



Installation/Operation Instructions

Fiber Optic Video/Data Transmission System

Part Number:

DT-4V4K/4K

(Video Transmitter/Data Transceiver)

DR-4V4K/4K

(Video Receiver/Data Transceiver)

Table of Contents

1.0 PRODUCT DESCRIPTION.....	3
2.0 INSTALLATION.....	3
3.0 PRODUCT SIGNAL FORMAT & SPECIFICATIONS	3
4.0 DATA SIM SIGNAL ASSIGNMENT (PINOUTS)	4
5.0 OPTICAL SPECIFICATIONS	5
6.0 TROUBLESHOOTING	6

1.0 Product Description

Meridian's DT&DR-4V4K/4K product series are fiber optic modems that transmit four channels of uni-directional digitized video and four bi-directional RS-485 (4-wire) data channels 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-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) connector is located on the left side of the module while the optical input (Rx) connector is adjacent to it on the right side of the module. The second and third SIMs contains the two video Input/Output coaxial interfaces. The bottom two SIMs card each contains the two uni-directional RS-485 data channels.

2.0 Installation

Series DT&DR-4V4K/4K products are two-slot wide cards and, as such, occupy two slots in Meridian's standard chassis (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 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 DT&DR-4V4K/4K series products transmit and receive the following signals:

Signal Type	Channels	Transmit	Receive
NTSC/PAL video	4	DT-4V4K/4K	DR-4V4K/4K
RS-485 (4-wire)	4	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 Ω , 1.5Vp-p (max)
Differential Gain	<1 %
Differential Phase	<0.7 $^{\circ}$
SNR	>60dB (weighted)
Return Loss	>30dB
Field Tilt	<0.5%

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

Connectors	
Video	75 Ω BNC w/gold center pin
Data	DB9 Female
Optical	Singlemode – ST or FC Multimode - ST

4.0 Data SIM Signal Assignment (Pinouts)

There is one data SIM card in these modules. This data cards transmits/receives two RS-485 (4-wire) data channels. The data SIM has a DB9 female connector.

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

RS-485 Data Connector Pinout Assignment DT/DR-4V4K/4K		
Pin #	DT-(Port#3) DR-(PORT#4)	DT-(Port#4) DR-(PORT#3)
1	Ch 1 IN (+)	Ch 1 OUT (+)
2	Ch 1 IN (-)	Ch 1 OUT (-)
3	Ch 2 IN (+)	Ch 2 OUT (+)
4	Ch 2 IN (-)	Ch 2 OUT (-)
5	Gnd	Gnd
6	Ch 3 IN(+)	Ch 3 OUT (+)
7	Ch 3 IN (-)	Ch 3 OUT (-)
8	Ch 4 IN (+)	Ch 4 OUT (+)
9	Ch 4 IN (-)	Ch 4 OUT (-)

Figure 4.1
Front Panel Layout/Pinout Diagram

DT-4V*4K/4K-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 INPUT (PORT 3)

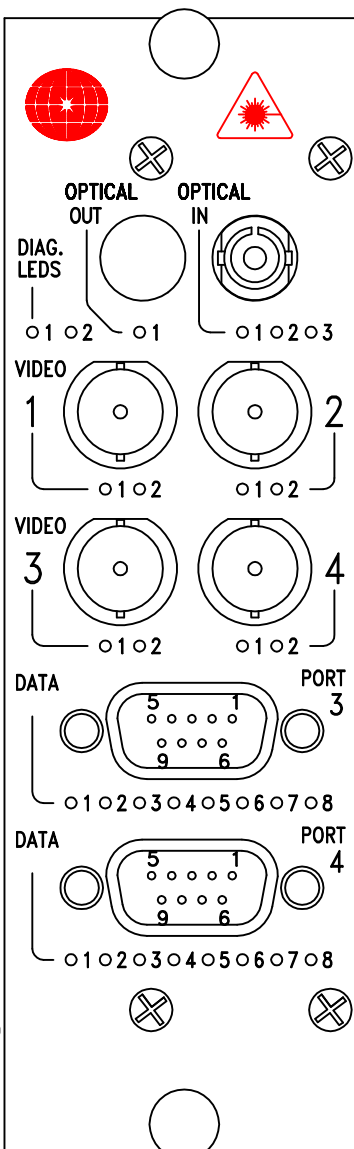
(DB-9 FEMALE)

1. (CH.1) INPUT+
2. (CH.1) INPUT-
3. (CH.2) INPUT+
4. (CH.2) INPUT-
5. GND
6. (CH.3) INPUT+
7. (CH.3) INPUT-
8. (CH.4) INPUT+
9. (CH.4) INPUT-

DATA RS485 OUTPUT (PORT 4)

(DB-9 FEMALE)

1. (CH.1) OUTPUT+
2. (CH.1) OUTPUT-
3. (CH.2) OUTPUT+
4. (CH.2) OUTPUT-
5. GND
6. (CH.3) OUTPUT+
7. (CH.3) OUTPUT-
8. (CH.4) OUTPUT+
9. (CH.4) OUTPUT-



OPTICAL PORT

STATUS INDICATORS

1. NA
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 3)

1. (CH.1) DATA INPUT
2. NA
3. (CH.2) DATA INPUT
4. NA
5. (CH.3) DATA INPUT
6. NA
7. (CH.4) DATA INPUT
8. NA

STATUS INDICATORS (PORT 4)

1. NA
2. (CH.1) DATA OUTPUT
3. NA
4. (CH.2) DATA OUTPUT
5. NA
6. (CH.3) DATA OUTPUT
7. NA
8. (CH.4) DATA OUTPUT

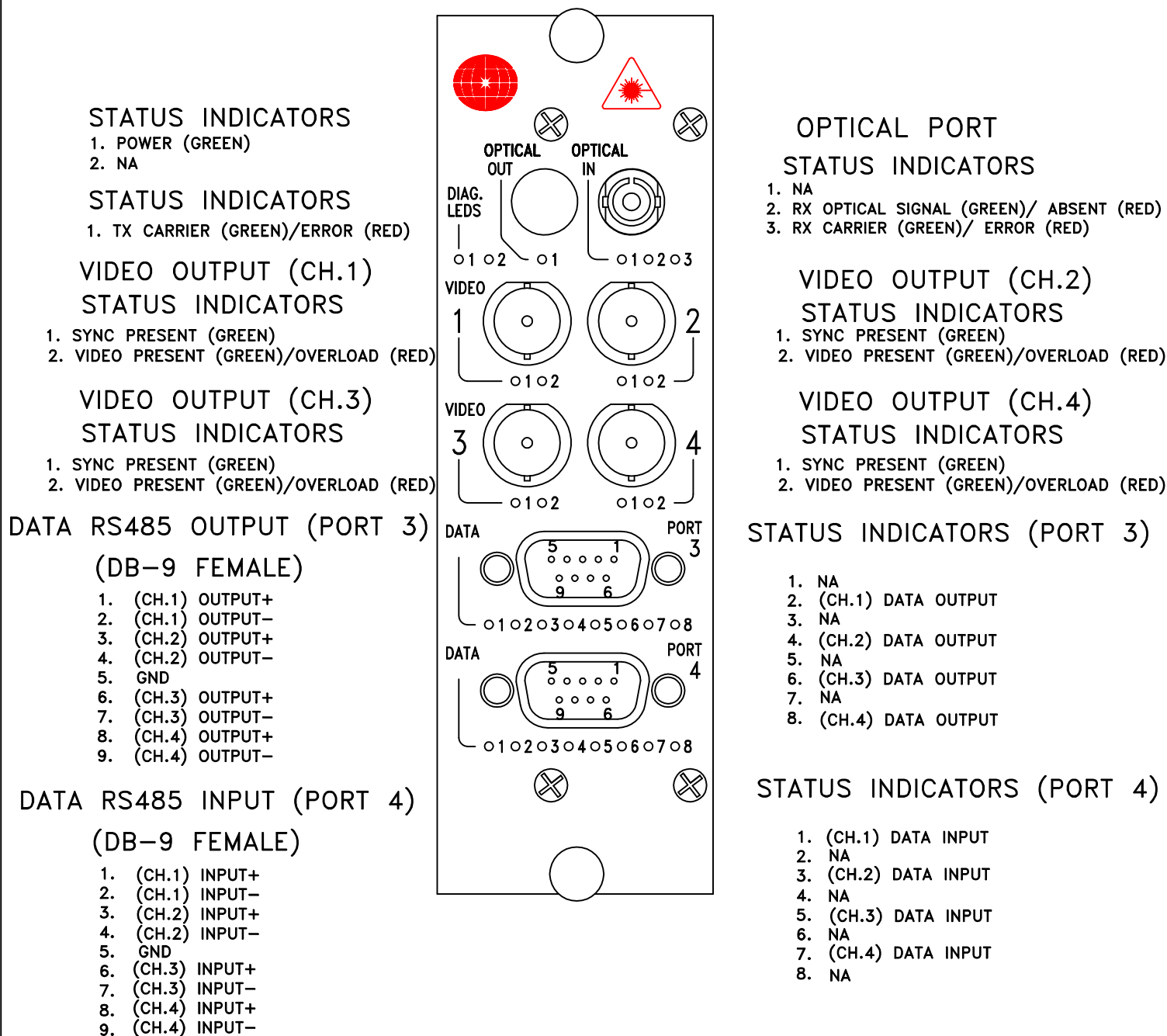
*U-10MHz, 10 BIT VIDEO

*V-8 BIT VIDEO

*W-10 BIT VIDEO

DR-4V*4K/4K-X

PINOUT DIAGRAM



*U-10MHz, 10 BIT VIDEO

*V-8 BIT VIDEO

*W-10 BIT VIDEO

5.0 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	-3	-24	21	1300/850	ST	24
Singlemode (FP Laser) 9/125	-3	-24	21	1310/1 550	ST, FC	24
Singlemode (DFB Laser) 9/125	+3	-24	27	1310/1550	ST, FC	24

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 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 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).