**Fiber Optic Four-Channel
FM Video Multiplexer
Models S704V and S7704V**

installation instructions

GENERAL

This manual is a guide to the installation and operation of the S704V and S7704V series fiber optic four-channel video multiplexer systems. Please read the entire manual before installing the equipment.

These four-channel video multiplexers offer simultaneous transmission of four full-frame video signals (color or monochrome). The S704V units use multimode fiber while the S7704V units operate over single-mode fibe

NOTE: The series numbers S704VT and S704VR are used to describe all models of transmitters and receivers unless noted otherwise.

A complete system consists of a transmitter, S704VT, and a receiver, S704VR. Units are designed for standalone operation or for installation in GE Security 515R1 or 517R1 Card Cages or 502R miniature enclosures.

Unpacking the Unit

In the event that anything is missing from the following list, contact your authorized GE Security dealer or representative.

S704VT Transmitter or S704VR Receiver
(S7704VT Transmitter or S7704VR Receiver
Instruction manual
Save the original packing materials in case it becomes necessary to return the unit.

BASIC SYSTEM DIAGRAMS
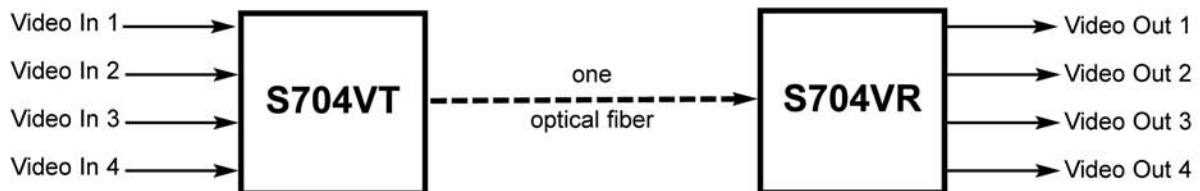
INSTALLATION

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. The type of screws used for mounting must be suitable for the surface where a module will be mounted
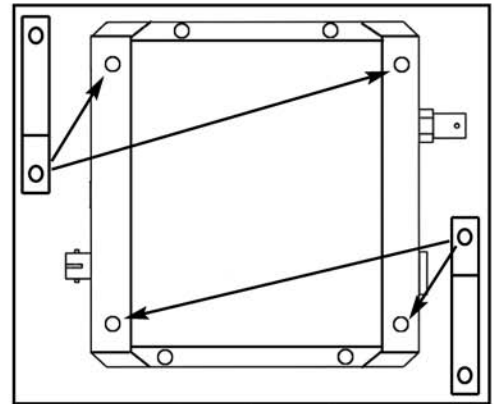
Standalone Transmitters

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.

2. Standalone transmitters feature a wall-mounting plate which is attached to suitable flat surfaces with six No. 6 (3-mm or 3.5-mm) screws. Once the plate is securely attached to a flat surface, the S704V is mounted on the plate and can be easily removed. See Figures 1 and 2.

FIGURE 1: MOUNTING PLATE

Mounting plate attaches to selected surface with six 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.
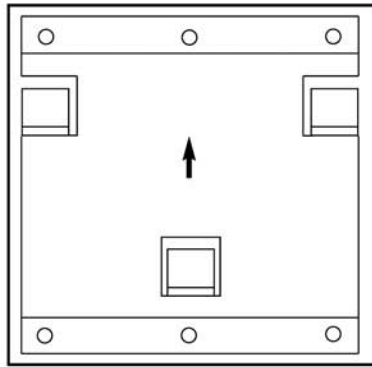
FIGURE 2: OPTIONAL SECURITY CLIP PLACEMENT

Security clip attaches to the rear of the module via any of these four screws. DO NOT mount the clip to any other screws on the module. Secure the module in place by then screwing the security clip to the mounting surface, using a screw suitable for the selected surface.

3. If additional anchoring is desired, before attaching the module to the mounting plate, remove one of the screws from the rear of the module and mount the optional security clip to the module using the screw you removed.

Attach the module to the mounting plate and secure the module by screwing the clip to the mounting surface. The module can be easily removed for service by removing this single screw. See Figure 2.

Standalone Receivers

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.

Standalone receivers consist of a rack card installed in a standalone enclosure with mounting holes for four No. 6 (3-mm or 3.5-mm) screws. The type of screw chosen must be suitable for the surface where the module will be mounted.

The rack card is normally installed in the enclosure at the factory.

Rack Cards

Rack cards are designed to be installed in one of GE Security's 19-inch (483-mm) EIA standard card-cage racks, either the 515R1 or the 517R1. They may also be installed in the 502R standalone rack card enclosures. Follow these guidelines to install rack cards.

515R1 and 517R1 Card Cage Racks

To install rack cards in a standalone enclosure, follow these steps:

CAUTION: Although rack cards are hot-swappable and may be installed without turning off power to the rack, GE Security 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.

502R Standalone Enclosures

To install rack cards in a standalone enclosure, follow these steps:

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

CAUTION: GE Security 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.
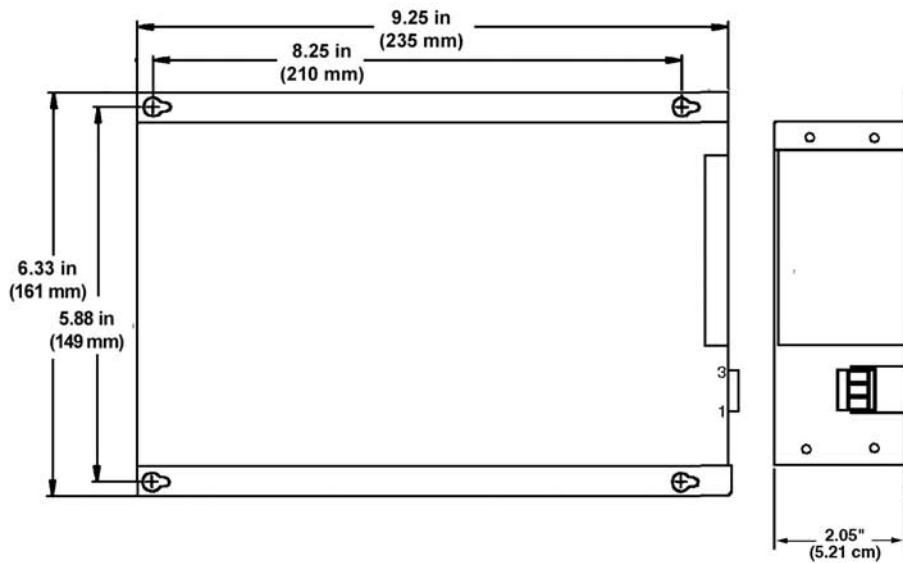
FIGURE 3: 502R RACK CARD ENCLOSURE

TABLE 1: POWER CONNECTION, 502R ENCLOSURE

PIN	CONNECTION
3	+13.5 VDC
2	N/C
1	Ground

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.

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.

Video Cable Connection

The video connections to the S704V series consist of four BNC connectors on the transmitter and receiver.See Figures 4 and 5.

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

Fiber Options recommends using Belden number 9259 or equivalent RG59/U coaxial cable between the video equipment and the fiber units. Do not exceed the maximum distance recommended by the manufacturer of the video equipment.

NOTE: Coaxial cable must be terminated with female BNC connectors to properly connect with the GE Security's equipment.

1. Connect four video sources, such as a cameras, to the input BNC jacks on the S704VT transmitter using terminated coaxial cable.

2. Connect the monitoring equipment to the four output BNC jacks on the S704VR receiver with terminated coaxial cable.

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 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.
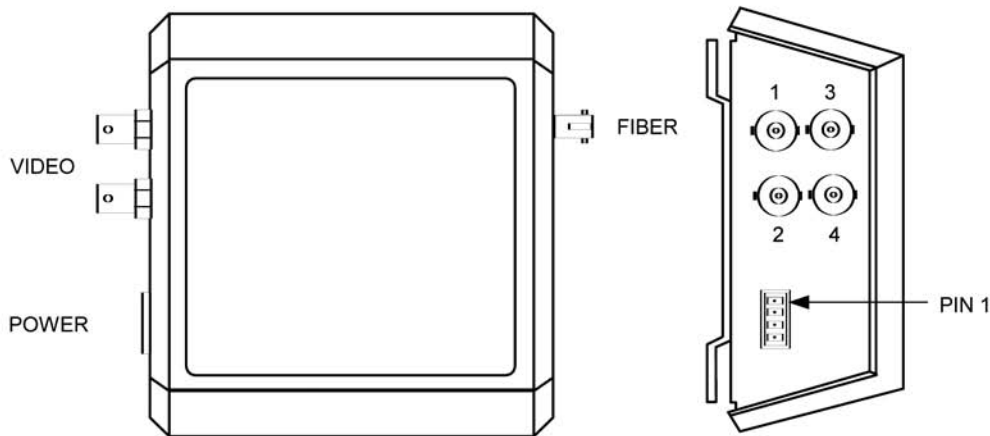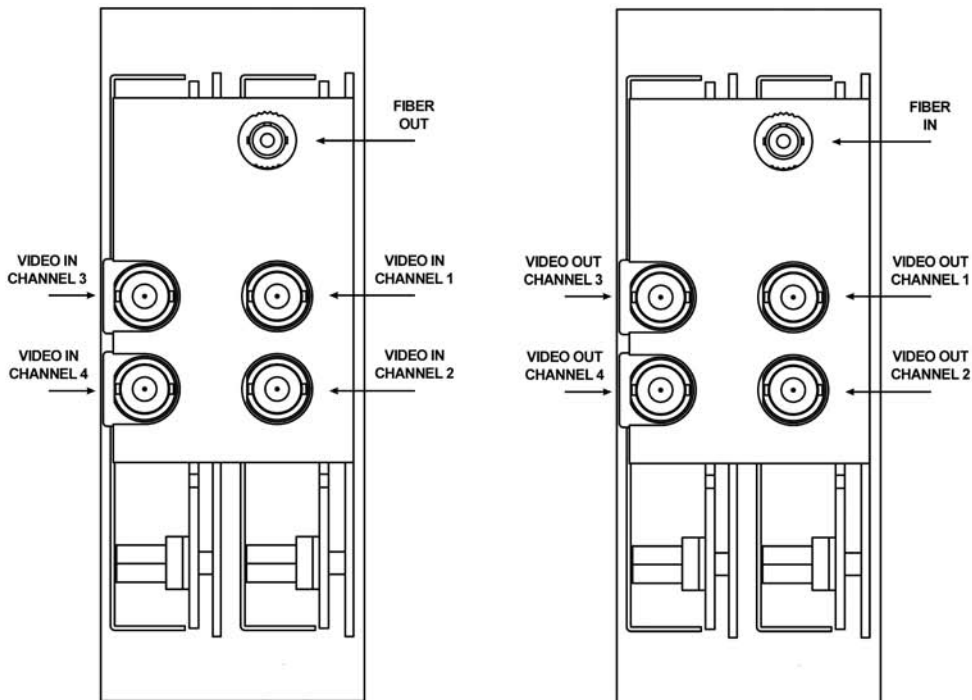
FIGURE 4: STANDALONE TRANSMITTER

VIDEO

POWER

FIBER

1   3

2   4

PIN 1

TABLE 2: POWER CONNECTION, STANDALONE TRANSMITTER

PIN	CONNECTION
1	DC +
2	12 VAC
3	12 VAC
4	Ground

FIGURE 5: RACK CARD CONNECTIONS, TRANSMITTER (LEFT) AND RECEIVER (RIGHT)

FIBER OUT

VIDEO IN CHANNEL 3

VIDEO IN CHANNEL 4

VIDEO IN CHANNEL 1

VIDEO IN CHANNEL 2

FIBER IN

VIDEO OUT CHANNEL 3

VIDEO OUT CHANNEL 4

VIDEO OUT CHANNEL 1

VIDEO OUT CHANNEL 2

Power Connections

Standalone Modules

Standalone modules have a removable screw terminal connector for the electrical input connection. Refer to Figure 3 and Table 1 for standalone receivers and Figure 4 and Table 2 for standalone transmitters.

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.

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 S704V has built in Status Monitoring And Reliability Test System (*SMARTS*™) diagnostic capabilities that includes LED indicators for monitoring video status. They are described in the following sections.

LED Operation

The S704V has 2 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^M and VIDEO. Table 3 provides a convenient summary of the LED display functions. The LEDs function as follows:

NOTE: A blank video screen can be a valid video input.

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 Indicator

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

If the S704V fails to operate and the cause of the failure cannot be determined, it may be necessary to contact Fiber Options.

OPERATION

S704V links operate automatically once installed. Refer to the Table 3 for an explanation of how to diagnose system faults using the LEDs built into the Fiber Options units.

MAINTENANCE

There is no operator maintenance other than keeping the units clean.

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.

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).*
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.*

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).

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