



Installation/Operation Instructions

Fiber Optic Video Transmission System

Part Numbers:

SXA/SXB-1HD-x (ST/FC)

(1-Channel Bi-directional HD-SDI Multi-rate Video Transceiver)

SXA/SXB-1HG-x (ST/FC)

(1-Channel Bi-directional 3G-SDI Multi-rate Video Transceiver)

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1.0 Product Description

Meridian's product series SXA/SXB-1HD-x and SXA/SXB-1HG-x are fiber optic modems that transmit one channel of bi-directional, independent real-time video SDI/HD-SDI for series SXA/SXB-1HD and 3G-SDI for SXA/SXB-1HG series, over one optical fiber using digital transmission and wavelength multiplexing technologies. This CWDM system is available for use with single-mode or multimode fibers. These are Meridian's standard 1-slot wide chassis mount card assembly and housed in the following Meridian chassis: SR-500/S, SR-1002/S, SR-1600/S, and SR-2001 & SR-2000 series 19" equipment chassis.

Both ST and FC optical connectors are supported. An ST optical interface is available for both multimode and single-mode fiber applications while the FC optical interface is available only for single-mode products. Optional conformal coating provides an additional level of protection from environments with high moisture and humidity.

2.0 Installation

Series SXA/SXB-1HD-x and SXA/SXB-1HG-x products are one-slot wide cards and occupy one slot in Meridian's standard 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 and 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 populated subrack should have forced-air cooling to avoid excessive heat build-up 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 SXA/SXB-1HD-x and SXA/SXB-1HG-x series products transmit and receive the following signals:

Signal Type	Channels	Transmit	Receive
HD/3G-SDI video	1	Yes	Yes

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

Video		
	HD-SDI	3G-SDI
Formats	19.4 Mbps (SMPTE 310M) 143 To 540 Mbps SMPTE 259M/344M 1.485 Gbps SMPTE 292M HDTV DVB-ASI at 270 Mbps SMPTE 305M SDTI Rates	19.4 Mbps (SMPTE 310M) 143 To 540 Mbps SMPTE 259M/344M 1.485 Gbps SMPTE 292M HDTV DVB-ASI at 270 Mbps 2.97 Gbps SMPTE 424M SMPTE 305M SDTI Rates
Nominal Level	0.8 Vp-p, 1.0 Vp-p (max)	0.8 Vp-p, 1.0 Vp-p (max)
Data Rate	19Mb/s - 1.5Gb/s per channel	19Mb/s - 3Gb/s per channel
Impedance	75 Ohm	75 Ohm
Gain	Unity	Unity
Input Coupling	AC	AC
Return Loss	>15dB	>15dB
Jitter (Pathological Data Pattern)	<0.2UI	<0.2UI
Cable Equalization	Automatic 0-200m @ 1.5Gb/s	Automatic 0-70m @ 3Gb/s
Bit-Error Rate (0 to -20dBm)	10^{-12}	10^{-12}

Connectors	
Video	75 Ohm BNC w/gold center pin
Optical	Singlemode – ST or FC Multimode – ST

HD-SDI Optical Specifications							
Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)	Approx. Maximum Distance (km)
Multimode (FP Laser) 62.5 / 125	-8	-22	14	1310/1550	ST	22	1.3
Single-mode (FP Laser) 9 / 125	-3	-22	19	1310/1550	ST, FC	22	50
Single-mode (DFB Laser) 9 / 125	+1	-22	23	1310/1550	ST, FC	22	65
HG-SDI Optical Specifications							
Multimode (FP Laser) 62.5 / 125	-8	-19	11	1310/1550	ST	22	0.65
Single-mode (FP Laser) 9 / 125	-3	-19	16	1310/1550	ST, FC	22	45

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

4.0 Front Panel Pinout Assignment Diagram

Figures 4.1 below show the front panel layout, connector location and pinout assignment for both the SXA/SXB-1HD-x and SXA/SXB-1HG-x cards.

SXA/SXB-1HD-X
SXA/SXB-1HG-X
PINOUT DIAGRAM

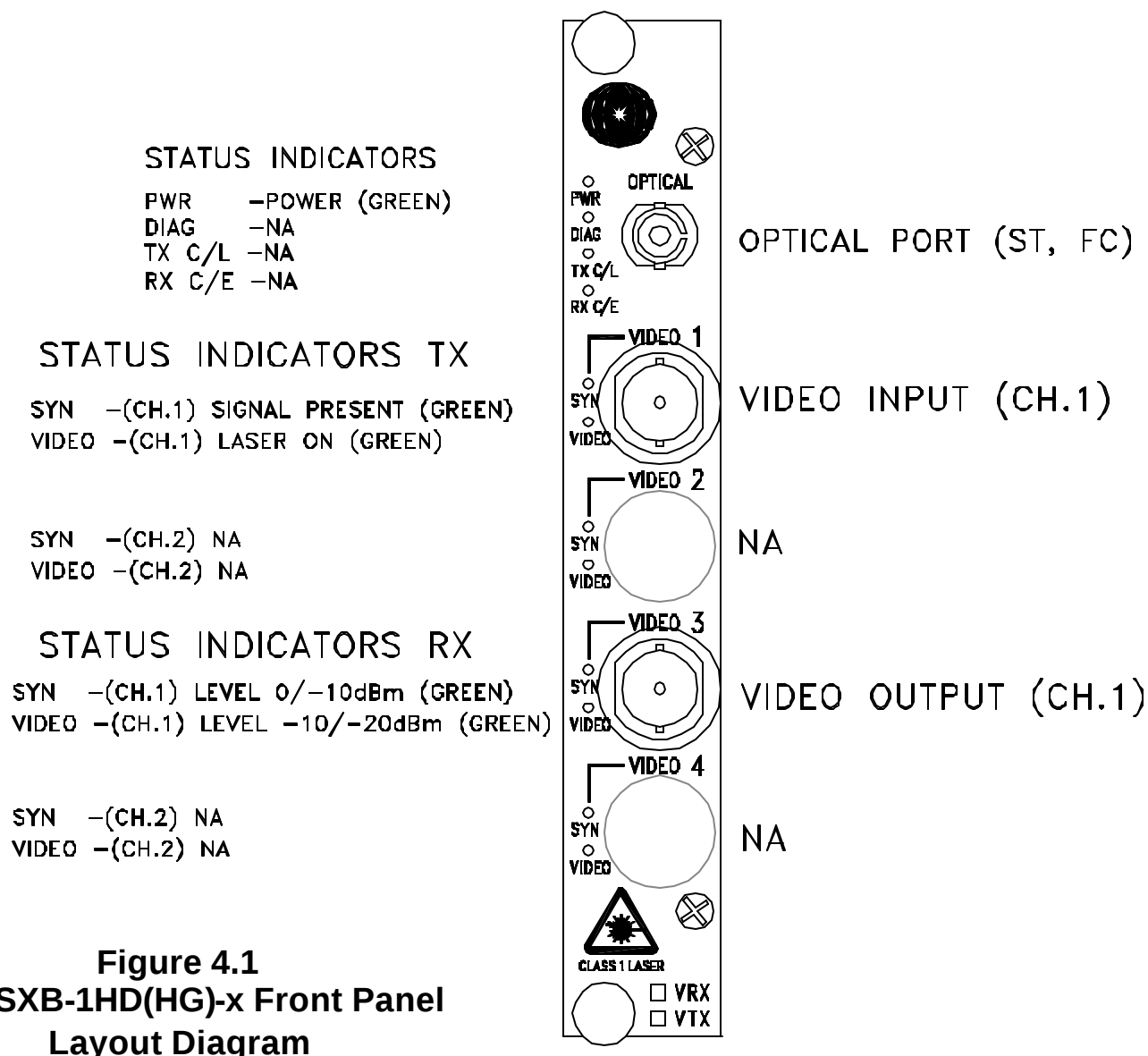


Figure 4.1
SXA/SXB-1HD(HG)-x Front Panel
Layout Diagram

4.1 Operation/Front Panel LED Indicators

The front panel diagram is shown Figure 4.1 there are a number of indicator lights that provide visual operational status of the modules and link. The receiver channel has an LED received power meter. These LEDs will light when the appropriate amount of optical input power is detected. There are two LED that monitor and display the input power range 0 to -10dBm and -10 to -20dBm. The function of these LED indicators is as follows:

PWR	- Green (normal) - when power is applied to the module
DIAG	- Card Diagnostic Green OK, Red alarm
SYN	- Green TX SDI present
VIDEO	- Green TX Laser on
0/-10dBm	- Green RX Level 0/-10dBm
-10/-20dBm	- Green RX Level -10/-20dBm

5.0 Product Part Number Variations

The table below lists the various part numbers and description that are available for this series of product.

Part Number	Matching Part #	Fiber Interface	Video type	Wavelength	Optical Connector
SXA-1HD-11	SXB-1HD-11	Multimode	HD-SDI	1310/1550nm	ST
SXA-1HD-5	SXB-1HD-5	Single-mode	HD-SDI	1310/1550nm	FC
SXA-1HD-18	SXB-1HD-18	Single-mode	HD-SDI	1310/1550nm	FC
SXA-1HD-5ST	SXB-1HD-5ST	Single-mode	HD-SDI	1310/1550nm	ST
SXA-1HG-11	SXB-1HG-11	Multimode	3G-SDI	1310/1550nm	ST
SXA-1HG-5	SXB-1HG-5	Single-mode	3G -SDI	1310/1550nm	FC
SXA-1HG-5ST	SXB-1HG-5ST	Single-mode	3G -SDI	1310/1550nm	ST
SXA-1HG-18	SXB-1HG-18	Single-mode	HD-SDI	1310/1550nm	FC

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*

Action: Check power supply to ensure that it is plugged in and turned on. If symptom 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 monitor is ON and the video cable is connected to the correct video port on the Rx module. Check to ensure that video input to the channels is working and that you have the associated receive channel is being monitored. With an optical power meter, verify that the wavelength for the suspect optical channel is working properly at the input to the receiver (SXB unit).

Problem: *Tx Laser light off*

Action: Optical module is defective, return to factory for repair.

Problem: *Rx Level off*

Action: Received optical signal absent or low. Check fiber connection and optical power at receiver.

Problem: *Tx signal light off*

Action: Check SDI input signal

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

Notes:



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