# 3000W Single Output Power Supply — RSP-3000 series

## 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$^3$
- 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

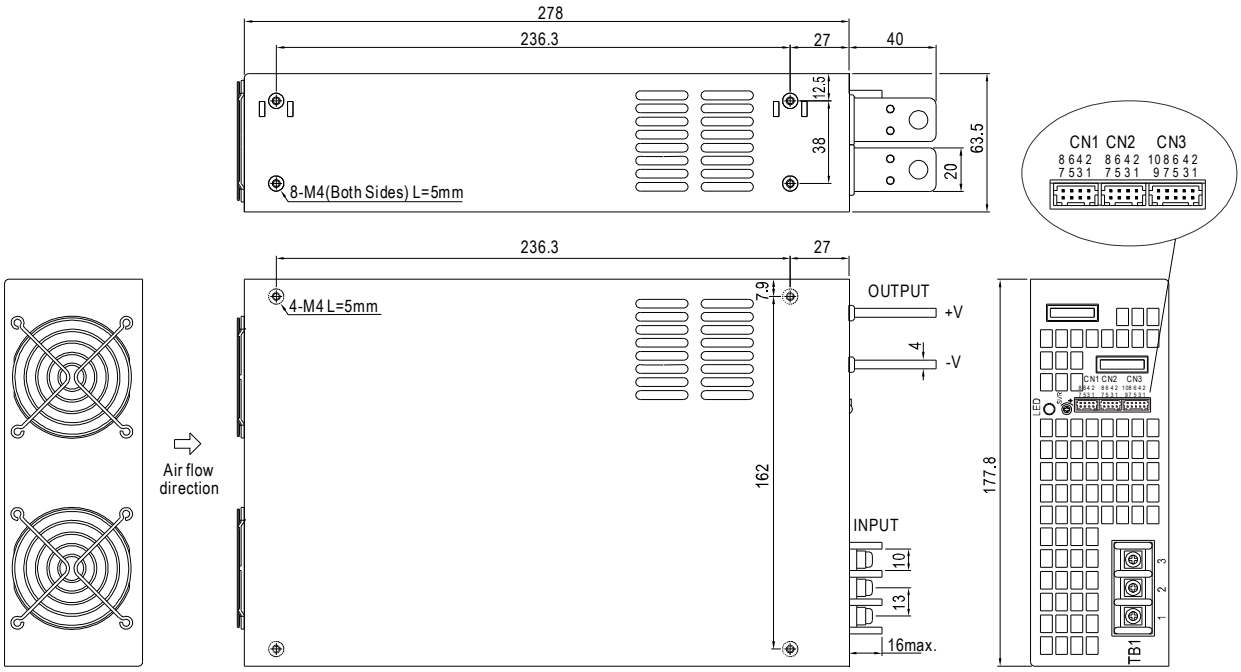
| MODEL | | RSP-3000-12 | RSP-3000-24 | RSP-3000-48 |
|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 12V | 24V | 48V |
| | RATED CURRENT | 200A | 125A | 62.5A |
| | CURRENT RANGE | 0 ~ 200A | 0 ~ 125A | 0 ~ 62.5A |
| | RATED POWER | 2400W | 3000W | 3000W |
| | RIPPLE & NOISE (max.) Note.2 | 150mVp-p | 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 |
| | | 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(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℃ (Refer to "Derating Curve") | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85℃, 10 ~ 95% RH | | |
| | TEMP. COEFFICIENT | ±0.05%/℃ (0 ~ 50℃) | | |
| | 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℃/ 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℃) | | |
| | DIMENSION | 278*177.8*63.5mm (L*W*H) | | |
| | PACKING | 4Kg; 4pcs/16Kg/1.89CUFT | | |

**NOTE**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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. Can't use the PWM signal to control the output voltage.
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.

## ■ Mechanical Specification

Case No.982B Unit:mm




AC Input Terminal Pin No. Assignment

| Pin No. | Assignment |
|---|---|
| 1 | AC/L |
| 2 | AC/N |
| 3 | FG ⏚ |

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
RC : Remote ON/OFF
PV :Output Voltage External Control
PS : Reference Voltage Terminal
PV and PS are shorted when shipping (Note.6)

-S : -Remote Sensing
CS: Load Share
+S: +Remote Sensing

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 | | | | |

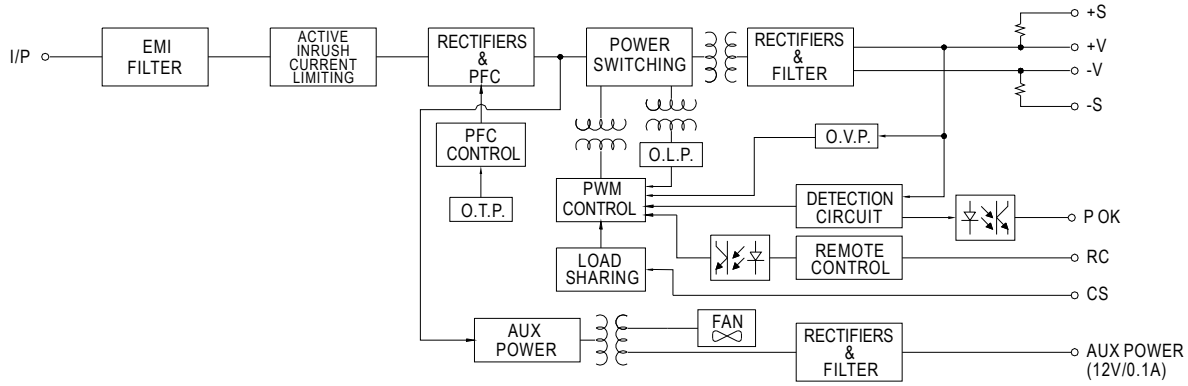
P OK GND: Power OK Ground
P OK: Power OK Signal (Relay Contact)
P OK2: Power OK Signal (TTL Signal)

RCG: Remote ON/OFF Ground
RC: Remote ON/OFF
AUXG: Auxiliary Ground

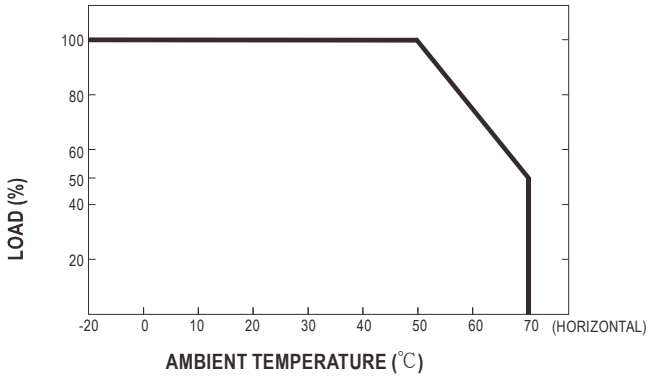
AUX: Auxiliary Output
OLP: OLP/OL-SD:OLP mode select

## ■ Block Diagram

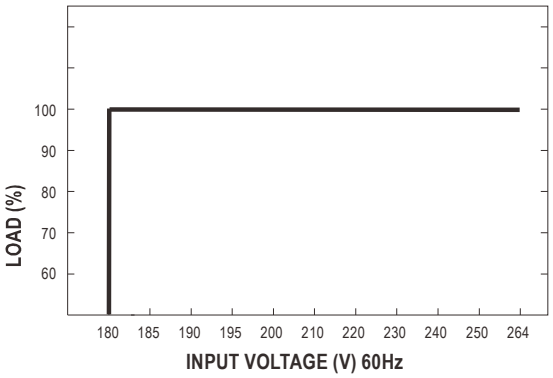
PFC fosc : 88KHz
PWM fosc : 100KHz



## ■ 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.

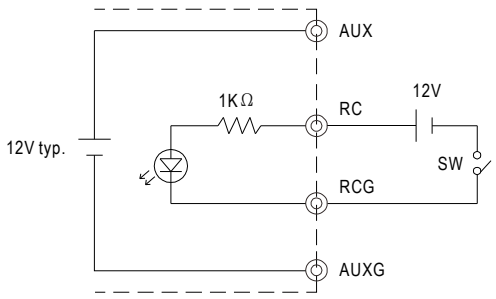
(3)Fig.1.2 shows the example to connect Remote ON/OFF control function.

Table 1.1 Specification of Remote ON/OFF

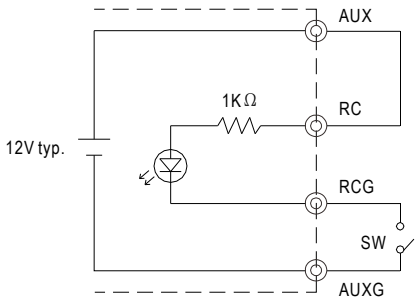
| Connection Method | | Fig. 1.2(A) | Fig. 1.2(B) | Fig. 1.2(C) |
|---|---|---|---|---|
| SW Logic | Output on | SW Open | SW Open | SW Close |
| | Output off | SW Close | SW Close | SW Open |

Fig.1.2 Examples of connecting remote ON/OFF

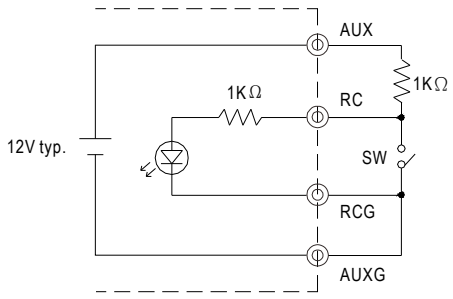
(A)Using external voltage source




(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

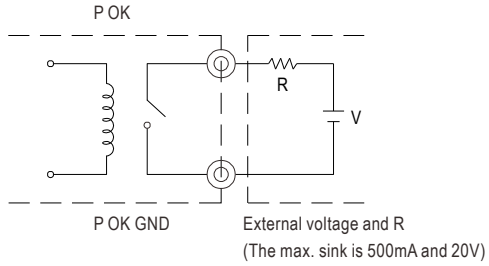



Fig. 2.2 Internal circuit of P OK (Relay, total is 10W)

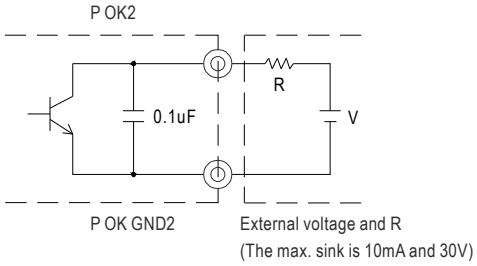



Fig. 2.3 Internal circuit of P OK2 (Open collector method)

**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.

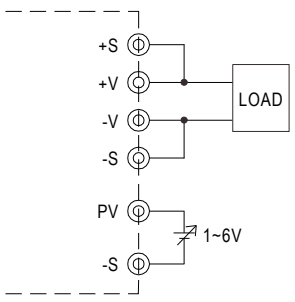



Fig. 3.1 Add on 1~6V external voltage

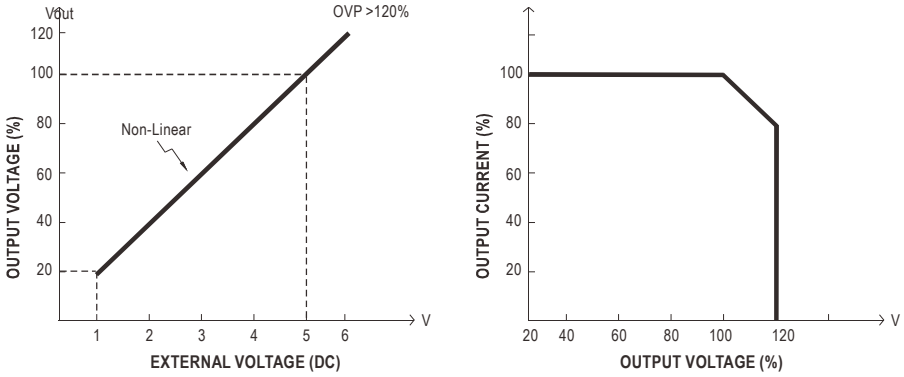



Fig. 3.2 Output voltage trimming

**4.Current Sharing**

(1)Parallel operation is available by connecting the units shown as below
(+S,-S and CS are connected mutually in parallel):

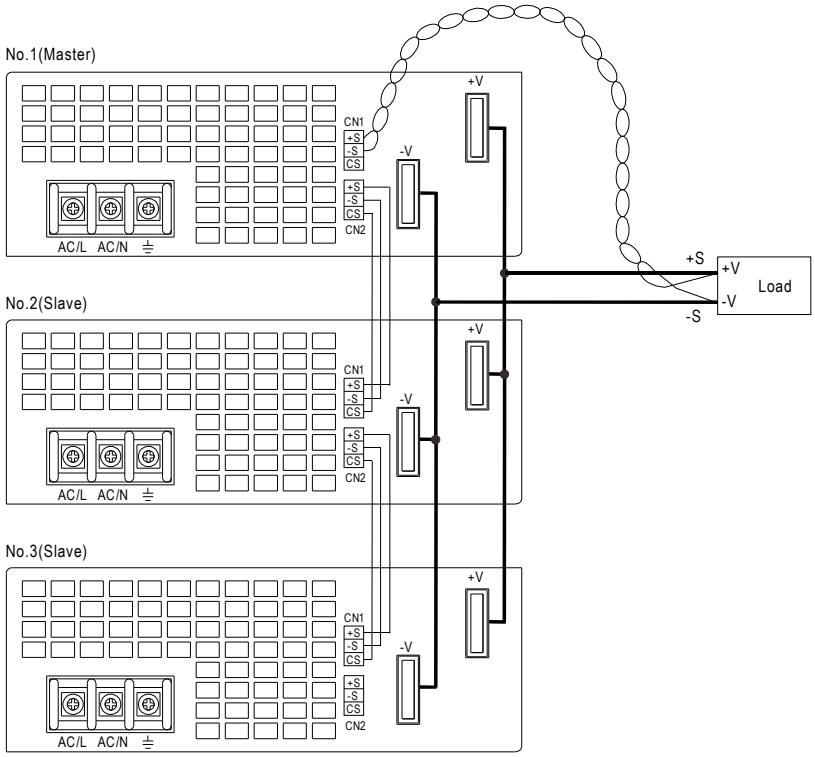
(2)The voltage difference among each output should be minimized that less than 0.2V is required.

(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.

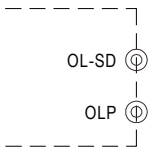



Fig. 5.1 Remove the CN3
OLP Mode : constant current limiting

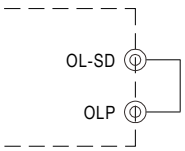
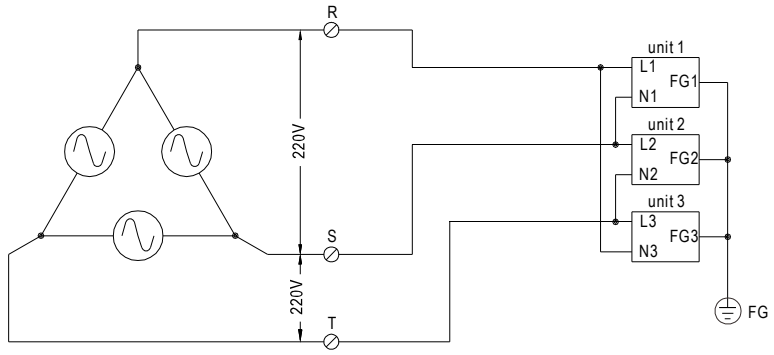



Fig. 5.2 Insert the CN3
OLP Mode : constant current limiting with delay shutdown after 5 seconds

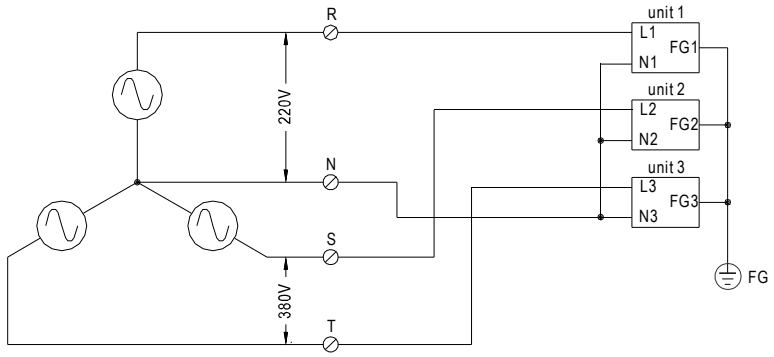
**6.Three Phase Connect**

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

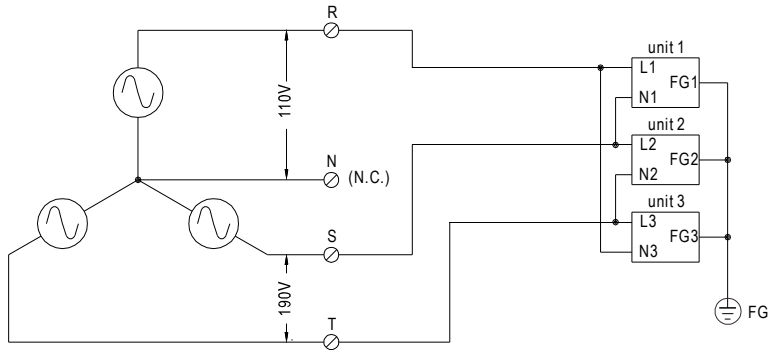
## ■ FIG. A: 3 $\psi$ 3W 220VAC SYSTEM (STANDARD MODEL FOR STOCK)




## ■ FIG. B: 3 $\psi$ 4W 220/380VAC SYSTEM




## ■ FIG. C: 3 $\psi$ 4W 190/110VAC SYSTEM



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