



Fiber Optic Video/C.C./Data Transmission

Installation Instructions

Part Number:
FT-1U1C/1M-x (ST/FC)

***(Transmitter Video & Contact Closure /
Receiver Pelco Coaxitron Control data)***

FR-1U1C/1M-x (ST/FC)

***(Receiver Video & Contact Closure /
Transmitter Pelco Coaxitron Control data)***

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FT/FR-1U1C/1M-x **Fiber Optic Video/C.C./Data Transmission System** **Installation Instructions**

1.0 Product Description

Meridian's FT/FR-1U1C/1M-x products are fiber optic modems that transmit one channel of uni-directional 10-Bit 10MHz video signal, one channel of uni-directional contact closure and one return Pelco Coaxitron control data channel over one optical fiber using digital transmission technologies. This product series uses Meridian's standard 1-slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-500/S, SR-1002/S, SR-1600/S, and SR-2000 & SR-2001 series equipment chassis.

Both ST and FC optical connectors are supported, depending on the part number. An ST optical interface is available for both multimode and singlemode fiber applications. The FC optical interface is available only for singlemode products. Conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series FT/FR-1U1C/1M-x products are one-slot wide cards and, as such, occupy one slot in Meridian's standard chassis. To install in these 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 19" 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 FT/FR-1U1C/1M-x series products transmit and receive the following signals:

Signal Type	Channels	Transmit	Receive
Pelco Coaxitron video ~ data	1	Yes	Yes
Contact Mapping	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	<0.6%
Differential Phase	<0.3°
SNR	>67dB (weighted)
Return Loss	>30dB
Field Tilt	<0.5%

Data	
Formats	Pelco Coaxitron
Bit Error Rate (BER)	Better than 10^{-9}

Contact Mapping	
Contact type	Relay, normally-open, normally-closed, jumper selectable, Isolated contacts
Contact rating	0.3 Amps, 30V AC/DC
Contact bounce	5 ms
Max switching rate	10Hz

Connectors	
Video/Data	75 Ohm BNC w/gold center pin
Contact	one 4 pin screw terminal connector
Optical	Singlemode – ST or FC Multimode - ST

3.1 Optical Specifications

The table below lists the optical specifications for both singlemode and multimode fiber applications.

Optical Specifications							
Fiber Type/Size (um)	Optical Output (dBm)	Rx Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical connector	Optical Dynamic Range (dB)	Max Distance (Km)
Multimode (FP Laser) 62.5 / 125	-5	-25	20	1300/850	ST	25	3
Singlemode (FP Laser) 9 / 125	-5	-25	20	1310/1550	ST, FC	25	50



Compliant with Class 1 Laser Safety Rating.

Notice: Please do not look directly at the fiber port while the device is powered.

4.0 Front Panel Pinout Assignment & Status Indicator Diagram

The screw terminal block connector on the front of the module is used for Contact Closure interfaces.

Port 2 C.C. Connector Pinout Assignment		
Pin #	Transmitter C.C. Channel 1	Receiver C.C. Channel 1
1	INPUT	NA
2	GND	NA
3	NA	OUTPUT (+)
4	NA	OUTPUT (-)

4.1 Front Panel Indicator Lights

There are 18 LED indicator lights mounted on the left side of the module's front panel (see Figure 4.1 below). These indicators show the operation status of the module's power, optical carriers, video signal and the various audio/cc/data channels. These indicators can be used for troubleshooting the module, electrical and optical connections.

Not all of the LEDs apply to all versions of these modules. Please refer to the module's part number for the appropriate signals, description.

***Note: The Card Diagnostic is optional and LED present only if applied.**

Figures 4.1 and 4.2 below show the front panel layout, connector location and pinout assignment for both the FT & FR modules.

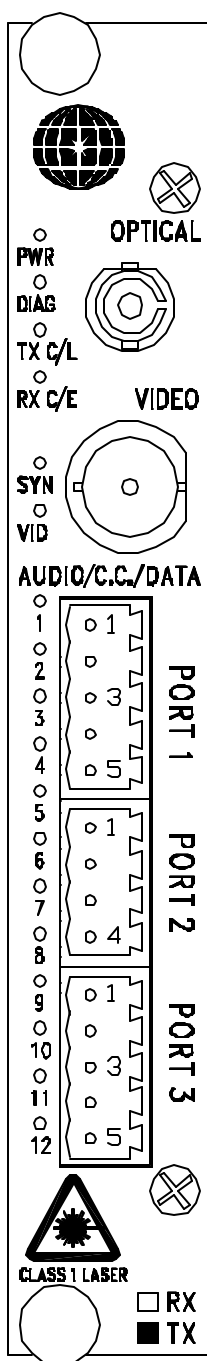
FT-1U1C/1M-X PINOUT DIAGRAM

STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - CARD DIAGNOSTIC*
 (GREEN-OK, RED-ALARM)
 TX C/L - TX CARRIER (GREEN)
 /OVERLOAD (RED)
 RX C/E - RX CARRIER (GREEN)
 /ERROR (RED)
 SYN - SYNC PRESENT (GREEN)
 VID - VIDEO PRESENT (GREEN)
 /OVERLOAD (RED)

STATUS INDICATORS

1 - NA
 2 - NA
 3 - NA
 4 - NA
 5 - (CH.1) C/C INPUT
 6 - NA
 7 - NA
 8 - NA
 9 - NA
 10 - NA
 11 - NA
 12 - NA



OPTICAL PORT (ST, FC)

VIDEO INPUT / DATA OUTPUT

PORT 1 N/A

PORT 2 CC INPUT

1. (CH.1) CC INPUT
 2. (CH.1) GND
 3. NA
 4. NA

PORT 3 N/A

Figure 4.1

**FT-1U1C/1M-x
Front Panel Layout Diagram**

FR-1U1C/1M-X

PINOUT DIAGRAM

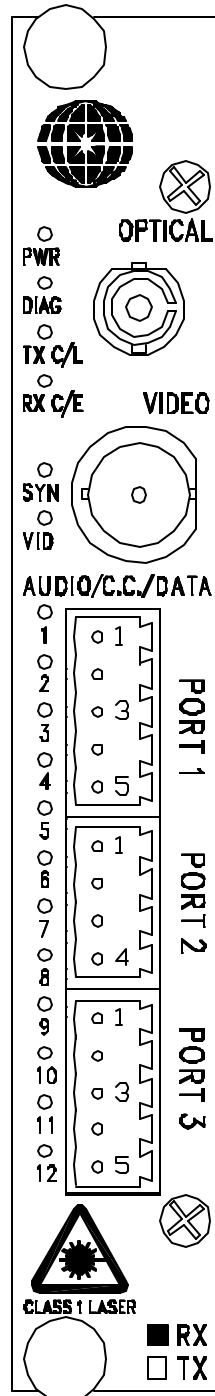
STATUS INDICATORS

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

SYN - SYNC PRESENT (GREEN)
 / LOAD ABSENT (RED)
 VID - VIDEO PRESENT (GREEN)
 /OVERLOAD (RED)

STATUS INDICATORS

1 - NA
 2 - NA
 3 - NA
 4 - NA
 5 - NA
 6 - NA
 7 - (CH.1) C/C OUTPUT
 8 - NA
 9 - NA
 10 - NA
 11 - NA
 12 - NA



OPTICAL PORT (ST, FC)

VIDEO OUTPUT / DATA INPUT

PORT 1 AUDIO N/A

PORT 2 CC OUTPUT

1. NA
 2. NA
 3. (CH.1) CC OUTPUT-
 4. (CH.1) CC OUTPUT+

PORT 3 N/A

Figure 4.2

FR-1U1C/1M-x
Front Panel Layout Diagram

A group of 10 switches is located on the bottom center of the module's circuit card. These switches on both the transmitter and receiver must be set the same in order to have proper data communications format between them. The figure below illustrates these switch locations on the board and how they are configured for the proper format options.

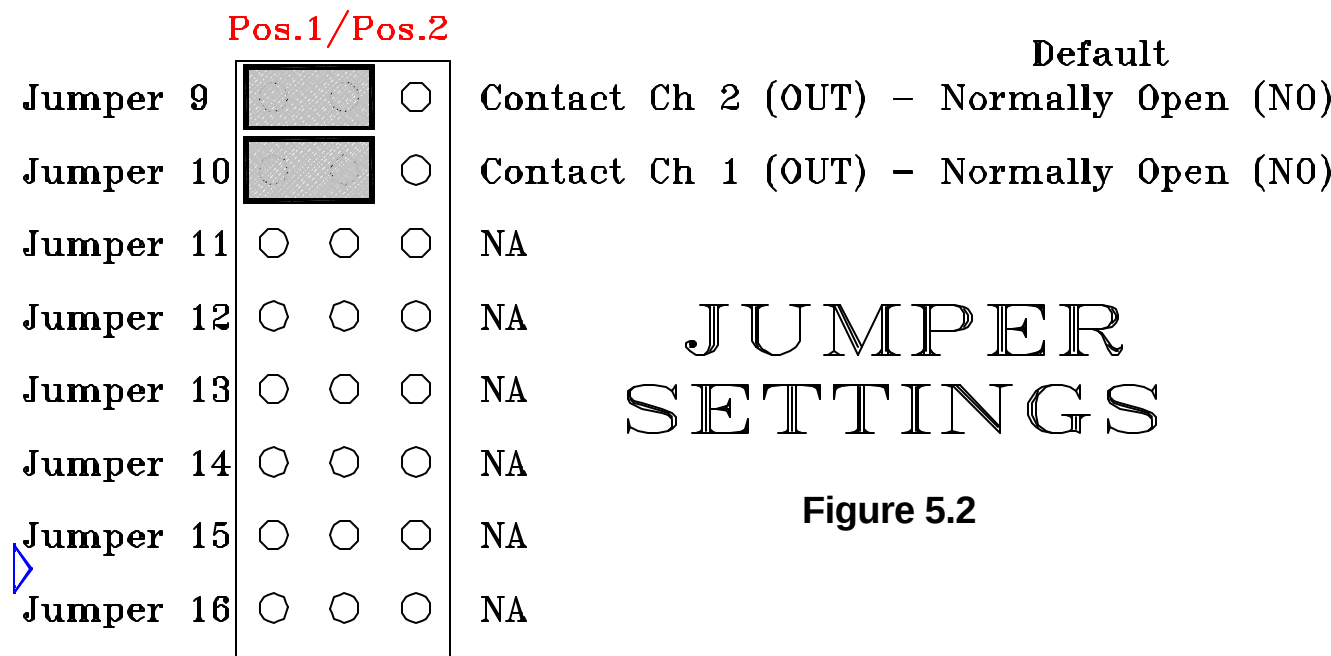


5.1 Contact Mapping Selection jumpers

There are eight (16) 3-pin jumpers located directly behind the screw terminal front-panel mounted connector. The jumper 9 for ch.2 and jumper 10 for ch.2 are used to select the power-on state of the contacts (NO or NC).

Contact Mapping - The output state of each of the contacts can be changed from Normally-Open (NO) pos.1 to Normally-Closed (NC) pos.2 by properly selecting the jumpers. A NO contact (output side) closes when the contact input on the input module's side is closed to ground. The default contact setting is NO (normally-open).

The illustration below describes the function of these jumpers. The jumpers are shown in their default condition.



JUMPER SETTINGS

Figure 5.2

5.2 Changing default jumper's settings

The jumpers to change the Normally-Open (NO) to Normally-Closed (NC) contact can be easily changed as follows:

1. Lay the module on its side with the front panel facing to the left.
2. Remove the screws in each of the 4 corners of the top cover and carefully remove the cover.
3. The Jumpers (1-16) are located on the top two connectors of the module.
4. Refer to the above drawing to locate the 16 jumpers that are located near the Screw Terminal connector.
5. Using a small tool, carefully remove the jumper and place it on the appropriate pins to properly select the CC format (see Figure 5.2)
6. Carefully replace the side cover and secure with the screws.
7. Repeat this process for the other module. The jumper selection needs to be the same for both the FT and FR units.

6.0 SpectraView™ Network Diagnostics

This module series is equipped with Meridian's SpectraView network diagnostics that continuously monitors the fiber system and associated equipment to provide real-time information regarding the integrity of the system.

SpectraView 1.0 supports the following diagnostic functions:

1. Fiber continuity
2. Presence/loss of video

Notification and identification of faults for the above conditions is automatically displayed on the monitor connected to the video output on the receiver module.

The table below lists the detected faults and associated alert messages that are displayed on the monitor:

Fault	Video Display Message
Broken optical fiber between Tx & Rx units	8 vertical gray-scale bars across the monitor screen
Loss of video signal at CCTV (Tx) side	4 vertical gray-scale bars across the monitor screen

In addition to the loss of video on the monitor, these messages alert the operator as to the cause of the associated video loss. Upon receiving one of these messages, the operator should inform their technical service center to remedy the situation.

7.0 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-1U1C/1M-2	FR-1U1C/1M-2	Multimode	ST
FT-1U1C/1M-5	FR-1U1C/1M-5	Singlemode	FC
FT-1U1C/1M-5ST	FR-1U1C/1M-5ST	Singlemode	ST

Note: *This FT & FR series cards are not compatible with the other 1-slot ST & SR cards.*

8.0 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: *Tx signal light*

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

Problem: *Rx signal light*

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

Problem: *No video at output of module*

Action: Check the SpectraView display on the monitor for an indication of what the problem may be. Also, 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: *Contact closure not working*

Action: Input side – Ensure that the input contact is connected between the appropriate input connection and ground
Output side – Ensure that the terminal device is connected to the proper output contact pinouts and that the individual contact channel jumpers are set to the appropriate normally-open or normally-closed position

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

Notes:



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