Installation/Operation Instructions

Fiber Optic Video/Data Transmission System

Part Numbers:

PXA-800iR-V5A5A3/V5A5A3-x (1-fiber)
PX-800R-V5A5A3/V5A5A3-x (2-fiber)
(Video, Audio & Data Transceiver)

PXB-800iR-V5A5A3/V5A5A3-x (1-fiber)
PX-800R-V5A5A3/V5A5A3-x (2-fiber)
(Video, Audio & Data Transceiver)

700 Elmont Rd, Elmont, NY 11003, Tel: 516-285-1000; Fax: 516-285-6300
www.Meridian-tech.com

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1.0 Product Description

Meridian's 800R-V5A5A3/V5A5A3 product series are bi-directional fiber optic modems that transmit one channel of bi-directional video, two channels of bi-directional audio and one bi-directional RS-232 data channel over one optical fiber using FM 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 PX-800R series modules are 2-fibers modules while the PXA & PXB-800 series modules are 1-fiber modules. See section 5.0 for specific product part numbers.

2.0 Installation

Series PXA & PXB-800iR-V5A5A3/V5A5A3 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 Signal Format & Specifications

The PXA & PXB-800iR-V5A5A3/V5A5A3 series products transmit and receive the following signals:

Signal Type	Channels	PX/PXA Module	PX/PXB Module
NTSC/PAL video	1	Yes	Yes
RS-232	1	Yes	Yes
Audio (600 Ohm-balanced)	2	Yes	Yes

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

Video	
Format	NTSC, PAL, SECAM
Voltage/Impedance	1Vp-p, 75Ω, 1.5Vp-p (max)
Differential Gain	<2
Differential Phase	<1.5 ^{o}
SNR	>60dB (weighted)
Return Loss	>30dB

Audio	
Input/Output Impedance	600 Ohm Balanced
Frequency Response	10Hz to 20KHz
THD	<1%, 1KHz @ maximum modulation
I/O Level	-6 to +6 dBm
SNR	>60dB

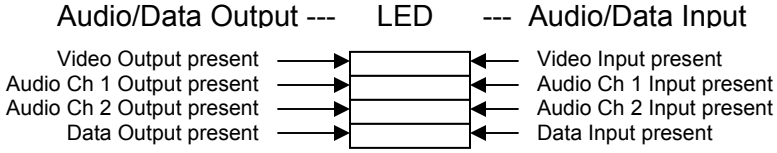
Data	
Formats	RS-232
Data Rate	DC to 125 Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

Connectors	
Video	75Ω BNC w/gold center pin
Audio & Data	DB15 (high density DB9) – Data & Audio combined on same connector
Optical	Singlemode – ST or FC Multimode - ST

3.1 Front Panel Indicators

Each module has two sets of four LED bar lights. The set of four indicators on the right side of the module is for the Video/Audio/Data inputs while the LED bar display on the left is for the Video/Audio/Data output signals.

The chart below indicates the LEDS and their function:



3.2 Audio Adjustments/Indicators

Each of the two bi-directional audio channels has input & output level adjustments associated with it on the respective module. The Audio input level adjustments are on the right side of the module while the corresponding output level adjustments are on the left side of the module. A small slotted jeweler's type screwdriver is used to adjust the potentiometer for each channel.

Each of the audio channels should be adjusted as follows:

1. Connect a 0dBm Audio signal to each channel
2. Tx adjustment - Adjust the corresponding Audio level potentiometer so that the corresponding LED just comes ON
3. Rx Adjustment – Connect the PXA & PXB units together via the optical fiber. Once the Tx audio channel is properly adjusted, adjust the corresponding Audio channel potentiometer on the receive unit so that the LED associated with that channel just comes ON
4. Repeat for the 2nd Audio channel

These adjustments are necessary to eliminate any distortion of the Audio channels and possible errors in the data channel.

4.0 Signal Assignment (Pinouts)

There are two DE-15 female (high-density DB9) connectors on the module. The connector on the right side of the module is used for the audio & data input signals while the connector on the left side of the module is used for the corresponding audio & data output signals from the other module.

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

Pinout Assignment		
Pin #	**Audio/Data Input Connector**	**Audio/Data Output Connector**
1	RS-232 (IN)	RS-232 (OUT)
2	NC	NC
3	RS-232 (GND)	RS-232 (GND)
4	Ch 2 Audio (+) (IN)	Ch 2 Audio (+) (OUT)
5	Ch 1 Audio (+) (IN)	Ch 1 Audio (+) (OUT)
6	NC	NC
7	NC	NC
8 - 10	Gnd	Gnd
11	NC	NC
12	NC	NC
13	Gnd	Gnd
14	Ch 2 Audio (-) (IN)	Ch 2 Audio (-) (OUT)
15	Ch 1 Audio (-) (IN)	Ch 1 Audio (-) (OUT)

Figures 4.1 & 4.2 below show the location of the various connectors & indicators on the PX and PXA/PXB series products.

PXA/PXB-800iR
Pinout Diagram

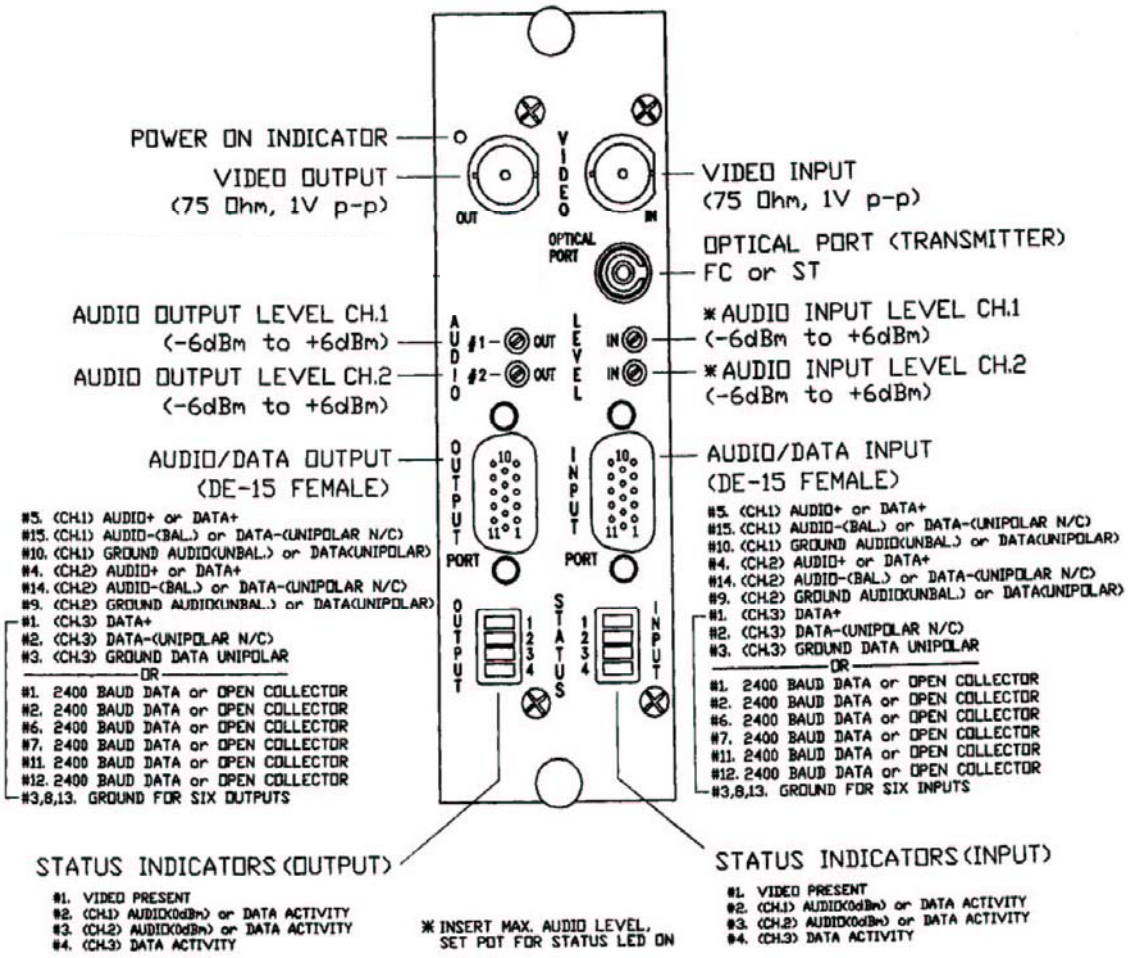


Figure 4.1
Front Panel Layout/Pinout Diagrams
(1-Fiber module)

PX-800R
Pinout Diagram

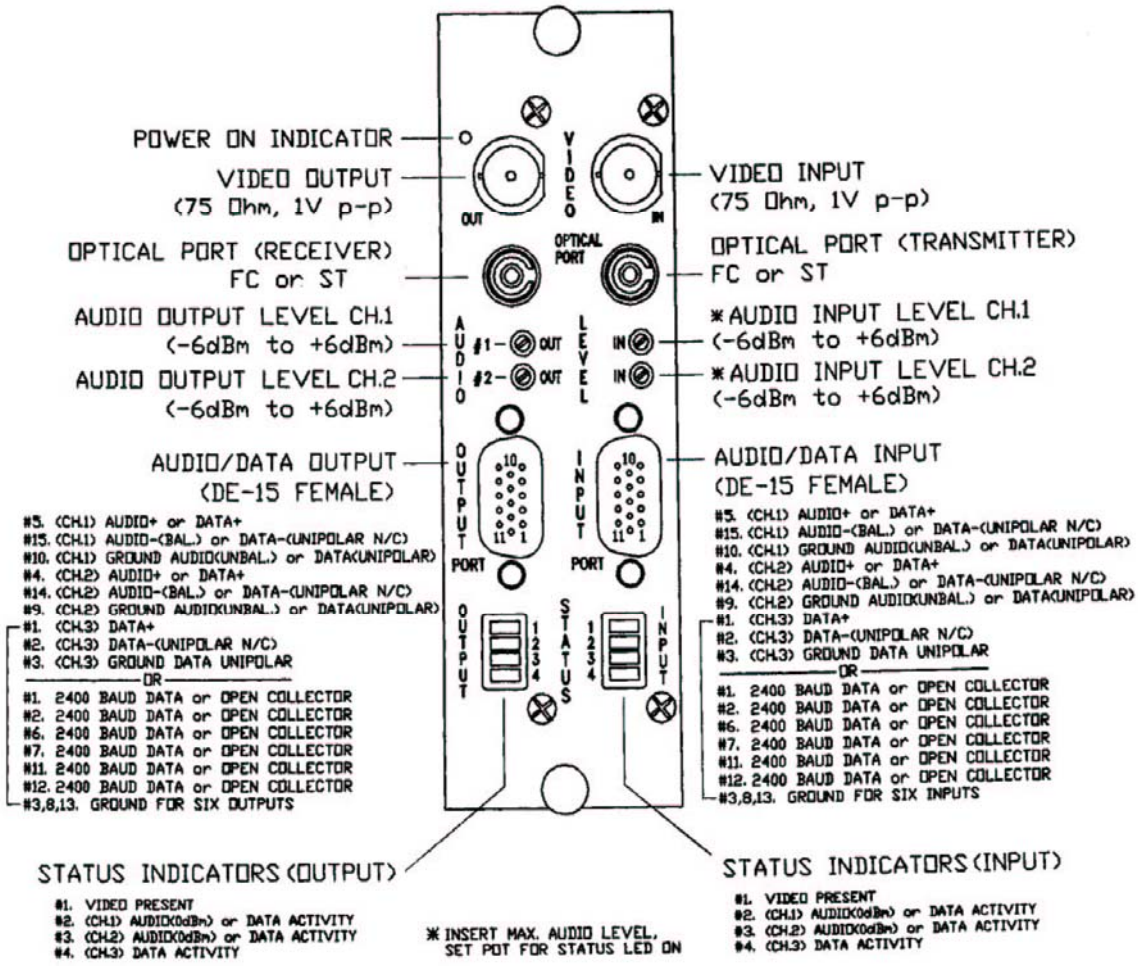


Figure 4.2
Front Panel Layout/Pinout Diagrams
(2-Fiber module)

5.0 Product Part Number Variations

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

Basic module description:
Video: 1-channel, bi-directional
Audio: 2-channels, bi-directional
Data: 1-channel, RS-232, bi-directional

Side "A"	**Side "B"**	**# Fibers & Type**	**Wavelength**
PX-800R-V5A5A3/5A5A3-0	PX-800R-V5A5A3/5A5A3-0	2 (MM)	850 nm
PX-800R-V5A5A3/5A5A3-1	PX-800R-V5A5A3/5A5A3-1	2 (MM)	1300 nm
PX-800R-V5A5A3/5A5A3-2	PX-800R-V5A5A3/5A5A3-2	2 (SM)	1310 nm
PXA-800iR-V5A5A3/5A5A3-0	PXB-800iR-V5A5A3/5A5A3-0	1 (MM)	850 nm / 1300 nm
PXA-800iR-V5A5A3/5A5A3-1	PXB-800iR-V5A5A3/5A5A3-1	1 (SM)	1310nm / 1550 nm

Since these signals on these modules are completely bi-directional, there is no preferred Tx or Rx side. The part numbers for two fiber modules are the same. However, the 1-fiber modules have "PXA" and "PXB" modules. It is necessary that a PXA module communicate with a PXB module. If two PXA or two PXB units are connected together, the communication will not work properly.

6.0 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	-13	-34	21	1300/850	ST	24
Singlemode (FP Laser) 9/125	-10	-34	24	1310/1550	ST, FC	24

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/audio/data communications.*
Action: 1 – Ensure that power is applied to each of the modules
2 – For the 2-fiber modules, make sure that the Tx fiber port on one module is connected to the Rx fiber port on the other.
3 – For the 1-fiber modules, make sure that a PXA unit is optically connected to a PXB unit.

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 Audio*
Action: Make sure that the audio input/output sources with proper audio level (0dBm) is connected to the respective audio channel connector pinouts (Ch1 & Ch2). The respective audio LED for each channel should be ON

Problem: Distorted Audio
Action: Check the audio source & impedance to ensure that it is within appropriate limits (0dBm & 600 ohm, balanced). Check the audio output impedance to ensure that it is 600 ohm, balanced and that the output level is 0dBm. If not, adjust the input/output potentiometers so that the audio LED lights have just turned ON.

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.

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