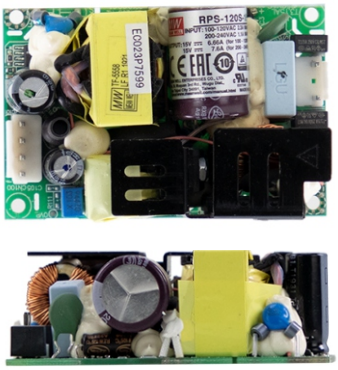
120W 3"×2" Reliable Green Medical Power Supply RPS-120S series



User's Manual

ANSI/AAMI ES60601-1 BS EN/EN60601-1 IEC60601-1 TPTC004

ECO Medical 2xMOPP BF rated

Features

- 3"×2" compact size
- 120W convention, 150W peak (10sec.)
- Medical safety approved (2 x MOPP) accroding to ANSI/AAMI ES60601-1 and IEC/BS EN/EN60601-1
- Suitable for BF application with appropriate system consideration
- EMI for both Class Ⅰ & Class Ⅱ configuration
- -30~+85℃ wide range operating temperature
- No load power consumption<0.3W
- Extremely low leakage current
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Operating altitude up to 4000 meters (Note.6)
- 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-120S is a 120W highly reliable green PCB type medical power supply with a high power density on a 3" 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 94% and the extremely low no load power consumption is down below 0.3W. RPS-120S is able to be used for both Class Ⅰ (with FG) & Class Ⅱ (no FG) system design. The extremely low leakage current is less than 150μA. 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 -120S - 12

- 12 — Output voltage
- 120S — Rated wattage
- RPS — Series name

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

120W 3"×2" Reliable Green Medical Power Supply RPS-120S series

SPECIFICATION

MODEL			RPS-120S-12	RPS-120S-15	RPS-120S-24	RPS-120S-27	RPS-120S-48
OUTPUT	DC VOLTAGE		12V	15V	24V	27V	48V
	CURRENT	Peak(10 sec.)	11.8A	9.5A	6.25A	5.55A	3.125A
		Convection	9.5A	7.6A	5A	4.44A	2.5A
	RATED POWER	Peak(10 sec.)	141.6W	142.5W	150W	149.8W	150W
		Convection	114W	114W	120W	119.9W	120W
	RIPPLE & NOISE (max.) Note.2		100mVp-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%	±2.0%	±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		600ms, 30ms/230VAC 600ms, 30ms/115VAC at full load				
	HOLD UP TIME (Typ.)		15ms/230VAC 15ms/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%	93%	94%	93.5%
	AC CURRENT (Typ.)		2.3A/115VAC 1.1A/230VAC				
	INRUSH CURRENT (Typ.)		COLD START 30A/115VAC 60A/230VAC				
	LEAKAGE CURRENT(max.) Note.5		Earth leakage current < 150μA/264VAC , touch current < 100μA/264VAC				
PROTECTION	OVERLOAD		130~160% 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, recovers automatically after temperature goes down				
ENVIRONMENT	WORKING TEMP.		-30 ~ +85℃ (Refer to "Derating Curve")				
	WORKING HUMIDITY		20 ~ 90% RH non-condensing				
	STORAGE TEMP.		-40 ~ +85℃				
	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+A2, 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, O/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 Ⅰ: Class B , Class Ⅱ: Class A		
			Harmonic current	BS EN/EN61000-3-2	Class A		
			Voltage flicker	BS EN/EN61000-3-3	-----		
	EMC IMMUNITY		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	95% dip 1 periods, 30% dip 25 periods, 95% interruptions 250 periods		
OTHERS	MTBF		4050.3K hrs min. Telcordia SR-332 (Bellcore) ; 468.0K hrs min. MIL-HDBK-217F (25℃)				
	DIMENSION (L*W*H)		76.2*50.8*28mm or 3" * 2" *1.1" inch				
	PACKING		0.13Kg; 100pcs/14Kg/1.13CUFT				

NOTE

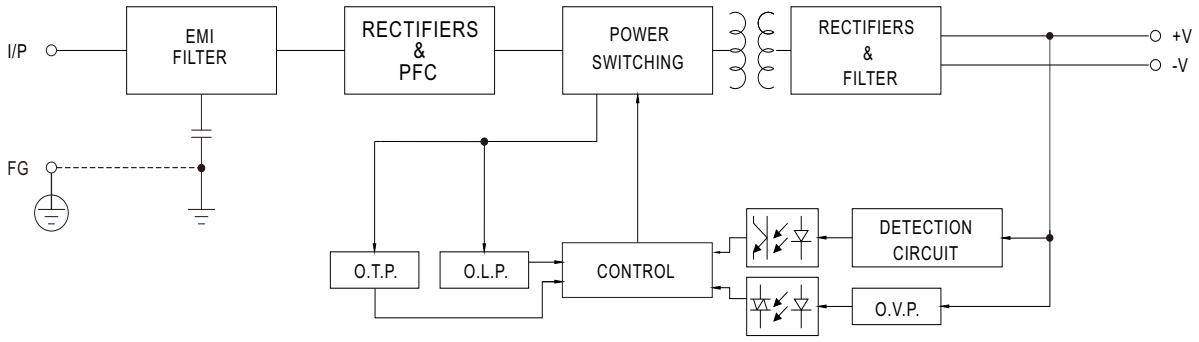
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation 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

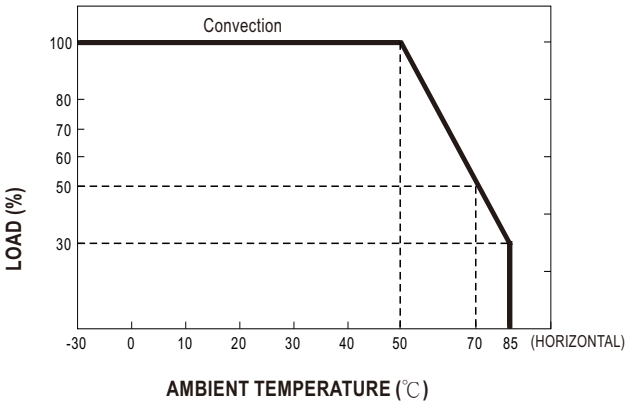
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

■ Block Diagram

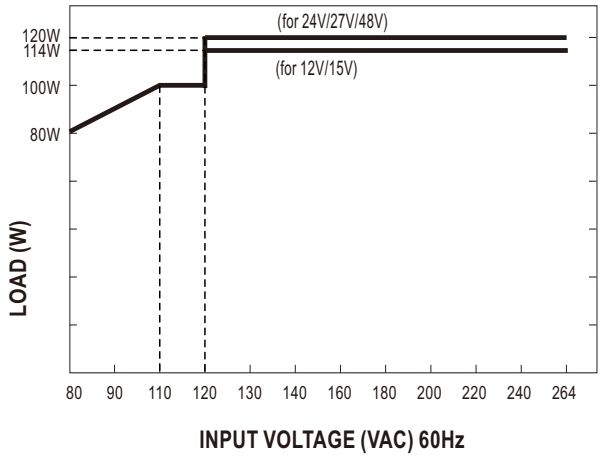
fosc : 85KHz



■ Derating Curve



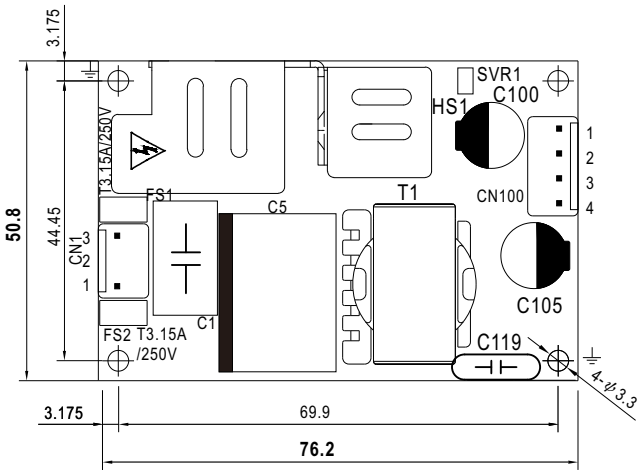
■ Output Derating VS Input Voltage

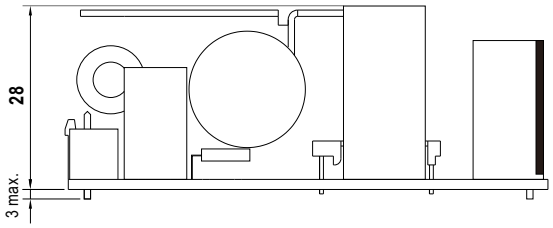


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

■ Mechanical Specification

(Unit: mm , tolerance ± 1mm)





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

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

DC Output Connector (CN100) : 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		

⚠ 1.HS1 must have safety isolation distance with system case.

※Note :

1.RPS-120S model delivers EMI Class B for both conducted emission and radiated emission for the power supply, when configured into Class Ⅰ (with FG) system.

2.RPS-120S model delivers EMI Class B conducted emission and Class A radiated emission with King Core K5B RC (12*15*7) in output cable for the power supply when configured into Class Ⅱ (no FG) system.

■ Installation Manual

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

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000