



**THE DATASHEET OF  
PSPA-1000-12**





1000W with PFC and Parallel Function

# PSPA-1000 series



## ■ Features

- Universal AC input / Full range
- Built-in active PFC function
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan
- Current sharing up to 4000W(3+1)
- With DC OK Signal output
- Built-in remote ON-OFF control
- Built-in remote sense function
- 5 years warranty

## ■ Applications

- Factory control or automation apparatus
- Test and measurement instrument
- Laser related machine
- Burn-in facility
- RF application

## ■ GTIN CODE

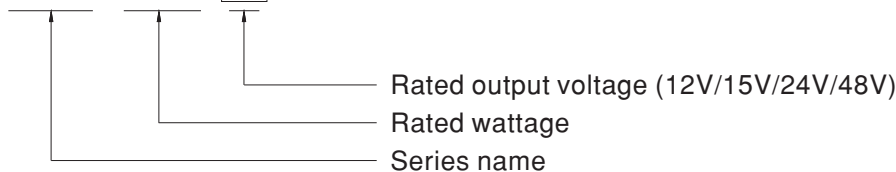
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## ■ Description

PSPA-1000 series is a 1KW single output enclosed type AC/DC power supply. This series operates from 90~264VAC input voltage and offers models with different rated voltage ranging between 12V and 48V. Thanks to high efficiency up to 94% and built-in fan, the entire series is able to work for -20°C ~ +70°C ambient temperature. PSPA-1000 is equipped with various built-in functions, such as current sharing, remote ON-OFF control and remote sense, providing great design flexibility for different types of applications.

## ■ Model Encoding

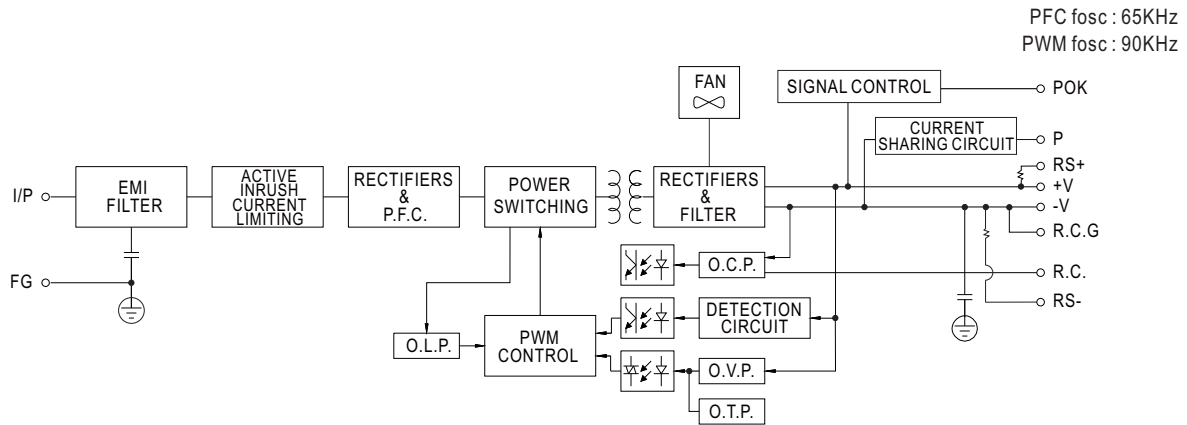
PSPA - 1000 - 12



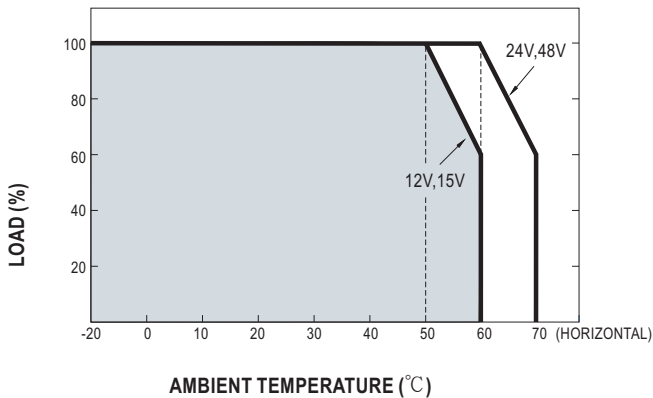
## SPECIFICATION

| MODEL                          | PSPA-1000-12   |   | PSPA-1000-15   |   | PSPA-1000-24      |          | PSPA-1000-48 |          |  |
|--------------------------------|--|---|--|---|-------------------|----------|--------------|----------|--|
| OUTPUT                         | DC VOLTAGE   | 12V   |  | 15V                                     |                   | 24V      |              | 48V      |  |
|                                | RATED CURRENT  | 80A   |  | 64A                                     |                   | 42A      |              | 21A      |  |
|                                | CURRENT RANGE  | 0 ~ 80A   |  | 0 ~ 64A                                 |                   | 0 ~ 42A  |              | 0 ~ 21A  |  |
|                                | RATED POWER  | 960W  |  | 960W                                    |                   | 1008W    |              | 1008W    |  |
|                                | RIPPLE & NOISE (max.) Note.2   | 150mVp-p  |  | 150mVp-p                                |                   | 200mVp-p |              | 250mVp-p |  |
|                                | VOLTAGE ADJ. RANGE   | 11 ~ 14V  |  | 14 ~ 17V                                |                   | 22 ~ 28V |              | 46 ~ 56V |  |
|                                | VOLTAGE TOLERANCE Note.3   | ±2.0%   |  | ±1.5%                                   |                   | ±1.0%    |              | ±1.0%    |  |
|                                | LINE REGULATION  | ±0.5%   |  | ±0.5%                                   |                   | ±0.5%    |              | ±0.5%    |  |
|                                | LOAD REGULATION  | ±2.0%   |  | ±1.5%                                   |                   | ±0.5%    |              | ±0.5%    |  |
|                                | SETUP, RISE TIME   | 1000ms,50ms/115VAC  |  | 1000ms,50ms/230VAC                      |                   |          |              |          |  |
| HOLD UP TIME (Typ.)            | 16ms at full load  |   |  |   |                   |          |              |          |  |
| INPUT                          | VOLTAGE RANGE Note.4   | 90 ~ 264VAC(300VAC for 5 sec.)  |  | 127 ~ 370VDC                            |                   |          |              |          |  |
|                                | FREQUENCY RANGE  | 47 ~ 63Hz   |  |   |                   |          |              |          |  |
|                                | POWER FACTOR (Typ.)  | 0.95/230VAC   |  | 0.99/115VAC at full load                |                   |          |              |          |  |
|                                | EFFICIENCY(Typ.)   | 92%   |  | 93%                                     |                   | 93.5%    |              | 94%      |  |
|                                | AC CURRENT (Typ.)  | 8.5A/115VAC   |  | 5A/230VAC                               |                   |          |              |          |  |
|                                | INRUSH CURRENT (Typ.)  | 20A/115VAC  |  | 40A/230VAC                              |                   |          |              |          |  |
|                                | LEAKAGE CURRENT  | <0.5mA/240VAC   |  |   |                   |          |              |          |  |
| PROTECTION                     | OVERLOAD   | 105 ~ 135% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed |  |   |                   |          |              |          |  |
|                                | OVER VOLTAGE   | 14.5 ~ 16.5V  |  | 18.2 ~ 20.6V                            |                   | 29 ~ 33V |              | 58 ~ 65V |  |
|                                | OVER TEMPERATURE   | Shut down o/p voltage, re-power on to recover   |  |   |                   |          |              |          |  |
| FUNCTION                       | CURRENT SHARING  | Up to 4000W or (3+1) units. Please refer to the Function Manual.  |  |   |                   |          |              |          |  |
|                                | REMOTE ON-OFF CONTROL  | Power ON : short; Power OFF : open. Please refer to the Function Manual.  |  |   |                   |          |              |          |  |
|                                | REMOTE SENSE   | Compensate voltage drop on the load wiring up to 0.5V. Please refer to the Function Manual.   |  |   |                   |          |              |          |  |
|                                | POK SIGNAL   | The TTL signal out, PSU turn on = 2.4 ~ 5V ; PSU turn off = 0 ~ 0.4V. Please refer to the Function Manual.                            |  |   |                   |          |              |          |  |
| ENVIRONMENT                    | WORKING TEMP.  | -20 ~ +70°C (Refer to "Derating Curve")   |  |   |                   |          |              |          |  |
|                                | WORKING HUMIDITY   | 20 ~ 90% RH non-condensing  |  |   |                   |          |              |          |  |
|                                | STORAGE TEMP., HUMIDITY  | -40 ~ +85°C, 10 ~ 95% RH non-condensing   |  |   |                   |          |              |          |  |
|                                | TEMP. COEFFICIENT  | ±0.03%/°C (0 ~ 50°C)  |  |   |                   |          |              |          |  |
|                                | VIBRATION  | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes   |  |   |                   |          |              |          |  |
| SAFETY & EMC (Note 5)          | SAFETY STANDARDS   | UL62368-1, CAN/CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, BSMI CNS14336-1, AS/NZS62368.1, EAC TP TC 004 approved                     |  |   |                   |          |              |          |  |
|                                | WITHSTAND VOLTAGE  | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC   |  |   |                   |          |              |          |  |
|                                | ISOLATION RESISTANCE   | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH  |  |   |                   |          |              |          |  |
|                                | EMC EMISSION   | Parameter   | Standard   |   | Test Level / Note |          |              |          |  |
|                                |  | Conducted   | BS EN/EN55032 (CISPR32)  |   | Class B           |          |              |          |  |
|                                |  | Radiated  | BS EN/EN55032 (CISPR32)  |   | Class B           |          |              |          |  |
|                                |  | Harmonic Current  | BS EN/EN61000-3-2  |   | Class A           |          |              |          |  |
|                                |  | Voltage Flicker   | BS EN/EN61000-3-3  |   | ----              |          |              |          |  |
|                                | EMC IMMUNITY   | BS EN/EN55035, BS EN/EN61000-6-2, BSMI CNS13438   |  |   |                   |          |              |          |  |
|                                |  | Parameter   | Standard   |   | Test Level / Note |          |              |          |  |
| ESD                            |  | BS EN/EN61000-4-2   |  | Level 3, 8KV air ; Level 2, 4KV contact |                   |          |              |          |  |
| Radiated                       |  | BS EN/EN61000-4-3   |  | Level 3                                 |                   |          |              |          |  |
| EFT / Burst                    |  | BS EN/EN61000-4-4   |  | Level 3                                 |                   |          |              |          |  |
| Surge                          |  | BS EN/EN61000-4-5   |  | Level 4, 2KV/Line-Line 4KV/Line-Earth   |                   |          |              |          |  |
| Conducted                      |  | BS EN/EN61000-4-6   |  | Level 3                                 |                   |          |              |          |  |
| Magnetic Field                 |  | BS EN/EN61000-4-8   |  | Level 4                                 |                   |          |              |          |  |
| Voltage Dips and Interruptions | BS EN/EN61000-4-11   |   | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods |   |                   |          |              |          |  |
| OTHERS                         | MTBF   | 807.1K hrs min. Telcordia SR-332 (Bellcore) ; 94.9K hrs min. MIL-HDBK-217F (25°C)   |  |   |                   |          |              |          |  |
|                                | DIMENSION  | 170*120*93mm (L*W*H)  |  |   |                   |          |              |          |  |
|                                | PACKING  | 1.93Kg ; 8pcs/16.4Kg/1.53CUFT   |  |   |                   |          |              |          |  |
| NOTE                           | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>5. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."<br/>(as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a>)</p> <p>6. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |   |  |   |                   |          |              |          |  |

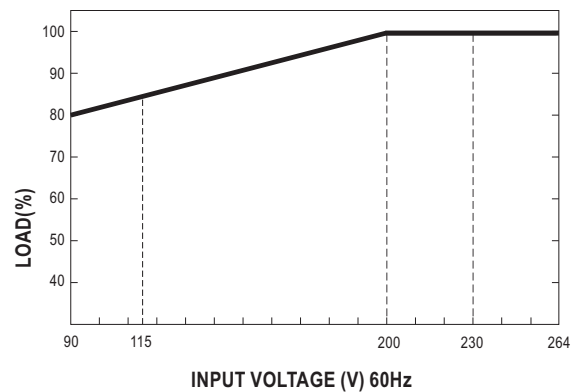
## Block Diagram



## Derating Curve



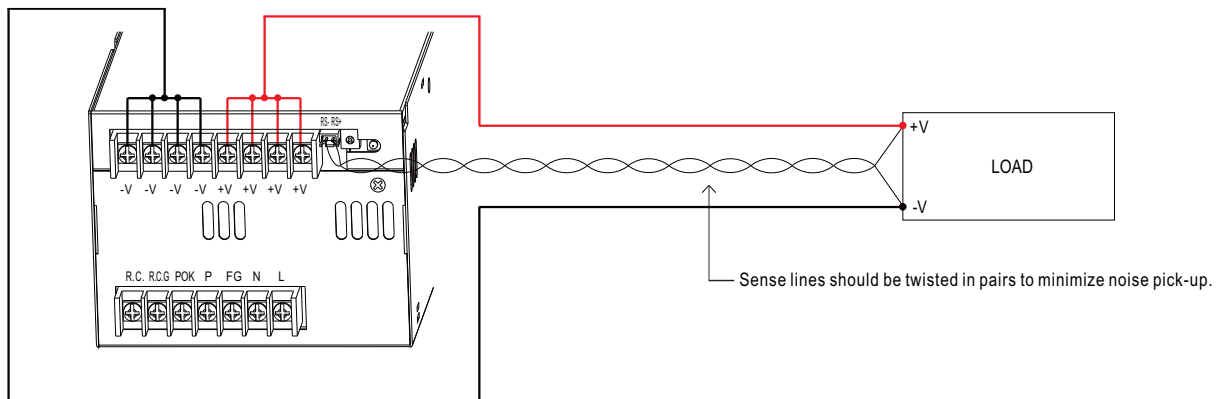
## Output Derating VS Input Voltage



## Function Manual

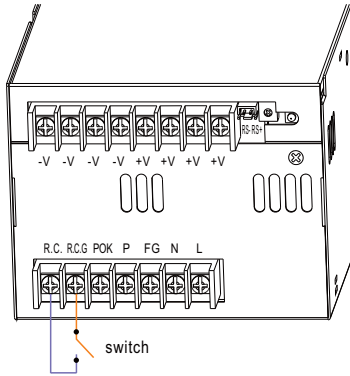
### 1. Remote Sense

- ※ The Remote Sense compensates voltage drop on the load wiring up to 0.5V.
- ※ The minimum load is 5% when Remote Sense functions.



### 2. Remote ON-OFF Control

※ The power supply can be turned ON-OFF individually or along with other units by using the "Remote ON-OFF" function.

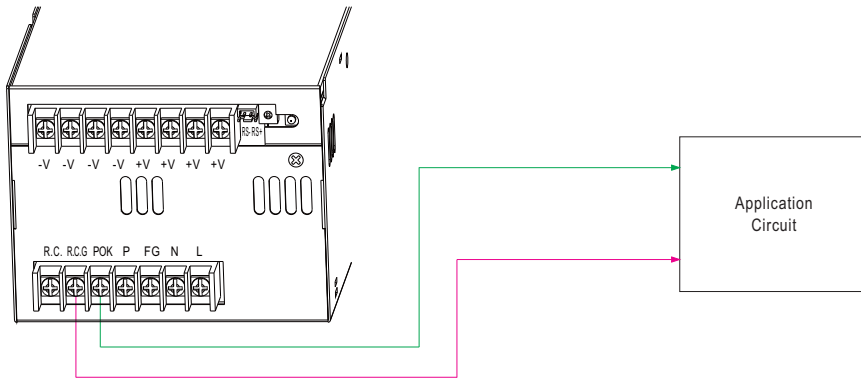


| Between R.C. and R.C.G | Power Supply Status |
|------------------------|---------------------|
| Switch Short           | ON                  |
| Switch Open            | OFF                 |

### 3. POK signal

※ POK signal indicates the output status of the power supply. It can operate in two ways : One is sinking current from external TTL signal ; the other is sending out a TTL voltage signal.

◎ **Sinking current from external TTL signal:** The maximum sink current is 10mA and the maximum external voltage is 5.6V.



### 4. Current Sharing with Remote Sense

PSPA-1000 has the built-in active current sharing function and can be connected in parallel, up to 4 units, to provide higher output power as exhibited below :

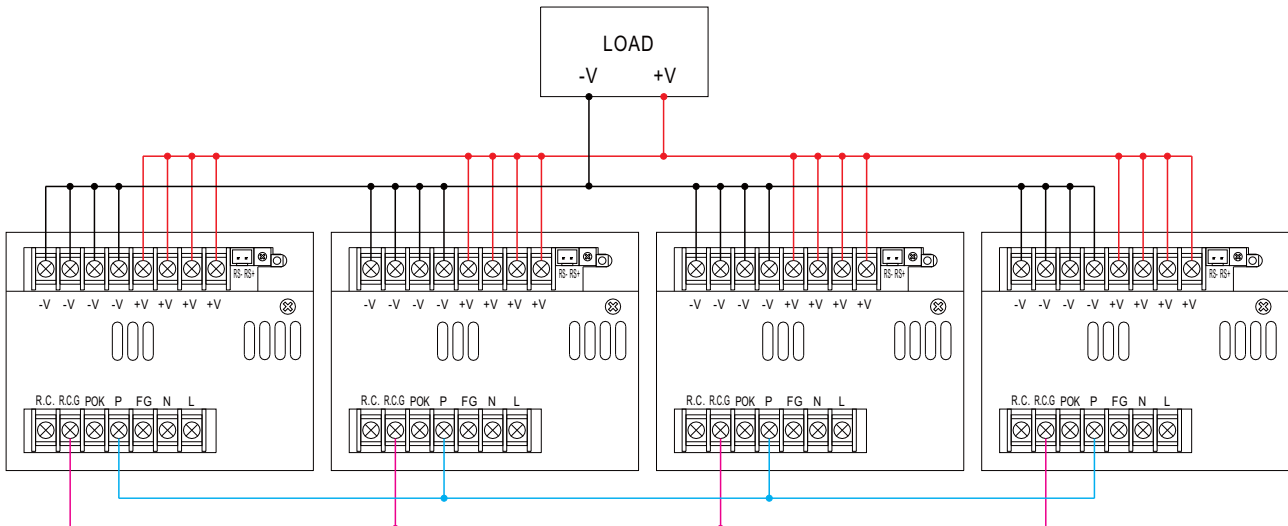
※ The power supplies should be paralleled using short and large diameter wiring and then connected to the load.

※ Difference of output voltages among parallel units should be less than 0.2V.

※ The total output current must not exceed the value determined by the following equation:

$$\text{Maximum output current at parallel operation} = (\text{Rated current per unit}) \times (\text{Number of unit}) \times 0.9$$

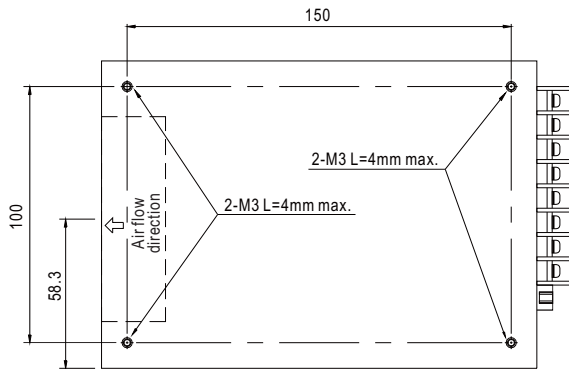
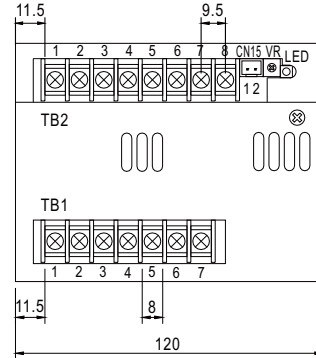
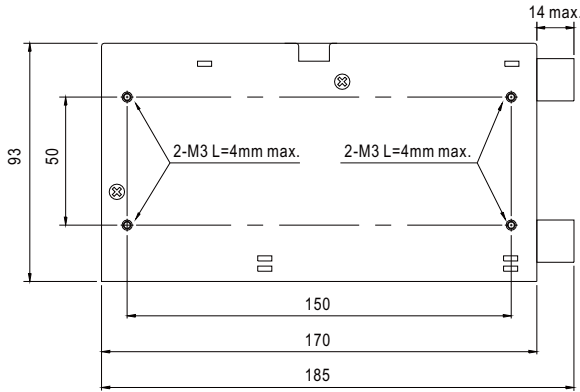
※ When the total output current is less than 5% of the total rated current, or say (5% of Rated current per unit) × (Number of unit) the current shared among units may not be fully balanced.



◎ For Remote Sense, please refer to "Remote Sense" section.

## Mechanical Specification

Case No.910A Unit:mm



RS Connector(CN15) : JST B-XH or equivalent

| Pin No. | Assignment | Mating Housing           | Terminal                      |
|---------|------------|--------------------------|-------------------------------|
| 1       | RS-        | JST XHP<br>or equivalent | JST SXH-001T<br>or equivalent |
| 2       | RS+        |                          |                               |

Terminal Pin No. Assignment(TB1)

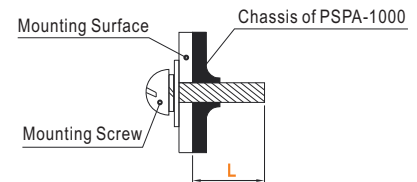
| Pin No. | Assignment       |
|---------|------------------|
| 1       | R.C.             |
| 2       | R.C.G            |
| 3       | POK              |
| 4       | P(Current Share) |
| 5       | FG $\perp$       |
| 6       | AC/N             |
| 7       | AC/L             |

Terminal Pin No. Assignment(TB2)

| Pin No. | Assignment   |
|---------|--------------|
| 1~4     | DC OUTPUT -V |
| 5~8     | DC OUTPUT +V |

### ※ Mounting Instruction

| Recommended Screw Size | MAX. Penetration Depth L | Recommended mounting torque |
|------------------------|--------------------------|-----------------------------|
| M3                     | 4mm                      | 6-8Kgf-cm                   |



## INSTALLATION MANUAL

Please refer to : <http://www.meanwell.com/manual.html>

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