



ANSI/AAMI ES60601-1 EN60601-1 IEC60601-1



Features

- 5"×3" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/EN 60601-1
- Suitable for BF application with appropriate system consideration
- 100W convection, 150W force air
- EMI Class B for Class I configuration
- No load power consumption < 0.75W by PS-ON control (G model)
- Extremely low leakage current
- 5Vdc standby output, Power Good, Power Fail
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Lifetime > 85K hours
- 3 years warranty

Applications

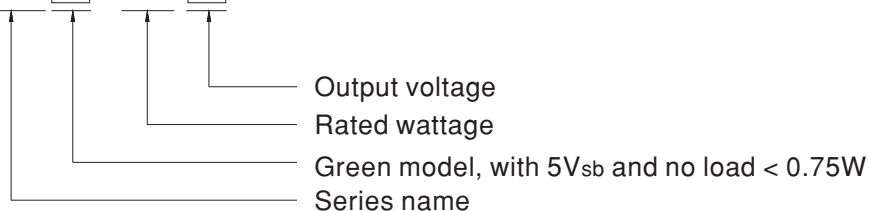
- Oral irrigator
- Hemodialysis machine
- Medical monitors
- Sleep apnea devices
- Pumps machine

Description

RPD(G)-160 is a 150W highly reliable PCB type medical power supply with a high power density on the 5" by 3" footprint. It accepts 90~264VAC input and offers dual output voltages. RPD-160 is able to be used for class I (with FG) system design. The extremely low leakage current is less than 150 μ A. In addition, it conforms to international medical regulations (2*MOPP) and EMC EN55011, perfectly fitting all kinds of BF rated "patient contact" medical system equipment.

Model Encoding

RPD **G** - 160 **B**



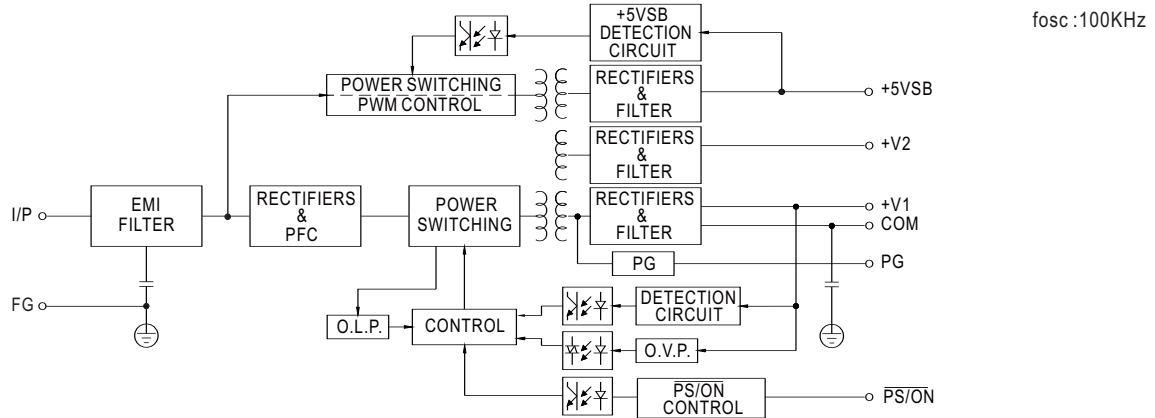
SPECIFICATION

MODEL		RPD-160B	
OUTPUT	OUTPUT NUMBER	CH1	CH2
	DC VOLTAGE	5V	24V
	RATED CURRENT (20.5CFM)	12A	3.6A
	CURRENT RANGE (convection)	1 ~ 6A	0.2 ~ 2.8A
	CURRENT RANGE (20.5CFM)	1 ~ 12A	0.2 ~ 3.6A
	RATED POWER (convection) Note.2	100.2W	
	RATED POWER (20.5CFM) Note.3	150.4W	
	RIPPLE & NOISE (max.) Note.4	80mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	CH1: 5 ~ 5.5V	
	VOLTAGE TOLERANCE Note.6	± 2.5%	± 6.0%
	LINE REGULATION	± 0.5%	± 1.0%
	LOAD REGULATION	± 1.5%	± 3.0%
	SETUP, RISE TIME	1800ms, 30ms/230VAC	3500ms, 30ms/115VAC at full load
	HOLD UP TIME (Typ.)	20ms/230VAC	20ms/115VAC at full load
INPUT	VOLTAGE RANGE Note.7	90 ~ 264VAC	127 ~ 370VDC
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	PF>0.93/230VAC	PF>0.98/115VAC at full load
	EFFICIENCY (Typ.)	85%	
	AC CURRENT (Typ.)	1.7A/115VAC	0.9A/230VAC
	INRUSH CURRENT (Typ.)	COLD START 35A/115VAC	70A/230VAC
	LEAKAGE CURRENT Note.8	Earth leakage current < 150 μ A/264VAC , Touch current < 100 μ A/264VAC	
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed	
	OVER VOLTAGE	Ch1: 5.8 ~ 6.8V Protection type : Shut down o/p voltage, re-power on to recover	
	OVER TEMPERATURE	TSW1: Shut down o/p voltage, recovers automatically after temperature goes down TSW2: Shut down o/p voltage, re-power on to recover	
FUNCTION	5V STANDBY (G model)	5VSB : 5V@0.6A without fan, 0.8A with fan 20.5CFM ; tolerance $\pm$ 2%, ripple : 50mVp-p(max.)	
	PS-ON INPUT SIGNAL (G model)	Power on: PS-ON = "Hi" or " > 2 ~ 5V" ; Power off: PS-ON = "Low" or " < 0 ~ 0.5V"	
	POWER GOOD / POWER FAIL	500ms>PG>10ms PF>1ms	
ENVIRONMENT	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	$\pm$ 0.03%/°C (0 ~ 50°C)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
	OPERATING ALTITUDE Note.9	3000 meters	
SAFETY & EMC (Note 10)	SAFETY STANDARDS	IEC60601-1, UL ANSI/AAMI ES60601-1, CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 approved, TUV EN60601-1 approved	
	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
		Conducted emission	EN55011 (CISPR11)
		Radiated emission	EN55011 (CISPR11)
		Harmonic current	EN61000-3-2
		Voltage flicker	EN61000-3-3
	EMC IMMUNITY	EN60601-1-2	
		Parameter	Standard
		ESD	EN61000-4-2
		RF field susceptibility	EN61000-4-3
		EFT bursts	EN61000-4-4
		Surge susceptibility	EN61000-4-5
		Conducted susceptibility	EN61000-4-6
		Magnetic field immunity	EN61000-4-8
		Voltage dip, interruption	EN61000-4-11
		100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	
OTHERS	MTBF	196.3K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION (L*W*H)	127*76.2*34.6mm or 5" 3" 1.36" inch	
	PACKING	0.33Kg; 36pcs/12.9Kg/0.79CUFT	

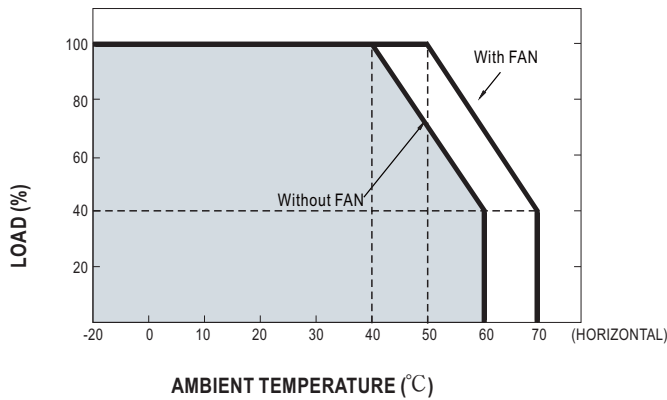
NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. The rated power includes 5Vsb @ 0.6A.
3. The rated power includes 5Vsb @ 0.8A.
4. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ f & 47 μ f parallel capacitor.
5. HS1, HS2 & HS3 can not be shorted.
6. Tolerance : includes set up tolerance, line regulation and load regulation.
7. Derating may be needed under low input voltages. Please check the derating curve for more details.
8. Touch current was measured from primary input to DC output.
9. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 3000m (6500ft).
10. 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>)

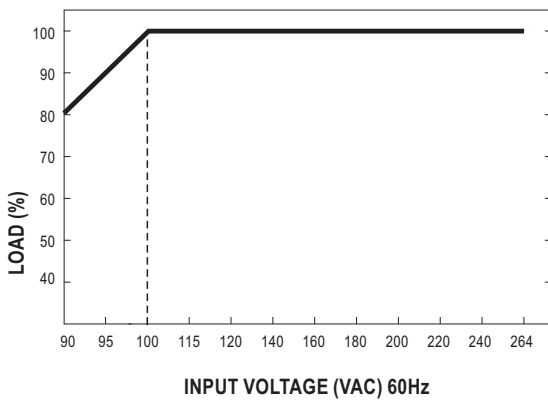
Block Diagram



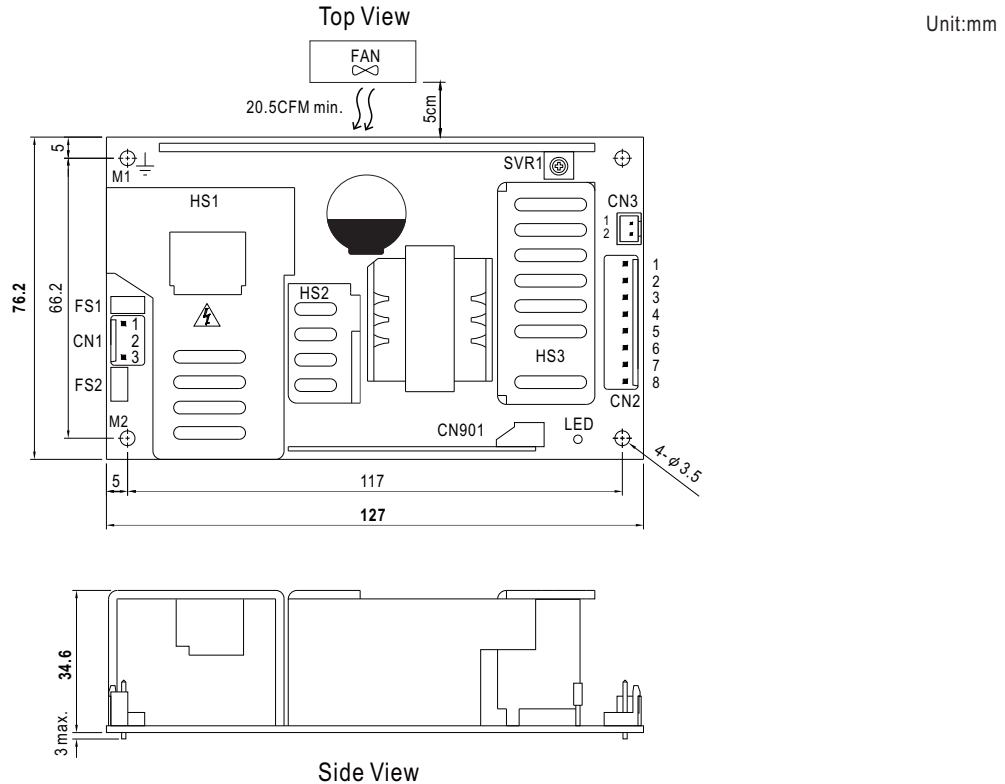
Derating Curve



Output Derating VS Input Voltage



Mechanical Specification



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		

Power Good Connector(CN3):JST B2B-XH or equivalent

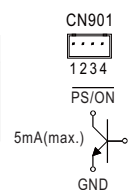
Pin No.	Status	Mating Housing	Terminal
1	PG	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	GND		

DC Output Connector (CN2) : JST B8P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,3,4	COM	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5,6	CH1		
7	CH2		
8	NC		

5VSB Connector(CN901) : JST B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PS/ON	JST XHP or equivalent	JST SXH-001T or equivalent
2,4	GND		
3	5VSB		



- ⚠ 1.HS1,HS2,HS3 can not be shorted
2.M1 and M2 are Safety ground and should all be grounded.

INSTALLATION MANUAL

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