

GE
Security

Fiber Optic Network Transmission System
Models S714D and S7714D

installation instructions



imagination at work

GENERAL

This manual is a guide to the installation and operation of the S714D and S7714D series fiber-optic 10/100Base-T network transmission system. Please read the entire manual before installing the equipment.

NOTE: The number S714D will be used to describe all models unless noted otherwise.

The S714D system transmits 10Base-T Ethernet data over distances up to 2 km or 100Base-T Fast Ethernet data up to 1.5 km. The system features auto negotiation capability and switch selectable crossover. The S714D system operates over one or two multimode fibers. The S7714D system operates over one or two single-mode fibers. Data is transmitted in both directions.

A complete system consists of two transceivers. Units are designed for standalone operation or for installation in Fiber Options' 503H, 515R1 or 517R1 Card Cages or 501R standalone enclosures.

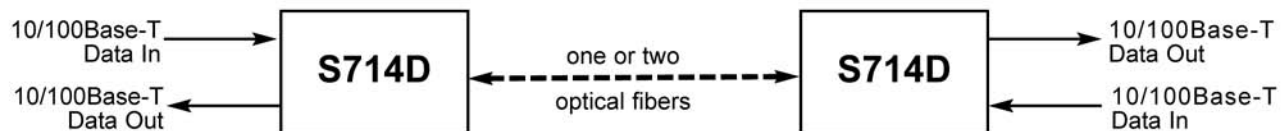
Unpacking the Unit

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

S714D (S7714D) Module

Instruction manual

Save the original packing materials in case it becomes necessary to return the unit.

BASIC SYSTEM DIAGRAM**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

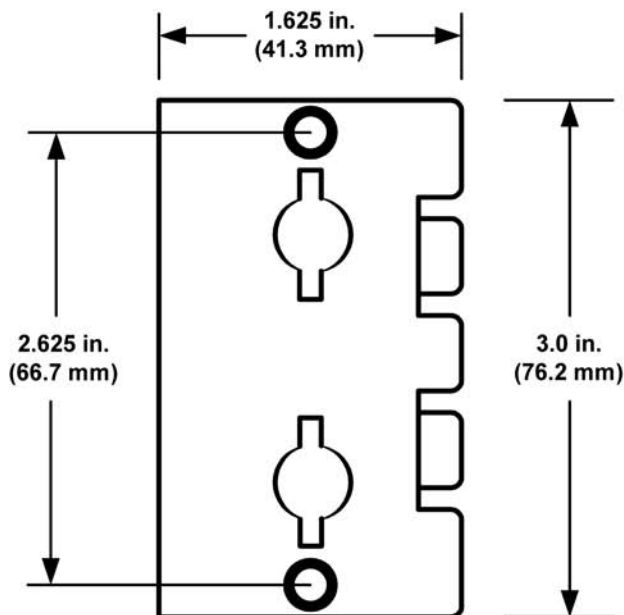
Standalone modules are provided with a mounting plate with holes for two No. 6 flat head screws (3-mm or 3.5-mm). The type of screws must be suitable for the surface where a module will be mounted. See Figure 1.

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. Attach the mounting plate to a flat surface using two mounting screws. Once the plate is securely attached, align the tabs in the plate with the holes in the rear of the module and apply downward pressure until the module snaps in place.

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 1: STANDALONE MODULE MOUNTING PLATE



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 the 501R standalone enclosure. Follow these guidelines to install rack cards after performing the MODULE SETUP procedures.

515R1 and 517R1 Card Cage Racks

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

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.

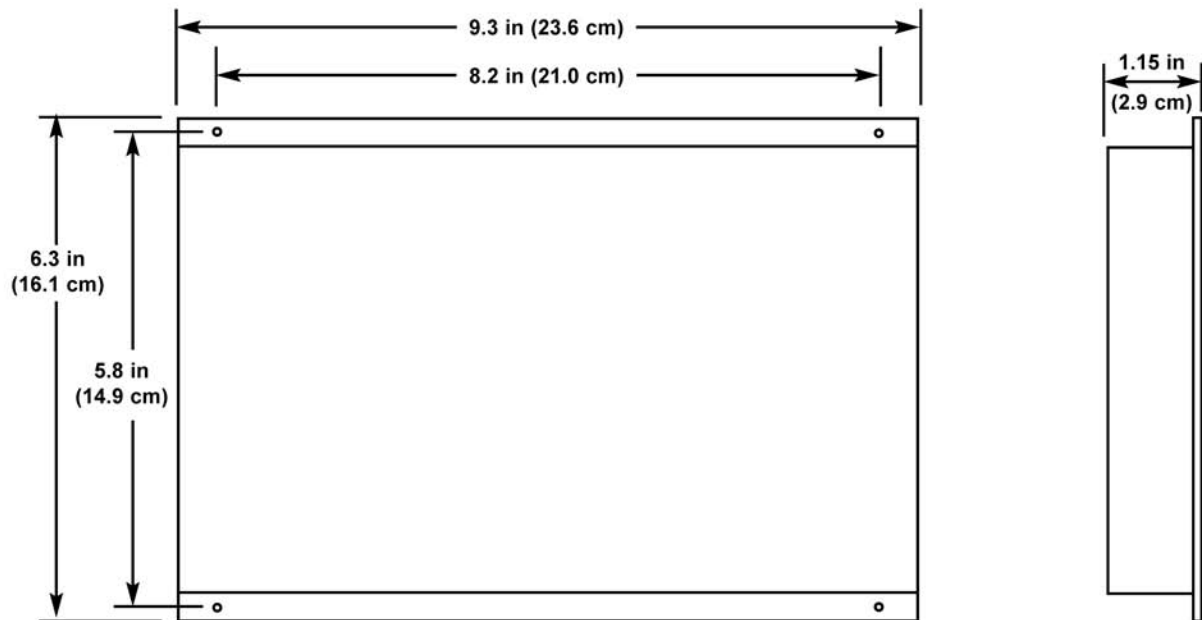
CAUTION: Take care not to press on any of the LEDs.

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 Standalone Enclosures

Standalone enclosures are provided with holes for four No. 6 flat head screws (3-mm or 3.5-mm). The type of screws must be suitable for the surface where a module will be mounted. See Figure 2.

FIGURE 2: 501R STANDALONE ENCLOSURE - MOUNTING DIMENSIONS



Pin	Function
3	+13.5 VDC
2	No connection
1	Ground

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. Attach the enclosure to a flat surface using four mounting screws.

MODULE SETUP

Switch Selectable Crossover

This feature eliminates the need to reverse, or crossover, signals in the UTP CAT5 Ethernet cable. All cables should be pinned straight-through with no crossover signals.

Simply connect the S714D to either a network hub or a workstation using the straight Ethernet cable and select the appropriate device on the HUB - WS switch. The S714D will cross the signals according to the switch setting. See Figures 3 through 7 for details.

CONNECTIONS

Data Connections

Plug the 10/100Base-T cable into the RJ-45 connector on the S714D. See Figures 3 and 4.

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 and 4.

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.

FIGURE 3: S714D 2-FIBER RACK CARD

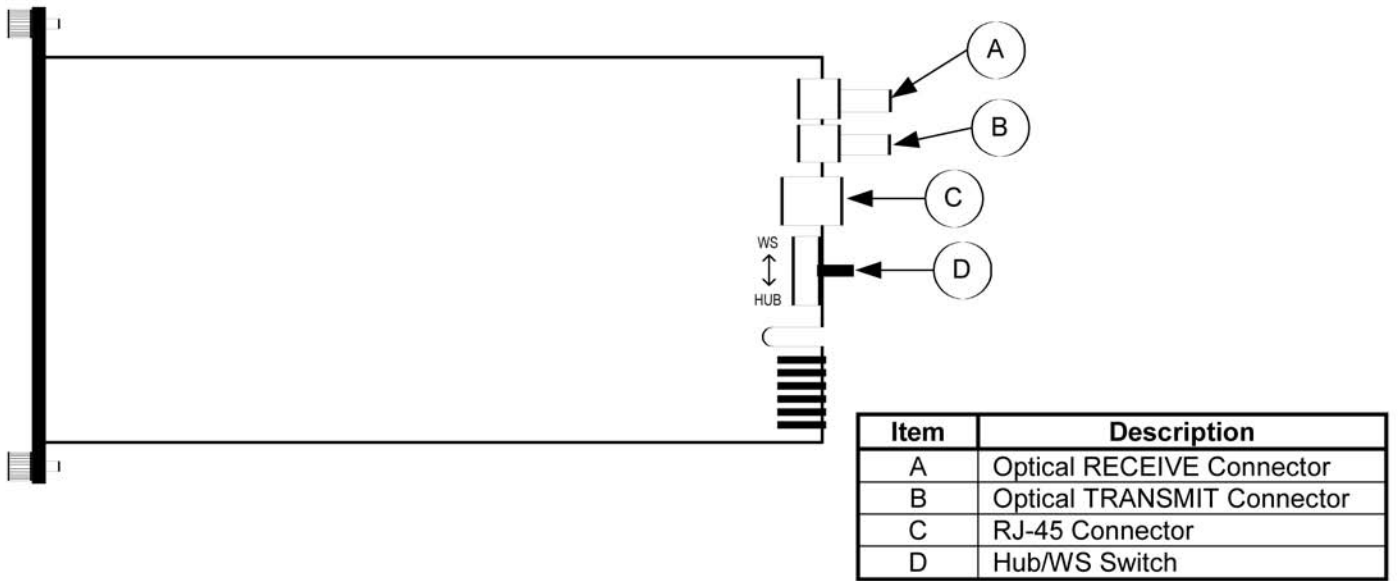


FIGURE 4: STANDALONE 2-FIBER TRANSCEIVERS

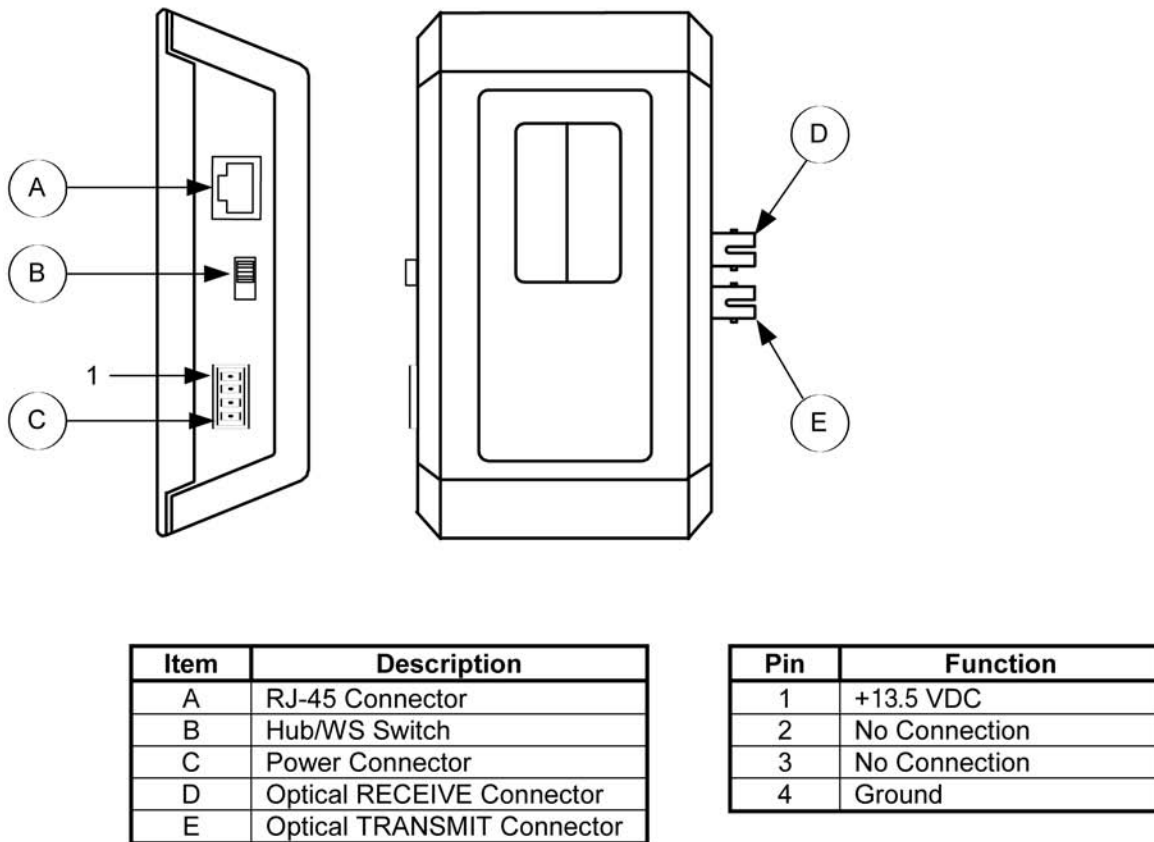
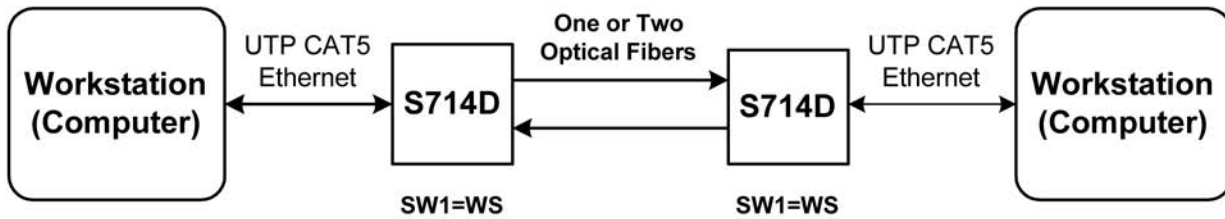
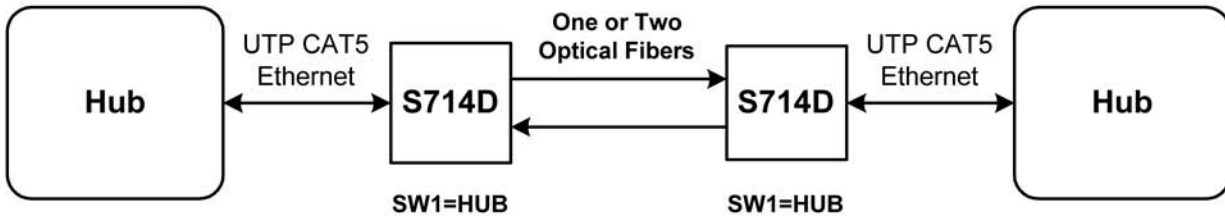


FIGURE 5: SW1 SETTINGS - WORKSTATION TO WORKSTATION*



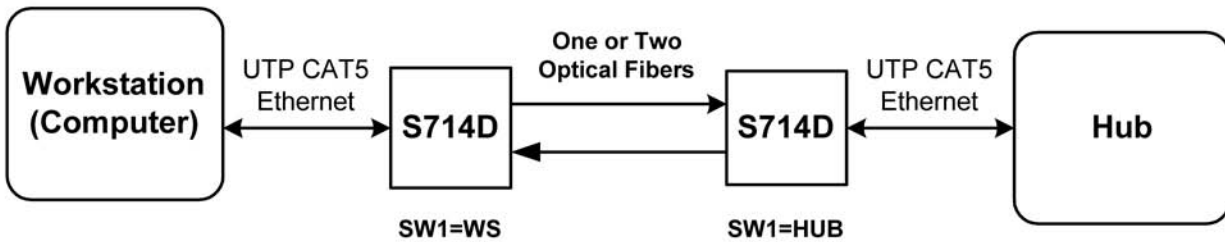
*NOTE: All external cables are straight, one-to-one connections.

FIGURE 6: SW1 SETTINGS - HUB TO HUB*



*NOTE: All external cables are straight, one-to-one connections.

FIGURE 7: SW1 SETTINGS - WORKSTATION TO HUB*



*NOTE: All external cables are straight, one-to-one connections.

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.

4. Fasten the fiber optic cable to the port.

Power Connections

Standalone Modules

Standalone units can only be powered 12 - 16 VDC. Connect input power according to the label on the module. See Figure 4.

501R Standalone Enclosures

Rack cards installed in 501R standalone enclosures can only be powered by 13.5 VDC. Connect input power according to the label on the module. See Figure 2.

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 S714D has built in Status Monitoring And Reliability Test System (SMARTS™) diagnostic capabilities. This includes LED indicators for monitoring data and optical status.

They are described in the following sections.

LED Operation

Refer to the Table 1 for an explanation of how to diagnose system faults using the LEDs built into the units.

The S714D 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 TX LINK, TX ACTIVITY, RX LINK, RX ACTIVITY and POWER. See They function as follows:

TX LINK Indicator

The TX LINK LED indicates the presence of idle carrier pulses on the RJ-45 connection between the S714D unit and the Hub or Workstation. A green TX LINK LED indicates 100Base-T idle carrier pulses are being received. An amber TX LINK LED indicates 10Base-T idle carrier pulses are being received. When no pulses are being received, the LED is off.

RX LINK Indicator

The RX LINK LED indicates the presence of idle carrier pulses on the fiber connection between the S714D units. A green RX LINK LED indicates 100Base-T idle carrier pulses are being received.

An amber RX LINK LED indicates 10Base-T idle carrier pulses are being received. When no pulses are being received, the LED is off.

TX ACTIVITY Indicator

The TX ACTIVITY LED indicates the status of the data being received over the RJ-45 link. A flashing green TX ACTIVITY LED indicates data is received over copper. If the TX ACTIVITY LED is off, no data is being received over copper.

RX ACTIVITY Indicator

The RX ACTIVITY LED functions identically to the TX ACTIVITY LED except that the LED represents data that is being output from the unit over the optical fiber.

POWER Indicator

A green POWER LED indicates input power is connected to the unit and is operating properly.

OPERATION

S714D links operate automatically once installed. For an explanation of LED color codes, refer to LED OPERATION and Table 1.

MAINTENANCE

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

TABLE 1: LED DIAGNOSTIC INDICATORS

LED Name	Color	Indicates/Corrective Action
TX LINK	Amber	Unit receiving 10Base-T idle carrier pulses from copper. <i>No action required.</i>
	Green	Unit receiving 100Base-T idle carrier pulses from copper. <i>No action required.</i>
	Off	No carrier pulses received. <i>Check Ethernet connection.</i>
TX ACTIVITY	Green	Flashing indicates data being received from copper. <i>No action required.</i>
	Off	No data from copper.
RX LINK	Amber	Unit receiving 10Base-T idle carrier pulses from fiber/ <i>No action required.</i>
	Green	Unit receiving 100Base-T idle carrier pulses from fiber/ <i>No action required.</i>
	Off	No carrier pulses received. <i>Check fiber connection.</i>
RX ACTIVITY	Green	Flashing indicates data detected on fiber. <i>No action required.</i>
	Off	No data on fiber.
Power	Green	Input power applied to unit. <i>No action required.</i>
	Off	No input power applied to unit. <i>Check input power source.</i>

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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