120W Single Output Switching Power Supply

EPS-120 series

User's Manual
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UL62368-1 BS EN/EN62368-1 GB4943.1 IEC62368-1 TPTC004

ECO Automate Industrial Security Network Telecom

Features

- 4"×2" miniature size
- Universal AC input / Full range
- EMI Class B for both Class I (with FG) and Class II (without FG) configuration
- No load power consumption<0.3W
- High efficiency up to 91%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection for 84W and 120W with 10CFM forced air
- Built-in 12V/0.5A fan supply
- LED indicator for power on
- Operating altitude up to 5000 meters
- 3 years warranty

Applications

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

GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

EPS-120 is a 120W highly reliable green PCB type power supply with a high power density on the 4" by 2" footprint. It accepts 80~264VAC input and offers various output voltages between 12V and 48V. The working efficiency is up to 91% and the extremely low no load power consumption is down below 0.3W. EPS-120 is able to be used for both Class I (with FG) and Class II (no FG) system design. EPS-120 has the complete protection functions; it is complied with the international safety regulations such as TUV BS EN/EN62368-1, UL62368-1 and IEC62368-1. EPS-120 series serves as a high price-to-performance power supply solution for various industrial applications.

Model Encoding

EPS - 120 - 12

- 12 — Output voltage
- 120 — Output wattage
- EPS — Series name

SPECIFICATION

MODEL			EPS-120-12	EPS-120-15	EPS-120-24	EPS-120-27	EPS-120-48
OUTPUT	DC VOLTAGE		12V	15V	24V	27V	48V
	CURRENT	10CFM	10A	8A	5A	4.5A	2.5A
		Convection	7.0A	5.6A	3.5A	3.15A	1.75A
	RATED POWER	10CFM	120W	120W	120W	121.5W	120W
		Convection	84W	84W	84W	85W	84W
	RIPPLE & NOISE (max.) Note.2		120mVp-p	120mVp-p	150mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE		11.4~12.6V	14.3~15.8V	22.8~25.2V	25.6 ~ 28.4V	45.6 ~50.4V
	VOLTAGE TOLERANCE Note.3		±2.0%	±2.5%	±1.0%	±1.0%	±1.0%
	LINE REGULATION		±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION		±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME		500ms, 30ms/230VAC 500ms, 30ms/115VAC at full load				
	HOLD UP TIME (Typ.)		50ms/230VAC 10ms/115VAC at full load				
INPUT	VOLTAGE RANGE Note.4		80 ~ 264VAC 113 ~ 370VDC				
	FREQUENCY RANGE		47 ~ 63Hz				
	EFFICIENCY (Typ.)		88%	88.5%	90%	90%	91%
	AC CURRENT (Typ.)		2.1A/115VAC 1.2A/230VAC				
	INRUSH CURRENT (Typ.)		COLD START 30A/115VAC 60A/230VAC				
	LEAKAGE CURRENT		<0.75mA / 240VAC				
PROTECTION	OVERLOAD		115~150% rated output power				
			Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE		13.2 ~ 15.6V	16.5 ~ 19.5V	26.4 ~ 31.2V	29.7 ~ 35V	52.8 ~ 62.4V
			Protection type : Shut down o/p voltage, re-power on to recover				
	OVER TEMPERATURE		Protection type : Shut down o/p voltage, re-power on to recover				
FUNCTION	FAN SUPPLY		12V@0.5A for driving a fan ; tolerance -15% ~ +10% at main output 40% rated current (10CFM)				
ENVIRONMENT	WORKING TEMP.		-30 ~ +70℃ (Refer to "Derating Curve")				
	WORKING HUMIDITY		20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY		-40 ~ +85℃, 10 ~ 95% RH				
	TEMP. COEFFICIENT		±0.03%/℃ (0 ~ 50℃)				
	OPERATING ALTITUDE Note.6		5000 meters				
	VIBRATION		10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes				
SAFETY & EMC (Note 5)	SAFETY STANDARDS		UL62368-1, TUV BS EN/EN62368-1, IEC62368-1, CCC GB4943.1, 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:100M Ohms / 500VDC / 25℃/ 70% RH				
	EMC EMISSION		Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, GB9254.1 Class B,GB17625 Class A, EAC TP TC 020				
	EMC IMMUNITY		Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61000-6-2, heavy industry level, criteria A, EAC TP TC 020				
OTHERS	MTBF		3746.9K hrs min. Telcordia SR-332 (Bellcore) ; 491.2K hrs min. MIL-HDBK-217F (25℃)				
	DIMENSION		101.6*50.8*29mm (L*W*H)				
	PACKING		0.15Kg; 72pcs/11.8Kg/0.82CUFT				

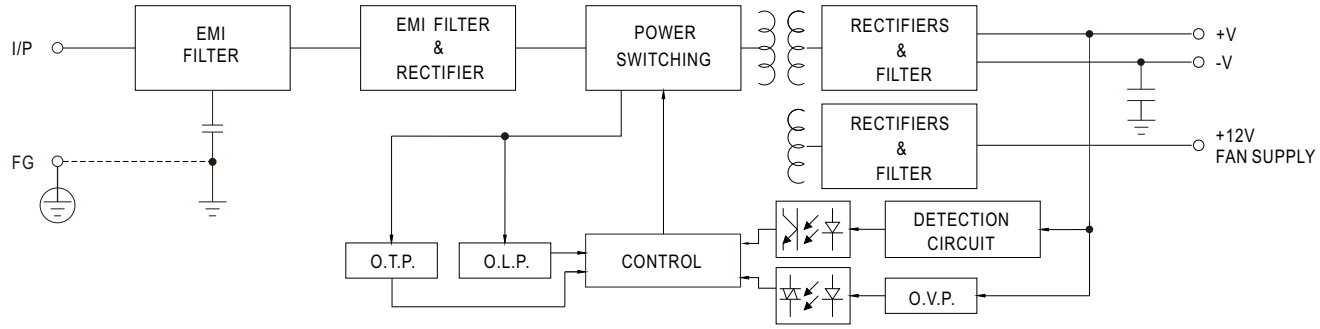
NOTE

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 0.1 μF & 47 μF 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 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 https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)
6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).

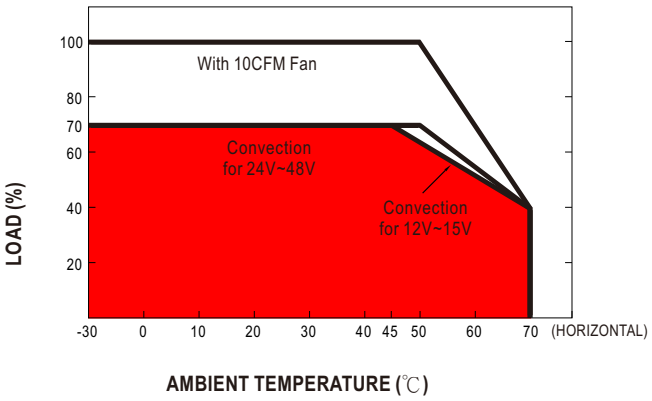
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ Block Diagram

fosc : 65KHz

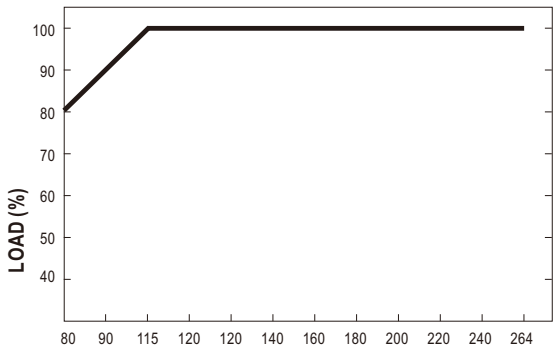


■ Derating Curve



AMBIENT TEMPERATURE (℃)

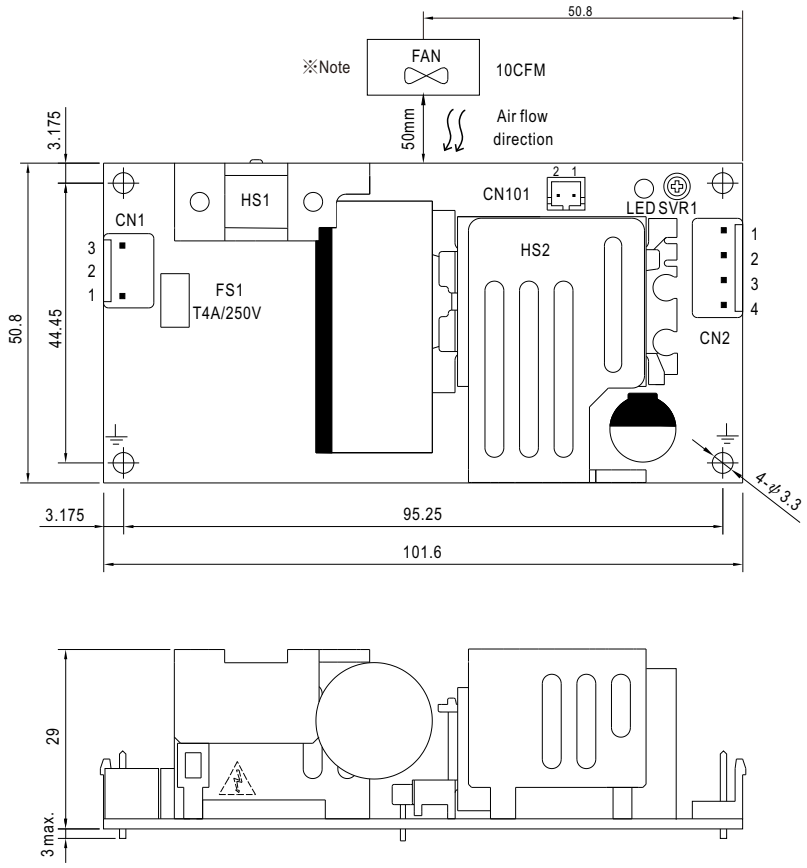
■ Output Derating VS Input Voltage



INPUT VOLTAGE (VAC) 60Hz

■ Mechanical Specification

(Unit: mm , tolerance ± 1mm)



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		

⏚ : Grounding required

⚠ 1.HS1,HS2 cannot be shorted.
2.HS1 must have safety isolation distance with system case.

DC Output Connector (CN2) : JST B4P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2	+V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
3,4	-V		

FAN Connector(CN101) : JST B2B-PH-K-S or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+12V	JST PHR-2 or equivalent	JST SPH-002T-P0.5S or equivalent
2	DC COM		

※Note : 1. The FAN SUPPLY is designed to serve as the source of the additive external fan for the cooling of the power supply, enabling the full load delivery and assuring the best life span of the product. Please do not use this FAN SUPPLY to drive other devices.

2.The PCB type(Blank type)model delivers EMI Class B for both conducted emission and radiated emission for the power supply, when configured into either Class Ⅰ (with FG) or Class Ⅱ (without FG) system.

■ Installation Manual

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