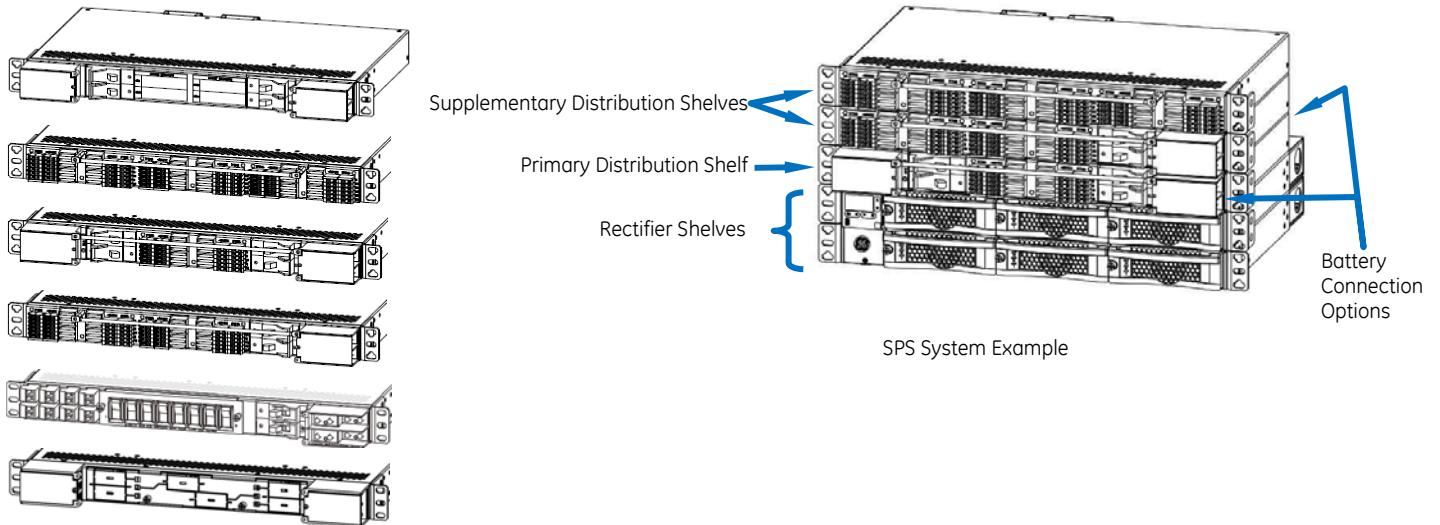




# 1U Stackable Distribution Shelf - 19 in Rack Mount

J2013001 - multiple models - See SPS, CP, or NE Brochure for models.



Distribution shelves may be bused together as shown above in SPS, CP, and NE systems or used as stand-alone remote distribution (cabled to a power system).

Primary distribution shelves include battery connections. Some models also include battery contactors.

Install the primary distribution shelf immediately above the primary SPS, CP, or NE rectifier shelf (with controller).

Communication cables and interconnecting hardware are included.

Refer to SPS, CP, or NE-S Power System Brochure for details and accessories.

**Tools required:**

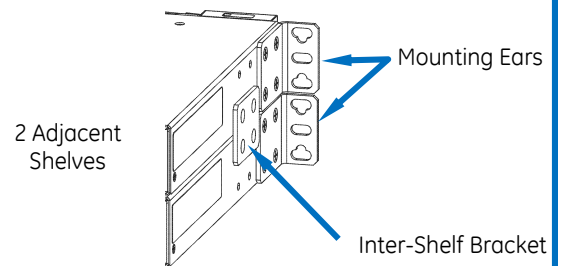
Torque wrench (0-65 in-lb or 0-10Nm)  
Screw Drivers (#1 Phillips)

Sockets - 5/16", 7/16"  
Wire cutters and strippers

Cable crimpers

**Step 1 - Mount Shelf**

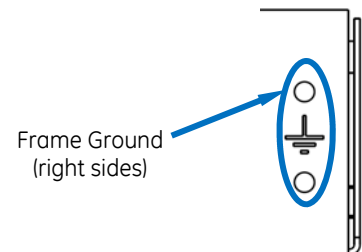
1. Reposition mounting ears as required - 4 screws each.  
Torque to 25 in-lb (2.8Nm) - Phillips screwdriver.
2. Position the Initial Panel immediately above the rectifier shelf with Controller.  
Position Supplementary Panels immediately above another Panel.
3. Install Inter-Shelf brackets between adjacent shelves (optional).  
Torque to 25 in-lb (2.8Nm) - Phillips screwdriver.
4. Attach shelf to the frame using a minimum of four screws (two on each side) - 12-24 (provided).  
Torque to 35 in-lb (4Nm) - 5/16" socket.



**Step 2 - Ground Chassis**

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

Torque to 35 in-lb (4Nm) - 5/16" (8 mm) socket.



### Step 3 - Connect System DC Reference (CO) Ground

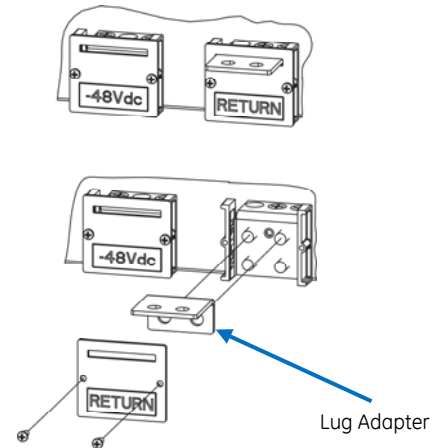
Make one connection to the power system (CP, NE, SPS, etc.).  
No connection to a stand-alone, remote distribution shelf.

Connections are on the rear under the RETURN cover.

Attach lug adapter to the unused RETURN bus landings of the top or bottom Shelf (850036871 lug adapter is supplied with primary distribution shelves).

Lug landing - 1/4" holes on 5/8" centers (hardware provided, lug not provided)

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



### Step 4 - Connect Shelf DC

Connections are on the rear under covers.

#### Bus Connection - to an adjacent shelf

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

Torque to 65 in-lb (7.3 Nm)

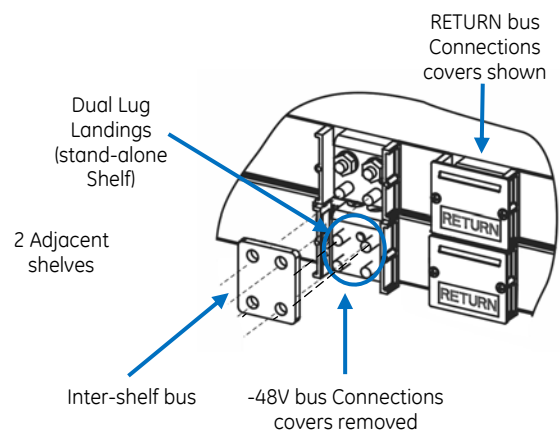
#### Cable Connection - Stand-alone Shelf

**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.

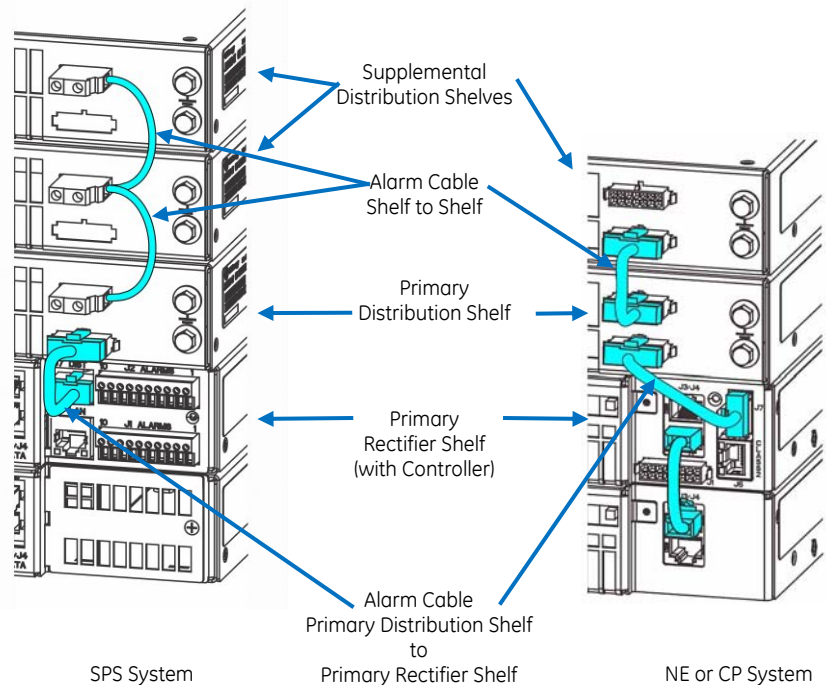
Torque to 65 in-lb (7.3 Nm)



### Step 5 - Connect Communication Wires

Connectors are on the rear of the shelf.

1. Connect alarm cable between Primary Distribution Shelf and adjacent Primary Rectifier Shelf (with controller) (if present) - cable provided.
2. Connect alarm cables between all Distribution Shelves.



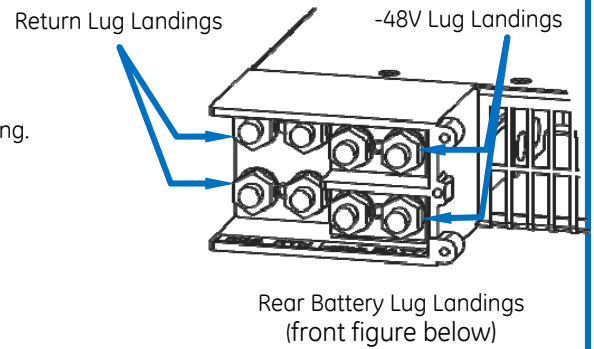
### Step 6 - Connect Batteries - skip if not present

Battery connections are labeled “-48Vdc BATT” and “POS RTN”.  
 Battery connections are either on the rear or front.  
 Only front battery connections have breakers.

**CAUTION:**

- Verify battery voltage and polarity with a voltmeter before proceeding.
- Front Connections only:  
 Verify that breaker is OFF or not installed.

1. Remove Cover
2. Connect cables with suitable lugs to **-48Vdc BATT** and **POS RTN** landings.
3. Torque to 65 in-lb (7.3 Nm) - 7/16” socket
4. Replace cover.



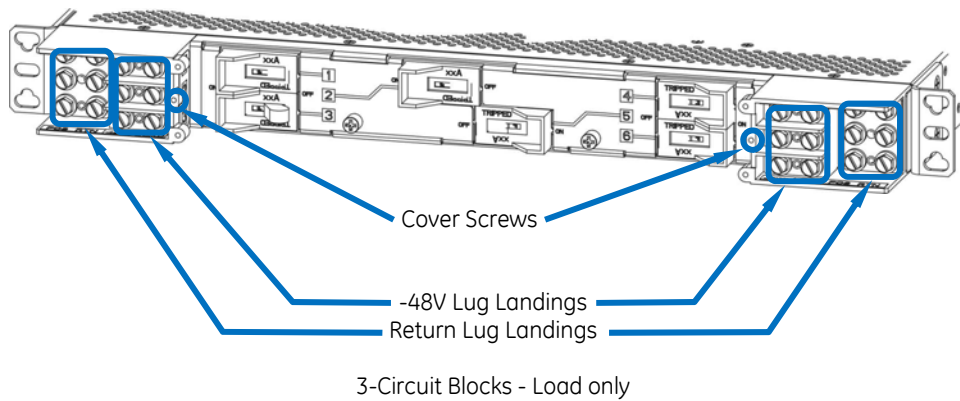
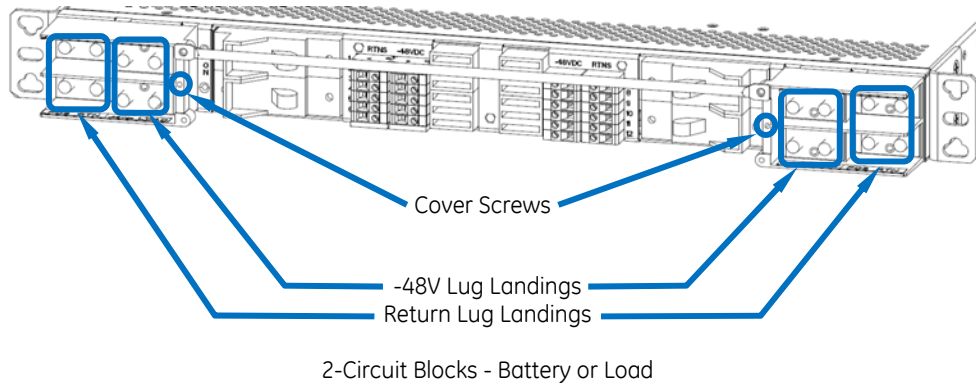
### Step 7 - Connect Bullet Circuit Breaker Loads - skip if not present

Load connections are labeled “-48Vdc LOAD” and “POS RTN”.  
 Load Breakers have **Black** handles.

**CAUTION:** Verify that breaker is OFF or not installed

1. Remove Cover
2. Connect wires with suitable lugs to **-48Vdc LOAD** and **POS RTN** landings.
3. Torque per table
4. Replace Cover.

Lug Landings - Circuit Bullet Breaker Loads and Battery	2 Circuit Block Battery or Load	3 Circuit Block Load only
Lug Holes - on 5/8” centers	1/4”	#10
Tongue Width max.	0.7” (18 mm)	0.44” (11.2 mm)
Torque	65 in-lb (7.3 Nm)	30 in-lb (3.4 Nm)
Socket	7/16”	5/16”

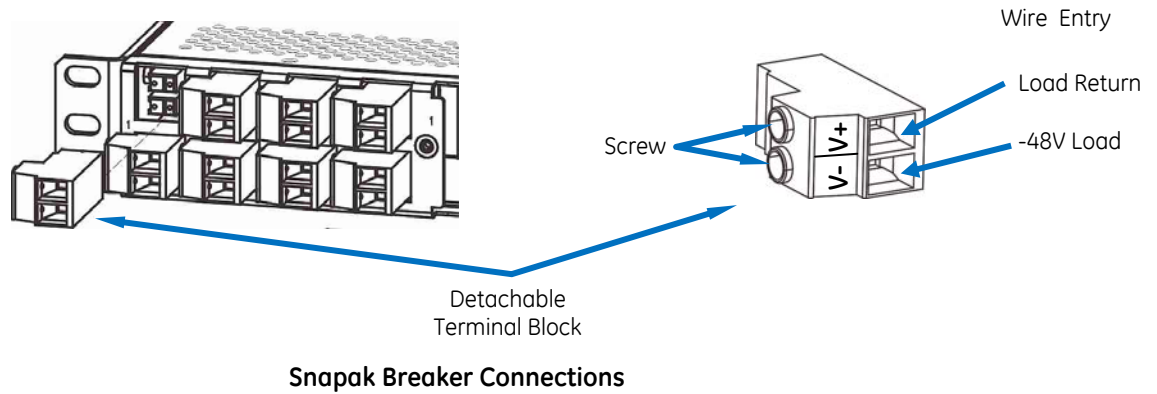


**Bullet Breaker Connections**  
 (ID Label and Breaker landing covers not shown)



### Step 8 - Connect Snapak Circuit Breaker Loads - skip if not present

1. Verify that breaker is OFF or not installed.
2. Remove detachable terminal block
3. Insert load and load return wires  
Strip 0.4 in (10 mm) 8 AWG (6 mm<sup>2</sup>) max.
4. Torque to 6.5 in-lb (0.75 Nm).
5. Pull wires to verify.
6. Insert detachable terminal block fully.

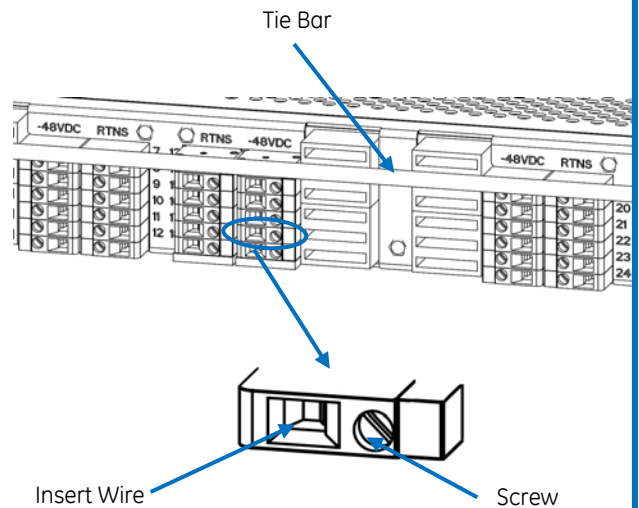


### Step 9 - Connect GMT Style Fuse Loads - skip if not present

Connections for Load GMT Fuses to GMT terminal blocks identified as “-48VDC” and “RTNS” on labels above each row of terminals blocks.

Wire Size: 24-12AWG Strip Length: 0.35” (9mm)

1. Verify that fuse is not installed.
2. Strip wires
3. Insert wires into terminal blocks labeled **-48VDC** and associated **RTNS**.
4. Tighten screw - 4 in-lb (0.45 Nm).
5. Pull wire to verify.
6. Reposition the Tie Bar to the bottom of the panel if desired - 2 screws.
7. Secure wires to Tie Bar.



### Step 10 - Label Connections

1. Mark each connected circuit identification on the ID label.
2. Snap the ID Label onto the Tie Bar.

CIRCUIT BREAKERS		FUSED OUTPUTS (8-ISA)				FUSED OUTPUTS (8-ISA)				CIRCUIT BREAKERS	
CB1	F1	F7	F13	F19	F25	CB3	F31	F37	F43	F49	
	F2	F8	F14	F20	F26		F32	F38	F44	F50	
	F3	F9	F15	F21	F27		F33	F39	F45	F51	
	F4	F10	F16	F22	F28		F34	F40	F46	F52	
CB2	F5	F11	F17	F23	F29	CB4	F35	F41	F47	F53	
	F6	F12	F18	F24	F30		F36	F42	F48	F54	
	F7	F13	F19	F25	F31		F37	F43	F49	F55	
	F8	F14	F20	F26	F32		F38	F44	F50	F56	

ID Label Examples



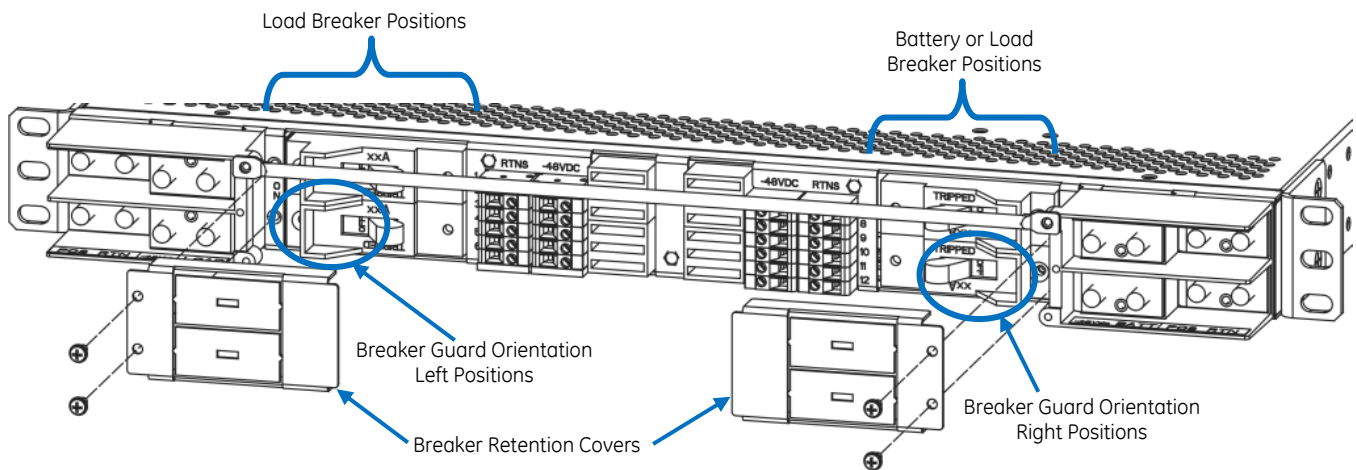
## Step 11 - Install Breakers and Fuses

Install breakers and fuses into positions as specified in Site Engineering Instructions.

### Bullet Breakers

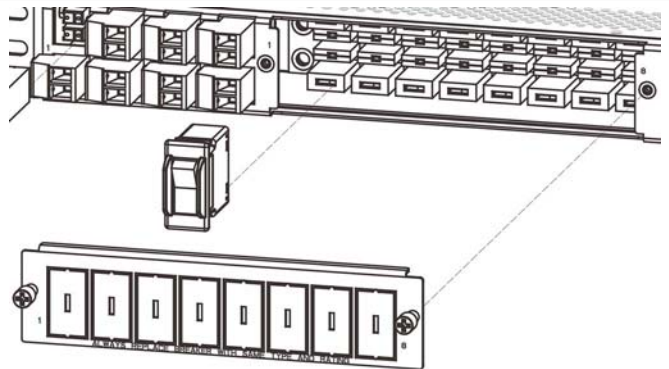
- CAUTION:**
1. Install breakers oriented as shown  
Orientation is different for Left and Right breakers.
  2. Install proper breaker type in Battery and Load positions.
    - Battery Breakers (**Yellow** handle) in Battery Position. (Right positions only)
    - Load Breakers (**Black** handle) in Load Positions. (Right and Left positions)

1. Remove Retention Cover (2 screws)
2. Verify that each Breaker is OFF.
3. Insert each Breaker fully into its position — oriented as shown below.
4. Remove cover knockouts for installed positions.
5. Replace Cover (2 thumb screws)
6. Turn each Breaker ON



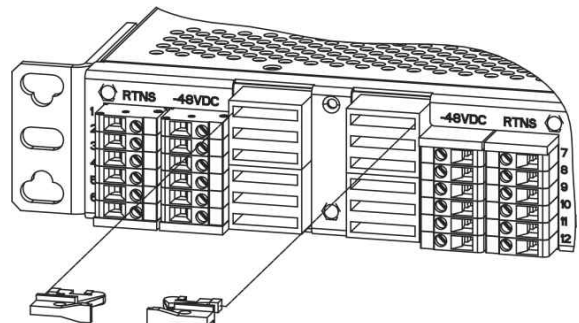
### Snapak Breakers

1. Remove Cover (2 thumb screws)
2. Verify that each Breaker is OFF.
3. Insert each Breaker fully into its position  
— oriented with ON position at top.
4. Remove cover knockouts for installed positions.
5. Replace Cover (2 thumb screws)
6. Turn each Breaker ON



### GMT Style Fuses

1. Insert each GMT style fuse fully into its position  
— oriented as shown.





## Step 12 - Controller Shunt and Contactor Settings - if battery connections are present

Details in *Pulsar Edge Controller Family Product Manual*.

Shunt size and contactor option label is on the side of the Battery Lug Landing assembly.

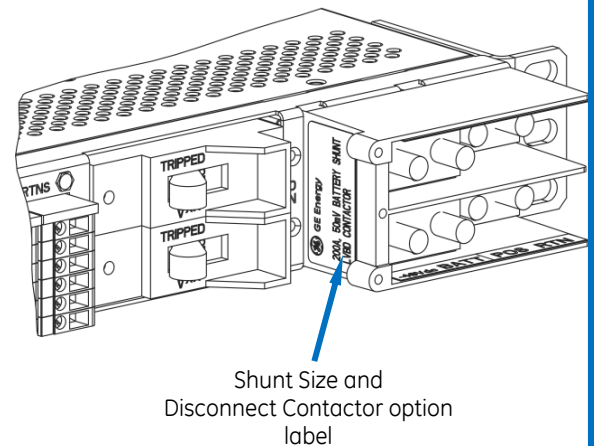
Verify settings as specified in Site Engineering Instructions.

### Verify Battery Shunt Settings:

- A. Controller Display - Follow the menu path; *Menu > Configuration > Shunt Monitors > Built In* - edit as necessary.
- B. Web Pages or EasyView2 - Select the *Settings Tab > Shunts > Plant Shunt* - edit as necessary.

### Verify Disconnect Contactor Settings - if disconnect contactor is present:

- A. Controller Display - Follow the menu path; *Menu > Configuration > Contactor Interfaces > Built In* - type "LVBD" or "LVLD"; and *Menu > Configuration > Disconnects > LVBD or LVBD 1-3* - edit as necessary
- B. Web Pages or EasyView2 - Select the *Settings Tab > Contactors > DCNC1* - type "LVBD"; Select Edit button, edit settings as necessary.



## Reference Documents

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

Document	Title
CC848815341	Pulsar Edge Controller Family Product Manual
	Infinity S Power System (NE-S) Brochure and Ordering Guide
	Slimline Power System (SPS) Brochure and Ordering Guide
	Cabinet Power System (CP) Brochure and Ordering Guide

## 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.



