



Fiber Optic Data Transmission System Installation Instructions



DT/DR-8F-x

Unidirectional, 8 Channels RS-422 Data over One Optical Fiber

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1.0 Product Description

Meridian's DT/DR-8F product series are fiber optic modems that provide one-way transmission of 8 (eight) channels of RS-422 data 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, SR1000/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 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 SIMs 4 and 5 contains four, unidirectional RS422 data channels (8 channels total). Each data channel SIM is installed starting at the bottom of the module.

2.0 Installation

Series DT/DR-8F products are two-slot wide cards and will occupy two slots in Meridian's standard chassis (SR-1002/S, SR-2001 & SR-2000 series 19" equipment chassis). To install card 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 sub-rack 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 Part # Signal Format & Specifications

The DT/DR-8F series products transmit and receive the following signals:

Part #	Channels	Fiber type
DT-8F-1 & DR-8F-1	8	Multimode, 1300nm
DT-8F-3 & DR-8F-3	8	Single-mode, 1310nm, FP laser
DT-8F-4 & DR-8F-4	8	Single-mode, 1550nm, FP laser
DT-8F-7 & DR-8F-7	8	Single-mode, 1310nm, DFB laser
DT-8F-9 & DR-8F-9	8	Single-mode, 1550nm, DFB laser

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

Data	
Formats	RS-422 (unidirectional)
Data Rate	DC to 250Kb/s
Bit Error Rate (BER)	Better than 10 ⁻⁹
Connectors	
Data	DB9 Female (4 RS-422 channels per connector)
Optical	Single-mode – ST, FC; Multimode - ST

4.0 Data SIM Signal Assignment (Pinouts) & Indicator Lights

This data cards transmit/receive eight RS-422 data channels located on the two SIMs with four channels on each.

The table below shows the pinout for each of the DB9 connectors

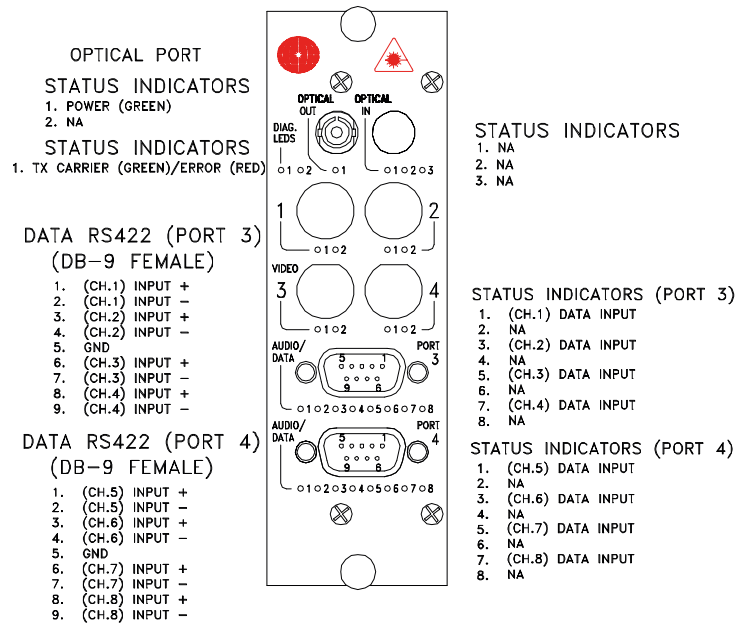
RS-422 Data Connector Pinout Assignment (each SIM identical)		
Pin #	DT-8F	DR-8F
1	Ch1 IN (+)	Ch1 OUT (+)
2	Ch1 IN (-)	Ch1 OUT (-)
3	Ch 2 IN (+)	Ch2 OUT (+)
4	Ch 2 IN (-)	Ch2 OUT (-)
5	Gnd	Gnd
6	Ch 3 IN (+)	Ch3 OUT (+)
7	Ch 3 IN (-)	Ch3 OUT (-)
8	Ch 4 IN (+)	Ch4 OUT (+)
9	Ch 4 IN (-)	Ch4 OUT (-)

The table below shows the LED status indicators associated with each data SIM

RS-422 Data Connector Status Indicators (each SIM identical)		
LED #	DT-8F	DR-8F
1	Ch1 Data Input	N/A
2	N/A	Ch 1 Data Output
3	Ch 2 Data Input	N/A
4	N/A	Ch 2 Data Output
5	Ch 3 Data Input	N/A
6	N/A	Ch 3 Data Output
7	Ch 4 Data Input	N/A
8	N/A	Ch 4 Data Output

DT-8F-X

PINOUT DIAGRAM



DR-8F-X

PINOUT DIAGRAM

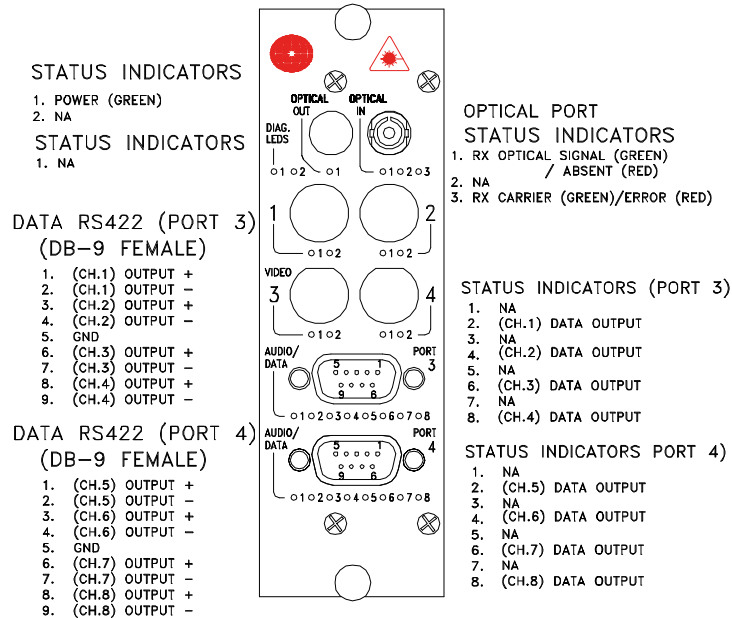


Figure 4.1

5.0 Optical Specifications

Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)	Estimated Max Distance (Km)
Multimode (FP Laser) 62.5/125	-5	-23	18	1300	ST	23	4
Single-mode (FP Laser) 9/125	-3	-23	20	1310	ST, FC	23	50
Single-mode (FP Laser) 9/125	-3	-23	20	1550	ST, FC	23	80
Single-mode (FP Laser) 9/125	+3	-23	26	1310	ST, FC	23	100
Single-mode (FP Laser) 9/125	+3	-23	26	1550	ST, FC	23	70

6.0 Troubleshooting

Below is a listing of several problems that may arise during the installation & operation of the modules.

Problem: Module does not fit in chassis slots

Action: Check module orientation. Meridian “Globe” must be oriented on the top of the module
Make sure the card guides in the chassis are aligned with the extrusion on the module

Problem: The card power LED does not light when power to the module/sub-rack 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 Data

Action: Check the data input status indicator lights below data connector to ensure they are lit properly (indicating a data input signals). Also check the associated data output status lights 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.

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



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