

# Infinity 1U 19" Converter Shelf

**Models: J5964803 L224 -48V to +24V, L225 +24V to -48V**

**L218 - Individual -48V Input Bulk+24V Output**



Refer to Infinity Converter Brochure for details and accessories.

## Tools required:

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

## Step 1 - Mount Shelf

1. Reposition mounting ears as required for desired set back - 4 screws each. Torque to 25 in-lb (2.8Nm) - Phillips screwdriver.
  2. For 23" frames - Install optional mounting brackets (separately ordered)
  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.
- No vertical spacing is required. Provide 2 inch minimum clearance at back of shelf for converter airflow.

## Step 2 - Plan DC Feeds

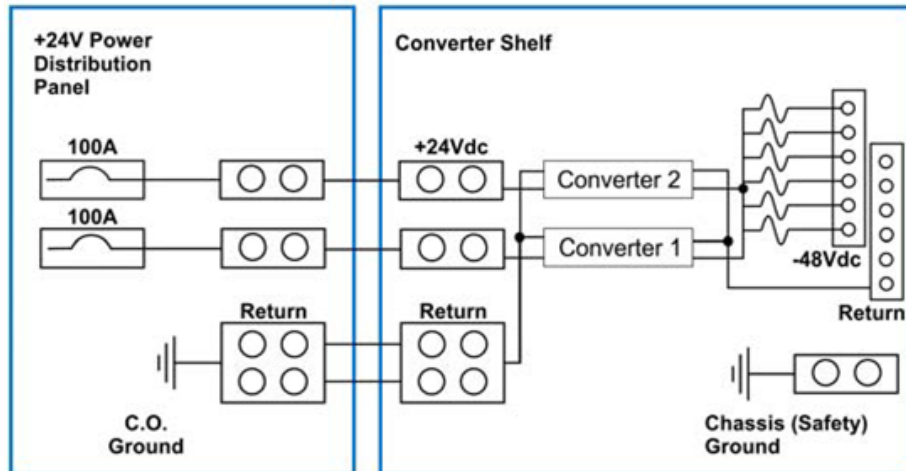
- Inputs: Two Individual converter feeds
- Outputs: Six fused outputs (15A max fuses), total output load must not exceed output rating.

Recommended breakers and cable sizes are in the tables below. Cable recommendation based on 45°C, raceway with up to 24 conductors.

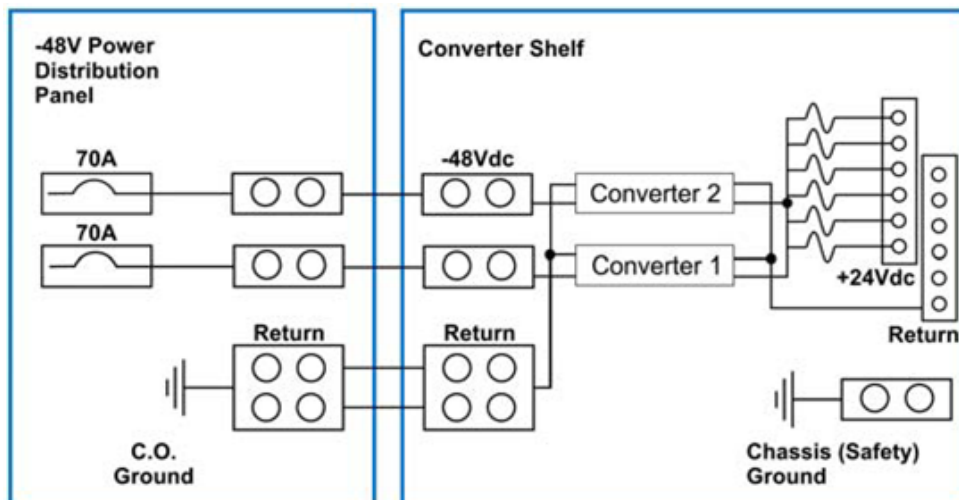
**Note:** Some installations do not require protectors on the inputs.

**Note:** Input returns must be externally connected to DC Reference (CO) Ground.

L225: +24V in, -48V out (NE030DC48A)				
Input				Output (rated)
# Of Conv.	Amps	Recommended		Amps
		Cable	Breaker	
1	80A	(1) 2 AWG	100A	30A
2	(2) 80A	(2) 2 AWG	(2) 100A	30A



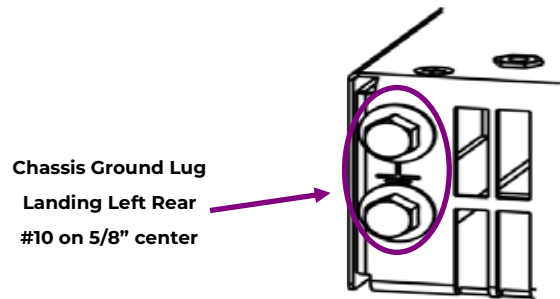
L224: -48V in, +24V out (NE075DC24A)				
Input				Output (rated)
# Of Conv.	Amps	Recommended		Amps
		Cable	Breaker	
1	55A	(1) 4 AWG	70A	30A
2	(2) 55A	(2) 4 AWG	(2) 70A	30A



### Step 3 - Connect Chassis Ground

Lug landing #10 double-hole lug on 5/8-inch center (not provided) Minimum 10 AWG recommended.  
Torque 10-32 screws to 30 in-lb - 5/16" socket.

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



### Step 4 - Connect DC Input

Connections for DC input are on the right front under a cover.

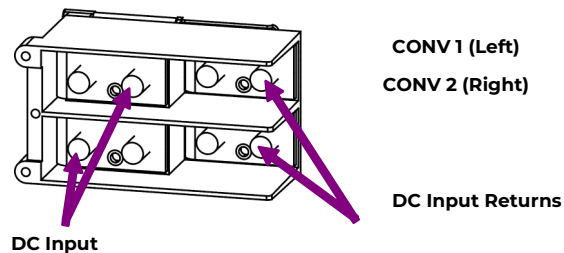
**CAUTION:** Verify DC Input voltage and polarity with a voltmeter before proceeding.

**Note:** Input returns must be externally connected to DC Reference (CO) Ground.

1. Remove Cover (1 screw)
2. Connect cables with suitable lugs to CONV 1 and CONV 2 input landings.  
-48V inputs are labeled "-48Vdc" and "POS RTN"  
+24V inputs are labeled "+24Vdc" and "NEG RTN"

**Note:** Input Feed Returns must be externally connected to DC Reference (CO) ground.

3. Torque to 65 in-lb (7.3 Nm) - 7/16" socket
4. Replace cover

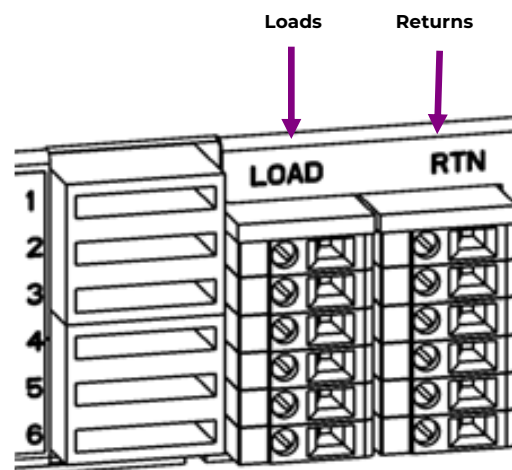


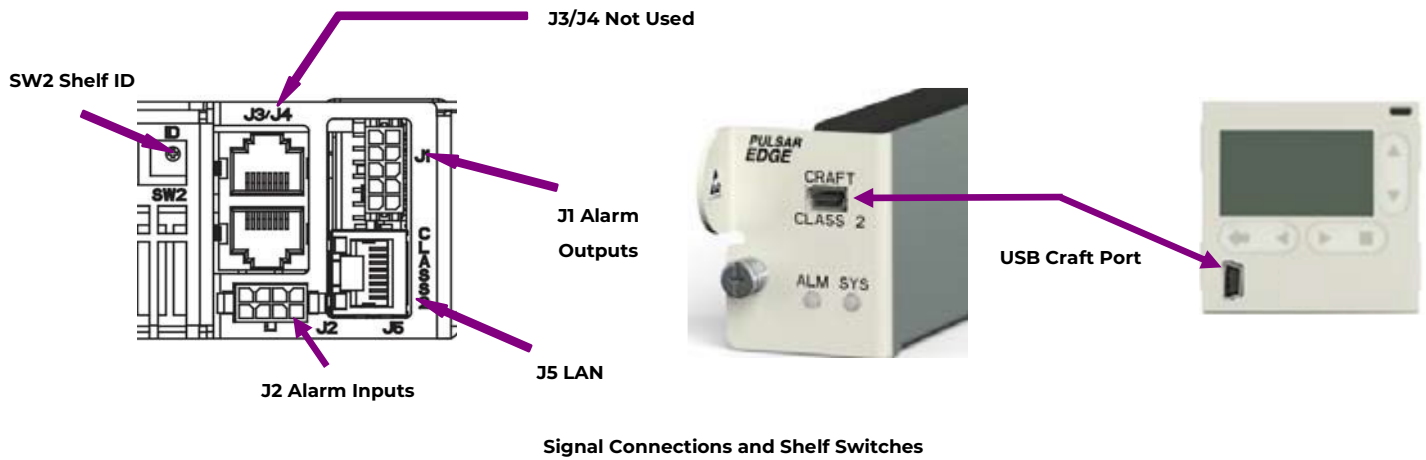
Lug Landings - 1/4" on 5/8" center  
Tongue width - 0.7" (18mm) max.

### Step 5 - Connect Loads (Outputs)

Load terminal blocks are on the right front.  
Fuses - 15A max. Total Load Current - 30A max.  
Wire Size: 24-12AWG Strip Length: 0.35" (9mm)

1. Verify that fuse is not installed
2. Strip wires
3. Insert wires into terminal block to LOAD and associated RTNS positions
4. Tighten screw - 4 in-lb (0.45 Nm).
5. Pull wire to verify
6. Insert fuse





## Step 6 - Set Shelf Switches

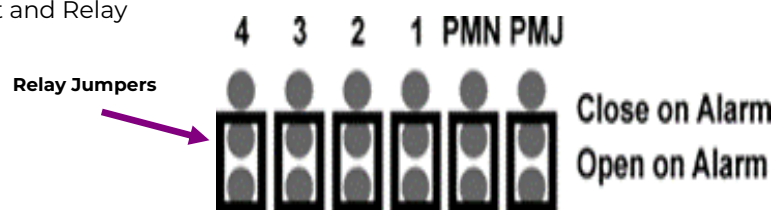
SW1 Set converter output voltage: 48V for L217; 24V for L218. V Sense alarm if not set correctly.

SW2 Set shelf number: 1 for first shelf; 2 for second shelf, etc.

Converter ID conflict alarm if two shelves are set to the same number.

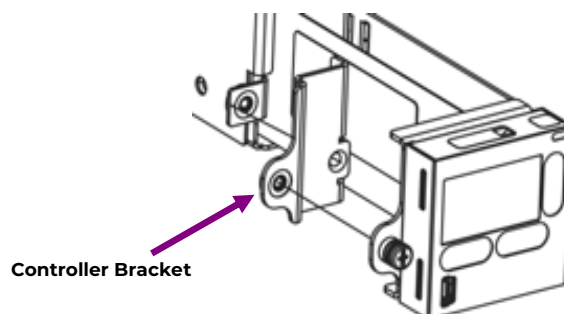
## Step 7 - Set Jumpers - LAN Port and Relay per Galaxy Pulsar Edge Controller Quick Start Guide

1. Set Jumpers - LAN Port and Relay



## Step 8 - Install Controller

1. Install Controller Bracket in shelf. Torque to 5 in-lb (0.5 Nm) (Controller with display only).
2. Slide controller into slot in shelf.
3. Secure controller with thumb screw.



## Step 9 - Install Controller Communications Cables



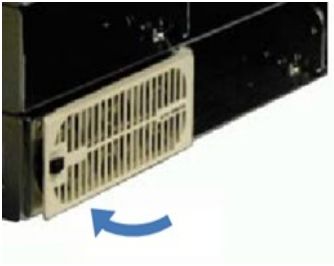
Connectors are on rear.

See Information: Connections ... for Details

J1-2 Alarms and Inputs - Connect to office alarms and signals.

J5 LAN - Connect to Ethernet network.

## Step 10 - Install Converters

<p>Slide the converter into the converter slot approximately 3/4 of the way.</p>	<p>Open the faceplate by sliding the faceplate latch to the left until the faceplate releases and swings outward.</p>	<p>Slide the unit into the slot until it engages with the back of the shelf. Swing the faceplate closed to fully seat the converter. Verify the faceplate is latched.</p>
		

## Step 11 - Initial Start Up

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

## Step 12 - Configure Controller per Galaxy Pulsar Edge Controller Quick Start Guide

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

## Information: Controller Define Alarm Inputs and Outputs

### Converter Alarm Outputs:

Select the Settings tab > Converters to set alarm thresholds, severity and relays on J1 connector.

Select the drop down arrow next to the LED field and select ALM to activate the ALM LED for that alarm condition. Factory defaults are shown in the web page to the right.

### Auxiliary Alarm Inputs:

Select the Settings tab > Auxiliary Inputs to define up to four external alarms through connector J2.

Alarm	Severity	Relay	LED	Threshold
Converter High Voltage Major	MAJ			28.5
Converter High Voltage Minor	MIN			27
Converter Very Low Voltage	MAJ	R1	ALM	23
Multiple Converter Fail	MAJ	R2		2
Converter Redundancy Loss	MAJ	R2		1
Converter Fail	MAJ	R2		
Converter Distribution Fuse	MAJ	R3		
Converter ID Conflict	MAJ			
Converter Fan Minor	MIN	R2		

**Converter Alarm Outputs:**  
Settings tab > Converters

REF	Signal Description	Alarm Assignment	Alarm Criteria	Click to Edit Assoc. Alarm
Internal (I001)	Fuse Alarm Major	FAJ1	CLOSED	<input type="radio"/>
Internal (I002)	Open String	OSA1	CLOSED	<input type="radio"/>
J2.3 (I003)	Auxiliary Major Alarm	AMJ1	CLOSED	<input type="radio"/>
J2.4 (I004)	Air Conditioner Fail	AUX1	CLOSED	<input type="radio"/>
J2.5 (I005)	Door Open	AUX2	CLOSED	<input type="radio"/>
J2.1 (I006)	SPD Fail	AUX3	CLOSED	<input type="radio"/>

**Auxiliary Alarm Inputs:**  
Settings tab > Auxiliary Inputs

## Information: Controller Default Voltage Settings and Ranges

Parameter	Range		Default	
	24V	48V	48V	24V
Converter Internal Selective High Output Voltage Shutdown	25.0 to 30.0V	50.0 to 60.0V	58.0	29.0
High Output Voltage Major Alarm	25.0 to 30.0V	50.0 to 60.0V	56.0	28.5
High Output Voltage Minor Alarm	24.0 to 30.0V	48.0 to 60.0V	54.0	27.0
Output Voltage Set-Point	23.0 to 27.2V	46.0 to 54.5V	52.0	26.0
Low Voltage Alarm	20.0 to 27.0V	40.0 to 54.0V	46.0	23.0

## Information: Connections - Alarm - J1 and J2

See the Infinity Converter Ordering Guide for details. Alarm connectors are on the rear of the shelf - J1 and J2. Change alarm descriptions via LAN port (Web pages) or Craft port (EasyView2) when required.

J2	
Alarm Input Cable 24AWG solid	
Ordering code	Cable length
CC848890203	5 ft
CC848853614	15 ft
CC848890211	50 ft
CC848890228	150 ft

J1	
Alarm Output Cable 24GA solid	
Ordering Codes	Cable Length
CC848890153	5 ft
CC848865980	15 ft
CC848817651	50 ft
CC848817668	150 ft

Pin	Color	Description
1	Y	Input: SPD Fail
2	S	--
3	O	Input: AUX MAJ
4	V	Input: Air Cond. Fail
5	W	Input: Door Open
6	BL	-48V
7	BR	-48V
8	BK	-48V

Pin	Color	Description
1	BK	Output: R3 = Rtn
2	BR	Output: R2 = Rtn
3	R	Output: R1 = Rtn
4	O	Output: PMN Rtn
5	Y	Output: PMJ Rtn
6	G	Output: R3 = Converter Distribution Fuse
7	BL	Output: R2 = Converter Fail
8	V	Output: R1 = Very Low System Voltage
9	S	Output: PMN
10	W	Output: PMJ



## Specifications and Application

- Specifications and ordering information are in the Slimline Power System Brochure available at [omnionpower.com](http://omnionpower.com)
- 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.
- DC Return - Isolated DC return (DC-I) or Common DC return (DC-C).

## Reference Documents

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

<b>Document</b>	<b>Title</b>
850035894	Galaxy Pulsar Edge Controller Quick Start Guide
CC848815341	Pulsar Edge Controller Family Product Manual Infinity S Power System 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.

## Notes

## Notes

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