



60W Reliable Green Medical Power Supply

RPS-60 series

ANSI/AAMI ES60601-1 BS EN/EN60601-1 IEC60601-1
UL62368-1 BS EN/EN62368-1 IEC62368-1EN 60601-1
IEC 60601-1

TPTC004



■ Features

- 4"×2" compact size
- IT & Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1, IEC/BS EN/EN60601-1 and IEC/BS EN/EN/UL 62368-1
- Suitable for BF application with appropriate system consideration
- Cooling by free air convection
- EMI class B for class I configuration
- No load power consumption<0.75W
- Protections: Short circuit / Overload / Over voltage
- Operating altitude up to 3000 meters
- 3 years warranty

■ Applications

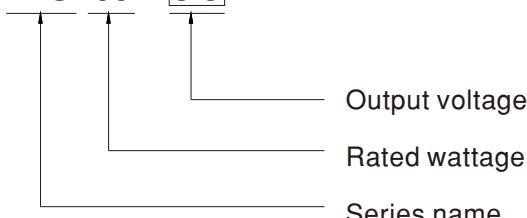
- Oral irrigator
- Hemodialysis machine
- Medical computer monitors
- Sleep apnea devices

■ Description

RPS-60 is a 60W highly reliable green PCB type medical power supply with a high power density on the 4" by 2" footprint. It accepts 90~264VAC input and offers various output voltages between 3.3V and 48V. The working efficiency is up to 86% and the extremely low no load power consumption is down below 0.75W. RPS-60 is able to be used for Class I (with FG) system design. The extremely low leakage current is less than 130 μ A. In addition, it conforms to international IT and medical regulations (2*MOPP) and EMC BS EN/EN55022/BS EN/EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.

■ Model Encoding

RPS - 60 - 3.3





SPECIFICATION

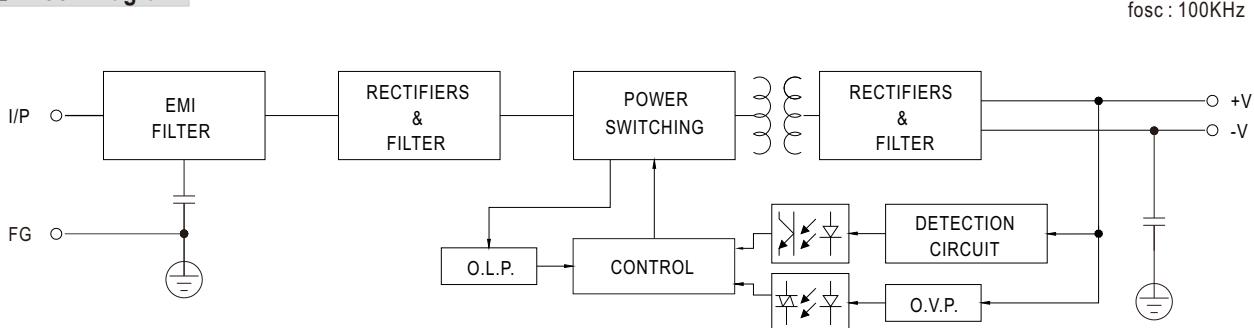
MODEL	RPS-60-3.3	RPS-60-5	RPS-60-12	RPS-60-15	RPS-60-24	RPS-60-48			
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V			
	RATED CURRENT	10A	10A	5A	4A	2.5A			
	CURRENT RANGE	0 ~ 11A	0 ~ 11A	0 ~ 5.5A	0 ~ 4.4A	0 ~ 2.75A			
	RATED POWER	33W	50W	60W	60W	60W			
	PEAK LOAD(10sec.) Note.2	36.3W	55W	66W	66W	66W			
	RIPLPE & NOISE (max.) Note.3	60mVp-p	60mVp-p	60mVp-p	100mVp-p	100mVp-p			
	VOLTAGE ADJ. RANGE	3.1 ~ 3.6V	4.75 ~ 5.5V	11.4 ~ 13.2V	13.5 ~ 16.5V	22.8 ~ 27.6V			
	VOLTAGE TOLERANCE Note.4	±2.0%	±2.0%	±2.0%	±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%			
INPUT	SETUP, RISE TIME	500ms, 30ms/230VAC	500ms, 30ms/115VAC at full load						
	HOLD UP TIME (Typ.)	60ms/230VAC	12ms/115VAC at full load						
PROTECTION	VOLTAGE RANGE	90 ~ 264VAC	127 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz							
	EFFICIENCY (Typ.)	74%	79%	84%	85%	87%			
	AC CURRENT (Typ.)	1.8A/115VAC	1A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 60A/230VAC	30A/115VAC						
ENVIRONMENT	LEAKAGE CURRENT(max.) Note.5	Earth leakage current < 130μA/264VAC , Touch current < 100μA/264VAC							
	OVER LOAD	115 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed							
	OVER VOLTAGE	3.8 ~ 5V	5.7 ~ 6.8V	13.8 ~ 16.2V	17.2 ~ 20.3V	28.4 ~ 32.4V			
SAFETY & EMC (Note 8)	WORKING TEMP.	-20 ~ +70°C (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)							
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes							
SAFETY & EMC (Note 8)	OPERATING ALTITUDE Note.6	3000 meters							
	SAFETY STANDARDS	IEC62368-1, UL62368-1, TUV BS EN/EN62368-1, IEC60601-1, TUV BS EN/EN60601-1, UL ANSI / AAMI ES60601-1 (3.1 version), CAN/CSA-C22.2 No. 60601-1:14 - Edition 3, EAC TP TC 004 approved; Design refer to BS EN/EN60335-1							
	ISOLATION LEVEL	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°C / 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					
	EMC IMMUNITY	Voltage flicker	BS EN/EN61000-3-3	-----					
		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					
OTHERS	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					
NOTE	MTBF	353.6K hrs min. MIL-HDBK-217F (25°C)							
	DIMENSION (L*W*H)	101.6*50.8*29mm or 4" * 2" * 1.141" inch							
	PACKING	0.15Kg; 96pcs/15.4Kg/0.89CUFT							
	1.	All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.							
	2.	33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.							
	3.	Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.							
	4.	Tolerance : includes set up tolerance, line regulation and load regulation.							
	5.	Touch current was measured from primary input to DC output.							
NOTE	6.	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).							
	7.	Heat Sink HS1,HS2 can not be shorted.							
	8.	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 http://www.meanwell.com)							
NOTE	※	Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx							



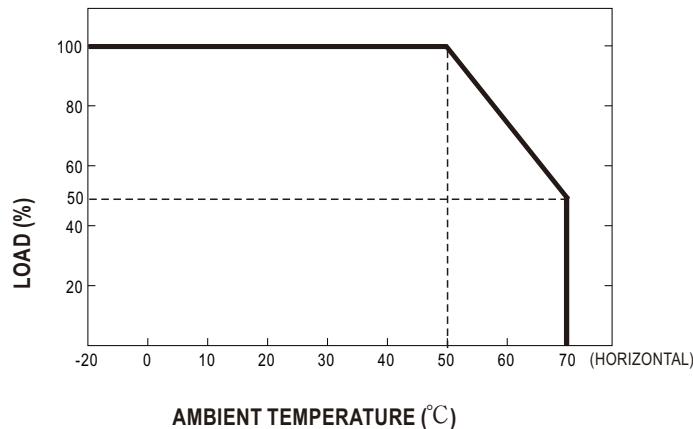
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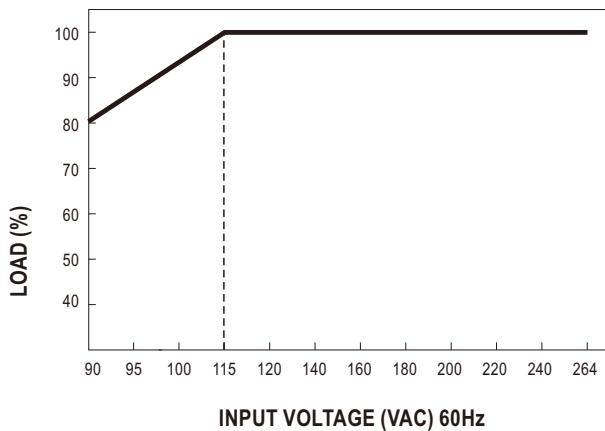
■ Block Diagram



■ Output Derating

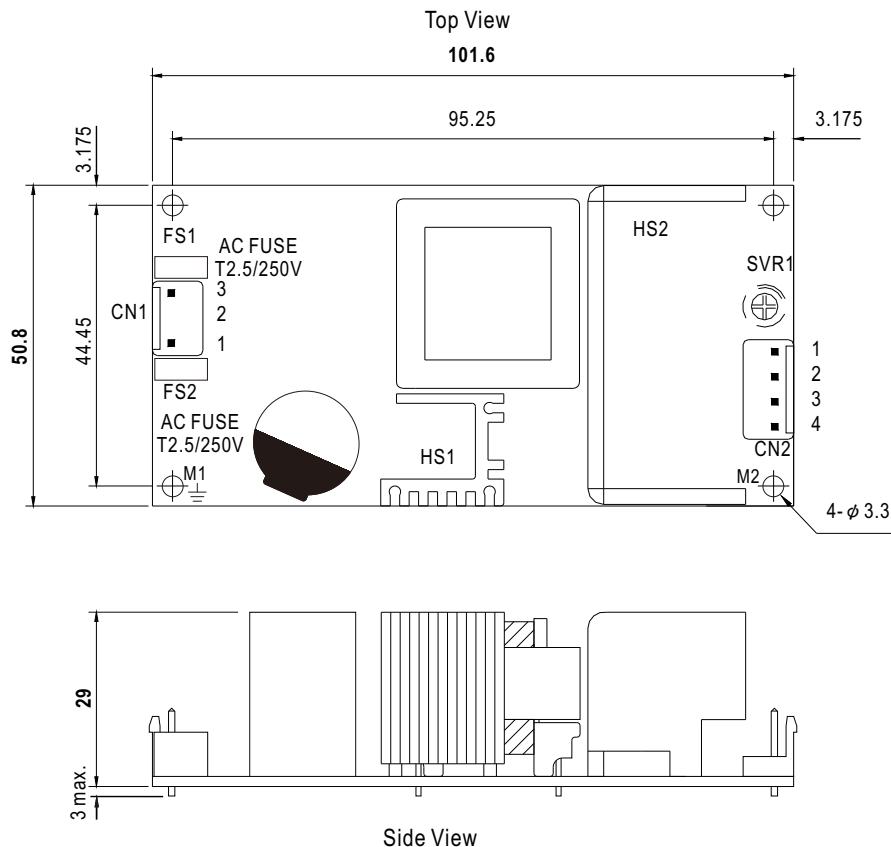


■ Output Derating VS Input Voltage



■ Mechanical Specification

Unit:mm



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		

 $\underline{\underline{}} :$ Grounding Required


- 1.HS1,HS2 cannot be shorted.
- 2.M1 is safety ground. For better EMC performance, Please secure an electrical connection between M1,M2 and chassis grounding.

■ Installation Manual

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