



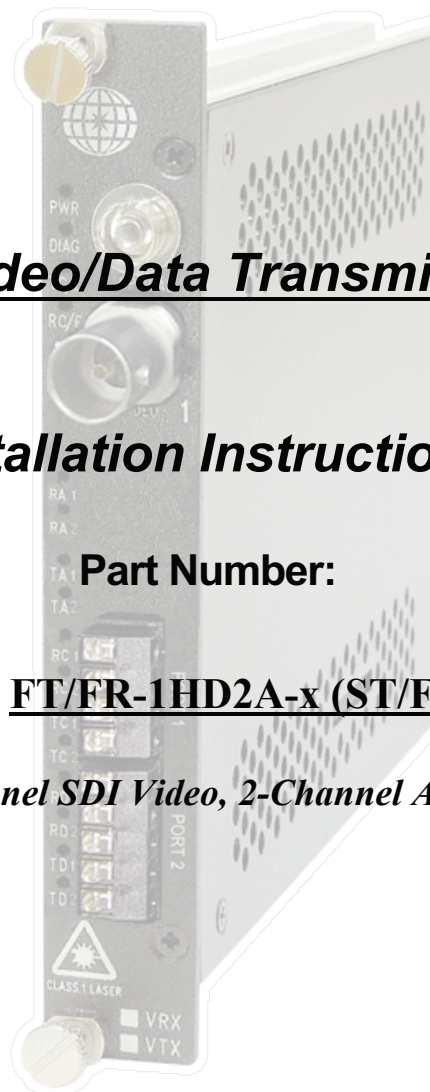
Fiber Optic Video/Data Transmission System

Installation Instructions

Part Number:

FT/FR-1HD2A-x (ST/FC)

(1-Channel SDI Video, 2-Channel Audio Tx/Rx)



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1.0 Product Description

Meridian's FT/FR-1HD2A-x products are fiber optic modems that using digital transmission technologies to transmit one SDI/HDSOI Video channel and two 24-bit Audio channels over one optical fiber,. This product series utilizes Meridian's standard 1-slot wide card assembly and fully compatible with the following Meridian chassis: SR-500/S, SR-1001/S, SR-1002/S, SR-1200/S, SR-1500/S, SR-1600/S and SR-2001 & SR-2000 series.

Both ST and FC optical connectors are supported. An ST optical connector is available for both multimode and single-mode fiber applications, while the FC connector is available only for single-mode applications. Optional conformal coating provides an additional level of protection from harsh environments.

2.0 Installation

Series FT/FR-1HD2A-x products are one-slot wide cards and will occupy one slot in Meridian's standard chassis. To install units in these chassis, orient the card with the Meridian logo at the top of the module and slide it into card guides at the top and the bottom of the chassis slot. 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. By hand, tighten two thumbscrews located at the top and bottom of the card.

Note: A fully loaded 19" 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 Signal Format & Specifications

The FT/FR-1HD2A-x series products transmit and receive the following signals:

Signal Type	Channels	Transmitter	Receiver
SDI/HDSOI video	1	FT-1HD2A-x	FR-1HD2A-x
24-bit Audio	2	FT-1HD2A-x	FR-1HD2A-x

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

Video SDI/HDSDI	
Format	SMPTE,310M, SMPTE,259M/344M, SMPTE 229M HDTV, DVB-ASI, SMPTE 305M STDI
Nominal Level	0.8Vp-p, 1.0Vp-p (max)
Data Rate	1Vp-p, 75 Ohm, 1.5Vp-p (max)/s – 1.5 Gb/s
Bandwidth	5 Hz to 7 MHz @ -3 dB
Impedance	75 Ohm
Gain	Unity
Input Coupling	AC
Return Loss	>30dB
Jitter	<0.2 UI
Cable Equalization	Automatic 0-70 m @ 1.5 Gb/s
Bit Error Rate (0 to -20dBm)	10 ⁻⁹
Audio	
I/O Impedance	600 Ohm (Bal.), 47 KOhm (Un Bal.)
Frequency Response	10 Hz to 20 KHz
SNR	>90dB (Weighted)@ 1 KHz
In/Out Level	-8 to +8 dBm (4V _{p-p} max) (+18 dBm available on request)
Total Harmonic Distortion	<0.01% @ 1KHz
Resolution	24 Bit
I/O Impedance	600 Ohm (Bal.), 47 KOhm (Un Bal.)
Connectors	
Video	75 Ohm BNC w/gold center pin
Audio	Screw Terminals
0	Single-mode – ST or FC Multimode - ST

Optical Specifications								
Meridian Optical Code	Fiber Type/Size (um)	Optical Output (dBm)	Receiver Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical Connector	Optical Dynamic Range (dB)	Max Distance (Km)
2	Multimode (FP Laser) 62.5 / 125	-5	-25	20	1300, 850	ST	25	0.66
5	Single-mode (FP Laser) 9 / 125	-5	-25	20	1310, 1550	FC, ST	25	55

4.0 Audio Impedance & Connector Pin Assignment

The input/output impedance of each of the audio channels can be changed between 600 Ohm Balanced and 47K Ohm Unbalanced. The default impedance is 600 Ohm. The Jumpers 1-8 are used for Audio Input/Output setting selection (Figure 4.1).

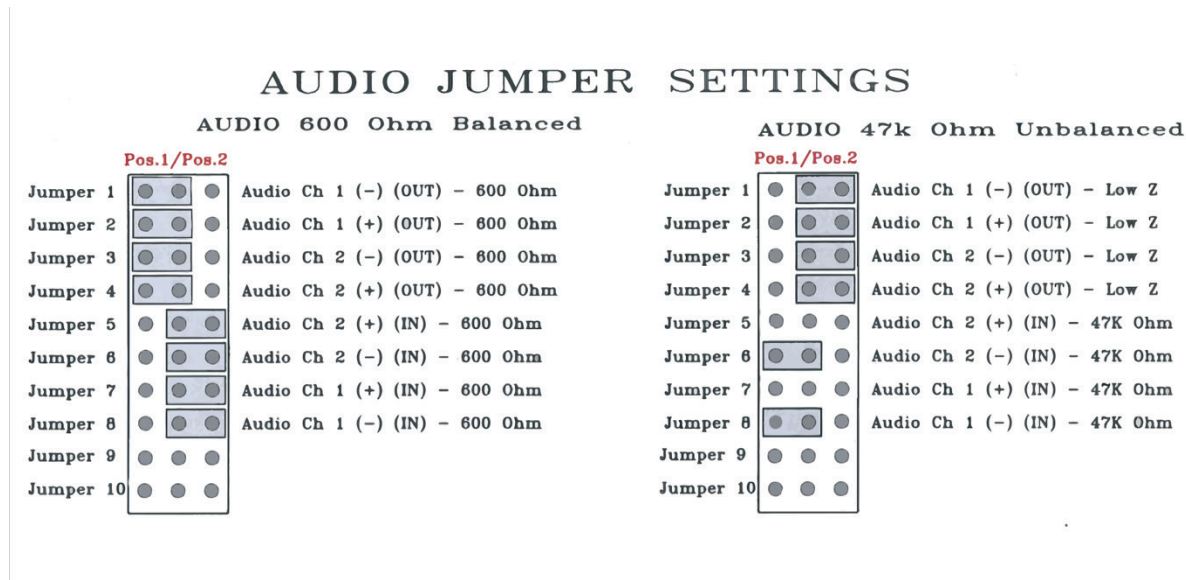


Figure 4.1
Audio Input / Output jumper setting

Changing default jumpers settings:

- Lay the module on its side with the front panel facing to the left.
- Remove the screws in each of the 4 corners of the top cover and carefully lift the cover.
- The Jumpers (1-10) are located behind front panel of the module. (Figure 4.2)
- Using small tweezers or pliers carefully relocate the plugs to properly select the audio format (see Figure 4.1)
- Place the top cover back in place.
- Repeat this process for the other module. The jumper selection needs to be the same for both the FT and FR units.

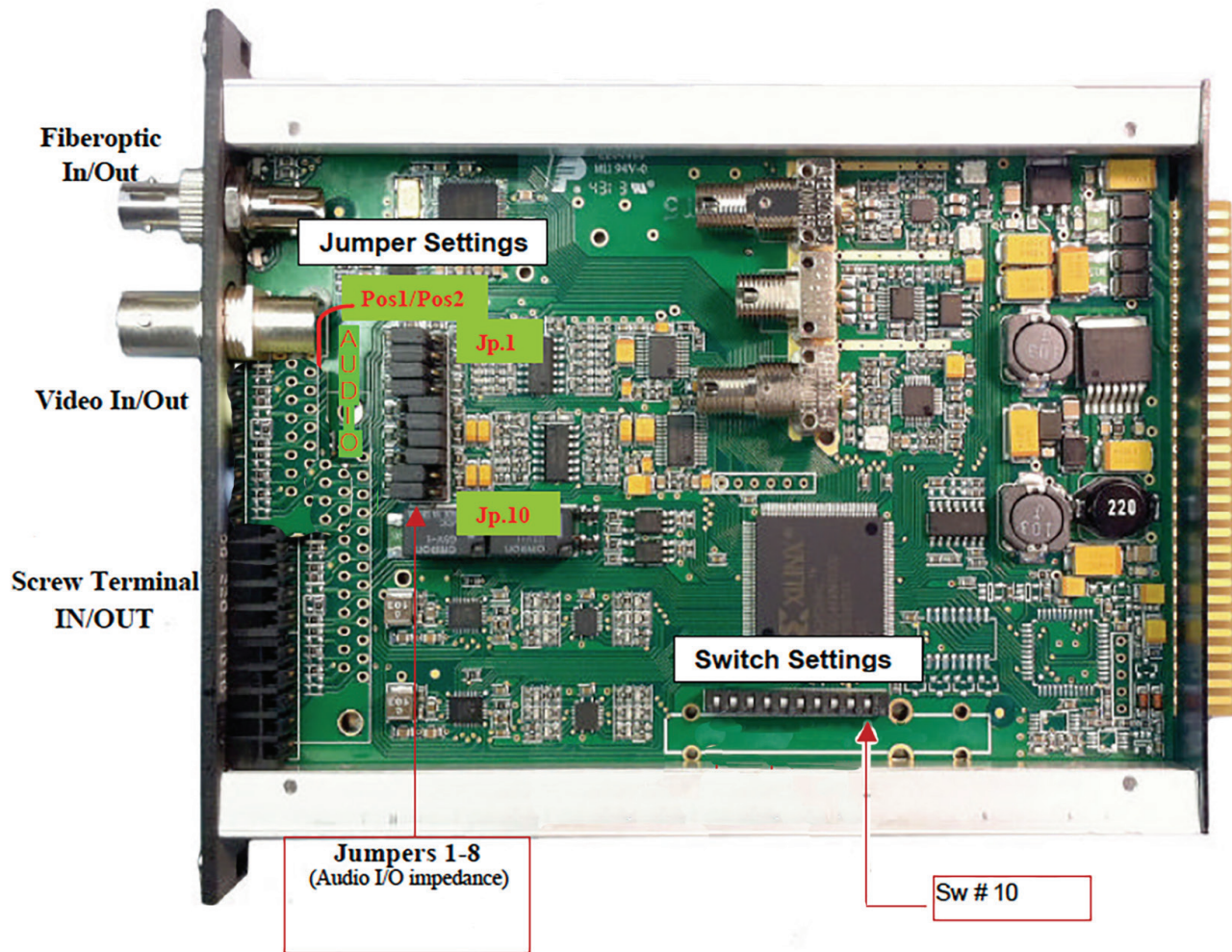


Figure 4.2
Switch and Jumpers locations diagram

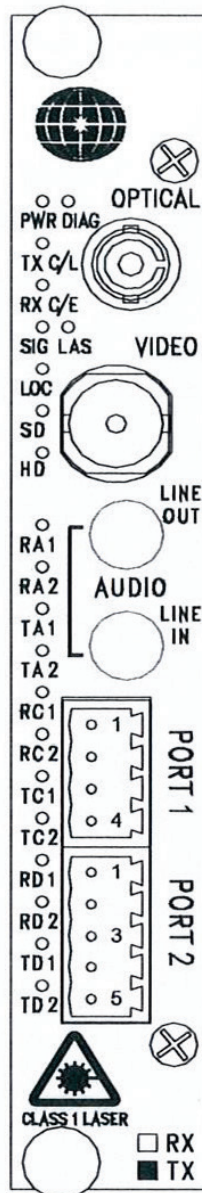
STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - CARD DIAGNOSTIC*
 (GREEN-OK, RED-ALARM)
 TX C/L - TX CARRIER (GREEN)
 / ERROR (RED)
 RX C/E - NA

 LAS - SDI LASER (GREEN)/ FAIL (RED)
 SIG - SDI SIGNAL PRESENT (GREEN)
 LOC - SDI SIGNAL LOCK (GREEN)
 SD - SDI PRESENT (GREEN)
 HD - HDSI PRESENT (GREEN)

 RA1 - NA
 RA2 - NA
 TA1 - (CH.1) AUDIO INPUT (GREEN)
 TA2 - (CH.2) AUDIO INPUT (GREEN)

 RC1 - NA
 RC2 - NA
 TC1 - NA
 TC2 - NA
 RD1 - NA
 RD2 - NA
 TD1 - NA
 TD2 - NA



FT-1HG2A-5/ST PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

SDI VIDEO INPUT

N/A

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PORT 1 N/A

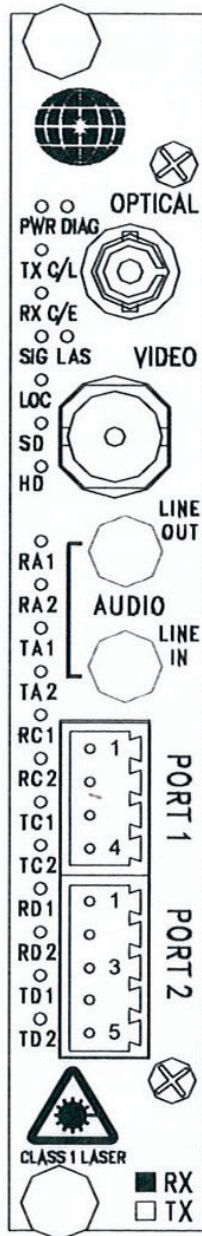
PORT 2 AUDIO INPUT

1. (CH.1) AUDIO INPUT+
2. (CH.1) AUDIO INPUT-
3. (CH.2) AUDIO INPUT+
4. (CH.2) AUDIO INPUT-
5. GND

Figure 4.1
FT-1HD2A-x Front Panel Layout Diagram

STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - CARD DIAGNOSTIC*
 (GREEN-OK, RED-ALARM)
 TX C/L - NA
 RX C/E - RX CARRIER (GREEN)
 / ERROR (RED)
 LAS - SDI LOCK (GREEN)/ LOSS (RED)
 SIG - SDI LEVEL 0/-5dBm (GREEN)
 LOC - SDI LEVEL -5/-10dBm (GREEN)
 SD - SDI LEVEL -10/-15dBm (GREEN)
 HD - SDI LEVEL -15/-20dBm (GREEN)
 RA1 - (CH.1) AUDIO OUTPUT (GREEN)
 RA2 - (CH.2) AUDIO OUTPUT (GREEN)
 TA1 - NA
 TA2 - NA
 RC1 - NA
 RC2 - NA
 TC1 - NA
 TC2 - NA
 RD1 - NA
 RD2 - NA
 TD1 - NA
 TD2 - NA



FR-1HG2A-5/ST PINOUT DIAGRAM

OPTICAL PORT (ST, FC)

SDI VIDEO OUTPUT

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 09/15/2016 V.0

N/A

PORT 1 N/A

PORT 2 AUDIO OUTPUT

1. (CH.1) AUDIO OUTPUT+
2. (CH.1) AUDIO OUTPUT-
3. (CH.2) AUDIO OUTPUT+
4. (CH.2) AUDIO OUTPUT-
5. GND

Figure 4.2
FR-1HD2A-x Front Panel Layout Diagram

5.0 Product Part Numbers

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

Product Part Number Guide			
Part Number	Matching Part #	Fiber Interface	Optical Connector
FT-1HD2A-2	FR-1HD2A-2	Multimode	ST
FT-1HD2A-5	FR-1HD2A-5	Single-mode	FC
FT-1HD2A-5ST	FR-1HD2A-5ST	Single-mode	ST

Note: FT & FR series cards are not compatible with the ST & SR series cards.

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 lit or flashing when the power is applied*

Action: Check power supply to ensure that it is plugged in and turned on. If flashing continues, move module to another chassis or other slot in the same chassis.

Problem: *No video output*

Action: Make sure that video monitor is ON and the video cable is connected to the correct video port on the Rx module. Ensure that the video LEDs are in ON position(Green). Check that the optical LEDs are ON.
Check the SpectraView diagnostics for an indication of what the problem may be.

Problem: *Video image is dark*

Action: Adjust aperture settings on the camera.

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 aperture settings on the camera should be adjusted.

Problem: *No Audio*

Action: Check to ensure that the Audio source is operating properly.
Check Audio jumpers positions for Tx and Rx units (see section 4.0 for Audio settings).

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

Notes:



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