SPS -48V Slimline Power Shelf

Models: J2007003L051C-52C



Initial shelf (L051C) includes controller slot. Install immediately below distribution shelf, if present.

Expansion shelf (L052C) includes cables and hardware to attach to an adjacent shelf.

No vertical spacing is required. Provide 2 inch minimum clearance at back of shelf for rectifier airflow.

Refer to Slimline Power System Brochure for details and accessories.

“IMPORTANT”

- Save these instructions.
- Read and follow all safety statements, warnings, and precautions in this manual before installing, maintaining or repairing this equipment.
- This equipment is not suitable for use in locations where children are likely to be present.
- This equipment is intended only for use in restricted access areas.
- Conservez ces instructions.
- Lisez et suivez toutes les consignes de sécurité, les avertissements et les précautions de ce manuel avant d'installer, d'entretenir ou de réparer cet équipement.
- Cet équipement n'est pas adapté à une utilisation dans des endroits où des enfants sont susceptibles d'être presents.
- Cet équipement est destiné uniquement à être utilisé dans des zones à accès restreint.

Document – 850032812

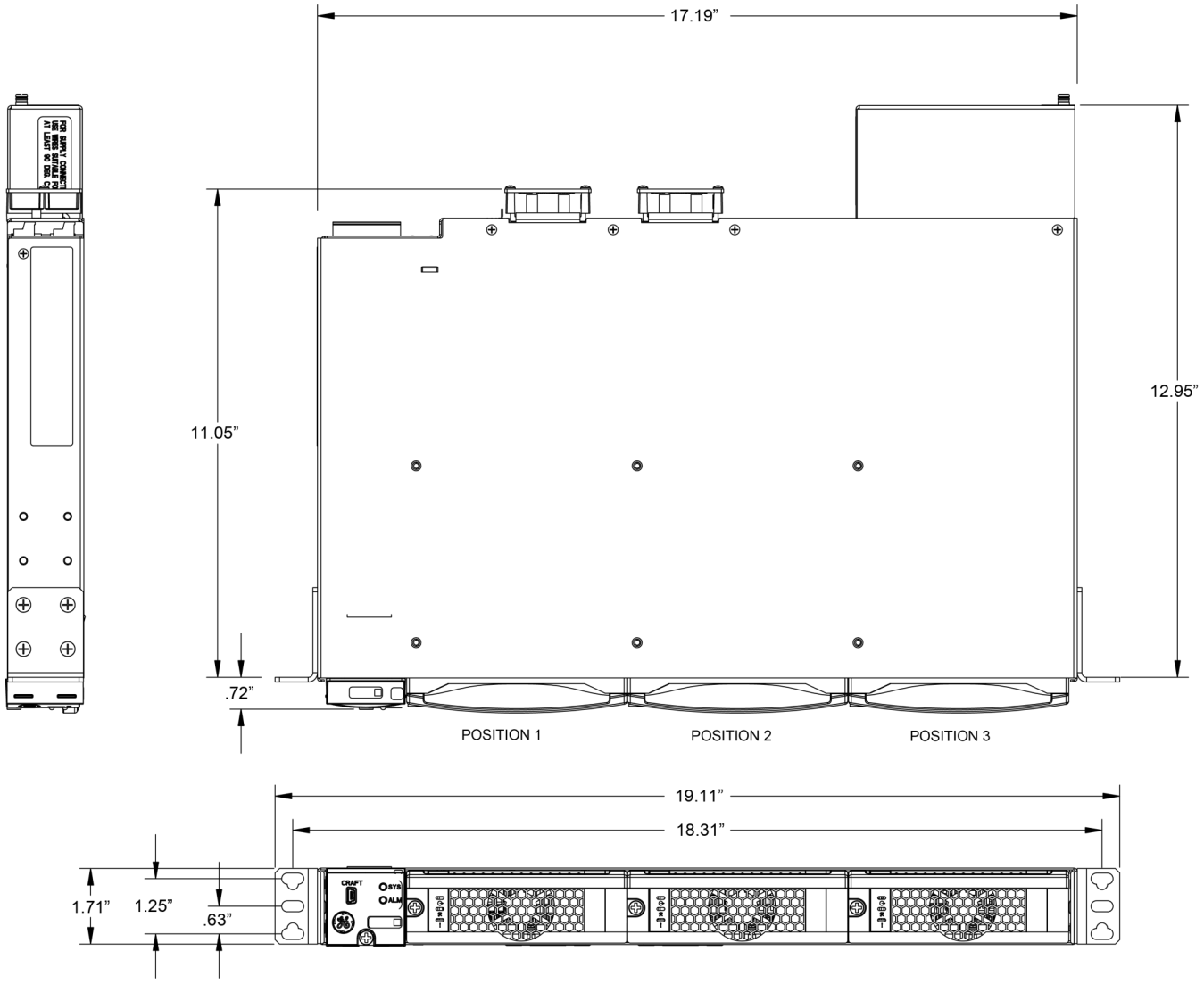
© 2023 OmniOn Power Inc. All rights reserved.

Contents

Mounting Dimensions 3
Safety statements 4
Precautions 5
Equipment Identification 6
Safety symbols 6
Information: Tools Required 7
Step 1 – Mount Shelf 7
Step 2 – Connect chassis Ground 7
Step 3 – Connect AC Input 7
Step 4 – Connect DC Output 8
Step 5 – Connect Shelf to Shelf Cables 8
Step 6 – Set Shelf ID Jumpers 8
Step 7 – Set Controller Jumpers 8
Step 8 – Install Controller 9
Step 9 – Install Alarm and LAN Cables 9
Step 10 – Install 1-Wire Battery Temp and Voltage Monitor per Galaxy Pulsar Edge Controller Quick Start Guide - Optional 9
Step 11 – Install Rectifiers 9
Step 12 – Initial Start Up 9
Step 13 – Configure Controller per Galaxy Pulsar Edge Controller Quick Start Guide 9
Information: Controller – View and Change Parameters and Alarm Severity 10
Information: Rectifier Options 10
Information: Alarm Connections 10
Specifications and Applications 11
Reference Documents 11
Notes 11
Change History (excludes grammar & clarifications) 12
Disclaimer 13

© 2023 OmniOn Power Inc. All rights reserved.

Mounting Dimensions



© 2023 OmniOn Power Inc. All rights reserved.

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 where required.
  - 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.
- Fuses and Circuit Breakers – Size as required by the National Electric Code (NEC) and/or local codes.
  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.
- 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.
  - Size DC field-wired conductors with 90°C ampacity (NEC) equal to or greater than circuit breaker/fuse 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.
- Circuit Breakers and Fuses – Use only those specified in the equipment ordering guide.
- GMT Style Fuses – Use only fuses provided with safety caps.

Déclarations de sécurité

- N'installez pas cet équipement sur des surfaces combustibles.
- Règles et réglementations – Suivez toutes les règles et réglementations nationales et locales lors des connexions sur le terrain.
- Connecteurs à compression
  - Installations aux États-Unis ou au Canada - utilisez des connecteurs à compression répertoriés/certifiés pour terminer les conducteurs de câbles répertoriés/certifiés sur le terrain, le cas échéant.
  - Toutes les installations – appliquez le connecteur approprié au conducteur de taille correcte tel que spécifié par le fabricant du connecteur, en utilisant uniquement l'outillage recommandé ou approuvé par le fabricant du connecteur pour ce connecteur.
- Fixation de la connexion électrique : Serrez aux valeurs spécifiées sur les étiquettes ou dans la documentation du produit.
- Habillage de câble – Habillez-vous pour éviter d'endommager les conducteurs et une contrainte excessive sur les connecteurs.
- Fusibles et disjoncteurs – Taille requise par le National Electric Code (NEC) et/ou les codes locaux.
  Reportez-vous aux caractéristiques nominales de l'équipement pour vous assurer que le courant ne dépasse pas :
  Charge continue (Liste 1) – 60 % de la cote de protection
  Charge maximale (Liste 2 – généralement en fin de décharge) – 80 % de la valeur nominale du protecteur.
- Conducteurs câblés sur site - Respectez tous les codes électriques nationaux (NEC) et les règles et réglementations locales .
  - Indice d'isolation : 90°C minimum ; 105°C (minimum) si à l'intérieur des armoires d'équipement fermées.
  - Dimensionnez les conducteurs CA câblés sur place avec un courant admissible de 75°C (NEC) égal ou supérieur à la valeur nominale du disjoncteur du panneau de distribution.
  - Dimensionnez les conducteurs CC câblés sur place avec un courant admissible de 90°C (NEC) égal ou supérieur à la valeur nominale du disjoncteur/fusible.
- Déconnexion/protection des entrées CA et CC – Fournir des dispositifs accessibles pour couper l'alimentation d'entrée en cas d'urgence.
- Signaux d'alarme – Fournit une protection de limitation de courant externe. Note 60V, 0.5A sauf indication contraire.
- 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 terre de service ca de l'armoire. Dans les huttes, les chambres fortes et les bureaux centraux, connectez-vous au réseau de liaison du système.
- Disjoncteurs et fusibles – N'utilisez que ceux spécifiés dans le guide de commande de l'équipement.
- Fusibles de style GMT – Utilisez uniquement des fusibles fournis avec des capuchons de sécurité.

© 2023 OmniOn Power Inc. All rights reserved.

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.

Précautions

- Installez, entretenez et utilisez l'équipement uniquement par du personnel professionnel, compétent et qualifié qui possède les connaissances et l'expérience pratique nécessaires avec l'équipement électrique et qui comprend les dangers qui peuvent survenir lors de travaux sur ce type d'équipement.
- Déconnectez les batteries des sorties et/ou suivez les procédures de sécurité lorsque vous travaillez sur l'équipement. Les batteries peuvent être connectées en parallèle avec la sortie des redresseurs. La désactivation des redresseurs ne coupera pas nécessairement l'alimentation du bus.
- Ne déconnectez 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 de sécurité avant de brancher l'alimentation. Des courants de fuite élevés peuvent être possibles.
- Soyez prudent et suivez tous les avertissements et pratiques de sécurité lors de l'entretien de cet équipement. Des énergies et des tensions dangereuses sont présentes dans l'unité et sur les câbles d'interface qui peuvent provoquer des chocs électriques ou des blessures graves. Lorsqu'il est équipé de modules de sonnerie, des tensions dangereuses seront présentes sur les connecteurs de sortie de la sonnerie.
- Utilisez les précautions suivantes en plus de la formation professionnelle appropriée et des procédures de sécurité :
  - Utilisez uniquement des outils correctement isolés.
  - Retirez 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 toutes les entrées d'alimentation avant de procéder à l'entretien de l'équipement. Vérifiez les entrées d'alimentation multiples.
  - 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 toucher.
  - Soyez conscient des dangers potentiels avant de procéder à l'entretien de l'équipement.
  - Identifiez les potentiels électriques dangereux exposés sur les connecteurs, le câblage, etc.
  - Éviter tout contact avec les circuits lors du retrait ou du remplacement des couvercles.
  - Utilisez une sangle ESD personnelle lors de l'accès ou du retrait des composants électroniques.
- Le personnel équipé d'appareils médicaux électroniques doit être conscient que la proximité des systèmes d'alimentation et de distribution CC, y compris les batteries et les câbles, que l'on trouve généralement dans les locaux techniques de télécommunications, peut affecter les appareils électroniques médicaux, tels que les stimulateurs cardiaques. Les effets diminuent avec la distance.

© 2023 OmniOn Power Inc. All rights reserved.

Safety Symbols

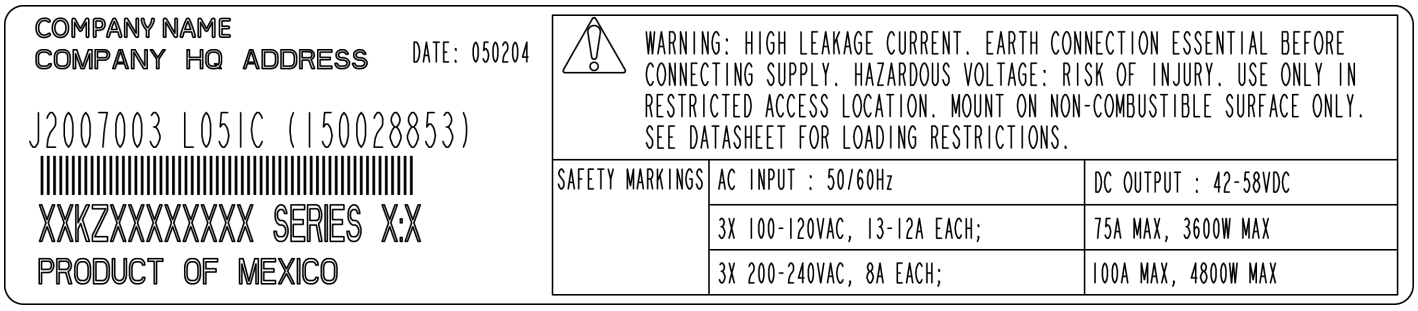


Hazardous Voltage
Tension Dangereuse



Caution
Avertir

Equipment Identification



© 2023 OmniOn Power Inc. All rights reserved.

Information: Tools Required

- Wire cutters and strippers
- Cable crimpers
- Torque wrench - 0-65 in-lb (0-10Nm)
- Sockets - 5/16”, 7/16, etc.
- Screwdrivers - Philips #1 and #2, Flat small

Step 1 – Mount Shelf

1. Reposition mounting ears as required - 4 screws each.

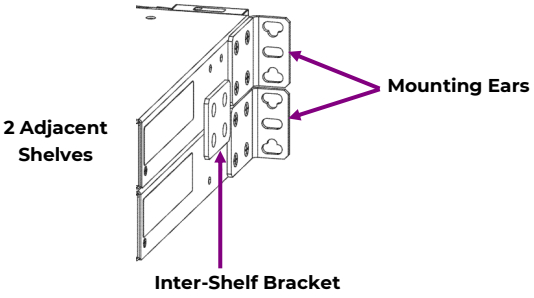
   Torque to 25 in-lb (2.8Nm) - Phillips screwdriver.

2. Install Inter-Shelf brackets between adjacent shelves (optional).

   Torque to 25 in-lb (2.8Nm) - Phillips screwdriver.

3. 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.



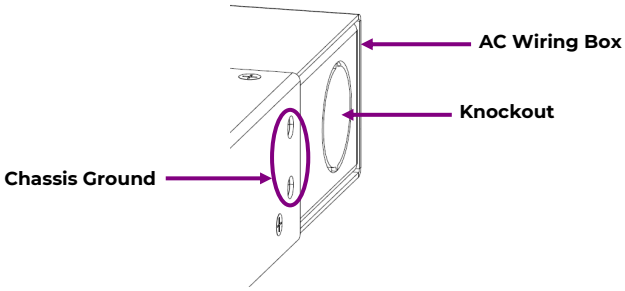
Step 2 – Connect Chassis Ground

Lug Landings: #10 double-hole on 5/8-inch center
(lugs not provided)

Some applications may rely on frame mounting screws for shelf ground omitting the chassis ground cable.

Minimum 10 AWG wire is recommended.

Torque 10-32 screws to 30 in-lb (3.4Nm) - 5/16” socket.



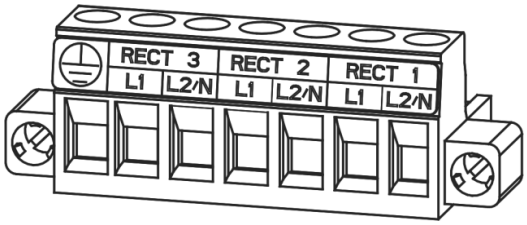
Step 3 – Connect AC Input

Connect AC to the detachable input terminal block in wiring box. Knockout for 3/4” conduit or cord grip.

Cords available - See Slimline Power System Brochure.

External Feed Protector - See Information: Rectifier Options.

- V_{AC} – 120V~ / 200-240V~, 50-60Hz
- Wire size: 10 – 12AWG Recommended (12-24AWG range)
- Strip – 0.3” (7mm)
- Torque – 4.4 in-lb. (0.5Nm)
- Pull on wires to verify connection.



Danger: Turn OFF and lock-out tag-out the AC source before making AC connections.

Follow all local and national wiring rules.

Caution: Route AC cables to avoid contact with sharp or rough surfaces that may damage insulation and cause a short circuit.

© 2023 OmniOn Power Inc. All rights reserved.

Step 4 – Connect DC Output

Connections are under rear covers.

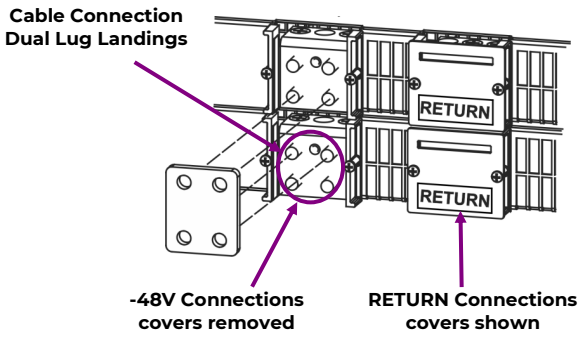
Bus Connection - to adjacent shelf

- Install inter-shelf buses joining -48V and RETURN outputs of adjacent shelves. Torque to 65 in-lb (7.3 Nm)

Cable Connection

- Output current: 200A max
- Wire size: 2/0AWG
- Connect cables with suitable lugs to -48V and RETURN. Torque to 65 in-lb. (7.3 Nm)

  Lug Landings - 2 x 1/4" on 5/8" center, 0.7" (18mm) max. tongue width.



2 Adjacent Shelves

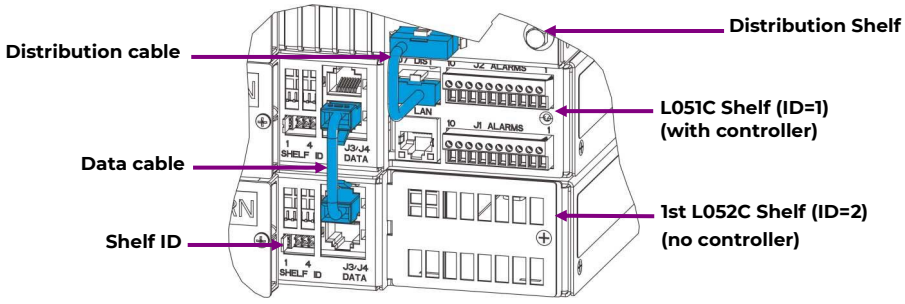
Caution: Verify battery voltage and polarity with a voltmeter before proceeding.

Note: RETURN must be externally connected to DC Reference (CO) ground.

Step 5 – Connect Shelf to Shelf Cables

Install Data cables between adjacent rectifier shelves - J3-4.

Install Distribution Cable between the distribution shelf and the adjacent L051C shelf - J7



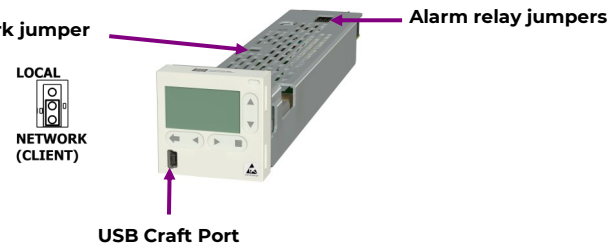
Step 6 – Set Shelf ID Jumpers

Up to 4 Rectifier Shelves can be interconnected. Each Rectifier Shelf must have a unique ID.

L051C	L052C		
set to 1	1st set to 2	2nd set to 3	3rd set to 4

Step 7 – Set Controller Jumpers

- LAN port may be temporarily set to Local mode, but must be set to Network mode for remote monitoring.
- Alarm relays may be set to "Open on Alarm" or "Close on Alarm".



© 2023 OmniOn Power Inc. All rights reserved.

Step 8 – Install Controller

Slide controller into slot in L051C shelf.

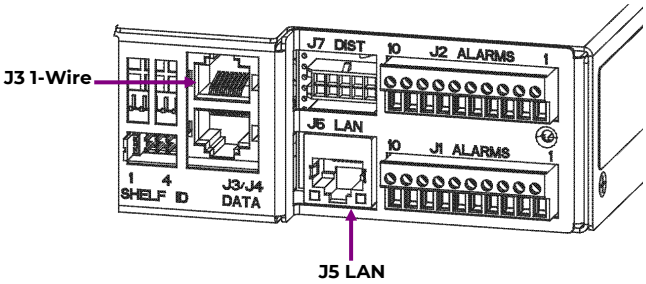
Secure controller: Controllers with display snap into the shelf; controllers without display have a thumb screw.

Step 9 – Install Alarm and LAN Cables

Connectors are on rear.

J1-2 Alarms - detachable block - Wire to office alarms and signals. See Information: Alarm Connections.

J5 LAN - Connect to Ethernet network.



Step 10 – Install 1-Wire Battery Temp and Voltage Monitor per Galaxy Pulsar Edge Controller Quick Start Guide - Optional

1. Connect 1-Wire Battery Temp and Voltage Monitor to upper DATA connector of L051C shelf.

Step 11 – Install Rectifiers

Firmly push the rectifier into the rectifier slot.

Tighten the thumb screw until the rectifier is seated.

Note: When installing a rectifier in a powered system the RUN LED on the rectifier will blink until communication with the controller is established.



Step 12 – Initial Start Up

Verify that all AC, DC and Alarm connections are complete and secure. Turn on AC input breakers. If there are no alarms, make required adjustments to the default settings on the controller for this installation.

Step 13 – Configure Controller per Galaxy Pulsar Edge Controller Quick Start Guide

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

© 2023 OmniOn Power Inc. All rights reserved.

Information: Controller – View and Change Parameters and Alarm Severity

View and change system parameters and alarm severity from the factory defaults via:

A. Front Display - if equipped

B. LAN port in Local mode via a laptop (web pages)

C. LAN port in Network mode (web pages)

D. Craft Port via laptop and EasyView2 software or HyperTerminal.

Information: Rectifier Options

Rectifiers single phase, hot-pluggable, fan - cooled		Input		Recommended AC Breaker	Output		
		V_{AC}	A	A	Float V_{DC}	W	A[1]
150027894	EP0500-UTEZ: 540W	100-120	6.5	10	48-58	540	10
		200-240	3.3	10	48-58	540	10
CC109165602	EP1000-UTEZ: 1000W	100-120	12	15	48-58	1000	20
		200-240	6	10	48-58	1000	20
CC109165610	EP1600-UTEZ: 1600W	100-120	15	20	48-58	1200	24
		200-240	7.5	10	48-58	1600	32

[1]Output Current at 54.5V. Outputs are power limited, not current limited.

Information: Alarm Connections

See the Slimline Power System Brochure for details.

Alarm connections are on the rear of the shelf - J1 is Alarm Outputs and J2 is Alarm Inputs.

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

Connector	J1 - Controller Variants			J2 - All Controllers
Pin \ Controller	0I5R_D (5 Relays) 0I6R_DS	3C3R 3 Inputs, 3 Relays	9C0R_USB 9 Inputs, no Relays	All
1	Output: R3 = Rtn	Input: PBT/TR	Input: Door Open	Input: SPD Fail
2	Output: R2 = Rtn	Input: Hi Ext. Temp.	Input: Surge Protect Fail	–
3	Output: R1 = Rtn[2]	Output: R1 = Rtn	Input: Door 2 Open	Input: AUX MAJ
4	Output: PMN Rtn	Output: PMN Rtn	Input: Ext DC Fail Major	Input: Air Cond. Fail
5	Output: PMJ Rtn	Output: PMJ Rtn	Input: Ext DC Fail Minor	Input: Door Open
6	Output: R3 = ACF	Input: RTNS	Input: Returns	-48V
7	Output: R2 = RFA	Input: Cust. Alrm 1	Input: Retrieve Generator	-48V
8	Output: R1 = BD	Output: R1 = BD	Input: Battery Fail	-48V
9	Output: PMN	Output: PMN	Input: Air Conditioner Fail	Output: R4 = FAJ[1]
10	Output: PMJ	Output: PMJ	Input: External Fan Fail	Output: R4 = Rtn[1,2]

[1]Only with 6 relay controllers (...6R...).
[2]Returns for R1 and R4 are bridged. Other returns are isolated.

© 2023 OmniOn Power Inc. All rights reserved.

Specifications and Application

- Specifications and Ordering Information – are in brochures listed in **Reference Documents**.
- External Surge Protective Devices (SPDs) – are required on all AC inputs.

  Equipment Safety is Approved in IEC 60664-1 Installation Category II environments.
- 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 – Isolated Ground Plane (Isolated Bonding Network) or Integrated Ground Plane (Mesh-Bonding Network or Common Bonding Network).
- Installation Environment – Network Telecommunication Facilities, OSP, or where NEC applies.
- DC Returns – Isolated DC return (DC-I) or Common DC return (DC-C).

Reference Documents

These documents are available at **www.omnionpower.com**

Document	Title
Pulsar Edge_QSG	Galaxy Pulsar Edge Controller Quick Start Guide
Pulsar Edge_MAN	Pulsar Edge Controller Family Product Manual
	Slimline Power System Brochure
SPS System_OG	Slimline Power System
SPS Stackable Dist Shelf_QSG	1U Stackable Distribution Shelf - 19 in Rack Mount

Notes:

© 2023 OmniOn Power Inc. All rights reserved.

Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
5.0	08/10/2023	Updated as per ABB template, Added mechanical dimension, Added safety symbols and guidelines, Added safety statements and precautions, Updated wire size in step 3, Added wire size in step 4, Updated “Reference documents”.
5.1	12/06/2023	Updated as per OmniOn template

© 2023 OmniOn Power Inc. All rights reserved.

OmniOn Power Inc.
601 Shiloh Rd.
Plano, TX USA

omnionpower.com

We reserve the right to make technical changes or modify the contents of this document without prior notice. OmniOn Power does not accept any responsibility for errors or lack of information in this document and makes no warranty with respect to and assumes no liability as a result of any use of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of OmniOn Power. This document does not convey license to any patent or any intellectual property right. Copyright© 2023 OmniOn Power Inc. All rights reserved.

© 2023 OmniOn Power Inc. All rights reserved.