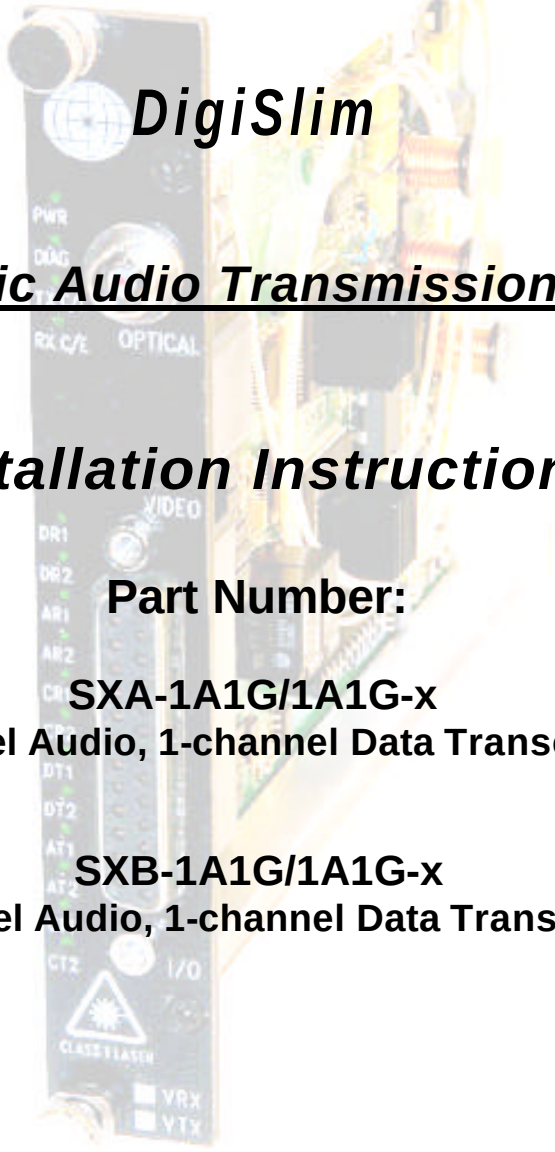


# *DigiSlim*

## *Fiber Optic Audio Transmission System*

# *Installation Instructions*

## Part Number:

**SXA-1A1G/1A1G-x**
**(1-channel Audio, 1-channel Data Transceiver)**

**SXB-1A1G/1A1G-x**
**(1-channel Audio, 1-channel Data Transceiver)**

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# ***SXA/SXB-1A1G/1A1G-x***
# ***Fiber Optic Audio/Data Transmission System***
# ***Installation Instructions***

## 1.0 Product Description

Meridian's product series SXA/SXB-1A1G/1A1G-x are fiber optic modems that transmit & receive one bi-directional audio channels one bi-directional, user-selectable RS-232, RS-422 and RS-485 data signals 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-1A1G/1A1G 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-1A1G/1A1G series products can transmit and receive the following signals:

| Signal Type | Channels |
|---|---|
| Audio | 1 |

| Variation | Signal Type | Channels |
|---|---|---|
| 1 | RS-232 (Tx & Rx data) | 1 |
| 2 | RS-422 (Tx & Rx data) | 1 |
| 3 | RS-485 (2-wire) | 1 |
| 4 | RS-485 (4-wire) | 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 |

| **Data** | |
|---|---|
| Formats | RS-232 |
| 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 / Data | DB25F (25 pin Female ‘D’ style connector) |
| Optical | Singlemode – ST or FC<br>Multimode - ST |

# 4.0 Connector Pin Assignment

The DB-25-pin connector on the front of the module is used for the Audio/Data interfaces. The diagrams below indicate audio, data input/output connection.

## SXA/SXB-1A1G/1A1G-x

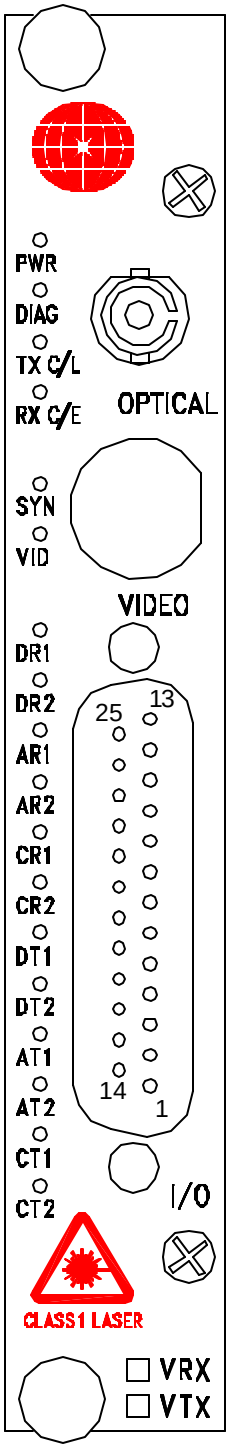
## PINOUT DIAGRAM

### STATUS INDICATORS

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

SYN - NA
VID - NA

DR1 - (CH.1) DATA OUTPUT
DR2 - NA
AR1 - (CH.1) AUDIO OUTPUT
AR2 - NA
CR1 - NA
CR2 - NA
DT1 - (CH.1) DATA INPUT
DT2 - NA
AT1 - (CH.1) AUDIO INPUT
AT2 - NA
CT1 - NA
CT2 - NA




### OPTICAL PORT (ST, FC)

STANDARD CONFIGURATION FOR "G" (MULTIPROTOCOL DATA) DRIVER RS-232.

### AUDIO/DATA INPUT/OUTPUT (DB-25 FEMALE)

22. (CH.1) AUDIO INPUT-
10. (CH.1) AUDIO INPUT+
12. (CH.1) AUDIO OUTPUT-
24. (CH.1) AUDIO OUTPUT+
4. (CH.1) RS232 INPUT / RS422 INPUT- / RS485 (4W) INPUT- / (CH.1) RS485 (2W) INPUT/OUTPUT-
16. (CH.1) RS422 INPUT+ / RS485 (4W) INPUT+ / (CH.1) RS485 (2W) INPUT/OUTPUT+
5. (CH.1) RS232 OUTPUT / RS422 OUTPUT- / RS485 OUTPUT-(4W) OUTPUT-
17. (CH.1) RS422 OUTPUT+ / RS485 OUTPUT+(4W)
1. GND
7. GND

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# 5.0 Signal Conditioning Switch/Jumper Settings

The sections below illustrate how to change the various data format and audio impedance.

## 5.1 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 three (3) switches control the data format that is transmitted/received. These switches on both the ST & SR modules 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 for both data channels (Switches #1-3 set in the UP (or "1") position).

| 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) |

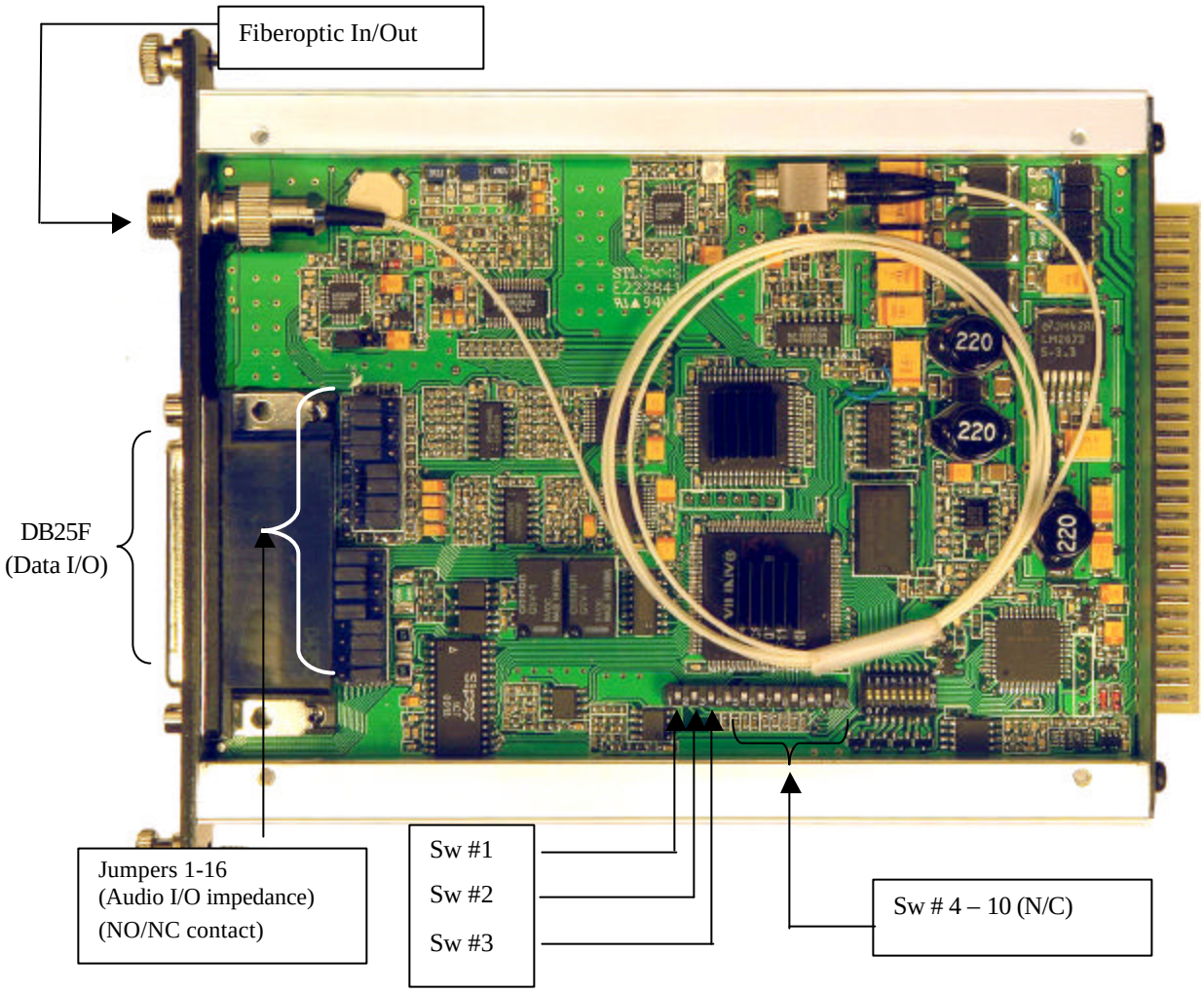
## 5.2 Audio Impedance, Data Selection jumpers

**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.

There are sixteen (16) 3-pin jumpers located directly behind the DB-25 pin front-panel mounted connector. The top 8 jumpers are used to select the Input/Output Audio Impedance. The illustration below describes the function of each of these 16 jumpers. The jumpers are shown in their default condition.

| | |
|---|---|
| Jumper 1 | N/A |
| Jumper 2 | Audio Ch 1 (+) (OUT) – 600 Ohm / Low Z |
| Jumper 3 | Audio Ch 1 (-) (OUT) – 600 Ohm / Low Z |
| 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 | N/A |
| Jumper 10 | N/A |
| 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 | N/A |

# 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 |

# 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 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:** *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). Confirm that the data connections are correct (see section 4.0 for data pinout connections). Check to ensure that the data source is operating properly. The front panel lights located next to the DB25 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 Data Channels | Optical Connector | Description |
|---|---|---|---|---|---|
| SXA-1A1G/1A1G-2R | SXB-1A1G/1A1G-2R | 1 | 1 | ST | Tx/Rx, multimode, rack mount |
| SXA-1A1G/1A1G-5R | SXB-1A1G/1A1G-5R | 1 | 1 | FC | Tx/Rx, singlemode, rack mount |
| SXA-1A1G/1A1G-5RST | SXB-1A1G/1A1G-5RST | 1 | 1 | ST | Tx/Rx, singlemode, rack mount |

## Notes:

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