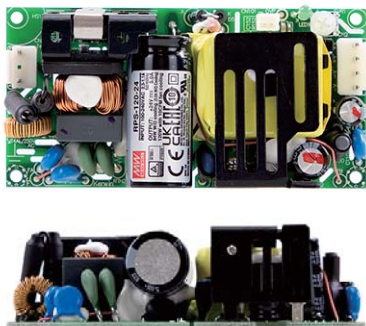




120W Reliable Green Medical Power Supply

RPS-120 series



User's Manual



ANSI/AAMI ES60601-1



BS EN/EN60601-1



IEC60601-1 TPTC004



■ Features

- 4"x2" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/BS EN/EN60601-1
- Suitable for BF application with appropriate system consideration
- 84W convention, 120W force air
- EMI Class B for both Class I (with FG) & Class II (no FG) configuration
- No load power consumption < 0.3W
- Extremely low leakage current
- 12V/0.5A fan supply
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Operating altitude up to 4000 meters
- 3 years warranty

■ Applications

- Oral irrigator
- Hemodialysis machine
- Medical monitors
- Sleep apnea devices
- Pumps machine

■ GTIN CODE

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

■ Description

RPS-120 is a 120W highly reliable green PCB type medical power supply with a high power density on a 4" by 2" footprint. It accepts 80~264VAC input and offers various models with the 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. RPS-120 is able to be used for both Class I (with FG) or Class II (no FG) system design. The extremely low leakage current is less than 150 μ A. In addition, it conforms to the international medical regulations (2*MOPP) and EMC BS EN/EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.

■ Model Encoding

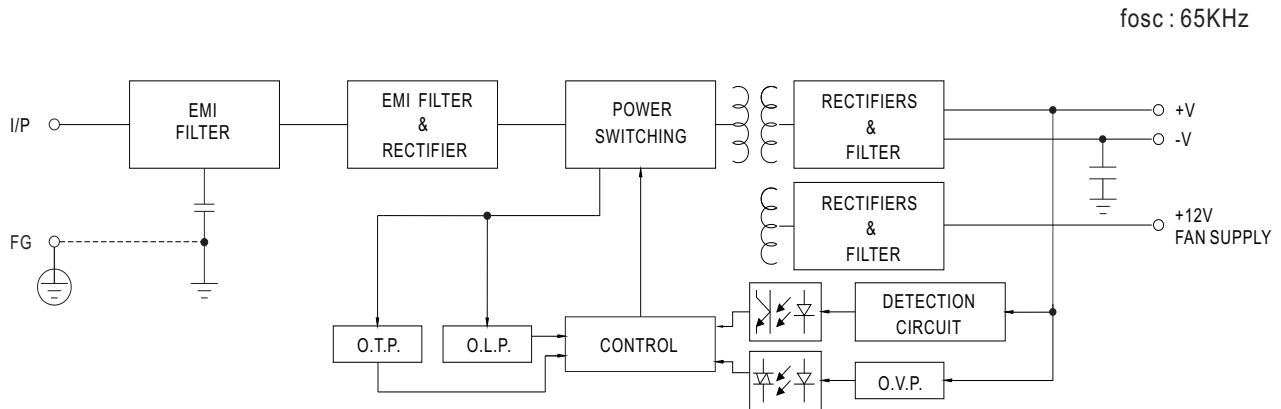
RPS - 120 - 12 - C

- Blank : PCB type
- C : Enclosed type
- Output voltage
- Rated wattage
- Series name

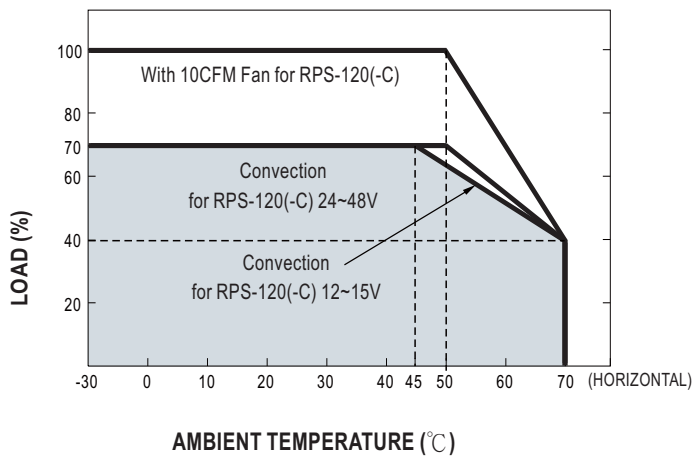
SPECIFICATION

MODEL			RPS-120-12□	RPS-120-15□	RPS-120-24□	RPS-120-27□	RPS-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		100mVp-p	120mVp-p	150mVp-p	150mVp-p	150mVp-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%	± 2.0%	± 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.)		89%	89%	90%	90%	91%
	AC CURRENT (Typ.)		2.1A/115VAC 1.2A/230VAC				
	INRUSH CURRENT (Typ.)		COLD START 30A/115VAC 60A/230VAC				
	LEAKAGE CURRENT(max.) Note.5		Earth leakage current < 150μA/264VAC , Touch current < 80μA/264VAC				
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 non-condensing				
	TEMP. COEFFICIENT		± 0.03%/℃ (0 ~ 50℃)				
	VIBRATION		10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes				
	OPERATING ALTITUDE Note.6		4000 meters				
SAFETY & EMC (Note 7)	SAFETY STANDARDS		IEC 60601-1:2005+A1, TUV BS EN/ EN 60601-1:2006+A1+A12+A2, ANSI/AAMI ES60601-1:2005+A2 CAN/CSA C22.2 No. 60601-1:2014+A2, EAC TP TC 004 approved; Design refer to BS EN/EN60335-1(by request)				
	ISOLATION RESISTANCE		Primary-Secondary: 2xMOPP, Primary-Earth:1xMOPP, Secondary-Earth:1xMOPP				
	WITHSTAND VOLTAGE		I/P-O/P:4KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC				
	ISOLATION RESISTANCE		I/P-O/P, I/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH				
	EMC EMISSION		Parameter		Standard		Test Level / Note
			Conducted emission		BS EN/EN55011 (CISPR11)		Class B
			Radiated emission		BS EN/EN55011 (CISPR11)		Class B
			Harmonic current		BS EN/EN61000-3-2		Class A
			Voltage flicker		BS EN/EN61000-3-3		-----
	EMC IMMUNITY		BS EN/EN55035,BS EN/EN60601-1-2				
			Parameter		Standard		Test Level / Note
			ESD		BS EN/EN61000-4-2		Level 4, 15KV air ; Level 4, 8KV contact
			RF field susceptibility		BS EN/EN61000-4-3		Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz)
			EFT bursts		BS EN/EN61000-4-4		Level 3, 2KV
			Surge susceptibility		BS EN/EN61000-4-5		Level 4, 4KV/Line-FG; 2KV/Line-Line
			Conducted susceptibility		BS EN/EN61000-4-6		Level 3, 10V
			Magnetic field immunity		BS EN/EN61000-4-8		Level 4, 30A/m
			Voltage dip, interruption		BS EN/EN61000-4-11		100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods
OTHERS	MTBF		3732.9K hrs min. Telcordia SR-332 (Bellcore) ; 653.6K hrs min. MIL-HDBK-217F (25℃)				
	DIMENSION (L*W*H)		PCB:101.6*50.8*29mm or 4" * 2" *1.141" inch ; Enclosed type:103.4*62*40mm or 4.07" * 2.44" *1.57" inch				
	PACKING		PCB:0.15Kg; 72pcs/11.8Kg/0.84CUFT ; Enclosed type:0.24Kg; 60pcs/15.4Kg/1.06CUFT				
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 0.1μf & 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. Touch current was measured from primary input to DC output. 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). 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx						

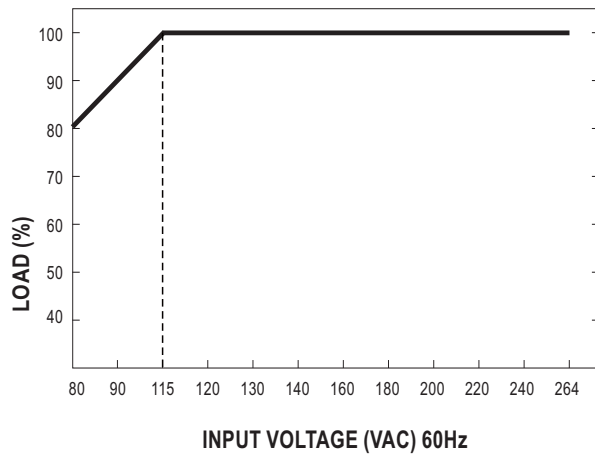
Block Diagram



Derating Curve

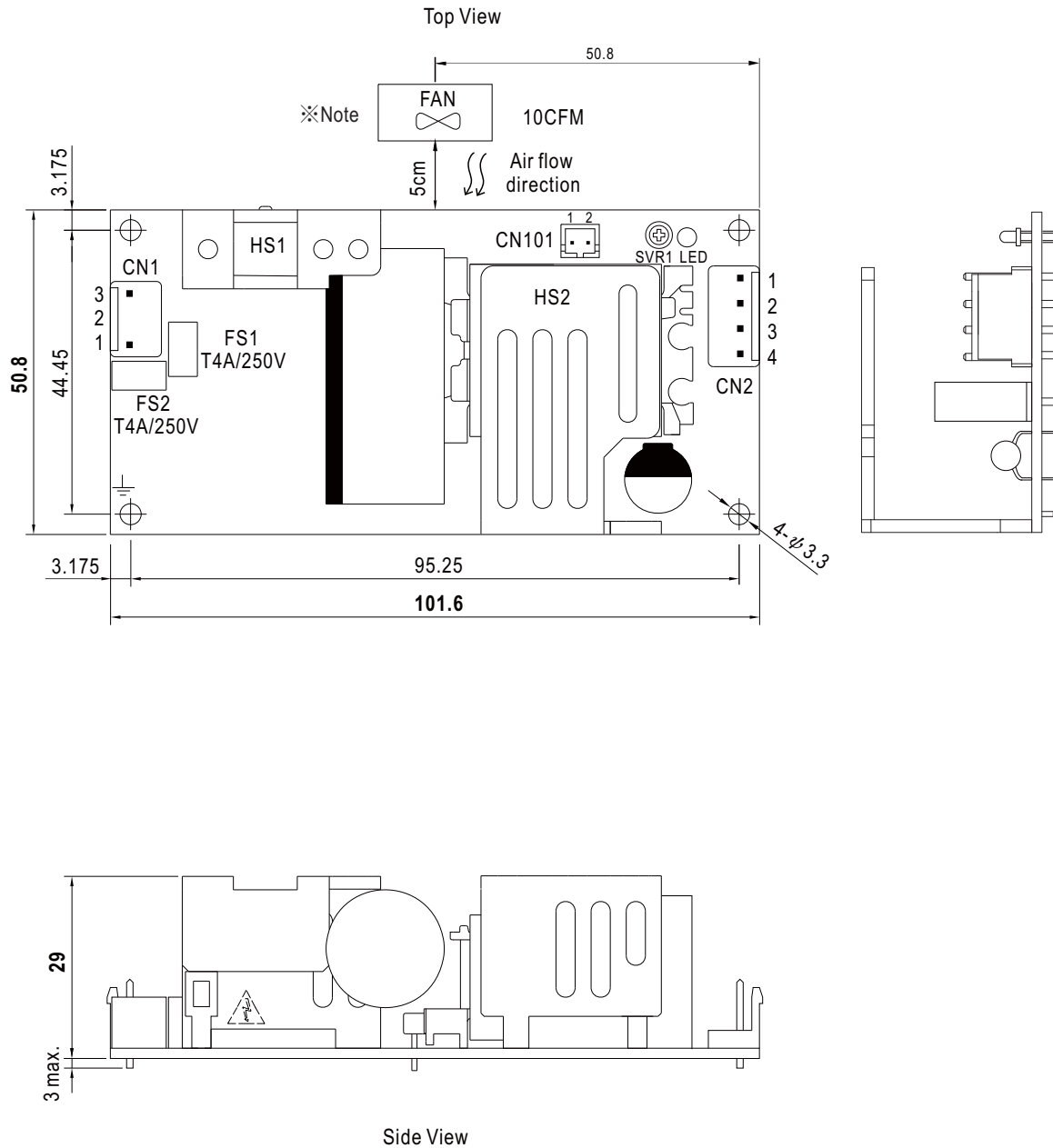


Output Derating VS Input Voltage



Mechanical Specification

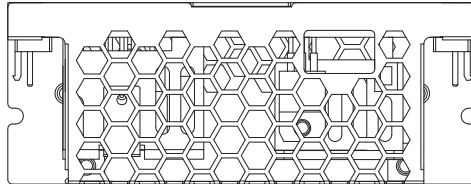
● RPS-120 (PCB Type)



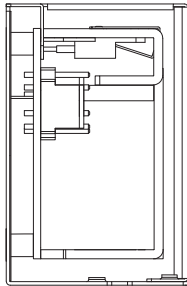
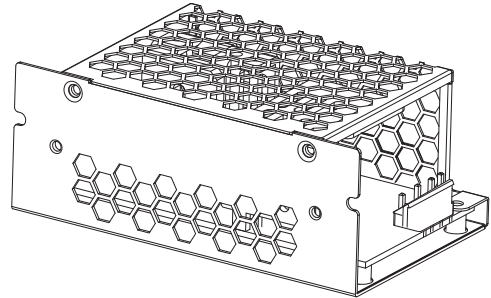
Mechanical Specification

● RPS-120-C (Enclosed Type)

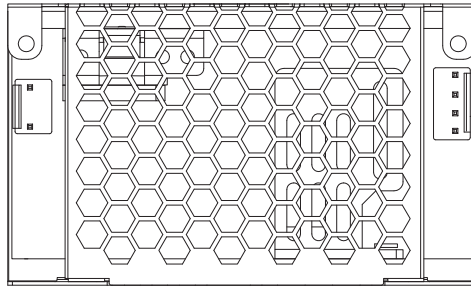
Case No.245A Unit:mm



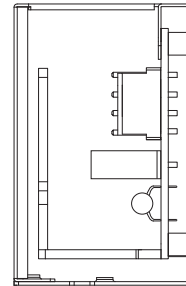
Side View



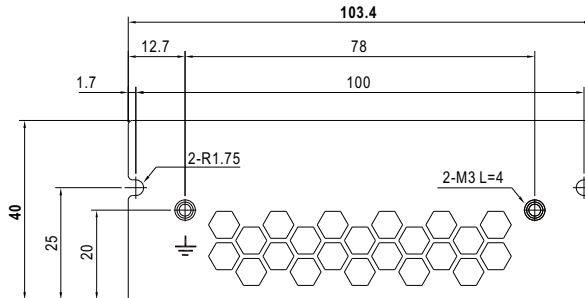
Side View



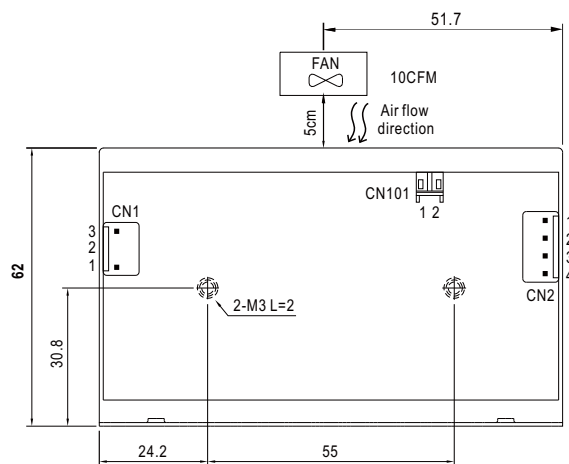
Top View



Side View



Side View



Bottom View

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		

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 S2B-PH-K-S or equivalent

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

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

- ※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 (no FG) system.
3.The Enclosed type(-C type) model is not suitable for the configuration within a Class II (no FG) system but is suggested to used within a Class I (with FG) system.

■ Installation Manual

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