



Installation/Operation Instructions

Fiber Optic Audio, Contact Closure & Data Transmission System

Part Number:

DT-2A1C2J/2J-x

DR-2A1C2J/2J-x

***(2-Channel Audio, 1-Channel Contact Tx/Rx &
2-Channel RS-485 (2-wire) Data Transceiver)***



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1.0 Product Description

Meridian's product series DT-2A1C2J/2J and DR-2A1C2J/2J are fiber optic modems that transmit, two audio channels, one contact closure and two bi-directional RS-485 (2-wire) data channels 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-1000/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment chassis.

The digital modules consist of various plug-in personality function cards or SIMs. The top card is the optical card that contains the fiber optic interface. The optical output (Tx) connector is located on the left side of the module while the optical input (Rx) connector is adjacent to it on the right side of the module. The second SIM contains the audio channels, the third SIM contains the one-way contact closure and the bottom SIM houses the two RS-485 data channels.

2.0 Installation

Series DT-2A1C2J/2J and DR-2A1C2J/2J products are two-slot wide cards and, as such, occupy two slots in Meridian's standard chassis (SR-1000, SR-1000/S, SR-1200/S, SR-1500/S, and SR-2001 & SR-2000 series 19" equipment 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 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 DT & DR-2A1C2J/2J series products transmit and receive the following signals:

Signal Type	Channels	Transmit	Receive
Audio (600 ohm balanced & 47K, unbalanced)	2	DT-2A1C2J/2J	DR-2A1C2J/2J
Contact	1	DT-2A1C2J/2J	DR-2A1C2J/2J
RS-485 (2-wire)	2	Bi-directional	Bi-directional

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-485 (2-wire)
Date Rate (RS-485, 2-wire)	DC to 300Kb/s

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	DB9 Female
Data	DB9 Female
Contact	DB9HD Female (15 pin connector)
Optical	Singlemode – ST or FC Multimode – ST

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	-3	-24	21	1300/850	ST	24
Singlemode (FP Laser) 9/125	-3	-24	21	1310/1550	ST, FC	24
Singlemode (DFB Laser) 9/125	+3	-24	27	1310/1550	ST, FC	24

4.0 Signal Pinout Assignment

The tables below indicate the various connector pinout assignments for the audio, contact and RS-485 input/output connections.

Audio Connector Pinout Assignment (Port 2)			
Transmitter (DT) Module		Receiver (DR) Module	
Pinout	Port 1	Pinout	Port 1
1	In 1 (-)	1	Out 1 (-)
2	In 1 (+)	2	Out 1 (+)
3	In 2 (-)	3	Out 2 (-)
4	In 2 (+)	4	Out 2 (+)
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Contact Mapping Pinout Assignment (Port 3)		
Pin #	DT Module	DR Module
1	Ch1 Input	Ch1 Output
2	NC	Ch1 Output
3	NC	NC
4	NC	NC
5	GND	GND
6	NC	NC
7	NC	NC
8	NC	NC
9	NC	NC

Data Connector Pinout Assignment RS-485 (Port 4)		
Pin #	DT-2A1C2J/2J-x	DR-2A1C2J/2J-x
1	Ch1 Input/Output (+)	Ch1 Input/Output (+)
2	Ch1 Input/Output (-)	Ch1 Input/Output (-)
3	Ch2 Input/Output (+)	Ch2 Input/Output (+)
4	Ch2 Input/Output (-)	Ch2 Input/Output (-)
5	GND	GND
6	NC	NC
7	NC	NC
8	NC	NC
9	NC	NC

4.1 Audio Status indicators

The figures in Section 5 show the connector and LED indicator locations for the various audio status indicators on the transmitter and receiver modules. There are a number of diagnostic indicators on the front panel of each module. These indicators for each of the video & audio channels are listed below:

Each audio input/output channel has four LED status indicators located under the associated audio I/O connector. Two adjacent LEDs are associated with each audio input channel and two are associated with the respective audio output channel. The table below shows the relationship between the connectors (I/O channels) and LEDs.

Audio Input/Output Status Indicators			
LED	(DT-2A1C2J/2J)	LED	(DR-2A1C2J/2J)
1	In 1 Present	1	Out 1 Present
2	In 1 Overload	2	Out 1 Overload
3	In 2 Present	3	Out 2 Present
4	In 2 Overload	4	Out 2 Overload

Audio input PRESENT LEDs (DT-2A1C2J/2J-x) – Each of the LEDs associated with a specific audio input channel will light when the audio input source is connected and has a signal level greater than -8dB

Audio input OVERLOAD LEDs (DT-2A1C2J/2J -x) – when the audio input level of any channel exceeds +8dB, the associated audio channel input Overload LED will turn on indicating that the audio input level is too high and distortion on the output may result.

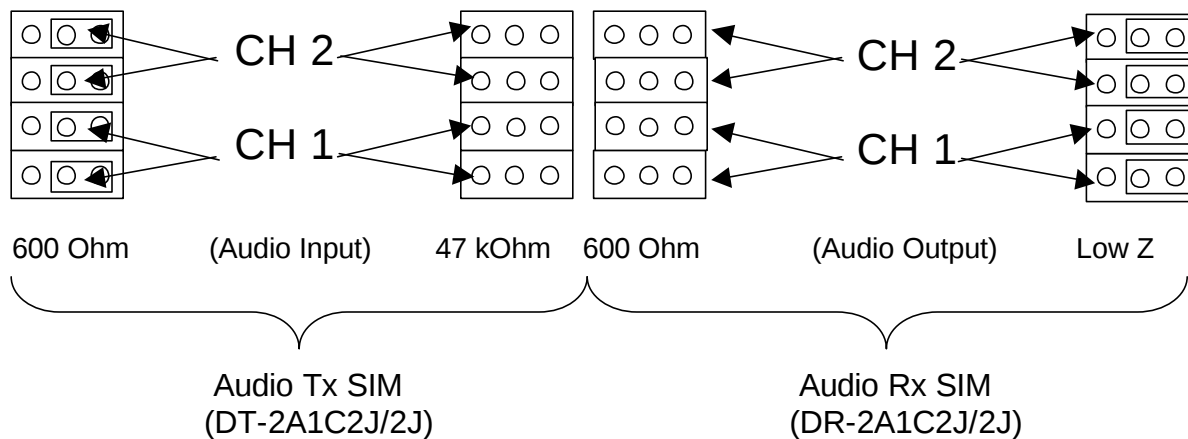
Audio output PRESENT LEDs (DR-2A1C2J/2J -x)– This light will turn on when the audio input on the transmit side is present, the DT & DR units are powered and the fiber is connected between the two modems.

Audio output OVERLOAD LEDs (DR-2A1C2J/2J -x) – These lights will light when the respective audio input on the transmit side is over +8dB. Since the audio output level will track the audio input level, this light should not illuminate when the audio input is below the overload condition (+8dB)

4.2 Audio SIM Jumper Settings

Each audio SIM has 4 jumpers on it (located directly behind the DB9 connector). There are two jumpers for each channel. These jumpers are used to set the input/output impedance of the audio channels. Each audio input channel can be set to either 600ohm (balanced) or 47kohm (unbalanced) input impedance. Each audio output channel's impedance can be set to either 600 ohm, balanced or low impedance. The default setting is 600 ohm, balanced.

The figures below illustrate these jumpers and how they are configured



5.0 Front Panel Pinout Assignment Diagram

Figures 5.1 and 5.2 below show the front panel layout, connector location and pinout assignment for both the DT & DR modules.

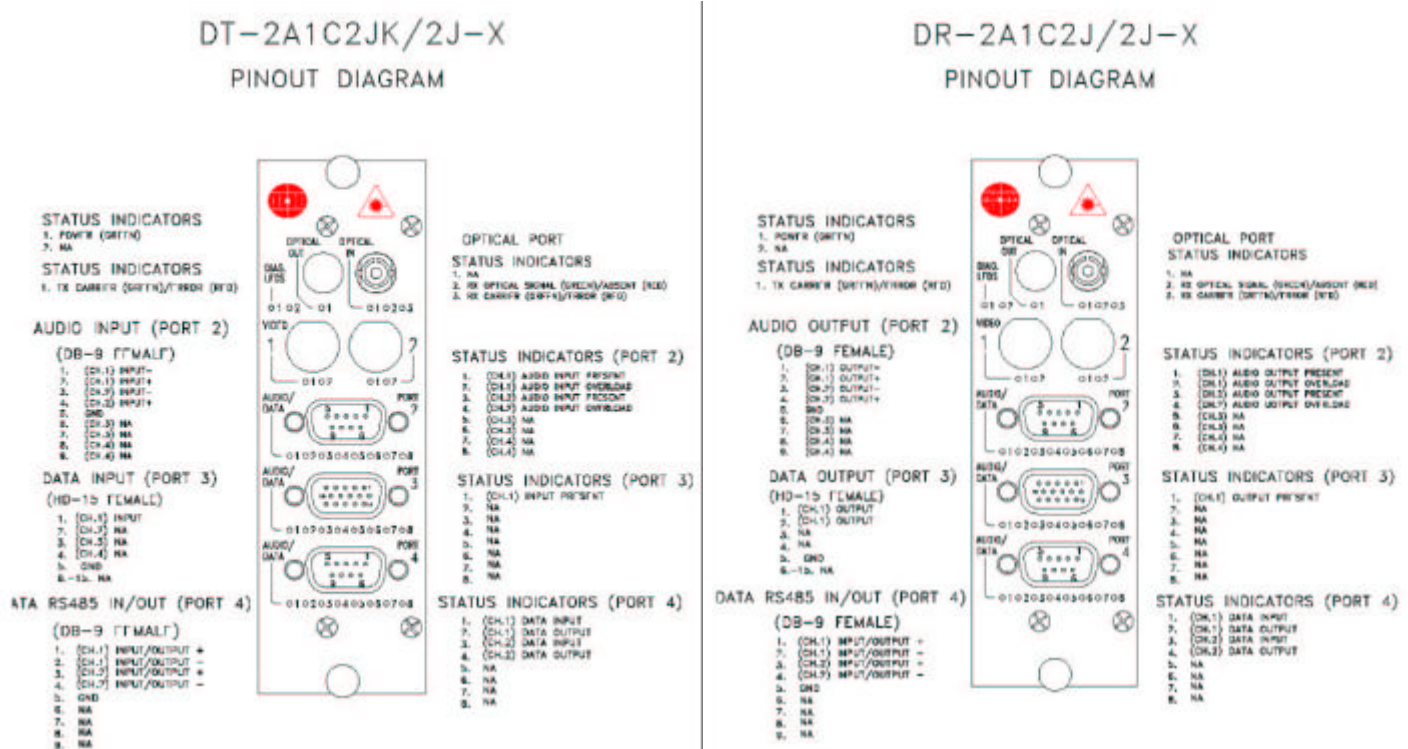


Figure 5.1
DT/DR-2A1C2J/2J Front Panel Layout Diagrams

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6.0 Product Part Number Variations

The table below lists the various part numbers associated with different module types:

Basic module description:

Audio: 2 Channels, one-way

Data: 2 RS-485 (2-wire) channels, bi-directional

Contact: 1 Channel, one-way

Transmitter	Receiver	# Fibers & Type	Wavelengths
DT-2A1C2J/2J-2	DR-2A1C2J/2J-2	1 (MM)	1310/850nm
DT-2A1C2J/2J-5	DR-2A1C2J/2J-5	1 (SM)	1310/1550nm

For proper operation, it is necessary to match the transmitter (DT) with the associated receiver module (DR).

7.0 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 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 Data*

Action: Check the data input status indicator light #1 on the transmit module to ensure it is on (indicating a data input signal). Also check the data output status indicator light #2 on the corresponding receiver module to ensure that the signal is being transmitted and received. If not, please check the data input/output and fiber connections. Ensure that the jumpers on the data Multi-protocol SIM are programmed properly to match the data format.

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

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