# CPS6000 Power System - 120A, Rear AC

## Models: 19”, 3 Slot, CC109163721
## 19”, 3 Slot, LVBD, CC109163738
## 23”, 4 Slot, CC10916374623
## 23”, 4 Slot, LVBD, CC109163754

Install the shelf with a minimum gap of 3/4 inch above and below to allow proper airflow. Attach the CPS shelf to the frame using a minimum of four (two on each side) of the 12-24 screws included with the shelf.

## Tools required:

Wire cutters and strippers
Cable crimpers
Digital meter +/- 0.02%
Torque wrench - 0-240 in-lb (28 Nm)
Heat shrink gun
Sockets - 5/16”, 7/16, etc.
Screwdrivers - Philips #1 and #2, Flat small

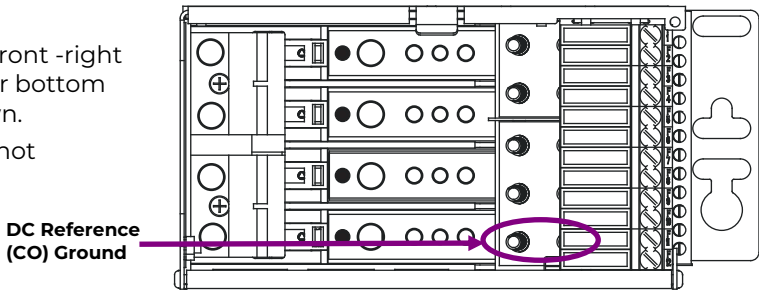
## Step 1 - Connect DC Reference (CO) Ground

Connect DC Reference (CO) ground to the return bus - front -right side of the shelf behind the distribution panel. The top or bottom landing can be used. The cable can be routed up or down.

Lug landings: double #10-32 studs on 5/8” center. (Lug not provided)

Torque connections to 30 in-lb (3.4Nm).

Minimum 8 gage wire is recommended.




## Step 2 - Connect AC Inputs

AC inputs terminate on the rear of the shelf behind the AC access panel. See table on page 6 for recommended external breaker size.

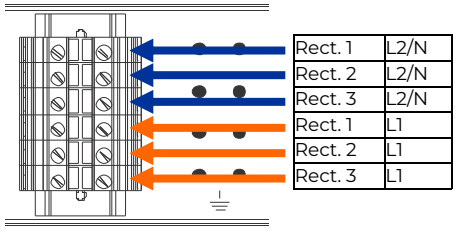
AC feeds may be 110Vac or 208/220Vac depending on the rectifier used.

See Information: Rectifier Options for recommended input breaker sizes.

Inputs can be arranged to feed one, two or three rectifiers, jumpers are provided. See diagram below.

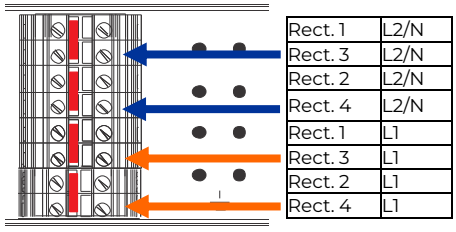
**Warning:** Ensure AC power is OFF and use appropriate lock-out tag-out procedures before continuing with AC connections.

**Warning:** Follow all local and national wiring rules.



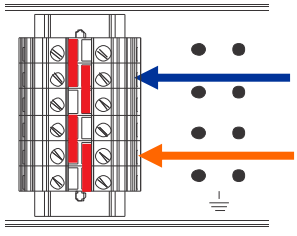
| | |
|---|---|
| Rect. 1 | L2/N |
| Rect. 2 | L2/N |
| Rect. 3 | L2/N |
| Rect. 1 | L1 |
| Rect. 2 | L1 |
| Rect. 3 | L1 |

**One AC feed per rectifier**
**(Example: Three Rectifier shelf)**



| | |
|---|---|
| Rect. 1 | L2/N |
| Rect. 3 | L2/N |
| Rect. 2 | L2/N |
| Rect. 4 | L2/N |
| Rect. 1 | L1 |
| Rect. 3 | L1 |
| Rect. 2 | L1 |
| Rect. 4 | L1 |

**Two rectifiers per AC feed**
**(Example: Four rectifier shelf)**



| | |
|---|---|
| Rect. 1 | L2/N |
| Rect. 2 | L2/N |
| Rect. 3 | L2/N |
| Rect. 1 | L1 |
| Rect. 2 | L1 |
| Rect. 3 | L1 |

**Three rectifiers per AC feed**
**(Example: Three rectifier shelf)**

## Step 3 - Connect DC Output - Loads and Batteries

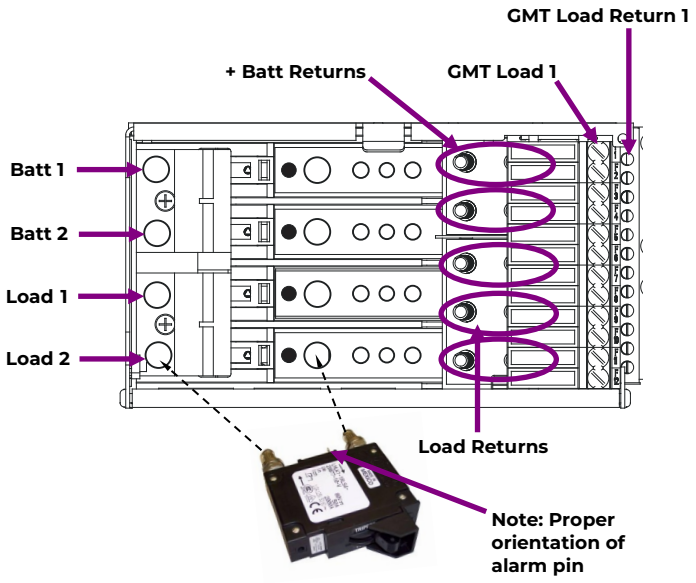
### Connect Loads

Loads connect to the twelve GMT fuses and the two lower circuit breaker positions.

**Connections:**

**Fuse:** Lug-less, max. wire size - 10 AWG.

**Circuit Breaker:** double #10-32 studs on 5/8" centers, max. tongue width 0.68"."




### Connect Batteries

Batteries connect to the two upper circuit breaker positions.

**Connections:**

double #10-32 studs on 5/8" centers,
Max. tongue width is 0.68."

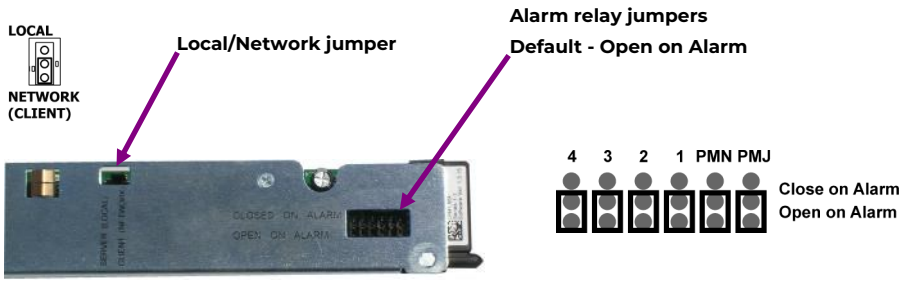
**Identify** all circuit breakers and fuses on the label located on the inside of the distribution door.

**Low Voltage Battery Disconnect** (LVBD), disconnects the two battery circuit breakers during low voltage or high temperature events. LVBD settings are factory configured. The settings can be field adjusted through the controller.

## Step 4 - Controller - Set Relay Jumpers and Install

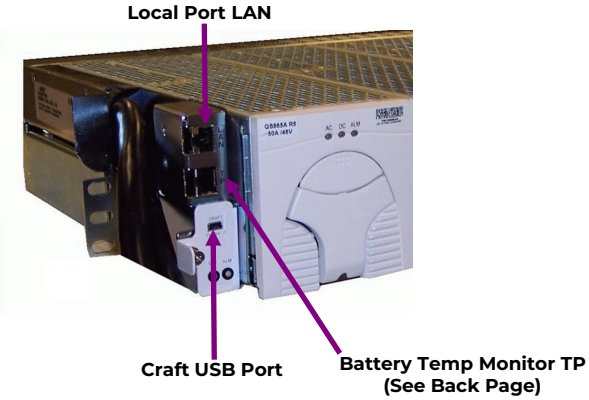
1. Set jumpers on the side of the controller - table below.
2. Slide controllers into the primary shelf. Secure with thumb screw.

| Controller Jumper Settings | | |
|---|---|---|
| LAN Port - J5 | **Local** (Server): J5 LAN connects to a laptop. Configure and view system parameters using controller web pages using the laptop web browser. Default IP address is 192.168.2.1.<br><br>Local (Server) is a temporary setting, once configuration is complete move the jumper back to Network (Client) mode.<br><br>**Warning:** Do not connect LAN port to a network when jumpers are set to Local. | **Network** (Client): J5 LAN connects to a network that assigns the SPS an IP address.<br><br>Controller web pages are available on the network (Default) |
| Alarm Relays | Alarm Relays can be set to operate as Close on Alarm or Open on Alarm. Open on Alarm is the Factory Default setting. Move Alarm jumpers to Close on Alarm when required. | |


Controller side

## Step 5 - Connect Controller



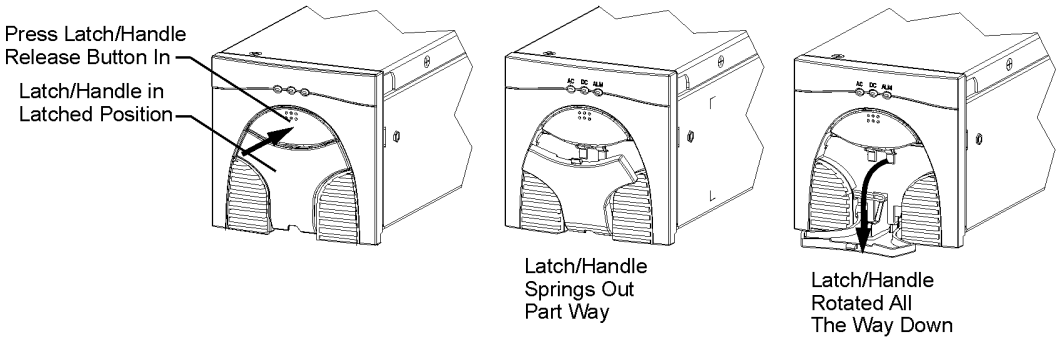

Controller connectors, other than the Craft Port, are fixed to the shelf. This allows the controller to be removed without disconnecting cables.

The LAN connection can also be used as a Craft Port when configured as a Server - see Step 4.

1. Connect office alarm cable to J1 - cable detail on page 5.
2. Connect LAN to J5 (LAN).
3. Connect Thermal Probe cable to J3 (TP) - detail on page 5.

## Step 6 - Install Rectifiers

1. Unlatch the handle as shown.
2. Firmly push the rectifier into the rectifier slot until the connector on the rear of the rectifier engages with the connector at the back of the rectifier slot on the CPS shelf. The latch will pop most of the way up when the rectifier is properly seated.
3. Push the latch up into the latched position to complete engagement.



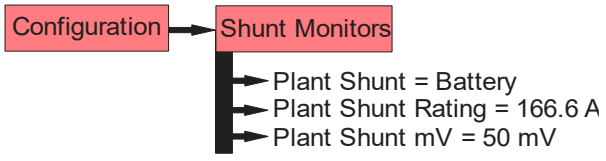

## Step 7 - Initial Start Up

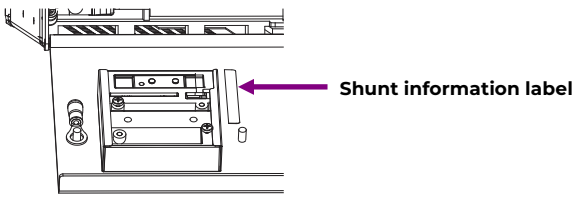
See Information: Controller Basic Operation.

1. Verify that all AC, DC and Alarm connections are complete and secure.
2. Turn on AC input breakers.
3. If there are no alarms, make adjustments to the default settings on the controller for this installation.
4. Verify Basic Installation Settings.

## Step 8 - Controller - Configure Shunt Ratings

Configure shunt rating (A and mV) via controller display
(see Information Controller Basic Operation for other methods)
Set the shunt rating to
the values on the Shunt information label on the back of the distribution section door
If there is NOT a label configure the system shunt to 166 A and 50mV.



## Information: Controller Basic Operation

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

A. Front Display

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

C. Network (web pages)

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

LAN port is set to Local or Network by the jumper setting shown in step 5.

EasyView2 (GUI) software can be downloaded from www.**omnionpower.com**

Details in Pulsar Edge Controller Family Product Manual.

**Controller Alarm Status:** The display backlight or SYS LED: Green = Normal, Amber = Minor Alarm, Red = Critical/Major Alarm

ALM LED: Red = Battery on Discharge Alarm

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

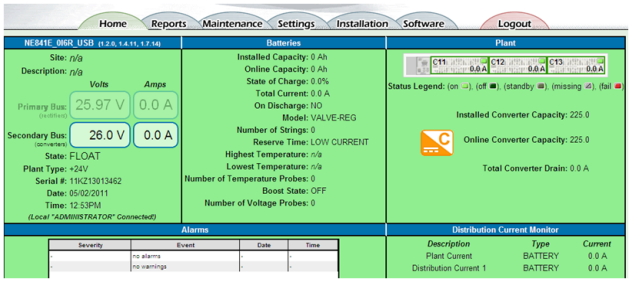
To clear these alarms using the Controller Display: follow the menu path; Menu > Control/Operation > Clear Events or Uninstall Equipment.

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

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

A. Controller Display - Follow the menu path; Menu > Configuration > System Settings and Menu > Configuration > Batteries.

B. Web Pages or EasyView2 - Select the Installation Tab and verify shelf J code matches the shelf label, etc. Date, Time. Site ID and Site Description. Select the Settings Tab > Battery Management to verify Battery Type and set number of battery strings installed.

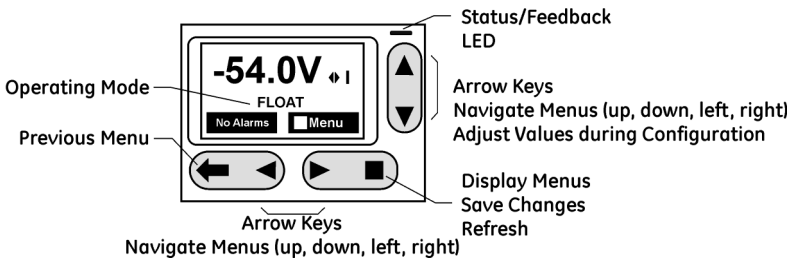



**EasyView2/Web Home Page**

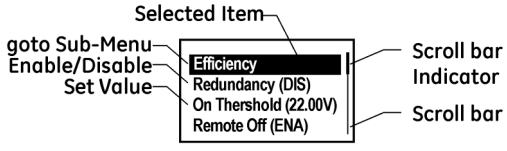
## Display Panel Operation

Most controller features not requiring alpha character input are available via the display panel provided on some models.

**Display Panel - Normal Screen**

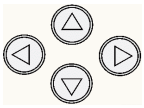
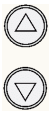



**Typical Menu Screen**

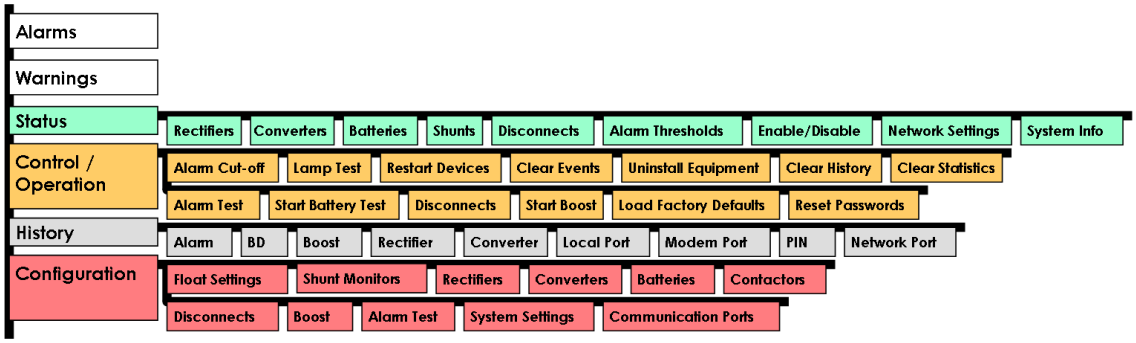



**Scroll bar** indicates presence of menu items above or below the present view.
**Scroll bar Indicator** shows position in scroll list.

## Display Panel Operation (Continued)

| Buttons | | Description |
|---|---|---|
|  | Navigate | Menu Screens - navigate to make a selection<br>Selected menu items displayed with a value in parentheses are edited by pressing Enter<br>Menu items without a value in parentheses have sub-menus<br>Parameter Edit - ◄ ►select the digit to increment or decrement<br>Normal Screen - ◄ ►shift display between V and I |
|  | Parameter Change | Parameter Edit - increase or decrease the value of the selected digit<br>Normal Screen - Adjust LCD contrast |
|  | Enter | Menu Screens - Enter a sub-menu<br>Enter a parameter to change, or confirms a parameter change<br>Normal Screen - Enter top level menu |
|  | ESC | Up one menu level or Exit a parameter change without saving |

## Information: Controller Display Menu

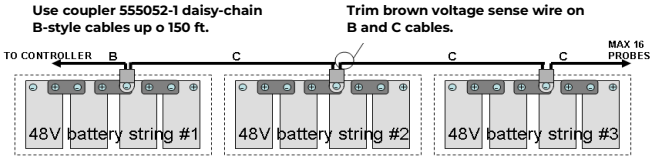



## Information: 1-Wire Battery Temp and Voltage Monitor

Battery Monitoring is accomplished with a daisy-chained series of Probes connected to any available J3 or J4 of any shelf daisy chained to a converter shelf with controller. The Probes are used to monitor battery temperature and voltage (ES771 required to monitor voltage).

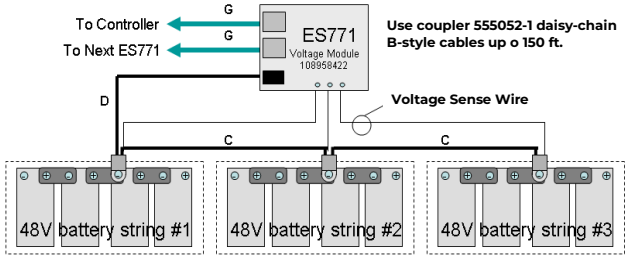
**CAUTION:** Install Probes under the "–" terminal connector hardware; NOT under the connecting lug.

**Temperature Measurement**




| Ordering Codes | Descriptions |
|---|---|
| CC109142980 | QS873A Thermal Probe |
| CC848817024 | **B**: 10' controller to thermal probe wireset |
| CC109157434 | **B**: 20' controller to thermal probe wireset |
| CC848822560 | **C**: 1' thermal probe to thermal probe wireset |
| 848719803 | **C**: 5' thermal probe to thermal probe wireset |
| CC848822321 | **C**: 10' thermal probe to thermal probe wireset |

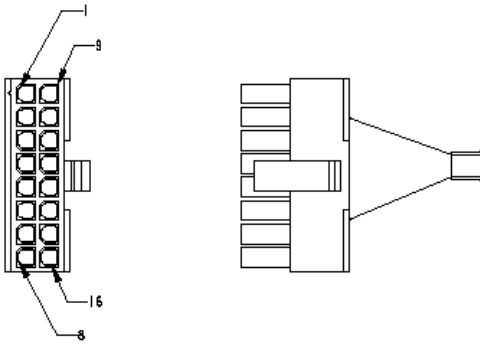
**Temperature and Voltage Measurement**




| Ordering Codes | Descriptions |
|---|---|
| 108958422 | ES771A Voltage Monitor Card |
| CC848791517 | **D**: 2 ½' ES771A to probe wireset |
| CC848797290 | **D**: 6' ES771A to probe wireset |
| 848719829 | **D**: 10' ES771A to probe wireset |
| CC848791500 | **G**: 4' ES771A to ES771A or controller wireset |
| 848652947 | **G**: 10' ES771A to ES771A or controller wireset |

## Information: Office Alarm Connections

Office alarm connector (J1) is located on the back of the shelf, it provides access to the alarm relay inputs and outputs.
Discrete wire cable assembly is included.
Note the wire color and alarm descriptions in the attached table


| Pos | Color | Signal | Factory Default |
|---|---|---|---|
| 1 | BLK | User Configurable Alarm Input | Door Open |
| 2 | W | User Configurable Alarm Input | AMJ (Aux Major) |
| 3 | R/BLK | PTC Protected VBUS-/ ABS | VBUS- (For Alarms) |
| 4 | OR | Power Major Relay Return | PMJ Return |
| 5 | OR/BLK | Power Minor Relay Return | PMN Return |
| 6 | R/WHT | Relay 1 Return | BD Return |
| 7 | WHT/BLK | Relay 2 Return | Rectifier Fail (RFA) Return |
| 8 | BL/R | Relay 3 and Relay 4 Return | FA & ACF Return R3 & R4 |
| 9 | R | User Configurable Alarm Input | SPD Fail |
| 10 | GR | User Configurable Alarm Input | Air Conditioner Fail |
| 11 | BL | Relay 4 | Fuse Alarm (FA) |
| 12 | GR/BK | Power Major Relay | PMJ (Power Major) |
| 13 | BL/BK | Power Minor Relay | PMN (Power Minor) |
| 14 | GR/WHT | Relay 1 | Battery on Discharge (BD) |
| 15 | WHT/R | Relay 2 | Rectifier Fail (RFA) |
| 16 | OR/R | Relay 3 | AC Fail (ACF) |

## Information: Rectifier Options

| Rectifier | | Input | | Recommended Breaker | | | Output | |
|---|---|---|---|---|---|---|---|---|
| | | Vac | A | Rectifiers per Feed | | | A | W |
| | | | | 1 | 2 | 2 | | |
| CC109158176 | QS860ATEZ | 100-120 | 5.0 | 10 | 15 | 20 | 10 | 545 |
| | | 200-240 | 2.8 | 10 | 10 | 15 | 10 | 545 |
| CC109158168 | QS861ATEZ | 100-120 | 7.3 | 10 | 20 | 30 | 15 | 818 |
| | | 200-240 | 4.2 | 10 | 15 | 20 | 15 | 818 |
| CC109158184 | QS862ATEZ | 100-120 | 12.0 | 15 | 30 | 50 | 25 | 1362 |
| | | 200-240 | 6.9 | 10 | 20 | 30 | 25 | 1363 |
| CC109161758 | QS863ATEZ | 100-120 | 12.0 | 15 | 30 | 50 | 25 | 1362 |
| | | 200-240 | 8.3 | 10 | 20 | 30 | 30 | 1635 |
| CC109158151 | QS864ATEZ | 100-120 | 12.0 | 15 | 30 | 50 | 25 | 1362 |
| | | 200-240 | 11.1 | 15 | 30 | 50 | 40 | 2180 |
| CC109149340 | QS865ATEZ | 100-120 | 12.0 | 20 | 40 | 60 | 25 | 1362 |
| | | 200-240 | 14.0 | 20 | 40 | 60 | 50 | 2725 |

## Specifications and Application

- Specifications and ordering information are in the CPS6000 Power System Ordering Guide available at **www.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 **www.omnionpower.com.**

| Document | Title |
|---|---|
| CC848836981 | Pulsar Edge Controller Family Product Manual |
| | CPS6000 Power System Ordering Guide (aka CPS6000 Power System Brochure) |

## Notes

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