

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

Features

- 5" x 3" 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
- 110W convention, 160W force air
- EMI class B for class I configuration
- No load power consumption under 0.5W by PS-ON control (G model)
- 5Vdc standby output, Power Good, Power Fail ; Remote sense for 5~15V
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Operating altitude up to 3000 meters
- 3 years warranty

Applications

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

GTIN CODE

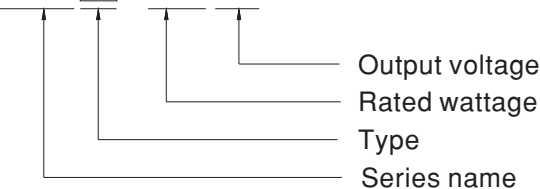
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

Description

RPS-160 is a 160W highly reliable green PCB type medical power supply with a high power density on a 5" by 3" footprint. It accepts 90~264VAC input and offers various models with the output voltages between 5V and 48V. The working efficiency is up to 88% and the extremely low no load power consumption is down below 0.5W. RPS-160 is able to be used for Class I (with FG) system design. The extremely low leakage current is less than 160 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 **G** - 160 - 5

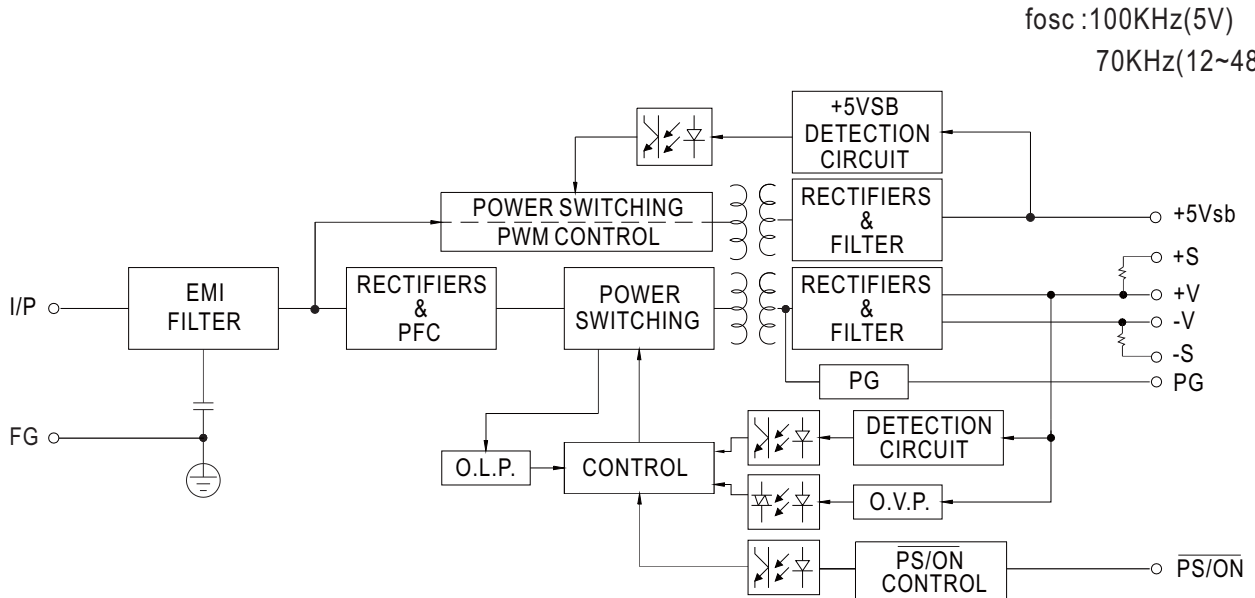


| Type | Description | Note |
|-------|---|----------|
| Blank | Without 5Vsb | In stock |
| G | With 5Vsb & No load power consumption <0.5W | In stock |

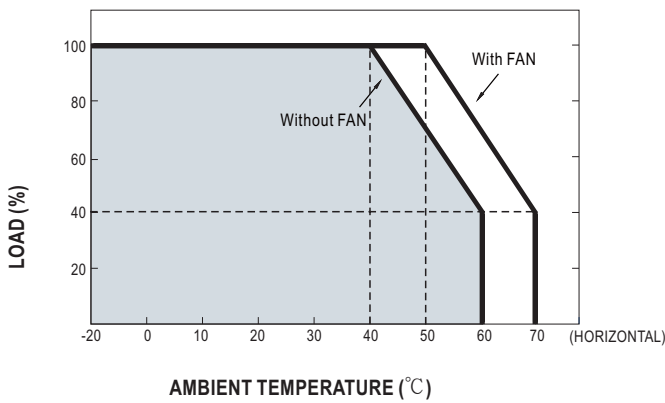
SPECIFICATION

| MODEL | | RPS□-160-5 | RPS□-160-12 | RPS□-160-15 | RPS□-160-24 | RPS□-160-48 | |
|---------------------------|--|--|-------------------------|---|--|-------------------|-----------|
| OUTPUT | DC VOLTAGE | 5V | 12V | 15V | 24V | 48V | |
| | RATED CURRENT (20.5CFM) | 30A | 12.9A | 10.3A | 6.5A | 3.25A | |
| | CURRENT | Convection | 0 ~ 20A | 0 ~ 9.1A | 0 ~ 7.3A | 0 ~ 4.6A | 0 ~ 2.3A |
| | | 20.5CFM | 0 ~ 30A | 0 ~ 12.9A | 0 ~ 10.3A | 0 ~ 6.5A | 0 ~ 3.25A |
| | RATED POWER | Convection Note.2 | 103W | 112.2W | 112.5W | 113.4W | 113.4W |
| | | 20.5CFM Note.3 | 155W | 159.8W | 159.5W | 161W | 161W |
| | RIPPLE & NOISE (max.) Note.4 | 80mVp-p | 80mVp-p | 120mVp-p | 120mVp-p | 150mVp-p | |
| | VOLTAGE ADJ. RANGE(main output) | 4.5 ~ 5.5V | 10.8 ~ 13.2V | 13.5 ~ 16.5V | 22 ~ 27V | 43.2 ~ 52.8V | |
| | VOLTAGE TOLERANCE Note.5 | ±4.0% | ±3.0% | ±3.0% | ±2.0% | ±2.0% | |
| | 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 | 1800ms, 30ms/230VAC 3500ms, 30ms/115VAC at full load | | | | | | |
| HOLD UP TIME (Typ.) | 20ms/115VAC 25ms/230VAC at full load | | | | | | |
| INPUT | VOLTAGE RANGE Note.6 | 90 ~ 264VAC 127 ~ 370VDC | | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | | |
| | POWER FACTOR (Typ.) | PF>0.93/230VAC PF>0.98/115VAC at full load | | | | | |
| | EFFICIENCY (Typ.) | 86% | 87% | 87% | 87% | 88% | |
| | AC CURRENT (Typ.) | 2A/115VAC 1.1A/230VAC | | | | | |
| | INRUSH CURRENT (Typ.) | COLD START 35A/115VAC 70A/230VAC | | | | | |
| | LEAKAGE CURRENT Note.7 | Earth leakage current < 160µA/264VAC , Touch current < 100µA/264VAC | | | | | |
| PROTECTION | OVERLOAD | 105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | |
| | OVER VOLTAGE | 5.7 ~ 6.8V | 13.8 ~ 16.2V | 17.2 ~ 20.3V | 27.6 ~ 32.4V | 55.2 ~ 64.8V | |
| | 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 ± 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 | | | | | |
| | REMOTE SENSE | 5 ~ 15V | | | | | |
| 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 | ±0.03%/°C (0 ~ 50°C) | | | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | |
| | OPERATING ALTITUDE Note.8 | 3000 meters | | | | | |
| SAFETY & EMC (Note 10) | 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 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 | |
| | 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 | 2082.3K hrs min. Telcordia SR-332 (Bellcore) ; 234.5K 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/0.96CUFT | | | | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. The rated power includes 5Vsb @ 0.6A.</p> <p>3. The rated power includes 5Vsb @ 0.8A.</p> <p>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.</p> <p>5. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>6. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>7. Touch current was measured from primary input to DC output.</p> <p>8. 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).</p> <p>9. HS1,HS2 & HS3 can not be shorted.</p> <p>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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | | | | |

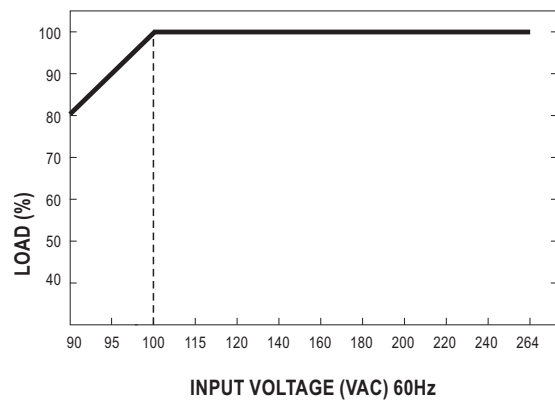
■ Block Diagram



■ Derating Curve

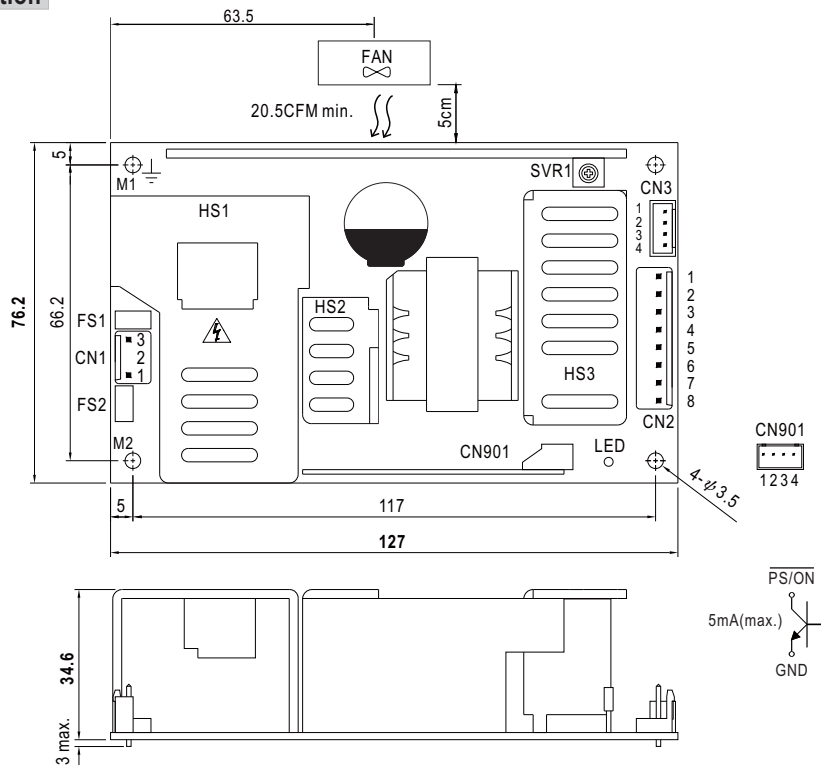


■ Output Derating VS Input Voltage



■ 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 | | |

Power Good Connector(CN3):JST B4B-XH or equivalent

| Pin No. | Status | Mating Housing | Terminal |
|---------|--------|-----------------------|---------------------------------|
| 1 | PG | JST XHP or equivalent | JST SXH-001T-P0.6 or equivalent |
| 2 | GND | | |
| 3 | -S | | |
| 4 | +S | | |

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

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|-----------------------|--------------------------------|
| 1,2,3,4 | +V | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 5,6,7,8 | -V | | |

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 | | |

⊕ : Grounding Required

- ⚠ 1.HS1,HS2,HS3 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>