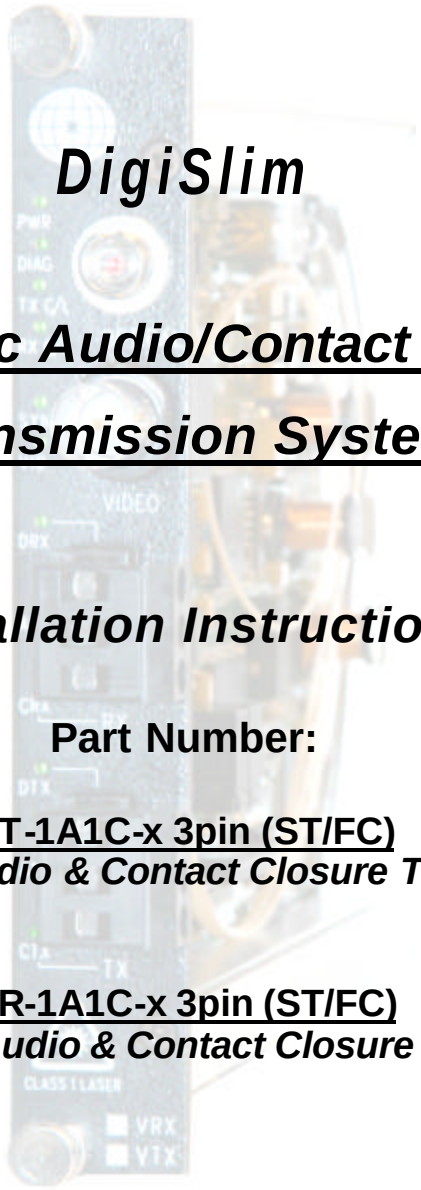

DigiSlim

Fiber Optic Audio/Contact Mapping Transmission System

Installation Instructions

Part Number:

ST-1A1C-x 3pin (ST/FC)
(1-channel Audio & Contact Closure Transmitter)

SR-1A1C-x 3pin (ST/FC)
(1-channel Audio & Contact Closure Receiver)

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ST/SR-1A1C-x
Fiber Optic Audio/CC Transmission System
Installation Instructions

1.0 Product Description

Meridian's product series ST/SR-1A1C-x are fiber optic modems that transmit & receive one channel of uni-directional Audio channel and one channel of uni-directional Contact Closure 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-1002/S, SR-1600/S and SR-2000 & SR-2001 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 single-mode fiber applications. The FC optical interface is available only for single-mode products. Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series ST/SR-1A1C-x products are one-slot wide cards and, as such, occupy one slot in Meridian's standard 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-1A1C-x series products can transmit and receive the following signals:

Signal Type	Channels
Audio	1
Contact Mapping	1

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

Audio	
In/Out Impedance	600 Ohm balanced or 47K Ohm unbalanced
Frequency Response	10Hz to 20KHz
SNR	>90dB (weighted) @ 1KHz
In/Out Level	-8 to +8dBm (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

Connectors	
Audio	One 3 pin screw terminal connector
Contact Mapping	One 3 pin screw terminal connector
Optical	Single-mode – ST or FC Multimode - ST

4.0 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	-5	-26	21	850 or 1300	ST	24
Single-mode (FP Laser) 9/125	-5	-26	21	1310	ST, FC	24

Compliant with Class 1 Laser Safety Rating.

5.0 Front Panel Indicator Lights

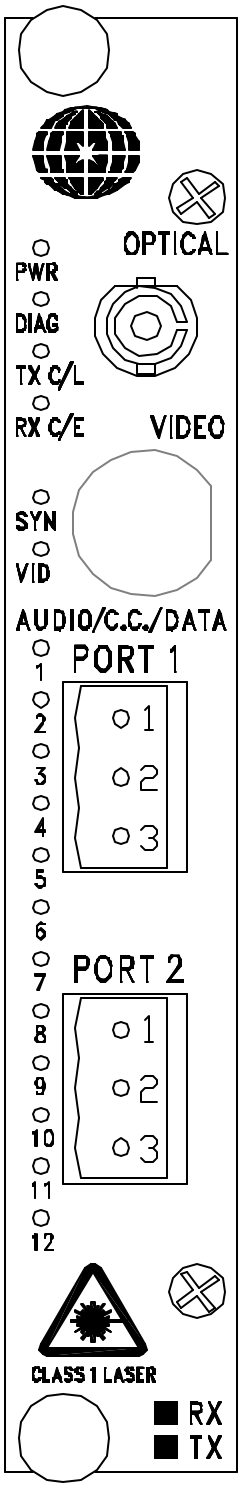
There are 18 LED indicator lights mounted on the left side of the module's front panel (see Figure 5.1 below). These indicators show the operation status of the module's power, optical carriers, video signal and the various data/audio channels. These indicators can be used for troubleshooting the module, electrical and optical connections.

Not all of the LEDs apply to all versions of these modules. Please refer to the module's part number for the appropriate signals, description.

*Note: The Card Diagnostic is optional and LED present only if applied.

5.1 Connector Pin Assignment

The two 3-pin screw connectors on the front of the module are used for the Audio & Contact Closure interfaces. The diagrams below indicate the CC & Audio input/output connection terminals.



ST-1A1C-X

PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

STATUS INDICATORS

PWR - POWER (GREEN)
DIAG - CARD DIAGNOSTIC*
(GREEN-OK, RED-ALARM)

TX C/L - TX CARRIER (GREEN) / OVERLOAD (RED)
RX C/E - NA
SYN - NA
VID - NA

PORT 1 AUDIO INPUT

1. (CH.1) AUDIO INPUT-
2. GND
3. (CH.1) AUDIO INPUT+

STATUS INDICATORS

9 - (CH.1) AUDIO INPUT (GREEN)

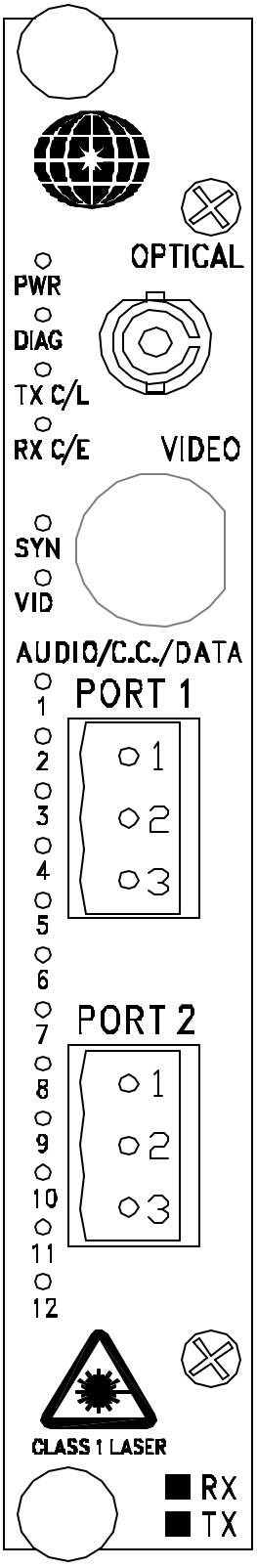
PORT 2 CC INPUT

1. (CH.1) CC INPUT
2. GND
3. NA

STATUS INDICATORS

11 - (CH.1) CC INPUT (GREEN)

Figure 5.1
ST-1A1C-x Card Front Panel



SR-1A1C-X

PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

STATUS INDICATORS

PWR - POWER (GREEN)

DIAG - CARD DIAGNOSTIC*
(GREEN-OK, RED-ALARM)

TX C/L - NA

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

SYN - NA

VID - NA

PORT 1 AUDIO OUTPUT

1. (CH.1) AUDIO OUTPUT-
2. GND
3. (CH.1) AUDIO OUTPUT+

STATUS INDICATORS

3 - (CH.1) AUDIO OUTPUT (GREEN)

PORT 2 CC OUTPUT

1. (CH.1) CC OUTPUT-
2. GND
3. (CH.1) CC OUTPUT+

STATUS INDICATORS

5 - (CH.1) CC OUTPUT (GREEN)

Figure 5.2
SR-1A1C-x Card Front Panel

6.0 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 3 pin screw terminal front-panel mounted connectors. The top 10 jumpers are used to select the Input/Output Audio and the power-on state of the contacts (NO or NC). The bottom 6 jumpers are not applicable for this system.
The illustration below describes the function of each of these 16 jumpers. The jumpers are shown in their default condition. Note that if there is only one audio or CC channel, the jumpers for "Ch1" are used.

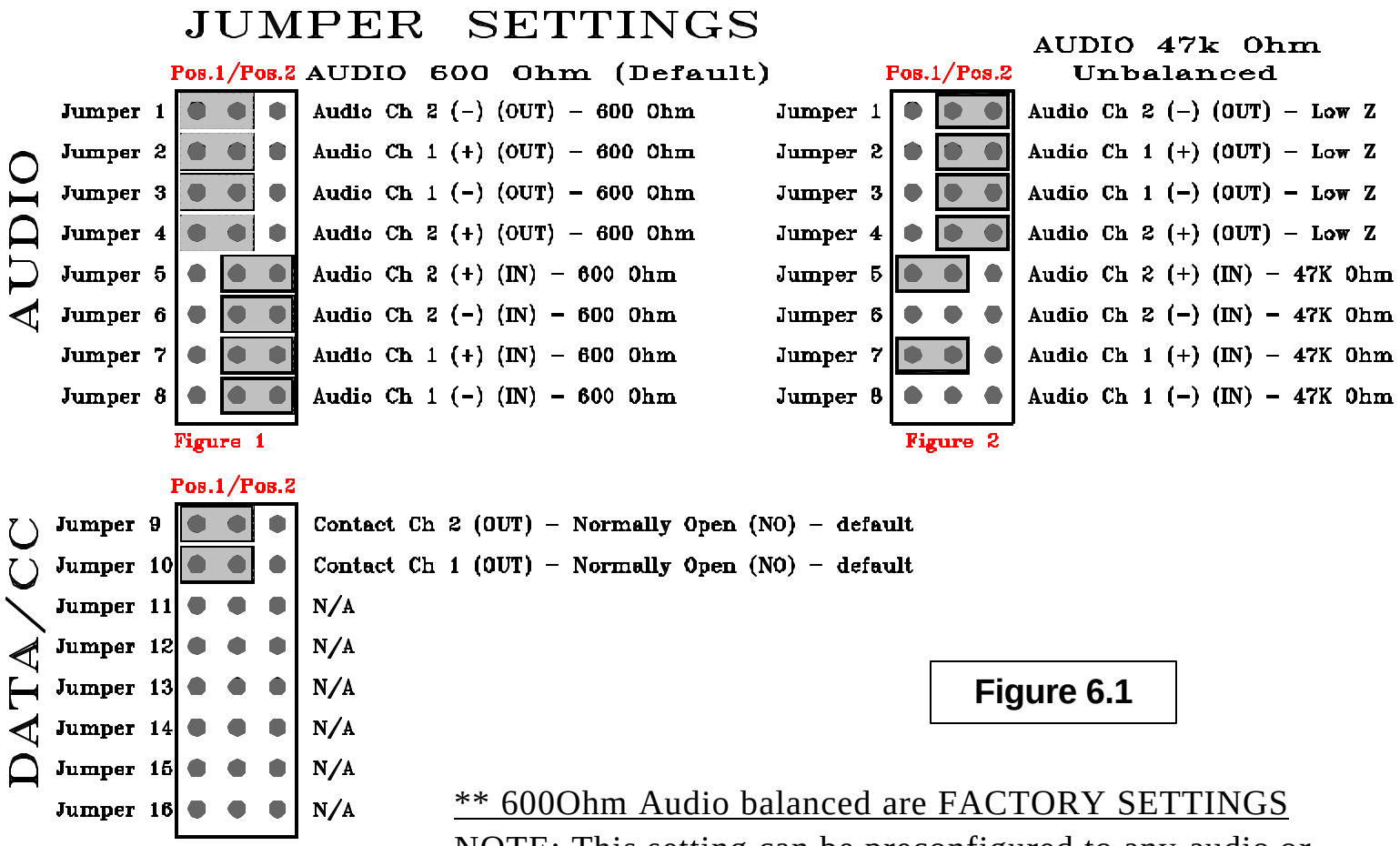
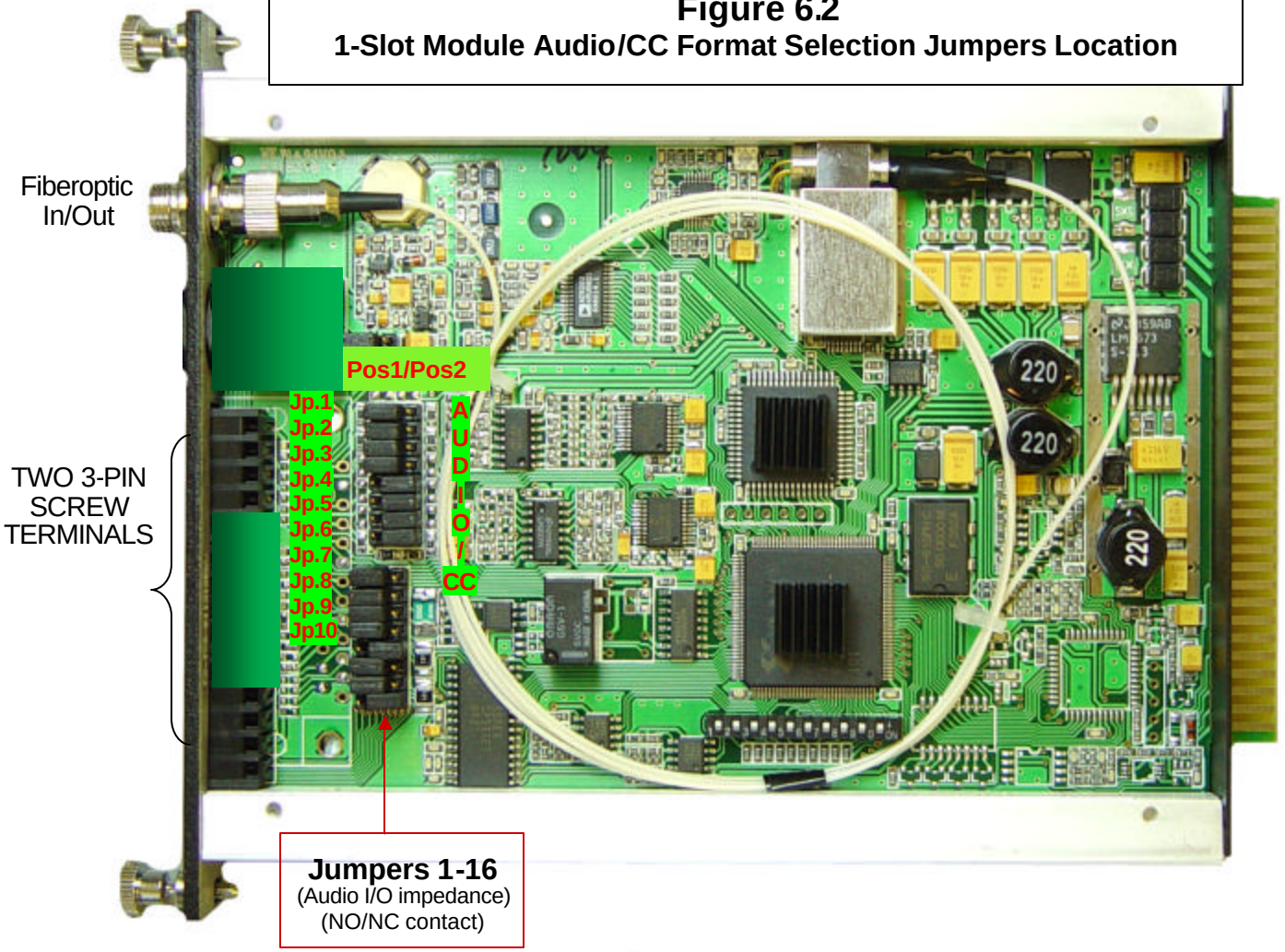


Figure 6.1

** 600Ohm Audio balanced are FACTORY SETTINGS

NOTE: This setting can be preconfigured to any audio or CC selection by customer request.

Figure 6.2
1-Slot Module Audio/CC Format Selection Jumpers Location



6.1 Changing Default Jumpers Settings

The jumpers to change the audio from 600 Ohm balanced to 47K Ohm unbalanced or 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. Remove the screws in each of the 4 corners of the top cover and carefully remove the cover.
3. The Jumpers (1-16) are located on the top two connectors of the module.
4. Refer to the above drawing to locate the 16 jumpers that are located near the 3 pin connector.
5. Using a small tool, carefully remove the jumper and place it on the appropriate pins to properly select the audio format (see Figure 6.1)
6. Carefully replace the side cover and secure with the screws.
7. Repeat this process for the other module. The jumper selection needs to be the same for both the ST and SR units.

7.0 Product Part Numbers

Appendix 1 – Applicable Part Number Variations

Transmitter Part #	Receiver Part #	# of Audio Channels	# of CC Channels	Wavelength	Optical Connector	Description
ST-1A1C-0	SR-1A1C-0	1	1	850nm	ST	Audio & CC Tx/Rx, multimode
ST-1A1C-1	SR-1A1C-1	1	1	1300nm	ST	Audio & CC Tx/Rx, multimode
ST-1A1C-3	SR-1A1C-3	1	1	1310nm	FC	Audio & CC Tx/Rx, single-mode
ST-1A1C-3/ST	SR-1A1C-3/ST	1	1	1310nm	ST	Audio & CC Tx/Rx, single-mode

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: *Tx signal light*
Action: Red - Optical module is defective, return to factory for repair.

Problem: *Rx signal*
Action: Red - Received optical signal absent or low. Check fiber connection and optical power at receiver.

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 Contact Closure transmission*
Action: Check the individual contact closure channel input status indicator lights to ensure that the lights toggle on and off as the contact is closed and opened. These lights are located below the corresponding 3 pin connector. Also check the corresponding contact closure output lights on the receiver 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 : +1-516-285-0570 / support@meridian-tech.com

Notes:

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