

Wall Industries, Inc.

## PSM250 SERIES

90~264VAC Input Voltage Range  
200 Watts with Free Air Convection  
250 Watts with 17.1CFM Forced Air  
Medical AC/DC Switching Power Supplies



Type O



Type U

### FEATURES

- Single Outputs
- RoHS Compliant
- Power Factor > 0.90 at 230VAC
- 90~264VAC Input Voltage Range
- 85% High Efficiency
- 250W with 17.1CFM Forced Air
- 200W with Convection Cooling
- High Power Density
- No Minimum Load Requirement
- Over Load, Over Voltage, and Short Circuit Protection
- Ultra Low Leakage Current < 300 $\mu$ A at 264VAC
- UL/cUL 60601-1, TUV EN60601-1, and IEC60601-1:2005 (3<sup>rd</sup> edition) Medical Approvals
- Meets CE, EN60601-1-2, FCC Part-18 Class B, EN55011 Class B, and EMC Standards
- Open Frame and U-Chassis Mechanical Options Available

### DESCRIPTION

The PSM250 series of medical AC/DC switching power supplies offers 250 Watts of output power with 17.1CFM forced air and 200 Watts with convection cooling. All models have a single output, a 90~264VAC input voltage range, and a power factor greater than 0.9. These units are also protected against short circuit, over load, and over voltage conditions. All models have UL/cUL 60601-1, TUV EN60601-1, and IEC60601-1:2005 (3<sup>rd</sup> edition) safety approvals. This series is RoHS compliant and meets CE, EN60601-1, FCC Part-18 Class B, and EN55011 Class B EMC standards. Models are available in both open frame (Type O) and U-chassis (Type U) designs.

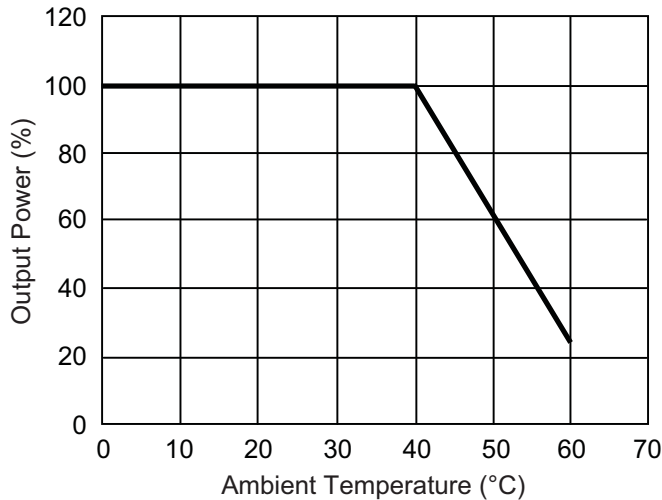
| SPECIFICATIONS: PSM250 Series   |  |  |     |       |        |
|---|--|--|-----|-------|--------|
| <p style="color: red;">All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.<br/>We reserve the right to change specifications based on technological advances.</p> |  |  |     |       |        |
| SPECIFICATION   | TEST CONDITIONS  | Min  | Typ | Max   | Unit   |
| <b>INPUT SPECIFICATIONS</b>   |  |  |     |       |        |
| Input Voltage Range   |  | 90   |     | 264   | VAC    |
| Input Frequency   |  | 47   |     | 63    | Hz     |
| Input Current (rms)   | At 115VAC  |  |     | 4     | A      |
|   | At 230VAC  |  |     | 2     |        |
| Inrush Current  | At 115VAC, cold start at 25°C  |  |     | 50    | A peak |
|   | At 230VAC, cold start at 25°C  |  |     | 100   |        |
| Power Factor  | At 115VAC and full load  | 0.95                                       |     |       |        |
|   | At 230VAC and full load  | 0.90                                       |     |       |        |
| <b>OUTPUT SPECIFICATIONS</b>  |  |  |     |       |        |
| Output Voltage  |  | See Table                                  |     |       |        |
| Output Regulation   | At 25°C including initial tolerance, line voltage, load currents, and output voltages adjusted to factory settings | -5   |     | +5    | %      |
| Output Current  |  | See Table                                  |     |       |        |
| Minimum Load  |  | 0  |     |       | %      |
| Output Power  |  | See Table                                  |     |       |        |
| Ripple & Noise  | At 20MHz limited bandwidth and 0.1µF ceramic and 10µF electrolytic capacitors in parallel on the output            | -1   |     | +1    | %      |
| Hold-up Time  | 115VAC and full load   |  | 16  |       | ms     |
| Temperature Coefficient   |  | -0.04                                      |     | +0.04 | %/°C   |
| <b>PROTECTION</b>   |  |  |     |       |        |
| Over Load Protection  | Automatic recovery   | 110  |     | 160   | %      |
| Short Circuit Protection  |  | Automatic recovery                         |     |       |        |
| Over Voltage Protection   |  | Automatic recovery                         |     |       |        |
| <b>GENERAL SPECIFICATIONS</b>   |  |  |     |       |        |
| Efficiency (typical)  | 115VAC and full load   |  | 85  |       | %      |
| Isolation Voltage   | Primary to Secondary   | 5656                                       |     |       | VDC    |
|   | Primary to Frame Ground  | 2121                                       |     |       | VDC    |
| Earth Leakage Current   | At 264VAC  |  |     | 300   | µA     |
| <b>ENVIRONMENTAL SPECIFICATIONS</b>   |  |  |     |       |        |
| Operating Temperature   | Derate linearly 2.5% per °C from 41°C to 60°C  | 0  |     | 60    | °C     |
| Storage Temperature   |  | -40  |     | 85    | °C     |
| Humidity (non-condensing)   |  | 5  |     | 95    | %      |
| MTBF  | Full load and 25°C   | > 100,000 hours                            |     |       |        |
| <b>PHYSICAL SPECIFICATIONS</b>  |  |  |     |       |        |
| Dimensions (L x W x H)  | Open Frame Type (Suffix "O")   | 5 x 3 x 1.28 inches (127 x 76.2 x 32.5 mm) |     |       |        |
|   | U-Chassis Type (Suffix "U")  | 5 x 3.2 x 1.52 inches (127 x 81 x 38.6 mm) |     |       |        |
| Weight  | Open Frame Type (Suffix "O")   | 0.88 lbs (400g)                            |     |       |        |
|   | U-Chassis Type (Suffix "U")  | 1.11 lbs (500g)                            |     |       |        |
| <b>SAFETY &amp; EMC</b>   |  |  |     |       |        |
| Safety Standards  | UL/cUL UL60601-1, TUV EN60601-1, IEC 60601-1:2005 (3 <sup>rd</sup> edition)  |  |     |       |        |
| EMC Standards   | EN60601-1-2, FCC Part 18 Class B, EN55011 Class B, CE  |  |     |       |        |

| MODEL SELECTION TABLE       |               |                |                |                 |              |                 |              |
|-----------------------------|---------------|----------------|----------------|-----------------|--------------|-----------------|--------------|
| Model Number <sup>(1)</sup> | Input Voltage | Output Voltage | Output Current |                 | Output Power |                 | Package Type |
|                             |               |                | Convection     | 17.1CFM Airflow | Convection   | 17.1CFM Airflow |              |
| PSM250B1Y12O                | 90 ~ 264 VAC  | 12 VDC         | 16.67 A        | 20.84 A         | 200W         | 250W            | Open Frame   |
| PSM250B1Y19O                |               | 19 VDC         | 10.53 A        | 13.16 A         | 200W         | 250W            |              |
| PSM250B1Y24O                |               | 24 VDC         | 8.34 A         | 10.42 A         | 200W         | 250W            |              |
| PSM250B1Y28O                |               | 28 VDC         | 7.14 A         | 8.93 A          | 200W         | 250W            |              |
| PSM250B1Y30O                |               | 30 VDC         | 6.67 A         | 8.34 A          | 200W         | 250W            |              |
| PSM250B1Y36O                |               | 36 VDC         | 5.56 A         | 6.95 A          | 200W         | 250W            |              |
| PSM250B1Y40O                |               | 40 VDC         | 5 A            | 6.25 A          | 200W         | 250W            |              |
| PSM250B1Y48O                |               | 48 VDC         | 4.17 A         | 5.21 A          | 200W         | 250W            |              |
| PSM250B1Y12U                | 90 ~ 264 VAC  | 12 VDC         | 16.67 A        | 20.84 A         | 200W         | 250W            | U-Chassis    |
| PSM250B1Y19U                |               | 19 VDC         | 10.53 A        | 13.16 A         | 200W         | 250W            |              |
| PSM250B1Y24U                |               | 24 VDC         | 8.34 A         | 10.42 A         | 200W         | 250W            |              |
| PSM250B1Y28U                |               | 28 VDC         | 7.14 A         | 8.93 A          | 200W         | 250W            |              |
| PSM250B1Y30U                |               | 30 VDC         | 6.67 A         | 8.34 A          | 200W         | 250W            |              |
| PSM250B1Y36U                |               | 36 VDC         | 5.56 A         | 6.95 A          | 200W         | 250W            |              |
| PSM250B1Y40U                |               | 40 VDC         | 5 A            | 6.25 A          | 200W         | 250W            |              |
| PSM250B1Y48U                |               | 48 VDC         | 4.17 A         | 5.21 A          | 200W         | 250W            |              |

**NOTES**

1. There are two types of mechanical options available: Open frame (suffix “O”) and U-chassis (suffix “U”).

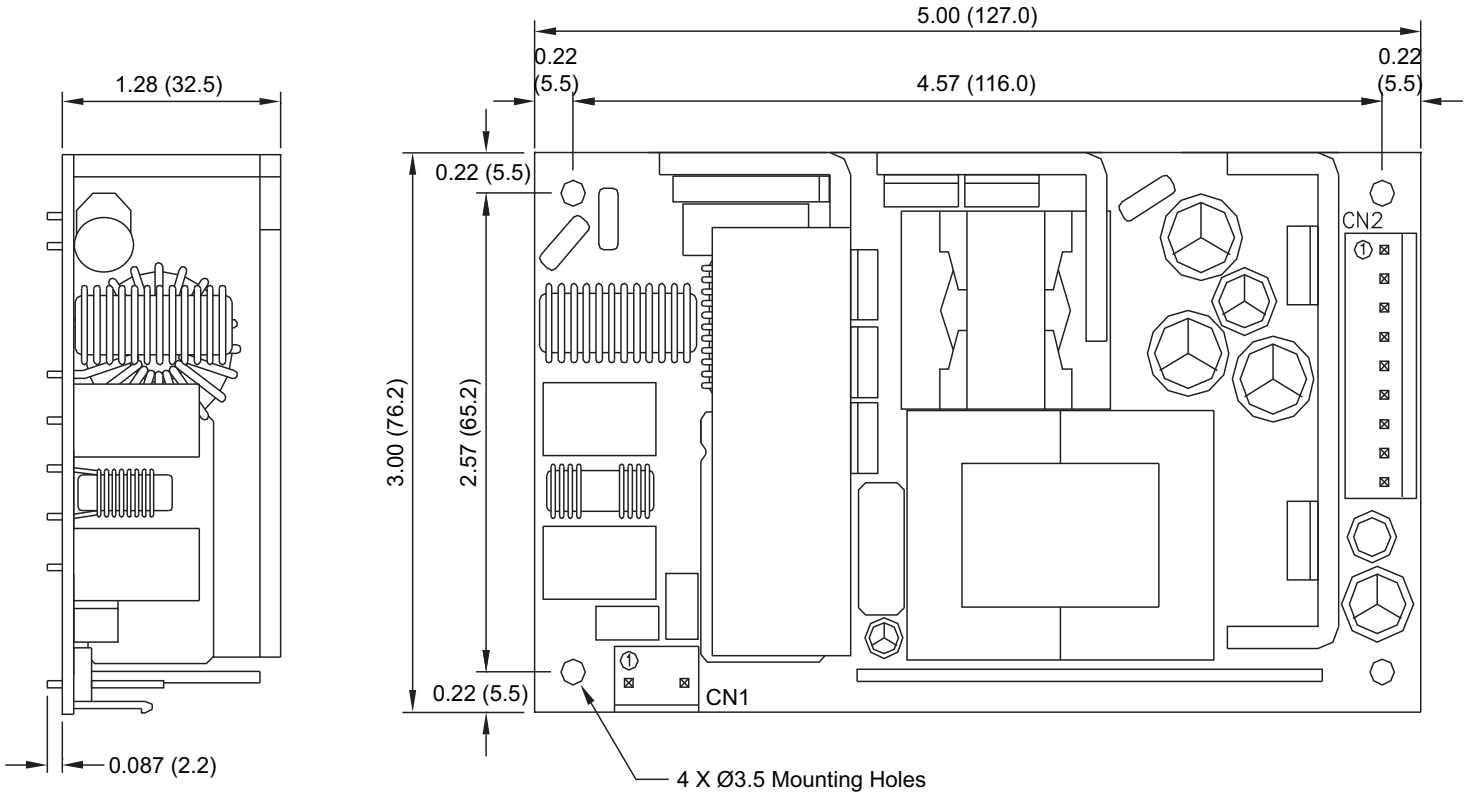
**DERATING CURVE**



**MECHANICAL DRAWINGS**

**Open Frame Models (Type "O"): 5.00 x 3.00 x 1.28 inches**

Unit: inches (mm)



**MATCHING CONNECTORS**

**CN1: Input Connector**

JST B3P-VH-B pitch: 3.96mm or equivalent, mates with JST VHR-3N or equivalent.

| Pin | Signal     |
|-----|------------|
| 1   | AC Line    |
| 2   | AC Neutral |

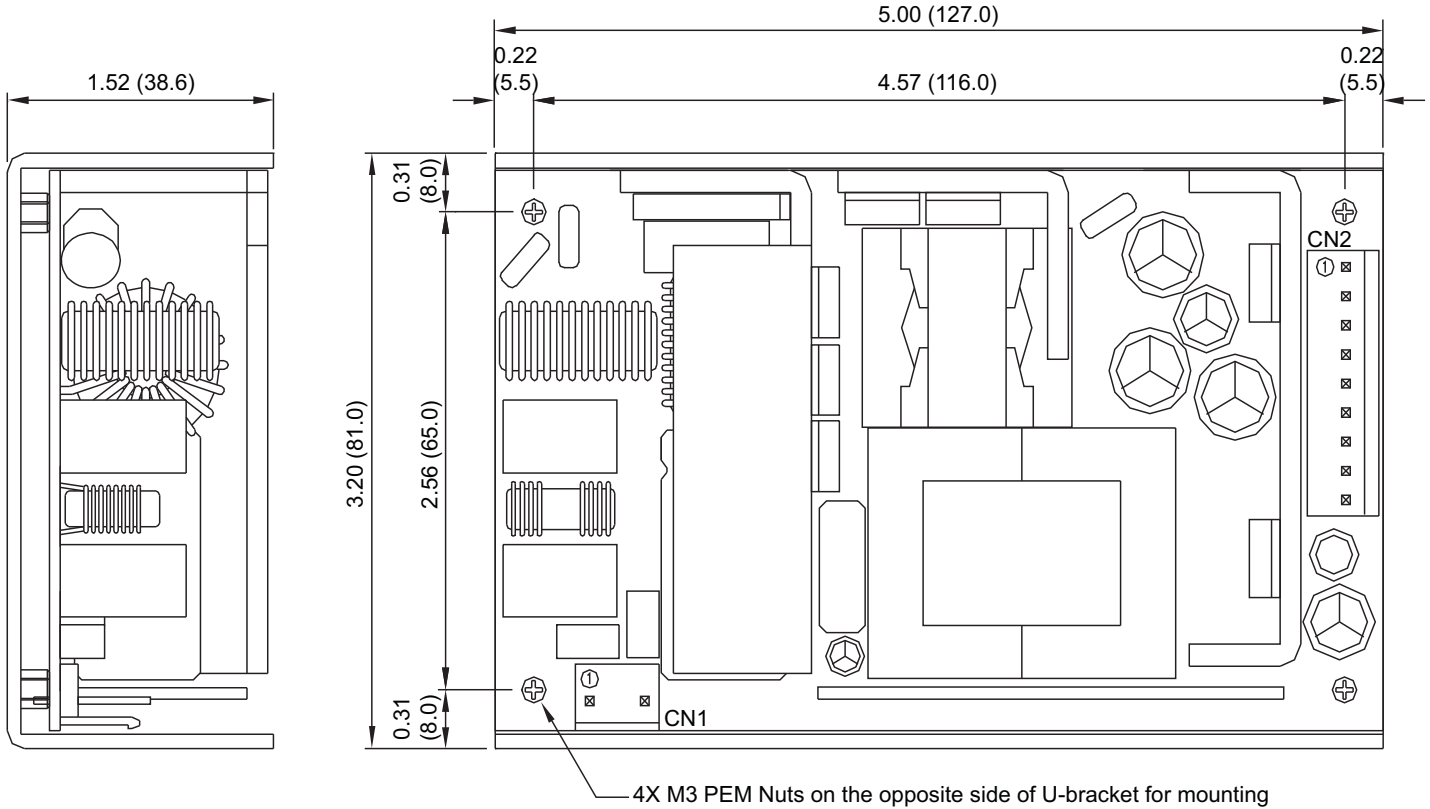
**CN2: Output Connector**

JST B9P-VH-B pitch: 3.96mm or equivalent, mates with JST VHR-9N or equivalent.

| Pin | Signal |
|-----|--------|
| 1   | RTN    |
| 2   | RTN    |
| 3   | RTN    |
| 4   | RTN    |
| 5   | +Vo    |
| 6   | +Vo    |
| 7   | +Vo    |
| 8   | +Vo    |
| 9   | +Vo    |

**U-Chassis Models (Type "U"): 5.00 x 3.20 x 1.52 inches**

Unit: inches (mm)



**MATCHING CONNECTORS**

**CN1: Input Connector**

JST B3P-VH-B pitch: 3.96mm or equivalent, mates with JST VHR-3N or equivalent.

| Pin | Signal     |
|-----|------------|
| 1   | AC Line    |
| 2   | AC Neutral |

**CN2: Output Connector**

JST B9P-VH-B pitch: 3.96mm or equivalent, mates with JST VHR-9N or equivalent.

| Pin | Signal |
|-----|--------|
| 1   | RTN    |
| 2   | RTN    |
| 3   | RTN    |
| 4   | RTN    |
| 5   | +Vo    |
| 6   | +Vo    |
| 7   | +Vo    |
| 8   | +Vo    |
| 9   | +Vo    |

## COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

|                   |  |
|-------------------|--|
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