



Installation/Operation Instructions

Fiber Optic Data Transmission System

Part Number:

PXA-1800iR & PXB-1800iR (2-wire)

PXA-1801iR & PXB-1801iR (4-wire)

(RS-485 One-Fiber Data Transceiver)

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1.0 Product Description

Meridian's PXA/PXB-1800iR/1801iR series products are fiber optic modems that transmit one channel of bi-directional RS-485 data over one optical fiber using digital transmission technologies. The PXA/PXB-1800iR series products transmit 2-wire RS-485 data while the PXA/PXB-1801iR series products transmit 4-wire RS-485 data. This product series uses Meridian's standard 1-slot wide chassis mount card assembly and plugs into all of Meridian's stand-alone and rack-mount chassis.

2.0 Installation

Series PXA-1800iR/1801iR and PXB-1800iR/1801iR products are one-slot wide cards and, as such, occupy only one slot in Meridian's standard chassis (SR-500/S, 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.

Front Panel Indicators – There is a front panel power indicator on the PXA/PXB-1800iR/1801iR series modems.

3.0 Product Signal Format & Specifications

The PXA & PXB-1800iR/1801iR series products transmit and receive the following signals:

Product	Channels	Signal Type	Transmit	Receive
PXA/PXB-1800iR-x	1	RS-485 (2-wire)	Yes	Yes
PXA/PXB-1801iR-x	1	RS-485 (4-wire)	Yes	Yes

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

Data	
Formats	RS-485 (2 & 4-wire)
Date Rate (RS-485)	DC to 300Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

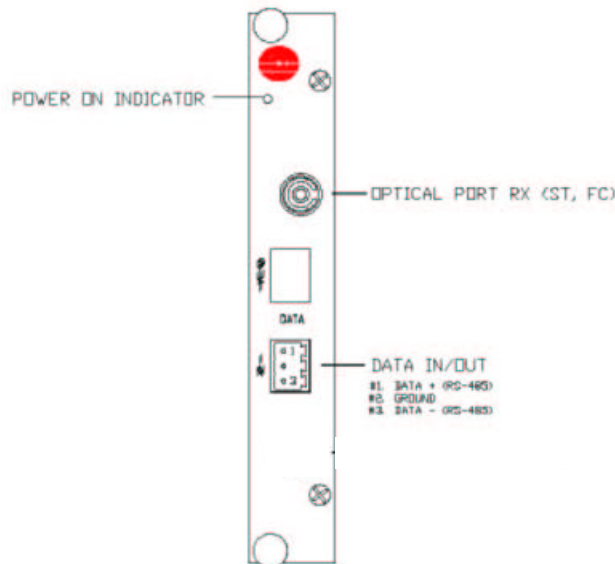
Connectors	
Data	One, 3-pin screw terminal connector (PXA/PXB-1800iR-x) Two, 3-pin screw terminal connectors (PXA/PXB-1801iR-x) (see front-panel diagrams for input/output connections)
Optical	Singlemode – ST or FC Multimode - ST

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

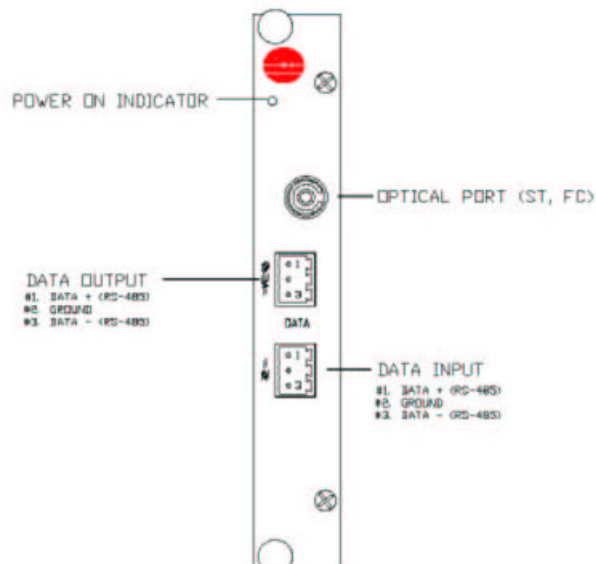
4.0 Modem Optical Interface Connections

The PXA/PXB-1800iR/1801iR data modems are single fiber modems and, as such, must be connected in 'pairs'. In other words, a PXA unit must be optically connected to the corresponding PXB unit at the other side. A PXA unit will not communicate with another PXA unit. Likewise, a PXB unit will not communicate with another PXB module.

The figures below show the location and function of the front panel electrical and optical connections for both the PXA/PXB-1800iR and 1801iR series products.



Front Panel Diagram
PXA/PXB-1800iR-x
(2-wire RS-485)



Front Panel Diagram
PXA/PXB-1801iR-x
(4-wire RS-485)

5.0 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 to ensure that the I/O is connected to the proper input/output pins on the modem and that the activity lights are functioning properly. The data connectors are NOT insulation displacement connectors (IDC). It is necessary to properly strip the end of the wire prior to inserting in the 3-pin connector. Ensure that this has been done and that the wire is securely fastened with the associated screw.
- Ensure that you have complementary modules connected together (PXA – PXB). A PXA module will not communicate with another PXA module. Likewise, a PXB module will not communicate with another PXB module.

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

Appendix 1 – Applicable Part Number Variations

The table below indicates the part numbers and product description that are included in this manual. The pinout diagrams in section 4.0 shows the connector pinouts (input/output connections) for these product variations.

Side “A” Part #	Side “B” Part #	Description
PXA-1800iR-0	PXB-1800iR-0	RS-485 (2-wire) Transceiver, Multimode, 1 fiber, ST connector
PXA-1800iR-1	PXB-1800iR-1	RS-485 (2-wire) Transceiver, Singlemode, 1 fiber, FC connector
PXA-1800iR-1/ST	PXB-1800iR-1/ST	RS-485 (2-wire) Transceiver, Singlemode, 1 fiber, ST connector
PXA-1801iR-0	PXB-1801iR-0	RS-485 (4-wire) Transceiver, Multimode, 1 fiber, ST connector
PXA-1801iR-1	PXB-1801iR-1	RS-485 (4-wire) Transceiver, Singlemode, 1 fiber, FC connector
PXA-1801iR-1/ST	PXB-1801iR-1/ST	RS-485 (4-wire) Transceiver, Singlemode, 1 fiber, ST connector