



Installation/Operation Instructions

Fiber Optic Video/Data Transmission System



DT-4V1K/1K

Video Transmitter/Data Transceiver

DR-4V1K/1K

Video Receiver/Data Transceiver

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1.0 Product Description

Meridian's DT&DR-4V1K/1K product series are fiber optic modems that transmit four channels of unidirectional video and one bi-directional RS-485 (4-wire) data channel 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-1001/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) and input (Rx) connector is located on the right side of the module. The second and third SIMs contains the two video Input/Output coaxial interfaces. The bottom SIM card contains the one bi-directional RS-485 data channels.

2.0 Installation

Series DT&DR-4V1K/1K products are two-slot wide cards and, as such, occupy two slots in Meridian's standard chassis (SR-1000, SR-1001/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 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 DT&DR-4V1K/1K series products transmit and receive the following signals:

Signal Type	Channels	Transmit	Receive
NTSC/PAL video	4	DT-4V1K/1K	DR-4V1K/1K
RS-485 (4-wire)	1	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, 75 Ohm, 1.5Vp-p (max)
Differential Gain	<1%
Differential Phase	<0.7°
SNR	>60dB (weighted)
Return Loss	>30dB
Field Tilt	<0.5%

Data	
Formats	RS-485 (4-wire)
Data Rate (RS-485)	DC to 250Kb/s
Bit Error Rate (BER)	Better than 10^{-9}

Connectors	
Video	75 Ohm BNC w/gold center pin
Data	DB9 Female
Optical	Single-mode – ST or FC; Multimode - ST

Optical Specifications						
Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity	Optical Budget	Wavelength (nm)	Optical connector	Optical Dynamic
Multimode (FP Laser) 62.5/125	-3	-24	21	1300/850	ST	24
Single-mode (FP Laser) 9/125	-3	-24	21	1310/1550	ST, FC	24
Single-mode (DFB Laser) 9/125	+3	-24	27	1310/1550	ST, FC	24

4.0 Data SIM Signal Assignment (Pinouts)

There is one data SIM card in these modules. This data cards transmits/receives one Bi-Di RS-485 (4-wire) data channel.

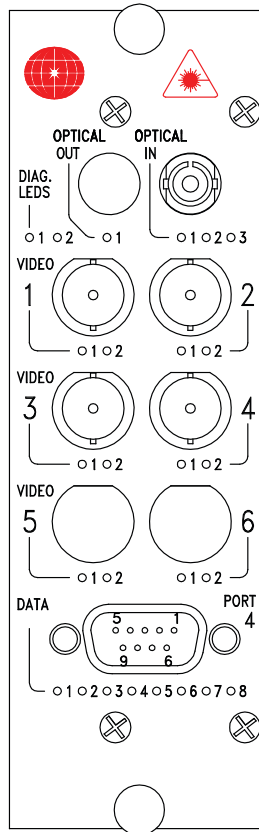
The data SIM has a DB9 female connector.

The table below shows the pinout for the data connector.

RS-485 Data Connector Pinout Assignment DT/DR-4V1K/1K		
Pin #	DT-4V1K/1K (Port#4)	DR-4V1K/1K (PORT#4)
1	Ch 1 OUT (+)	Ch 1 IN (+)
2	Ch 1 OUT (-)	Ch 1 IN (-)
3	N/A	N/A
4	N/A	N/A
5	GND	GND
6	Ch 1 IN (+)	Ch 1 OUT (+)
7	Ch 1 IN (-)	Ch 1 OUT (-)
8	N/A	N/A
9	N/A	N/A

DT-4V1K/1K-X PINOUT DIAGRAM

- STATUS INDICATORS**
1. POWER (GREEN)
2. NA
- STATUS INDICATORS**
1. TX CARRIER (GREEN)/ERROR (RED)
- VIDEO INPUT (CH.1)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- VIDEO INPUT (CH.3)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- DATA RS485 IN/OUT (PORT 4)**
(DB-9 FEMALE)
1. (CH.1) OUTPUT+
2. (CH.1) OUTPUT-
3. N/A
4. N/A
5. GND
6. (CH.1) INPUT+
7. (CH.1) INPUT-
8. NA
9. NA



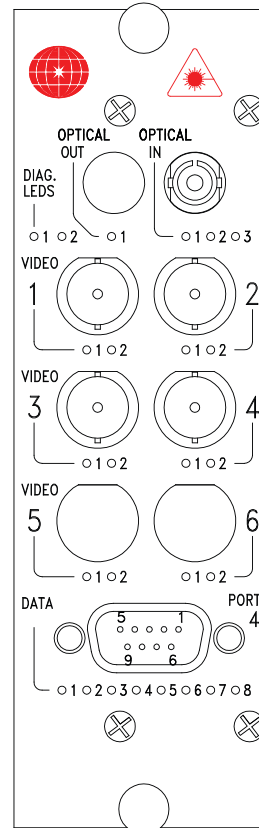
- OPTICAL PORT**
STATUS INDICATORS
2. RX OPTICAL SIGNAL (GREEN)/ABSENT (RED)
3. RX CARRIER (GREEN)/ERROR (RED)
- VIDEO INPUT (CH.2)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- VIDEO INPUT (CH.4)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)

- STATUS INDICATORS (PORT 4)**
1. (CH.1) DATA OUTPUT
2. N/A
3. N/A
4. N/A
5. (CH1) DATA INPUT
6. N/A
7. N/A
8. N/A

Figure 4.1

DR-4V1K/1K-X PINOUT DIAGRAM

- STATUS INDICATORS**
1. POWER (GREEN)
2. NA
- STATUS INDICATORS**
1. TX CARRIER (GREEN)/ERROR (RED)
- VIDEO OUTPUT (CH.1)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- VIDEO OUTPUT (CH.3)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- DATA RS485 IN/OUT (PORT 4)**
(DB-9 FEMALE)
1. (CH.1) INPUT+
2. (CH.1) INPUT-
3. NA
4. NA
5. GND
6. (CH.1) OUTPUT+
7. (CH.1) OUTPUT-
8. N/A
9. N/A



- OPTICAL PORT**
STATUS INDICATORS
1. NA
2. RX OPTICAL SIGNAL (GREEN)/ABSENT (RED)
3. RX CARRIER (GREEN)/ERROR (RED)
- VIDEO OUTPUT (CH.2)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- VIDEO OUTPUT (CH.4)**
STATUS INDICATORS
1. SYNC PRESENT (GREEN)
2. VIDEO PRESENT (GREEN)/OVERLOAD (RED)
- STATUS INDICATORS (PORT 4)**
1. (CH.1) INPUT
2. N/A
3. N/A
4. N/A
5. (CH.1) DATA OUTPUT
6. N/A
7. N/A
8. N/A

Figure 4.2

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 located on the top 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/sub-rack 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 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 light 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 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).