ 1KHz
Digitized Resolution	24 bit

Contact Mapping	
Contact type	Relay, normally-open, normally-closed, jumper selectable, Isolated contacts
Contact rating	0.3amps, 30 VAC/VDC
Contact bounce	5 msec
Max switching rate	10Hz

Data	
Formats	RS-232, RS-422, RS-485, Manchester, Bi-Phase
Date Rate (RS-232)	DC to 125Kb/s
Data Rate (RS-422 & RS-485)	DC to 300Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

Connectors	
Audio	14 pin terminal strip (one 5 pin connectors)
Contact Mapping	14 pin terminal strip (one 4 pin connectors)
Data	14 pin terminal strip (one 5 pin connectors)
Optical	Singlemode – ST or FC Multimode - ST

The 14 pin terminal connector on the front of the module is used for all data interfaces. This module supports the following data formats:

- RS-232 One full speed channels (Tx/Rx)
- RS-422 One channels
- RS-485 One channel (either 2 or 4* wire) *4 wire-default

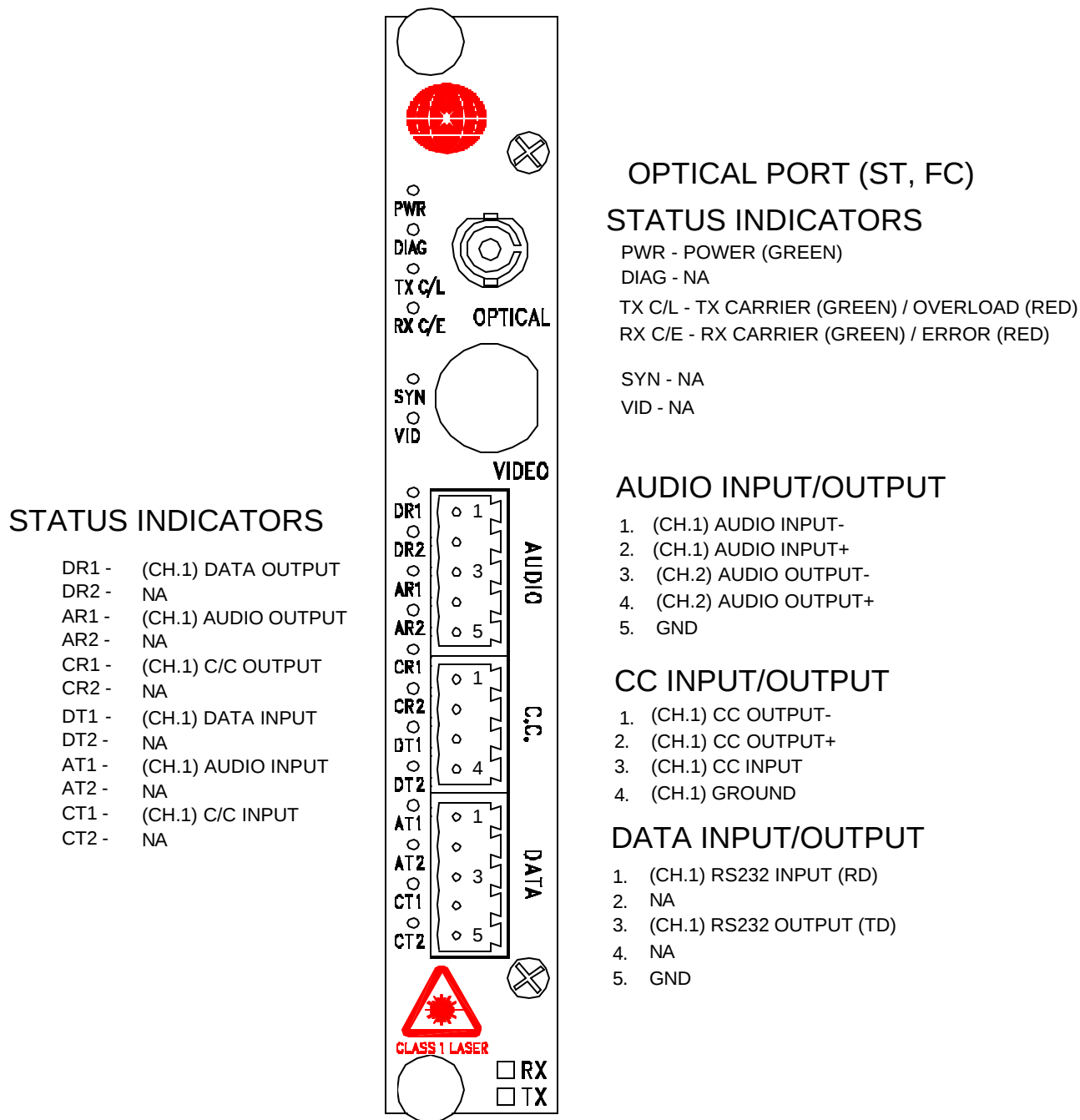
User-settable switches on the module's motherboard are used to select the appropriate data format as required.

4.0 Connector Pin Assignment

The one 14-pin screw connectors on the front of the module are used for the Audio interfaces, Contact Closure and Data. The diagrams below indicate the video, audio input/output & contact closure input/output connection terminals.

SXA/SXB-1A1C1D/1A1C1D-XS

PINOUT DIAGRAM



5.0 Signal Conditioning Switch/Jumper Settings

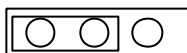
The sections below illustrate how to change the various audio impedance and contact mapping conditions.

5.1 Audio Impedance & Contact Mapping Selection jumpers

Audio Impedance - The input/Output impedance of each of the audio channels can be changed between 600 Ohm balanced and 47K Ohm unbalanced. The default impedance is 600 Ohm.

Contact Mapping - The output state of each of the contacts can be changed from Normally-Open (NO) to Normally-Closed (NC) by properly selecting the jumpers. A NO contact (output side) closes when the contact input on the input module's side is closed to ground. The default contact setting is NO (normally-open).

There are sixteen (16) 3-pin jumpers located directly behind the 14 pin screw terminal front-panel mounted connector. The top 10 jumpers are used to select the Input/Output Audio Impedance and the power-on state of the contacts (NO or NC). The illustration below describes the function of each of these 16 jumpers. The jumpers are shown in their default condition.

Jumper 1		Audio Ch 1 (-) (OUT) – 600 Ohm / Low Z
Jumper 2		Audio Ch 1 (+) (OUT) – 600 Ohm / Low Z
Jumper 3		N/A
Jumper 4		N/A
Jumper 5		N/A
Jumper 6		N/A
Jumper 7		Audio Ch 1 (+) (IN) – 47KOhm / 600Ohm
Jumper 8		Audio Ch 1 (-) (IN) – 47KOhm / 600Ohm
Jumper 9		Contact Ch 2 (OUT) – Normally Open (NO) - default
Jumper 10		Contact Ch 1 (OUT) – Normally Open (NO) - default
Jumper 11		RS-485 (4-wire/2-wire selection) – 4-wire default*
Jumper 12		RS-485 (4-wire/2-wire selection) – 4-wire default*
Jumper 13		RS-422 Ch 1 (IN) – 120 Ohm load – ON default
Jumper 14		Reserved
Jumper 15		Reserved
Jumper 16		RS-422 Ch 2 (IN) – 120 Ohm Load – ON default

**RS-232 FACTORY SETTINGS

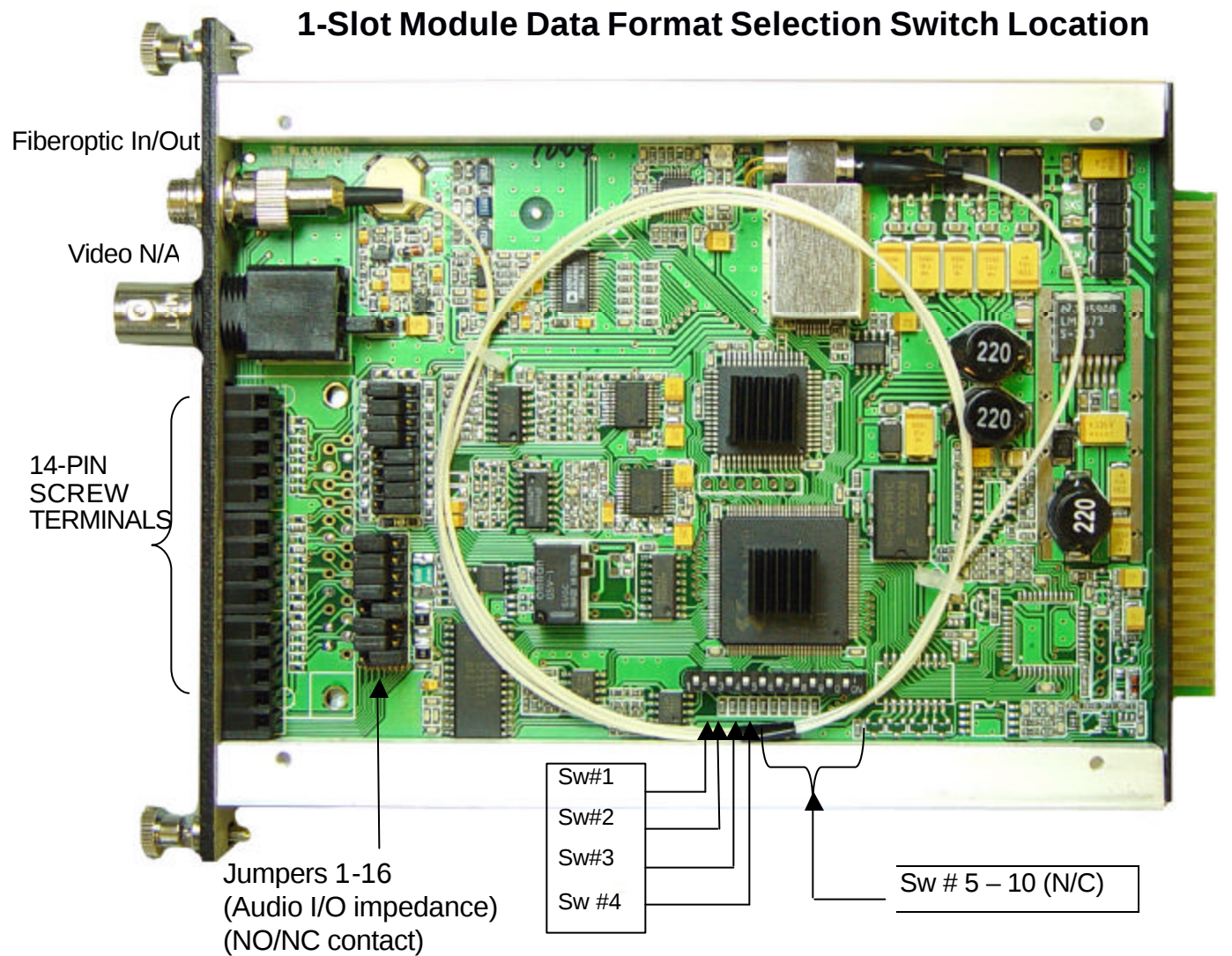
5.2 Data Format Selection

A group of 10 switches is located on the bottom center of the module’s circuit card (see figure below). The left four (4) of these switches control the data format that is transmitted/received. These switches on both the transmitter and receiver must be set the same in order to have proper data communications format between them. The figure and table below illustrates these switch locations on the board and how they are configured for the proper data format options. The factory-supplied default setting is for RS-232 data (Switch #1-4 OFF (up)).

Data Format Selection Switch Settings				
	Switch #1	Switch #2	Switch #3	Switch #4
RS-232	OFF (up)	OFF (up)	OFF (up)	OFF (up)
RS-422	ON (down)	ON (down)	OFF (up)	OFF (up)
RS-485 (2-wire)	OFF (up)	ON (down)	ON (down)	OFF (up)
RS-485 (4-wire)	OFF (up)	ON (down)	OFF (up)	OFF (up)

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

1-Slot Module Data Format Selection Switch 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

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. 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 video at output of module*

Action: Check the SpectraView display on the monitor for an indication of what the problem may be. Also, check to ensure that the video channel-specific LEDs are on (Green). Also, check to ensure that the optical LEDs are ON. If no video is still present, check to ensure that the monitor is ON and the video cable is connected to the correct video port on the Rx module.

Problem: *Video image is dark*

Action: Check the iris control on the camera to ensure that it is open to the proper amount for the conditions.

Problem: *Video image is too bright and appears overexposed*

Action: Check the Video overload indicator on the Rx module. If it is Red, the video signal level is too high and the CCTV iris should be checked to ensure that it is open properly for the conditions.

Problem: *No or distorted Audio*

Action: Check to ensure that the audio input/output connections are correct and that the Input/Output impedance jumpers are set correctly. The I/O impedance of each audio channel can be set independently so be sure to check that the appropriate channel is configured properly.

Problem: *Contact closure not working*

Action: Input side – Ensure that the input contact is connected between the appropriate input connection and ground
Output side – 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

Problem: *No Data*

Action: Check that both the SXA & SXB 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.
Confirm that the data connections are correct (Check to ensure that the data source is operating properly). The front panel lights located next to the 14 pin connector should be flashing as data is being sent to the transmit side. Check to ensure that data is being transmitted to the unit.

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 Audio Channels	# of Contact Channels	# of Data Channels	Optical Connector	Description
SXA-1A1C1D-2R	SXB-1A1C1D-2R	1	1	1	ST	Tx/Rx, multimode, rack mount
SXA-1A1C1D -5R	SXB-1A1C1D -5R	1	1	1	FC	Tx/Rx, singlemode, rack mount
SXA-1A1C1D -5RST	SXB-1A1C1D -5RST	1	1	1	ST	Tx/Rx, singlemode, rack mount

Notes:



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
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