



Installation/Operation Instructions

Fiber Optic Data Transmission System

Part Number:

DT-xF-x & DR-xF-x Series

***(Multi-Channel RS-422 Data Transmitter/Receiver)
(For modules with 1 to 16 RS-422 data channels)***

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1.0 Product Description

Meridian's DT/DR-xF product series are fiber optic modems that provide one-way transmission from one to sixteen channels of full-duplex RS-422 (4-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, 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. Each of the second through fifth SIMs contains four, uni-directional RS-422 data channels (depending on total number of channels). Each data channel SIM is installed starting at the bottom of the module. For example, with only four data channel, the bottom SIM card location will be populated while a full 16-channel module will utilize all of the data ports.

2.0 Installation

Series DXA/DXB-xF products are two-slot wide cards and, as such, occupy two slots in Meridian's standard chassis (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 Part # Signal Format & Specifications

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

RS-422 (bi-directional) Module Part #'s		
Part #	Channels	Fiber type
DT-4F-2 & DR-4F-2	4	Multimode
DT-4F-5 & DR-4F-5	4	Singlemode
DT-8F-2 & DR-8F-2	8	Multimode
DT-8F-5 & DR-8F-5	8	Singlemode
DT-12F-2 & DR-12F-2	12	Multimode
DT-12F-5 & DR-12F-5	12	Singlemode
DT-16F-2 & DR-16F-2	16	Multimode
DT-16F-5 & DR-16F-5	16	Singlemode

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

Data	
Formats	RS-422 (uni-directional)
Data Rate (RS-485)	DC to 300Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

Connectors	
Data	DB9 Female (4 RS-422 channels per connector)
Optical	Singlemode – ST or FC Multimode - ST

4.0 Data SIM Signal Assignment (Pinouts) & Indicator Lights

There is one data SIM card in these modules. This data cards transmits/receives two RS-485 (4-wire) data channels. The data SIM has a DB9 female connector.

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

RS-422 Data Connector Pinout Assignment (each SIM identical)		
Pin #	DT-xF	DR-xF
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-xF	DR-xF
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

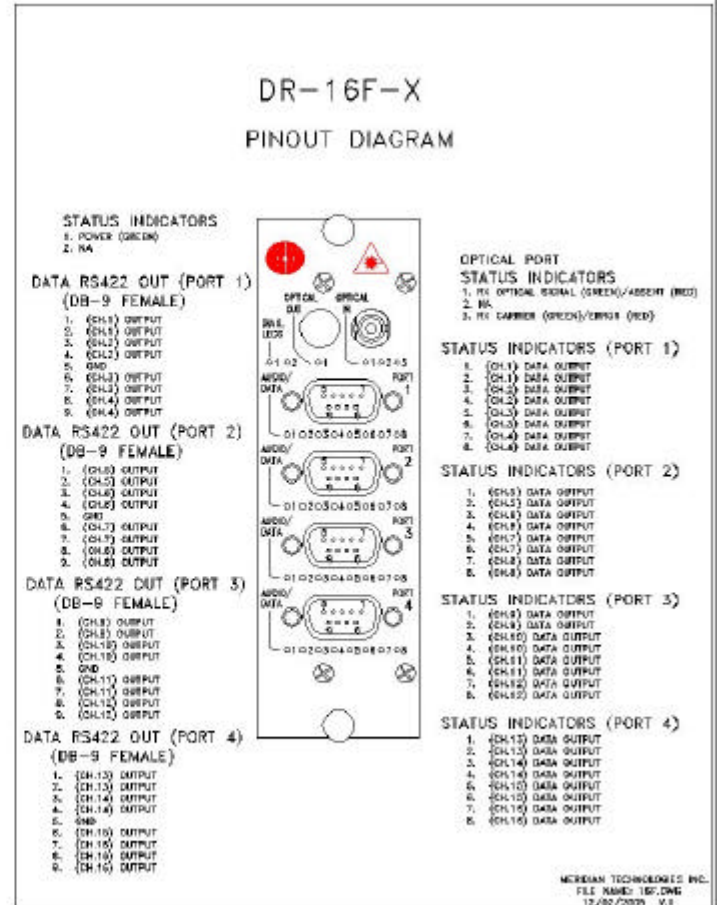
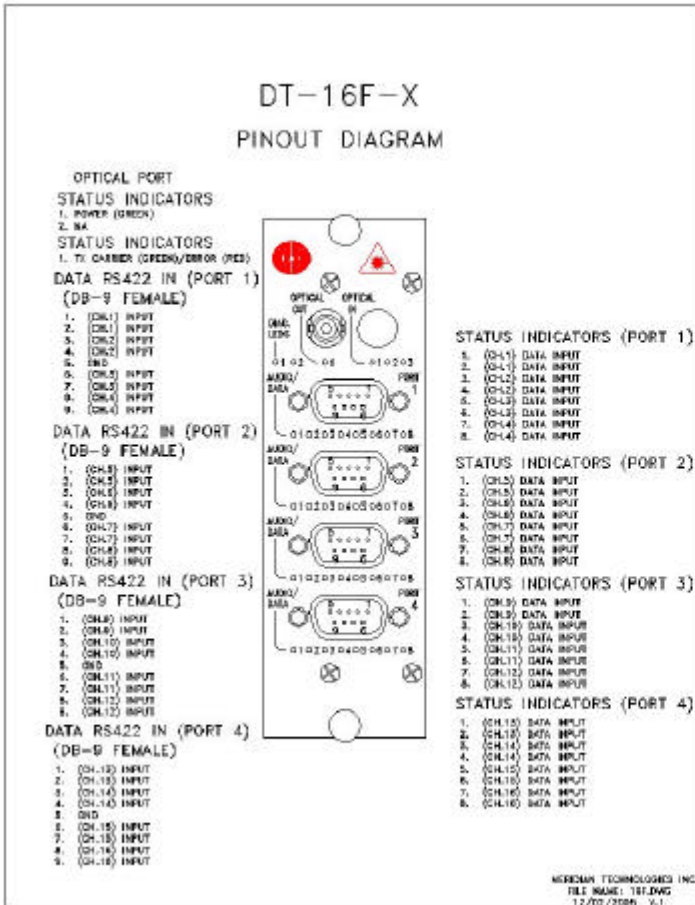


Figure 4.1
Front Panel Layout/Pinout Diagrams

5.0 Optical Specifications

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	1310/1 550	ST, FC	24
Singlemode (DFB Laser) 9/125	+3	-24	27	1310/1550	ST, FC	24

6.0 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 Data*
Action: Check the data input status indicator lights below data connector to ensure it is on (indicating a data input signal). Also check the associated data output status indicator 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 (516-285-1000).