



| Dimension |     |           |      |
|-----------|-----|-----------|------|
| L         | W   | H         |      |
| 295       | 127 | 41 (1U)   | mm   |
| 11.6      | 5   | 1.61 (1U) | inch |



## ■ Features

- Universal AC input / Full range
- Built-in active PFC function
- High efficiency up to 89%
- Forced air cooling by built-in DC fan
- Output voltage programmable
- Built-in OR-ing diode, support hot swap (hot plug)
- Active current sharing up to 3000W for one 19" rack shelf
- Optiona I<sup>2</sup>C interface
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Optional conformal coating
- 5 years warranty

## ■ Certificates

- Safety: UL/EN/IEC 60950-1
- EMC: EN 55022 / 55024

## ■ Applications

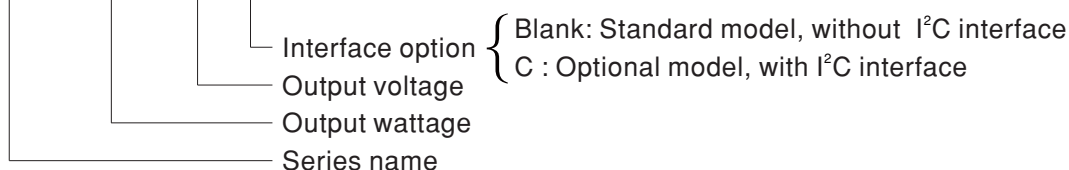
- Industrial automation
- Distributed power architecture system
- Wireless/telecommunication solution
- Redundant power system
- Electric vehicle charger system
- Constant current source system

## ■ Description

RCP-1000 is a 1KW single output rack mountable front end AC/DC power supply This series operates for 90~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by the built-in DC fan with fan speed control, working for the temperature up to 60°C. RCP-1000 provides vast design flexibility by equipping various built-in functions such as the output programming, active current sharing (up to 8000W via three 19" rack shelves, RCP-1U), remote control, auxiliary power, alarm signal, etc.

## ■ Model Encoding / Order Information

RCP - 1000 - 24

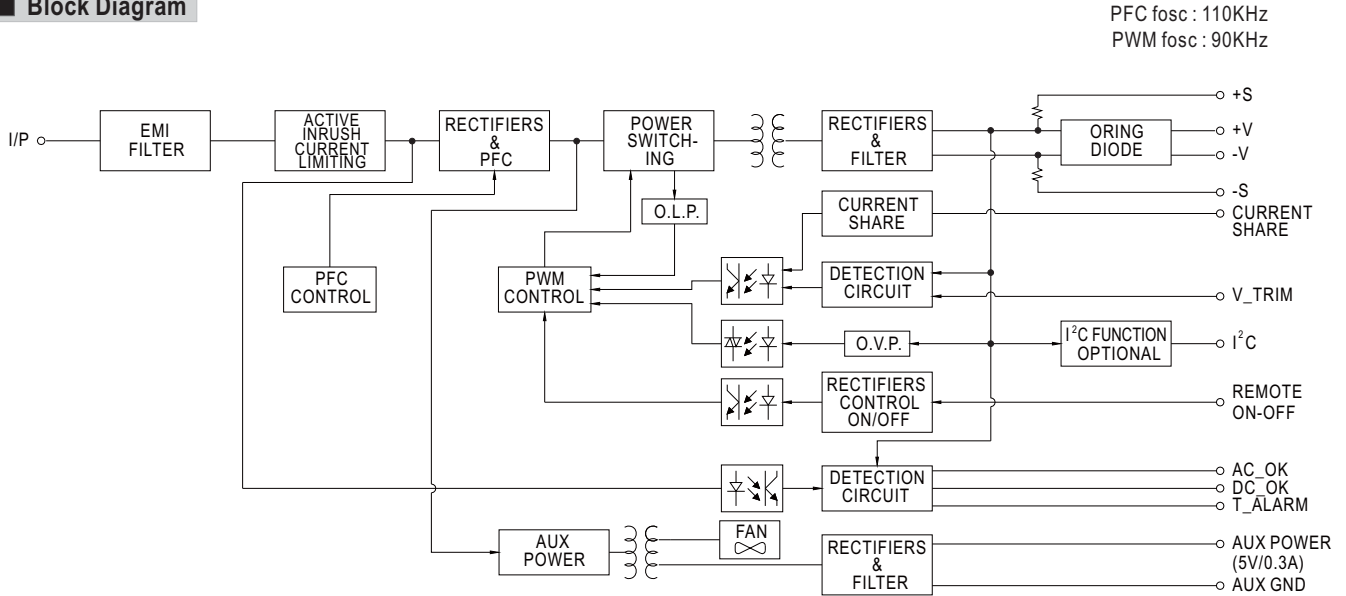


※ Note: 19" rack shelf, RCP-1U, available. Details available on <http://www.meanwell.com/>

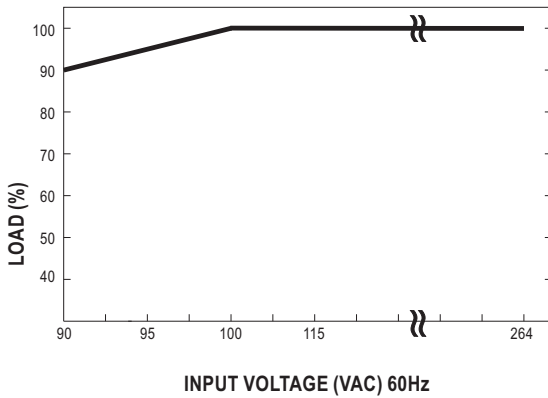
## SPECIFICATION

| MODEL                          |   | RCP-1000-12   | RCP-1000-24                           | RCP-1000-48                             |  |
|--------------------------------|---|---|---------------------------------------|---|--|
| OUTPUT                         | DC VOLTAGE  | 12V   | 24V                                   | 48V                                     |  |
|                                | RATED CURRENT   | 60A   | 40A                                   | 21A                                     |  |
|                                | CURRENT RANGE   | 0 ~ 60A   | 0 ~ 40A                               | 0 ~ 21A                                 |  |
|                                | RATED POWER   | 720W  | 960W                                  | 1008W                                   |  |
|                                | RIPPLE & NOISE (max.) Note.2  | 150mVp-p  | 200mVp-p                              | 300mVp-p                                |  |
|                                | VOLTAGE ADJ. RANGE(SVR)   | 11.6 ~ 12.4V  | 23.2 ~ 24.8V                          | 46.3 ~ 49.7V                            |  |
|                                | VOLTAGE TOLERANCE Note.3  | ±1.0%   | ±1.0%                                 | ±1.0%                                   |  |
|                                | LINE REGULATION   | ±0.5%   | ±0.5%                                 | ±0.5%                                   |  |
|                                | LOAD REGULATION   | ±0.5%   | ±0.5%                                 | ±0.5%                                   |  |
|                                | SETUP, RISE TIME  | 1000ms, 60ms/230VAC at full load  |                                       |   |  |
| HOLD UP TIME (Typ.)            | 16ms/230VAC at full load  |   |                                       |   |  |
| INPUT                          | VOLTAGE RANGE Note.5  | 90 ~ 264VAC 127 ~ 370VDC  |                                       |   |  |
|                                | FREQUENCY RANGE   | 47 ~ 63Hz   |                                       |   |  |
|                                | EFFICIENCY (Typ.)   | 81%   | 87%                                   | 89%                                     |  |
|                                | AC CURRENT (Typ.)   | 8.5A/115VAC 4.5A/230VAC   | 10.5A/115VAC 5.5A/230VAC              | 11A/115VAC 5.5A/230VAC                  |  |
|                                | INRUSH CURRENT (Typ.)   | COLD START 50A  |                                       |   |  |
|                                | LEAKAGE CURRENT   | <1.1mA / 230VAC   |                                       |   |  |
| PROTECTION                     | OVERLOAD  | 105 ~ 125% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed |                                       |   |  |
|                                | OVER VOLTAGE  | 13.2 ~ 16.2V  | 26.4 ~ 32.4V                          | 52.8 ~ 64.8V                            |  |
|                                |   | Protection type : Shut down o/p voltage, re-power on to recover   |                                       |   |  |
|                                | OVER TEMPERATURE  | Shut down o/p voltage, recovers automatically after temperature goes down   |                                       |   |  |
| FUNCTION                       | AUXILIARY POWER   | 5V @ 0.3A   |                                       |   |  |
|                                | REMOTE ON-OFF CONTROL   | By electrical signal or dry contact ON:short OFF:open   |                                       |   |  |
|                                | REMOTE SENSE  | Compensate voltage drop on the load wiring up to 0.5V   |                                       |   |  |
|                                | OUTPUT VOLTAGE PROGRAMMABLE   | Adjustment of output voltage is allowable to 90 ~ 110% of nominal output voltage. Please refer to the Function Manual.                |                                       |   |  |
|                                | DC OK SIGNAL  | The isolated TTL signal out, Please refer to the Installation Manual  |                                       |   |  |
|                                | AC OK SIGNAL  | The isolated TTL signal out, Please refer to the Installation Manual  |                                       |   |  |
|                                | OVER TEMP WARNING   | Logic " High" for over temperature warning, Please refer to the Installation Manual, isolated signal                                  |                                       |   |  |
| ENVIRONMENT                    | WORKING TEMP.   | -20 ~ +60°C (Refer to "Derating Curve")   |                                       |   |  |
|                                | WORKING HUMIDITY  | 20 ~ 90% RH non-condensing  |                                       |   |  |
|                                | STORAGE TEMP., HUMIDITY   | -40 ~ +85°C, 10 ~ 95% RH  |                                       |   |  |
|                                | TEMP. COEFFICIENT   | ±0.02%/°C (0 ~ 50°C)  |                                       |   |  |
|                                | VIBRATION   | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes  |                                       |   |  |
| SAFETY & EMC (Note 4)          | SAFETY STANDARDS  | UL60950-1, TUV EN60950-1 approved   |                                       |   |  |
|                                | WITHSTAND VOLTAGE   | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.7KVDC   |                                       |   |  |
|                                | 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   | EN55022 (CISPR22) / EN55011 (CISPR11) | Class B                                 |  |
|                                |   | Radiated  | EN55022 (CISPR22) / EN55011 (CISPR11) | Class B                                 |  |
|                                |   | Harmonic Current  | EN61000-3-2                           | -----                                   |  |
|                                |   | Voltage Flicker   | EN61000-3-3                           | -----                                   |  |
|                                | EMC IMMUNITY  | EN55024, EN61204-3, EN61000-6-2   |                                       |   |  |
|                                |   | Parameter   | Standard                              | Test Level / Note                       |  |
|                                |   | ESD   | EN61000-4-2                           | Level 3, 8KV air ; Level 2, 4KV contact |  |
|                                |   | Radiated  | EN61000-4-3                           | Level 3                                 |  |
|                                |   | EFT / Burst   | EN61000-4-4                           | Level 3                                 |  |
|                                |   | Surge   | EN61000-4-5                           | Level 4, 2KV/Line-Line 4KV/Line-Earth   |  |
|                                |   | Conducted   | EN61000-4-6                           | Level 3                                 |  |
| Magnetic Field                 |   | EN61000-4-8   | Level 4                               |   |  |
| Voltage Dips and Interruptions | EN61000-4-11  | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods  |                                       |   |  |
| OTHERS                         | MTBF  | 274K hrs min. Telcordia SR-332 (Bellcore) ; 107.3K hrs min. MIL-HDBK-217F (25°C)  |                                       |   |  |
|                                | DIMENSION   | 295*127*41mm (L*W*H)  |                                       |   |  |
|                                | PACKING   | 1.93Kg; 6pcs/12.6Kg/1.04CUFT  |                                       |   |  |
| NOTE                           | <ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>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.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>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 720mm*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." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</li> <li>Derating may be needed under low input voltages. Please check the derating curve for more details.</li> </ol> |   |                                       |   |  |

### Block Diagram

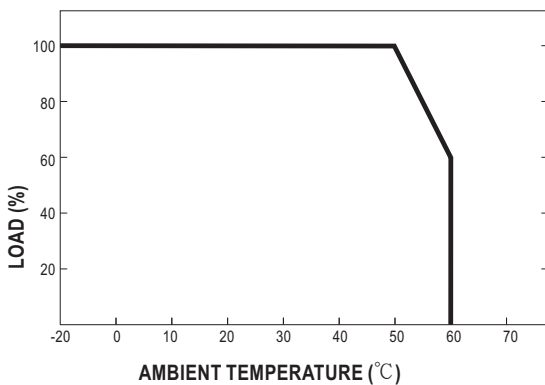


### Static Characteristics

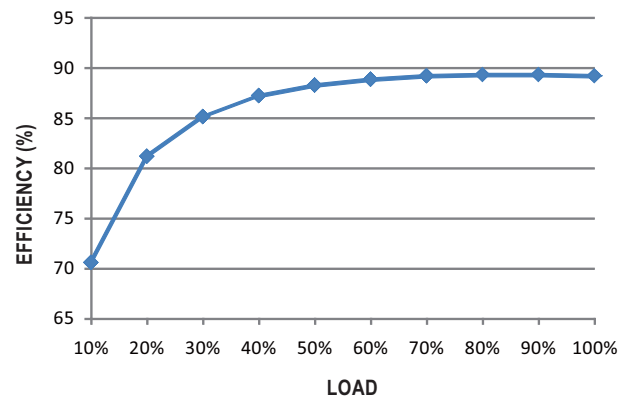


| INPUT      | MODEL | 12V         | 24V         | 48V             |
|------------|-------|-------------|-------------|-----------------|
| 180~264VAC |       | 720W<br>60A | 960W<br>40A | 1008W<br>21A    |
|            |       | 720W<br>60A | 960W<br>40A | 1008W<br>21A    |
| 115VAC     |       | 720W<br>60A | 960W<br>40A | 1008W<br>21A    |
| 100VAC     |       | 720W<br>60A | 960W<br>40A | 1008W<br>21A    |
| 90VAC      |       | 648W<br>54A | 864W<br>36A | 907.2W<br>18.9A |

### Derating Curve



### Efficiency vs Load (48V Model)



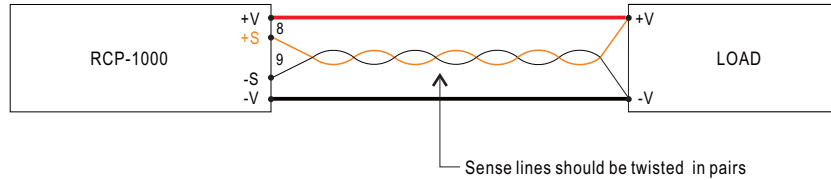
© The curve above is measured at 230VAC.

## Function Manual

### 1. Voltage Drop Compensation

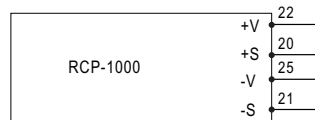
#### 1.1 Remote Sense

The remote sense compensates voltage drop on the load wiring up to 0.5V.



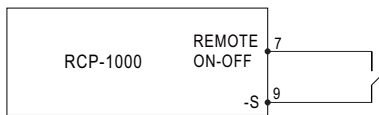
#### 1.2 Local Sense

※ The +S,-S have to be connected to the +V,-V, respectively, as the following diagram, in order to get the correct output voltage if Remote Sense is not used.

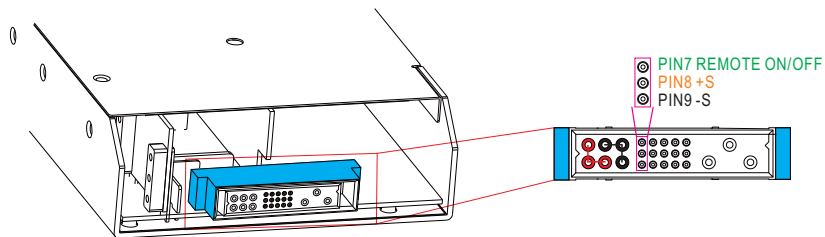


### 2. Remote ON/OFF Control

The power supply can be turned ON/OFF together or separately by using the "Remote ON-OFF" function.

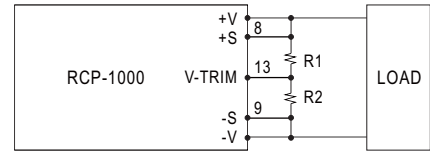
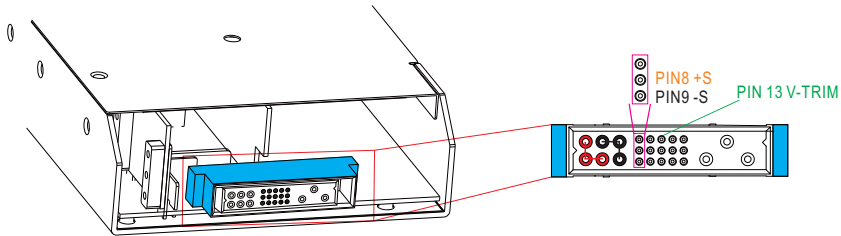


| Between Remote ON-OFF and -S | Power Supply Status |
|------------------------------|---------------------|
| Switch Short                 | ON                  |
| Switch Open                  | OFF                 |



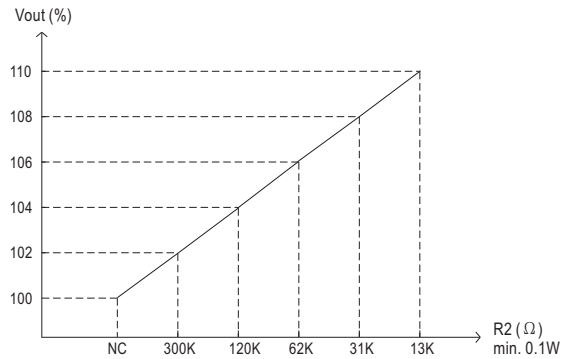
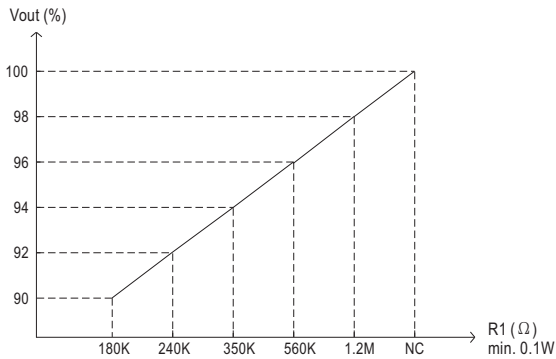
### 3. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 90~110% of the nominal voltage by applying EXTERNAL RESISTANCE.

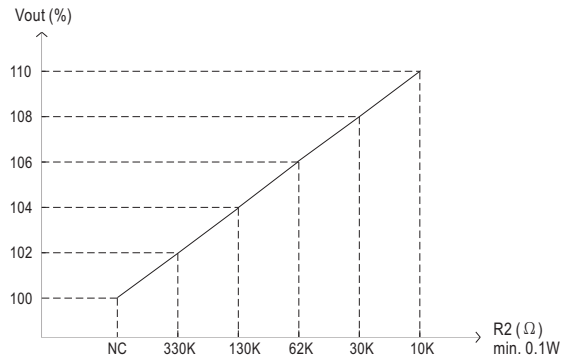
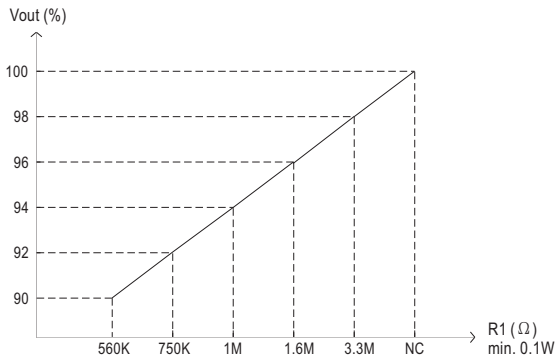


◎ +S & +V, -S & -V also need to be connected on CN501

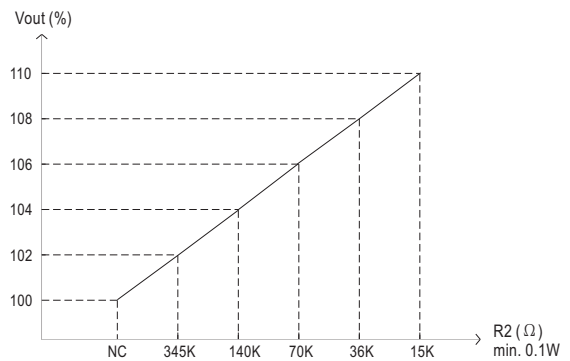
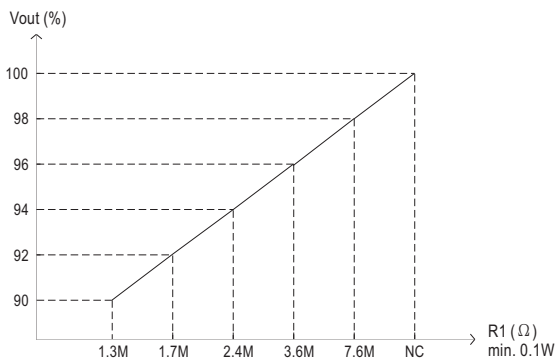
#### 3.1 RCP-1000-12



#### 3.2 RCP-1000-24



#### 3.3 RCP-1000-48

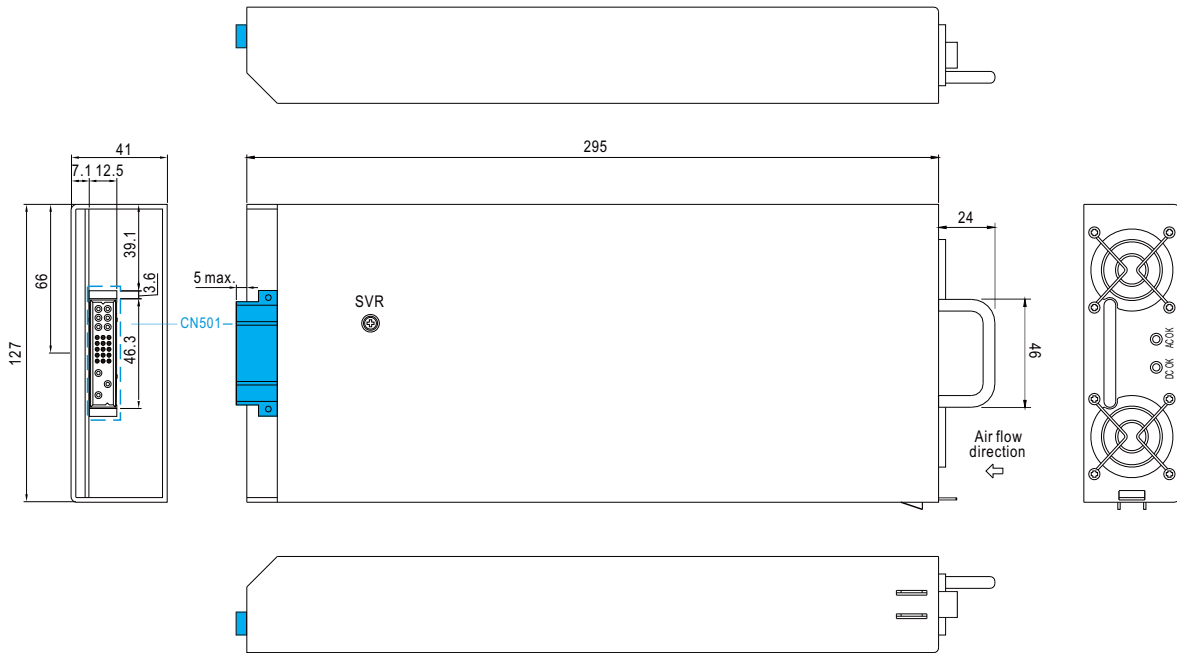


### 4. I<sup>2</sup>C Bus Interface Option

※ For the details of I<sup>2</sup>C option, please refer to the Installation Manual.

**Mechanical Specification**

Case No. 952A Unit:mm

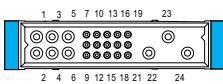


**LED Status Indicators & Corresponding Signal at Function Pins**

| Function | LED  | Description  | * Signal   | PSU Output |
|----------|------|--|------------|------------|
| AC-OK    | ON   | When input voltage $\geq 82V \pm 4V$   | 0 ~ 0.5V   | ON         |
| AC-NG    | OFF  | When input voltage $\leq 82V \pm 4V$   | 4.5 ~ 5.5V | OFF        |
| DC-OK    | ON   | When output voltage $\geq 80\% \pm 5\%$ of $V_o$ rated.                                  | 0 ~ 0.5V   | ON         |
| DC-NG    | OFF  | When output voltage $\leq 80\% \pm 5\%$ of $V_o$ rated.                                  | 4.5 ~ 5.5V | ON         |
| T-OK     | ---- | When the internal temperature (TSW1 & TSW2 short) is within safe limit                   | 0 ~ 0.5V   | ON         |
| T-ALARM  | ---- | When the internal temperature (TSW1 or TSW2 open) exceeds the limit of temperature alarm | 4.5 ~ 5.5V | OFF        |

\*Signal between function pin and "-V".

**Input / Output Connector Pin No. Assignment(CN501) : Postronic PCB24W9M400A1**



Mating Housing Postronic PCB24W9F400A1

| Pin No.  | Function     | Description  |
|----------|--------------|--|
| 1,2,4    | +V(signal)   | Positive output voltage.   |
| 3,5,6    | -V(signal)   | Negative output voltage.   |
| 7        | RemoteON-OFF | Each unit can separately turn the output on and off by electrical or dry contact . Short: ON, Open:OFF.  |
| 8        | +S           | Positive sensing for Remote Sense.   |
| 9        | -S           | Negative sensing for Remote Sense.   |
| 10       | AC-OK        | Low : When input voltage is $\geq 82V_{rms} \pm 4V$ . (Note.1)<br>High : When input voltage in $\leq 82V_{rms} \pm 4V$ .   |
| 11       | DC-OK        | High : When $V_{out} \leq 80\% \pm 5\%$ . (Note.1)<br>Low : When $V_{out} \geq 80\% \pm 5\%$   |
| 12       | CS           | Current sharing signal.<br>When units are connected in parallel, the CS pins of the units should be connected to allow current balance between units.  |
| 13       | V-TRIM       | Connection for output voltage programming.   |
| 14       | T-ALARM      | High : When the internal temperature is within safe limit. (Note.1)<br>Low : 10°C below the thermal shut down limit.   |
| 15       | +5V-AUX      | Auxiliary voltage output, 4.3~5.3V, referenced to GND-AUX(pin 7).<br>The maximum load current is 0.3A. This output has the built-in "Oring diodes" and is not controlled by the remote ON/OFF control. |
| 16       | GND-AUX      | Auxiliary voltage output GND.<br>The signal return is isolated from the output terminals (+V & -V).  |
| 17       | SCL          | Serial clock used in the I <sup>2</sup> C interface option. Refer to the Instruction Manual. (Note.1)  |
| 18       | SDA          | Serial data used in the I <sup>2</sup> C interface option. Refer to the Instruction Manual. (Note.1)   |
| 19,20,21 | A0,A1,A2     | I <sup>2</sup> C interface address lines. Refer to the Instruction Manual.   |
| 22       | FG           | AC Ground connection.  |
| 23       | AC/L         | AC Line connection.  |
| 24       | AC/N         | AC Neutral connection.   |

Note1: Non-isolated signal, referenced to the output terminal -V.

**Installation Manual**

Please refer to the manual of RCP-1000.