



- Features :
  - Universal AC input / Full range
  - AC input active surge current limiting
  - Built-in 5V/0.5A auxiliary power
  - Built-in active PFC function, PF>0.95
  - Protections: Short circuit/Over load/Over voltage/Over temperature
  - Output voltage can be trimmed between 40 ~ 110% of the rated output voltage
  - Forced air cooling by built-in DC fan
  - High power density 10.7w/inch<sup>3</sup>
  - 1U low profile 41mm
  - Active current sharing up to 4000W(3+1) (Note.8)
  - DC OK Signal
  - Built-in remote ON-OFF control
  - Built-in remote sense function
  - 3 years warranty

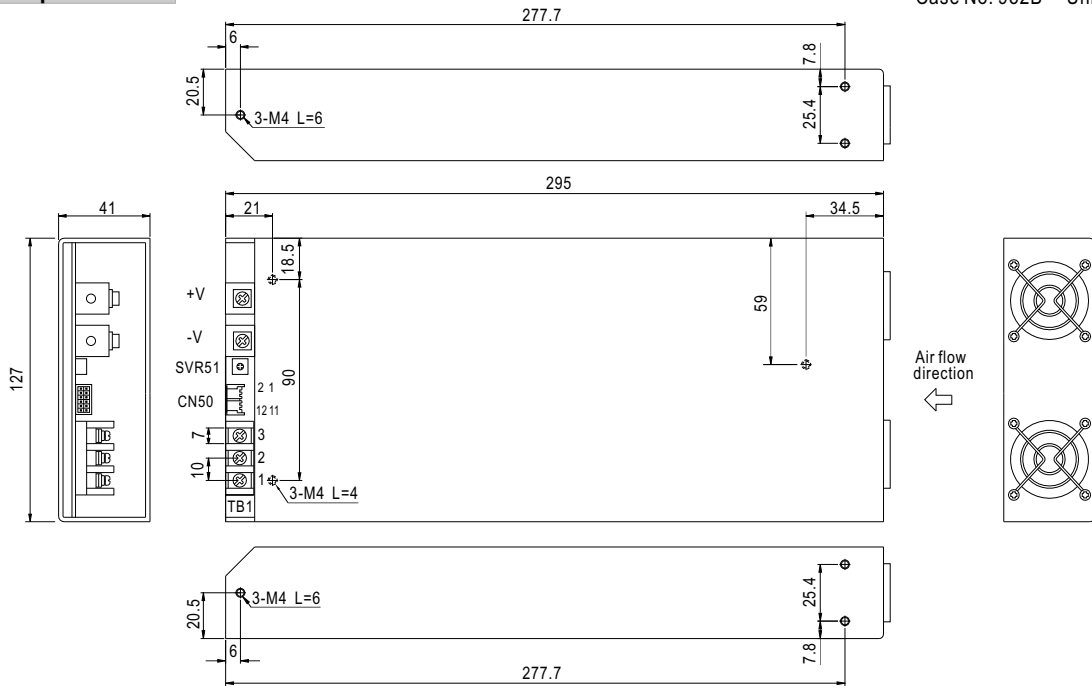


**SPECIFICATION**

| MODEL                 |   | RSP-1000-12  | RSP-1000-15              | RSP-1000-24  | RSP-1000-27 | RSP-1000-48  |
|-----------------------|---|--|--------------------------|--------------|-------------|--|
| OUTPUT                | DC VOLTAGE  | 12V  | 15V                      | 24V          | 27V         | 48V  |
|                       | RATED CURRENT   | 60A  | 50A                      | 40A          | 37A         | 21A  |
|                       | CURRENT RANGE   | 0 ~ 60A  | 0 ~ 50A                  | 0 ~ 40A      | 0 ~ 37A     | 0 ~ 21A  |
|                       | RATED POWER   | 720W   | 750W                     | 960W         | 999W        | 1008W  |
|                       | RIPPLE & NOISE (max.) Note.2  | 150mVp-p   | 150mVp-p                 | 150mVp-p     | 150mVp-p    | 150mVp-p   |
|                       | VOLTAGE ADJ. RANGE  | 10 ~ 13.5V   | 13.5 ~ 16.5V             | 20 ~ 26.4V   | 24 ~ 30V    | 43 ~ 55V   |
|                       | VOLTAGE TOLERANCE Note.3  | ±1.0%  | ±1.0%                    | ±1.0%        | ±1.0%       | ±1.0%  |
|                       | LINE REGULATION   | ±0.5%  | ±0.5%                    | ±0.5%        | ±0.5%       | ±0.5%  |
|                       | LOAD REGULATION   | ±0.5%  | ±0.5%                    | ±0.5%        | ±0.5%       | ±0.5%  |
|                       | SETUP, RISE TIME  | 300ms, 50ms at full load   |                          |              |             |  |
| HOLD TIME (Typ.)      | 16ms/230VAC   | 16ms/115VAC at full load   |                          |              |             |  |
| INPUT                 | VOLTAGE RANGE Note.5  | 90 ~ 264VAC  | 127 ~ 370VDC             |              |             |  |
|                       | FREQUENCY RANGE   | 47 ~ 63Hz  |                          |              |             |  |
|                       | POWER FACTOR (Typ.)   | 0.95/230VAC  | 0.98/115VAC at full load |              |             |  |
|                       | EFFICIENCY (Typ.)   | 83%  | 85%                      | 88%          | 88%         | 90%  |
|                       | AC CURRENT (Typ.)   | 12A/115VAC   | 6A/230VAC                |              |             |  |
|                       | INRUSH CURRENT (Typ.)   | 25A/115VAC   | 40A/230VAC               |              |             |  |
| LEAKAGE CURRENT       | <2.0mA / 240VAC   |  |                          |              |             |  |
| PROTECTION            | OVER LOAD   | 105 ~ 125% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed  |                          |              |             |  |
|                       | OVER VOLTAGE  | 13.8 ~ 16.8V   | 17 ~ 20.5V               | 27.6 ~ 32.4V | 31 ~ 36.5V  | 56.6 ~ 66.2V   |
|                       | OVER TEMPERATURE  | 85°C ±5°C (TSW2) Detect on heatsink of O/P diode; 75°C ±5°C (TSW1) Detect on heatsink of power transistor<br>Protection type : Shut down o/p voltage, recovers automatically after temperature goes down |                          |              |             |  |
| FUNCTION              | AUXILIARY POWER(AUX)  | 5V @ 0.5A (+5%, -8%)   |                          |              |             |  |
|                       | REMOTE ON/OFF CONTROL Note.6  | Power on : short between on/off(pin6) & -S(pin2) on CN50   |                          |              |             | Power off : open between on/off(pin6) & -S(pin2) on CN50 |
|                       | DC OK SIGNAL  | Open collector signal low when PSU turns on, Max. sink current :10mA   |                          |              |             |  |
|                       | OUTPUT VOLTAGE TRIM Note.6  | Adjustment of output voltage is possible between 40 ~ 110% of rated output   |                          |              |             |  |
|                       | CURRENT SHARING(CS)Note.7   | Please refer to function manual  |                          |              |             |  |
| ENVIRONMENT           | WORKING TEMP.   | -20 ~ +60°C (Refer to output load 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:1.5KVAC O/P-FG:0.5KVAC  |                          |              |             |  |
|                       | ISOLATION RESISTANCE  | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC   |                          |              |             |  |
|                       | EMI CONDUCTION & RADIATION  | Compliance to EN55022 (CISPR22)  |                          |              |             |  |
|                       | HARMONIC CURRENT  | Compliance to EN61000-3-2,-3   |                          |              |             |  |
| OTHERS                | MTBF  | 35K hrs min. MIL-HDBK-217F (25°C)  |                          |              |             |  |
|                       | DIMENSION   | 295*127*41mm (L*W*H)   |                          |              |             |  |
|                       | PACKING   | 1.95Kg; 6pcs/12.7Kg/0.99CUFT   |                          |              |             |  |
| NOTE                  | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.<br>5. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>6. The power supply unit will have no output if the shorting connector is not assembled. It contains two shorting wires: one is from on/off(pin6) to -s(pin2) and the other is from Vco(pin8) to Vca(pin10). Please refer to function manual for details.<br>7. In parallel connection, maybe only one unit operate if the total output load is less than 5% of rated load condition.<br>8. Please consult MEAN WELL for applications of more units connecting in parallel. |  |                          |              |             |  |

### Mechanical Specification

Case No. 952B Unit:mm



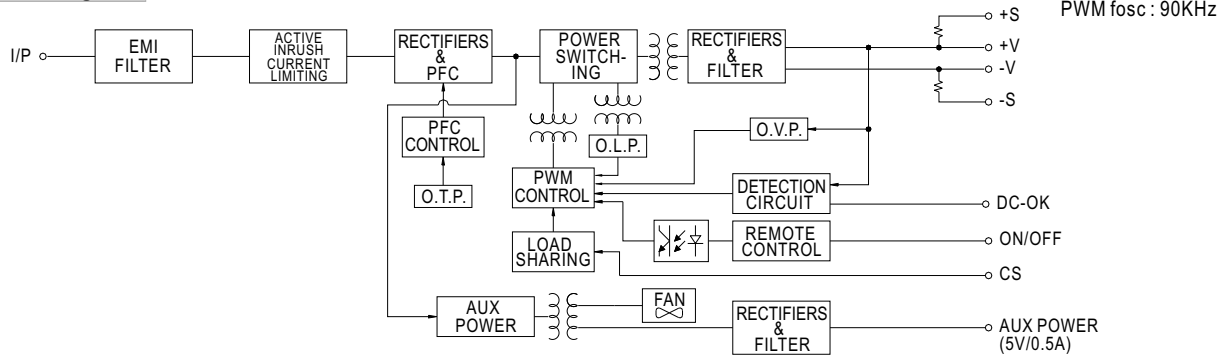
AC Input Terminal  
Pin No. Assignment

| Pin No. | Assignment |
|---------|------------|
| 1       | AC/N       |
| 2       | AC/L       |
| 3       | FG $\perp$ |

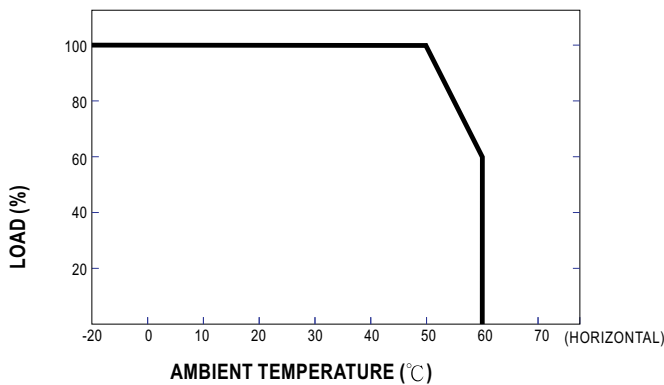
Control pin number assignment (CN50) : JST B12B-PHDSS or equivalent

| Pin No. | Assignment | Pin No. | Assignment | Pin No. | Assignment | Mating Housing              | Terminal                         |
|---------|------------|---------|------------|---------|------------|-----------------------------|----------------------------------|
| 1       | +S         | 5       | DC-OK      | 9       | Vci        | JST PHDR-12VS or equivalent | JST SPHD-002T-P0.5 or equivalent |
| 2       | -S         | 6       | ON/OFF     | 10      | Vca        |                             |                                  |
| 3       | G-AUX      | 7       | CS         | 11,12   | GND        |                             |                                  |
| 4       | 5V-AUX     | 8       | Vco        |         |            |                             |                                  |

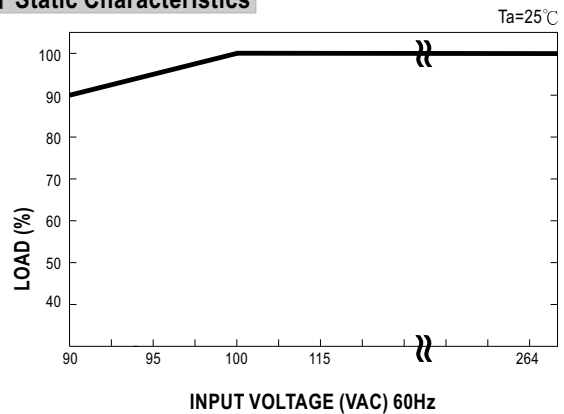
### Block Diagram



### Derating Curve



### Static Characteristics



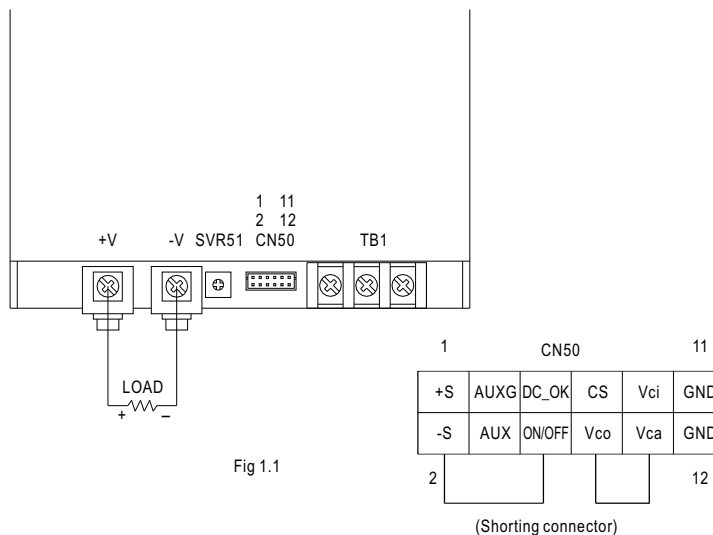
■ Function Description of CN50

| Pin No. | Function | Description   |
|---------|----------|---|
| 1       | +S       | Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V. |
| 2       | -S       | Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V. |
| 3       | G-AUX    | Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).   |
| 4       | 5V-AUX   | Auxiliary voltage output, 4.6~5.25V, referenced to pin 3(G-AUX). The maximum load current is 0.5A. This output has the built-in oring diodes and is not controlled by the "remote ON/OFF control".                    |
| 5       | DC_OK    | Open collector signal, referenced to pin11,12(GND). Low when PSU turns on. The maximum sink current is 10mA and the maximum external voltage is 5.6V.   |
| 6       | ON/OFF   | Turns the output on and off by electrical or dry contact between pin 6 ( ON/OFF) and pin 2 (-S). Short: Power ON, Open: Power OFF.  |
| 7       | CS       | Current sharing signal. When units are connected in parallel, the CS pins of the units should be connected to allow current balance between units.  |
| 8       | Vco      | Short connecting between Vco (pin8) and Vca (pin10) if output voltage trim function is not used.  |
| 9       | Vci      | Connect to external DC voltage source for output voltage trimming, referenced to pin 2 (-S). Output voltage can be trimmed between 40 ~ 110% of the rated output voltage.   |
| 10      | Vca      | Connect to external resistor (1/8W) for output voltage trimming. Output voltage can be trimmed between 40 ~ 110% of the rated output voltage. Please refer to function manual for details.                            |
| 11,12   | GND      | These pins connect to the negative terminal (-V). Return for DC_OK Signal output.   |

■ Function Manual

1. "Remote ON/OFF" and "Output voltage trim" functions are not used.

The power supply unit will have no output if the shorting connector (accessory comes along with the PSU) is not assembled. It contains two shorting wires : one is from ON/OFF (pin6) to -S (pin2) and the other is from Vco (pin8) to Vca (pin10).



## 2. Remote ON/OFF

The PSU can be turned ON/OFF by using the "Remote ON/OFF" function

| Between ON/OFF(pin6) and -S(pin2) | Output Status |
|-----------------------------------|---------------|
| SW ON (Short)                     | ON            |
| SW OFF (Open)                     | OFF           |

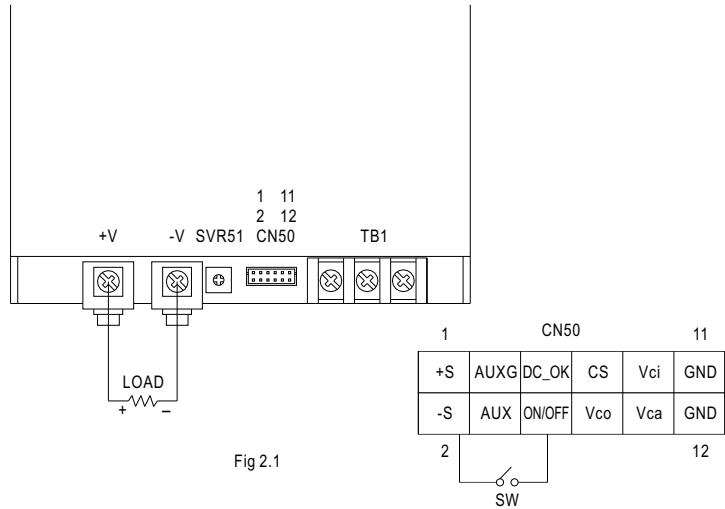


Fig 2.1

## 3. DC\_OK signal

"DC\_OK" is an open collector signal. It indicates the output status of the PSU. It can operate in two ways : One is sinking current from external TTL signal ; the other is sending out a TTL voltage signal.

### 3-1 Sink current :

The maximum sink current is 10mA and the maximum external voltage is 5.6V.

### 3-2 TTL voltage signal :

| Between DC- OK(pin5) and GND(pin11&12) | Output Status |
|--|---------------|
| 0 ~ 1V                                 | ON            |
| 3.3 ~ 5.6V                             | OFF           |

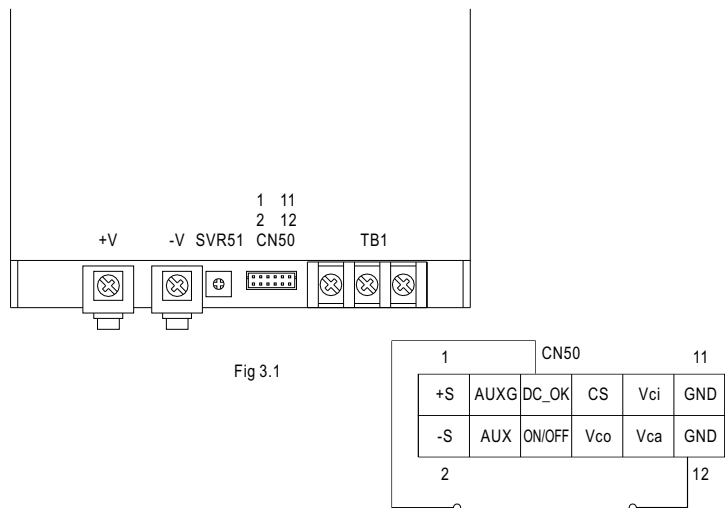


Fig 3.1

## 4. Remote Sense

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

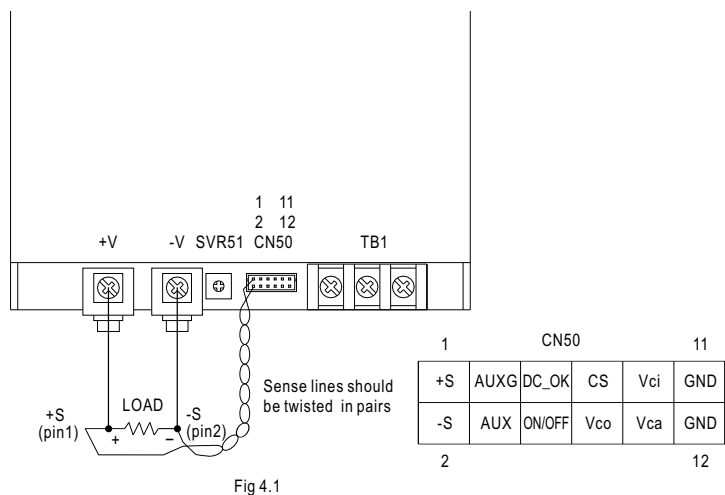


Fig 4.1

## 5. Output Voltage TRIM

Output voltage of RSP-1000 can be trimmed between 40% ~ 110% of its rated value by the following methods :

- (1) Using external voltage source between "Vci"(pin9) and "-S"(pin2) that is shown in Fig5.1

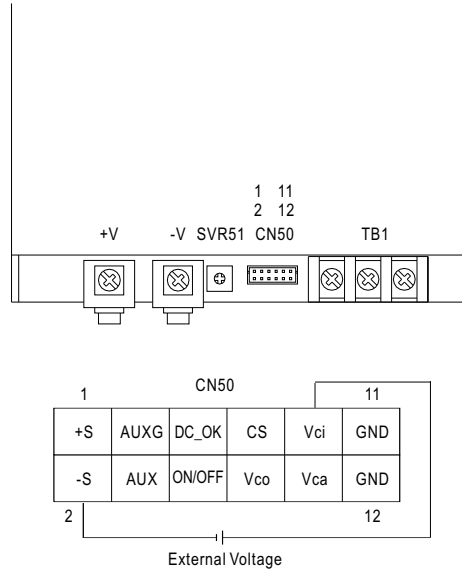
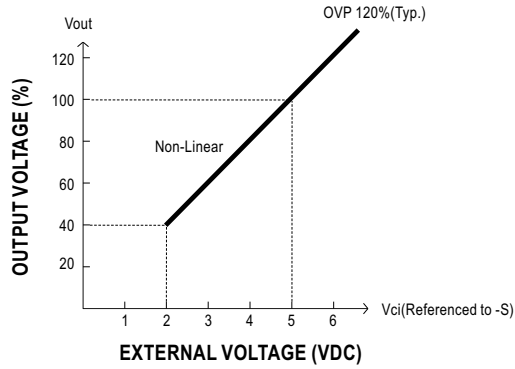


Fig 5.1

- (2) Connecting a resistor externally that in shown in Fig 5.2 & Fig 5.3

(A) O/P voltage goes down

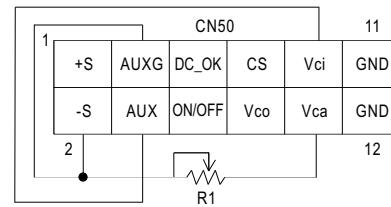
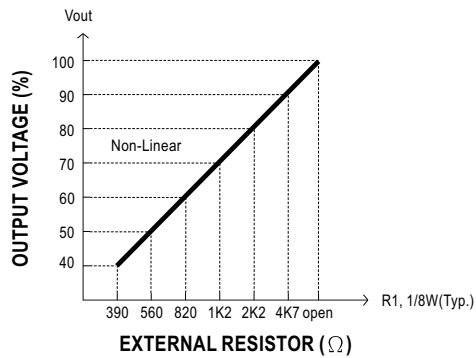


Fig 5.2

(B) O/P voltage goes up

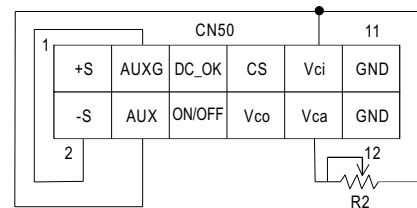
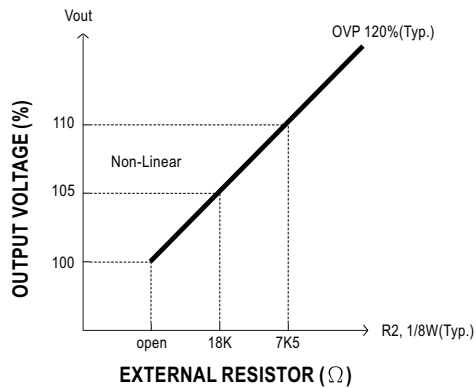


Fig 5.3

**6. Current Sharing with Remote Sensing**

RSP-1000 has the built-in active current sharing function and can be connected in parallel to provide higher output power :

- (1) Parallel operation is available by connecting the units shown as below.  
(+S,-S and CS are connected mutually in parallel).
- (2) Difference of output voltages among parallel units should be less than 2%.
- (3) The total output current must not exceed the value determined by the following equation.  
(output current at parallel operation)=(Rated current per unit)×(Number of unit)×0.9
- (4) In parallel operation 4 units is the maximum, please consult the manufacturer for applications of more connecting in parallel.
- (5) The power supplies should be paralleled using short and large diameter wiring and then connected to the load.

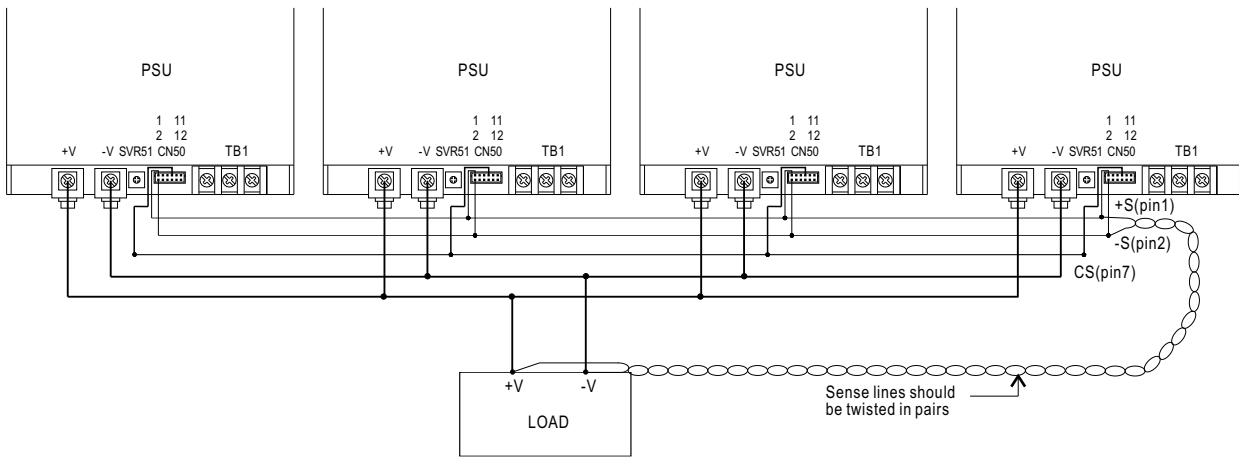


Fig 6.1

|    |      |        |     |     |     |
|----|------|--------|-----|-----|-----|
| 1  | CN50 |        |     |     | 11  |
| +S | AUXG | DC_OK  | CS  | Vci | GND |
| -S | AUX  | ON/OFF | Vco | Vca | GND |
| 2  |      |        |     |     | 12  |

Note : In parallel connection, maybe only one unit (master) operate if the total output load is less than 5% of rated load condition.  
The other PSUs (slaves) may go into standby mode and their output LEDs will not turn on.