

FEATURES

500W Single Output with PFC Function

SP-500 series

- Universal AC Input / Active PFC
- Protections. Short-Circuiting / Over-load / Over-voltage / Over-temperature
- All Using 105°C Long-Life Electrolytic Capacitors
- High Operating temperatures of up to 65°C
- Power "OK" Signal
- U-Bracket Low Profile. 38mm
- Active AC Surge Current Limiting
- 3 Year Warranty
- A DC fan is provided
- Cooling-Free Air Convection for 400w and 500W with 23.5CFM forced
- 2 Mode – Remoter for ON/OFF Ctrl. Which is Setup by User
- Remote Voltage Sense
- High Power Density 6.4w/in³
- Withstands 2G Vibration Testing
- High Efficiency, Long Life, and High Reliability



SPECIFICATION

Model		SP-500-12	SP-500-15	SP-500-24	SP-500-48
Output Requirements	Voltage (1)	12V	15V	24V	48V
	Rated Current	42A	33.5A	21A	10.5A
	Current Range (Convection)	0 ~ 33.3A	0 ~ 26.7A	0 ~ 16.7A	0 ~ 8.4A
	Rated Power (10.5CFM Fan)	0 ~ 42A	0 ~ 33.5A	0 ~ 21A	0 ~ 10.5A
	Rated Power (Convection)	399.6W	400.5W	400.8W	403.2W
	Rated Power (10.5 CFM Fan)	504W	502.5W	504W	504W
	Ripple & Noise (Max) (2)	150 mVp-p	150 mVp-p	150 mVp-p	150 mVp-p
	Voltage Adjustment Range	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V	43.2 ~ 52.8V
	Voltage Tolerance (3)	± 2%	± 2%	± 2%	± 2%
	Line Regulation	± 1%	± 1%	± 1%	± 1%
	Load Regulation	± 2%	± 2%	± 2%	± 2%
	Setup, Rise Time	600ms, 30ms at full load			
	Hold Time	16ms / 230VAC at full load			
Input Requirements	Voltage (4)	90V ~ 264VAC / 127 ~ 370VDC			
	Frequency	47Hz ~ 63Hz			
	Efficiency (Typ.)	90%	90%	90%	91%
	AC Current (max.)	6 A / 115VAC 2A / 230VAC			
	Inrush Current (Typ.)	30A / 115VAC 44A / 230VAC			
	Leakage Current	< 2mA / 230VAC			
Protection Requirement	Over Load	> 105% rated output power Protection type: constant current limiting, output voltage less than 50% rating DC voltage range after 500ms the unit will shutdown			
	Over Voltage	115% ~ 150% rated output voltage Protection type: latch-off mode			
	Over Temperature	95°C With N2 sense by T1 core ±5°C, 95°C With TH1 sense near D26 heat sink ±5°C			
Environmental Conditions	Operating Temperature	-20°C ~ +65°C (Refer to output load de-rating curve)			
	Operating Humidity	20 ~ 90% RH non-condensing			
	Storage Temperature, Humidity	- 40 +85°C / 10 ~ 95% R.H~			
	Temperature Coefficient	±0.03%/°C (0 ~ 50°C)			
	Vibration	10 ~ 500HZ, 2G 10min./ 1 cycle, period for 60 min. Each along X,Y,Z axes			



Model	SP-500-12	SP-500-15	SP-500-24	SP-500-48
Safety & EMC (5)	Safety Standards	UL 60950-1, 2nd Edition, TUV EN60950-1 : 2006+A11 Approved		
	Withstand Voltage	I/P -O/P : 4242 DC I/P -FG : 2121 DC 1 minute		
	Isolation Resistance	I/P -O/P,I/P -FG, O/P -FG:100M Ω /500VDC		
	EMI Conduction & Radiation	EN55022: 2006 Class B		
	Harmonic Current	EN61000-3-2: 2006 Class A, EN61000-3-3: 1995+A1: 2001+A2: 2005		
	EMS Immunity	EN61204-3: 2000, EN55024: 1998+A1: 2001+A2: 2003 light industry level, criteria A		
Others	Connection	I/P 3P / 9.5mm terminal block with cover, O/P : 8P/9.5mm terminal block with cover		
	Power Ok signal	Open Darin. Max 30Vdc / 0.1A		
	Cooling	Free Air convection for 400W, With23.5CFM Fan for 500W		
	MTBF (MIL-HDBK-217F)			
	ON/OFF Remote Control	Two modes setup remote ON/OFF see Function Description of J2		
	Remote Voltage Sense	Compensates for wire voltage drop		
	Dimension (W*H*D)	254 x 127 x 38(mm) or 10 x 5 x 1.50(inches)		
	Packing	1.7kg : 12Pcs / 20.4KG		

NOTES:

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 & 47 uf parallel capacitor.
3. Tolerance: includes set up tolerance, line regulation and load regulation.
4. De-rating may be needed under low input voltages. Please check the de-rating curve for more details.
5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be confirmed that it still meets EMC directives.
6. In parallel connection, maybe only one unit operate if the total output load is less than 5% of rated load condition.



Mechanical Specification

Unit : mm

AC Input Terminal(CN1)Pitch:9.5mm:

Pin. No.	Assignment	
1	Line	AC/L
2	Neutral	AC/N
3	Ground/Earth	FG

Connector pin number assignment(CN2):
JST B8B-PHDSS or equivalent

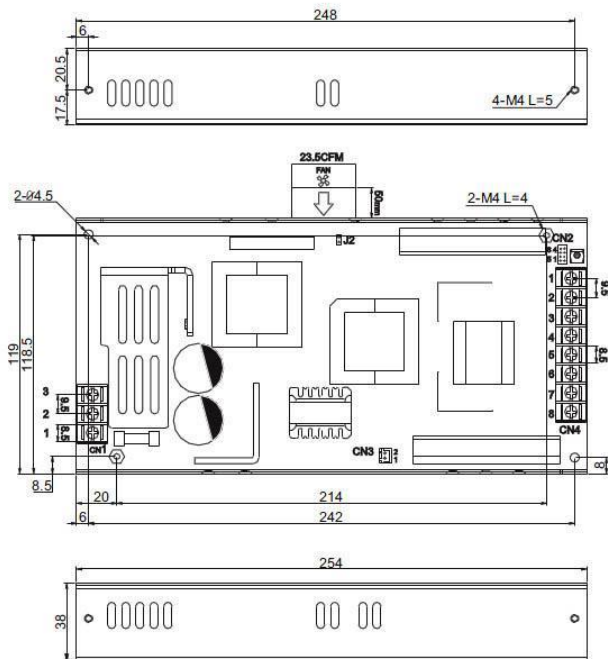
Pin. No.	Assignment	Mating Housing	Terminal
1	VS+	JST PHD-08VS or equivalent	JST SPHD-002T-P05 or equivalent
2	S GND		
3	INH-		
4	NC		
5	VS-		
6	POK		
7	INH+		
8	VS-		

External FAN Power Connector(CN3):

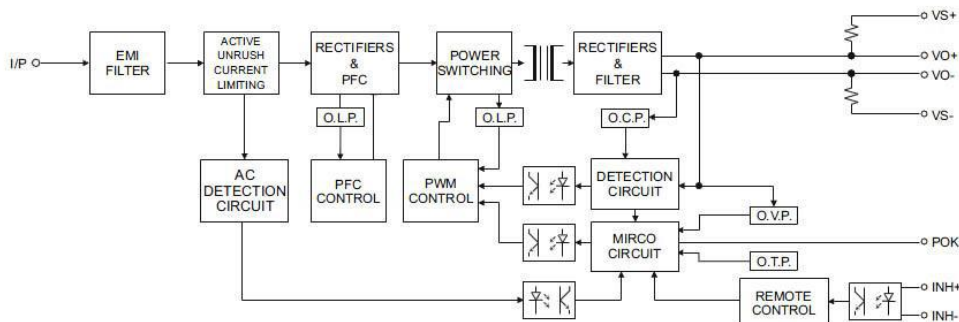
Pin. No.	Assignment	Mating Housing	Terminal
1	SGND	JST XHP-2 or equivalent	JST SXH-001T-0.6 or equivalent
2	12V+		

DC Output Terminal (CN4) pitch:9.5mm:

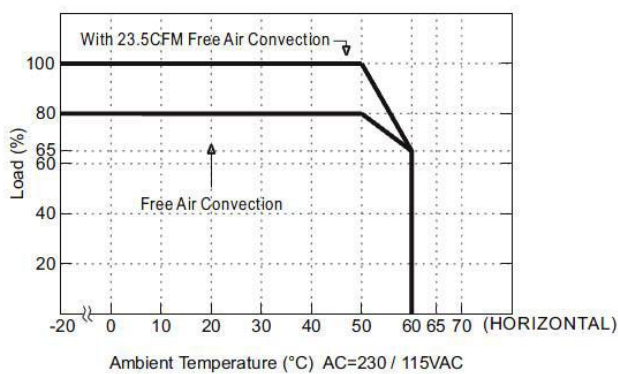
Pin. No.	Assignment	
1	VO(-)	Return
2	VO(-)	Return
3	VO(-)	Return
4	VO(-)	Return
5	VO(+)	+Main Output
6	VO(+)	+Main Output
7	VO(+)	+Main Output
8	VO(+)	+Main Output



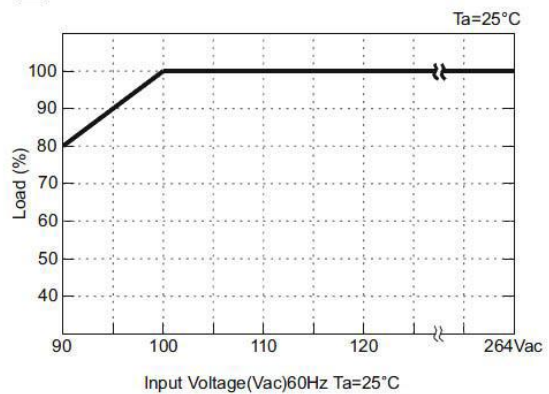
Block Diagram



De-rating Curve



Static Characteristics



Function Description of CN2, CN3

CN2 PIN CONNECTIONS		
1	VS+	Remote Sense VO (+)
2	SGND	Signal Common
3	INH-	Remote ON/OFF Signal (-)
4	N.C	N.C
5	VS-	Remote Sense VO (-)
6	POK	Power OK signal control
7	INH+	Remote ON/OFF Signal (+)
8	VS-	Remote Sense VO (-)

CN3 PIN CONNECTIONS		
1	SGND	Return
2	12V+	FAN Voltage MAX:0.8A

Function Description of J2

1. Remote Control

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

J2 PIN & CN2 CONNECTIONS		
J2	INH+ (7 PIN) / INH- (3 PIN)	Output Status
Open	SW ON (>2.5V)	ENABLE
Open	SW OFF (<0.8V)	DISABLE
Close	SW ON (>2.5V)	DISABLE
Close	SW OFF (<0.8V)	ENABLE

(Default Setting)

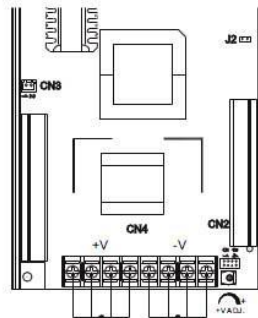
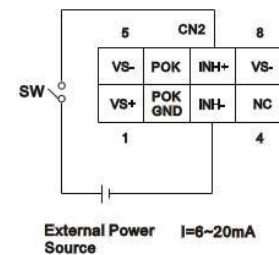


Fig 1.1



Function Description of CN2

2. P-OK CONTROL

POK Signal use open drain MOSFET control
MAX:30Vds,0.1A

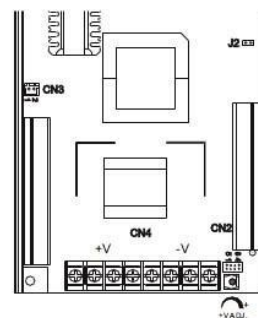
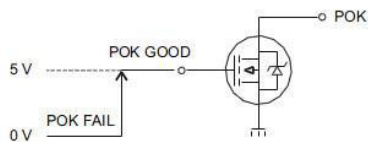
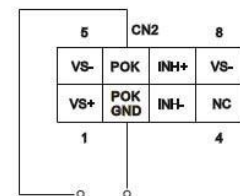
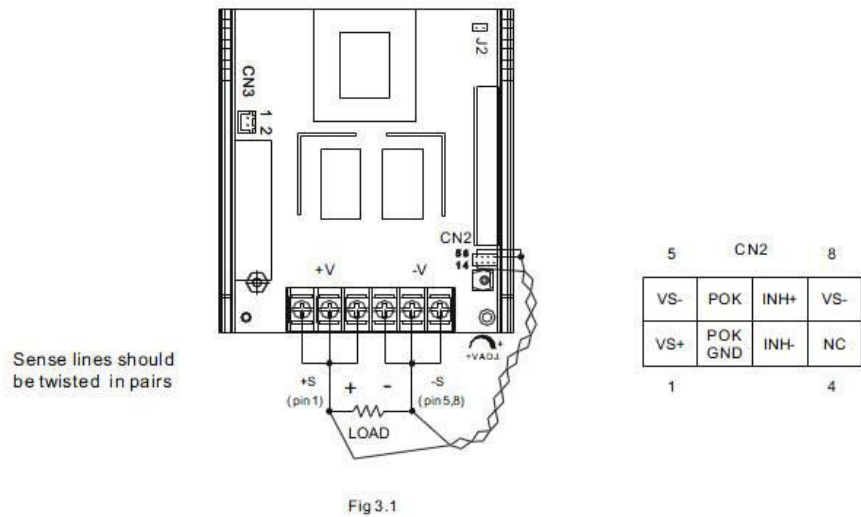


Fig 2.1



3. Remote Sense

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



PART NUMBER SCHEME

