



## ■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 89.5%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in constant current limiting circuit
- Medical safety approved (MOOP level)
- Built-in cooling Fan ON-OFF control
- Built-in DC OK signal
- Built-in remote ON-OFF control
- Stand by 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.6W (Note.7)
- 5 years warranty

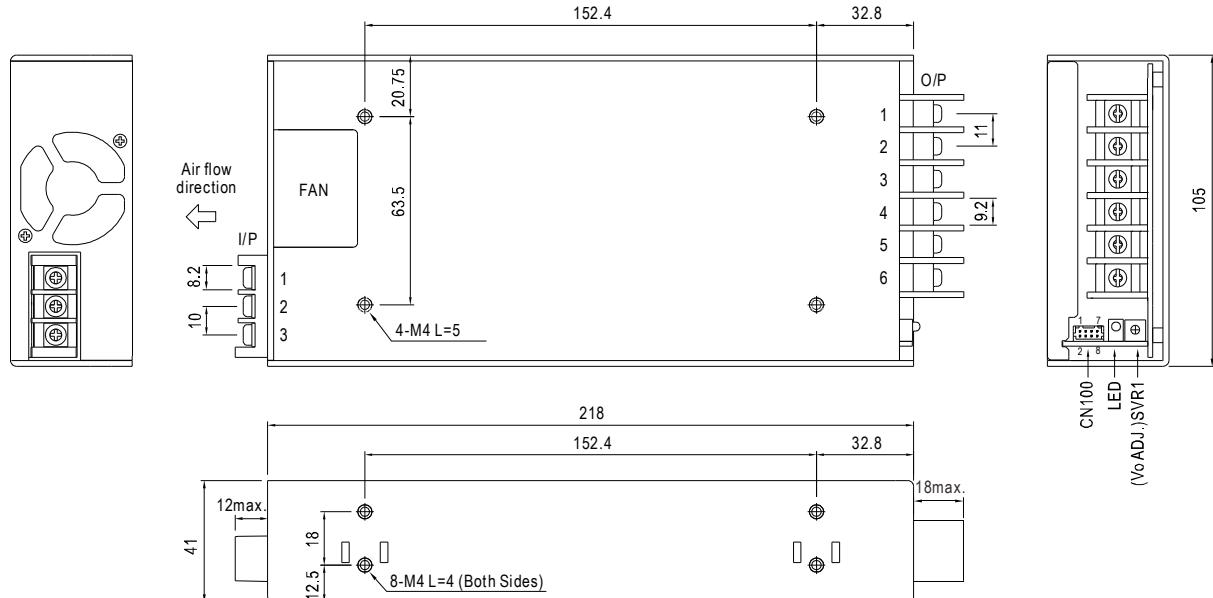


## SPECIFICATION

MODEL	MSP-450-3.3	MSP-450-5	MSP-450-7.5	MSP-450-12	MSP-450-15	MSP-450-24	MSP-450-36	MSP-450-48					
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	36V					
	RATED CURRENT	90A	90A	60A	37.5A	30A	18.8A	12.5A					
	CURRENT RANGE	0 ~ 90A	0 ~ 90A	0 ~ 60A	0 ~ 37.5A	0 ~ 30A	0 ~ 18.8A	0 ~ 12.5A					
	RATED POWER	297W	450W	450W	450W	450W	451.2W	450W					
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	100mVp-p	120mVp-p	150mVp-p	150mVp-p	240mVp-p					
	VOLTAGE ADJ. RANGE	2.8 ~ 3.8V	4.3 ~ 5.8V	6.8 ~ 9V	10.2 ~ 13.8V	13.5 ~ 18V	21.6 ~ 28.8V	28.8 ~ 39.6V					
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%					
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.2%	±0.2%					
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%					
INPUT	SETUP, RISE TIME	1000ms, 100ms/230VAC		2500ms, 100ms/115VAC at full load									
	HOLD UP TIME (Typ.)	16ms/230VAC	16ms/115VAC at full load										
PROTECTION	VOLTAGE RANGE Note.5	85 ~ 264VAC	120 ~ 370VDC										
	FREQUENCY RANGE	47 ~ 63Hz											
	POWER FACTOR (Typ.)	PF>0.95/230VAC		PF>0.99/115VAC at full load									
	EFFICIENCY (Typ.)	80%	83%	86.5%	88%	89%	88%	89%					
	AC CURRENT (Typ.)	5A/115VAC	2.4A/230VAC										
	INRUSH CURRENT (Typ.)	35A/115VAC	70A/230VAC										
FUNCTION	LEAKAGE CURRENT	Earth leakage current < 300µA/264VAC , Touch leakage current < 100µA/264VAC											
	OVERLOAD	105 ~ 135% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed											
	OVER VOLTAGE	3.96 ~ 4.62V	6 ~ 7V	9.4 ~ 10.9V	14.4 ~ 16.8V	18.8 ~ 21.8V	30 ~ 34.8V	41.4 ~ 48.6V					
ENVIRONMENT	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover											
	5V STANDBY	105 ~ 135% rated output power											
	DC OK SIGNAL	Protection type : Constant current limiting, recovers automatically after fault condition is removed											
	REMOTE CONTROL	Shut down o/p voltage, recovers automatically after temperature goes down											
	FAN CONTROL (Typ.)	5VSB : 5V@0.3A; tolerance ±5%, ripple : 50mVp-p(max.)											
SAFETY & EMC (Note 4)	WORKING TEMP.	-40 ~ +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)											
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes											
OTHERS	SAFETY STANDARDS	ANSI/AAMI ES60601-1, IEC60601-1 approved											
	ISOLATION LEVEL	Primary-Secondary: 2xMOOP, Primary-Earth: 1xMOOP, Secondary-Earth: 1xMOOP											
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC	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 EN55011 (CISPR11) Class B, EN61000-3-2,-3											
NOTE	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN60601-1-2											
	MTBF	159.3K hrs min. MIL-HDBK-217F (25°C)											
	DIMENSION	218*105*41mm (L*W*H)											
	PACKING	1.19Kg; 12pcs/15.3Kg/0.82CUFT											
	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 <a href="http://www.meanwell.com">http://www.meanwell.com</a> )											
	5.	Derating may be needed under low input voltages. Please check the derating curve for more details.											
	6.	Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.											
	7.	No load power consumption<0.5W when RC- & RC+ (CN100 pin1,2) 0 ~ 0.8V or short.											
	8.	When the input voltage is less than 40VAC, the SPS may exhibit degradation of performance. The final product manufacturers must re-confirm this deviation that does not affect basic safety or essential performance.											

## ■ Mechanical Specification

Case No. 995A Unit:mm



AC Input Terminal Pin No. Assignment

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

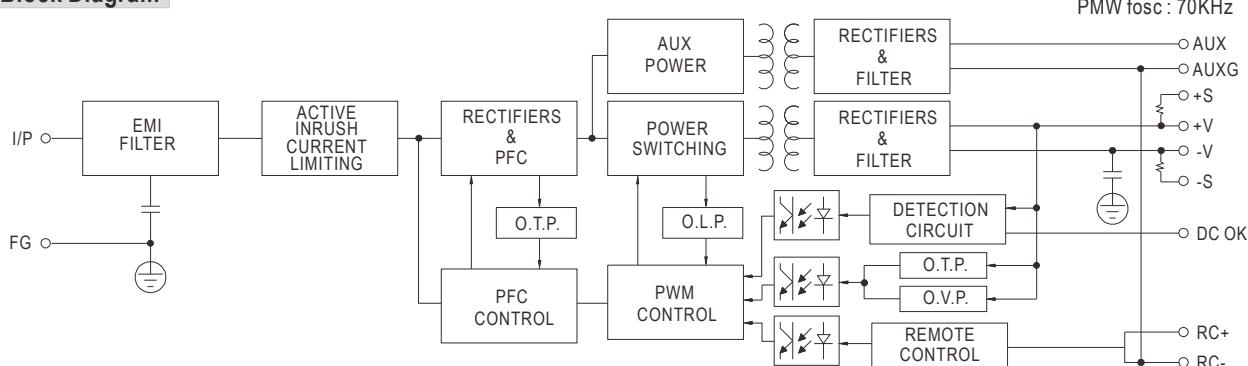
DC Output Terminal Pin No. Assignment

Pin No.	Assignment
1~3	-V
4~6	+V

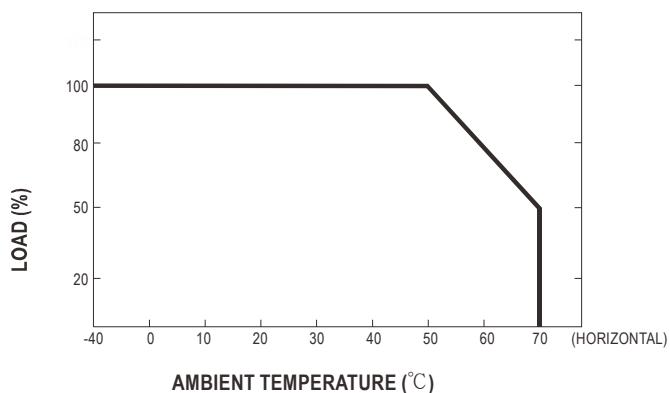
Connector Pin No. Assignment(CN100) : HRS DF11-8DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	RC+	5	DC-OK		
2	RC-	6	GND		
3	AUX	7	+S	HRS DF11-8DS or equivalent	HRS DF11-**SC or equivalent
4	AUXG	8	-S		

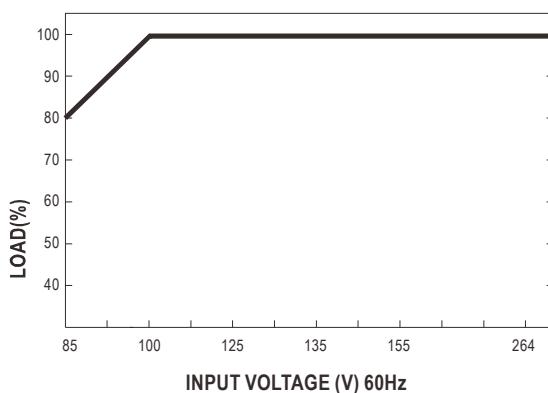
## ■ Block Diagram



## ■ Derating Curve



## ■ Output Derating VS Input Voltage



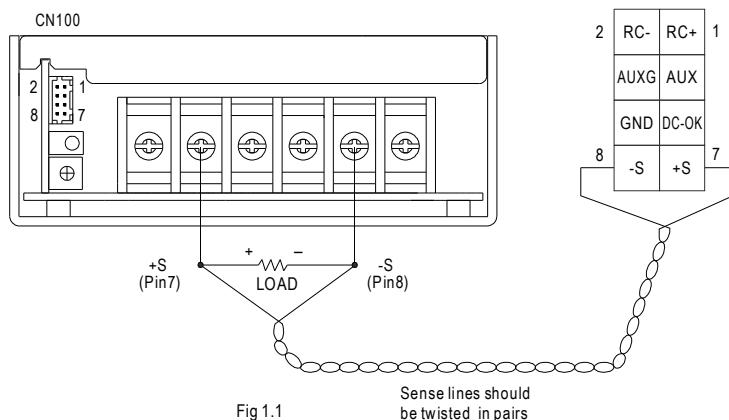
### ■ Function Description of CN100

Pin No.	Function	Description
1	RC+	Turns the output on and off by electrical or dry contact between pin 2 (RC-), Short: Power OFF, Open: Power ON.
2	RC-	Remote control ground.
3	AUX	Auxiliary voltage output, 4.75~5.25V, referenced to pin 4(AUXG). The maximum load current is 0.3A. This output has the built-in oring diodes and is not controlled by the "remote ON/OFF control".
4	AUXG	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).
5	DC-OK	DC-OK Signal is a TTL level signal, referenced to pin6(DC-OK GND). High when PSU turns on.
6	GND	This pin connects to the negative terminal(-V). Return for DC-OK signal output.
7	+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.
8	-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.

### ■ Function Manual

#### 1. Remote Sense

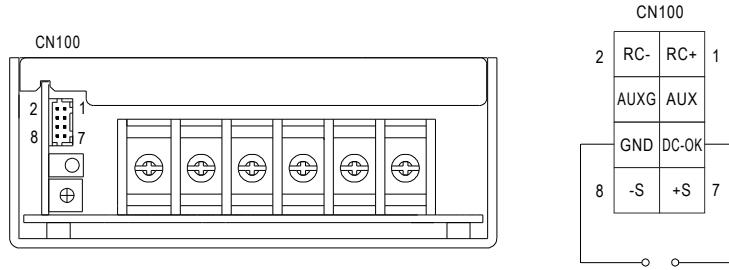
The remote sensing compensates voltage drop on the load wiring up to 0.5V.



#### 2. DC-OK Signal

DC-OK signal is a TTL level signal. High when PSU turns on.

Between DC-OK(pin5) and GND(pin6)	Output Status
3.3 ~ 5.6V	ON
0 ~ 1V	OFF



#### 3. Remote Control

The PSU can be turned ON/OFF by using the "Remote Control" function.

Between RC+(pin1) and RC-(pin2)	Output Status
SW ON (Short)	OFF
SW OFF (Open)	ON

