

Infinity B (NE-B) G245 System

-48V, +24V, +24V/-48V or -48V/+24V

Quick Start Guide: CC848924167



Introduction

Install the shelf with a minimum gap of 3 inches behind the system to allow proper airflow. Attach the shelf to the frame using a minimum of twelve (Six on each side) 12-24 screws.

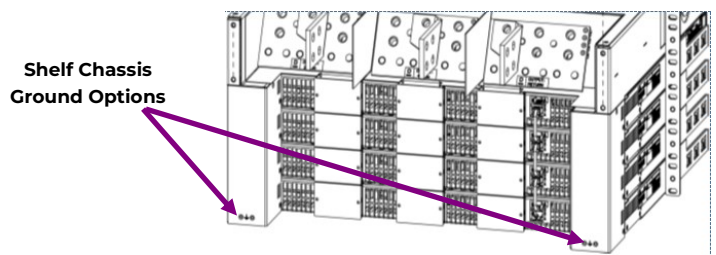
Warning: The equipment and subassembly ports can only be connected to shielded intra-building cabling grounded at both ends. The ports are suitable for connection to intrabuilding or unexposed wiring or cabling.

Tools Required

- Cable crimpers
- Torque wrench - 0-65 in-lb (0-10Nm)
- 5/16," 7/16" and 1/2" nut drivers
- Screw Drivers (#1 Flat & #2 Phillips)
- Wire cutters and strippers

Step 1 - Connect Shelf Ground

Use a #10 or 1/4" diameter double-hole lug on 5/8" center (Not provided) to ground the chassis; Torque connections to 35 in-lbs using 5/16" nut driver.



Step 2 - Connect AC Inputs

The ac input panel is directly above the top row of power modules. 1" and 1-1/2" conduit knockouts are located on the left and right ends of the ac panel. Each rectifier position is factory configured for individual 208/220VAC inputs. Individual inputs require 20A protectors and 10 AWG wires. Two rectifier positions can be fed from one ac source by installing the provided jumpers. When using one input for two rectifiers a 40A protector and 8 AWG wire is required.



Recommend two 1-1/2" conduits feeding up to 8 rectifiers per conduit; (16) 10 AWG wires plus ground or (8) 8 AWG wires plus ground per conduit.

Rectifiers are identified by their position in the shelves. See diagram.

Rectifiers				Rectifiers				Rectifiers				Rectifiers			
41	42	31	32	21	22	11	12	13	14	23	24	33	34	43	44
L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2

Rectifier shelf position and ID

Rectifier 11	Rectifier 12	Rectifier 13	Rectifier 14
Rectifier 21	Rectifier 22	Rectifier 23	Rectifier 24
Rectifier 31	Rectifier 32	Rectifier 33	Rectifier 34
Rectifier 41	Rectifier 42	Rectifier 43	Rectifier 44

Danger: Disconnect all ac branch circuits prior to making ac connections to the system. When connecting to utility source, ensure compliance to all local and national wiring rules.

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.

6 AWG Max TB

Step 2 - Connect AC Inputs (Continued)


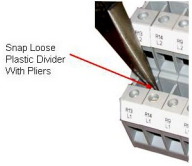
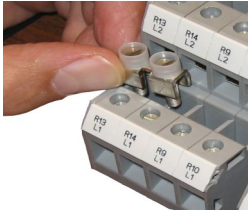
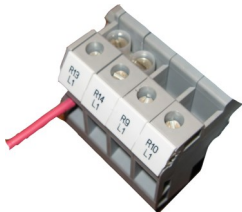
Step	Action		Step	Action	
1.	<p>For applications using one ac feed per rectifier:</p> <p>Attach the individual 10 AWG AC input wires for each position and torque the wire clamps to 10 inch-lbs.</p>		2.	<p>For applications using one ac feed for every two rectifiers;</p> <p>Use a pair of needle nose pliers to remove the divider between the individual rectifier wire clamps that will share the ac input.</p>	
3.	<p>Install a strap between the two terminal blocks. Secure the strap in position with two screws and torque to 10 inch lbs. Straps and screws are provided.</p>		4.	<p>Attach the 8 AWG AC input wires to the terminal blocks and torque the wire clamps to 10 inch-lbs.</p>	

Table 2 conduit Size - Input Feed

# ¹ of AC Feeds	Rectifiers per Conduit	Rectifiers per feed	Min. External Breaker	Wire Gage	Minimum Conductor Rating ²	Conductors per Conduit ^{3,4}	Conduit Size (minimum)
AC Feeds NE075AC48xxxx at 200-240V~ or 200-277V~, 22A							
(16)	4	1	30A (4)	8	33.5A (55A*0.87*0.7)	9 (70% derated)	1"
(28)	7	1	30A (7)	6	32.6A (75A*0.87*0.5)	15 (50% derated)	1-1/2"
(24)	6	2	60A (3)	6	52.2A (75A*0.87*0.8)	7 (80% derated)	1"
AC Feeds NE0100AC24xxxx and NE050AC48xxxx at 200-240V~ or 200-277V~, 15A NE055AC48xxxx at 200-240V~ or 200-277V~, 16A							
(28)	7	1	20A (7)	10	17.4A (40A *0.87*0.5)	15 (50% derated)	1"
(28)	15	1	20A (15)	10	15.7A (40A *0.87*0.45)	31 (45% derated)	1-1/2"
(28)	10	1	20A (10)	8	23.9A (55A *0.87*0.5)	21 (50% derated)	1-1/2"
(24)	6	2	40A (3)	8	38.3 (55A*0.87*0.8)	7 (80% derated)	1"
(28)	8	2	40A (4)	6	45.7A (75A*0.87*0.7)	9 (70% derated)	1-1/2"
PV Feeds							
(28)	7	1	15A/300Vdc (7)	12	17.4A (40A*0.87*0.5)	15 (50% derated)	1"
(28)	10	1	15A/300Vdc (10)	12	17.4A (40A*0.87*0.4)	21 (50% derated)	1-1/2"
¹ 28 power units maximum in 7 power shelves maximum. ² Based on NEC: 90°C Conductor, 45°C Ambient, and Number of Wires in Conduit. ³ Includes 1 ground per conduit - not considered in derating. ⁴ AC and PV feeds must be in separate conduits							

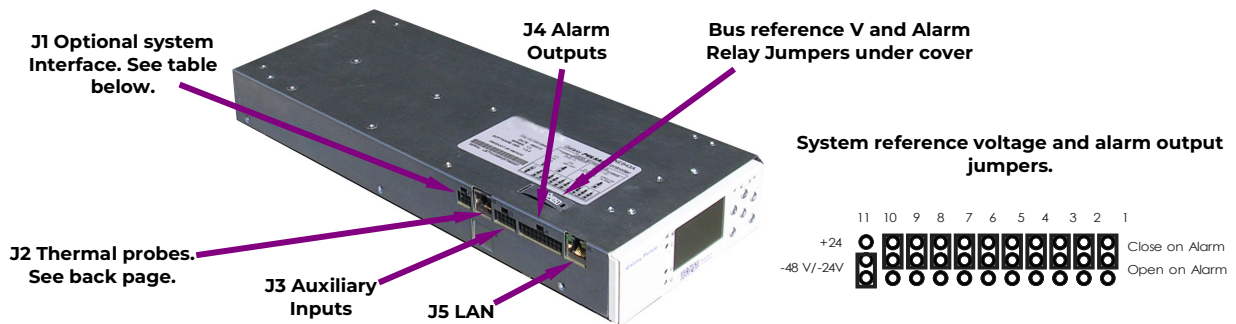
Step 3 - Controller Connections

Two controller options are available; CC109128402 NE843A Pulsar slot controller or CC109132024 Millennium II Rack mounted controller. Controller product manuals are available at omnionpower.com.

The Pulsar slot controller mounts in the left most position of the top shelf (as shown in the diagram on page 1). All controller connections are accessible with the controller installed. Refer to the table below for detailed alarm connection information. Before installing the controller configure the bus reference voltage and alarm output jumpers;

1. Set Jumper 11 to (+) for +24Vdc systems or (-) for -48V/-24V (Factory Default) systems.
2. Set jumpers 1 thru 10 for the ten alarm relays as “Close” or “Open” on alarm; Factory default setting is “Close” on alarm. The Alarm relay jumpers are located under the sliding cover on top of the controller, see figure below.

Note: The optional Millennium II rack mount controller can be used instead of the Pulsar when additional controller features are required. See the Millennium II Product Manual at omnionpower.com for more information.



System Interface

J1 provides access to inputs required for basic system information, such as; load current, Major fuse alarm and open battery string.

J1 Cable (included); CC848914176 is a 1' cable with end-to-end connectors to connect the inputs described in the table below.



J1 System Interface connections	Color
Shunt +	W/BK
Shunt -	O-BK
Fuse Alarm Major 24V	W
Open Battery String	V
Fuse Alarm Major 48V	Y

Alarm Outputs

J4 (20 pin connector) provides access to customer alarm outputs. Alarm outputs are shown below.

Available alarm cables;

- CC848890137 5'
- CC109157442 15'
- CC848817635 50'
- CC848817643 150'

Standard Controller Alarm Output Defaults		Pin	Color Option 1	Color Option 2
PCR	Power Critical	1	BL	BL
PCR_C	Power Critical_C	11	W	BL/BK
PMJ	Power Major	2	O	O
PMJ_C	Power Major_C	12	W	O/BK
PMN	Power Minor	3	G	G
PMN_C	Power Minor_C	13	W	G/BK
R1	Battery On Discharge	4	BR	W
R1_C	Battery On Discharge_C (BD_C)	14	W	W/BK
R2	Very Low Voltage (VLV)	5	S	BK
R2_C	Very Low Voltage_C (VLV_C)	15	W	BK/W
R3	Fuse Alarm Major (FAJ)	6	BL	BL/W
R3_C	Fuse Alarm Major_C (FAJ_C)	16	R	BL/R
R4	AC Fail (ACF)	7	O	O/R
R4_C	AC Fail_C (ACF_C)	17	R	R
R5	Rectifier Fail (RFA)	8	G	G/W
R5_C	Rectifier Fail_C (RFA_C)	18	R	R/G
R6	Mult. Rectifier Fail (MRFA)	9	BR	W/R
R6_C	Mult. Rectifier Fail_C (MRFA_C)	19	R	R/W
R7	High Voltage (HV)	10	S	BK/R
R7_C	High Voltage_C (HV_C)	20	R	R/BK

Auxiliary Inputs

J3 (10 pin connector) provides access to the auxiliary inputs. Default alarm descriptions are shown in the table below and may be changed as needed using web pages or Easyview2.

Available input cables;

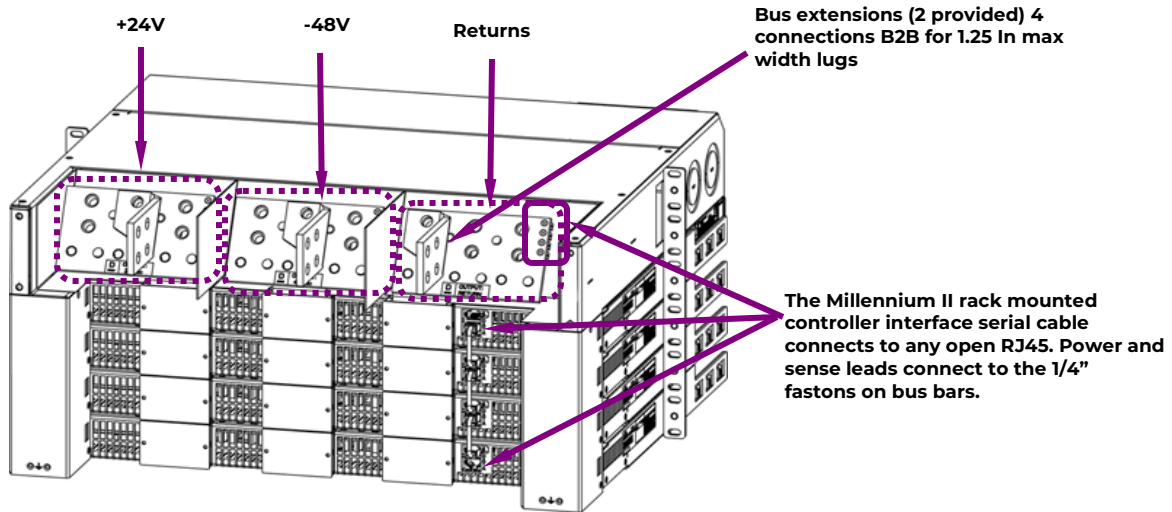
CC848890153	5'
CC848865980	15'
CC848817651	50'
CC848817668	150'

Standard Controller Alarm Input Defaults	Pin	Color
Air Con Fail	1	BK
Air Con Fail_Return	8	V
Door Open	2	BR
Door Open_Return	8	V
Battery Test/GSTR	4	O
Battery Test_Return	9	S
Aux PMJ Input	3	R

Standard Controller Alarm Input Defaults	Pin	Color
EPO	5	Y
EPO_Return	10	W
Hi ext. Temp.	6	G
Hi ext. Temp._Return	8	V
Low ext. Temp.	7	BL
Low ext. Temp._Return	8	V

Step 4 - Connect DC Outputs

The DC can be configured for -48V, +24V, -48V/+24V or +24V/-48V depending on the power modules; -48V rectifiers, +24V Rectifiers or combination of rectifiers and converters. The outputs are located on the rear of the shelf. The shelf is designed to distribute bulk power only; there are no DC output protectors in the shelf. Lug landings accommodate 3/8" diameter lugs on 1" centers spaced 1.75" apart. Three 750 MCM Flex lugs can be connected per bus. Bus extensions are provided to land four additional cables back to back.



Step 5 - Rectifier, Converter Installation

<p>Slide the rectifier/converter into the 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 seat the rectifier/converter. Verify the faceplate is latched.</p>

Step 6 - Initial Start Up

Verify all AC, DC, Alarm and system interface connections are complete and secure. If rectifiers have not yet been installed, install rectifiers now as described previously. Once this is complete turn on the AC input breakers. As each rectifier is installed, the controller automatically identifies the new rectifier and begins communication. If there are no alarms, make adjustments to the default settings on the controller as required for this installation. Using the front panel menu to configure settings and functions is intuitive. Refer to the menu map on the next page.

Information: Controller Basic Operation

Viewing and changing system parameters from the factory defaults can be accomplished in several ways; A) front display, B) Craft Port on front of controller using a laptop with EasyView2 or HyperTerminal. EasyView2 (GUI) software can be downloaded from omnionpower.com, C) J5 LAN port in Static, Client, or Server mode. Static and Client modes are for accessing web pages through a network. Server mode allows local access to the controller web pages directly from a laptop connected to J5 LAN port; Menu>Configure>Communication Ports>Network Settings>DHCP (Server). Server mode default IP address is 192.168.2.1. With the controller set to Server type the default IP address in the web browser address field. Server mode is a temporary setting, once configuration is complete reset the controller to Client or Static before connecting to the network. Static is the factory default setting and the typical setting for most networks.

Warning: Do not connect J5 LAN port to a network when set to Server.

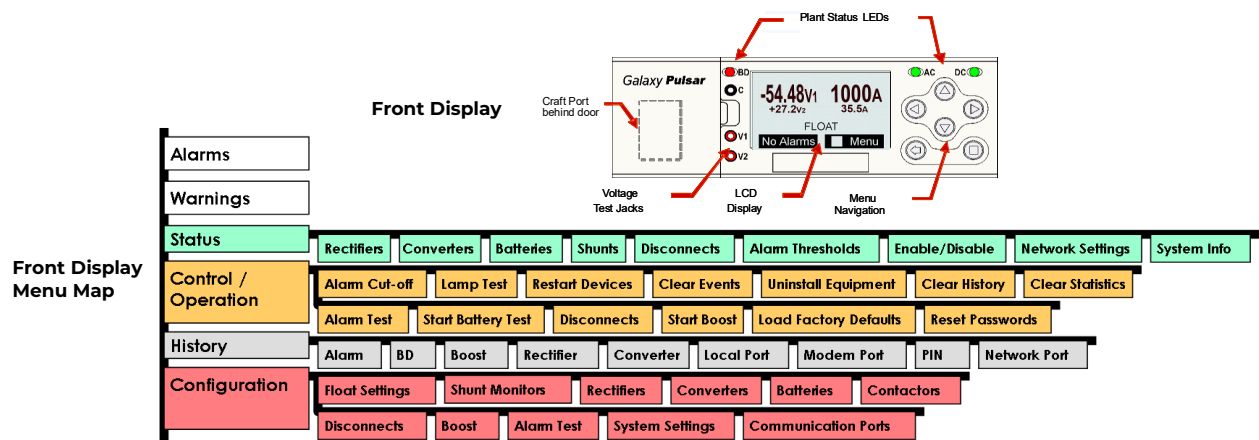
Controller Alarm Status: The display changes colors; Green = Normal, Amber = Minor Alarm, Red = Critical/Major Alarm

Some alarms may occur during initial installation; example: thermal probe fail or Major/Minor communication fail .

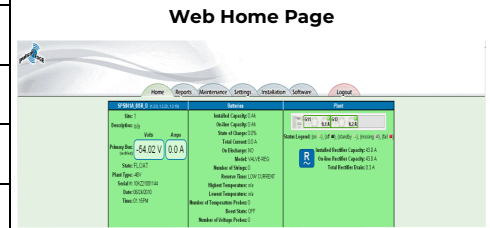
To clear these alarms from the Controller Display: follow the menu path; Menu > Control/Operation > Clear Events or Uninstall Equipment.

Using web pages or EasyView2; Select the Maintenance tab > clear latched events and clear missing devices.

Verify Basic Installation Settings: To verify Date, Time, Battery Type, number of strings and float voltage for this application using the Controller Display: follow the menu path; Menu > Configuration > System Settings and Menu > Configuration > Batteries. Using web pages or EasyView2; Select the Installation Tab to set the Date, Time. Site ID and Site Description. Select the Settings Tab > Battery Management to verify Battery Type and set number of battery strings installed.

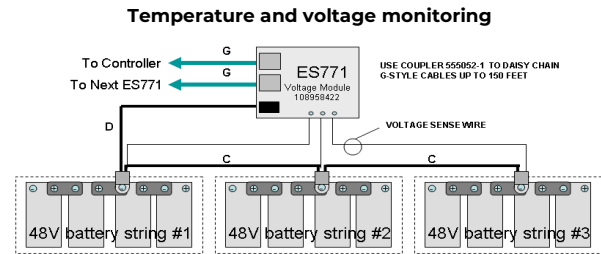
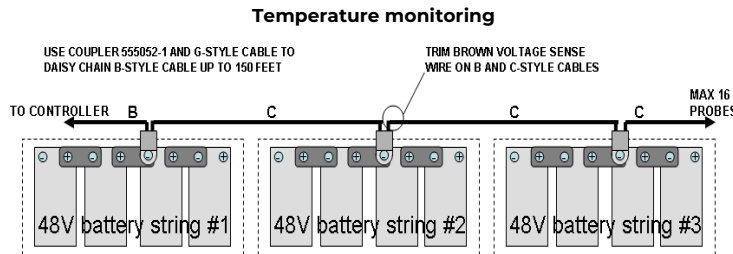


Default Voltage Settings and Ranges	Range	Valve-Reg Default	Flooded	NiCd
Rectifier Float Selective High Voltage Shutdown	-50 to -60V	58.50	58.50	58.50
High Float Voltage Major Alarm	-50 to -60V	57.00	57.00	57.00
High Float Voltage Minor Alarm	-50 to -60V	56.00	56.00	56.00
Rectifier/System Float Voltage	-42 to -56.5V	54.48	52.08	54.40
Battery on Discharge Float Alarm	-46 to -55V	51.00	50.00	51.00
Very Low Float Voltage Alarm	-40 to -51V	46.00	46.00	46.00
Rectifier On Threshold	-40 to -51V	44.00	44.00	44.00



Information: Battery Monitoring (Optional)

Battery Monitoring is accomplished with a “Daisy Chained” series of QS873 probes connected to J2. The Probes are used to monitor battery temperature and mid-string voltage (ES771 required to monitor voltage). Bolt the Probe under the “-” terminal connector hardware; NOT under the connecting lug.



Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
4.0	08/12/2021	Updated as per ABB template
4.1	10/27/2023	Updated as per OmniOn template

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