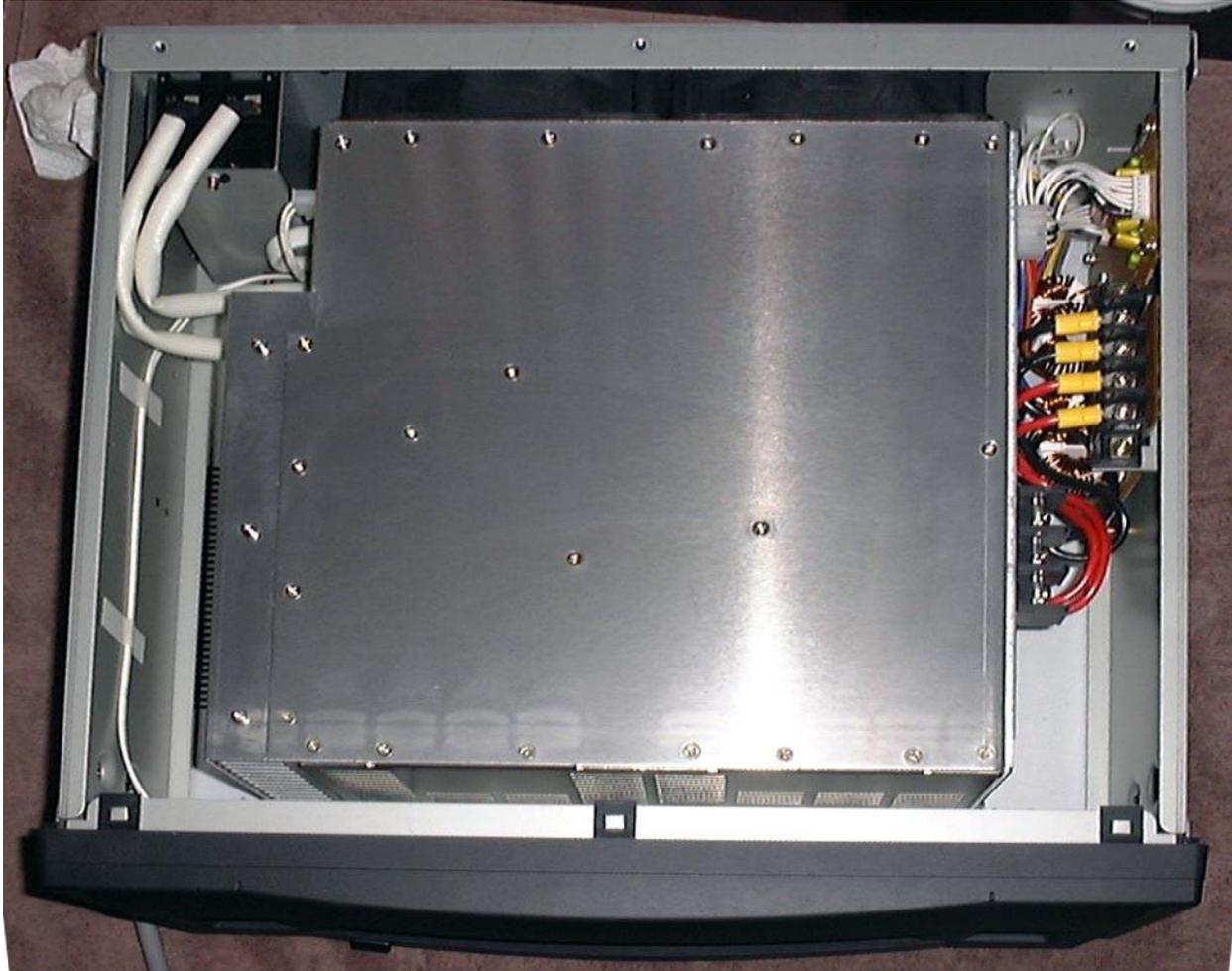




The best mounting position for the RSP-3000-48 is with the fan intakes facing towards the front panel and the terminals towards the rear panel. It may be necessary to fabricate a new rear panel with a suitable exhaust vent screened with metal mesh, the circuit-breaker, the Molex sockets for +48V output and control and the mains cable strain-relief. The RSP-3000-48 case can be supported on standoffs bolted to the bottom chassis plate, or on rails fitted between the front and rear bottom chassis frame members.

*Figure 2: Existing VP-1000 Interior Top View*



To enhance air-flow, rectangular openings should be cut in the steel sub-panel behind the two grilles on either side of the plastic front panel. Filter cloth should be placed behind the mesh grilles. It should now be possible to eliminate the large muffin fans from the rear panel.

The exhaust opening in the rear panel should be sufficiently large to ensure that the exhaust holes in the rear panel of the RSP-3000-48 are unobstructed.

**±12V & CONTROL WIRING:** It is recommended that Teflon-insulated stranded wire be used throughout for new wiring. If existing wiring is in good condition and of sufficient length, it can be re-used. We will be using header sockets CN2 and CN3 on the RSP-3000-48. The part numbers for the mating plugs are as follows:

CN1/CN2: Hirose DF11-8DP-2DSA(01) Digi-Key #H-2852-ND Mouser Part No. 798-DF11-8DP-2DSA01

CN3: Hirose DF11-10DP-2DSA(01) Digi-Key #H-2853-ND Mouser #798-DF11-10DP-2DSA01

The interconnections between JP1001 (FILTER-UNIT) and CN3 (RSP-3000-48) can be run in #22 wire. The original JP1001 jumper can be re-used if it is sufficiently long, or spliced to the new wires connected to the CN3 plug as required. JP1001 Pins 5 (E), 6 (-12V) and 7 (+12V) are connected to Terminals 7, 6 and 5 of the RT-65B respectively, using #18 wire. (Please take care to observe polarity!)

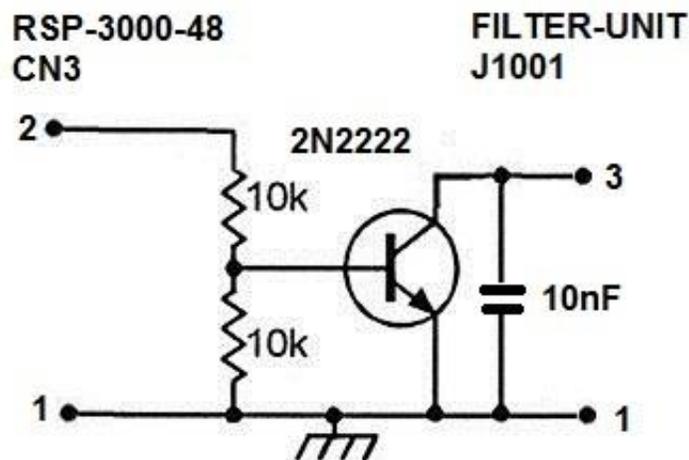
The original jumper from JP1003 (FILTER-UNIT) to the rear-panel CONTROL socket is left intact.

**LOW POWER FUNCTION:** As the RSP-3000-48 does not have a low-output control line as such, JP1001 Pin 3 (LOW) is not connected. If this function is desired, the enterprising designer/builder can make use of the Output Voltage TRIM function (RSP-3000 data sheet, Section 3 and Figure 3-1). The +5V output of the RT-65B can be fed to a voltage divider switched from JP1001 Pin 4 as follows: HIGH  $\approx$  +5V, LOW  $\approx$  +3V (adjust for +48/+33V respectively). The voltage divider can be switched by a miniature relay or opto-coupler circuit.

**ALARM (PS ALM):** As regards the PS ALM function, there is an incompatibility between the RSP-3000-48 and the VL-1000 CNTL-UNIT. When JP1001 Pin 3 (PS ALM) is HIGH, no alarm is reported. When Pin 3 goes LOW, Error 1007 is displayed.

When RSP-3000-48 CN3 Pins 2 (P OK) and 4 (P OK 2) are LOW, the +48V output is present. CN3 Pin 2 can be interfaced to J1001 Pin 3 via a simple inverter as illustrated in Figure 3.

Figure 3: Inverter for PS ALM line.



**+48V START-UP:** As the RSP-3000-48 ramps its output voltage up when powered up and down when shut down, it does not need a soft-start procedure. The RSP-3000-48 will ramp up gently and go into standby mode when mains power is applied, and the +48V output will come up when VP-1000 POWER switch S0002 is turned ON (assuming that the REMOTE switch on the rear panel of the VL-1000 is OFF, or that the exciter applies +12V to Band Data 2 Pin 1 with the REMOTE switch ON.)

**+48V WIRING:** The original heavy-gauge 48V leads (P00005, P00006) from FILTER-UNIT J1001 are connected as follows: P00005 (++) to the +V busbar, and P00006 (--) to the -V busbar on the RSP-3000-48. If required, the lugs on the ends of these leads should be replaced with tinned lugs suitable for the existing wire gauge and M4 bolts. The existing +48V wiring (JP1002) from the FILTER-UNIT to the rear-panel 48V 48A socket should be left intact.

 *Great care should be taken not to short-circuit the busbars or -48V wiring when the VP-1000 is powered up!*

**RSP-3000-48 CONFIGURATION:** On the RSP-3000-48, CN2 Pins 3 & 4 (PV, PS) must be bridged. In addition, CN3 Pins 9 & 10 (OLP, OL-SD) must be bridged. This will ensure fixed +48V output and constant current limiting with delay shutdown after 5 seconds. (Refer to RSP-3000-48 data sheet).

**MAINS WIRING:** The existing mains cable, and wiring from the mains breaker to the SMPS, can be left in place. As shown in Figure 1, jumpers for L1, L2 and GRD should be run between TB1 on the RSP-3000-48 and the terminal block on the RT-65B. These jumpers go to Terminals 1, 2 and 3 on both SMPS terminal blocks and can be run in #18 wire.

On the RSP-3000-48, connect L1 (black) to AC/L and L2 (red) to AC/N. The ground terminal should be connected to chassis. On the RT-65B, connect L1 (black) to AC/L (1) and L2 (red) to AC/N (2). Connect FG (3) to chassis.

There is no need to bring the neutral (white) into the VP-1000 chassis. Besides, the NEMA 20-6 plug and receptacle are wired L1/L2/GND; the neutral is not provided. **Note:** In other countries with 230V single-phase mains service, L1 is LIVE (brown) and L2 is NEUTRAL (blue).

It is also recommended that suitable, properly-rated MOV's be connected across L1/L2, L1/ground and L2/ground.

 *Please be careful! A mistake here can blow up the equipment and/or kill you.*

**CONCLUSION:** The foregoing is an outline for the replacement of the OEM SMPS module in the Yaesu Quadra VP-1000 Power Supply with the Meanwell RSP-3000-48 and RT-65B SMPS modules. It is intended to retain almost all the interface and protective functions of the original VP-1000, at much lower cost than replacement of the OEM SMPS.

This document presents a suggested approach. Individual builders may well find alternative paths towards the same goal. The author has not attempted this project personally.

**ACKNOWLEDGEMENTS:** The author is indebted to Dale Hankins KB5VE and Joe Torrey WD5Y, who embarked on this project in February 2015 and with whom many fruitful discussions led to a plan forming the basis for this article. Thanks are also due to Matt Erickson KK5DR, who has successfully retrofitted Meanwell SMPS's to several Icom IC-4KL amplifiers and who provided some excellent input to this effort.

Adam Farson VA7OJ/AB4OJ, 14 September 2018.

[afarson@telus.net](mailto:afarson@telus.net)

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3000W Power Supply with Single Output

**RSP-3000** series



**Dimension**

L	*	W	*	H	
278	*	177.8	*	63.5(2U)	mm
10.9	*	7	*	2.5 (2U)	inch



**Features**

- AC input 180~264VAC
- Built-in active PFC function
- High efficiency up to 91.5%
- Forced air cooling by built-in DC fan
- Output voltage programmable
- Active current sharing up to 9000W (2+1)
- Built-in remote ON-OFF control / remote sense / auxiliary power / power OK signal
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Optional conformal coating
- 5 years warranty

**Certificates**

- Safety: UL/EN/IEC 60950-1
- EMC: EN 55022 / 55024

**Applications**

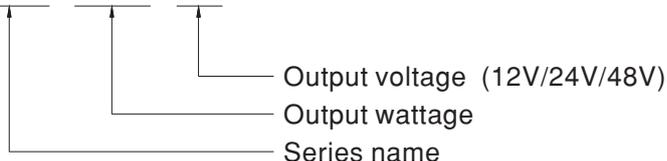
- Factory control or automation apparatus
- Test and measurement instrument
- Laser related machine
- Burn-in facility
- Digital broadcasting
- RF application

**Description**

RSP-3000 is a 3KW single output enclosed type AC/DC power supply. This series operates for 180~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by the built-in fan with fan speed control, working for the temperature up to 70°C. Moreover, RSP-3000 provides vast design flexibility by equipping various built-in functions such as the output programming, active current sharing, remote ON-OFF control, auxiliary power, etc.

**Model Encoding / Order Information**

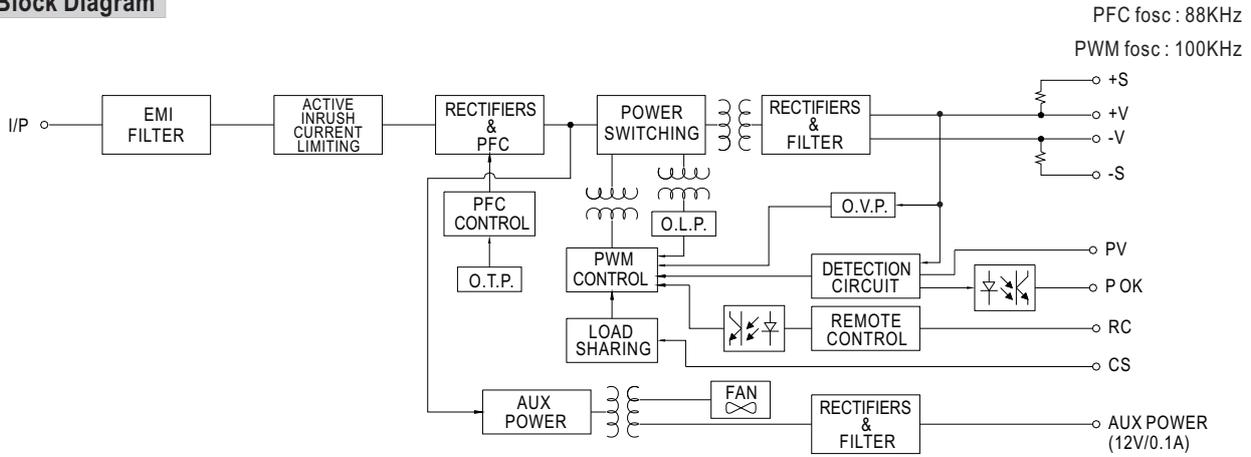
RSP - 3000 - 24



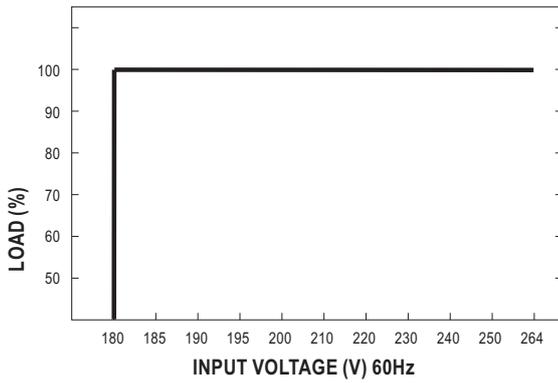
**SPECIFICATION**

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 Protection type : Shut down o/p voltage, re-power on to recover			
FUNCTION	OUTPUT VOLTAGE PROGRAMMABLE(PV)	2.4 ~ 13.2V	4.8 ~ 28V	9.6 ~ 56V	
	CURRENT SHARING	Up to 9000W or (2+1) units. Please refer to the Function Manual.			
	AUXILIARY POWER(AUX)	12V@0.1A(Only for Remote ON/OFF control)			
	REMOTE ON-OFF CONTROL	Please refer to the Function Manual			
	REMOTE SENSE	Compensate voltage drop on the load wiring up to 0.25V. Please refer to the Function Manual.			
	ALARM SIGNAL OUTPUT	Power OK signal. Please refer to 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 non-condensing			
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, EAC TP TC 004, BSMI CNS14336-1 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	Parameter	Standard	Test Level / Note	
		Conducted	EN55032 (CISPR32) / EN55011 (CISPR11)	Class B	
		Radiated	EN55032 (CISPR32) / EN55011 (CISPR11)	Class A	
		Harmonic Current	EN61000-3-2	-----	
	EMC IMMUNITY	Voltage Flicker	EN61000-3-3	-----	
		EN55024, EN61204-3, EN61000-6-2, BSMI CNS13438			
		Parameter	Standard	Test Level / Note	
		ESD	EN61000-4-2	Level 3, 8KV air ; Level 2, 4KV contact	
		Radiated	EN61000-4-3	Level 3	
		EFT / Burst	EN61000-4-4	Level 3	
Surge		EN61000-4-5	Level 3, 2KV/Line-Earth ; Level 2, 1KV/Line-Line		
Conducted		EN61000-4-6	Level 3		
Magnetic Field	EN61000-4-8	Level 4			
Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods			
OTHERS	MTBF	223.8K hrs min.    Telcordia SR-332 (Bellcore) ; 75.1K hrs min.    MIL-HDBK-217F (25°C)			
	DIMENSION	278*177.8*63.5mm (L*W*H)			
	PACKING	4Kg; 4pcs/16Kg/1.81CUFT			
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. 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> ) 5. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).				

### Block Diagram

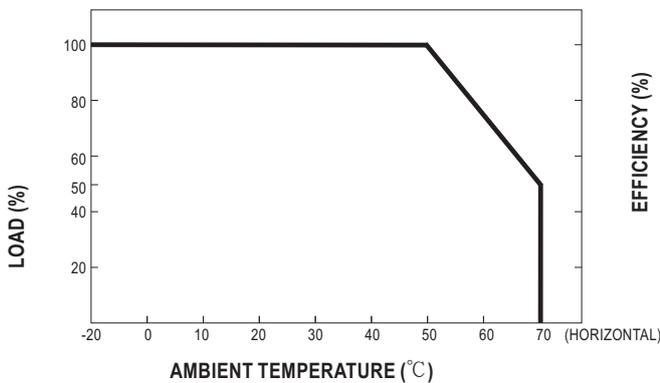


### Static Characteristics

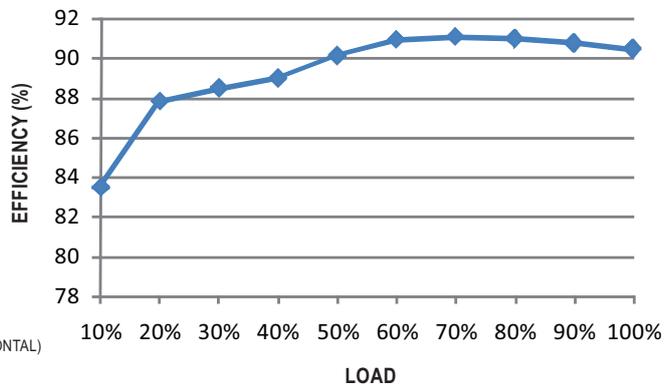


MODEL	12V	24V	48V
INPUT	2400W	3000W	3000W
180~264VAC	200A	125A	62.5A

### Derating Curve



### Efficiency vs Load (48V Model)

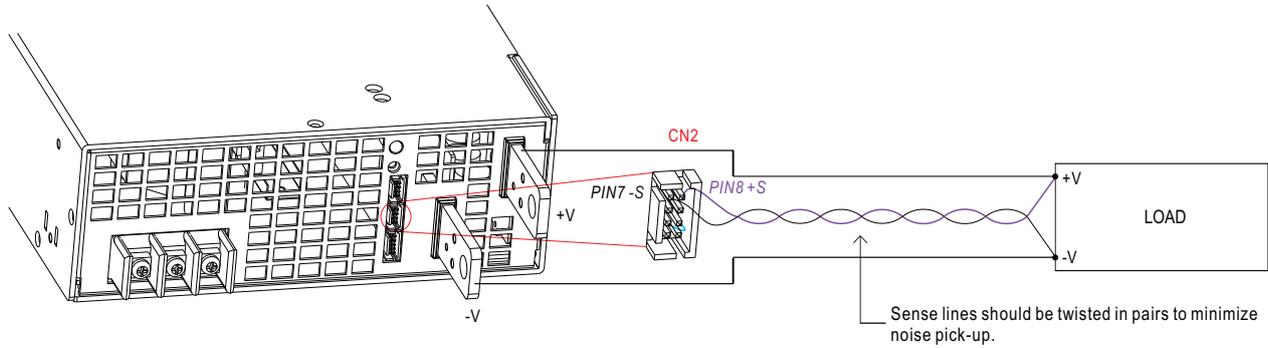


※ The curve above is measured at 230VAC.

■ Function Manual

1. Remote Sense

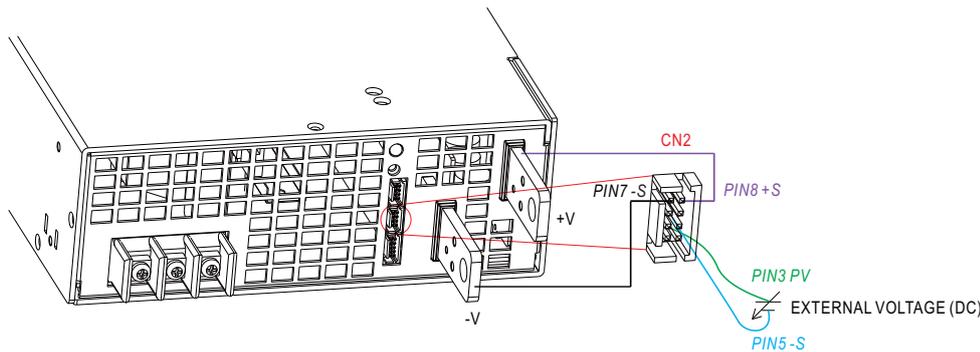
※ The Remote Sense compensates voltage drop on the load wiring up to 0.25V



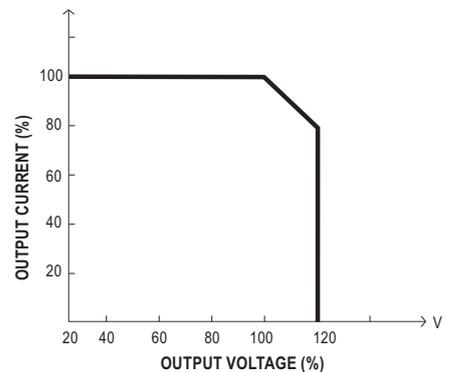
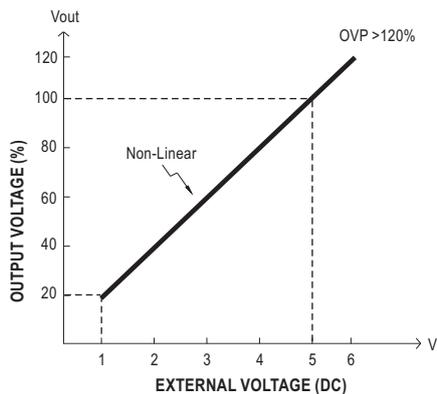
※ Caution: The power supply, by factory default (also the assumption for other sections), is shipped with, -S & -V on CN2, as well as +S & +V, shorted by connector. When activating the Remote Sense, the +S signal should be connected to the positive terminal of the load whereas -S signal to

2. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 20~110% (Typ.) of the nominal voltage by applying EXTERNAL VOLTAGE.



◎ Connecting an external DC source between PV & -S on CN2, and +S & +V, -S & -V also need to be connected.



◎ Please do not adopt PWM signal as the EXTERNAL VOLTAGE.

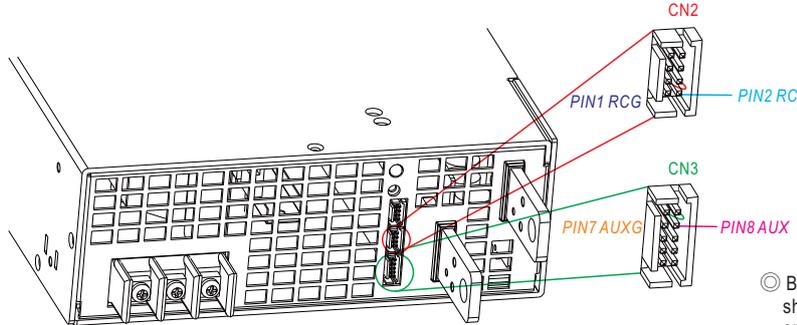
◎ The rated current should change with the Output Voltage Programming accordingly.

※ Caution: (1) By factory default, the Output Voltage Programming is not activated, and PV (PIN3) and PS (PIN4) of CN2 are shorted by connector. Whenever this function is not needed to activate, as assumed in other sections' diagrams, please keep PV (PIN3) and PS (PIN4) of CN2 shorted; otherwise, the power supply will have no output.

(2) PV (PIN3) and PS (PIN4) of CN1 or CN2 must be disconnected if "Output Voltage Programming" function is used; otherwise, the internal electrical components may be damaged, and the power supply unit may thus be out of order.

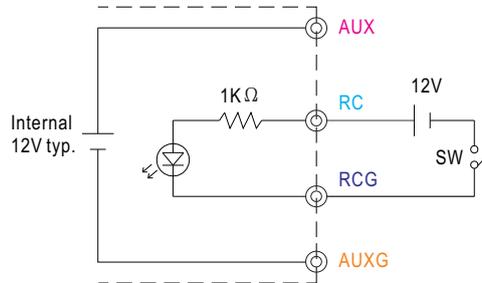
### 3.Remote ON-OFF

※ Remote ON-OFF is activated by the configuration with respect to CN1, CN2 and CN3 as shown in the following diagram.

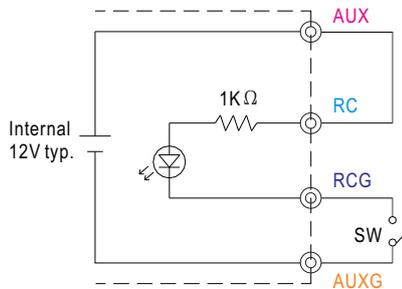


◎ By factory default, PV(PIN3) and PS(PIN4) on CN2 are shorted by connector; likewise, OLP(PIN9) and OL-SD(PIN10) on CN3 are shorted when shipped.

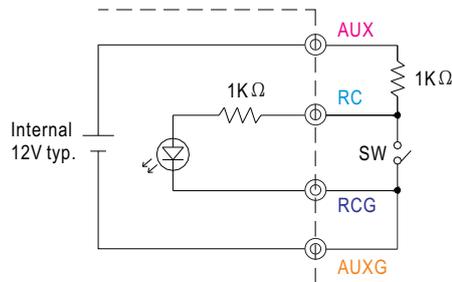
Example 3.2(A): Using external voltage source



Example 3.2(B): Using internal 12V auxiliary output



Example 3.2(C): Using internal 12V auxiliary output

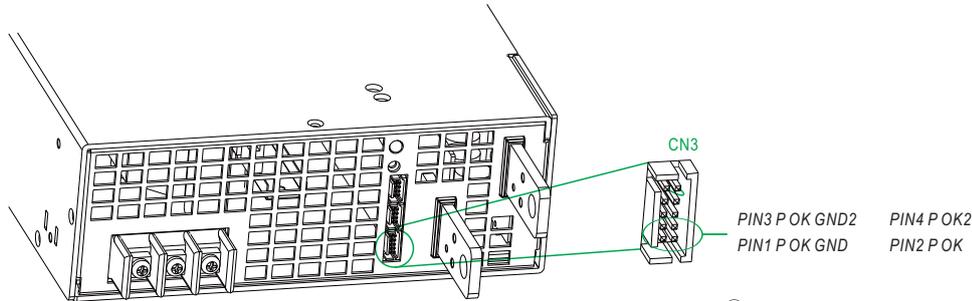


◎ Connection Method

		Example 3.2(A)	Example 3.2(B)	Example 3.2(C)
SW Logic	Power supply output ON	SW Open	SW Open	SW Close
	Power supply output OFF	SW Close	SW Close	SW Open

4. Alarm Signal Output

※ Alarm signal is sent out through "P OK" & "P OK GND" and P OK2 & P OK GND2 pins on CN3. Please acknowledge an external voltage source is required for this function.



◎ By factory default, OLP (PIN9) and OL-SD (PIN10) on CN3 are shorted by connector when shipped.

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, or, say, 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, or, say, Power Fail	High or open (External applied voltage, 500mA max.)	High or open (External applied voltage, 10mA max.)

Table 3.1 Explanation of alarm

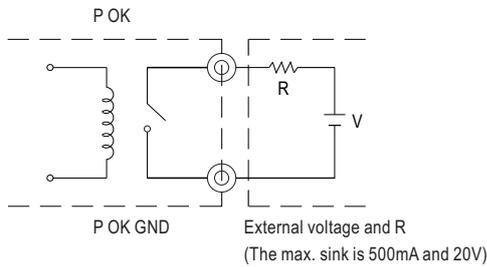


Fig. 4.2 Internal circuit of P OK (Relay, total is 10W)

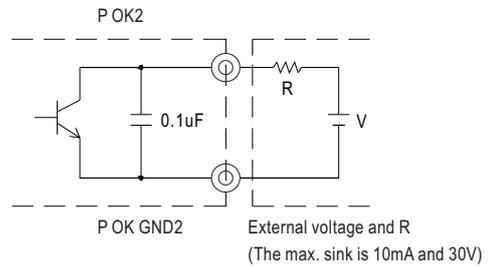


Fig. 4.3 Internal circuit of P OK2 (Open collector method)

**5. Select Overload Protection Type**

- (1) Insert the shorting connector on CN3 that is shown in Fig 5.2, the Overload Protection Type will be "constant current limiting with delay shutdown after 5 seconds, re-power on to recover". This is the factory default.
- (2) Remove the shorting connector on CN3 that is shown in Fig 5.1, the Overload Protection Type will be "continuous constant current limiting".

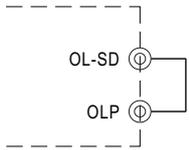


Fig. 5.1 Insert the CN3  
Overload Protection Type : constant current limiting with delay shutdown after 5 seconds

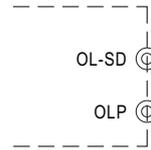
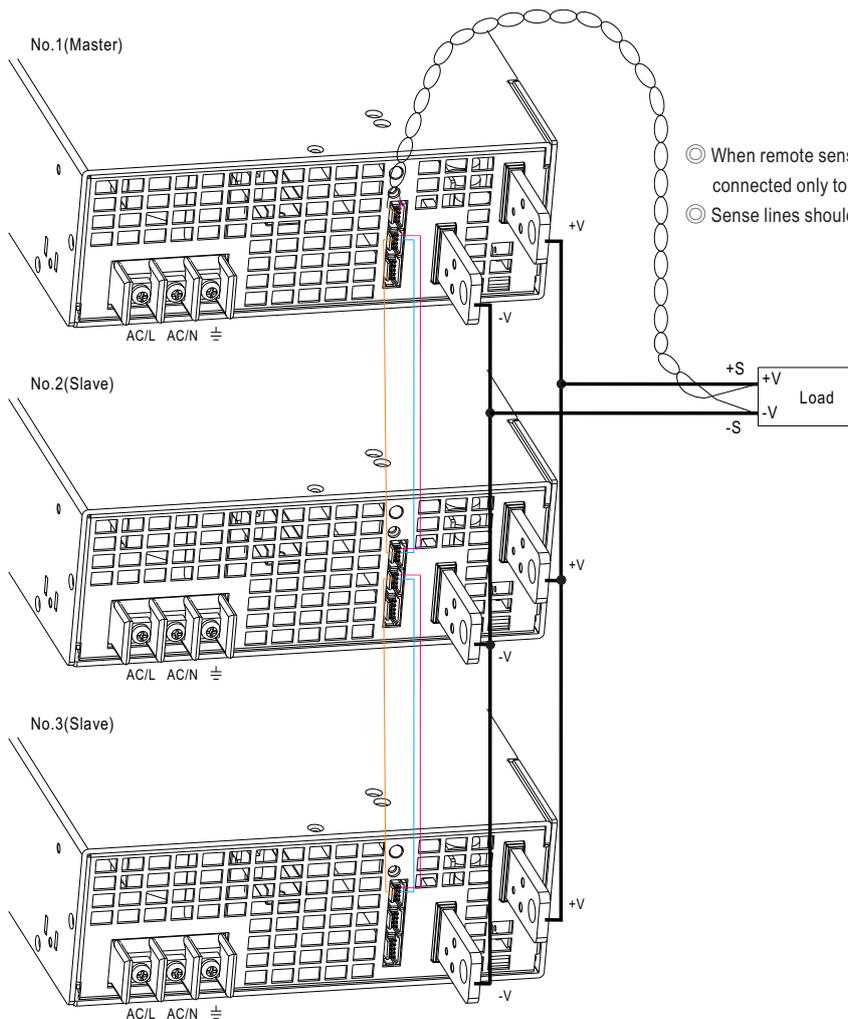


Fig. 5.2 Remove the CN3  
Overload Protection Type : constant current limiting

**6. Current Sharing with Remote Sense**

RSP-3000 has the built-in active current sharing function and can be connected in parallel, up to 3 units, to provide higher output power as exhibited below :

- ※ The power supplies should be paralleled using short and large diameter wiring and then connected to the load.
- ※ Difference of output voltages among parallel units should be less than 0.2V.
- ※ The total output current must not exceed the value determined by the following equation:  
Maximum output current at parallel operation = (Rated current per unit) × (Number of unit) × 0.9
- ※ When the total output current is less than 3% of the total rated current, or say (3% of Rated current per unit) × (Number of unit) the current shared among units may not be fully balanced.



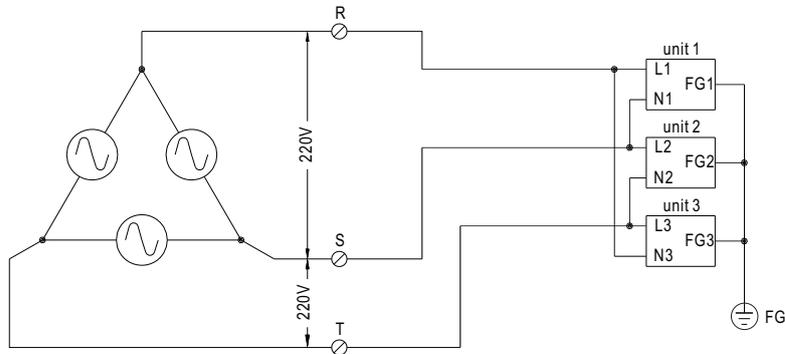
- When remote sensing is used in parallel operation, the sensing wire must be connected only to the master unit
- Sense lines should be twisted in pairs to minimize noise pick-up.

- +S, -S and CS on CN1 or CN2 are connected mutually in parallel.
- Under parallel operation, the "output voltage programming" function is not available.

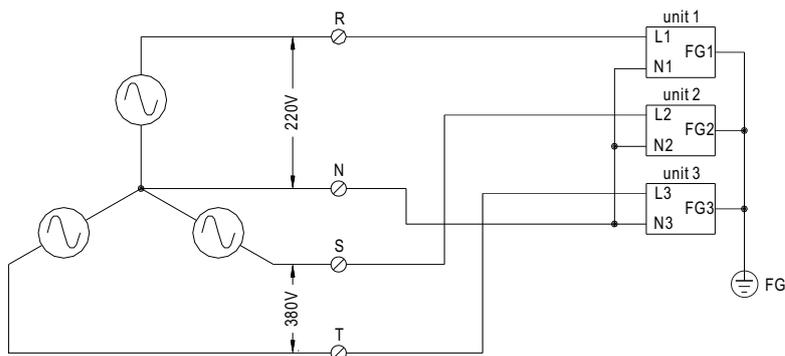
**6. Three Phase Connect**

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.

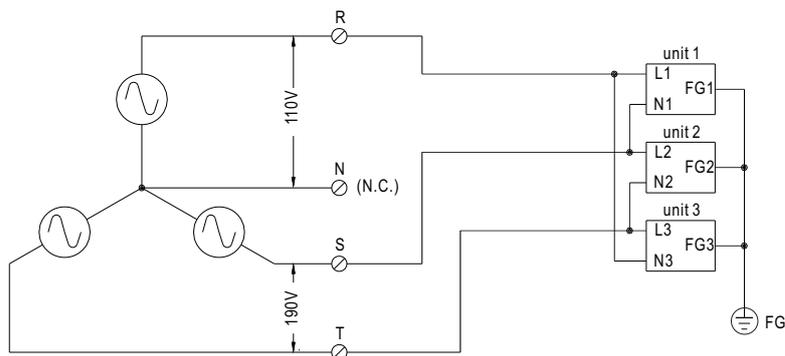
**FIG. A: 3  $\phi$  3W 220VAC SYSTEM**



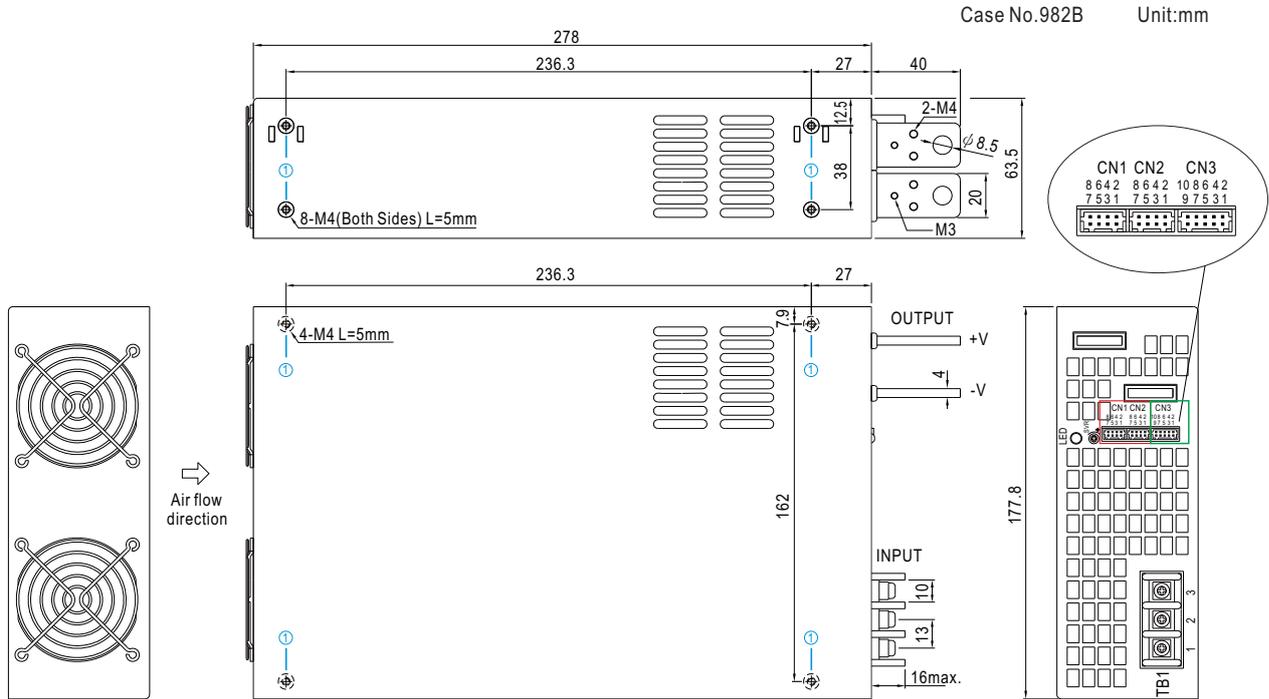
**FIG. B: 3  $\phi$  4W 220/380VAC SYSTEM**



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

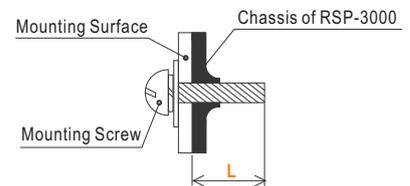


## Mechanical Specification

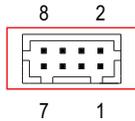


### Mounting Instruction

Hole No.	Recommended Screw Size	MAX. Penetration Depth L	Recommended mounting torque
①	M4	5mm	7~10Kgf-cm



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

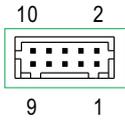


Mating Housing	HRS DF11-8DS or equivalent
Terminal	HRS DF11-**SC or equivalent

© CN1 and CN2 are connected internally.

Pin No.	Function	Description
1	RCG	Remote ON-OFF Ground
2	RC	Remote ON-OFF
3	PV	Connection for output voltage programming
4	PS	Reference Voltage Terminal
5,7	-S	Negative sensing for remote sense
6	CS(Current Share)	Current Share
8	+S	Positive sensing for remote sense

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



Mating Housing	HRS DF11-10DS or equivalent
Terminal	HRS DF11-10SC or equivalent

Pin No.	Function	Description
1	P OK GND	Power OK Ground
2	P OK	Power OK Signal (Relay Contact)
3	P OK GND2	Power OK Ground
4	P OK2	Power OK Signal (TTL Signal)
5	RCG	Remote ON-OFF Ground
6	RC	Remote ON-OFF
7	AUXG	Auxiliary Ground
8	AUX	Auxiliary Output
9	OLP	Overload(OLP) type select
10	OL-SD	

※AC Input Terminal Pin No. Assignment

Pin No.	Assignment	Diagram	Maximum mounting torque
1	AC/L		18Kgf-cm
2	AC/N		
3	FG $\perp$		

### ■ Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>



■ Features :

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- LED indicator for power on
- 100% full load burn-in test
- All using 105°C long life electrolytic capacitors
- Withstand 300VAC surge input for 5 second
- High operating temperature up to 70°C
- Withstand 5G vibration test
- High efficiency, long life and high reliability
- 3 years warranty

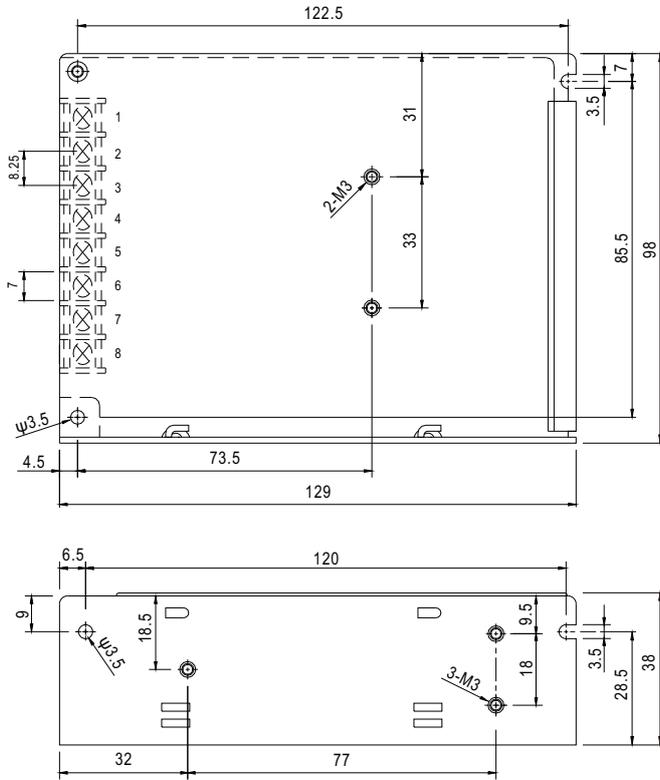


SPECIFICATION

MODEL	RT-65A			RT-65B			RT-65C			RT-65D			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3
	DC VOLTAGE	5V	12V	-5V	5V	12V	-12V	5V	15V	-15V	5V	24V	12V
	RATED CURRENT	6A	2.8A	0.5A	5A	2.8A	0.5A	5A	2.2A	0.5A	4A	1.5A	1A
	CURRENT RANGE <small>Note.6</small>	0.5 ~ 8A	0.2 ~ 3.5A	0 ~ 1A	0.5 ~ 8A	0.2 ~ 3.5A	0 ~ 1A	0.5 ~ 8A	0.2 ~ 3A	0 ~ 1A	0.5 ~ 8A	0.2 ~ 2A	0.1 ~ 1A
	RATED POWER <small>Note.6</small>	66.1W			64.6W			65.5W			68W		
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	120mVp-p	80mVp-p	80mVp-p	120mVp-p	80mVp-p	80mVp-p	120mVp-p	80mVp-p	80mVp-p	150mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V			CH1: 4.75 ~ 5.5V			CH1: 4.75 ~ 5.5V			CH1: 4.75 ~ 5.5V		
	VOLTAGE TOLERANCE <small>Note.3</small>	±2.0%	±6.0%	±5.0%	±2.0%	±6.0%	±5.0%	±2.0%	+8,-4%	±5.0%	±2.0%	+4,-6%	±6.0%
	LINE REGULATION <small>Note.4</small>	±0.5%	±1.5%	±0.5%	±0.5%	±1.5%	±0.5%	±0.5%	±1.5%	±0.5%	±0.5%	±1.5%	±2.0%
	LOAD REGULATION <small>Note.5</small>	±1.0%	±3.0%	±1.0%	±1.0%	±3.0%	±1.0%	±1.0%	±3.0%	±1.0%	±1.0%	±3.0%	±4.0%
SETUP, RISE TIME	500ms, 20ms/230VAC			1200ms, 30ms/115VAC at full load									
HOLD UP TIME (Typ.)	60ms/230VAC			14ms/115VAC at full load									
INPUT	VOLTAGE RANGE	88 ~ 264VAC			125 ~ 373VDC (Withstand 300VAC surge for 5sec. Without damage)								
	FREQUENCY RANGE	47 ~ 63Hz											
	EFFICIENCY(Typ.)	77%			77%			78%			79%		
	AC CURRENT (Typ.)	2A/115VAC 1.2A/230VAC											
	INRUSH CURRENT (Typ.)	COLD START 40A/230VAC											
LEAKAGE CURRENT	<2mA / 240VAC												
PROTECTION	OVERLOAD	110 ~ 150% rated output power			Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	CH1: 5.75 ~ 6.75V			Protection type : Hiccup mode, recovers automatically after fault condition is removed								
ENVIRONMENT	WORKING TEMP.	-25 ~ +70°C (Refer to "Derating Curve")											
	WORKING HUMIDITY	20 ~ 90% RH non-condensing											
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH											
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C) on +5V output											
VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes												
SAFETY & EMC (Note 7)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1, EAC TP TC 004 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 EN55032 (CISPR32) Class B, EN61000-3-2,-3, EAC TP TC 020											
EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61000-6-2 (EN50082-2), heavy industry level, criteria A, EAC TP TC 020												
OTHERS	MTBF	254.6Khrs min. MIL-HDBK-217F (25°C)											
	DIMENSION	129*98*38mm (L*W*H)											
	PACKING	0.44Kg; 30pcs/13.2Kg/0.72CUFT											
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>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.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Line regulation is measured from low line to high line at rated load.</li> <li>5. Load regulation is measured from 20% to 100% rated load, and other output at 60% rated load.</li> <li>6. Each output can work within current range. But total output power can't exceed rated output power.</li> <li>7. 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 360mm*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>)</li> <li>8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</li> </ol>												

**Mechanical Specification**

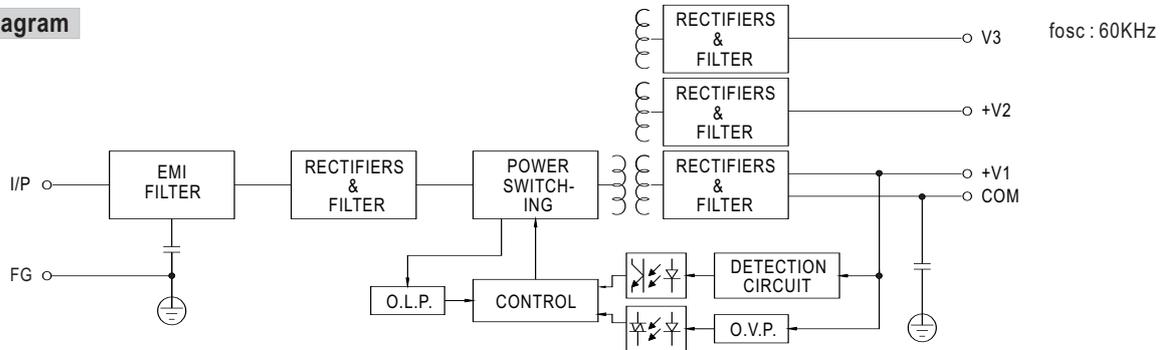
Case No. 903 Unit:mm



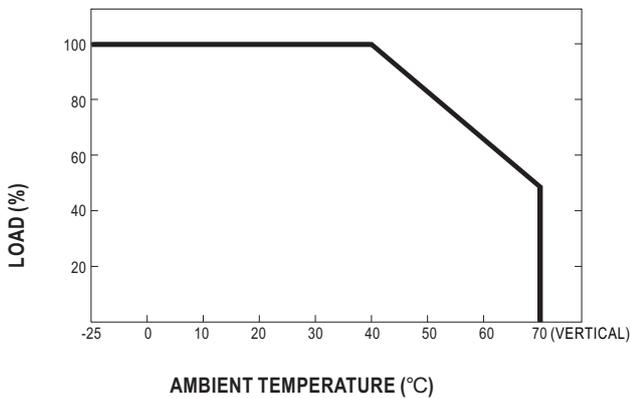
Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	DC OUTPUT V3
2	AC/N	6	DC OUTPUT +V2
3	FG $\perp$	7	DC OUTPUT COM
4	NC	8	DC OUTPUT +V1

**Block Diagram**



**Derating Curve**



**Output Derating VS Input Voltage**

