

## PS SERIES PSMATPLDCU115P2K-X Three Phase AC/DC POWER SUPPLY



- Compact
- High efficiency
- High density
- Single output
- Three phase AC/DC power supply
- Up to 2000 W

<b>Special Features</b> <ul style="list-style-type: none"> <li>• Miniature size</li> <li>• High efficiency</li> <li>• Wide input range</li> <li>• High density: up to 30.5 W/in<sup>3</sup></li> <li>• Input / Output isolation</li> <li>• Limited Inrush Current</li> <li>• Remote Inhibit (On/Off)</li> <li>• Fixed switching freq. (400 kHz)</li> <li>• EMI filters included</li> <li>• Cos <math>\phi</math> &gt; 0.92 from 75% load</li> <li>• Non-latching protections: <ul style="list-style-type: none"> <li>○ Output overload</li> <li>○ Output short-circuit</li> <li>○ Output over-voltage</li> <li>○ Over temperature</li> </ul> </li> </ul>														
<b>Electrical Specifications</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; border: none;"> <b>Normal Input Voltage</b>  AC variant voltage range:  115 ± 10% V<sub>AC,L-N</sub>,  400 Hz, 3-Phase </td> <td style="width: 33%; border: none;"> <b>DC Output:</b>  Voltage range: 5 to 60 V<sub>DC</sub>  Current range: 0 to 80 A  Power range: 0 to 2 000 W </td> <td style="width: 33%; border: none;"> <b>Isolation</b>  Input to Output: 500 V<sub>DC</sub>  Input to Case: 500 V<sub>DC</sub>  Output to Case: 100 V<sub>DC</sub> </td> </tr> <tr> <td colspan="3" style="border: none;"> <b>Optional for 50/60Hz Input frequency: Please consult factory for details.</b> </td> </tr> <tr> <td style="border: none;"> <b>Line/Load regulation</b>  Up to ±1% (no load to full load, -55 °C to +85 °C and over input voltage range). </td> <td style="border: none;"> <b>Efficiency</b>  90% - Typical (nominal line voltage, 28 V<sub>DC</sub> output, full load, standard room temperature) </td> <td style="border: none;"> <b>EMC</b>  Designed to meet MIL-STD-461F**:  CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103 </td> </tr> <tr> <td style="border: none;"> <b>Ripple and Noise</b>  100 to 150 mV<sub>p-p</sub>, typical (max. 1% of nominal voltage) measured across a 1µF ceramic capacitor. </td> <td style="border: none;"> <b>Transient Over-and-undershoot</b>  Voltage change less than 10% of nominal value for load step from 50% to 100%. Return to regulation in under 1 ms. </td> <td style="border: none;"> <b>Turn on Transient</b>  No Voltage overshoot during turn on. </td> </tr> </table>			<b>Normal Input Voltage</b> AC variant voltage range: 115 ± 10% V <sub>AC,L-N</sub> , 400 Hz, 3-Phase	<b>DC Output:</b> Voltage range: 5 to 60 V <sub>DC</sub> Current range: 0 to 80 A Power range: 0 to 2 000 W	<b>Isolation</b> Input to Output: 500 V <sub>DC</sub> Input to Case: 500 V <sub>DC</sub> Output to Case: 100 V <sub>DC</sub>	<b>Optional for 50/60Hz Input frequency: Please consult factory for details.</b>			<b>Line/Load regulation</b> Up to ±1% (no load to full load, -55 °C to +85 °C and over input voltage range).	<b>Efficiency</b> 90% - Typical (nominal line voltage, 28 V <sub>DC</sub> output, full load, standard room temperature)	<b>EMC</b> Designed to meet MIL-STD-461F**: CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103	<b>Ripple and Noise</b> 100 to 150 mV <sub>p-p</sub> , typical (max. 1% of nominal voltage) measured across a 1µF ceramic capacitor.	<b>Transient Over-and-undershoot</b> Voltage change less than 10% of nominal value for load step from 50% to 100%. Return to regulation in under 1 ms.	<b>Turn on Transient</b> No Voltage overshoot during turn on.
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\* Thresholds and protections can be modified / removed – please consult factory.

\*\* Depending on configuration, an external filter may be required to comply with EMI requirements.

### Markets & Applications



Military Power Supply (Airborne, ground-fix, shipboard)



Ruggedized, Telecom, Industrial Power Supply

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## Environmental Conditions

Designed to Meet MIL-STD-810F

### Temperature

Methods 501.4 & 502.4

Operating: -55°C to +85°C (at baseplate)

Storage: -55°C to +125°C (ambient)

### Altitude

Method 500.4

Procedure I – Storage/Air transport:  
up to 70,000 ft. (non-operational)

Procedure II – Operation/Air Carriage:  
up to 40,000 ft. (operational)

### Humidity

Method 507.4

Up to 95% RH

### Vibration

Method 514.5

Procedure I, Category 24

General minimum integrity exposure

IAW Figure 514.5C-17

1 hour per axis.

### Shock

Method 516.5

Procedure I

20 g / 11 ms terminal peak sawtooth shock pulse

### Salt Fog

Method 509.4

## Reliability

100,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85 °C baseplate, Ground fixed conditions.

## Pin Assignment

**Connector type:** M24308/24-39F or eq.

**Mating connector type** M24308/2-3F or eq.

Pin No.	Description
4, 5, 17	PHASE A
7, 8, 20	PHASE B
10, 11, 23	PHASE C
15	+ SENSE †
2	- SENSE †
14	INHIBIT
1	SIGNAL RTN
25	CHASSIS

† Please inform factory if sense lines are required to be tied to the output from within, or if the remote sense compensation function will be used.

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## Functions and Signals

### **INHIBIT**

The **INHIBIT** signal is used to turn the power supply ON and OFF.

OPEN – will turn on the power supply.

SHORT – between pin 14 and pin 1 will turn off the power supply.

This signal is referenced to the **SIGNAL RTN** pin.

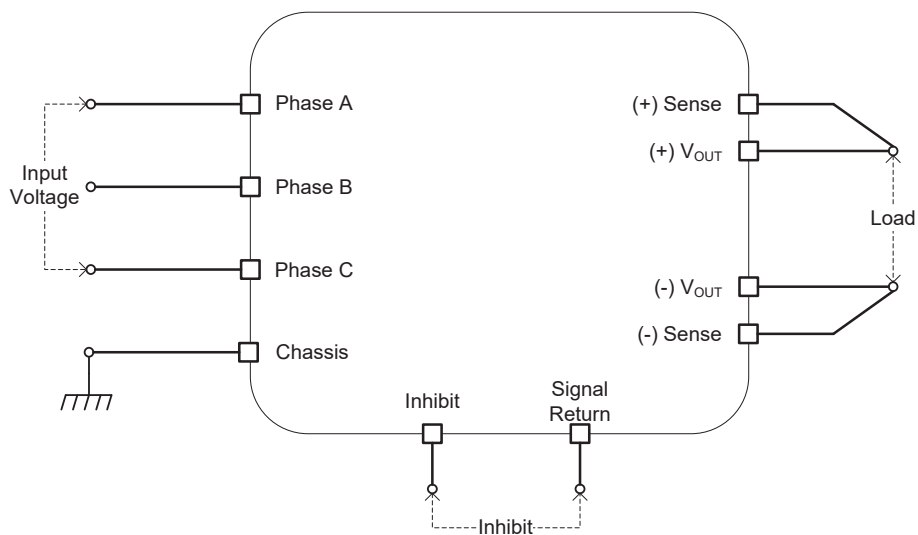
### **SENSE**

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load's terminals).

The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output (up to 2V).

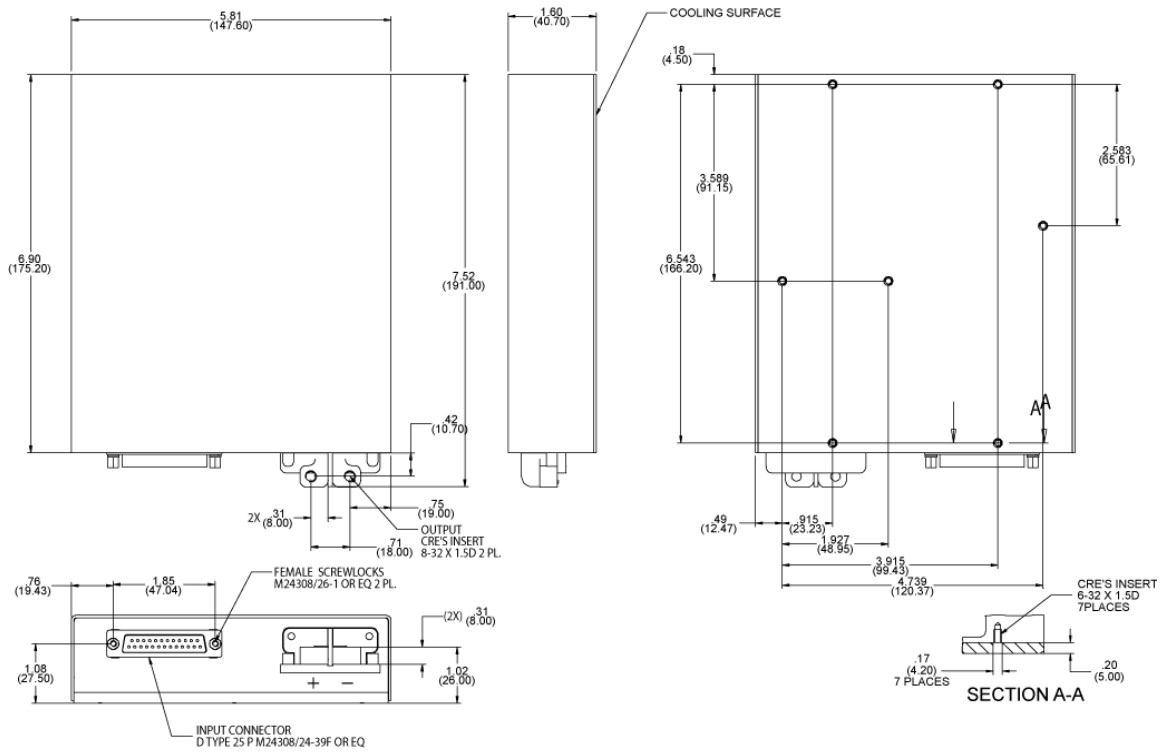
Please note that if Sense lines are not used the output may rise as much as 2V above nominal outputs.

## Typical Connection Diagram

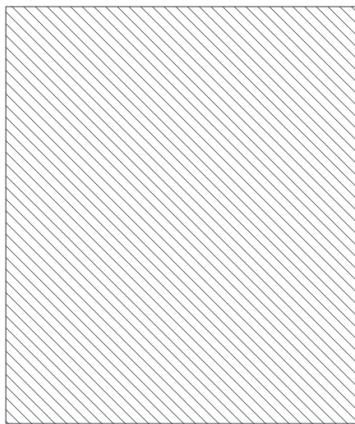


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## Outline Drawing



## Heat Dissipation Surface



Dissipation Area  
40.08 in<sup>2</sup>  
(258.6 cm<sup>2</sup>)

### Notes

1. Dimensions are in inches [mm]
2. Tolerance is:  
.XX ± 0.025 in  
.XXX ± 0.010 in
3. Weight: Approx. 4.4 lbs [2 kg]

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## Standard Configurations

Part number	Input		Output	
	Voltage range	Frequency	Voltage	Current
PSMATPLDCU115P2K-0	3-phase, 103 to 127 V <sub>AC</sub>	400 Hz	12 V <sub>DC</sub>	70 A
PSMATPLDCU115P2K-1	3-phase, 103 to 127 V <sub>AC</sub>	400 Hz	15 V <sub>DC</sub>	70 A
PSMATPLDCU115P2K-2	3-phase, 103 to 127 V <sub>AC</sub>	400 Hz	24 V <sub>DC</sub>	70 A
PSMATPLDCU115P2K-3	3-phase, 103 to 127 V <sub>AC</sub>	400 Hz	28 V <sub>DC</sub>	70 A
PSMATPLDCU115P2K-4	3-phase, 103 to 127 V <sub>AC</sub>	400 Hz	36 V <sub>DC</sub>	55 A
PSMATPLDCU115P2K-5	3-phase, 103 to 127 V <sub>AC</sub>	400 Hz	48 V <sub>DC</sub>	40 A

**Note: Specifications are subject to change without prior notice by the manufacturer**

