GE
Security

Card Cage with Power Supply
Model 515R1

installation instructions

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GENERAL

This manual is a guide to the installation and operation of the 515R1 Card Cage with power supply. Please read the entire manual before installing the equipment.

The Model 515PS1 card cage power supply is designed to provide adequate DC current to Fiber Options' 515R1 card cage. A second unit can be installed in the rack as a redundant power supply.

Capacity

The 515R1 card cage with power supply provides 15 single-width rack card slots and an integral power supply (Model 515PS1). Any combination of single, double, triple or wider rack units can be installed in the 515R1, up to an equivalent of 15 single-slot units. When a second 515PS1 power supply is installed , the capacity of the rack card cage is reduced to 13 single-slot units.

The 515PS1 provides a single power output rated at a Power Factor of 48, or 6.0 amps. Determine the power requirements of the rack cards in each rack by adding the rack card Power Factors. The total for the rack must be less than or equal to PF48.

For example, there are 15 rack cards to be installed in the 515R1 card cage, with each card having a Power Factor of 3. The total Power Factor for each rack is 45 (15 x 3). The Power Factor of the 515PS1 power supply is 48, indicating the unit can safely supply power for the rack cards.

Caution: When installing modules in the 515R1 card cage, ensure the sum of the module Power Factors does not exceed the Power Factor of the power supply.

To determine the Power Factor of GE Security modules, check the Product Specifications located on the Web at www.gesecurity.com.

Unpacking the Unit

In the event that anything is missing from the following list, contact your authorized GE Security dealer or representative.
>515R1 Card Cage
>Instruction manual

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

Power Supply Features

The input voltage to the power supply is 100~240 VAC (50 to 60 Hz). Input power is applied through a three-pin line cord into a power entry module that contains a 2-amp fuse and an ON/OFF switch. An AC line cord is supplied with each 515PS1. The assembly may be operated with a redundant power supply. Refer to REDUNDANT POWER SUPPLY on page 2.

Figure 1 shows the front panel of the power supply which includes:

a. The DC OUTPUT LED indicates the current load. When the load is within acceptable limits, the indicator is green. If an overload condition is present, the indicator is red.

b The ALARM LED indicates fiber failure. This feature is activated only if receiver modules are installed in the card cage.

c. The MUTE switch allows the audible fiber failure alarm to be disabled.

NOTE: The MUTE switch does not affect the operation of the ALARM diagnostic LED or the remote alarm outputs.

INSTALLATION

Follow the guidelines in the following sections to install the 515R1 card cage and power supplies. Refer to POWER SUPPLY SETUP on page 4 prior to installing the unit.

Rack Mounting

The 515R1 card cage mounts in a standard EIA 19-inch (483 mm) rack. Mounting holes are provided on each side of the card cage to secure it to the rack. Rack Unit size: 3 RU.

Optional Wall Mounting

GE Security's 51WM Wall Mounting brackets are used to mount the 515R1 Card cage vertically or horizontally on a suitable mounting surface. To mount the card cage:

1. Determine where the card cage will be installed and ensure there is adequate room at both ends for making the various cable connections and to install or remove the modules from the unit.

2. Insert two 8x32 countersunk screws through inside of card cage and attach a 51WM Wall mounting brackets to both sides of the card cage. See Figures 2 and 3.

CAUTION: Ensure the mounting surface and hardware can support the card cage when all rack-mounted modules are installed

3. Mount the card cage to a suitable surface using the slotted openings in the 51WM wall mounting brackets. The type of hardware used must be suitable for the surface where the card cage will be mounted.

Primary Power Supply

Normally the 515PS1 power supply is installed in the card cage at the factory. To install the 515PS1 in the 515R1 card cage:

NOTE: GE Security recommends using slots 16 and 17 (the right-most slots) for best ventilation.

1. Select two adjacent open slots, and align the supply into the guide rails of the card cage.

2. Slide the 515PS1 into the cage until the edge connector at the back of the power supply seats in the corresponding slot in the cage's connector panel. Seating may require thumb pressure on the top and bottom of the power supply front panel.

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

4. Connect the power supply to an AC power source using the AC line cord provided with the unit.

Redundant Power Supply

If a redundant power supply is ordered as an option at the time of ordering the 515R card cage assembly, it too will have been factory installed. If, however, a redundant power supply has been ordered separately, the unit is easily field installed in the card cage. To install the redundant 515PS1:

NOTE: Adding a redundant power supply will reduce the maximum number of rack cards that the card cage will hold from 15 to 13.

1. Select two adjacent open slots, and align the supply into the guide rails of the card cage.

2. Slide the 515PS1 into the cage until the edge connector at the back of the power supply seats in the corresponding slot in the cage's connector panel. Seating may require thumb pressure on the top and bottom of the power supply front panel.

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

NOTE: The redundant power supply may be installed in any open slots in the card cage.

NOTE: To reduce risks due to disturbances of the primary power source, the primary and redundant power supplies should be connected to different AC circuits.

4. Connect each power supply to an AC power source using the AC line cord provided with the unit.

5. Connect the removable screw terminal to the remote alarm connector on the rear of the unit, if required. See Figure 4.

The redundant power supply operates in parallel with the primary power supply and will switch over automatically. To enable this feature, power ON/OFF switches on both power supplies must be in the ON position. Both power supplies must also be connected to an appropriate AC power source using the AC line cords.
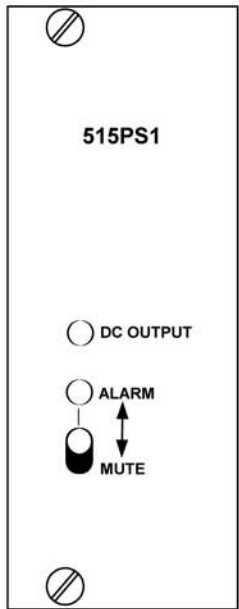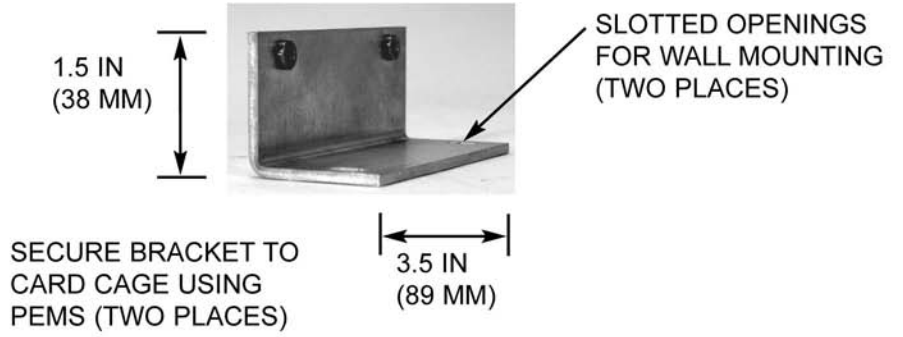
FIGURE 1: 515PS1 FRONT PANEL

515PS1

◯ DC OUTPUT

◯ ALARM

⬍

MUTE

FIGURE 2: 51WM WALL MOUNTING BRACKET

1.5 IN
(38 MM)

SLOTTED OPENINGS
FOR WALL MOUNTING
(TWO PLACES)

SECURE BRACKET TO
CARD CAGE USING
PEMS (TWO PLACES)

3.5 IN
(89 MM)

FIGURE 3: 515R1 CARD CAGE WITH 51WM WALL MOUNTING BRACKET

BRACKET
MOUNTING SCREWS

BRACKET
MOUNTING SCREWS

NOTE: CARD CAGE SHOWN WITH 515PS1
POWER SUPPLY REMOVED.

POWER SUPPLY SETUP

Power supply setup consists of setting the remote alarm and the 14-V alarm option.

Remote Alarm

A removable screw terminal connector on the rear of the 515PS1 is provided for connecting a remote alarm if desired. The connections provide a normally open relay/contact circuit which closes on fiber failure. The remote alarm is connected to pins 1 and 2. Refer to Figures 4 and 5, and to Table 1.

NOTE: The ALARM MUTE switch on the 515PS1 front panel does not affect the operation of the remote alarm circuit.

14V Alarm Option

The 515PS1 also offers a 14-V alarm output at 0.5 A. To enable this feature, a jumper must be installed on the pins of connector W1, near the rear of the 515PS1 and just under the protective cover. Refer to Figure 5.

The jumper is shipped with the 515PS1 in the open position on one pin of the connector. Remove the jumper and reposition it to connect both pins of the connector to activate the 14V output.

The connection for the alarm is on pins 1 and 2 with ground provided on pin 5. Pin 2 provides a constant 14-V output, pin 1 activates on fiber failure to close the alarm circuit.

NOTE: Do not exceed the maximum current load of 0.5 A. Exceeding this level will overload the alarm output, causing it to fail and can damage the 515PS unit.

OPERATION

Turn on the 515PS1 power supply using the POWER switch located on the power entry module at the rear of the unit. See Figure 4.

The DC OUTPUT diagnostic LED on the front panel monitors the power supply for proper output operation. Table 2 provides a convenient summary of the DC OUTPUT LED indications.

DC Output Failure

If the power supply has an output overload, indicated by a red DC OUTPUT LED, perform the following:

1. Check that the total Power Factor of the installed rack cards does not exceed the output Power Factor of the 515PS1 power supply, which is Power Factor 48 (6 amps).

2. Check the Product Specifications for the GE Security rack cards you have installed in the rack to determine their total Power Factor value.

AC Input Failure

In the event of a power supply input failure, (no LEDs lit on the 515PS1), perform the following:

1. Check that the AC line cord is properly connected to the 515PS1 and to a working AC outlet and that the ON/OFF switch on the rear of the power supply is set to ON.

2. If the power cord is properly connected and the switch is set to ON and there is still no DC OUTPUT indication, examine the fuse located in the power entry module on the rear of the power supply. Refer to FUSE REPLACEMENT and Figure 6.

MAINTENANCE

The equipment is solid-state and does not require any field adjustments, periodic maintenance, or calibration.

Fuse Replacement

The input power fuse is located in a power entry module built into the input power housing on the rear panel. See Figures 4 and 6. To replace the fuse:

WARNING: Disconnect the AC line cord from the power supply and from the AC outlet before attempting to remove or replace the fuse.

NOTE: Carefully note the position of the fuse in the fuse carrier before removing to avoid installing or replacing the fuse incorrectly.

1. Remove the fuse carrier by locating the small slot at the top of the power entry module and gently prying the cover open using a small flat screwdriver. When the cover is open, pry the fuse carrier out of the module, remove and examine the fuse.

2. If necessary, replace with a fuse of the same type and rating and return the fuse carrier to the power entry module. Close the cover until it snaps into place.

3. Connect the AC line cord to the power supply and to the AC outlet.
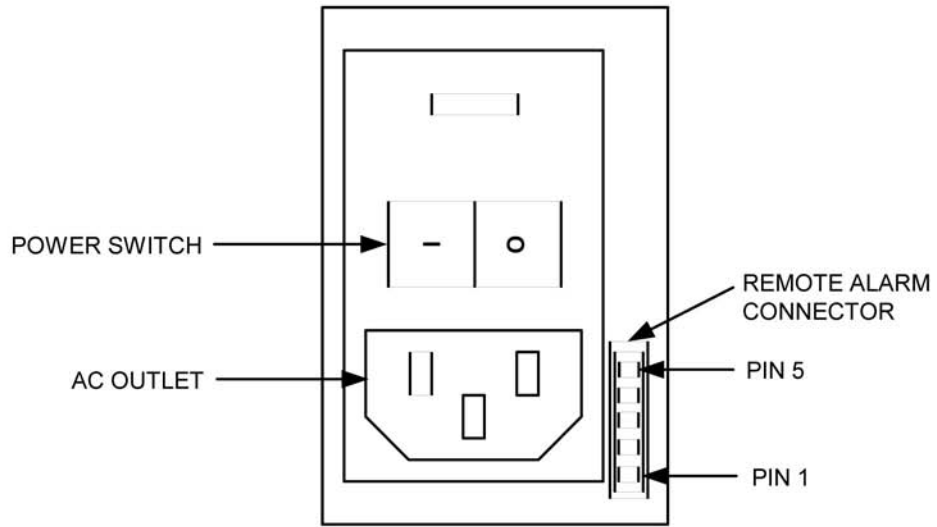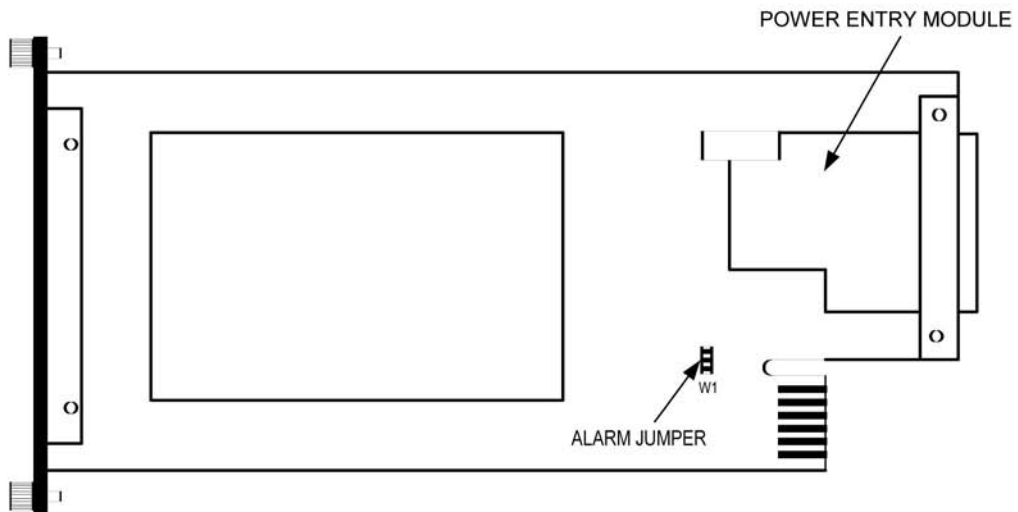
FIGURE 4: POWER ENTRY MODULE

POWER SWITCH

AC OUTLET

REMOTE ALARM CONNECTOR

PIN 5

PIN 1

TABLE 1: REMOTE ALARM CONNECTION

PIN	CONNECTION
5	Ground
4	No Connection
3	No Connection
2	Relay
1	Relay

FIGURE 5: 14-VOLT ALARM JUMPER W1

POWER ENTRY MODULE

W1

ALARM JUMPER

POWER SUPPLY SHOWN WITH COVER REMOVED

TABLE 2: DC OUTPUT LED INDICATIONS

Color	Indicates/*Corrective Action*
Green	AC power applied and power supply operating normally. *No action required.*
Red	Output overload. *Verify total Power Factor of installed Fiber Options rack cards does not exceed the Power Factor of the 515PS1 power supply (48 or 6 amps).*
Off	AC input failure. *Verify AC power is connected and turned on. Check the fuse in the power entry module and replace if defective.*

FIGURE 6: POWER ENTRY MODULE - FUSE LOCATION AND REPLACEMENT

Fuse Cover Latch
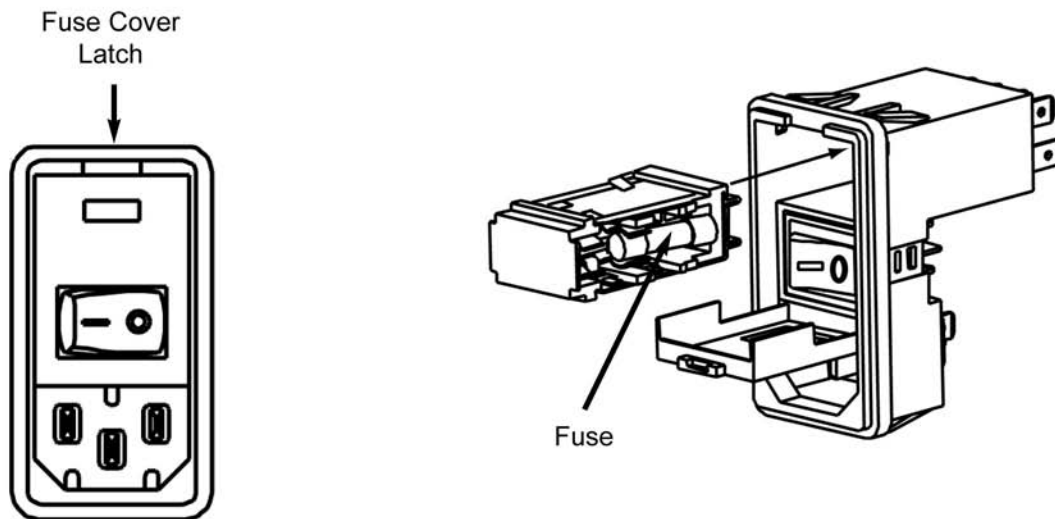
Fuse

4. Set the power switch on the rear of the unit to the ON position.

If the 515PS1 fails to operate and the cause of the fuse failure cannot be determined, it may be necessary to contact GE Security.

SHIPPING AND PACKAGING

Before shipping or transporting your GE Security unit, pack it securely to prevent damage that could occur in transit. Use care to protect all connectors, LEDs, and corners from possible damage.

RETURNS TO GE SECURITY

If any equipment must be returned to GE Security for repair or replacement, you must obtain authorization from our Return Authorization department before shipping.

NOTE: All authorized returns must be clearly marked with the Return Authorization information. Please follow the instructions completely.

NOTE: GE Security will not accept return delivery of any product without prior authorization.

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

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