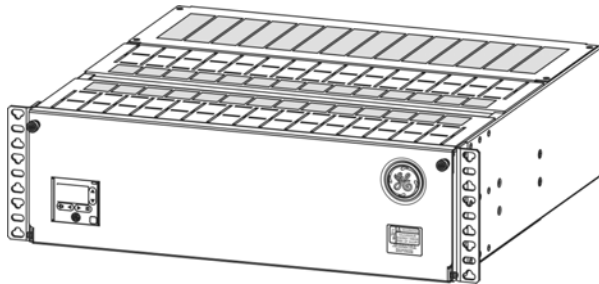


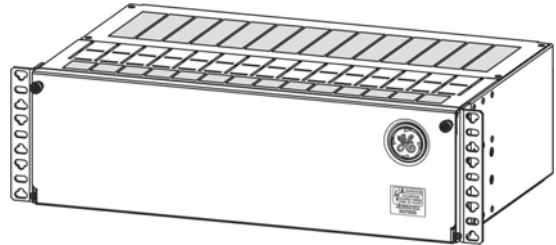


## 3U DIN Distribution Shelf - 19 in Rack Mount

J2012001 - multiple models - See SPS, NE, or CP Brochure for details of models



17" deep Shelf (NE & CP compatible)



11" deep Shelf (SPS compatible)

The distribution shelf may be installed as a component of a power systems or as a stand-alone remote distribution (cabled input power). Some models include battery connections. Some models include battery connections and battery contactors.

Controller: All power systems have a controller. It may be located in the primary rectifier shelf or in the distribution shelf. If the power system has a primary rectifier shelf (with controller), install the distribution shelf immediately above it.

Refer to SPS, Infinity S (NE S), or CPL Brochure for details, circuit breakers, and accessories.

**Tools required:**

Torque wrench (0-40Nm)  
Screw Drivers - Phillips and flat

Sockets - metric and inch  
Wire cutters and strippers

Cable crimpers

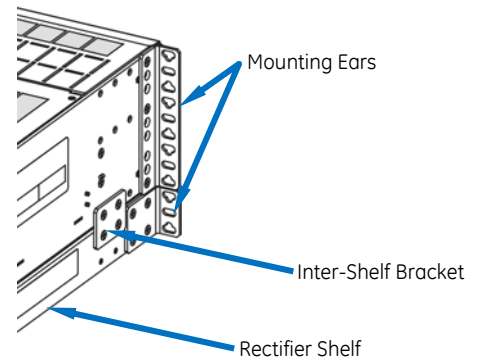
### Step 1 - Mount Shelf

Prepare the shelf for mounting to the frame.

1. Reposition mounting ears as required - 3 screws each.  
Torque to 2.8Nm (25 in-lb) - Phillips screwdriver.
2. Position the shelf immediately above the rectifier shelf with controller (if present).
3. Install Inter-Shelf brackets between adjacent shelves (optional).  
Torque to 2.8Nm (25 in-lb) - Phillips screwdriver.

Mount the shelf to the frame.

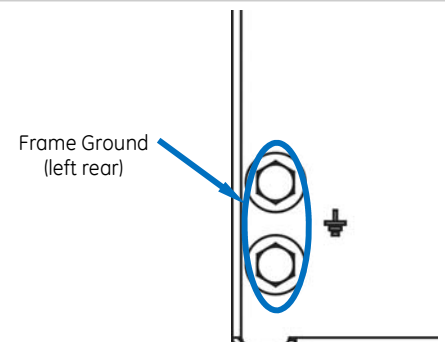
1. Attach shelf to the frame using a minimum of four screws (two on each side) - 12-24 (provided).  
Torque to 4Nm (35 in-lb) - 5/16" (8mm) socket.



### Step 2 - Ground Chassis

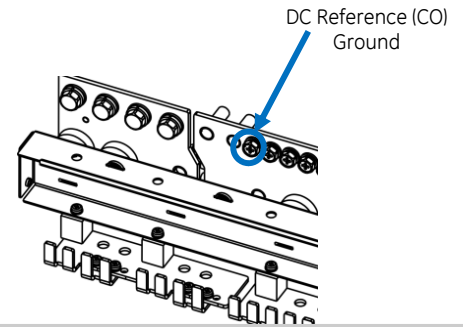
- Notes:
- 1 Lug landings are M5 on 5/8" (16mm) centers (lug not provided)
  - 2 6mm<sup>2</sup> (10AWG) recommended.
  - 3 Some applications may rely on frame mounting screws for shelf ground omitting the shelf ground cable

Torque to 4Nm (35 in-lb) - 8mm (8mm) socket.



**Step 3 - Connect System DC Reference (CO) Ground** - Make one connection to a power system (SPS, NE, CPL, etc.).  
No connection to a stand-alone, remote distribution shelf.

Connections are to the left-most position on the Load Return bus - M6 lug ( not provided).  
10mm<sup>2</sup> recommended  
Torque to 4.0 Nm (35 in-lb) - 10 mm socket.



**Step 4 - Connect Shelf DC Input**

Connections are on the rear under covers.

**Bus Connection - to an adjacent rectifier shelf**

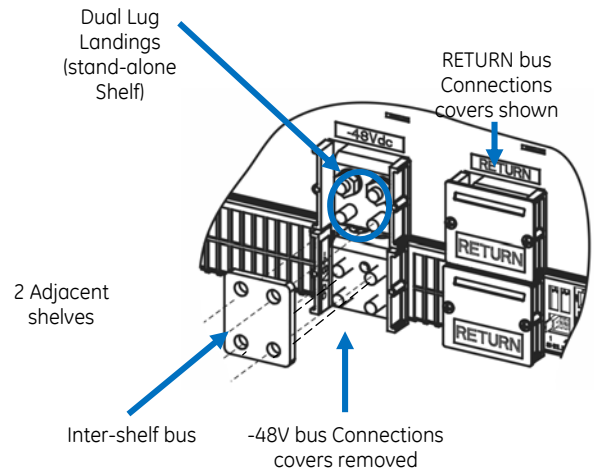
Install inter-shelf buses joining -48V and RETURN bus connections of all adjacent shelves.

**Cable Connection - Stand-alone Shelf**

**CAUTION:** Verify battery voltage and polarity with a voltmeter before proceeding.

Lug Landings - 2 x 1/4" on 5/8" center, 0.7" (18mm) max. tongue width.  
Connect cables with suitable lugs to -48V and RETURN.

Torque all hardware to 7.3Nm (65 in-lb) - 7/16" socket.

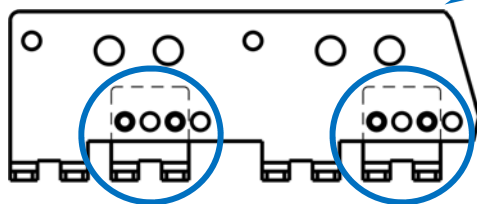
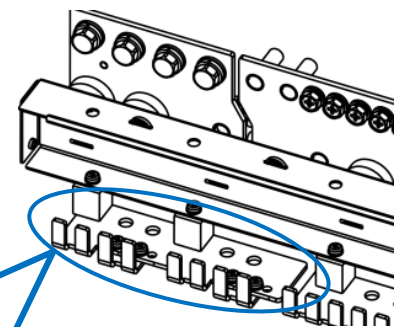


**Step 5 - Reposition Battery Breaker Bus Bars** - skip if battery breakers are installed or batteries are not present

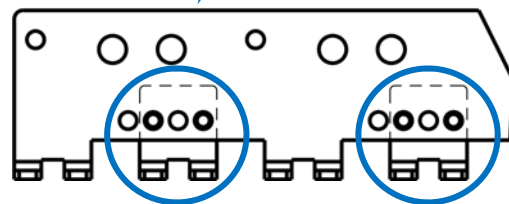
Battery breaker positions are on the left end of the DIN rail.

Battery breaker bus bars can be positioned for two 3 or 4 pole breakers or for four 1 or 2 pole breakers.

1. Verify that Battery Breaker Bus Bars are properly positioned for the breakers to be installed.
2. Reposition both Battery Breaker Bus Bars to positions for the breakers to be installed.
  - a. Remove screws (2) securing each Battery Breaker Bus Bar to the main bus bar - #2 Phillips.
  - b. Position each Battery Breaker Bus Bars as required. Secure with screws. Torque to 2 Nm (18 in-lb) - #2 Phillips.



3 or 4 Pole Battery Breaker Bus Bars Positions



1 or 2 Pole Battery Breaker Bus Bars Positions

Battery Breaker Bus Bars - top view

## Step 6 - Connect Batteries - skip if not present

Battery breaker positions are on the left end of the DIN rail.

Batteries connect to Battery Breakers - light gray

Battery Returns connect to the Battery Return bus behind the breakers.

Use lugs suitable to lug landings (lugs not provided).

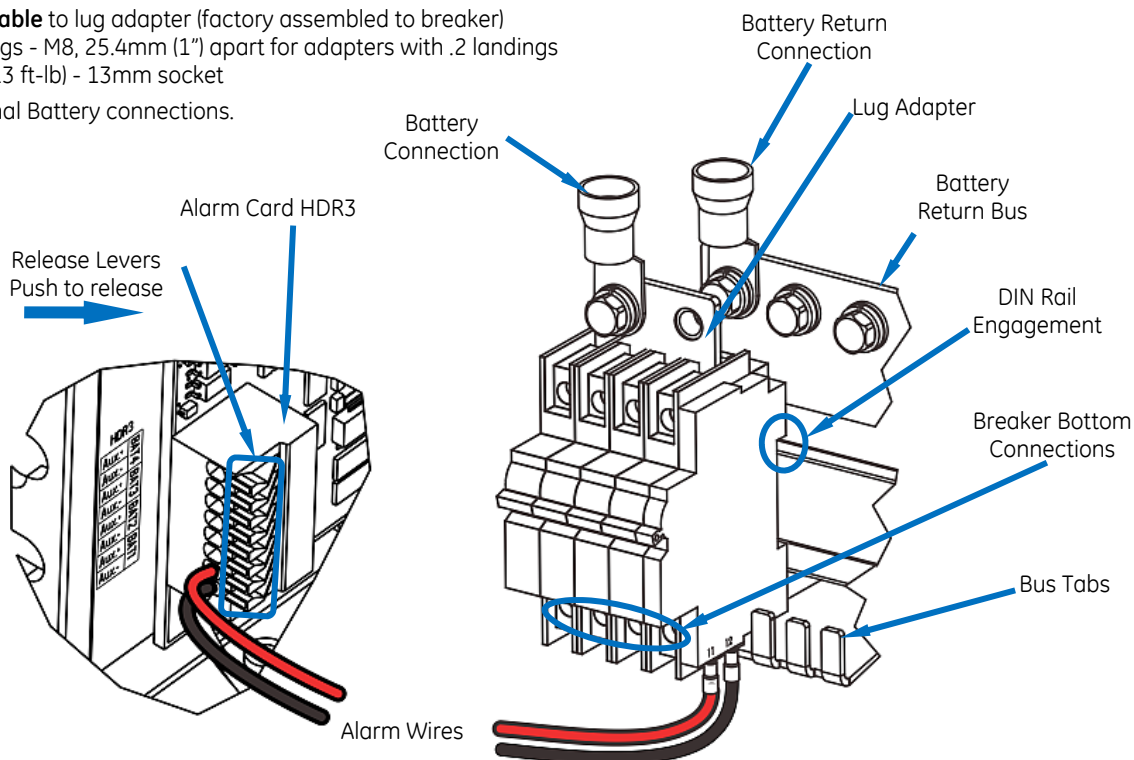
### A. Install Battery Breaker Kits - skip if battery breakers are installed or batteries are not present

1. Connect alarm wire to battery breaker (wires provided)  
Connect Fastons to breaker terminals.  
Terminal 11 - Red  
Terminal 12 - Black
2. Mount breaker to DIN rail
  - a. Verify that breaker is OFF.
  - B Fully open the connections at breaker bottom - #2 Philips
  - c Slide breaker over bus tabs and engage top DIN rail fully  
IMPORTANT - Verify top DIN rail engagement.
  - d Tighten the breaker bottom connection - #2 Philips.  
Hold firmly downward and torque as labeled.
3. Connect alarm wires to Alarm Card HDR3
  - a Run wires to HDR3
  - b Cut wires
  - c Strip 12 mm (1/2")
  - d Push release lever, Insert wire, Release lever, Pull wire to verify
4. Repeat for additional Battery Breakers, BAT2, etc..

### B. Connect Batteries

1. Connect **Battery Return Cable** to Battery Return Bus  
Battery Return Lug Landings - M8, 25.4mm (1") apart.  
Torque to 18 Nm (13 ft-lb) - 13mm socket
  2. Verify that breaker is OFF.
- CAUTION:** Verify battery voltage and polarity with a voltmeter before proceeding.
3. Connect **Battery Cable** to lug adapter (factory assembled to breaker)  
Battery Lug Landings - M8, 25.4mm (1") apart for adapters with .2 landings  
Torque to 18 Nm (13 ft-lb) - 13mm socket
  4. Repeat for additional Battery connections.

Break off Cable Entry Tabs as necessary.



## Step 7 - Connect Loads (Outputs)

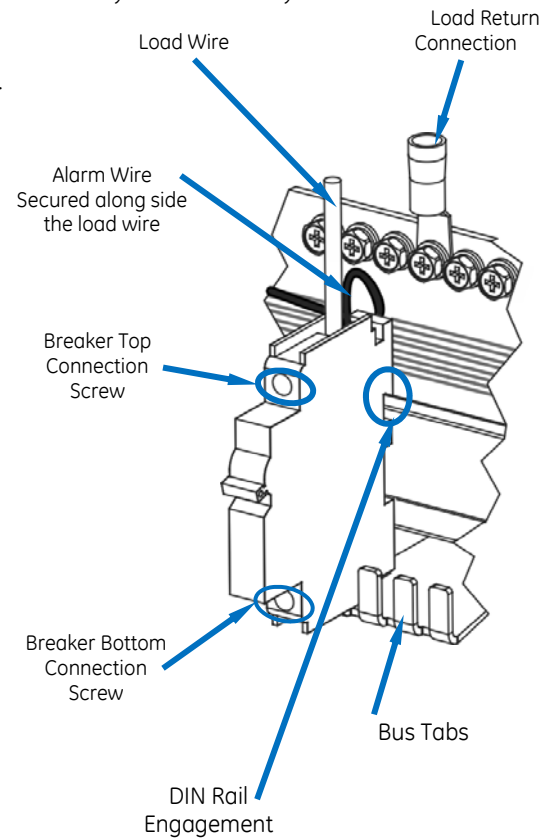
Load breaker positions are on the right side of the DIN rail.

Loads connect to Load Breakers - black.

Load returns connect to the load return bus behind the breakers - M6 lugs (not provided).

1. Connect load return wire to the Load Return bus - M6 lug (not provided)  
Torque 4.0 Nm (35 in-lb) - 10 mm socket.
2. Verify that breaker is OFF.
3. Mount breaker to DIN rail
  - a Fully open the connection at breaker bottom - #2 Philips
  - b Slide breaker over bus tab and fully engage top DIN rail.  
IMPORTANT - Verify top DIN rail engagement.
  - c Tighten the breaker bottom connection - #2 Philips.  
Hold firmly downward and torque as labeled.
4. Connect alarm wire to load breaker  
Note: This wire will be secured to the breaker along side the load wire.
  - a Fully open the connection at breaker top- #2 Philips
  - b Choose any wire from the bundle of black wires behind the breakers  
Cut wire. Strip 10 mm (3/8") Insert wire into breaker load connection.  
Do not tighten the breaker connection.
5. Connect load wire to breaker
  - a Strip the load wire 10mm (3/8")
  - b Insert load wire into breaker load wire connection alongside the alarm wire.
  - c Tighten the breaker top connection - #2 Philips.  
Assure both the load wire and the alarm wire are secured.
6. Repeat for additional loads.

Break off Cable Entry Tabs as necessary.



## Step 8 - Label Connections

ID label is in front of the breakers or on the door.

Mark each connected circuit identification on the ID label.

BATTERY				PRIORITY LOADS								NON-PRIORITY LOADS											
1	2	3	4	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	12

ID Label Example

## Step 9 - Set Jumpers - LAN Port and Relay per Galaxy Pulsar Edge Controller Quick Start Guide - skip if no Controller

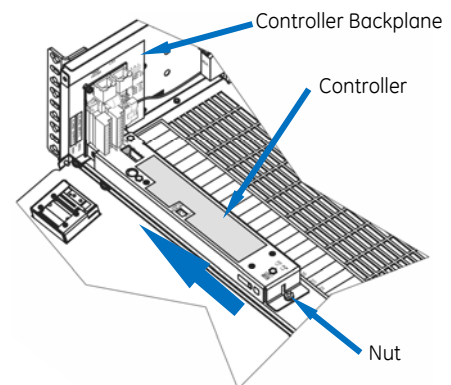
See Galaxy Pulsar Edge Controller Quick Start Guide

1. Set Jumpers - LAN Port and Relay

## Step 10 - Install Controller - skip if no Controller

Controller installs to Controller Backplane - inside on the right.

1. Remove nut - 8mm (5/16)
2. Align Controller with the backplane connector.
3. Slide controller firmly to the left.  
CAUTION: DO NOT press on LEDs or LCD.
4. Secure with nut - 8mm (5/16)



## Step 11 - Set Shelf IDs per Galaxy Pulsar Edge Controller Quick Start Guide - skip if Stand-alone Distribution

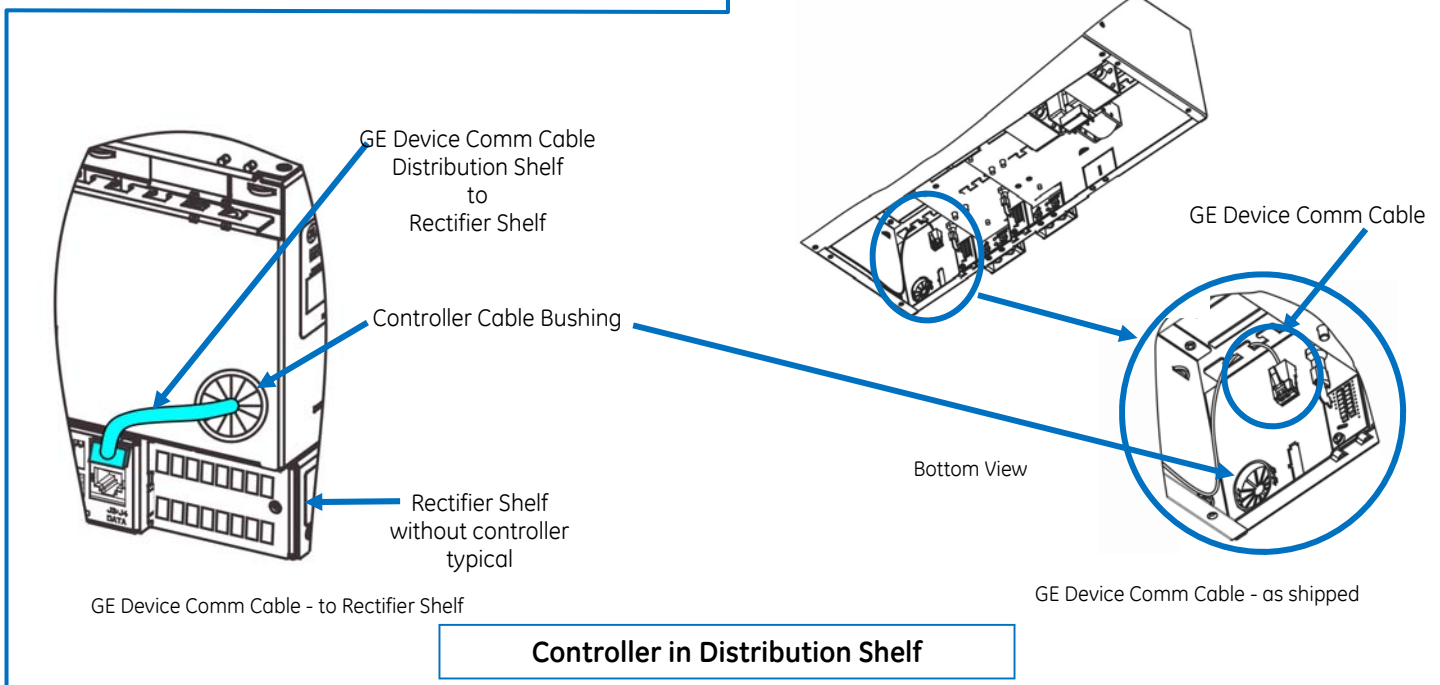
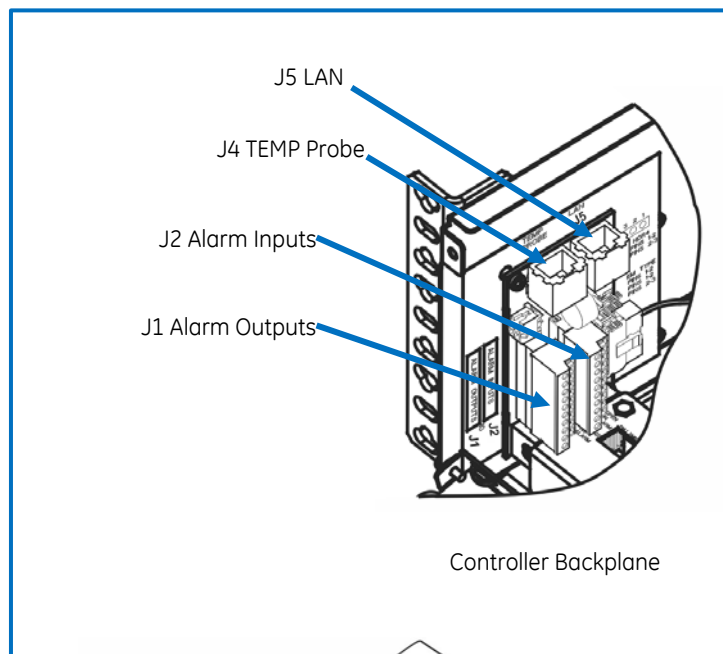
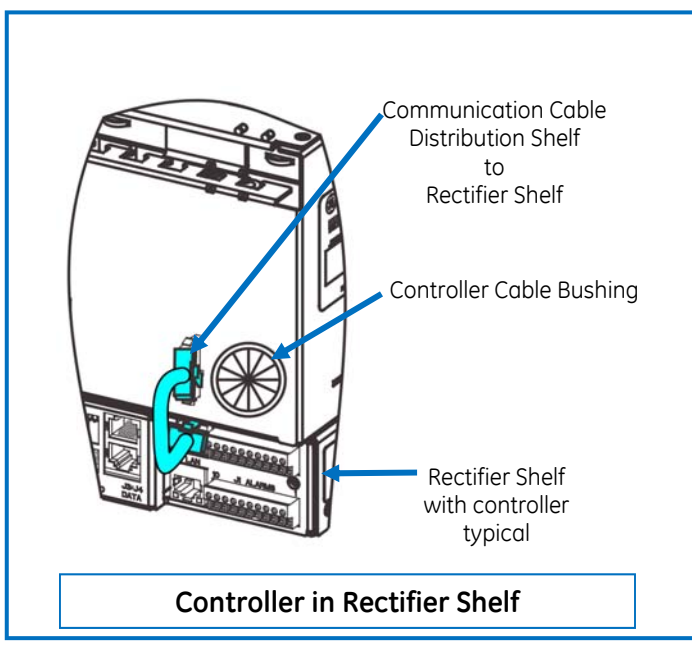
## Step 12 - Install Controller Communications Cables - skip if Stand-alone Distribution

### Controller in Rectifier Shelf

1. Connect the communication cable between Distribution Shelf and adjacent Rectifier Shelf (cable provided).
2. - Install other controller communications cables (alarm, LAN, etc.) per **Rectifier Shelf Quick Start Guide**.

### Controller in Distribution Shelf

1. GE Device Comm cable
  - a. Route cable out of the shelf through the Control Cable Bushing.
  - b. Connect cable to the adjacent Rectifier Shelf.
2. Controller Backplane connections.
  - a. J1-2 Alarms - detachable block - Wire to office alarms and signals.  
See *Information: Alarm Connections* for alarm connection details
  - b. J5 LAN - Connect to Ethernet network.



**Step 13 - Install 1-Wire Battery Temp and Voltage Monitor** - Optional - skip if Stand-alone Distribution

See *Information: 1-Wire Battery Temp and Voltage Monitor* in Galaxy Pulsar Edge Controller Quick Start Guide

**Controller in Rectifier Shelf** - Install per **Rectifier Shelf Quick Start Guide**.

**Controller in Distribution Shelf**

Controller Backplane connection

1. J4 TEMP Probe - Connect to 1-Wire Battery Temp and Voltage Monitor

**Step 14 - Initial Power Up** - skip if Stand-alone Distribution

**Controller in Rectifier Shelf** - Initial Power up per **Rectifier Shelf Quick Start Guide**.

**Controller in Distribution Shelf**

Verify that all DC and Alarm connections are complete and secure.

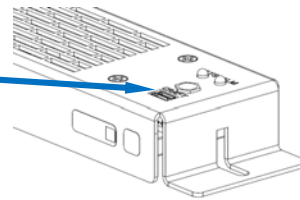
Initial Power up per **Rectifier Shelf Quick Start Guide**.

If there are no alarms, make required adjustments in the default settings on the controller for this installation.

**Step 15 - Configure Controller per Galaxy Pulsar Edge Controller Quick Start Guide** - skip if Stand-alone Distribution

**Controller in Rectifier Shelf** - Craft Port per **Rectifier Shelf Quick Start Guide**.

**Controller in Distribution Shelf** - Craft Port - USB



**Information: Alarm Connections** - shelves with controller only

Connections on controller backplane card behind the shelf front door.

Change alarm descriptions via LAN port (Web pages) or Craft port (EasyView2) when required.

Pin	Connector	J1 Alarm Outputs	J2 Alarm Inputs
1		Output: R3 = Rtn	Input: SPD Fail
2		Output: R2 = Rtn	--
3		Output: R1 = Rtn	Input: AUX MAJ
4		Output: PMN Rtn	Input: Air Cond. Fail
5		Output: PMJ Rtn	Input: Door Open
6		Output: R3 = ACF	-48V
7		Output: R2 = RFA	-48V
8		Output: R1 = BD	-48V
9		Output: PMN	Output: R4 = FAJ <sup>1</sup>
10		Output: PMJ	Output: R4 = Rtn <sup>1,2</sup>

1 Only with 6 relay controllers (...6R...).

2 Returns for R1 and R4 are bridged. Other returns are isolated.

**Information: Clear Breaker Alarm**

The Alarm Card monitors all breakers that were once ON.

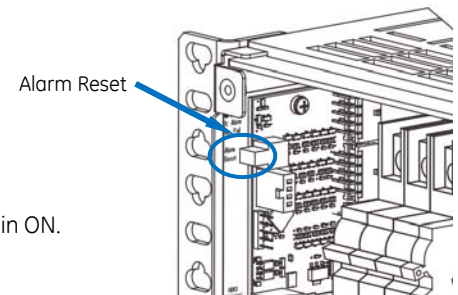
Breaker Alarms, PMJ and FAJ, occur while breakers are OFF or TRIPPED.

**Clear Breaker Alarm**

Turn the breaker ON

or

Press the Alarm Reset button to ignore all breakers that are OFF or TRIPPED, until they are again ON.



## Specifications and Application

- Specifications and ordering information are in the brochures listed in **Reference Documents**
- Equipment and subassembly ports: 1. are suitable for connection to intra-building or unexposed wiring or cabling;  
2. can be connected to shielded intra-building cabling grounded at both ends.
- Grounding / Bonding Network – Connect to an Isolated Ground Plane (Isolated Bonding Network) or an Integrated Ground Plane (Mesh-Bonding Network or Common Bonding Network).
- Installation Environment - Install in Network Telecommunication Facilities, OSP, or where NEC applies.
- Battery return may be either Isolated DC return (DC-I) or Common DC return (DC-C).

## Reference Documents

These documents are available at [www.gecriticalpower.com](http://www.gecriticalpower.com).

Document	Title
CC848815341	Pulsar Edge Controller Family Product Manual
850035894	Galaxy Pulsar Edge Quick Start Guide
	SPS Brochure
	Infinity S (NE S) Brochure
	Compact Power Line (CPL) Brochure

---

## Safety Statements

- Do not install this equipment over combustible surfaces.
- Rules and Regulations - Follow all national and local rules and regulations when making field connections.
- Compression Connectors
  - U. S. or Canada installations - use Listed/Certified compression connectors to terminate Listed/Certified field-wire conductors.
  - All installations - apply the appropriate connector to the correct size conductor as specified by the connector manufacturer, using only the connector manufacturer's recommended or approved tooling for that connector.
- Electrical Connection Securing: Torque to the values specified on labels or in the product documentation.
- Cable Dress - dress to avoid damage to the conductors and undue stress on the connectors.
- Circuit Breakers and Fuses
  - Use only those specified in the equipment ordering guide.
  - Size as required by the National Electric Code (NEC) and/or local codes.  
Safety Tested Limits - Refer to the equipment ratings to assure current does not exceed:  
Continuous Load (List 1) - 60% of protector rating  
Maximum Load (List 2 - typically end of discharge) - 80% of protector rating.
  - GMT Style Fuses - Use only fuses provided with safety caps.
- Field-wired Conductors - Follow all National Electric Code (NEC) and local rules and regulations.
  - Insulation rating: 90°C minimum; 105°C (minimum) if internal to enclosed equipment cabinets.
  - Size AC field-wired conductors with 75°C ampacity (NEC) equal to or greater than their panel board circuit breaker rating.
- AC and DC input disconnect/protection - Provide accessible devices to remove input power in an emergency.
- Alarm Signals - Provide external current limiting protection. Rating 60V, 0.5A unless otherwise noted.
- Grounding - Connect the equipment chassis directly to ground. In enclosed equipment cabinets connect to the cabinet AC service ground bus. In huts, vaults, and central offices connect to the system bonding network.



## Precautions

- Install, service, and operate equipment only by professional, skilled and qualified personnel who have the necessary knowledge and practical experience with electrical equipment and who understand the hazards that can arise when working on this type of equipment.
- Disconnect batteries from outputs and/or follow safety procedures while working on equipment. Batteries may be connected in parallel with the output of the rectifiers. Turning off the rectifiers will not necessarily remove power from the bus.
- Do not disconnect permanent bonding connections unless all power inputs are disconnected.
- Verify that equipment is properly safety earth grounded before connecting power. High leakage currents may be possible.
- Exercise care and follow all safety warnings and practices when servicing this equipment. Hazardous energy and voltages are present in the unit and on the interface cables that can shock or cause serious injury. When equipped with ringer modules, hazardous voltages will be present on the ringer output connectors.
- Use the following precautions in addition to proper job training and safety procedures:
  - Use only properly insulated tools.
  - Remove all metallic objects (key chains, glasses, rings, watches, or other jewelry).
  - Follow Lock Out Tag Out (LOTO) procedures: customer specified, site specific, or general as appropriate. Disconnect all power input before servicing the equipment. Check for multiple power inputs.
  - Wear safety glasses.
  - Follow Personal Protective Equipment requirements: customer specified, site specific, or general as appropriate.
  - Test circuits before touching.
  - Be aware of potential hazards before servicing equipment.
  - Identify exposed hazardous electrical potentials on connectors, wiring, etc.
  - Avoid contacting circuits when removing or replacing covers;.
  - Use a personal ESD strap when accessing or removing electronic components.
- Personnel with electronic medical devices need to be aware that proximity to DC power and distribution systems, including batteries and cables, typically found in telecommunications utility rooms, can affect medical electronic devices, such as pacemakers. Effects decrease with distance.

