GE
Security

Fiber Optic System
Video and Up-the-Coax Control System
Models S739DV and S7739DV

installation instructions

GE
imagination at work

GENERAL

This manual is a guide to the installation and operation of the S739DV and S7739DV series fiber optic video and up-the-coax control system. Please read the entire manual before installing the equipment.

NOTE: The series numbers S739DVT and S739DVR are used to describe all models of transmitters and receivers unless noted otherwise.

The Series S739DV and S7739DV video and up-the-coax control systems offer simultaneous transmission of video from a camera to a monitoring station and a data signal back to the camera. A single coaxial cable at each end of the link is used to connect the appropriate equipment to the system.

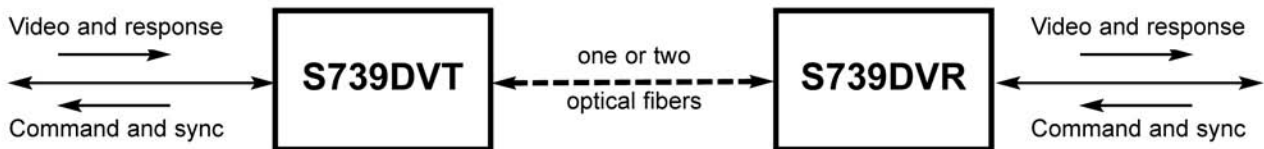The S739DV is a multimode link, while the S7739DV is a single-mode link.

A complete system consists of an S739DVT transmitter and an S739DVR receiver. Units are designed for standalone operation or for installation in Fiber Options' 503H, 515R1 or 517R1 Card Cages.

Unpacking the Unit

In the event that anything is missing from the following list, contact your authorized Fiber Options dealer or representative.
    S739DVT Transmitter or S739DVR Receiver
    (S7739DVT Transmitter or S7739DVR Receiver)
    Instruction manual
Save the original packing materials in case it becomes necessary to return the unit.

SYSTEM DIAGRAM

Video and response →
Command and sync ↔
S739DVT — one or two optical fibers → **S739DVR**
Video and response →
Command and sync ↔

## INSTALLATION

Installation Considerations

This fiber-optic link is supplied as a standalone module or as a rack card. Units should be installed in dry locations protected from extremes of temperature and humidity.

Standalone Modules

1. Determine where the module will be installed, and ensure that there is adequate space at both ends for making the various cable connections and for reading the diagnostic LEDs. See Figure 1.

FIGURE 1: MOUNTING PLATE

Mounting plate attaches to selected surface with four suitable screws. Standalone modules are mounted by sliding it onto the plate's hooks until firmly seated. The module can be easily removed and remounted.

MOUNTING HOLES
#6 FLAT HEAD
4 PL

.87 1.50

3.00

2.62

3.25
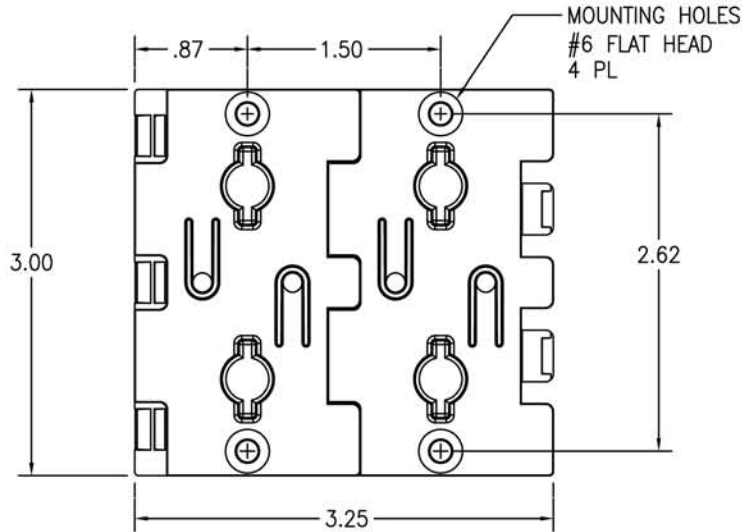
Rack Cards

Rack cards are designed to be installed in one of Fiber Options' 19-inch (483-mm) EIA standard card-cage racks, either the 503H, 515R1 or the 517R1. They can also be installed in one of the 501R, 502R, or 503R standalone rack card enclosures. Follow these guidelines to install rack cards after performing the MODULE SETUP procedures.

515R1 and 517R1 Card Cage Racks

Follow these steps to install rack cards in the 515R1 or 517R1 card cage:

CAUTION: Although rack cards are hot-swappable and may be installed without turning off power to the rack, Fiber Options recommends that the power switch on the rack power supply be turned OFF and that the rack power supply is disconnected from any power source.

1. Make sure that the card is oriented right-side up, and slide it into the card guides in the rack until the edge connector at the back of the card seats in the corresponding slot in the rack's connector panel. Seating may require thumb pressure on the top and bottom of the card's front panel.

CAUTION: Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the rack.

503H Horizontal Card Cage

Follow these steps to install rack cards in the 503H card cage:

CAUTION: The rack card module can only be powered by 13.5 VDC. AC power must not be used.

CAUTION: Fiber Options recommends that the card cage is not connected to any power source during installation.

1. Look inside the card cage to determine the location of the socket for the edge connector on the card. Orient the card so that it will seat in the socket, and slide it into the card guides in the card cage until the edge connector at the back of the card seats in the socket. Seating may require thumb pressure on the top and bottom of the card's front panel.

CAUTION: Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the card cage.

501R, 502R, and 503R Rack Card Enclosures

Follow these steps to install rack cards in the 501R, 502R, or 503R enclosures:

CAUTION: The rack card module can only be powered by 13.5 VDC. AC power must not be used.

CAUTION: Fiber Options recommends that the enclosure is not connected to any power source during installation.

1. Look inside the card cage to determine the location of the socket for the edge connector on the card. Orient the card so that it will seat in the socket, and slide it into the card guides in the card cage until the edge connector at the back of the card seats in the socket. Seating may require thumb pressure on the top and bottom of the card's front panel.

CAUTION: Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the card cage.

MODULE SETUP

Rack cards are supplied with an alarm function that activates if the optical signal input to the receiver fails. The alarm is always indicated on the front panel of the card by a red LEVEL/LOSS™ LED. The alarm may also be output to the rack power supply, where a sonalert (audible alarm) and alarm output contact closure may be activated.

The alarm is set to ON (ACTIVE) at the factory. If the alarm output is not desired, move jumper W1 to the OFF position. Refer to Figure 3.

NOTE: Setting the Alarm jumper to OFF does not affect the operation of the LEVEL/LOSS™ LED. Loss of optical signal will always be indicated by a red LEVEL/LOSS™ LED.

CONNECTIONS

All fiber-optic links convert electrical signals into a light source at the transmitter and convert the light back to electrical signals for output at the receiver. The S739DV transmitter and S739DV receiver have one BNC connector and one or two fiber connectors.

Video Cable Connection

CAUTION: Make sure all peripheral equipment that will be connected to the fiber unit is turned OFF during installation.

Fiber Options suggests that Belden number 9259 or equivalent coaxial cable should be used. Consult the cable manufacturer's specifications for the maximum distance between the video equipment and the fiber equipment.

NOTE: Coaxial cable must be terminated with female BNC connectors to properly connect with the Fiber Options equipment.

1. Connect the video source cable to the input BNC jack on the S739DVT transmitter using terminated coaxial cable.

2. Connect the monitoring equipment to the output BNC jack on the S739DVR receiver using terminated coaxial cable.*

* Check with control manufacturer for distance limitations

Fiber Optic Cable Connection

Most cable manufacturers identify the individual fibers in the cable. Select appropriately terminated fiber and mark both ends with unique identification label (e.g. for cable no. 03, fiber no. 08) to ensure that the fiber connected to the near end is the same one that is connected to the far end.

The proper optical connection will link the transmitter's TRANSMIT (OUT) port to the receiver's RECEIVE (IN) port. See Figures 3, 4, and 5.

1. Wipe the inside of the port's sleeve with a lint-free pipe cleaner moistened with reagent-grade isopropyl alcohol. Blow dry with dry air.

2. Clean the connector using a lint-free cloth dampened with alcohol to thoroughly wipe the side and end of the ferrule. Blow the ferrule dry with dry air. Visually inspect the ferrule for lint.

3. Fasten the fiber optic cable to the port.

Power Connections

Standalone Modules

Standalone units may be powered either by 12 VAC or by 13.5 VDC. Standalone modules have a removable screw terminal connector for the electrical input connection. Refer to Table 1 for 501R standalone enclosures and Figures 4 and 5 and Table 2 for standalone modules.

1. Identify the power connector and remove it from the module.

2. Make sure the power supply is not connected to any power source, and strip approximately 0.25-in (6-mm) of insulation from the ends of the cable.

3. Taking care to observe the correct polarization of the cable, insert one lead into one of the screw sockets and tighten the screw. Repeat for the other conductor. Confirm the security of the connection by a light pull on the cable.

4. Seat the connector in its position in the fiber unit.

5. Plug the power supply into a suitable outlet.

NOTE: To provide earth ground reference, Stand Alone (Enclosure) modules need to be connected to a good earth ground. This can be accomplished by connecting a copper-based conductor from the modules *DC Common/Ground* pin to an approved earth ground.

FIGURE 3: 2-FIBER RACK-MOUNT MODULE

VIDEO

*RECEIVE (IN)

*TRANSMIT (OUT)

ALARM

W1

ON   OFF

W1
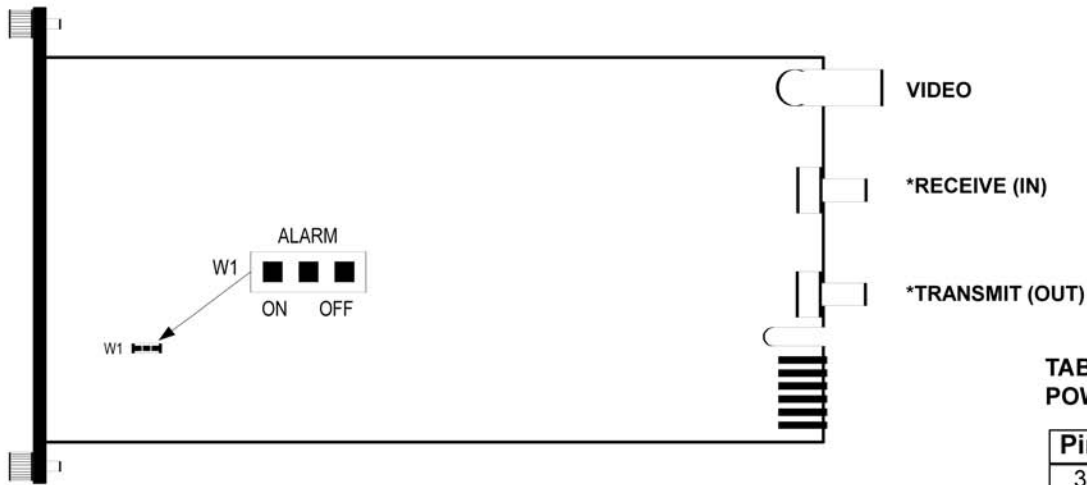
*NOTE: SINGLE FIBER UNITS HAVE ONE FIBER CONNECTOR

TABLE 1: 501R ENCLOSURE POWER CONNECTIONS

Pin	Connection
3	13.5 VDC
2	Not Used
1	GROUND

FIGURE 4: STANDALONE 2-FIBER TRANSMITTER

VIDEO

TX (OUT)

RX (IN)

POWER

PIN 1
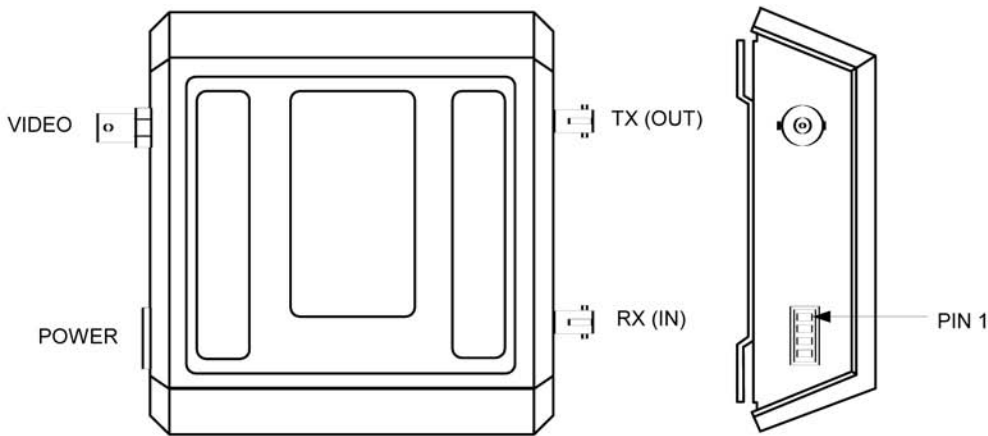
TABLE 2: STANDALONE MODULE POWER CONNECTIONS

Pin	Connection
1	DC +13.5
2	AC - HI 12v
3	AC - LO 12v
4	DC / ground

FIGURE 5: STANDALONE 2-FIBER RECEIVER

VIDEO

RX (IN)

TX (OUT)

POWER

PIN 1
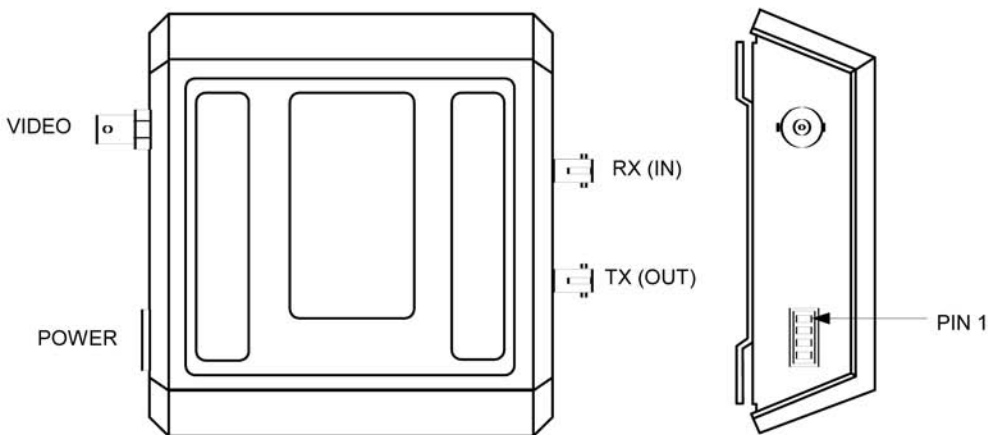
CAUTION: The rack card module can ONLY be powered by 13.5 - 16 VDC. AC power must not be used.

Power up the peripheral equipment and verify system operation by observing video on the monitor at the receiver end.

Rack Modules
Power connections are made automatically when the card is installed. To supply power to the rack, connect the rack power supply to an AC outlet and set the power switch to ON.

SMARTS™ DIAGNOSTICS

The S739DV has built in Status Monitoring And Reliability Test System (*SMARTS*™) diagnostic capabilities. This includes LED indicators for monitoring video, data, and optical status. They are described in the following sections.

LED Operation

Refer to the Table 3 for an explanation of how to diagnose system faults using the LEDs built into the Fiber Options units.

The S739DV has 5 LED indicators that are very useful in describing the current state of operation, as well as the current status of data flow and fiber optic signal strength. These indicators are LEVEL/LOSS™, VIDEO IN (or OUT), CMND IN (or OUT), RESP IN (or OUT), and SYNC IN (or OUT). See Figure 6. They function as follows:

LEVEL/LOSS™ Indicator
This LED is useful for indicating the relative optical signal strength at the fiber optic receiver. When sufficient optical power is being received, the LED is green. If no or insufficient optical power is received, the LED will be red.

VIDEO IN (or OUT) Indicator
This LED indicates the presence of a video signal. VIDEO IN on the transmitter remains green as long as an adequate video signal is being input to the transmitter. The LED will be red when no video signal is present. The VIDEO OUT LED on the receiver performs a similar function, except that it refers to the video that is output from the receiver.

NOTE: The S739DV monitors the video sync signals to determine the presence of the signal. It does not monitor the picture brightness signal. Thus, if the scene in front of a camera is totally dark, producing a blank monitor screen, the VIDEO LEDs will still be green.

CMND IN (or OUT) Indicator
The CMND IN and CMND OUT LEDs monitor the PTZ Control Data pulses form the monitoring equipment to the camera equipment. Green LEDs indicate the signal level of the PTZ commands are greater than 250 millivolts. These indicators are off when the signal level drops below 250 millivolts.

RESP IN (or OUT) Indicator
The RESP IN (or OUT) LEDs monitor the response signals from the camera equipment to the monitoring equipment. Green LEDs indicate the level of the return signals is greater than 250 millivolts. These LEDs are off when the signal level drops below 250 millivolts.

SYNC IN (or OUT) Indicator
The SYNC IN and SYNC OUT LEDs monitor the Genlock synchronization signals, where applicable. Green LEDs indicate the level of the Genlock synchronization signals are greater than 2 volts. These LEDs are off when the signal level drops below 2 volts.

OPERATION

S739DV links operate automatically once installed. For an explanation of LED color codes, refer to LED Operation and Table 3.

MAINTENANCE

There is no operator maintenance other than keeping the units clean.
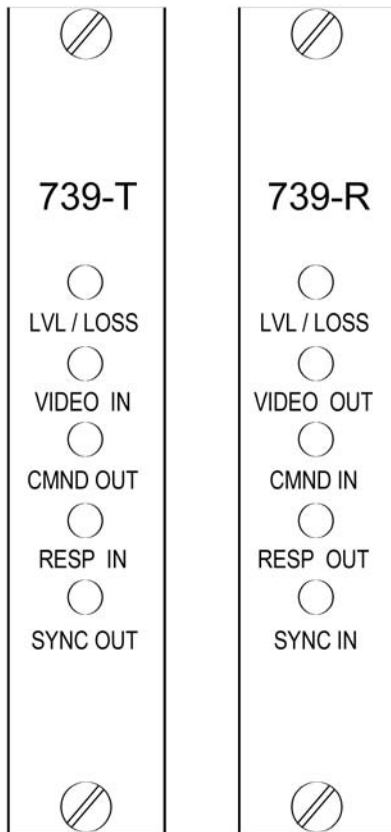
FIGURE 6: S739DV RACK CARD FRONT PANELS

TABLE 3: LED DIAGNOSTIC INDICATORS

LED Name	Color	Indicates/*Corrective Action*
LEVEL/ LOSS™	Green	Sufficient optical power received. *No action required.*
	Red	Optical power not being received. Fiber open or transmitter or receiver inoperative. *Check fiber loss, connectors, and splices (if any). On two-fiber units, verify TX port connects to RX port.*
VIDEO (TX)	Green	Video coax input to link is good.(Note that even a totally black screen is a valid video signal.) *No action required.*
	Red	Video coax input to link is not good. *Check the camera and the coax into the link.*
VIDEO (RX)	Green	Valid video signal received.(Note that even a totally black screen is a valid video signal.) *No action required.*
	Red	No video signal received. *Check the camera and coax. Check the LEVEL/LOSS™ indicator. If the indicator is green, check the VIDEO LED on the transmitter.*
CMND IN/OUT	Green	Indicates PTZ command transmission (greater than 250 mV). *No action required.*
	Off	No activity or command being transmitted is less than 250 mV.
RESP IN/OUT	Green	Indicates response from camera is greater than 250 mV. *No action required.*
	Off	No response from camera or signal is less than 250 mV. This may indicate a problem with the camera. This function is not available in all systems.
SYNC IN/OUT	Green	Indicates transmission of Genlock Synchronization signals greater than 2 volts, where applicable.
	Off	No Genlock Synchronization signal received or level is less than 2 volts.

Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product,
refer to this document and any other documentation provided. If you still have questions,
please contact technical support during normal business hours (Monday through Friday,
excluding holidays, between 6 a.m. and 5 p.m. Pacific Time).

GE Security

Call: 888 437-3287 (US, including Alaska and Hawaii; Puerto Rico; Canada)
Outside the toll-free area: 503 885-5700
Fax: 561 998-6224
www.gesecurity.com

GE Security

www.GESecurity.com

U.S.	Asia	Canada	Latin America
T (561) 998-6100	T 852-2907-8108	T 519-376-2430	T 305-593-4301
T 888-GE-SECURITY	F 852-2142-5063	F 519-376-7258	F 305-593-4300
888 (437-3287)			
F 561 998-6224	Australia	Europe	
E gesecuritycustserv@ge.com	T 613-9239-1200	T 44-113-238-1668	
	F 613-9239-1299	F 44-113-253-8121	