Compact Power Line 48V Stackable Power System

19” CPL-FLEX systems with 1U J2013001 Distribution

Two example configurations are shown below. There are many other possible configurations.

CPL48-3U-AC5H-PS8-16DCP

CPL48P-2U-AC3-PS4-16DCP

SAVE THESE INSTRUCTIONS – This document contains important safety and operating instructions for the CP distribution system.

Equipment is intended for installation only in restricted access areas.

Rules and Regulations - Follow all national and local rules and regulations when making field connections.

This equipment is not suitable for use in locations where children are likely to be present.

SAUVEGARDEZ CES INSTRUCTIONS – Ce document contient des instructions de sécurité et d’utilisation importantes pour le système de distribution CP.

L’équipement est destiné à être installé uniquement dans des zones à accès restreint.

Règles et règlements - Suivez toutes les règles et réglementations nationales et locales lorsque vous établissez des connexions sur le terrain.

Cet équipement ne convient pas à une utilisation dans des endroits où des enfants sont susceptibles d’être présents.

Document – 8600483640P

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.
- 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.
- 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.
- Do not place combustible materials directly above or below equipment.

Note: Proper grounding of AC supply receptacles must be verified by qualified personnel.

For additional safety information, see the following documents:

Ordering Code	Description
CPL-FLEX-SYSTEM-AD	CPL-Flex Configuration drawing
CC848836981	User Guide for the Galaxy Pulsar Edge System Controller
850042636	Edge Supplement
850033855	1U Stackable Dist Shelf J2013001
8600482319P	J5964805 Power Shelf Safety Instructions

Énoncés de sécurité

- N'installez pas cet équipement sur des surfaces combustibles.
- Règles et règlements – Suivez toutes les règles et réglementations nationales et locales lorsque vous établissez des connexions sur le terrain.
- Connecteurs de compression
  - Installations aux États-Unis ou au Canada – utilisez des connecteurs de compression répertoriés/certifiés pour terminer les conducteurs de fil de champ répertoriés/certifiés.
  - Toutes les installations – appliquez le connecteur approprié au conducteur de taille correcte spécifié par le fabricant du connecteur, en utilisant uniquement l'outillage recommandé ou approuvé par le fabricant du connecteur pour ce connecteur.
- Sécurisation de la connexion électrique : Couple aux valeurs spécifiées sur les étiquettes ou dans la documentation du produit.
- Robe de câble – habillez-vous pour éviter d'endommager les conducteurs et de solliciter inutilement les connecteurs.
- Conducteurs câblés sur le terrain – Respectez toutes les règles et réglementations nationales du Code national de l'électricité (NEC) et locales.
  - Indice d'isolation : 90°C minimum ; 105 °C (minimum) si interne aux armoires d'équipement fermées.
  - Taille des conducteurs câblés sur le terrain AC avec une ampacité de 75°C (NEC) égale ou supérieure à leur circuit nominal de carte de panneau.
- Débranchement/protection des entrées CA et CC – Fournissez des dispositifs accessibles pour couper l'alimentation d'entrée en cas d'urgence.
- Mise à la terre – Connectez le châssis de l'équipement directement à la terre. Dans les armoires d'équipement fermées, connectez-vous au bus de masse de service CA de l'armoire. Dans les huttes, les chambres fortes et les bureaux centraux se connectent au réseau de liaison du système.
- Ne placez pas de matières combustibles directement au-dessus ou au-dessous de l'équipement.

Remarque: La mise à la terre adéquate des prises d'alimentation en courant alternatif doit être vérifiée par du personnel qualifié.

Pour des informations de sécurité supplémentaires, consultez les documents suivants:

Ordering Code	Description
CPL-FLEX-SYSTEM-AD	CPL-Flex Configuration drawing
CC848836981	User Guide for the Galaxy Pulsar Edge System Controller
850042636	Edge Supplement
850033855	1U Stackable Dist Shelf J2013001
8600482319P	J5964805 Power Shelf Safety Instructions

Precautions

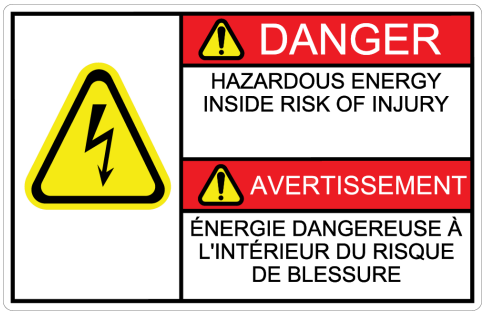
- Install, service, and operate equipment only by professional, skilled and qualified personnel who have the necessary knowledge and practical experience with electrical equipment and who understand the hazards that can arise when working on this type of equipment.
- Do not disconnect permanent bonding 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.
- 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.

Précautions

- Installer, entretenir et utiliser l'équipement uniquement par du personnel professionnel, qualifié et qualifié qui possède les connaissances et l'expérience pratique nécessaires avec l'équipement électrique et qui comprend les dangers qui peuvent survenir lors du travail sur ce type d'équipement.
- Ne débranchez pas les connexions de liaison permanentes à moins que toutes les entrées d'alimentation ne soient déconnectées.
- Vérifiez que l'équipement est correctement mis à la terre avant de brancher l'alimentation. Des courants de fuite élevés peuvent être possibles.
- Faites preuve de prudence et suivez tous les avertissements et pratiques de sécurité lors de l'entretien de cet équipement. De l'énergie et des tensions dangereuses sont présentes dans l'appareil et sur les câbles d'interface qui peuvent choquer ou causer des blessures graves.
- Prenez les précautions suivantes en plus de la formation professionnelle appropriée et des procédures de sécurité :
    - N'utilisez que des outils correctement isolés.
    - Enlevez tous les objets métalliques (porte-clés, lunettes, bagues, montres ou autres bijoux).
    - Suivez les procédures LOTO (Lock Out Tag Out) : spécifiées par le client, spécifiques au site ou générales, selon le cas. Débranchez toute l'alimentation avant d'entretenir l'équipement. Vérifiez s'il y a plusieurs entrées d'alimentation.
    - Portez des lunettes de sécurité.
    - Respectez les exigences relatives à l'équipement de protection individuelle : spécifiées par le client, spécifiques au site ou générales, selon le cas.
    - Testez les circuits avant de les toucher.
    - Soyez conscient des dangers potentiels avant d'entretenir l'équipement.
    - Identifier les potentiels électriques dangereux exposés sur les connecteurs, le câblage, etc.
    - Éviter de contacter les circuits lors du retrait ou du remplacement des couvercles;.
    - Utilisez une sangle ESD personnelle lorsque vous accédez à des composants électroniques ou que vous les retirez.
- Le personnel qui possède des appareils médicaux électroniques doit savoir que la proximité des systèmes d'alimentation et de distribution en courant continu, y compris les batteries et les câbles, que l'on trouve généralement dans les salles de services de télécommunications, peut avoir une incidence sur les appareils électroniques médicaux, tels que les stimulateurs cardiaques. Les effets diminuent avec la distance.

Safety Symbols and Guidelines

Read and follow all safety statements, warnings, and precautions in this manual before installing, maintaining or repairing this equipment.



Potential touch current	
CP2725 rectifiers:	32.8mA
CP3000 or CP3500 rectifiers:	65.6mA

RISK OF FIRE

Install only on concrete or other non-combustible surface.

RISQUE D'INCENDIE

Installer seulement sur du béton ou tout autre sol en matériau non combustible.

REFER TO INSTRUCTIONS FOR INSTALLATION AND SAFETY INSTRUCTIONS.

SE RÉFÉRER AUX INSTRUCTIONS POUR L'INSTALLATION ET LES CONSIGNES DE SÉCURITÉ.

HAZARDOUS VOLTAGE

TENSION DANGEREUSE.

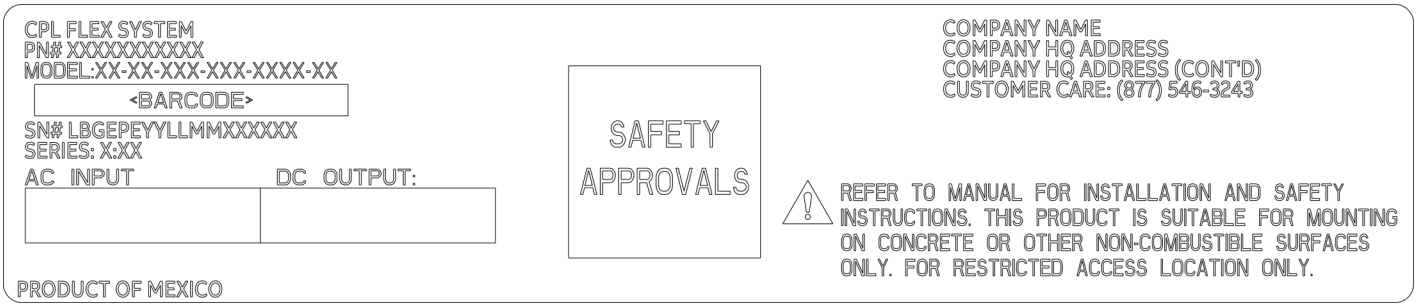
Customer Care

For any questions on this product or its configuration please contact our 24/7 technical support at +18775463243.

CPL48P-3U-AC3-PS8-16DCP

Equipment Identification

The product ID label on left side of distribution panel is shown below. It includes the product serial number and input - output specifications of the product.



Equipment electrical specification

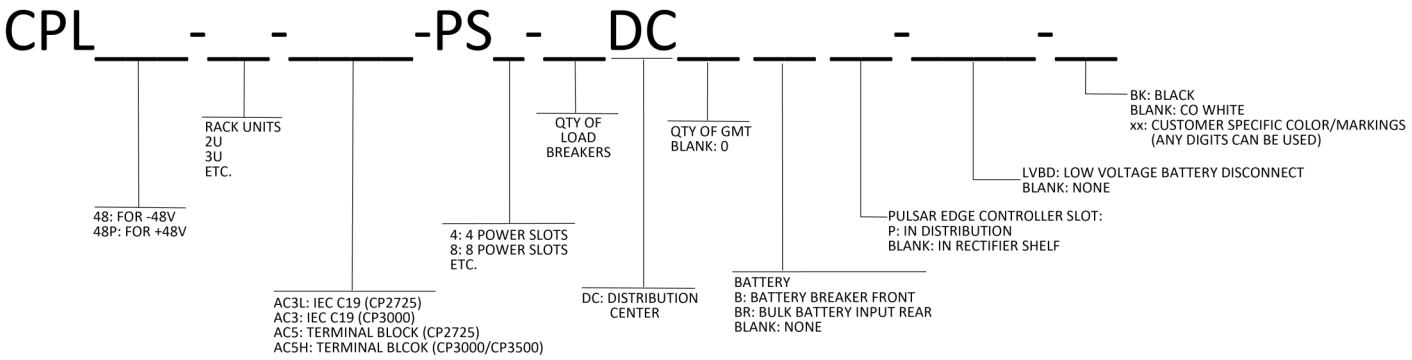
Refer to the product ID label on left side of distribution panel for equipment ratings.

Check for deliveries:

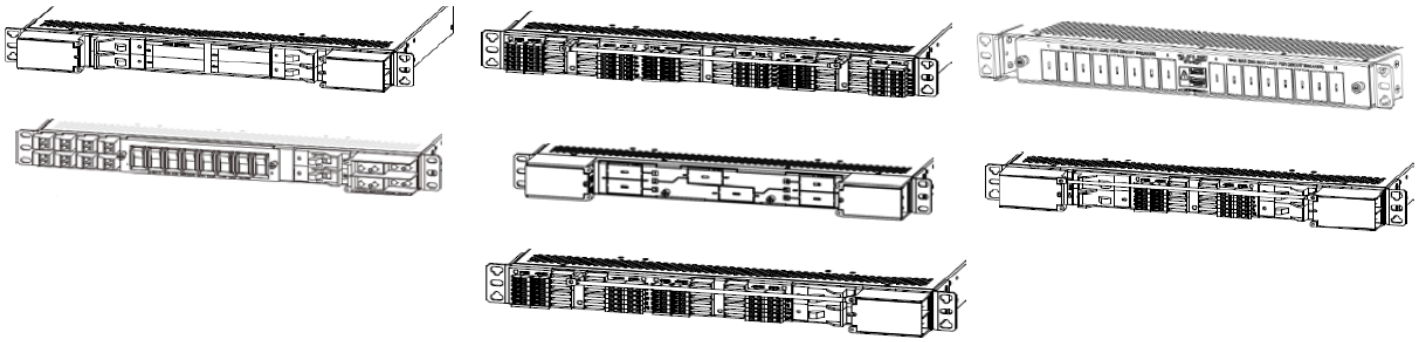
Make sure that the box contains the

1. (1) Power system
2. (1) Bag of Thread-knurling 12-24 Mounting Screws (CC408577571)
   12 with 2 shelf systems and 16 with 3 shelf systems.
3. (1) System Ground Kit including:
   - (1) Plant ground bus strap (850036871)
   - (2) 1/4"-20 Hex Nuts (CC408576210)

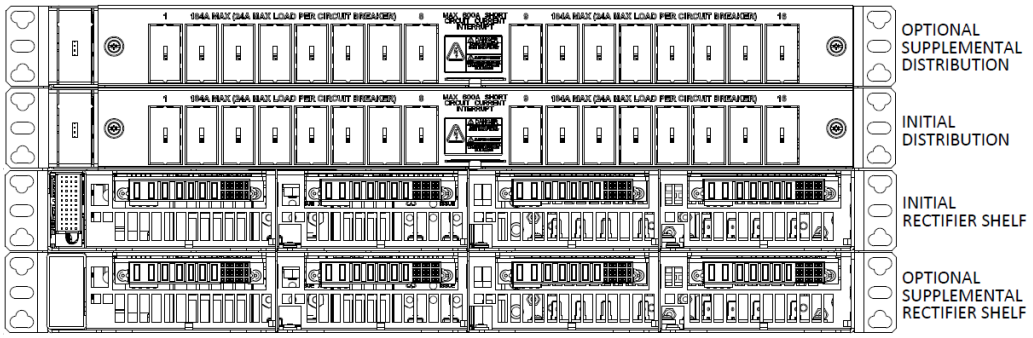
Product description



Refer to CPL-FLEX-SYSTEM-AD for ordering information.



J2013001 Distribution Panels



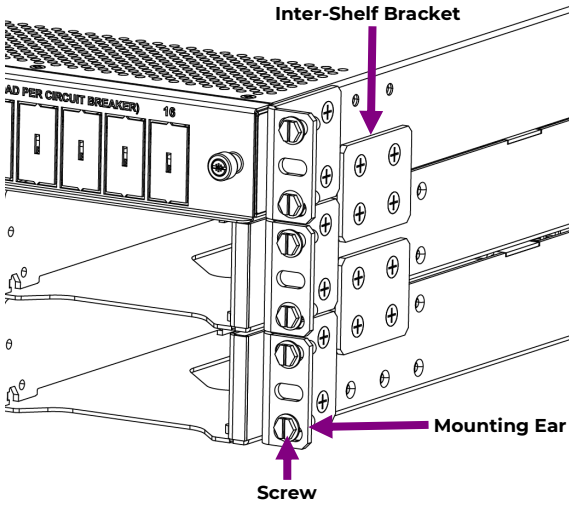
Information – Tools Required

- Torque wrench (0-65 in-lb or 0-10Nm)
- Sockets - 5/16”, 7/16”
- Screw Drivers (#1 Phillips)
- Wire cutters and strippers
- Cable crimpers

Note: The images shown in this document are for presentation purpose, connections of system will vary based on different configurations.

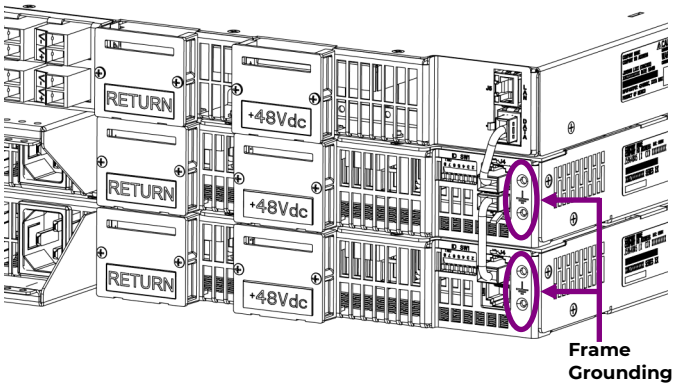
Step 1 – Mount System

1. Position system into the desired mounting location for installation. Starting with the bottom most shelf, screw in one mounting screw per side of the shelf for each shelf in the system while not applying torque to any screws.
2. Position plant in the middle of the mounting location to ensure centering of the plant in the frame. With the plant centered, apply torque to 35 in-lb (4Nm) to each of the mounting screws using a 5/16" socket.
3. Add screws to remaining mounting holes (4 total per 1U shelf in the plant) and apply torque to 35 in-lb (4Nm) to each remaining screws.

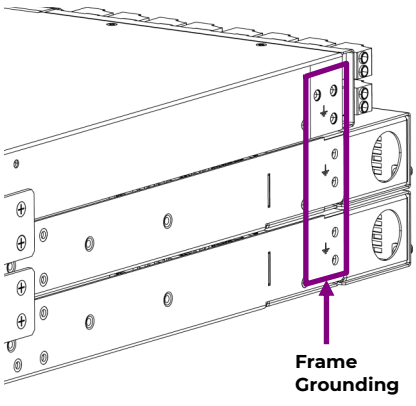


Step 2 – Ground Chassis

Note: Lug landing is M5 on 5/8” centers (lug not provided) 10 AWG (6mm^2) 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.



CPL48P-3U-AC3-PS8-16DCP



CPL48-3U-AC5H-PS8-16DC

Step 3 – Connect System DC Reference (CO) Ground

Make one connection to the power system. No connection to a standalone, 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.

Note: -48V system connections are shown with the return on the right and -48V on the left. For +48V systems, the return is on the left and +48V is on the right.

Step 4 – Verify System Connections

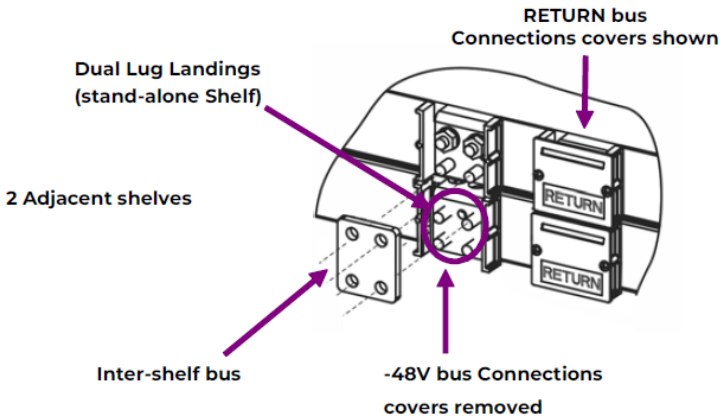
Connections are on the rear under covers.

These connections are made and torque verified in the factory with markings on nuts to bus bar.

Bus Connection - to an adjacent shelf

Visually inspect inter-shelf bus connections to ensure that each nut has a torque verification line.

In the In the event torque marks are not visible, torque connections to 65 in-lb (7.3 Nm).

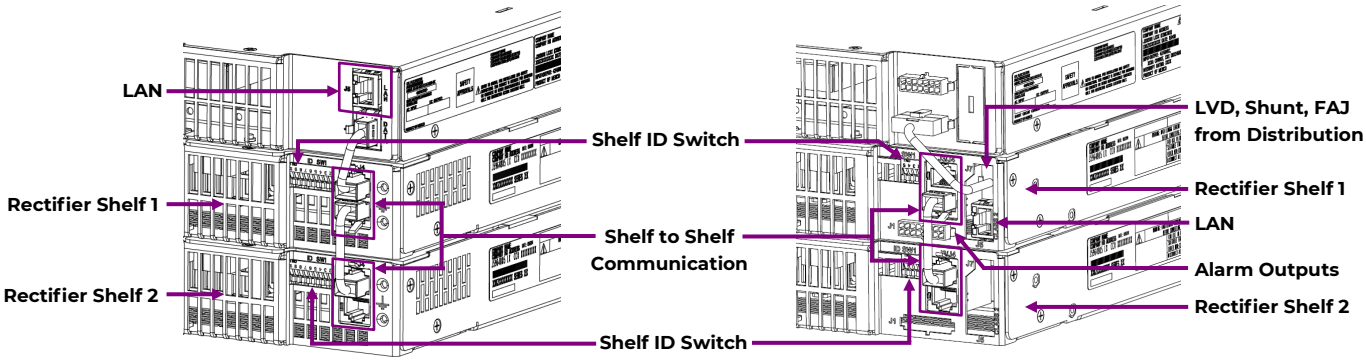


Note: -48V system connections are shown with the return on the right and -48V on the left. For +48V systems, the return is on the left and +48V is on the right.

Step 4 – Verify system connections (continued)

Communication Cable Connections

Verify shelf to shelf communication cable connections are firmly seated. Connections should be made from the distribution data port daisy chained down through the rectifier shelf RS-485 ports as shown below.



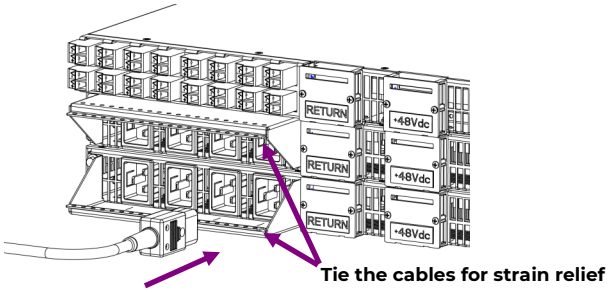
Note: Communication cables are daisy chained between all distribution panels and rectifier shelves. The connections will vary based on configuration.

Step 5 – AC input connection

AC3/AC3L

Note: For ease of installation, AC connections should be made starting with left most cable of the lower most rectifier shelf.

1. Using customer provided IEC C19/C21 terminated cables, make connection to each rectifier IEC input in the rear of each rectifier shelf.
2. Verify cables are seated properly and secured to the shelf AC input cable support bracket using either tie straps or lacing thread.
3. Continue process until all rectifier positions are made and secured.



WARNING!: The AC power inlet for this equipment may reach temperatures up to 90°C in normal operation. To reduce risk of fire, this equipment must be used only with an AC supply cord with the following

- UL Listed Cord Set (not just cord jacket) rated for a minimum temperature of 90°C.
- Minimum cord length 2.4 m (8 ft.).
- Minimum 12 AWG conductor size.
- Plug types 5-20P, 6-20P, or L6-20P only.

Information: AC Cable	
Cable size:	12AWG
Length:	2.4m (8ft)
Minimum Current rating:	20A
Maximum Voltage rating:	250V
Minimum AC Cable Temperature Rating:	90°C

Step 5 – AC input connection (continued)

CAUTION: When routing AC, ensure cables do not come in contact with sharp or rough surfaces that may damage insulation and cause a short circuit.

AC terminal block is in the AC box on the rear of the rectifier shelf.

Rectifiers numbers are labeled at each AC input.

AC terminal connections are labeled at each position (L1, L2/N).

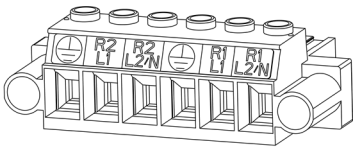
AC5/AC5H (Wired to each power slot individually)

Connect 100-120/208-277 V_{AC} at rear of each rectifier shelf.

Connect AC input conductors to the detachable input terminal block (provided) in the wiring box – knock out for ¾" conduit or cord grip. Strip and torque per table.

Pull on wire to verify secure connection.

Information: AC5/AC5H Terminal block	
Rectifiers per feed:	1
AWG max:	10
Strip Wire (mm):	10
Torque In-lb. (Nm):	7 (0.75)



AC5H Terminal block

AC5H+Terminal block adaptor kit (Wired to two power slots per input feed)

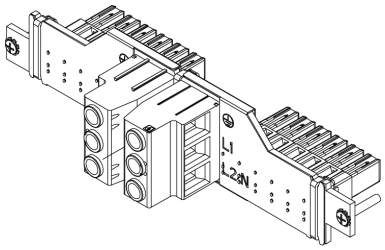
Connect 100-120/200-277 V_{AC} at rear of each rectifier shelf.

Attach terminal block adapter over AC5 or AC5H input terminal block.

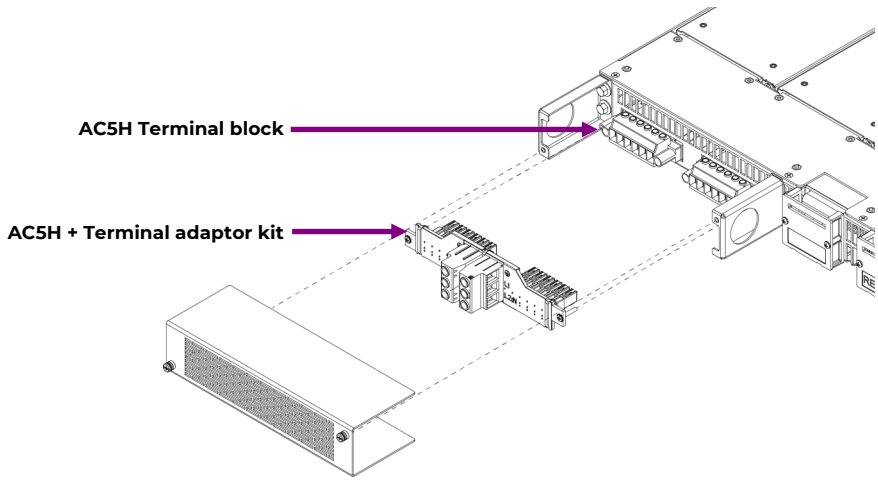
Connect AC input conductors to the detachable input terminal block adapters in the wiring box – knock out for ¾" conduit or cord grip. Strip and torque per table.

Pull on wire to verify secure connection.

Information: Terminal block adaptor (1600467317A)	
Rectifiers per feed:	2
AWG max:	8
Strip Wire (mm):	10
Torque In-lb. (Nm):	12 (1.4)



Terminal adaptor kit



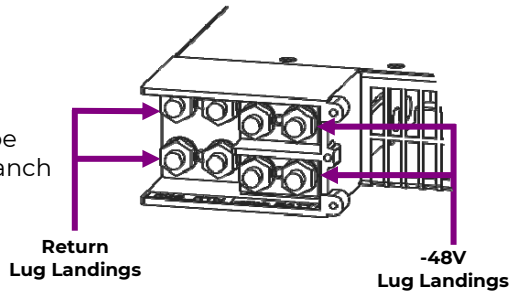
Step 6 – Connect Batteries (Skip if batteries are not part of system)

Battery connections are labeled **"-48V$_{DC}$ BATT"** and **"POS RTN".**

Battery connections are either on the rear or front.

Only front battery connections have breakers.

Note: Maximum battery short circuit current of supply batteries must be identified in the final installation to verify that the equipment branch circuit protection interrupt rating is not exceeded.



Rear Battery Lug Landings (front figure below)

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 -48V$_{DC}$ BATT and POS RTN landings.
3. Torque to 65 in-lb (7.3 Nm) - 7/16" socket.
4. Replace cover.

Information: Cable and Lug sizes
Cable size max: 2AWG
Lug connections: ¼" studs on 5/8" centers

Step 7 – Connect Loads

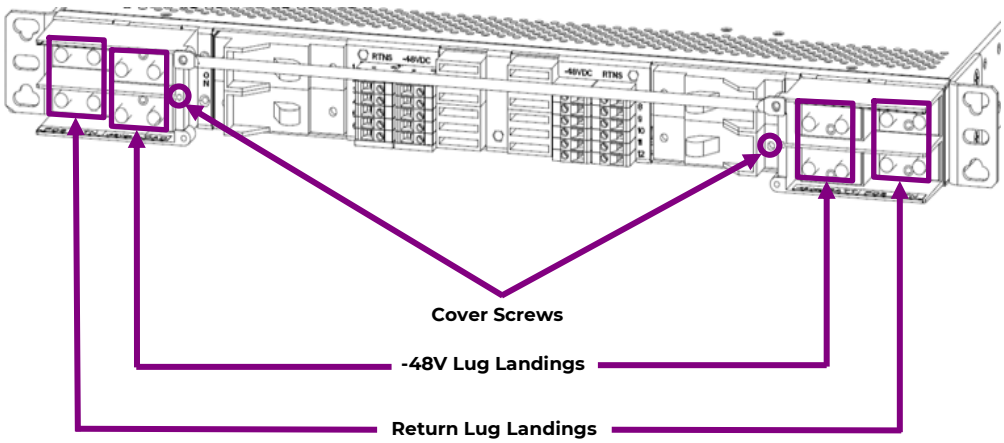
Bullet Circuit Breaker Loads (Skip if bullet breakers are not part of system)

Load connections are labeled "-48V$_{DC}$ LOAD" and "POS RTN". Load Breakers have Black handles.

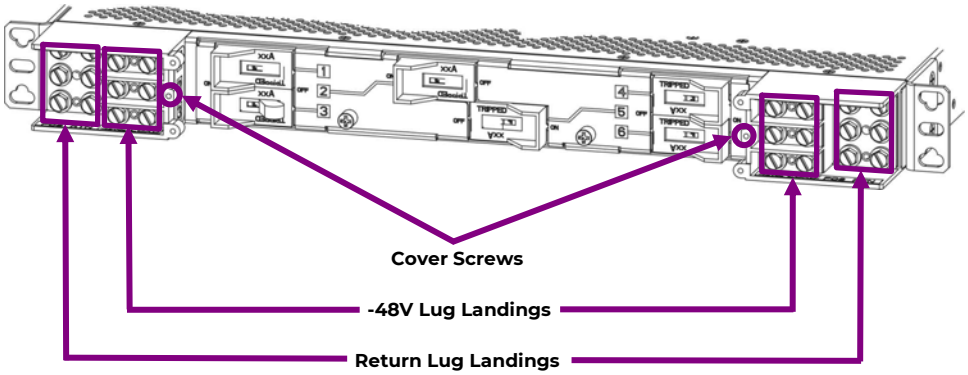
CAUTION: Verify that breaker is OFF or not installed.

1. Remove Cover.
2. Connect wires with suitable lugs to -48V$_{DC}$ LOAD and POS RTN landings.
3. Torque per table.
4. Replace Cover.

Information: Cable and Lug sizes	
For distributions with 4 or fewer load breakers positions	**For distributions with 6 load breaker positions**
Cable size max: 2AWG	Cable size max: 6AWG
Lug connections: ¼" studs on 5/8" centers	Lug connections: #10 screws on 5/8" centers



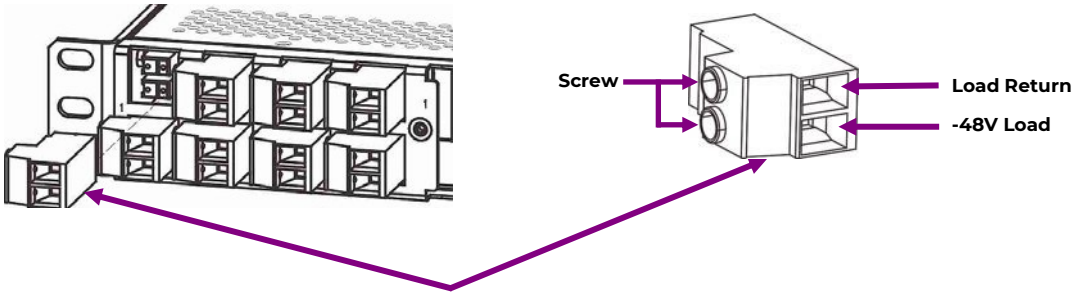
Bullet Circuit Breaker Loads (continued)



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

Snapak® Circuit Breaker Loads (Skip if Snapak® breakers are not part of system)

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^2) max.
4. Torque to 6.5 in-lb (0.75 Nm).
5. Pull wires to verify.
6. Insert detachable terminal block fully.



Note: Snapak® Breaker Connections may be in front or back depending on configuration.

GMT Style Fuse Loads (Skip if GMT Style fuses are not part of system)

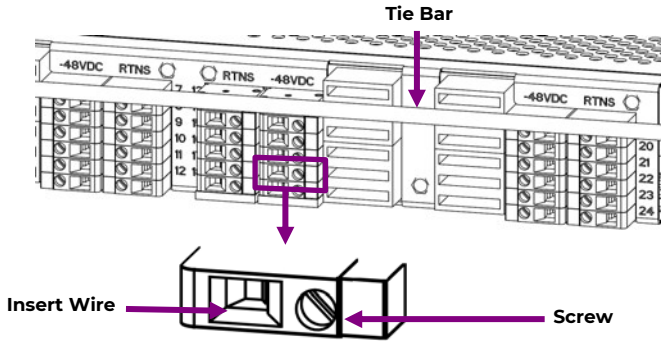
Connections for Load GMT Fuses to GMT terminal blocks identified as "-48V_{DC}" and "RTNS" on labels above each row of terminals blocks.

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 -48V_{DC} and associated RTNS.
4. Tighten screw - 4 in-lb (0.45 Nm).
5. Pull wire to verify.

GMT Style Fuse Loads (continued)

6. Reposition the Tie Bar to the bottom of the distribution shelf if desired - 2 screws.
7. Secure wires to Tie Bar.



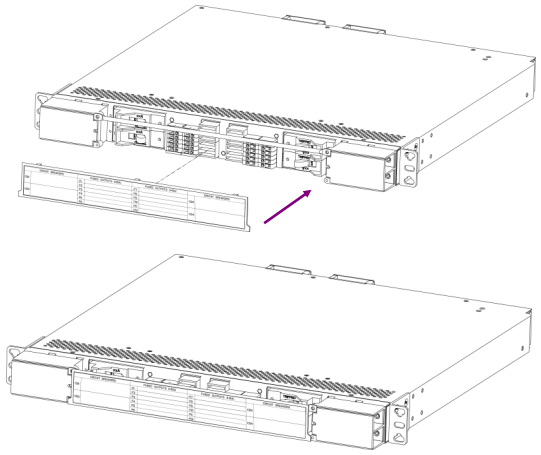
Step 8 – Label Connections

1. Mark each connected circuit identification on the ID label.
2. Snap the ID Label onto the Tie Bar or insert into slot in front of distribution face.

CIRCUIT BREAKERS		FUSED OUTPUTS (1-15A)		FUSED OUTPUTS (1-15A)		CIRCUIT BREAKERS	
CB1		F1		F7		CB3	
		F2		F8			
		F3		F9			
CB2		F4		F10		CB4	
		F5		F11			
		F6		F12			

FUSED OUTPUTS (1-15A)		FUSED OUTPUTS (1-15A)		FUSED OUTPUTS (1-15A)	
F1	F7	F13	F19	F25	F31
F2	F8	F14	F20	F26	F32
F3	F9	F15	F21	F27	F33
F4	F10	F16	F22	F28	F34
F5	F11	F17	F23	F29	F35
F6	F12	F18	F24	F30	F36

ID Label Example



Step 9 – Install Breakers and/or Fuses

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

Bullet Breakers

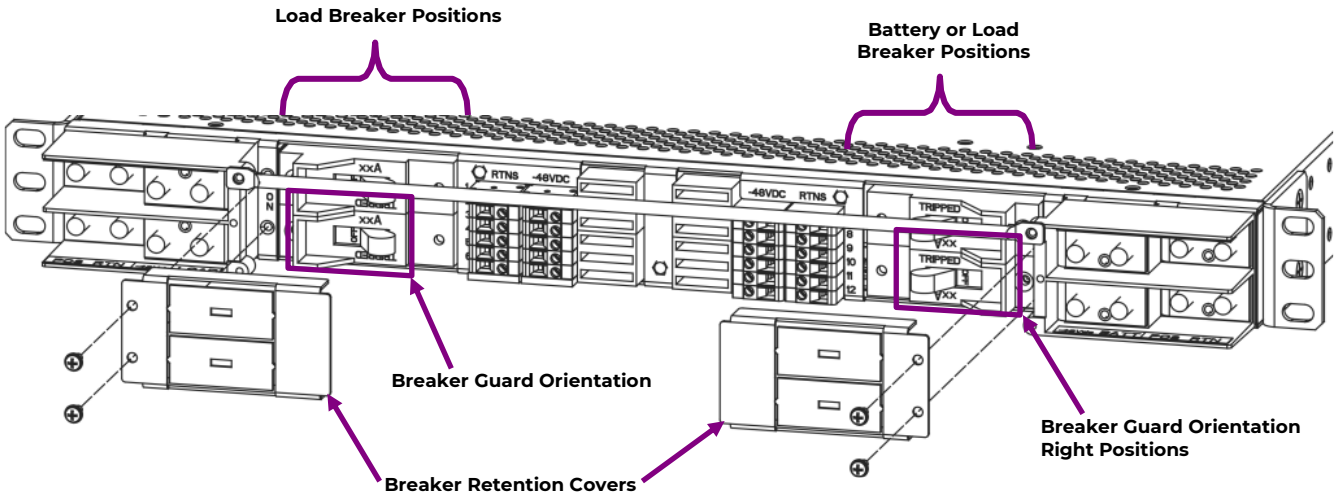
CAUTION:

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).
3. Remove Retention Cover (2 screws).
4. Verify that each Breaker is OFF.
5. Insert each Breaker fully into its position. Orient as shown below.

Step 9 – Install Breakers and/or Fuses (continued)

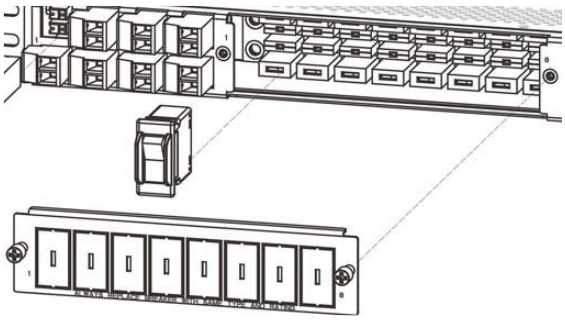
Bullet Breakers (continued)

6. Remove cover knockouts for installed positions.
7. Replace Cover (2 thumb screws).
8. Turn each Breaker ON.



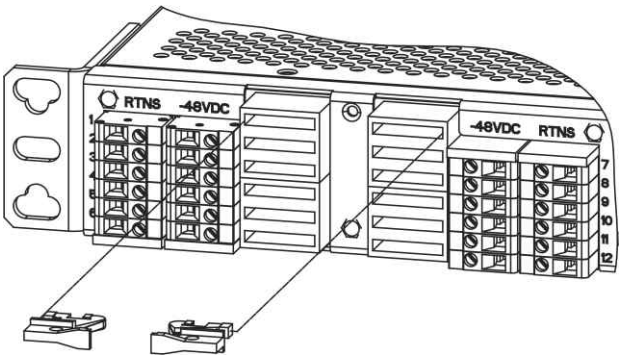
Snapak® Breakers

1. Remove Cover (thumb screws).
2. Verify that each Breaker is OFF.
3. Insert each Breaker fully into its position.



GMT Style Fuses

1. Verify that each fuse has a protective cover.
2. Insert each fuse fully into its position.



Step 10 – Install System Controller

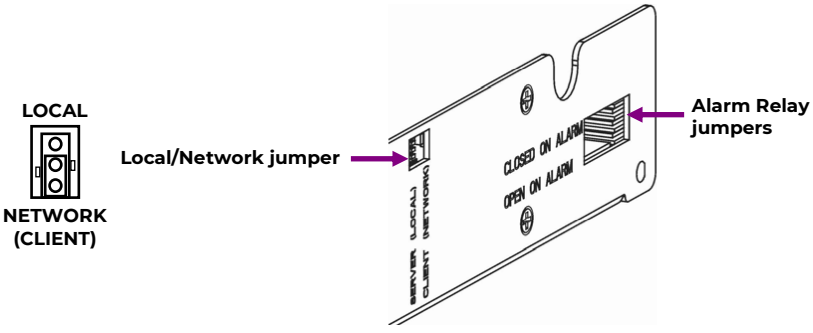
CAUTION: The System controller contains static sensitive components; Care should be taken to not contact components with bear hands.

1. Remove GCP841A_0I6R_S_BL/GCP841A_0I6R_USB_S Pulsar Edge Controller from shipping box and anti-static bag.
2. Set Jumpers – LAN Port and Alarm Relay.

   Before installing the controller configure the jumpers – top or side of the controller.

Controller Jumper Settings		
LAN Port - J5	**Local** (Server): J5 LAN connects to a laptop. Local (Server) is a temporary setting, once configuration is complete move the jumper back to Network (Client) mode.	**Network** (Client): J5 LAN connects to a network (Default).
	Configure and view system parameters using software or a web browser. Default IP address is 192.168.2.1. The default administrator password is "administrator". **CAUTION:** Do not connect LAN port to a network when jumper is set to Local.	
Alarm Relays	Alarm Relays can be set to operate as Close on Alarm or Open on Alarm. Open on Alarm is the Factory Default setting. Move Alarm jumpers to Close on Alarm when required. The number of alarm relays in a controller is indicated in the model number as an R.Example: MODEL: CP841A_0I6R has 6 alarm relays - PMJ, PMN, 1, 2, 3, and 4. Relays 1 -4 are factory defaulted to specific system alarms and can be user reconfigured as needed.	

Controller Jumper Location (Side or Top).



Alarm Relay Jumpers Examples	
Controller Type	Factory Settings
0I6R (6 Relays)	4 3 2 1 PMN PMJ Close on Alarm Open on Alarm

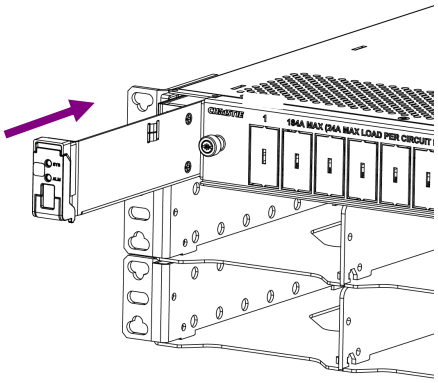
3. Set Shelf IDs – per shelf Quick Start Guides – some shelves.

Shelf ID switches and jumpers are located on the rear of some rectifier shelves.
shelf models – see shelf quick start guides for location.
Shelf ID must be unique and in the range of 1 to F.
Set rectifier shelf IDs in sequence beginning with 1 at the top shelf.

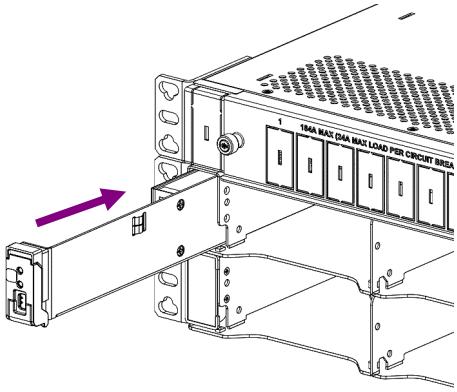
ID	Shelf
1	**Top**
2	
4	
3	

Step 10 – Install System Controller (continued)

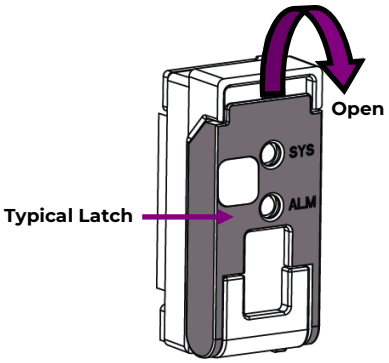
4. Slowly slide the controller into the controller slot on the left side of the 1U distribution or top rectifier shelf.
5. With the controller partially inserted, open the latch on front of the controller and continue to insert until it has firmly seated into the shelf.
6. Close the controller latch to ensure it is fully inserted and retained in the shelf.



CPL48P-3U-AC3-PS8-16DCP-CD

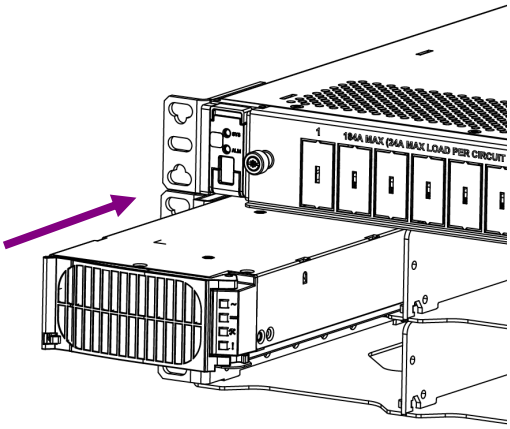


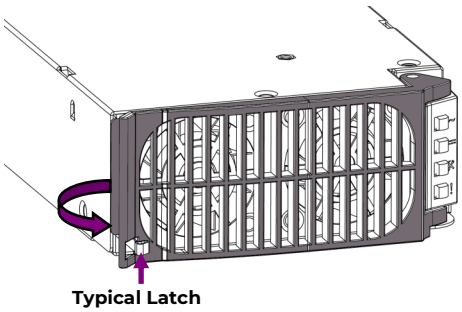
CPL48-3U-AC5H-PS8-16DCP



Step 11 – Installing Rectifiers

1. Remove rectifiers from shipping box and anti-static bag.
2. Slowly slide the rectifier into the left rectifier position of the top rectifier shelf.
3. With the rectifier partially inserted, open the latch on front of the rectifier and continue to insert until it has firmly seated into the shelf.
4. Close the rectifier latch to ensure it is retained completely in the shelf.
5. Repeat process with remaining rectifiers, continuing left to right on first shelf. If applicable, install the second shelf rectifiers in the same order.





Step 12 – Powering the System

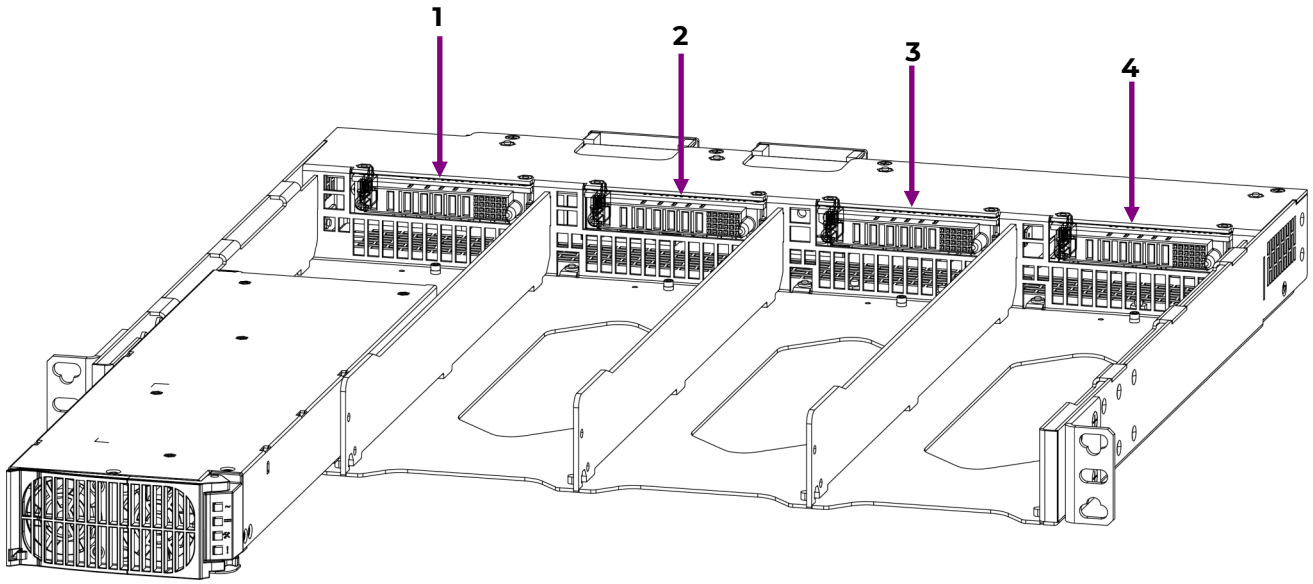
Warning: Incorrect polarity to some loads and improper grounding can cause irreparable damage to customer equipment.

These systems may be configured as -48V_{DC} or +48V_{DC} systems The return is referenced to ground.

Verify system ground is firmly attached to the return bus and secured to site grounding as defined by customer installation standards.

Verify polarity of load connections are made as defined by customer installation standards.

1. Starting with left position of the upper power shelf, turn on the breaker that for the first rectifier. The rectifier and controller will cycle through its start procedure which will take roughly 10 seconds.
2. Once start up sequence has completed, use a voltmeter at the rear bus bars to verify proper system polarity and voltage. System should provide -54.0V_{DC} +/-0.5$V_{DC}$for a –48V system and +54.0V_{DC} +/-0.5V_{DC} for a +48V system. If polarity is incorrect, stop immediately and return to Step 3 and repeat connection verifications.
3. Continue powering up each rectifier in the first shelf, left to right. If necessary, repeat powering sequence on the second rectifier shelf.



Step 13 – Additional Configuration

System Initial Start Up

Power the controller – follow the system start up procedure as instructed in equipment documentation and in site engineering instructions.

Step 13 – Additional Configuration (continued)

Configure Controller

Verify and edit controller basic configuration parameters per site engineering instructions.

CAUTION:

1. DHCP/Static IP Address – set per site engineering instructions to assure network access.
2. Rectifier float Voltage Set Point – Set both Rectifier Internal Selective High Voltage Shutdown and Rectifier High Output Voltage Minor Alarm and Rectifier Very High Voltage Major Alarm higher than desired Rectifier Voltage Set Point. before setting Rectifier Voltage Set Point. Rectifiers will not operate when either of these parameters is set to less than the Rectifier Voltage Set Point.

See Information: Basic Operation.

Basic Configuration – minimum for operation and communication.

Basic Configuration through Web Browser And Front Panel Display Interfaces

Parameter	Browser	Display Menu
Controller		
System Date, System Time	Installation tab	Configuration > System Settings
Site ID, Site Description	Installation tab	Browser
Shelf J-Code or Product Code	Installation tab	Browser
DHCP / Static IP Address	Network page (Settings tab, Communications group)	Configuration > Communications Ports > Network Settings
Shelves	Shelves page (Settings tab, System group)	Browser
Rectifier		
Float Set Point	Rectifier page (Settings tab, Power group)	Configuration > Float Settings > Set Point

Advanced Configuration

Complete site specific configuration Verify and edit remaining controller parameters per site engineering instructions.

Information: Controller Default Voltage Settings and Ranges

Configure these parameters per site engineering instructions.

See Quick Start Guide Supplements for customer specific Default Settings.

Rectifier Management Standard Default Voltage Settings and Ranges[1]	Range	48V Default[1] Valve-Reg
Float Voltage	42 to 56.5V	54.48
Rectifier Float Selective High Voltage Shutdown	-50 to -60V	58.50
High Float Voltage Major Alarm	-50 to -60V	57.00
High Float Voltage Minor Alarm	-50 to -60V	56.00
Rectifier/System Float Voltage	-42 to -56.5V	54.48
Rectifier On Threshold	-40 to -51V	44.00

[1]Customer specific factory defaults - see the Quick Start Guide Supplement.

Step 13 – Additional Configuration (continued)

Information: Connectors

See equipment Quick Start Guides and Quick Start Guide Supplements for details of connector, factory signal assignments, and available cables. Connectors are on the primary shelf (equipped with controller), usually at the rear. Physical styles and locations of system mounted connectors are system specific. Not all connectors are present on all systems.

Connector	Label	Position[2]	Function	Connect to
J3/J4 (RJ – 45)	DATA	Upper	1 – Wire	1-Wire devices
		Lower	OmniOn Device Comm	Compatible shelves via Daisy Chain
J5 (RJ – 45)	LAN		10/100Base – T	Network or Local PC
J7	DIST		Distribution Signals	Compatible Distribution Shelf

[2]DATA connectors (J3 and J4) are usually positioned one above the other. Use only the upper connector for 1-Wire devices. See equipment Quick Start Guide.

Information: Alarms - Power Minor (PMN) and Power Major (PMJ)

PMN and PMJ are system severity alarms.

PMN reports during every minor alarm condition.

PMJ reports during every major alarm condition.

Information: Basic Operation

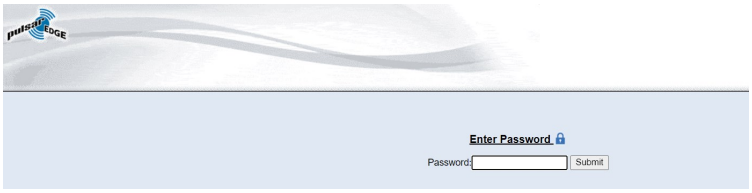
Controller LEDs – Alarm Status: SYS: Green = Normal Amber = Minor Alarm Red = Critical/Major Alarm ALM: Red = Certain user assigned alarms	System Parameters: View and change from the factory defaults via: A. LAN port in Local mode via a laptop (web pages). B. Network (web pages). C. Controller Display Panel – on some models. Details in Pulsar Edge Controller Family Product Manual.	LAN port Local or Network: Set by the jumper setting shown on page 15.

Connect PC via LAN Port: 1. Set LAN port to Local – Jumper setting shown on page 15. 2. Connect laptop PC to LAN port. 3. Follow: View and Change - Web Page procedure listed below. 4. Set LAN port to Network mode and connect network cable to restore network access.	Connect PC via Network: 1. With LAN port set to Network (page 15). 2. Open a browser on a network connected PC. 3. Follow Operation Web Page.

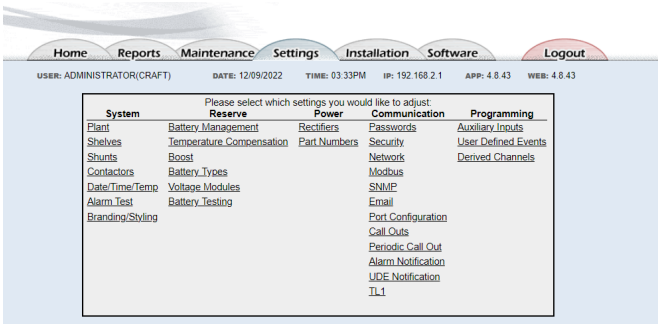
Step 13 – Additional Configuration (continued)

View and Change – Web Page

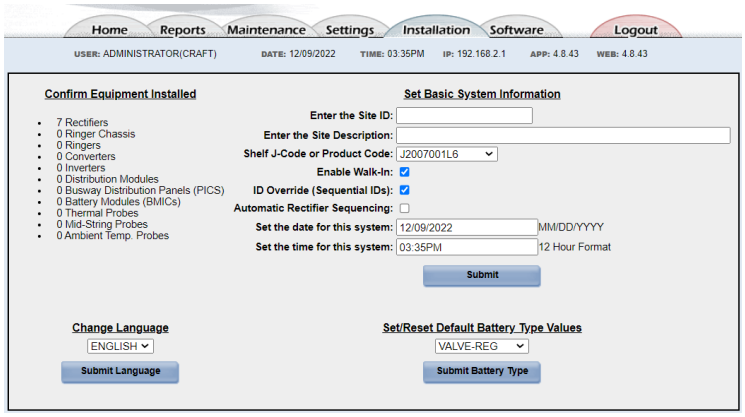
1. Connect via browser – default IP address 192.168.2.1.
2. Login to the controller – username is not required by default.
   Access (Default Username)..... Default Password
   Read – Only (none)..... Lineage
   Read/Write (none)..... Super – user
   Read/Write/Password Administration (“admin”)..... administrator
3. Select the desired tab – Installation and Settings tabs for configuration.
4. Select the desired item from the items grouped in columns.
5. View and change system parameters as instructed in equipment documentation and in site engineering instructions.
6. Following are the typical web screens for configuring system configuration and basic rectifier parameters.



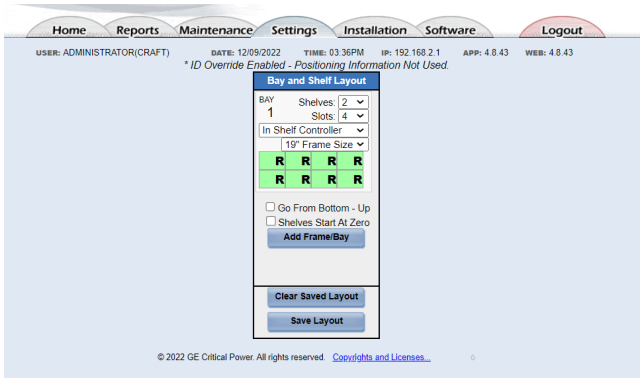
Web Login Page



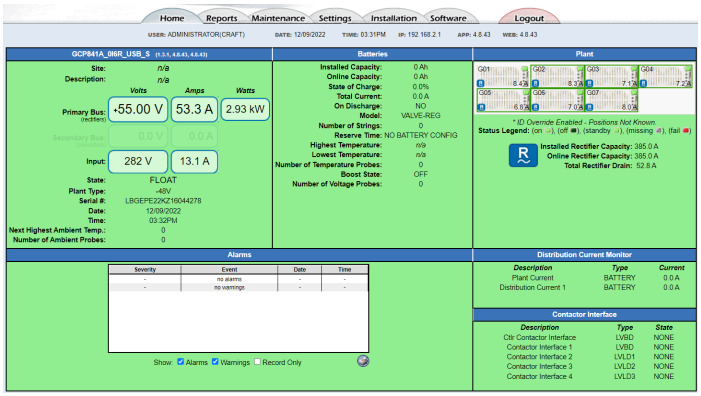
Web Settings Page



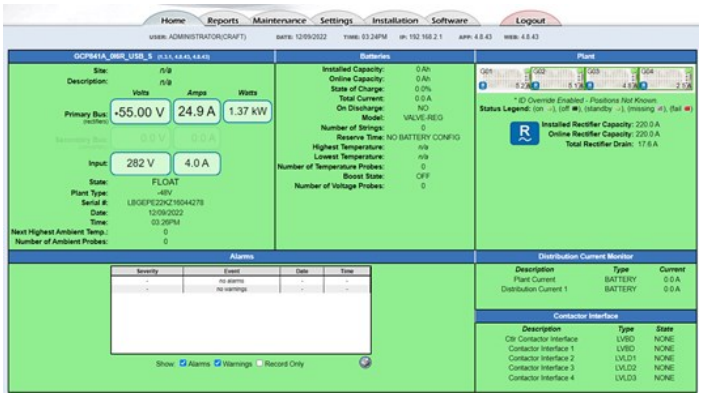
Web Installation Page



Web Bay And Shelf Layout



Web Home Page Example (Two shelf system)



Web Home Page Example (Single shelf system)

Clear Missing Devices/Uninstall Equipment Operation

Some alarms may indicate that a previously connected device is no longer connected, e.g. Communication Fail.

Use the Clear Missing Devices operation to remove the devices from controller memory to clear these alarms.

Web: Maintenance Tab > Clear Data column: clear missing devices

Display Menu: Control/Operations > Uninstall Equipment - only clears missing devices (Same as previous).

Connecting a device to the controller automatically adds it to the connected device memory.

Information – Troubleshooting DC System (1)

Controller LED	Rectifier LED	Possible Problem	Possible Solution
AMBER	None	Single Rectifier not receiving ac power. AC input circuit breaker has opened.	Verify ac power to rectifier is available. Verify rectifier input circuit breaker is closed. If problem not corrected, replace rectifier.
RED	None	Multiple rectifiers not receiving ac power. AC input circuit breakers have opened.AC input voltage is out of range. Internal rectifier fault.	Verify ac power to rectifiers is available. Verify rectifier input circuit breakers are closed.If problem not corrected, replace rectifier.
AMBER or RED	None	A rectifier, multiple rectifiers, or the entire system has lost AC and one or more rectifiers have been removed from the system while under this condition.	Verify that ac power to all rectifiers is available.Verify that rectifiers all report good AC. Issue the uninstall equipment under the operations menu for anyrectifier that may have been removed during the AC fail.
RED	AC OK DC OK	Rectifier output voltage has fallen below the battery on discharge threshold set by the user.	If commercial ac power is present but the system voltage remains low,call your local field representative. Investigate other alarms that may be present such as rectifier related problems.
AMBER	AC OK ALARM	Rectifier output has dropped below 36V, rectifier has entered hiccup mode.	Replace rectifier.
RED	AC OK ALARM	All rectifier outputs have dropped below 36V, all rectifiers have entered hiccup mode. Defective controller.	Remove controller; if output voltage does not go to set – point previously set by user, call your local field representative.
None	RED (Blinking)	Controller failure, all devices on the communication bus reporting loss of communication with controller.	Check controller to ensure it is properly inserted into its slot. If so,perform the following steps: Remove the controller board for 1 minute and then reset. If problem persists, replace controller with new controller board. If problem still persists, call your local field representative.

Information – Troubleshooting DC System (2)

Controller LED	User Interface Display	Rectifier LED	Possible Problem	Possible Solution
AMBER	MIN, Thermal Probe Fail	AC OK DC OK	1-Wire thermal probe failed.	Ensure thermal probe is properly connected to thermal probe cable. Ensure cable is properly connected to the rear of the Distribution Module. If problem persists, replace thermal probe per ensuing instructions.If problem still persist, call your local field representative.
RED	MAJ, Fuse Major	AC OK DC OK	One or more of the output circuit breakers orfuses have opened.	Reset circuit breakers or replace fuse.
AMBER	MIN, Rectifier Fail	AC OK ALARM	Single rectifier thermal alarm: Excessive ambient temperature Multiple rectifier failure	Verify that there is no obstruction of the airflow path. Reset the rectifier by removing the rectifier, waiting approximately 30 seconds, and replacing the rectifier If problem persists, replace the rectifier. If problem still persists, call your local field representative.
RED	MIN, Rectifier Fail MAJ, Multiple Rectifier Fail	AC OK ALARM	Multiple rectifier thermal alarm: Excessive ambient temperature Multiple rectifier failure	
AMBER	MIN, Rectifier Fail	AC OK ALARM Blinking	Communication failure from Rectifier Module to controller	Verify communication cable connection Verify the Shelf ID Reset the rectifier by removing the rectifier, waiting approximately 30 seconds, and replacing it back If problem persists, replace the rectifier If problem still persists, call your local field representative.
RED	MAJ, High Voltage	AC OK ALARM	High output voltage from rectifier(s)Rectifier(s) high voltage shutdown Internal rectifier(s) failure	Reset the rectifier(s) by removing the rectifier (s), waiting approximately30s and replacing the rectifier(s). If problem persists, replace the rectifier. If problem still persists, call your local field representative.
AMBER	MIN, Clock Battery Low	AC OK DC OK	Internal Lithium Battery Is Low	The battery from controller unit should be replaced. Call tech support: 1-577-546-3243 Obtain all desired information such as alarm history, statistics, andany field configuration that is different than the standard.
AMBER	MIN, Minor CommunicationFail	RED Blinking Single rectifier	Rectifier lost communication with controller	If a rectifier has been removed from an installed/operational system, go to the Control/ Operations menu and execute Uninstall Equipment. Reset the rectifier by removing the rectifier, waiting approximately 30seconds, and replacing. If problem persists, replace the rectifier. If problem still persists, call your local field representative.

Information – Troubleshooting DC System (3)

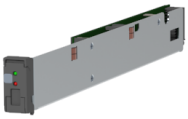
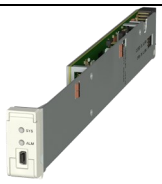
Controller LED	Rectifier LED	Possible Problem	Possible Solution
GREEN	AC OK DC OK	One or both of the QS871A shunt inputs is open –circuit.	Verify that the respective shunt has its green and yellow wire Connections attached used for the current measurements. Verify the shunt connection to the QS871A is good by verifying the green and yellow wire connections from the shunt follows through to the 10 – pin connector at the respective QS871A.
GREEN	AC OK Blinking	AC present, not within operating limits	Verify AC input voltage. Reset the rectifier by removing the rectifier, waiting approximately 30seconds, and replacing the rectifier. If problem persists, replace the rectifier. If problem still persists, call your local field representative.
GREEN	AC OK DC OK Blinking	Rectifier Over Load – Current or Power	If problem persists: Reset the rectifier by removing the rectifier, waiting approximately 30 seconds, and replacing the rectifier. If problem persists, replace the rectifier. If problem still persists, call your local field representative.
GREEN	AC OK	Rectifier Standby (Normal during some conditions depending on controller settings)	Verify controller settings. If problem persists: Reset the rectifier by removing the rectifier, waiting approximately 30 seconds, and replacing the rectifier. If problem persists, replace the rectifier. If problem still persists, call your local field representative.

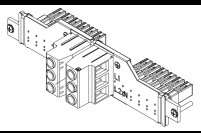
- While in hiccup mode, the rectifier will attempt to restart every 10 seconds for a maximum of 3 times.

Ordering Information

Please contact your OmniOn Power™ Sales Representative for pricing, availability and optional features.

Power Supplies		
Ordering code	**Description**	**Picture**
1600422507A	CP3000AC54TEZB Rectifier (Input: 100-120V_{AC} 20.8-14.2A, Output:44-58V_{DC} @1500W) (Input: 200-277V_{AC} 17.5A, Output:44-58V_{DC} @3000W)	
1600418753A	CP3500AC54TEZB Rectifier (Input: 100-120V_{AC} 20.8-14.2A, Output:44-58V_{DC} @1500W) (Input: 200-277V_{AC} 20.5A, Output:44-58V_{DC} @3500W)	
CC109149423	CP2725AC54TEZ Rectifier (Input: 100-120V_{AC} 15-10.8A, Output:44-58V_{DC} @1200W) (Input: 200-277V_{AC} 14A, Output:44-58V_{DC} @2725W)	
150033916	CP3000AC54TEZ Rectifier (Input: 100-120V_{AC} 20.8-14.2A, Output:44-58V_{DC} @1500W) (Input: 200-277V_{AC} 17.5A, Output:44-58V_{DC} @3000W)	
150030396	CP3500AC54TEZ Rectifier (Input: 100-120V_{AC} 20.8-14.2A, Output:44-58V_{DC} @1500W) (Input: 200-277V_{AC} 20.5A, Output:44-58V_{DC} @3500W)	

System Controllers		
Ordering code	**Description**	**Picture**
1600422358A	GCP841A_0I6R_S_BL Pulsar Edge Controller	
150043558	GCP841A_0I6R_USB_S Pulsar Edge Controller	

AC Input Accessories			
AC Input Type	**Ordering code**	**Description**	**Picture**
AC5H+	1600467317A	AC5H+ Terminal block adaptor kit	
AC3/AC3L	8600481880P	SJT Cord, 12AWG, 8ft (Min.), 3 conductors, 105°C Termination: Shelf End IEC C19 /C21 Other End: NEMA 5-20P, 20A, 125V	
	8600481881P	SJT Cord, 12AWG, 8ft (Min.), 3 conductors, 105°C Termination: Shelf End IEC C19 /C21 Other End: NEMA 6-20P, 20A, 250V	
	8600481882P	SJT Cord, 12AWG, 8ft (Min.), 3 conductors, 105°C Termination: Shelf End IEC C19 /C21 Other End: NEMA L6-20P, 20A, 250V	

Ordering Information (continued)

Bullet Style Load Circuit Breakers

Ordering Code	Amperage	CB Positions (Poles)	Min Wire Gauge	Picture
407998137	3	1	10	
407998145	5	1	10	
407998152	10	1	10	
407998160	15	1	10	
407998178	16	1	10	
407998186	20	1	10	
407998194	25	1	10	
407998202	30	1	10	
408213486	40	1	10	
407998210	45	1	8	
407998228	50	1	8	
407998236	60	1	6	
407998244	70	1	6	
407998251	80	1	4	
407998269	90	1	4	
407998277	100	1	2	

Snapak® Plug-in Breakers

Ordering Code	Amperage	Picture
450017886	1	
450023452	2	
450023455	3	
450023456	4	
450017887	5	
450023457	6	
450023460	7.5	
450023461	10	
CC408648884	15	
CC408651252	20	
450023462	25	
CC408638605	30	

GMT Fuses

Ordering Code	Amperage	Picture
407715713	0.18	
4600218580P	0.25	
4600483302P	0.5	
4600483303P	1	
406530725	1.33	
406421032	2	
406204230	3	
406203976	5	
4600483304P	7.5	
406203190	10	
407845197	12	
450036522	15	

Ordering Information (continued)

Bullet Style Battery Circuit Breakers		
Ordering Code	**Amperage**	**Picture**
CC408612758	30	
CC408612766	40	
CC408612774	45	
CC408574370	50	
408560123	60	
CC408574387	70	
CC408574395	100	

Notes :

Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
1.0	12-26-2023	Initial release
1.1	12-24-2024	Updated terminal block adapter kit image

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