Infinity S (NE-S) -48V Power System

NES48-23-AC1-PS4-DC1E-LVBD-LVLD-7FTR-3BT3

- 19" wide – 19
  23" wide – 23
- 2 Molex Mini-Fit Sr Connectors(23" only) – AC1
  IEC-320 C20 per slot – AC3
  Term Block (19" only) – AC5
  Term Block (23" only) – AC5H
  3 phase delta Term Block (19" only) – AC6
  3 phase delta wye Term Block (19" only) – AC7
- # of Power Slots
- 1 Distribution – 1
  2 Distributions – 2
- <blank> – no LVBD
  LVBD – LVBD
- <blank> – no secondary LVLD
  LVLD – Secondary LVLD
- <blank> – no rack
  7FTR – 7ft Rack
  42INR – 42in Rack (23" only)
  28INR – 28in Rack (23" only)
- <blank> – No battery trays
  3BT3 – 3 Battery Trays e/w Battery Brkr Disconnect per tray
- Distribution with Pulsar Plus Controller – E
  Distribution with Pulsar Plus Controller, rear bulk battery inputs, No LVD allowed – ES
  Distribution with Pulsar 200 Controller – EN
  Distribution with Pulsar 200 Controller, rear bulk battery inputs, No LVD allowed – ESN

Infinity NE-S Power System (Pulsar Plus)

Infinity NE-S Power System (with Pulsar 200 Controller)

Read and follow all safety statements and precautions in this guide.

Tools required:

- Cable Crimpers
- Screw Drivers
- Torque wrench (0-240 in-lb / 28 Nm)
- Screw Drivers (#1 Flat & #2 Phillips)
- 5/16," 7/16" and 1/2" nut drivers
- Wire cutters and strippers

Step 1 - Mount the System

Mount the system with a minimum gap of 3 inches behind the system to allow proper airflow.

1. Attach the system to the frame using a minimum of twelve (six on each side) 12-24 screws (provided). Torque to 35 in-lb (7.3 Nm) - 5/16" socket.

Step 2 - Connect Chassis and DC Reference (CO) Ground

1. Chassis Ground lug - #10 or 1/4" on 5/8" centers (not provided).

   Minimum 10 AWG recommended.

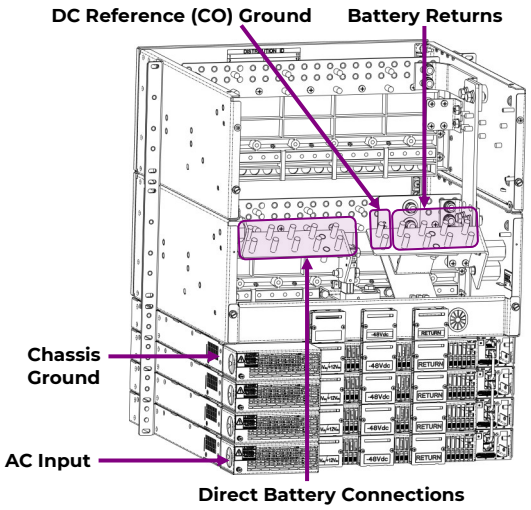
   Torque to 10-32 screws to 30 in-lb (3.4 Nm) – 5/16" Socket.

2. DC reference ground lug - 5/16" or 3/8" on 1" centers (not provided).

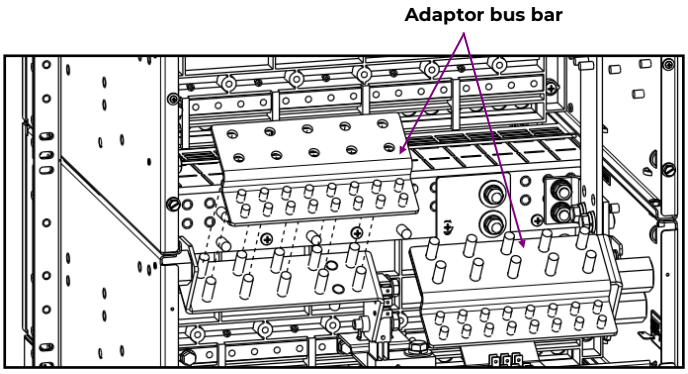
   Torque to 160 in-lb.

Note: If connecting chassis ground to frame surface remove non-conductive frame coating and apply antioxidant for connection.

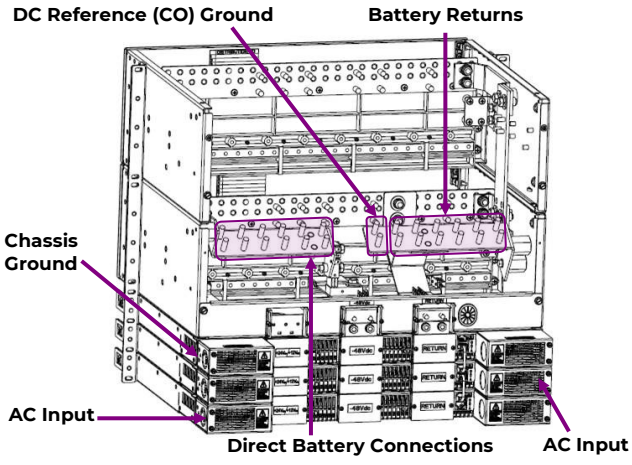
19" Single Voltage system Without adaptor bus bars



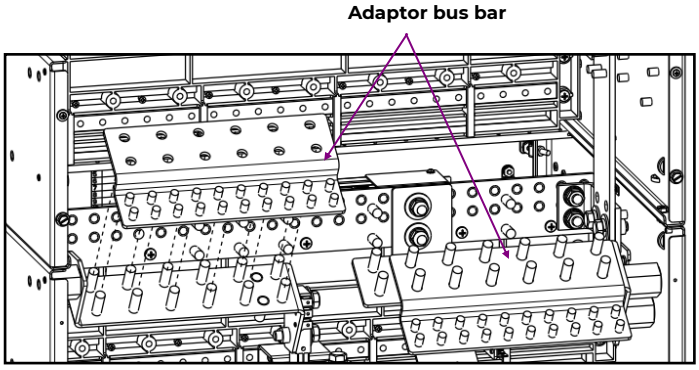
19" Single Voltage system With adaptor bus bar kit (exploded)

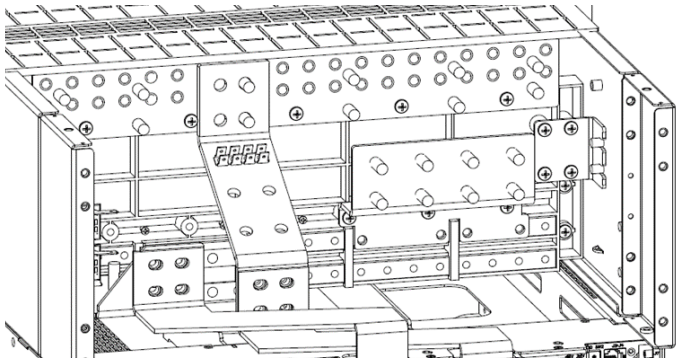
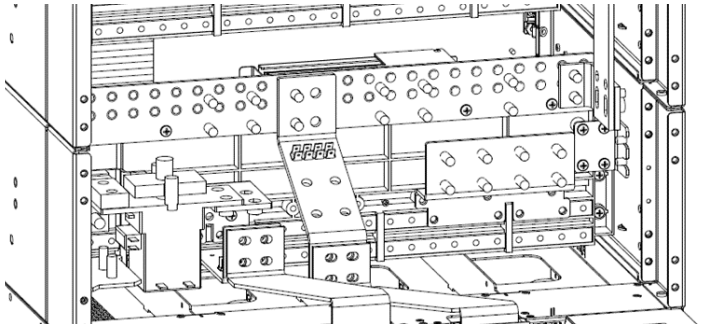


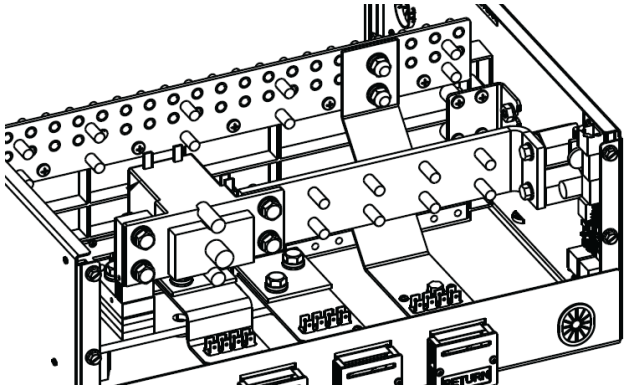
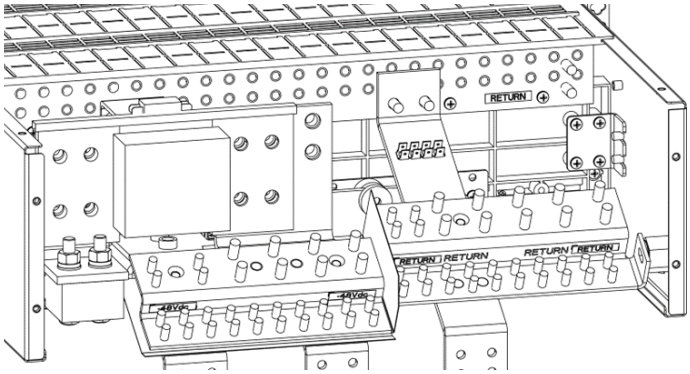
23" Single Voltage system Without adaptor bus bars



23" Single Voltage system With adaptor bus bar kit (Exploded)



19” Single Voltage system with Battery Breaker Bus	23” Single Voltage system with Battery Breaker Bus
	

19” Single Voltage system with Optional LVD	23” Single Voltage system with Optional LVD
	

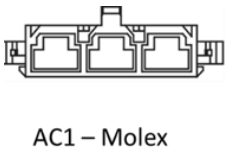
Step 3 - Connect AC inputs

Connect 120/208/240/277V_{AC} at rear of each rectifier shelf.

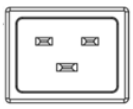
Danger: Turn OFF and lock-out tag-out the AC source before making AC connections. When connecting to AC mains, follow all local and national wiring rules.

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.

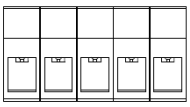
Rectifiers numbers are labeled at each AC input.



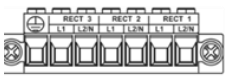
AC1 – Molex



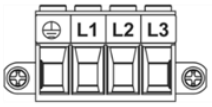
AC3 - IEC



AC5H - TB 23”



AC5 – TB 19”



AC6 – TB 19”
3 ΦDelta

AC7 – TB 19”
3 ΦWye

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

AC Terminal Block is in the AC box on the rear of the rectifier shelf

Connect AC input cord to the detachable input terminal block in the wiring box – knock out for ¾” conduit or cord grip. Strip and torque per the table. Pull on wire to verify secure connection.

AC Input	Rectifiers per feed	19”	23”	AWG max	Strip Wire (mm)	Torque In-lb(Nm)
AC1 - Molex mini-fit SR	2		Yes	8	n/a	-
AC3 - IEC-320 C19	1	Yes	Yes	12	n/a	-
AC5H - Terminal Block	1		Yes	10	9	5 (0.6)
AC5 - Terminal Block	1	Yes		10	10	7 (0.75)
AC6 - Term Block 3-phase Delta	3	Yes		6	12	16 (1.75)
AC7 – Term Block 3-phase Wye	3	Yes		6	12	16 (1.75)

Information: Rectifier Options

Rectifier		Input	DC Output		Recommended AC Breaker				
			Volts	amps	AC1	AC3	AC5 AC5H	AC6	AC7[2]
R ECO	NE050ECO48ATEZ	200-277V_{AC}, 15A, 50-60Hz	48V	50A	40A	20A	20A	35A	20A
		100-120V_{AC}, 15-12A, 50-60Hz	48V	22A	40A	20A	20A	-	20A
		(±30) 60 TO (±200) 400V_{DC}, 11A MAX	48V	50A	-	-	15A	-	-
R	NE075AC48ATEZ / NE075AC48ATEZ+	200-277V_{AC}, 22A, 50-60Hz	48V	75/50A[1]	40A	20A	30A	50A	30A
		100-120V_{AC}, 15-12A, 50-60Hz	48V	25A	40A	20A	20A	-	20A
	NE050AC48ATEZ	200-277V_{AC}, 15A, 50-60Hz	48V	50A	40A	20A	20A	35A	20A
		100-120V_{AC}, 15-12A, 50-60Hz	48V	22A	40A	20A	20A	-	20A
	NE050AC48A[3]	200-277V_{AC}	48V	50A	40A	20A	20A	35A	20A

[1] This rectifier will output 75A in 19" systems with AC5, AC6 or AC7 inputs and in 23" systems with AC5H inputs. All other inputs automatically de-rate the rectifier to 50A output
[2] AC7 is for use with 380-480V_{AC} to deliver 220-277V Line to Neutral (high line) to each slot. If used with a 208V, each slot will see 120V Line to Neutral (low line) input and is limited to 1200W max output per slot
[3] The standard efficiency NE050AC48A was discontinued in 2013

Information: AC Cord Options

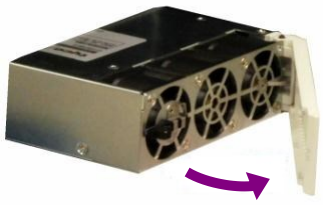
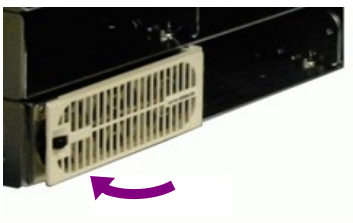
IEC-Style, 8ft, 12AWG		
Part Number	**Plug**	**Length**
CC848847368	No plug	8 ft
CC848850792	5-15P	8 ft
CC848850801	5-20P	8 ft
CC848850826	6-15P	8 ft
CC848850834	6-20P	8 ft
CC848850842	L6-20P	8 ft
850044361	L5-15P	15 ft
850044362	L5-20P	15 ft
CC848895961	L6-20P	15 ft

Molex mini-fit SR-Style, No Plug	
CC848822420	(2) 15 ft., 3X8AWG
848710711	(2) 10 ft., 3X8AWG
CC848830522	(2) 4 ft., 3X8AWG
CC848773515	15 ft., 10AWG SO Cord
CC848906586	10 ft., 8AWG, SO Cord

Step 4 - Rectifier Installation

Caution: The rectifier latch is not a carrying handle.

1. Slide the rectifier into the rectifier slot approximately ¾ of the way.
2. Open the faceplate by sliding the latch to the left until the faceplate releases and swings outward.
3. Slide the rectifier into the slot until it engages with the back of the shelf. Swing the faceplate closed to fully seat the rectifier. Verify the faceplate is latched.
4. Correct insertion of the rectifier will automatically add the unit to the controllers' inventory of units.

1.	2.	3.
		

To remove a rectifier:

A. Open latch fully to release and remove.

B. Enter Inventory section of controller and remove hardware to clear alarm.

Step 5 - Connect Batteries and DC Output to Loads

Distribution panels are each equipped with 20 (19" panel) or 26 (23" panel) bullet-style distribution positions. Breaker sizes up to 250A, TPS fuses to 70A and GMT fuses to 12A are available.

For DCxE/DCxEN:

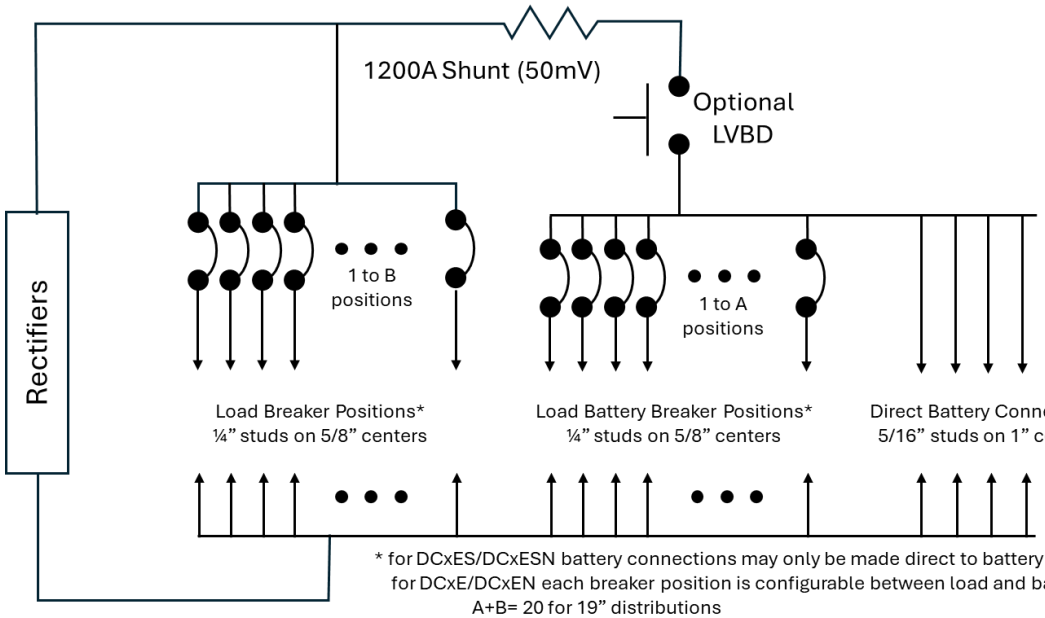
- Each position may be configured as load output or battery input.
- Battery connections may be made to bullet-style distribution positions configured as Battery Breaker Positions or direct to the battery bus.

For DCxES/DCxESN:

- Each position is for load output
- Battery connections may be made direct to the battery bus.

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

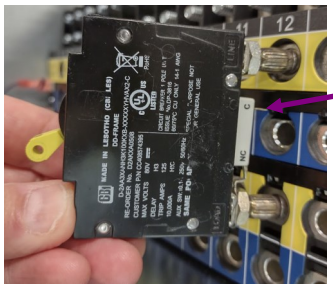
Caution: The maximum output ratings of the system is based upon rectifiers operating in the high range, 200-277V_{AC}. Operating the system at the low range (100-120V_{AC}) will limit the output of each rectifier to just 1200Wmax, thus, limiting the total available DC output power to 1200W x "PS#" for the system.



The figure to the left shows the DC circuit of the system.

* for DCxES/DCxESN battery connections may only be made direct to battery bus
for DCxE/DCxEN each breaker position is configurable between load and battery breakers
A+B= 20 for 19" distributions
A+B=26 for 23" distributions

Lug Landings		
	Distribution	**Battery Bus**
Landings	1/4-20 studs on 5/8" centers Lug tongue width 0.68" max	5/16-18 studs on 1"centers
Torque	65 in-lb - 7/16" socket	160 in-lb - 1/2" socket

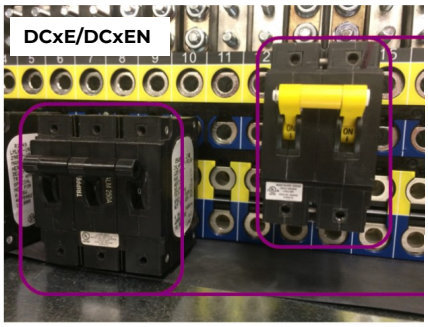


Alarm Pin

Correct Breaker Orientation for insertion

All Breaker Position for Loads (Blue)

-48 V_{DC} Bus	**Blue**



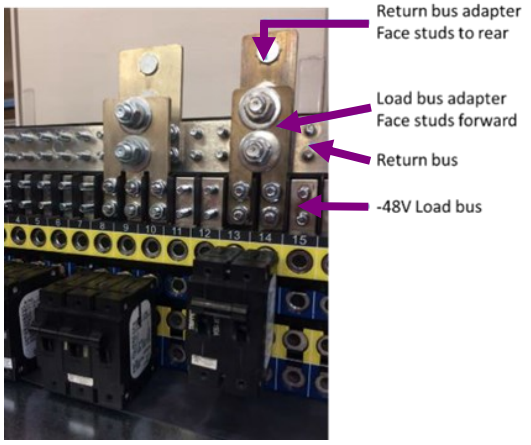
Upper Breaker Position for Battery (Yellow)

Yellow	Battery Bus
Blue	-48 V_{DC} Bus

Lower Breaker Position for Loads (Blue)

Two multi-pole adapters are required for each multi-pole breaker - see illustration, right

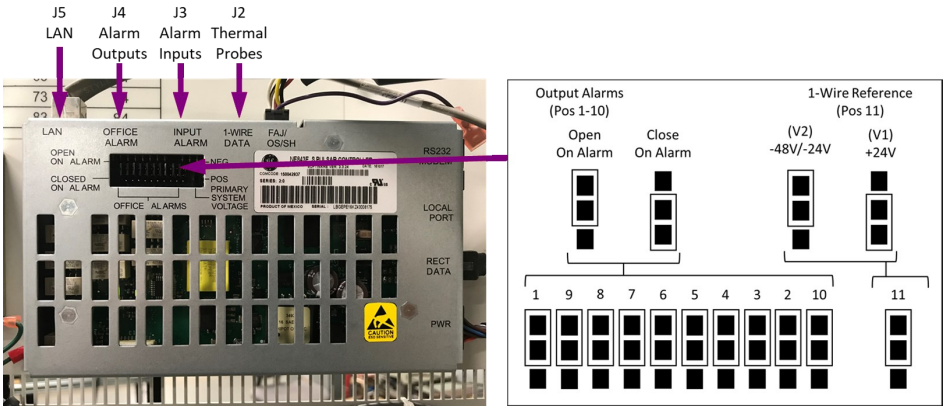
Multi-Pole Adapter Kits - 2 required per breaker				
	CC848756916 	850021775 	850021955 	CC848756924 
Poles	2	2	3	3
Lug Landings	1/4” x 5/8”	3/8” x 1”	3/8” x 1”	3/8” x 1”



Step 6 - Set Controller alarm relay jumpers (Pulsar Plus Only)

Pulsar Plus

Set jumpers 1 thru 10 for the ten alarm relays as Close on Alarm or Open on Alarm; Factory default setting is Open on Alarm.



Step 7 - Controller Connections

Connect per site engineering instructions.

See Information Controller Connections & Information Battery Connections.

Step 8 - Initial Startup

Verify that all AC, DC, GND and Controller connections are complete and secure.

Using a multimeter, Verify plant reference ground and chassis ground resistance to side ground bar is less than 0.1 Ohms. With rectifiers and converters unplugged as well as all load breakers on and AC breakers off, verify resistance of battery bus to ground is greater than 1MΩ. If being operated as an ungrounded system, verify both positive and negative bus measurement to each other and ground is greater than 1MΩ.

Turn on AC input breakers. If there are no alarms, make required adjustments to the default settings on the controller for this installation.

Step 9 - Configure Controller

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

Refer to Galaxy Pulsar Plus or Pulsar 200 Product Manual for additional information.

General Information

The following sections provide information on configuring the controller, battery monitoring, basic controller operation, and rectifier status LEDs.

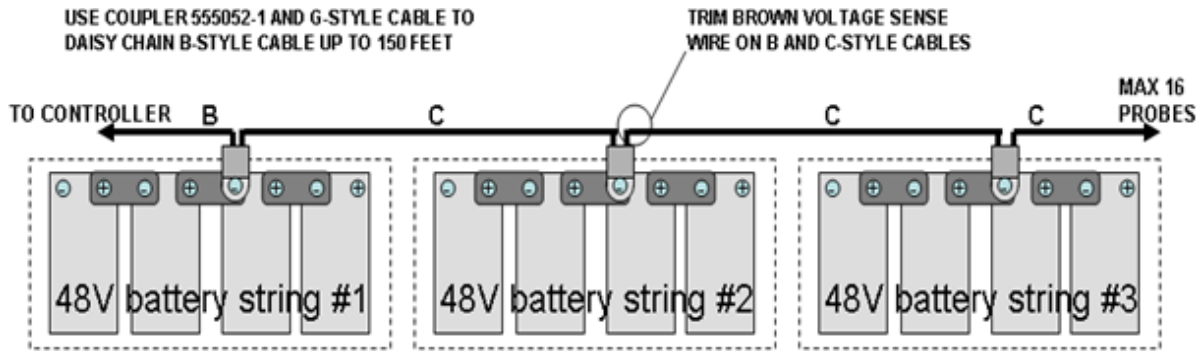
Information: Controller/System Default Voltage Settings

Parameter	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	56.00	56.00	57.00
High Float Voltage Minor Alarm	-50 to -60V	55.50	55.50	56.00
Rectifier/System Float Voltage	-42 to –60V	54.00	52.08	54.40
Battery on Discharge Float Alarm	-46 to -55V	53.00	51.80	51.00
Very Low Float Voltage Alarm	-40 to -57.5V	46.00	46.00	46.00
Rectifier On Threshold	-30 to -52V	44.00	44.00	44.00

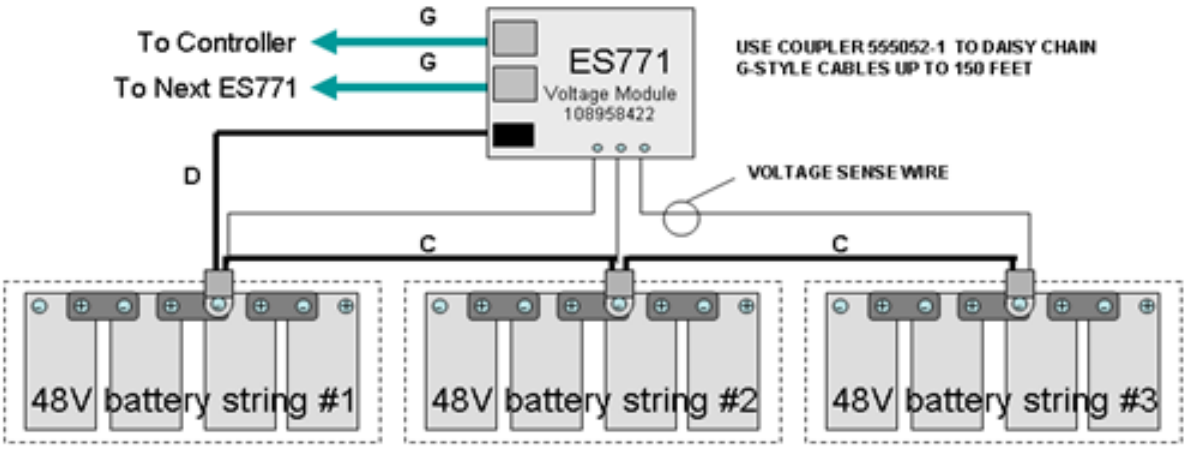
Information: Battery Monitoring Connections

Battery Monitoring is accomplished with a “Daisy Chained” series of probes on the 1-wire bus. The Probes monitor battery temperature and voltage (ES771 required to monitor the voltage). Bolt the Probe under the “–” terminal connector hardware; NOT under the connecting lug.

Note: Battery voltage monitoring not yet available for Pulsar 200.



Temperature Measurement



Temperature and Voltage Measurement (Pulsar Plus only)

Information: Battery Monitoring Connections – cables

Ordering Codes	Descriptions	Type	Controller
CC109142980	QS873A Thermal Probe	A	Pulsar Plus, Pulsar 200
CC848817024	10’ controller to thermal probe wireset	B	Pulsar Plus only
CC109157434	20’ controller to thermal probe wireset	B	Pulsar Plus only
8600485780P	10’ controller to thermal probe wireset	B	Pulsar 200 only
CC848822560	1’ thermal probe to thermal probe wireset	C	Pulsar Plus, Pulsar 200
848719803	5’ thermal probe to thermal probe wireset	C	Pulsar Plus, Pulsar 200
CC848822321	10’ thermal probe to thermal probe wireset	C	Pulsar Plus, Pulsar 200
555052-1	In-line Coupler used to couple B wiresets together up to a max of 150ft	Use with B	Pulsar Plus only
CC848873620	Bulk cable to extend length of B wireset up to 150ft total length. Specify length of bulk cable when ordering. Butt splices are included.	Use with B	Pulsar 200 only

Temperature Measurement

Ordering Codes	Descriptions	Type	Controller
108958422	ES771A Voltage Monitor Card	ES771	Pulsar Plus only
CC848791517	2 ½’ ES771A to probe wireset	D	Pulsar Plus only
CC848797290	6’ ES771A to probe wireset	D	Pulsar Plus only
848719829	10’ ES771A to probe wireset	D	Pulsar Plus only
CC848791500	4’ ES771A to ES771A or controller wireset	G	Pulsar Plus only
848652947	10’ ES771A to ES771A or controller wireset	G	Pulsar Plus only

Temperature and Voltage Measurement (Pulsar Plus only)

Information: Rectifier Status LEDs

Power Unit LEDs	
LED	Description
Norm	Normal – Green
ACF	AC Input Failure – Red
Fail	Rectifier Failure – Red
Fail	Com. Failure – Blinking Red

Pulsar Plus Controller

Information: Controller Connections (Pulsar Plus)

Alarm Outputs

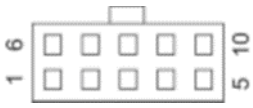
Alarm relays are factory set to Open On Alarm. If Close On Alarm is desired adjust controller alarm jumpers. See diagram in step 6 for the location of the controller alarm jumpers. Connector J4 provides access to the primary customer alarm outputs. J4 is a 20-pin latching connector.

Alarm Output Cables	
CC848890137	5 ft.
CC109157442	15ft
CC848817635	50 ft
CC848817643	150 ft

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

Alarm Inputs

Default alarm descriptions may be changed as needed using web pages or Easyview2. J3 is a 10-pin latching connector.



Alarm Input Cables	
CC848890153	5 ft.
CC848865980	15ft
CC848817651	50 ft
CC848817668	150 ft

Standard Controller Alarm Input Defaults	J3 Pin	Color
Air Con Fail	1	BK
Air Con Fail_Return	8	V
Door Open	2	BR
Door Open_Return	8	V
Aux PMJ Input	3	R
Battery Test/GSTR	4	O
Battery Test_Return	9	S
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

Information: Controller Basic Operation (Pulsar Plus)

All user configurable parameters can be accessed from the front panel, however user convenience and visibility is enhanced by access through the LAN port using the built-in web pages.

Configuration > Communication Ports > Network Settings > DHCP > mode, to SERVER

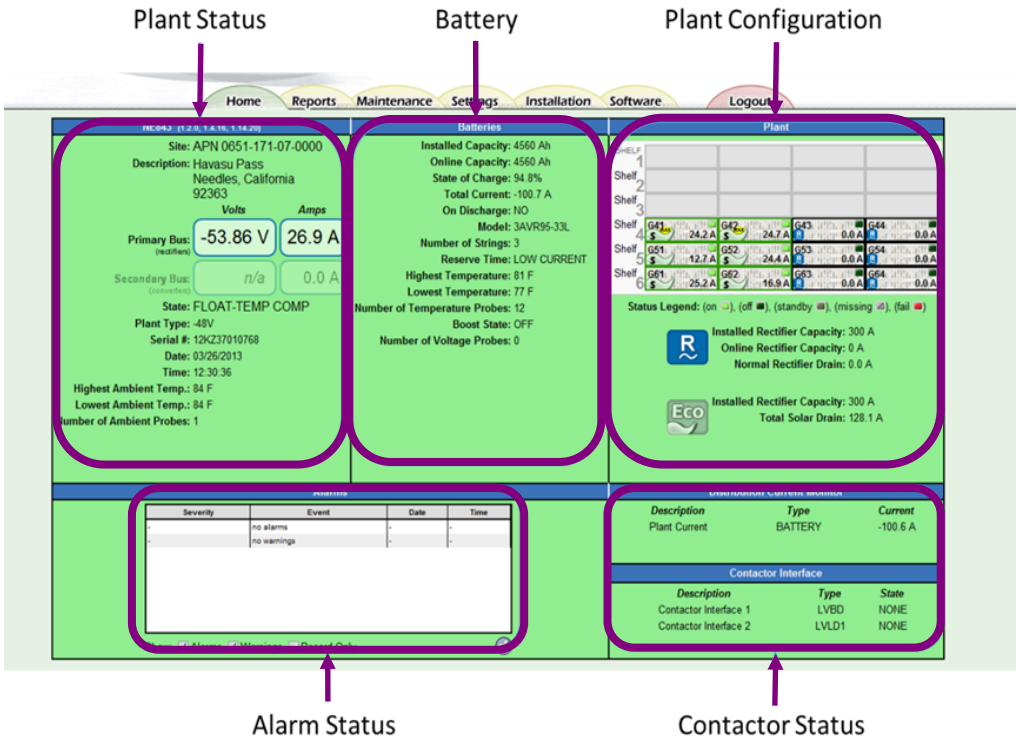
Once the LAN port is configured as a server, the laptop can be connected to the LAN port, using a standard ethernet cable. Use a standard web browser to access the controller web pages at default IP address: 192.168.2.1

Warning: Do not connect LAN port to a network when set to Server mode. Set the controller LAN port to Client or Static before connecting to the network. Static is the factory default setting and the typical setting for most networks.

Once connected to the controller web server a log on screen should be visible:

Logon Screen - web view

Factory Default password is “Administrator” and should be used for initial logon. It is highly recommended that one of the first activities should be to change the default password(s).



Home Page – Web View

Information: Controller Basic Operation (Pulsar Plus)

View and change system parameters from the factory defaults via

A) Controller Display

B) Craft Port on front of controller using a laptop with EasyView2 software or HyperTerminal.

C) J5 LAN port web pages using a laptop with browser. LAN port Server mode is for local laptop connection. Set the LAN port 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.

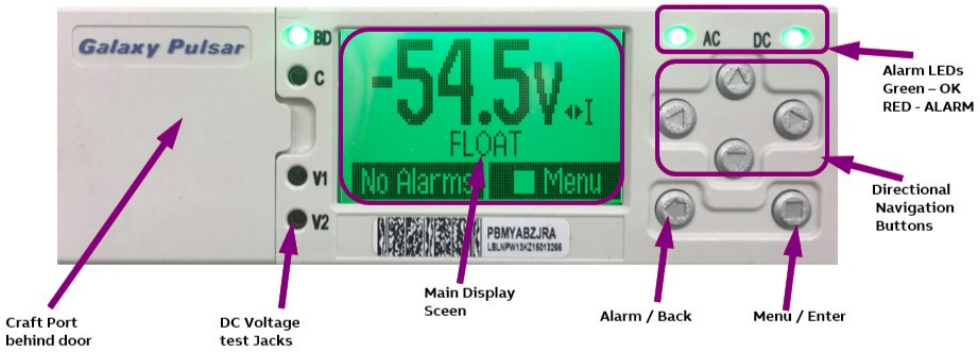
Clear these alarms: Via Controller Display: follow the menu path; Menu > Control/Operation > Clear Events or Uninstall Equipment.

Verify Basic Installation Settings: Date, Time, Battery Type, number of strings and float voltage

Controller Display: Menu > Configuration > System Settings and Menu > Configuration > Batteries.

Front Panel

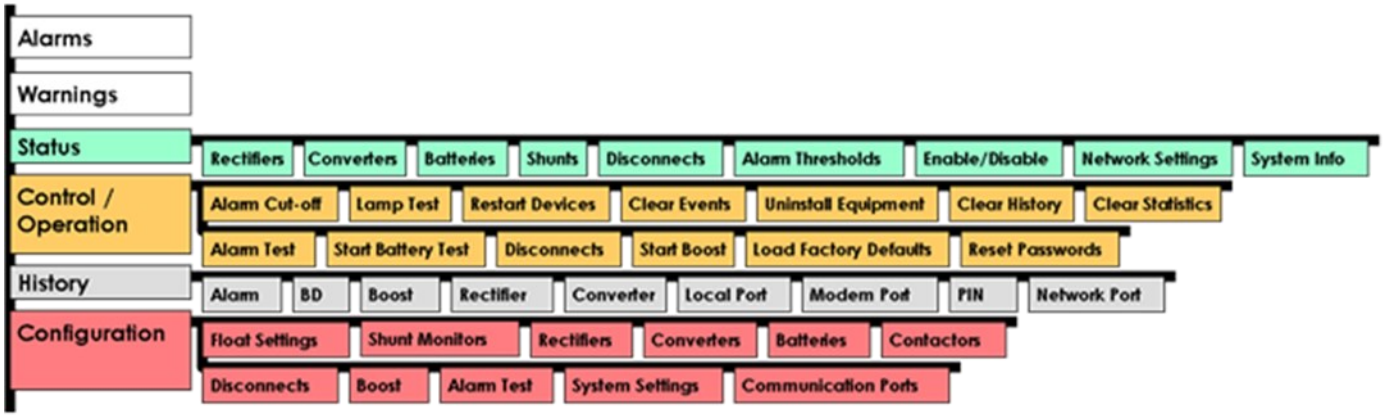
View and change system parameters from the factory defaults via the front panel:



Controller Front Panel Display and Controls

The main menu can be accessed using the Menu / Enter button.

The basic menu structure for navigation is shown below.

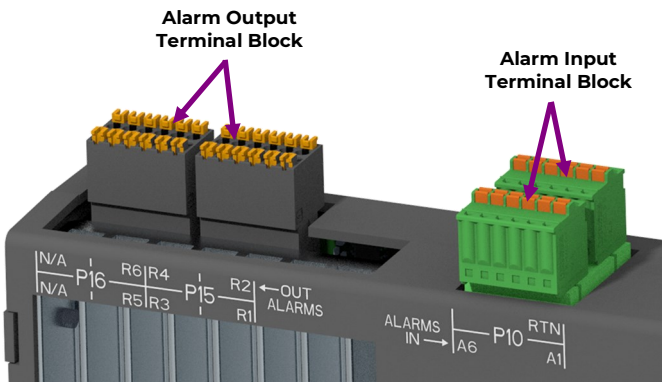


Front Panel Menu Structure - Overview

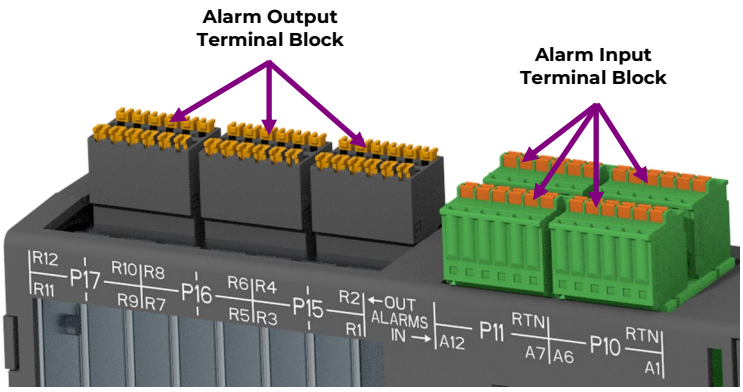
Information: Controller Connections (Pulsar 200)

Alarm Inputs and Outputs

The Pulsar 200 provides both input and output alarms via pluggable terminal blocks as shown in the views below.



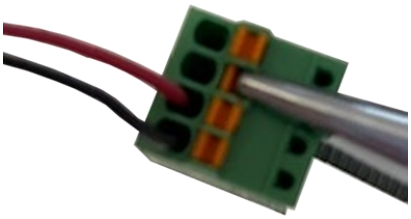
P1x Module



P2A Module

To insert wires into terminal blocks:

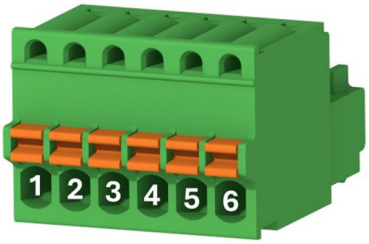
1. Depress orange tab to open internal clamps
2. Insert wire
3. Release orange tab so it springs back out
4. Gently tug on wire to make sure it is secured



Note: Wire size and strip length are provided in the following sections

Alarm Inputs

The P1x peripheral modules provide 6 alarm inputs via P10 connector. The P2A module provides 12 alarm inputs via P10 and P11 connectors. Default alarm descriptions may be changed as needed using web pages or front panel display.



Alarm Inputs Terminal Block

Conductor Size: 26-20 AWG

Stripping Length: 8mm

Standard Pulsar 200 Controller Alarm Input Defaults

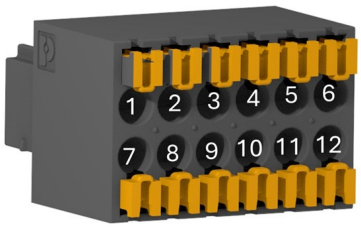
Module	Conn.	Pin	Description	Conn.	Pin	Description
P1x, P2A	P10 (top)	1	Fuse Alarm Major (48V)	P10 (bot)	1	N/A
		2	Open String		2	N/A
		3	Fuse Alarm Major (24V, 12V, 58V)		3	N/A
		4	Generic Alarm for Auxiliary Major		4	N/A
		5	Emergency Power Off		5	Emergency Power Off Return
		6	Door Open		6	Door Open Return
P2A	P11 (top)	1	Air conditioner Fail	P11 (bot)	1	Air conditioner Fail Return
		2	Battery Test/GSTR		2	Battery Test/GSTR Return
		3	High external Temperature		3	High external Temperature Return
		4	Low external Temperature		4	Low external Temperature Return
		5	Hydrogen		5	Hydrogen Return
		6	Generator Fail		6	Generator Fail Return

Pulsar 200 Controller (continued)

Information: Controller Connections (Pulsar 200)

Alarm Outputs

The P1x peripheral modules provide 6 alarm relays via P15 and P16 connectors. The P2A module provides 12 alarm relays via P15, P16, and P17 connectors. Alarm relays are full Form C relays and can be wired as NO or NC. Default alarm descriptions may be changed as needed using web pages or front panel display.



Alarm Outputs Terminal Block

Conductor Size: 26-20 AWG

Stripping Length: 7mm

Module	Conn.	Relay	Pin	Description
P1x, P2A	P15	1	1	Power Critical (NC)
			2	Power Critical (C)
			3	Power Critical (NO)
		2	7	Power Major (NC)
			8	Power Major (C)
			9	Power Major (NO)
		3	4	Power Minor (NC)
			5	Power Minor (C)
			6	Power Minor (NO)
		4	10	Battery on Discharge (NC)
			11	Battery on Discharge (C)
			12	Battery on Discharge (NO)
P1x, P2A	P16	5	1	Rectifier Failure (NC)
			2	Rectifier Failure (C)
			3	Rectifier Failure (NO)
		6	7	Fuse Alarm Major (NC)
			8	Fuse Alarm Major (C)
			9	Fuse Alarm Major (NO)
P2A	P16	7	4	Very Low Voltage (NC)
			5	Very Low Voltage (C)
			6	Very Low Voltage (NO)
		8	10	AC Fail (NC)
			11	AC Fail (C)
			12	AC Fail (NO)
P2A	P17	9	1	High Voltage (NC)
			2	High Voltage (C)
			3	High Voltage (NO)
		10	7	Multiple Rectifier Fail (NC)
			8	Multiple Rectifier Fail (C)
			9	Multiple Rectifier Fail (NO)
		11	4	tbd (NC)
			5	tbd (C)
			6	tbd (NO)
		12	10	tbd (NC)
			11	tbd (C)
			12	tbd (NO)

Pulsar 200 Controller (continued)

Information: Controller Basic Operation (Pulsar 200)

View and change system parameters from the factory defaults via

A) Controller Display

B) Front panel ethernet craft port using a laptop with standard browser. This port is in Server mode and is dedicated to local laptop connection.

Warning: Do not connect the front ethernet craft port to a network

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

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

Clear these alarms: Via Controller Display: follow the menu path:

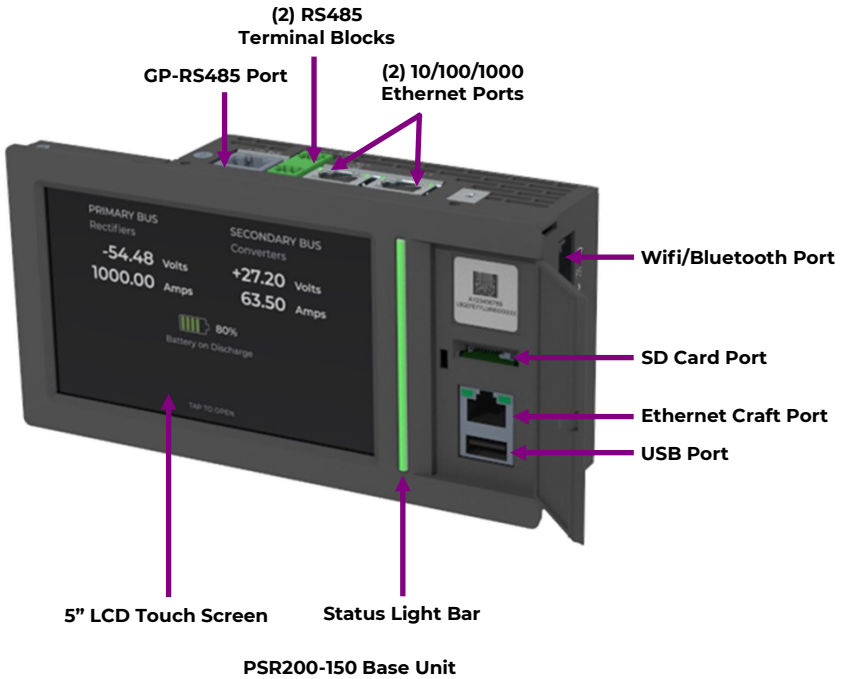
Maintenance > Equipments > Clear Missing Devices or Uninstall Equipment.

Verify Basic Installation Settings: Date, Time, Battery Type, number of strings and float voltage

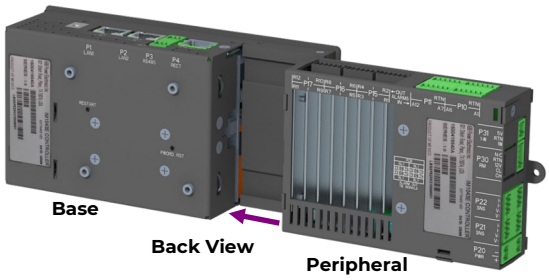
Settings > Basic Settings > Date/Time and Timezone (or set NTP server IP Address for auto date/time)

Settings > System > Battery

Settings > System > Float Settings

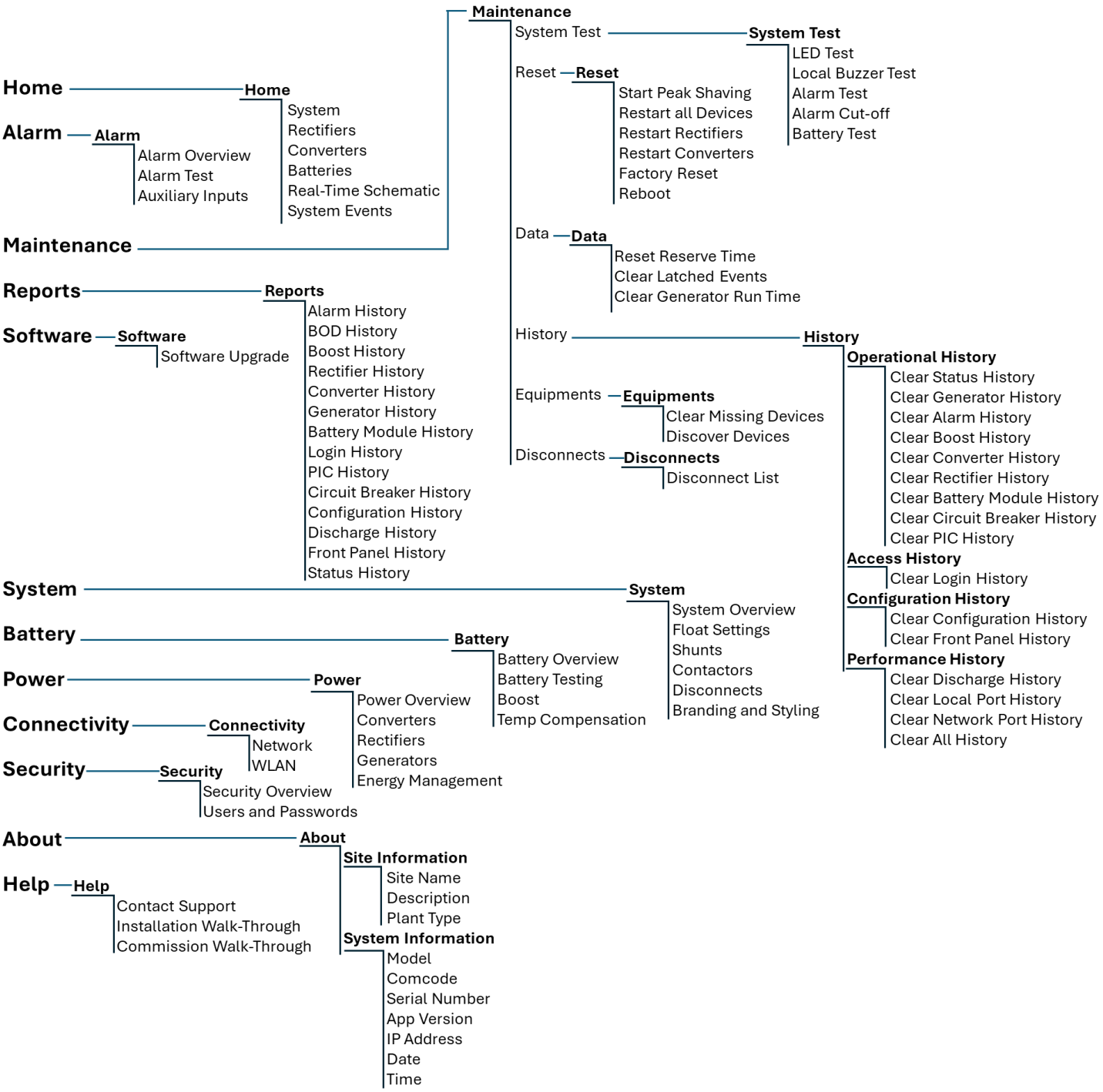


PSR200-150 Base Unit



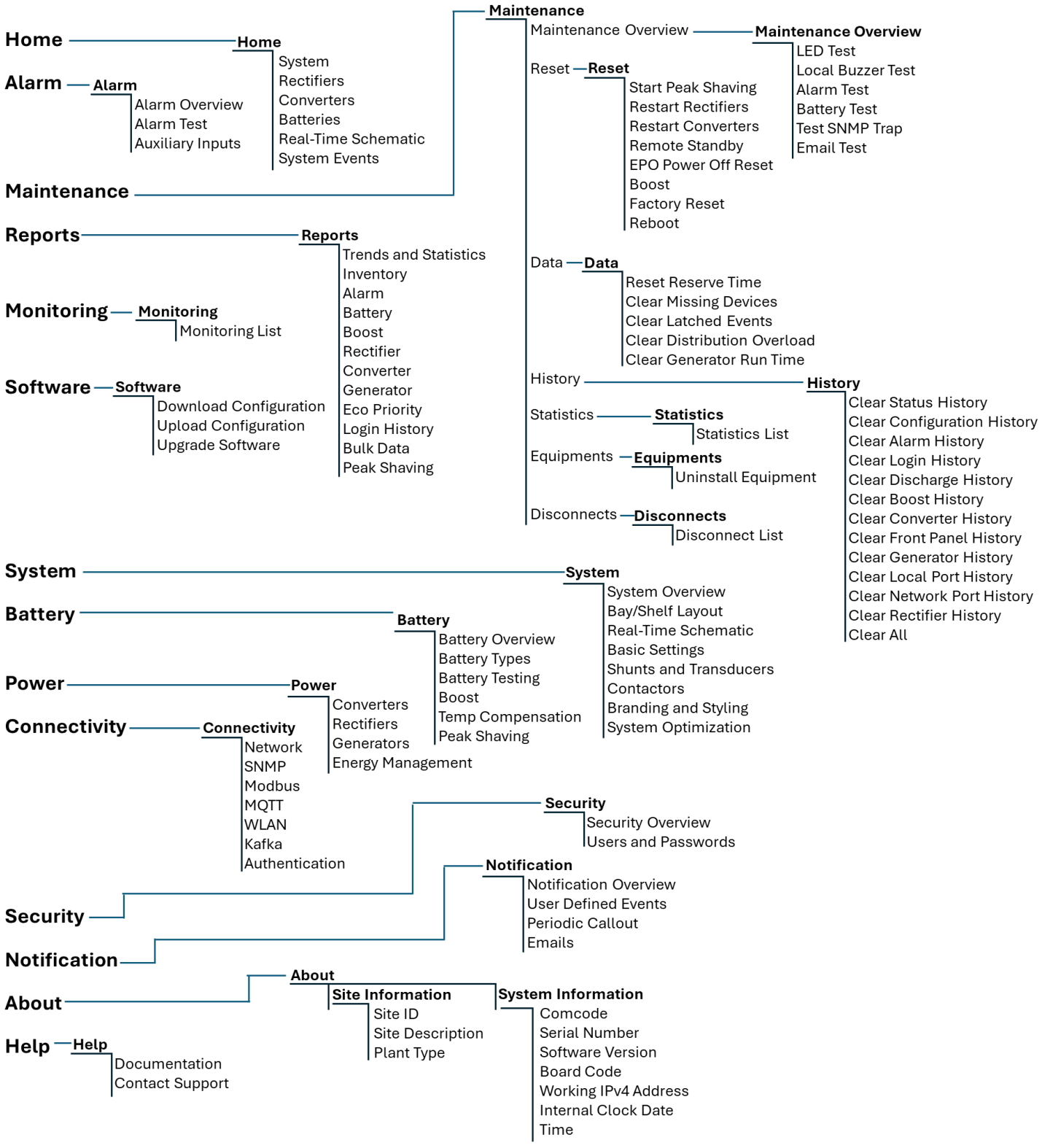
Pulsar 200 Controller (continued)

The front panel menu structure for navigation is shown below.



Pulsar 200 Controller (continued)

The web page menu structure for navigation is shown below.



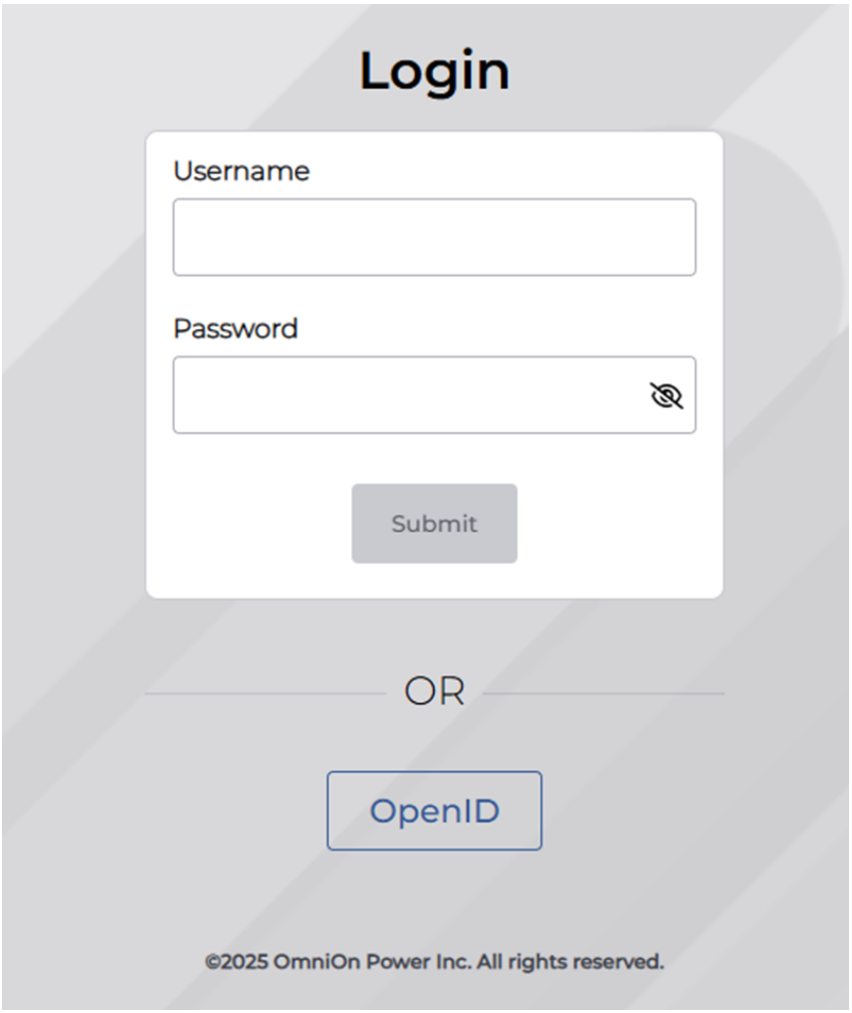
Information: Controller Basic Operation (Pulsar 200)

All user configurable parameters can be accessed from the front panel, however user convenience and visibility is enhanced by access through the front ethernet craft port using the built-in web pages.

This port is configured as a server, so a laptop can be connected using a standard ethernet cable. Use a standard web browser to access the controller web pages at default IP address: 192.168.1.1

Warning: Do not connect this port to a network.

Once connected to the controller web server a log on screen should be visible:



Logon Screen - web view

Use the factory default credentials for initial logon.

Username: admin

Password: Omnion1234

It is highly recommended that one of the first activities should be to change the default password(s).

Pulsar 200 Controller (continued)

The following Screen is an example of a Rectifier only system that has no Secondary DC/DC converters.

Home Screen

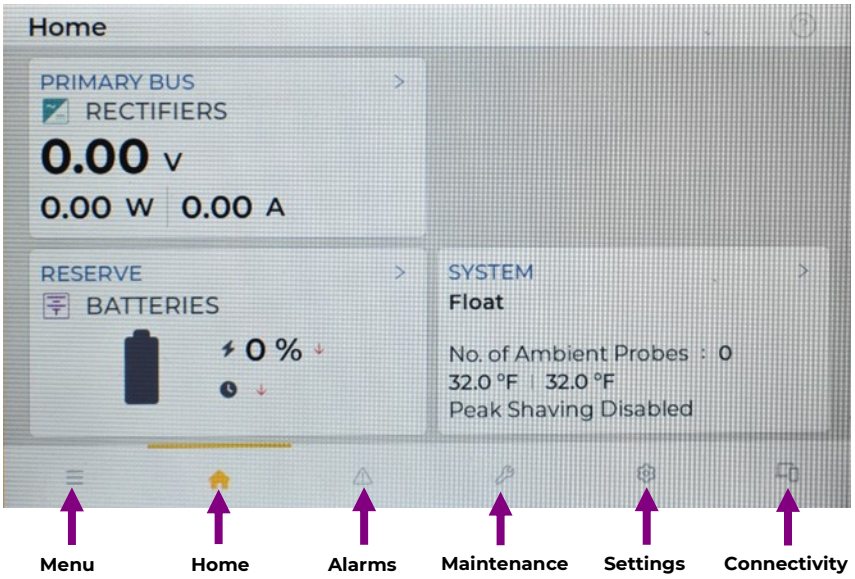
Displays:

Primary Bus: Voltage, Power, Current

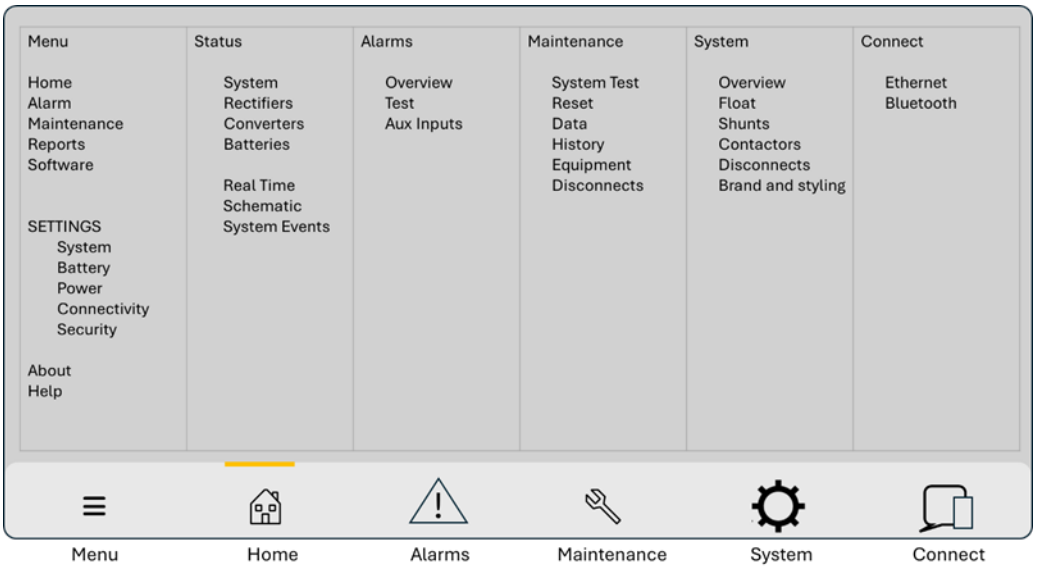
Secondary Bus (if present): Voltage, Power, Current

Battery: State of Charge

System: Operating Modes, Temp. Probes, Temperature(s)



Function bar operations:



Specifications and Application

- Specifications and ordering information are in the Infinity S Ordering Guide available at **omnionpower.com**
- External Surge Protective Device (SPD) is required on all AC inputs.
- 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.
- Battery return may be either Isolated DC return (DC-I) or Common DC return (DC-C).

Reference Documents

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

Document	Title
CC848815341	Galaxy Pulsar Plus Product Manual Infinity S Ordering Guide (aka product line brochure) Galaxy Pulsar 200 Product Manual

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.

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 de compression homologués/certifiés pour terminer Conducteurs de fils de terrain certifiés.
    - Toutes les installations - appliquez le connecteur approprié au conducteur de taille correcte tel que spécifié par le fabricant de connecteurs, en utilisant uniquement l'outillage recommandé ou approuvé par le fabricant de connecteurs 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.
- Disjoncteurs et fusibles
    - Utilisez uniquement ceux spécifiés dans le guide de commande de l'équipement.
    - Taille requise par le National Electric Code (NEC) et/ou les codes locaux.

      Limites de sécurité testées - Reportez-vous aux valeurs 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.
- Fusibles de style GMT - Utilisez uniquement des fusibles fournis avec des capuchons de sécurité.
- Conducteurs câblés sur le terrain - Suivez 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.
- 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.

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

- Installer, mettre en service et utiliser l'équipement uniquement par du personnel professionnel, compétent et qualifié possédant les connaissances et l'expérience pratique nécessaires en matière d'équipement électrique et qui comprennent les dangers qui peuvent survenir lors de l'utilisation de ce type de Équipement.
- Débranchez les piles des sorties et/ou suivez les procédures de sécurité tout en travaillant sur l'équipement. Les batteries peuvent être connectées parallèlement à la sortie des redresseurs. Éteindre les redresseurs n'enlèva pas forcément l'alimentation du bus.
- Ne débranchez pas les raccords de liaison permanents 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'appareil. Des courants de fuite élevés peuvent être possibles.
- Exercez des soins et respectez tous les avertissements et pratiques de sécurité lors de l'entretien de cet équipement. L'énergie et les tensions dangereuses sont présentes dans l'unité et sur les câbles d'interface qui peuvent choquer ou causer des blessures graves. Lorsqu'il est équipé de modules de sonnerie, des tensions dangereuses seront présentes sur les connecteurs de sortie de la sonnerie.
- Utiliser les précautions suivantes en plus des procédures appropriées de formation et de sécurité d'emploi:
    - n'utiliser que des outils correctement isolés.
    - Enlevez tous les objets métalliques (porte-clés, lunettes, bagues, montres ou autres bijoux).
    - suivez les procédures de lock out tag out (LOTO): client spécifié, spécifique au site ou général selon le cas. Débranchez toutes les entrées d'alimentation avant d'entretenir l'équipement. Vérifiez l'alimentation de plusieurs entrées.
    - Portez des lunettes de sécurité.
    - respectez les exigences relatives aux équipements de protection individuelle: client spécifié, spécifique au site ou général selon le cas.
    - tester les circuits avant de les toucher.
    - être conscient des dangers potentiels avant d'entretenir l'équipement.
    - identifier les potentiels électriques dangereux exposés sur les connecteurs, le câblage, etc.
    - Évitez de contacter les circuits lors du démontage ou du remplacement des couvercles.
    - utilisez une sangle ESD personnelle lors de l'accès ou de la suppression de composants électroniques.
- Le personnel équipé de dispositifs médicaux électroniques doit être conscient que la proximité des systèmes de distribution et d'alimentation en courant continu, y compris les piles et les câbles, généralement dans les salles de télécommunication, peut affecter les appareils électroniques médicaux, tels que les stimulateurs cardiaques. Les effets diminuent avec la distance.

Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
9.0	04/07/2021	Updated as per template and added new pictures
10.0	05/26/2022	Corrected labeling in figure on page 1
10.1	12/13/2023	Updated as per OmniOn template
10.2	04/11/2024	Updated images on page 03
10.3	03/11/2025	Added Pulsar 200 information

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