



E-Star Power Development Co., Ltd. (E-STAR)

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Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

**500W Open Frame type Single output power supply > EPP-500**



**Features**

- 5"×3" compact size
- 320W convection,500W force air
- 550W peak power (3sec.)
- EMI for both Class I & Class II configuration
- -30~+70°C wide range operating temperature
- No load power consumption<0.5W by PS\_ON control
- High efficiency up to 94%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 5Vdc standby output, 12Vdc fan supply, Power Good, Power Fail and remote sense
- Operating altitude up to 5000 meters (Note.5)
- LED indicator for power on
- 3 years warranty

**Applications**

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus
- Power sourcing equipment of PoE

**Description**

EPP-500 is a 500W highly reliable green PCB type power supply with a high power density on the 5" by 3" footprint. It accepts 80~264VAC input and offers various output voltages between 12V and 54V. The working efficiency is up to 94% and the extremely low no load power consumption is down below 0.5W. EPP-500 is able to be used for both Class I (with FG) and Class II (no FG) system design. EPP-500 has complete protection functions; it is complied with the international safety regulations such as TUV EN62368-1, TUV EN60335-1,UL62368-1 and IEC62368-1. EPP-500 series serves as a high price-to-performance power supply solution for various industrial applications.

**Model Encoding**

**EPP - 500 - 12**





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**SPECIFICATION**

MODEL		EPP-500-12	EPP-500-15	EPP-500-18	EPP-500-24	EPP-500-27	EPP-500-36	EPP-500-48	EPP-500-54	
OUTPUT	DC VOLTAGE	12V	15V	18V	24V	27V	36V	48V	54V	
	CURRENT	25CFM	41.6A	33.3A	27.8A	20.8A	18.5A	13.9A	10.4A	9.26A
		Convection	26.7A	21.3A	17.8A	13.4A	11.9A	8.9A	6.7A	5.93A
	RATED POWER Note.5	25CFM	499.2W	499.5W	500.4W	499.2W	499.5W	500.4W	499.2W	500W
		Convection	320.4W	319.5W	320.4W	321W	321.3W	320.4W	321.6W	320.2W
	PEAK POWER(3sec.)	550W								
	RIPPLE & NOISE (max.) Note.2	200mVp-p								
	VOLTAGE ADJ. RANGE(MAIN OUTPUT)	11.4~12.6V	14.3~15.8V	17.1~18.9V	22.8~25.2V	25.6 ~ 28.4V	34.2 ~37.8V	45.6 ~50.4V	51 ~56V	
	VOLTAGE TOLERANCE Note.3	±3.0%	±3.0%	±3.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
SETUP, RISE TIME	1000ms, 30ms/230VAC      1500ms, 30ms/115VAC at full load									
HOLD UP TIME (Typ.)	10ms/230VAC    10ms/115VAC at full load									
INPUT	VOLTAGE RANGE Note.4	80 ~ 264VAC		113 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR	PF>0.94/230VAC PF>0.98/115VAC at full load								
	EFFICIENCY (Typ.)	91%	92%	92.5%	93%	93.5%	94%	94%	94%	
	AC CURRENT (Typ.)	5.8A/115VAC		2.9A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 40A/115VAC			80A/230VAC					
	LEAKAGE CURRENT	<0.75mA / 240VAC								
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	13.2 ~ 15.6V	16.5 ~ 19.5V	19.8 ~23.4V	26.4 ~ 31.2V	29.7 ~ 35.1V	39.6 ~ 46.8V	52.8 ~ 62.4V	56.7~59.4V	
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down								
FUNCTION	5V STANDBY	5Vsb : 5V@0.6A without fan, 1A with fan 25CFM ; tolerance ±2%, ripple : 120mVp-p(max.)								
	12V FAN SUPPLY	12V@0.5A for driving a fan ; tolerance ±10%								
	PS-ON INPUT SIGNAL	Power on: PS-ON = "Hi" or " > 2 ~ 5V" ; Power off: PS-ON = "Low" or " < 0 ~ 0.5V"								
	POWER GOOD / POWER FAIL	500ms>PG>10ms ; The TTL signal goes high with 10ms to 500ms delay after power set up ; The TTL signal goes low at least 1ms before Vo below 90% of rated value								
ENVIRONMENT	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP.	-40 ~ +85°C								
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes								
OPERATING ALTITUDE Note.5	5000 meters									



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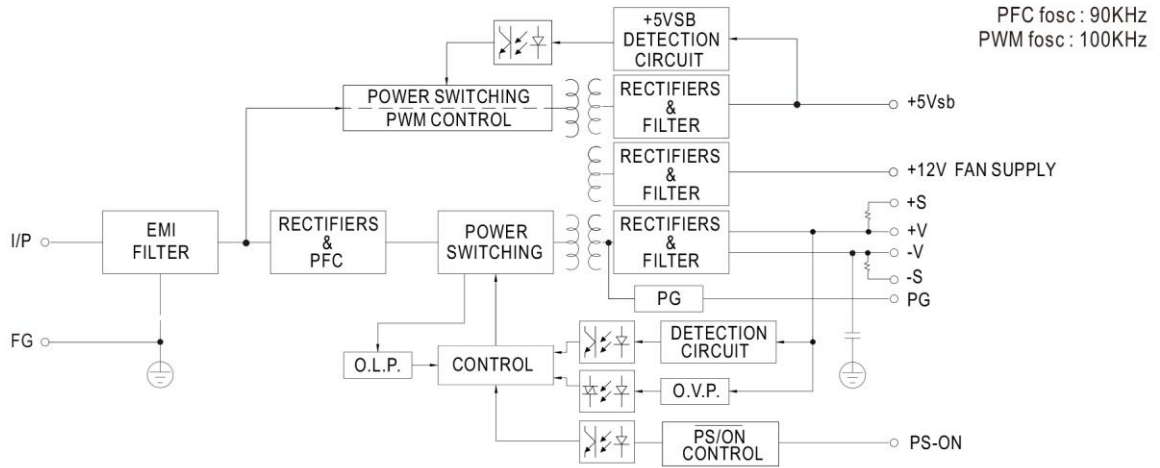
**SPECIFICATION**

<b>SAFETY &amp; EMC (Note 6)</b>	<b>SAFETY STANDARDS</b>	UL62368-1, TUV EN62368-1, EN60335-1, IEC62368-1, EAC TP TC 004 approved										
	<b>WITHSTAND VOLTAGE</b>	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC										
	<b>ISOLATION RESISTANCE</b>	I/P-O/P, I/P-FG:100M Ohms / 500VDC / 25°C / 70% RH										
	<b>EMC EMISSION</b>	<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>								
		Conducted	EN55032(CISPR32), CNS13438	Class I : Class B , Class II : Class A								
		Radiated	EN55032(CISPR32), CNS13438	Class A								
		Harmonic Current	EN61000-3-2	Class A								
		Voltage Flicker	EN61000-3-3	-----								
	<b>EMC IMMUNITY</b>	EN55024, EN61000-6-2										
		<b>Parameter</b>	<b>Standard</b>	<b>Test Level /Note</b>								
		ESD	EN61000-4-2	Level 3, 8KV air; Level 2, 4KV contact, criteria A								
		Radiated Susceptibility	EN61000-4-3	Level 3, criteria A								
		EFT/Burest	EN61000-4-4	Level 3, criteria A								
		Surge	EN61000-4-5	Level 4,2KV/L-N, criteria A								
Conducted		EN61000-4-6	Level 3, criteria A									
Magnetic Field		EN61000-4-8	Level 4, criteria A									
Voltage Dips and interruptions	EN61000-4-11	>95% dip 0. 5 periods, 30% dip 25 periods, >95% interruptions 250 periods										
<b>OTHERS</b>	<b>MTBF</b>	194.1Khrs min. MIL-HDBK-217F (25°C)										
	<b>DIMENSION</b>	L*W*H	127x76.2x41mm									
			5"x3"x1.61"inch									
	<b>PACKING</b>	P.W.	0.46Kg									
		Q'TY	30pcs									
		G.W.	14.8Kg									
M'MENT		0.96CUFT										
<b>NOTE</b>	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 of ambient temperature.          2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf &amp; 47μf parallel capacitor.          3. Tolerance : includes set up tolerance, line regulation and load regulation.          4. Derating may be needed under low input voltages. Please check the derating curve for more details.          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).          6. The power supply is considered a component which will be installed into a final equipment. All the Class I (with FG) EMC test are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. 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."</p> <table border="1" style="margin-left: 40px;"> <tr> <td>EMI Performance</td> <td>Conducted</td> <td>Radiated</td> </tr> <tr> <td>Class I (with FG)</td> <td>Class B</td> <td>Class A</td> </tr> <tr> <td>Class II (no FG)</td> <td>Class A</td> <td>Class A</td> </tr> </table>			EMI Performance	Conducted	Radiated	Class I (with FG)	Class B	Class A	Class II (no FG)	Class A	Class A
EMI Performance	Conducted	Radiated										
Class I (with FG)	Class B	Class A										
Class II (no FG)	Class A	Class A										

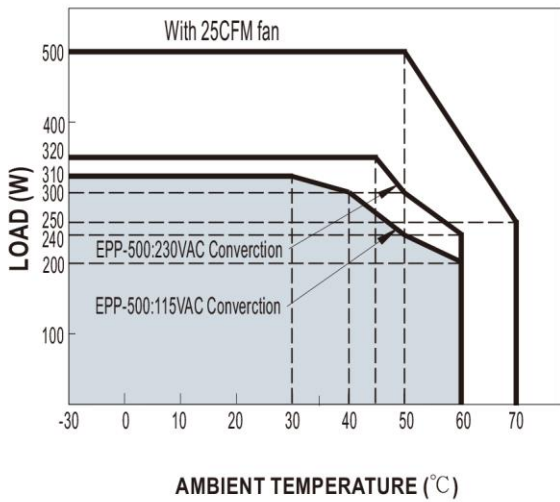


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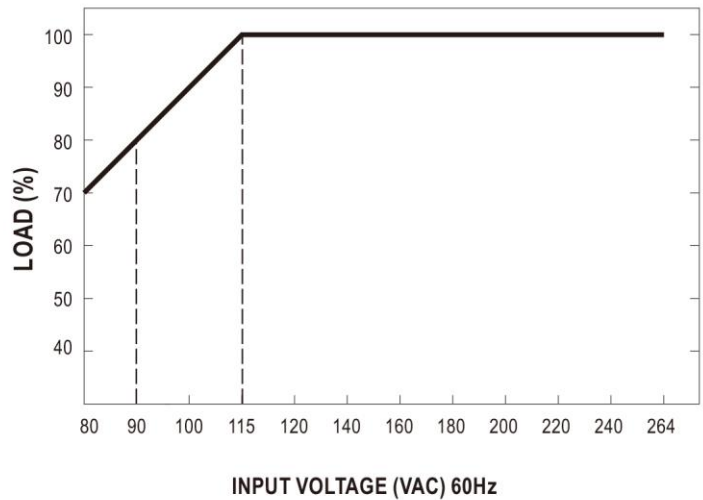
**Block Diagram**



**Derating Curve**



**Output Derating VS Input Voltage**



Convection	320W/230Vac 310W/115Vac
Force Air	500W



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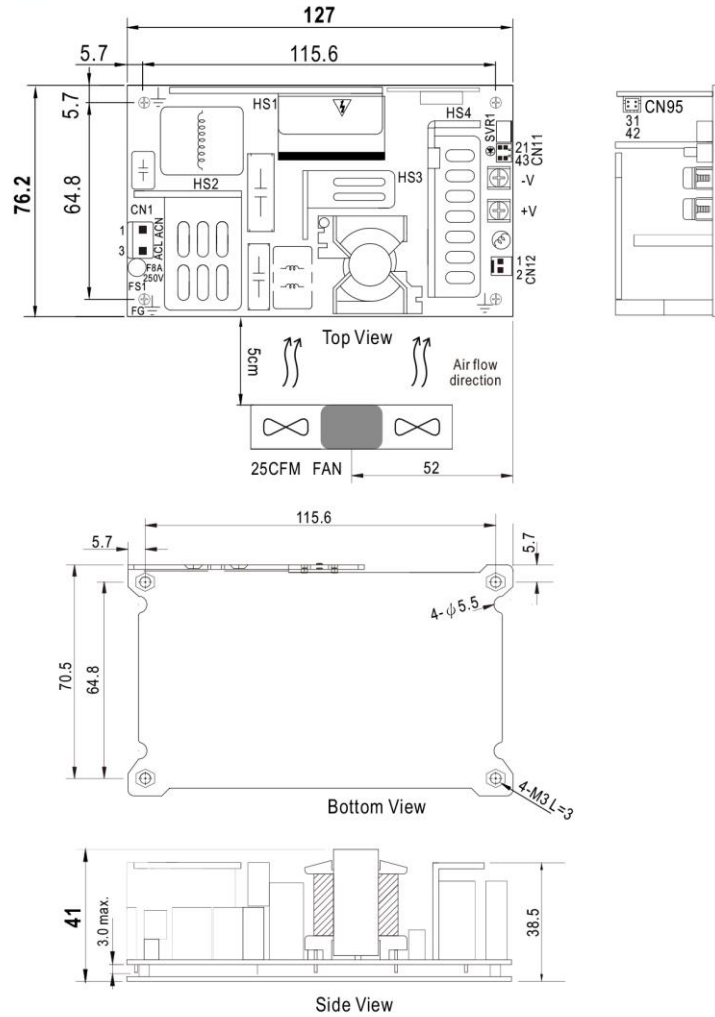
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**Mechanical Specification**

Unit:mm



**CONNECTION**

AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/L		

Function Connector(CN11): TKP DH2L-2X2 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	-S	TKP DH2 or equivalent	TKP or equivalent
2	+S		
3	DC COM		
4	PG		

DC Output Connector (CN2,CN3)

Pin No.	Assignment	Output Terminals
CN2	-V	M3.5 Pan HD screw in 2 positions Torque to 8 lbs-in(90cNm)max.
CN3	+V	

Function Connector(CN95): TKP DH2L-2X2 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	5Vsb	TKP DH2 or equivalent	TKP or equivalent
2,4	DC COM		
3	PS-ON		

⚠ HS1,HS2,HS3,HS4 can not be shorted

FAN Connector(CN12) : TKP 8812-2 or equivalent  
(Except for RPS-500-TF/SF)

Pin No.	Assignment	Mating Housing	Terminal
1	DC COM	TKP 2502 or equivalent	TKP 8811 or equivalent
2	+12V		