






1,000 Watt 12 Volt, Single Output Power Supply with PFC and Parallel Functions

UNIT CODE	DESCRIPTION
PS-RSP 1000-12	1,000 Watt, 12V, Single Output, Enclosed Power Supply with PFC and Parallel Functions

SPECIFICATIONS		
Input	Output	Approvals
Universal 90 ~ 264VAC	+12VDC @ 0 ~ 60A	    

Features at a Glance:

- Universal AC Input for Worldwide Use
- AC Input Active Surge Current Limiting
- Output Voltage can be trimmed between 40-110% of the 12 Volt output (4.8V ~ 13.2V)
- Efficient (83%) & power density of 10.7 W/in³
- Active PFC circuit in compliance to EN61000-3-2
- Built-in: 5V/0.5A Auxiliary output (remote control); Remote ON-OFF control; Remote sense function
- Protections: Short circuit, Overload, Over voltage, Over temperature
- Forced air cooling by built-in DC fan
- Parallel function - current sharing up to 4 units
- DC OK signal
- Safety Standards: UL60950-1, TUV EN60950-1
- EMC: EN61204-3, heavy Industry level, criteria A
- See following pages for complete EMC details
- Certificates: UL, CUL, TUV, CB and CE
- MBTF: 116.7K hours min. MIL-HDBK-217F (25°C)
- Case: 952B
- Weight: 4.29 lbs. (1.95 Kgs)
- Dimensions: 11.6" L x 5.0" W x 1.6" H
295L x 127W x 41H mm
- 5 year warranty



PS-RSP1000-12 is a 1,000 Watt, 1U low profile, enclosed type, switching power supply with universal AC input and both parallel and PFC functions.

Standard features include: High power density of 10.7 W/in³; Output trim range 40%~110% of 12V; 83% efficiency, Active PFC function (PF>0.95). Parallel function allowing current sharing with up to 4 units totaling up to 4 kilowatts. Short circuit, Overload, Over Voltage and Over Temperature protection. Circuits include built-in 5V/0.5A auxiliary output for remote control; Remote ON-OFF control and Remote sense functions. 5 year warranty.

Ideal for industrial and military use. Typical applications include telecom/datacom/signal, instrumentation, factory automation, front-end power system, IC testing equipment or any application where space is limited and efficiency is required.

Pricing: 1+ \$ 349.95
10+ 299.50
25+ 273.00

[Release & Application Notes](#)

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- 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 / Overload / 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/inch³
 - 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
 - 5 years warranty

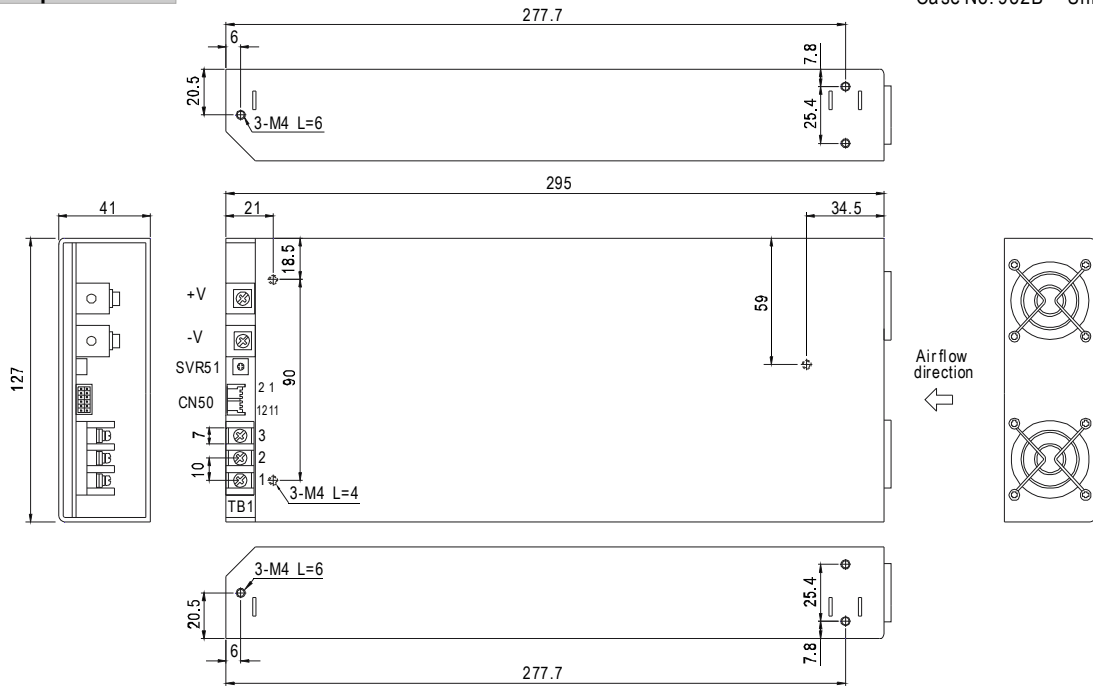


SPECIFICATION

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 UP 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	OVERLOAD	105 ~ 125% rated output power 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 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	The TTL signal out, PSU turn on = 0 ~ 1V ; PSU turn off = 3.3 ~ 5.6V				
	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 "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:0.5KVAC				
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH				
	EMC EMISSION	Compliance to EN55022 (CISPR22), EN61000-3-2,-3				
EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A					
OTHERS	MTBF	116.75K hrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	295*127*41mm (L*W*H)				
	PACKING	1.95Kg; 6pcs/12.7Kg/1.15CUFT				
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 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. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com) 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 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. 7. In parallel connection, maybe only one unit operate if the total output load is less than 5% of rated load condition. 8. Please consult MEAN WELL for applications of more units connecting in parallel.					

Mechanical Specification

Case No. 952B Unit:mm



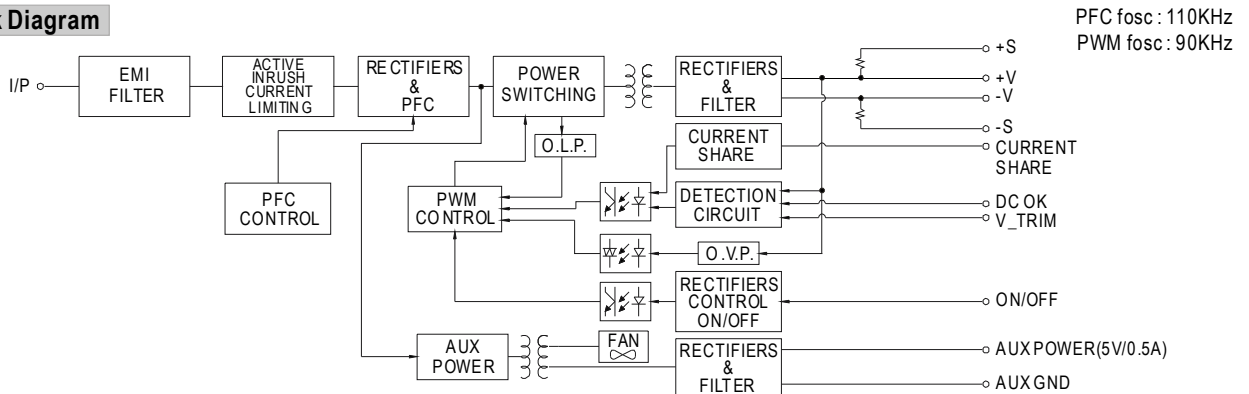
AC Input Terminal
Pin No. Assignment

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

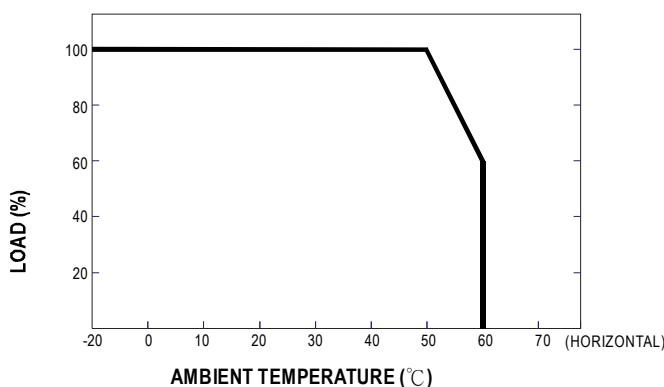
Control Pin No. Assignment (CN50) : HRS DF11-12DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	+S	5	DC-OK	9	Vci	HRS DF11-12DS or equivalent	HRS DF11-12DS or equivalent
2	-S	6	ON/OFF	10	Vca		
3	G-AUX	7	CS	11,12	GND		
4	5V-AUX	8	Vco				

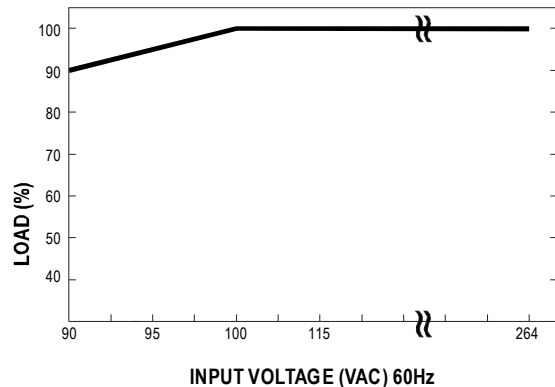
Block Diagram



Derating Curve



Static Characteristics



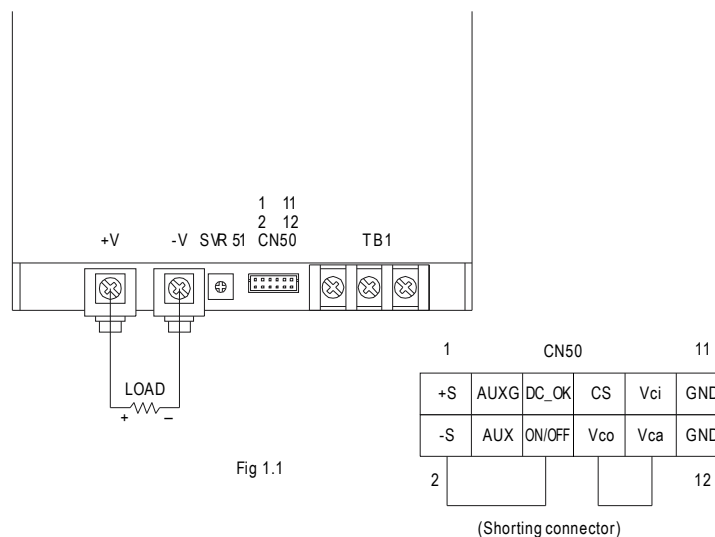
■ **Function Description of CN50**

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	V _{co}	Short connecting between V _{co} (pin8) and V _{ca} (pin10) if output voltage trim function is not used.
9	V _{ci}	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	V _{ca}	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 V_{co} (pin8) to V_{ca} (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

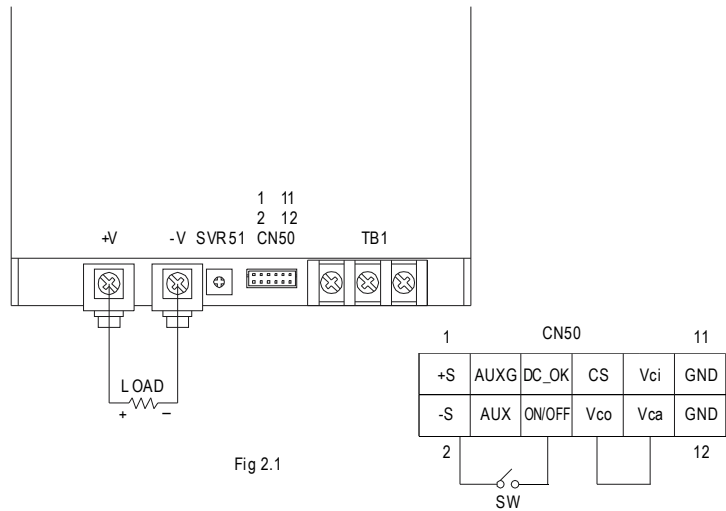


Fig 2.1

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

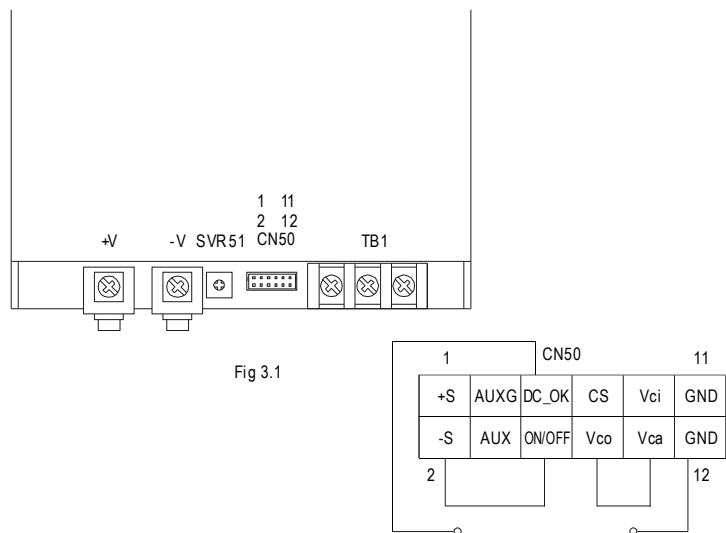


Fig 3.1

4.Remote Sense

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

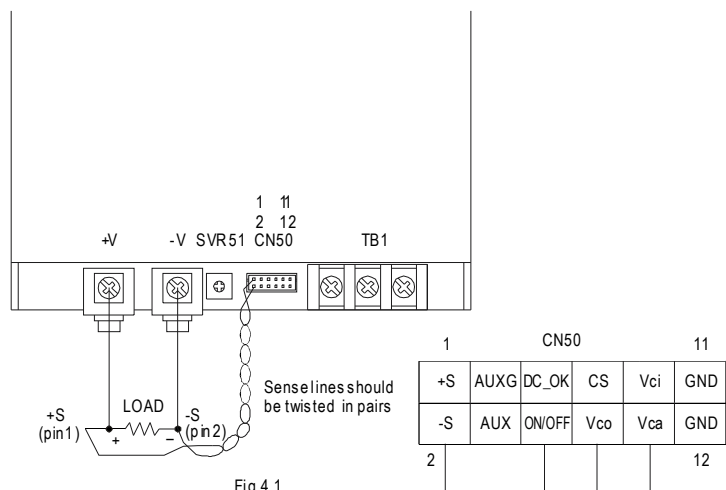
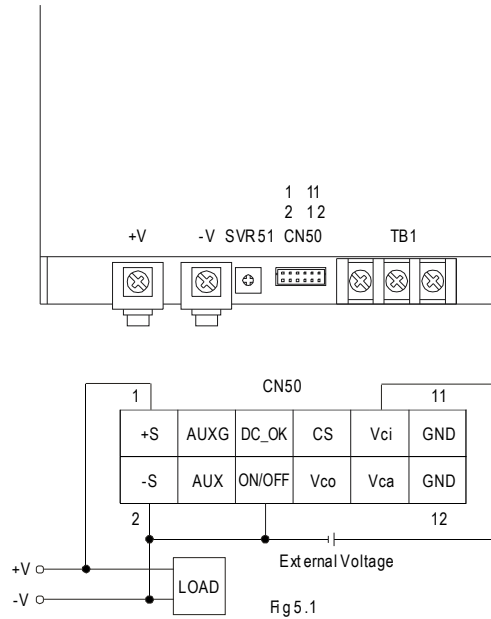
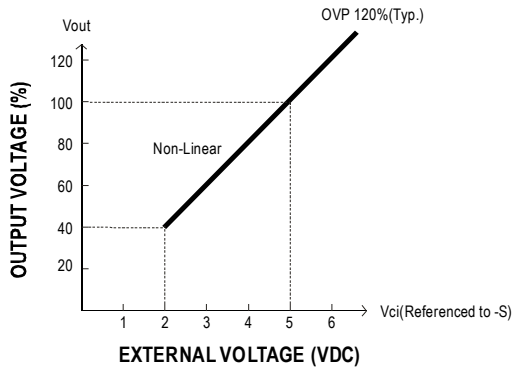


Fig 4.1

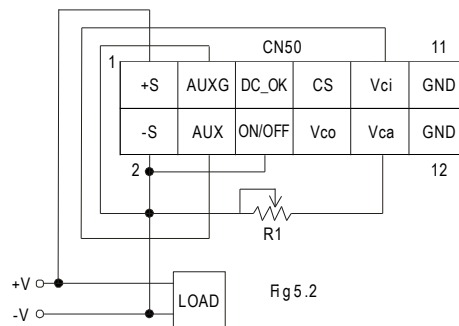
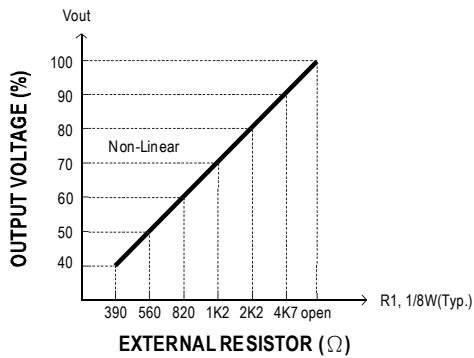
5. Output Voltage TRIM

Output voltage of RSP-1000 can be trimmed between 40% ~ 110% of its rated value by the following methods and +S & +V, -S & -V also need to be connected on CN50:

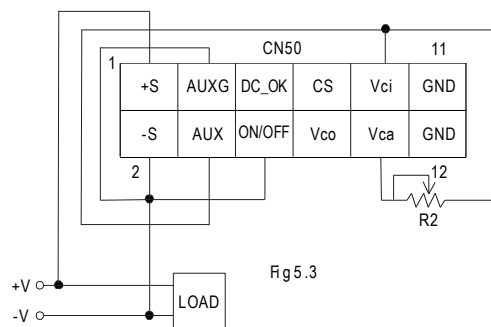
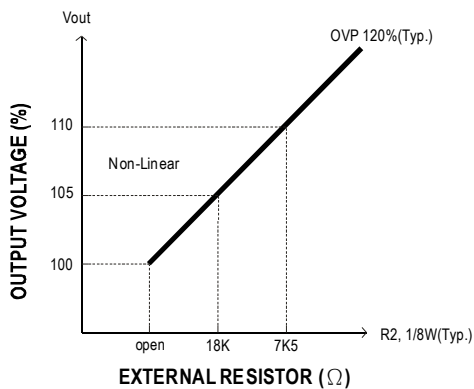
(1) Using external voltage source between "Vci" (pin9) and "-S" (pin2) that is shown in Fig5.1



(2) Connecting a resistor externally that in shown in Fig 5.2 & Fig 5.3
(A) O/P voltage goes down



(B) O/P voltage goes up



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 0.2V.
- (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.

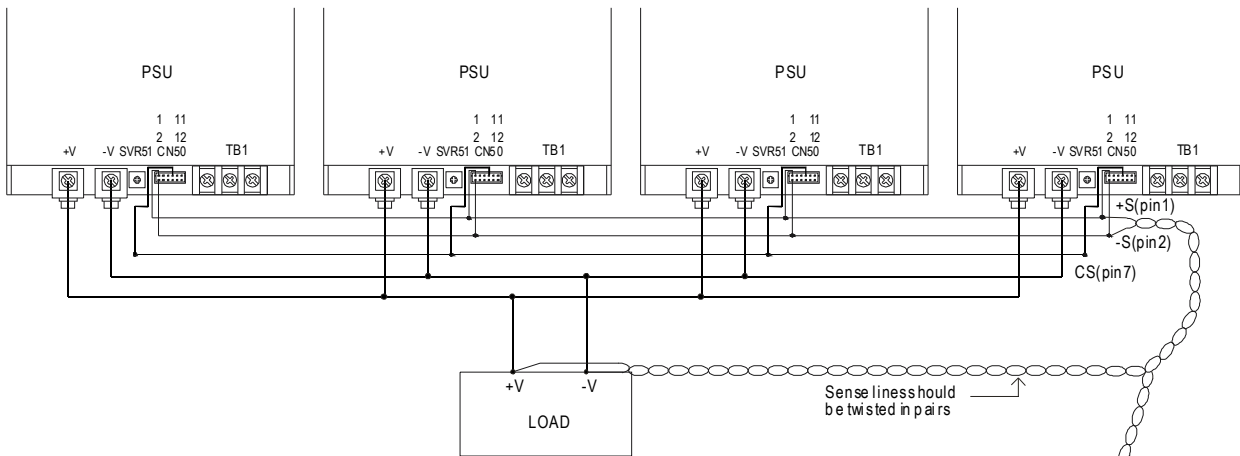
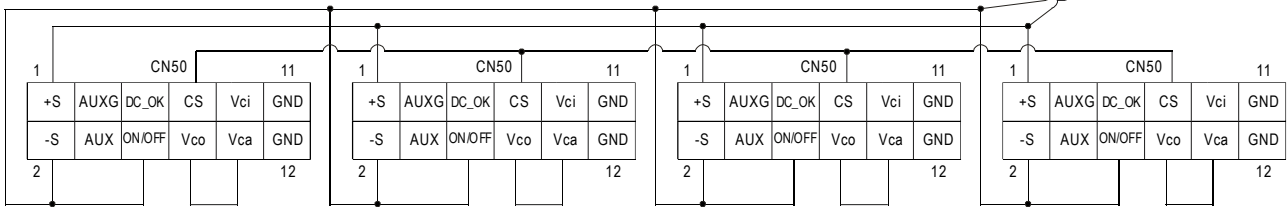


Fig 6.1



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.