RSP-3000 Series

3000W Single Output Enclosed Power Supply

Case No: 8016GE
278 x 177.8 x 63.5 mm

Features

- AC input 180~264VAC
- AC input active surge current limiting
- Built-in active PFC function, PF>0.95
- Protections: Short circuit/Overload/Over voltage/Over temp
- Forced air cooling by built-in DC fan with speed control
- Output voltage can be trimmed between 20~110%
- High power density 15.6W/inch³
- 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 and sense function

Specification

INPUT	Voltage	180V ~ 264VAC universal full range or 254V ~ 370VDC		
	Frequency	47 ----- 63 Hz		
	Current	<20A@180V; 16A@230V AC input, full load		
	Inrush Current	<60A@230VAC input, Cold start at 25℃ ambient		
	Leakage Current	<2.0mA@240VAC input		
OUTPUT	MODEL No.	RSP-3000-12	RSP-3000-24	RSP-3000-48
	Voltage	12V	24V	48V
	Min Load	0A	0A	0A
	Max Load	200A	125A	62.5A
	Output Tolerance	± 1%	± 1%	± 1%
	Line Regulation	± 0.5%	± 0.5%	± 0.5%
	Load Regulation	± 0.5%	± 0.5%	± 0.5%
	Ripple Noise MAX.	150mV	150mV	200mV
	Efficiency (TYP.)	86%	90%	90.5%
	Power	2400W	3000W	3000W
PROTECTION	Over Voltage	13.8~16.8V	28.8~33.6V	57.6~67.2V
		Shutdown o/p voltage, re-power on to recover		
	Over Temperature	90°C ±5°C (12V) 110°C ±5°C (24V) 105°C ±5°C (48V) (TSW1: detect on heatsink of power transistor)		
		90°C ±5°C (12V) 85°C ±5°C (24V) 75°C ±5°C (48V) (TSW2: detect on heatsink of o/p diode)		
		Protection Type: Shut down o/p voltage, recover automatically after temperature goes down		
	Over Load & Short Circuit	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		
ELEC. CHAR.	Rise time	<80mS@ Full load		
	Hold up time	>10mS@ Full load		
	Setup time	<1 Sec		
ENVIRONMENT	Temperature	Operating: -20 ~ +70℃ ; Storage: -40~ +85℃		
	Humidity	Operating: 20% ~ 90% RH; Storage: 10% ~ 95% RH (non condensing)		
SAFETY	Withstand voltage	I/P-O/P:3KVAC, I/P-FG:1.5KVAC, O/P-FG:0.5KVAC, 1minute		
	Isolation resistance	I/P-O/P, I/P-FG, O/P-FG 100MΩ/500VDC		
	Safety standard	UUL60950-1; TUV EN60950-1 Approved		
EMC	EMI	EN55022; EN61000-3-2,3		
	EMS	EN61000-4-2,3,4,5,6,8,11; EN55024		
OTHERS	Cooling	Forced air cooling by built-in DC fan with speed control function		
	M.T.B.F.	104.5K hrs min. MIL-HDBK-217F (25℃)		
	Packing	4Kg; 4 pcs/16Kg/1.89 CUFT		

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 mustbe re-confirmed that it still meets EMC directives.

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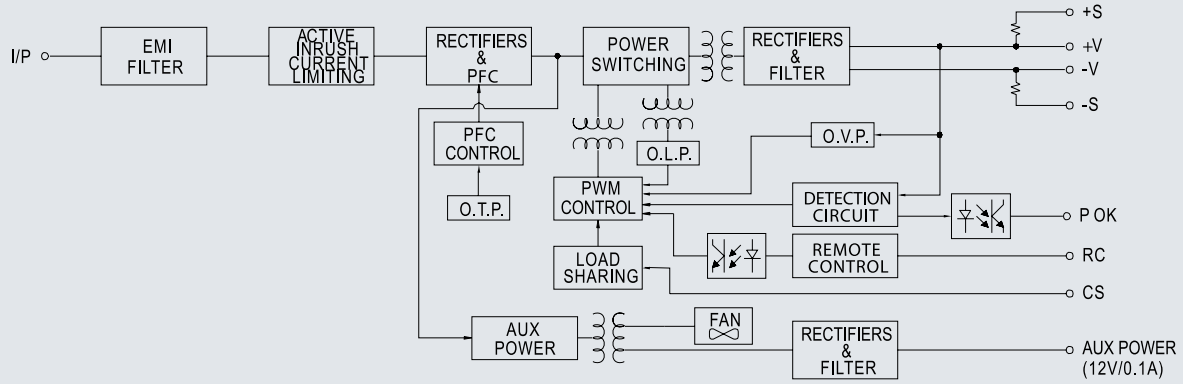
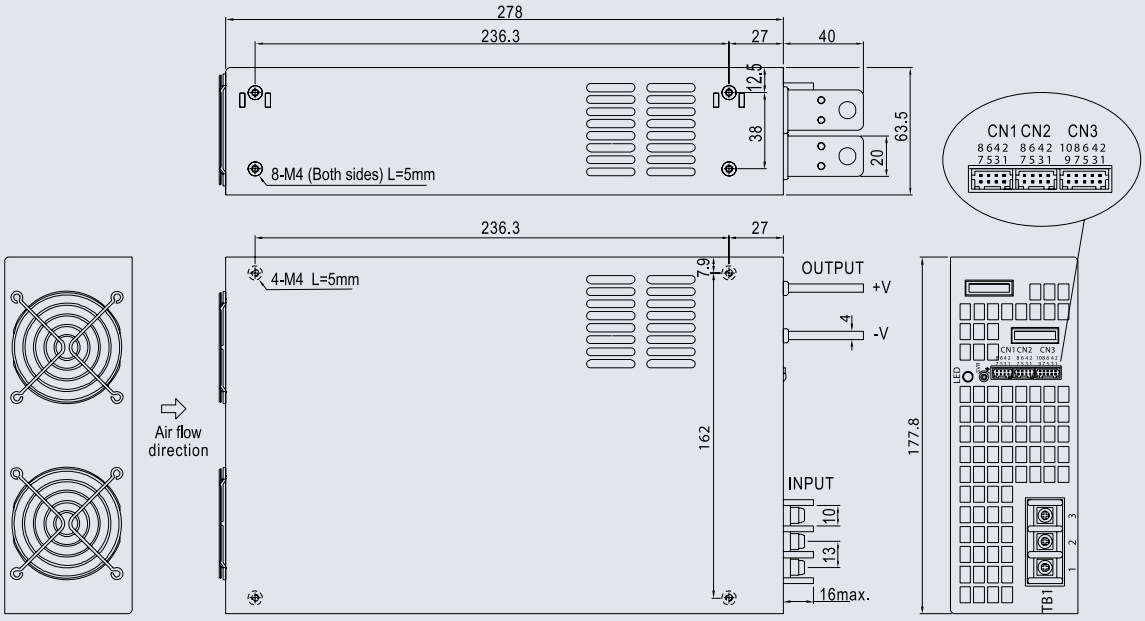
Block Diagram



Dimensions



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 equivalent

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

RCG: Remote ON/OFF Ground RC: Remote ON/OFF PV: Output Voltage External Control PS: Reference Voltage Terminal
-S: -Remote Sensing CS: Load Share +S: + Remote Sensing

Control Pin No. Assignment (CN3): HRS DF11-6DP-2DS equivalent

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

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: Auxillary Ground AUX: Auxiliary Output OLP: OLP mode select OL-SD: OLP mode select

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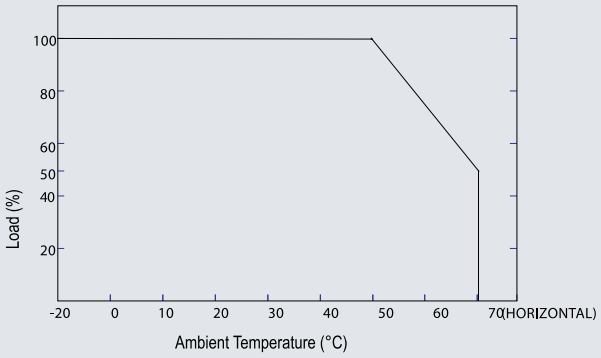
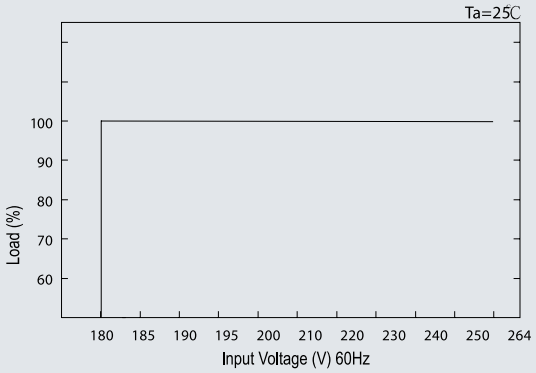
De-Rating Curve



Static Characteristics



Function Manual

1. Remote ON/OFF

(1) Remote ON/OFF control becomes available by applying voltage in CN1, CN2 & CN3

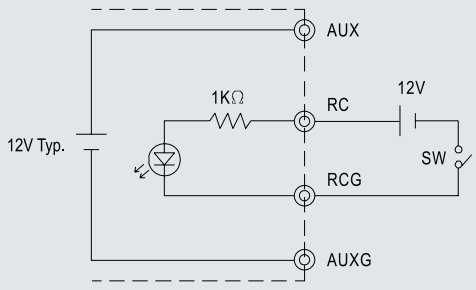
(2) The table below shows the specification of remote ON/OFF function

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

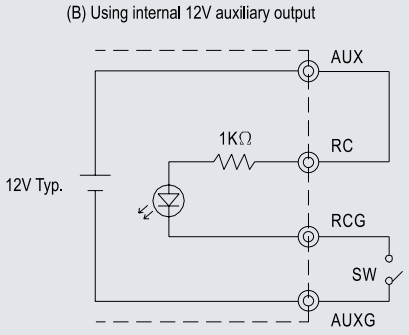
Connection Method		Fig. 1.2(A)	Fig. 1.2(B)	Fig 1.2(C)
SW Logic	Output On	SW Open	SW Open	SW Close
	Output Off	SW Close	SW Close	SW Open

Fig. 1.2 Examples of connecting remote ON/OFF

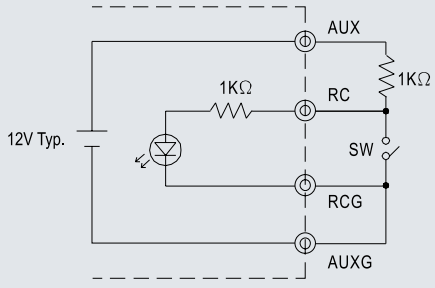
(A) Using external voltage source



(B) Using internal 12V auxiliary output



(C) Using internal 12V auxiliary output



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2. Alarm Signal Output

(1) Alarm signal 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) The table below explains 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

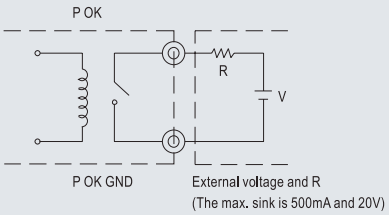

Fig. 2.2 Internal circuit of P OK (Relay, total is 10W)

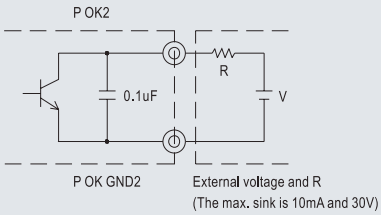

Fig. 2.3 Internal circuit of P OK2 (Open collector method)

3. Output Voltage Trim

(1) Connecting an external DC source between PV and -S on CN1 or CN2 that is shown in Fig. 3.1

(2) 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.

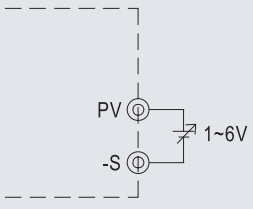

Fig. 3.1 Add on 1~6V external voltage

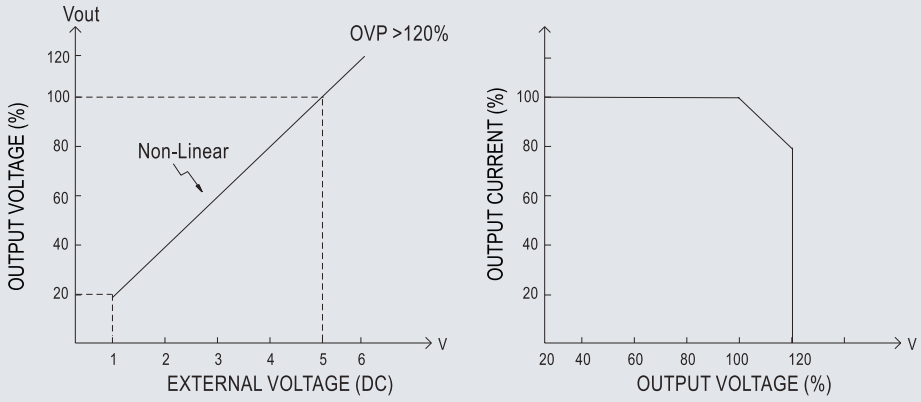

Fig. 3.2 Output voltage trimming

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4. Current Sharing

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

(2) The voltage difference among each output should be minimized that less than ±2% 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) x (Number of unit) x 0.9

(4) In parallel operation 3 units is the maximum

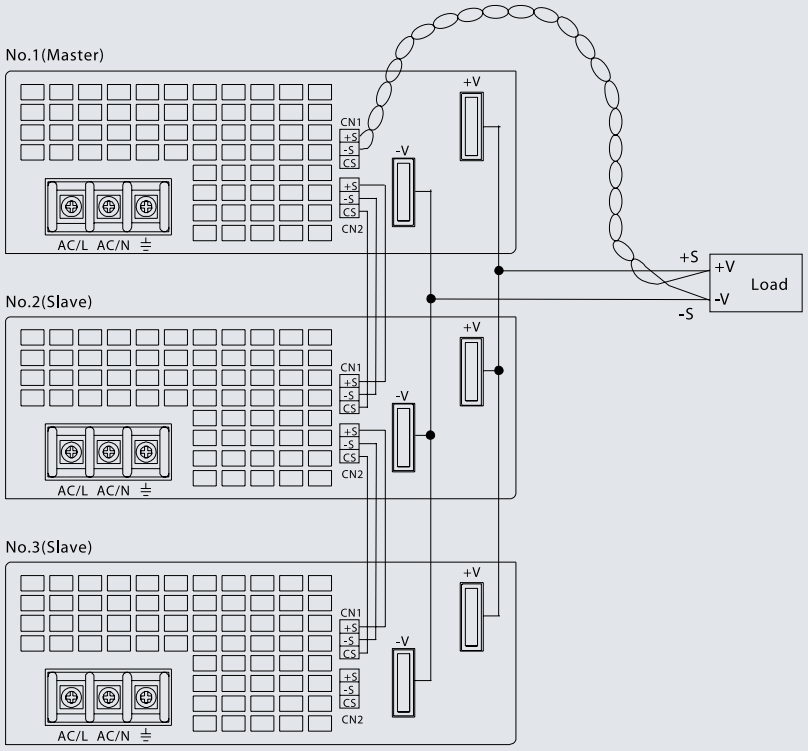
(5) When remote sensing is used in parallel operation, the sensing wire must be connected only to the master unit

(6) Wires of remote sending should be kept at 10cm from input wires

(7) When in parallel operation, the minimum output load should be greater than 2% of total output load

(Min. load >3% rated current per unit x number of units)

(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 limitig with delay shutdown after 5 seconds, re-power on to recover

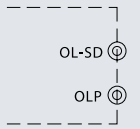


Fig. 5.1 Remove the CN3
OLP Mode: Constant current limiting

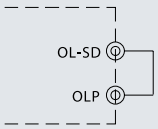


Fig. 5.2 Insert the CN3
OLP Mode: Constant current limiting with delay shutdown after 5 seconds

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6. Three Phase Connect

Fig A, A; 3ϕ 3QW 220VAC System (Standard model for stock)

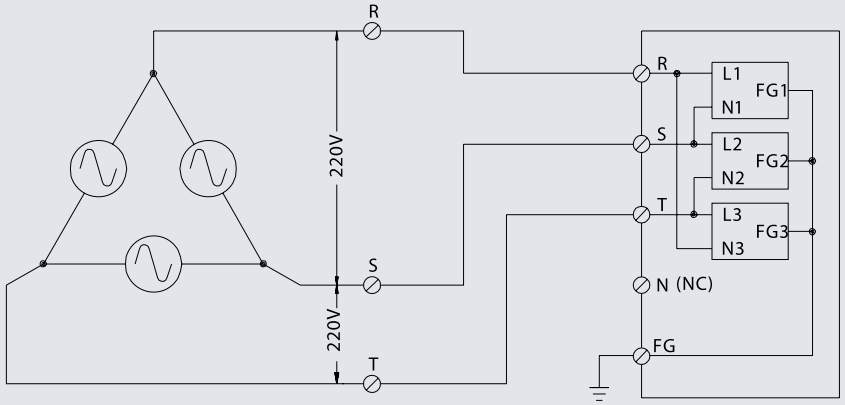

Fig. B:3 ϕ 4W 220/380VAC System

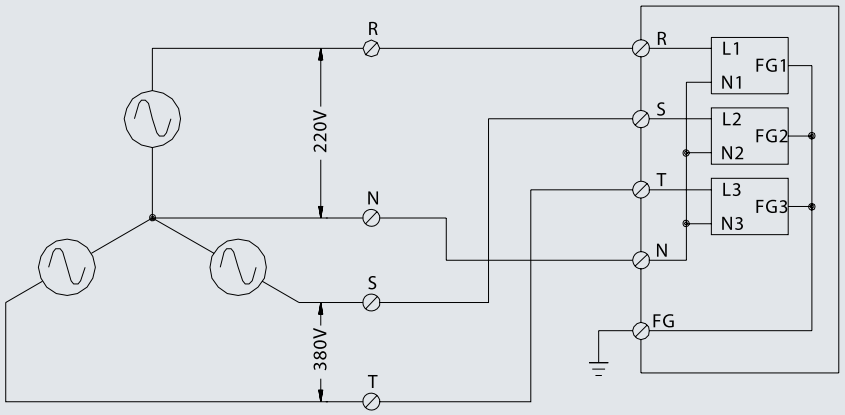

Fig. C:3ϕ 4W 190/110VAC System