






## 3,000 Watt 48 Volt, Single Output Power Supply with PFC and Parallel Functions

UNIT CODE	DESCRIPTION
PS-RSP 3000-48	3,000 Watt, 48V, Single Output, Enclosed Power Supply with PFC and Parallel Functions

SPECIFICATIONS		
Input	Output	Agency Approvals
180~264VAC	+48VDC @ 0 ~ 62.5 Amps	    

### Features at a Glance:

- 180~264V AC Input with active surge current limiting
- High power in a compact 1U package
- Efficient (91.5%) & high power density: 15.6W/inch<sup>3</sup>
- Built-in: 12V/0.1A auxiliary output for remote control; Remote ON-OFF control; Remote sense function
- Active PFC function (PF>0.95)
- Protections: Short circuit / Overload / Over voltage / Over temperature / Fan Alarm
- Output Voltage can be trimmed between 20-110% of 48V (9.6V ~ 52.8V)
- Parallel function allows current sharing (3 maximum)
- Alarm signal output (both relay contact and TTL signals)
- Forced air cooling by DC fan with speed control
- Safety Standards: UL60950-1, TUV EN60950-1
- EMC standards: (see following data sheets)
- MBTF: 104.5K hours min. MIL-HDBK-217F (25°C)
- Case: 982B
- Weight: 8.8lbs (4.0 Kgs)
- Dimensions: 10.9" L x 7.0" W x 2.5" H  
278L X 177.8W X 63.5H mm
- 5 year warranty



The incredibly compact PSRSP 3000-48, provides 3,000 Watts, with active power factor correction (PFC) and parallel functions. This 1U low profile enclosed power supply has an AC Input range of 180~264VAC, is fan cooled and measures only 10.95 x 7.00 x 2.50 inches. Standard features include: High power density 15.6W/inch<sup>3</sup>; Output trim range of 20-110% of 12V; Current sharing up to 6 kilowatts; High efficiency 90%; Built-in active PFC function (PF>0.95); Short circuit, Overload, Over Voltage and Over Temperature protection plus fan alarm. Circuits; Built-in 12V/0.1A auxiliary output for remote control; Built-in remote ON-OFF control; Built-in remote sense function; and 5 year warranty.

Ideal for industrial and military use. Typical applications include telecom/datacom/signal, instrumentation, factory automation, front-end power systems, IC testing, laser carving machines, battery charging or any application where space is limited and high output is required.

[Release & Application Notes](#)

**Pricing:** 1+ \$ 545.95  
10+ 499.50  
25+ will quote

Pollock Industries, 81 Butternut Road, White River, VT 05001  
toll-free 1-866-665-5434 (603) 888-2467 sales@electracool.com



■ Features :

- AC input 180 ~ 264VAC
- AC input active surge current limiting
- High efficiency up to 91.5%
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature / Fan alarm
- Forced air cooling by built-in DC with fan speed control function
- Output voltage can be trimmed between 20~110% of the rated output voltage
- High power density 15.6W/inch<sup>3</sup>
- Current sharing up to 3 units
- Alarm signal output (relay contact and TTL signal)
- Built-in 12V/0.1A auxiliary output for remote control
- Built-in remote ON-OFF control
- Built-in remote sense function
- 5 years warranty

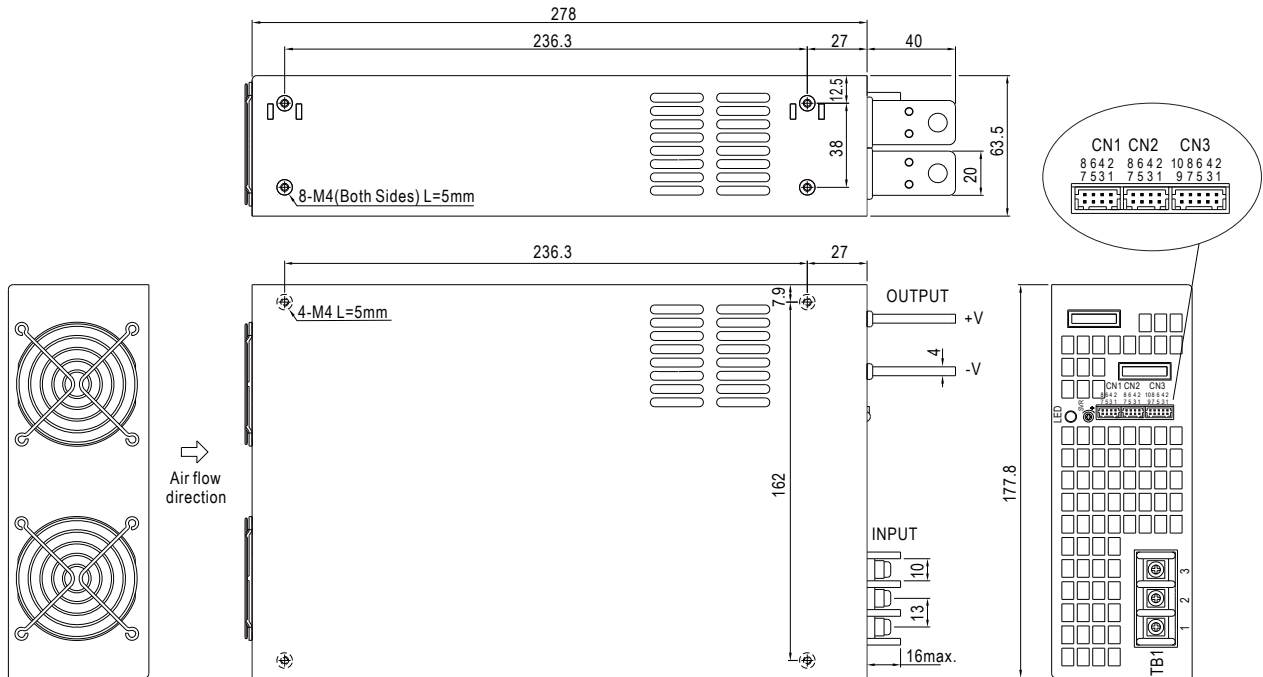


**SPECIFICATION**

MODEL	RSP-3000-12	RSP-3000-24	RSP-3000-48	
OUTPUT	DC VOLTAGE	12V	24V	48V
	RATED CURRENT	200A	125A	62.5A
	CURRENT RANGE	0 ~ 200A	0 ~ 125A	0 ~ 62.5A
	RATED POWER	2400W	3000W	3000W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	10.8 ~ 13.2V	22 ~ 28V	43 ~ 56V
	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, 80ms at full load		
HOLD UP TIME (Typ.)	10ms at full load			
INPUT	VOLTAGE RANGE	180 ~ 264VAC    254 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz		
	POWER FACTOR (Typ.)	0.95/230VAC at full load		
	EFFICIENCY (Typ.)	87.5%	90%	91.5%
	AC CURRENT (Typ.)	20A/180VAC    16A/230VAC		
	INRUSH CURRENT (Typ.)	60A/230VAC		
	LEAKAGE CURRENT	<2.0mA / 240VAC		
PROTECTION	OVERLOAD	100 ~ 112% rated output power User adjustable continuous constant current limiting or constant current limiting with delay shutdown after 5 seconds, re-power on to recover		
	OVER VOLTAGE	13.8 ~ 16.8V	28.8 ~ 33.6V	57.6 ~ 67.2V
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down		
FUNCTION	AUXILIARY POWER(AUX)	12V@0.1A(Only for Remote ON/OFF control)		
	REMOTE ON/OFF CONTROL	Please see the Function Manual		
	ALARM SIGNAL OUTPUT	Please see the Function Manual		
	OUTPUT VOLTAGE TRIM Note.5	2.4 ~ 13.2V	4.8 ~ 28V	9.6 ~ 56V
	CURRENT SHARING	Please see 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		
	TEMP. COEFFICIENT	±0.05%/°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) Conduction Class B, Radiation Class A ; EN61000-3-2,-3		
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, light industry level, criteria A		
OTHERS	MTBF	104.5K hrs min.    MIL-HDBK-217F (25°C)		
	DIMENSION	278*177.8*63.5mm (L*W*H)		
	PACKING	4Kg; 4pcs/16Kg/1.81CUFT		
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. 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>)</p> <p>5. Can't use the PWM signal to control the output voltage.</p> <p>6. PV(PIN3) and PS(PIN4) of CN1 or CN2 must be shorted if "Output Voltage TRIM" function is not used. Otherwise, the power supply unit will have no output. PV(PIN3) and PS(PIN4) of CN1 or CN2 must be disconnected if "Output Voltage TRIM" function is used. Otherwise, the internal electrical components may be damaged, and the power supply unit may thus be out of order.</p>			

**Mechanical Specification**

Case No.982B Unit:mm



AC Input Terminal Pin No. Assignment

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

Control Pin No. Assignment(CN1,CN2) : HRS DF11-8DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	RCG	5,7	-S	HRS DF11-8DS or equivalent	HRS DF11-**SC or equivalent
2	RC	6	CS(Current Share)		
3	PV	8	+S		
4	PS				

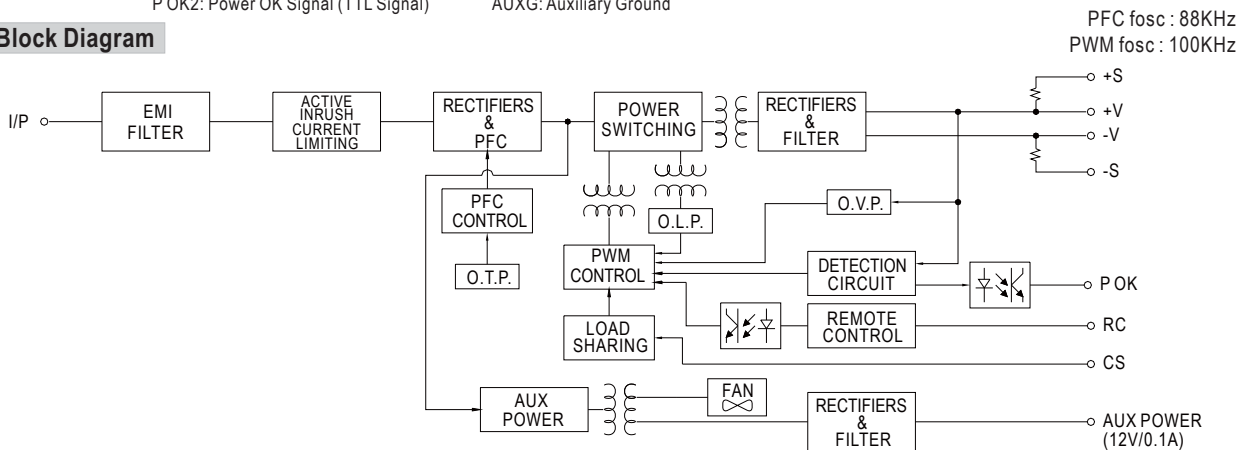
RCG: Remote ON/OFF Ground      -S: -Remote Sensing  
 RC : Remote ON/OFF                      CS: Load Share  
 PV :Output Voltage External Control    +S: +Remote Sensing  
 PS : Reference Voltage Terminal  
 PV and PS are shorted when shipping (Note.6)

Control Pin No. Assignment(CN3) : HRS DF11-10DP-2DS or equivalent

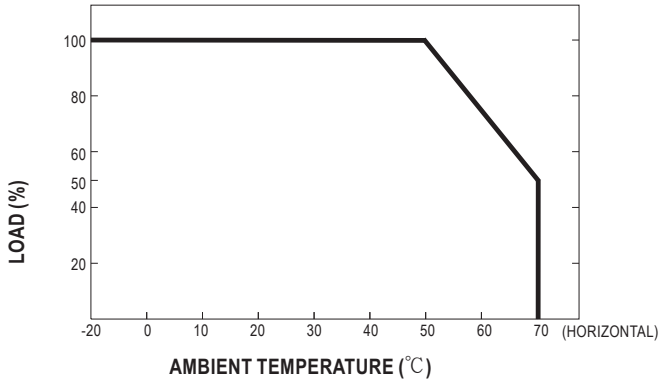
Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	P OK GND	4	P OK2	7	AUXG	10	OL-SD	HRS DF11-10DS or equivalent	HRS DF11-**SC or equivalent
2	P OK	5	RCG	8	AUX				
3	P OK GND2	6	RC	9	OLP				

P OK GND: Power OK Ground                      RCG: Remote ON/OFF Ground                      AUX: Auxiliary Output  
 P OK: Power OK Signal (Relay Contact)                      RC: Remote ON/OFF                      OLP: OLP/OL-SD:OLP mode select  
 P OK2: Power OK Signal (TTL Signal)                      AUXG: Auxiliary Ground

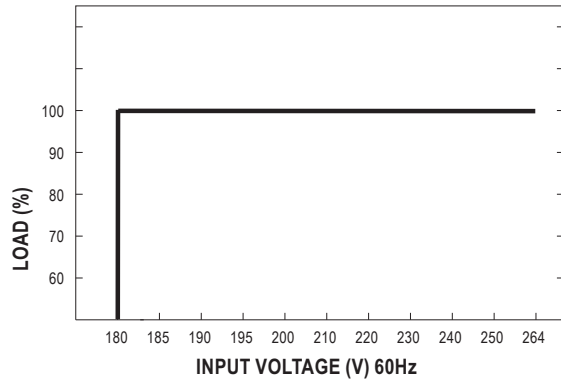
**Block Diagram**



Derating Curve



Static Characteristics



Function Manual

1. Remote ON/OFF

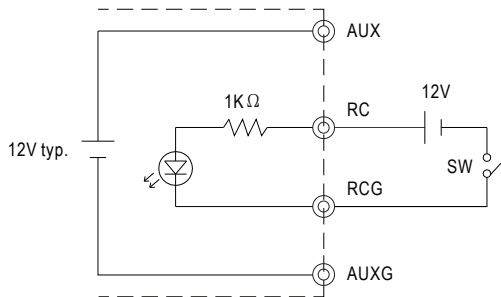
- (1) Remote ON/OFF control becomes available by applying voltage in CN1 & CN2 & CN3.
- (2) Table 1.1 shows the specification of Remote ON/OFF function.
- (3) Fig. 1.2 shows the example to connect Remote ON/OFF control function.

Table 1.1 Specification of Remote ON/OFF

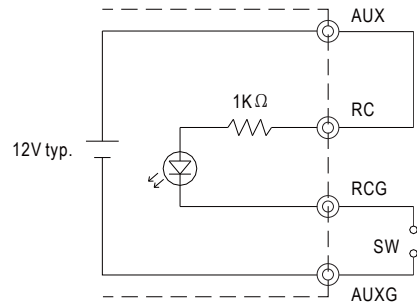
Connection Method	Fig. 1.2(A)	Fig. 1.2(B)	Fig. 1.2(C)
SW Logic	Output on	SW Open	SW Close
	Output off	SW Close	SW Open

Fig.1.2 Examples of connecting remote ON/OFF

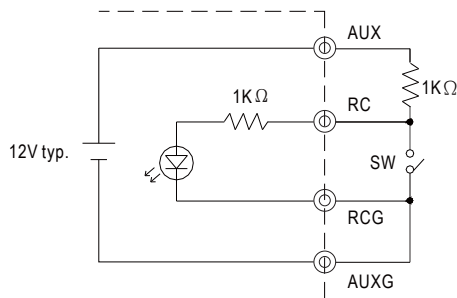
(A) Using external voltage source



(B) Using internal 12V auxiliary output



(C) Using internal 12V auxiliary output



**2. Alarm Signal Output**

- (1) Alarm signal is sent out through "P OK" & "P OK GND" and P OK2 & P OK GND2 pins.
- (2) An external voltage source is required for this function.
- (3) Table 2.1 explain the alarm function built-in the power supply.

Function	Description	Output of alarm(P OK, Relay Contact)	Output of alarm(P OK2, TTL Signal)
P OK	The signal is "Low" when the power supply is above 80% of the rated output voltage-Power OK	Low (0.5V max at 500mA)	Low (0.5V max at 10mA)
	The signal turns to be "High" when the power supply is under 80% of the rated output voltage-Power Fail	High or open (External applied voltage, 500mA max.)	High or open (External applied voltage, 10mA max.)

Table 2.1 Explanation of alarm

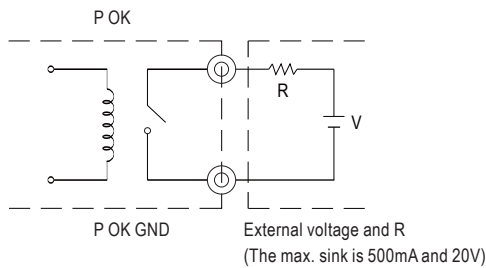


Fig. 2.2 Internal circuit of P OK (Relay, total is 10W)

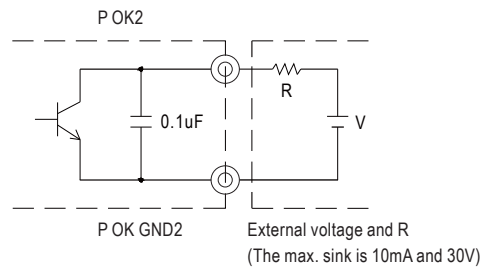


Fig. 2.3 Internal circuit of P OK2 (Open collector method)

**3. Output Voltage TRIM**

- (1) PV(PIN3) and PS(PIN4) of CN1 or CN2 must be disconnected if "Output Voltage TRIM" function is used. Otherwise, the internal electrical components may be damaged, and the power supply unit may thus be out of order.
- (2) Connecting an external DC source between PV & -S on CN1 or CN2, and +S & +V, -S & -V also need to be connected that is shown in Fig. 3.1.
- (3) Adjustment of output voltage is possible between 20~110%(Typ.) of the rated output which is shown in Fig. 3.2. Reducing output current is required when the output voltage is trimmed up.

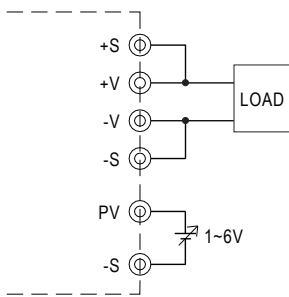


Fig. 3.1 Add on 1~6V external voltage

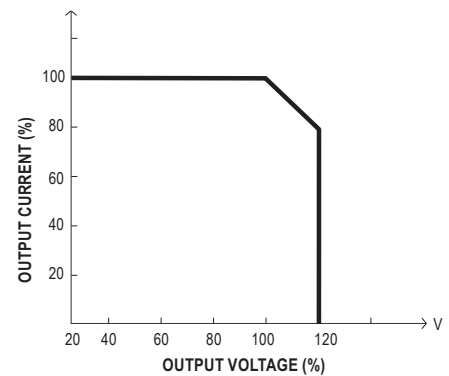
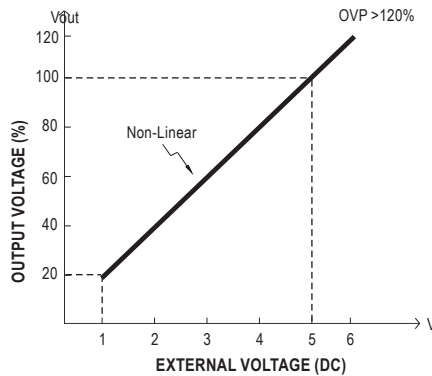
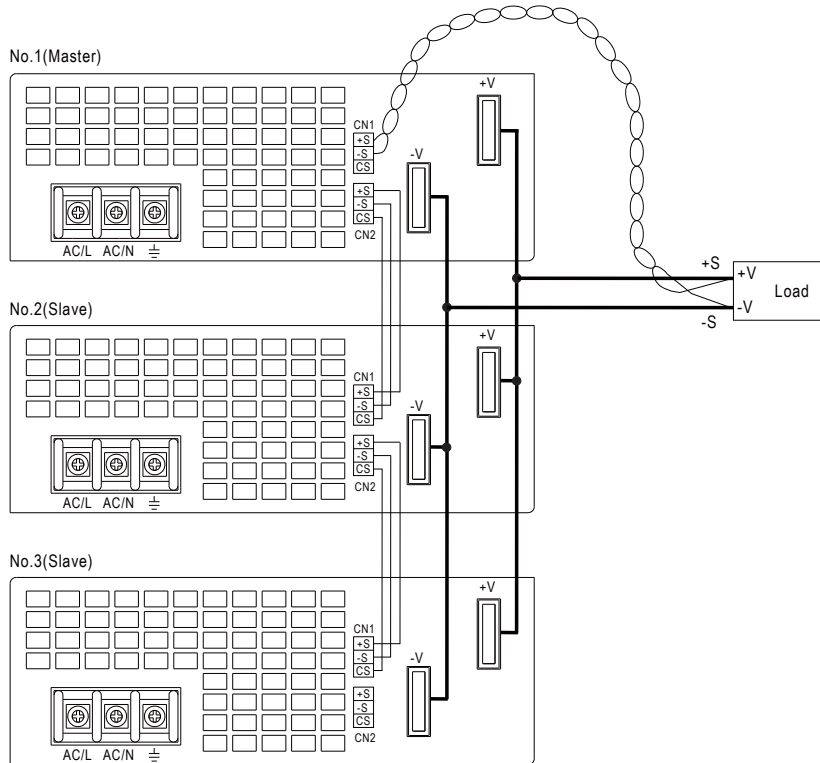


Fig. 3.2 Output voltage trimming

**4. Current Sharing**

- (1) Parallel operation is available by connecting the units shown as below (+S, -S and CS are connected mutually in parallel):
- (2) The voltage difference among each output should be minimized that less than 0.2V is required.
- (3) The total output current must not exceed the value determined by the following equation.  
(Output current at parallel operation)=(The rated current per unit) × (Number of unit) × 0.9
- (4) In parallel operation 3 units is the maximum, please consult the manufacturer for other applications.
- (5) When remote sensing is used in parallel operation, the sensing wire must be connected only to the master unit.
- (6) Wires of remote sensing should be kept at least 10 cm from input wires.



- (7) When in parallel operation, the minimum output load should be greater than 3% of total output load.  
(Min. Load >3% rated current per unit × number of unit)
- (8) Under parallel operation, the "output voltage trim" function is not available.

**5. Select O.L.P mode**

- (1) Remove the shorting connector on CN3 that is shown in Fig 5.1, the O.L.P. mode will be "continuous constant current limiting".
- (2) Insert the shorting connector on CN3 that is shown in Fig 5.2, the O.L.P. mode will be "constant current limiting with delay shutdown after 5 seconds, re-power on to recover".

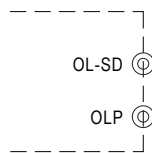


Fig. 5.1 Remove the CN3  
OLP Mode : constant current limiting

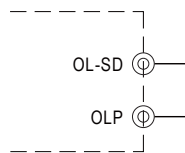
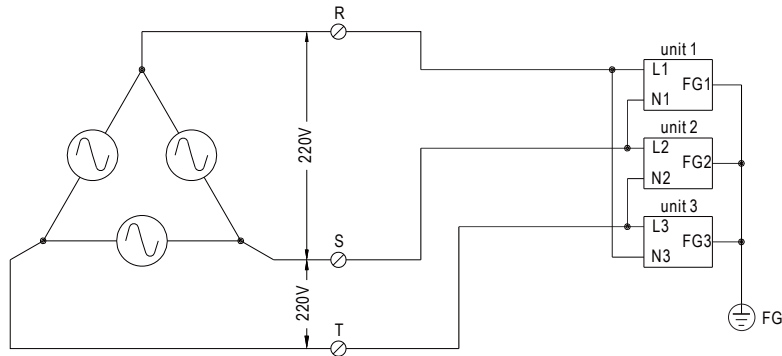


Fig. 5.2 Insert the CN3  
OLP Mode : constant current limiting with delay shutdown after 5 seconds

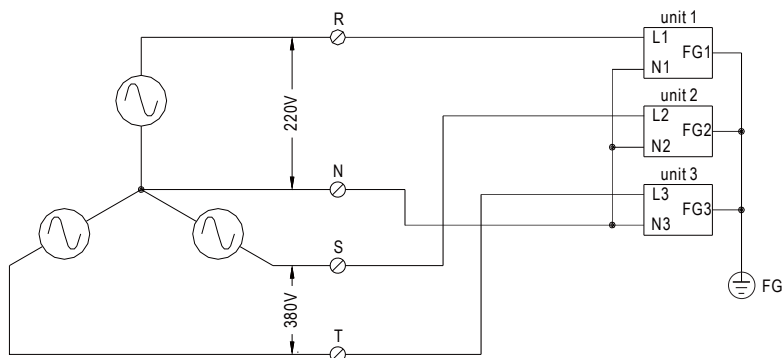
**6. Three Phase Connect**

Users can exploit three units of RSP-3000(unit 1,unit 2,unit 3) to work with 3  $\phi$  power system. Please refer to following diagrams for configuration.

**FIG. A: 3  $\phi$  3W 220VAC SYSTEM (STANDARD MODEL FOR STOCK)**



**FIG. B: 3  $\phi$  4W 220/380VAC SYSTEM**



**FIG. C: 3  $\phi$  4W 190/110VAC SYSTEM**

