

## FEATURES

- 2 Year Warranty
- Both Medical & ITE Safety Approvals
- Optional N+1 Forced Active Current Sharing
- Power Factor Corrected to EN61000-3-2 Class D
- Providing Peak Power 700W within 500uS Duty Duration
- U-Chassis & Enclosed with Built-in Fan Mechanical Options
- Current Monitoring and Remote Voltage Adjustment (Margin)
- 1U Height Size and High Power Density: 6.25 Watts/cu Inches



U Type: (U-Chassis): 8(L) x 5(W) x 1.6(H) inches.

E Type: (Enclosed with built-in fan): 9(L) x 5(W) x 1.6(H) inches.



## SPECIFICATIONS: PSRL0402M Series

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
 We reserve the right to change specifications based on technological advances.

### INPUT SPECIFICATIONS

|                 |   |
|-----------------|---|
| Input Voltage   | 90 – 264VAC Full Range  |
| Input Frequency | 47 to 63Hz  |
| Input Current   | 6.35A at 90VAC full load  |
| Inrush Current  | 35A max @ 230VAC with full load and cold start.                               |
| Leakage Current | Medical degree 300µA; ITE degree 1.5mA.                                       |
| Remote ON/OFF   | Designated as <b>RSW</b> on the CN3, requires a low signal to inhibit output. |

### OUTPUT SPECIFICATIONS

|                               |  |
|-------------------------------|--|
| Output Voltage                | See Table  |
| Output Power Range            | 400 Watts max with airflow. (See Notes 2 and 3)  |
| Output Adjustability          | Output user adjustable ±5% minimum.  |
| Total Regulation              | ±1%  |
| Output Current                | See Table  |
| Ripple & Noise (peak to peak) | ±1%  |
| Transient Response            | Returns to within 1% in less than 2.5ms for a 50% load change and the peak transient does not exceed 5%. |
| Hold-Up Time                  | 20ms min. at 80% of full load.   |
| Overshoot                     | Turn-on/off not exceed 5% over nominal voltage.  |
| Turn On Delay                 | 1 second maximum at 120VAC.  |
| Remote Sense                  | Designated as <b>RS+</b> and <b>RS-</b> on the CN3. (Not available for current sharing models).          |

### PROTECTION

|                                    |  |
|------------------------------------|--|
| Over Voltage Protection            | Latching down will occur when output voltage exceeds 130% and recycle AC input to reset. |
| Short Circuit Protection           | Trip without damage and auto-recovery.   |
| Over-Temperature Protection        | Protected in the event of excessive operating ambient 85°C and automatic recovery.       |
| Over-Power Protection              | C.C. mode 110-140% and auto-recovery.  |
| Input Voltage Protection           | Power shut down under 80 ±5VAC, and recovered over 86VAC                                 |
| Input Circuit Protection (Primary) | Two T8A/250V fuses inserted.   |

### GENERAL SPECIFICATIONS

|                     |  |
|---------------------|--|
| Switching Frequency | 30KHz fixed frequency  |
| Efficiency          | 70% for 3.3V, 75% for 5V, 80% for 12V, and 83% minimum for other outputs @ 230VAC and full load.   |
| Withstand Voltage   | 1500 VAC input line to chassis (2mA DC cut off current); 4000VAC between primary and secondary windings. Primary to core 1500VAC. All for 3 seconds. |
| Burn In             | 45 ±5°C for one hour @ 230VAC with full load.  |
| PFC                 | Active power factor correction meets EN61000-3-2 class D.  |
| Power Good          | Designated as <b>PG</b> on the CN3 will go high 100-500ms after regulation and goes low 1ms before loss of regulation.                               |
| Power Supply On     | Green LED designated as <b>LED 1</b> on the PCB.   |



Wall Industries, Inc.

**PSRL0402M Series**  
**400 Watt with Airflow**  
**Single Output Medical Approved**  
**AC/DC Medical Power Supply with Active PFC**

| <b>SPECIFICATIONS (CONTINUED)</b>         |   |
|---|---|
| <b>GENERAL SPECIFICATIONS (CONTINUED)</b> |   |
| Grounding Test                            | Apply 40A from ground pin to the earthed connection point. Max allowable resistance is 0.1 ohm.   |
| Current Sharing                           | Designated as <b>CSH</b> on the CN3, optional single wired forced current sharing function and parallel up to 4 units within 10% accuracy at full load.                                 |
| Current Monitor                           | Designated as <b>CMN</b> on the CN3 for current sense for a 0.5V to 3VDC to represent 0% to 100% output current.  |
| Margin                                    | Designated as <b>MAG</b> on the CN3 providing 50% of output voltage remote adjustment by applying 0.4 ~ 5V signal on <b>MAG</b> .   |
| AC Fail (optional)                        | Designated as <b>ACF</b> on the CN3 to monitor the input voltage, when input goes under 80 ±5VAC the signal will go low (0) and then go high (+5V) once reappears over 86VAC.           |
| LED Display                               | Bi-color green <b>LED</b> in front panel ( <b>E Type</b> only). Any protection occurred or RSW applied low signal will emit orange.   |
| <b>ENVIRONMENTAL SPECIFICATIONS</b>       |   |
| Operating Temperature                     | 0°C to +70°C ambient, de-rating at 2.5% per degree from 50°C to 70°C.   |
| Storage Temperature                       | -20°C to +85°C  |
| Operating Humidity                        | 5% to 90% RH, non-condensing  |
| Storage Humidity                          | 5% to 95% RH, non-condensing  |
| Vibration                                 | Frequency 5 ~ 50Hz, acceleration ±7.35 m/(s x s) on X, Y, and Z axis.   |
| Cooling                                   | <b>U Type</b> (U-Chassis): 400W max with 23CFM airflow or 250W max under convection cooling.<br><b>E Type</b> (Enclosed with side built-in fan): 400W                                   |
| Fan Drive                                 | 12VDC/400mA is available to drive an external fan.  |
| MTBF                                      | 100,000 hours (according to MIL-HBK-217F) at 30°C.  |
| <b>PHYSICAL SPECIFICATIONS</b>            |   |
| Weight                                    | <b>U Type</b> (U-Chassis): 1.3Kg<br><b>E Type</b> (Enclosed with side built-in fan): 1.6Kg  |
| Dimensions                                | <b>U Type</b> (U-Chassis): 8(L) x 5(W) x 1.6(H) inches.<br><b>E Type</b> (Enclosed with side built-in fan): 9(L) x 5(W) x 1.6(H) inches.  |
| Warranty                                  | 2 years   |
| <b>SAFETY</b>                             |   |
| Emissions                                 | FCC part15, CISPR 22 Class B, Conducted.  |
| Safety Regulations                        | Approved to UL60950-1/ 60601-1, CSA C22.2 No. 60950-1-03/ 601.1-M90, TUV EN60950-1/ 60601-1, CE Mark (LVD) EN61204-3/ 60601-1-2/ 61000-3-2,3, and IEC61000-4 Series Regulations and CB. |

## OUTPUT VOLTAGE / CURRENT RATING CHART

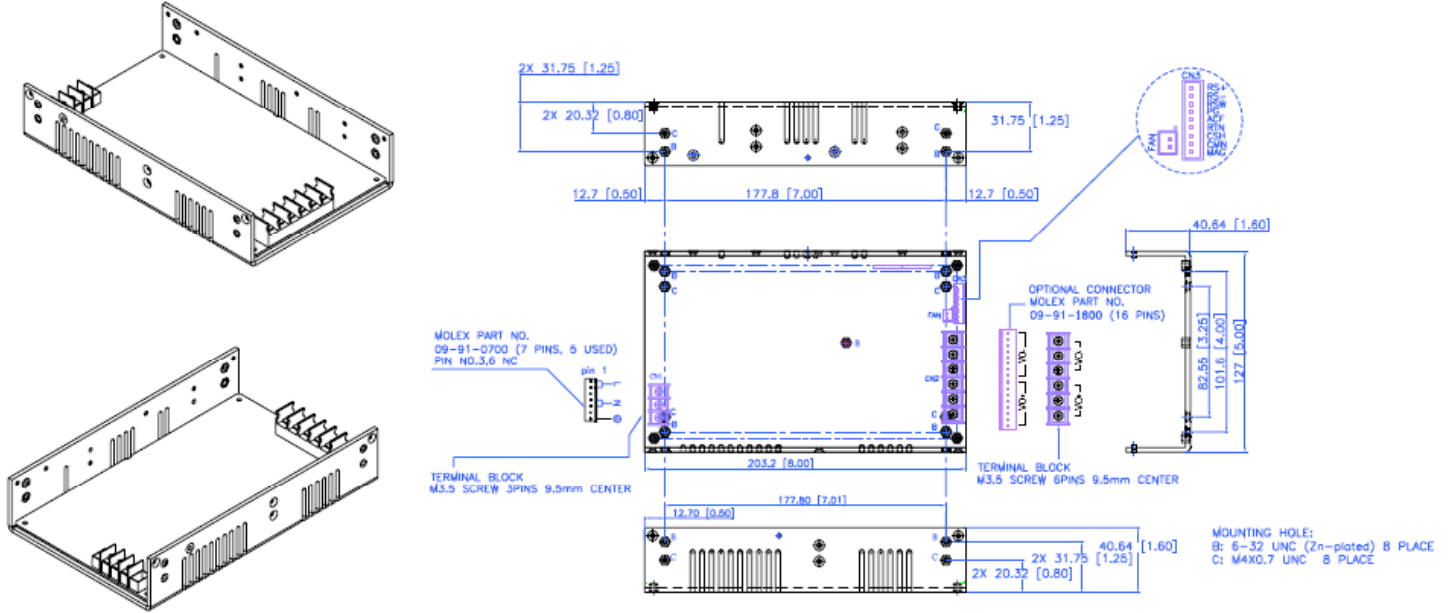
| Model            | Output Voltage Range | Preset Voltage | Output Current      |                                   | Regulation | Ripple & Noise |
|------------------|----------------------|----------------|---------------------|-----------------------------------|------------|----------------|
|                  |                      |                | Type U (Convection) | Type U (with forced air) & Type E |            |                |
| PSRL0402Mx-03(I) | 2 – 3.3 VDC          | 3.3 VDC        | 45A                 | 60A                               | +/- 1%     | +/- 1%         |
| PSRL0402Mx-05(I) | 5 – 6 VDC            | 5 VDC          | 45A                 | 60A                               | +/- 1%     | +/- 1%         |
| PSRL0402Mx-12(I) | 12 – 15 VDC          | 12 VDC         | 20.84A              | 33.33                             | +/- 1%     | +/- 1%         |
| PSRL0402Mx-18(I) | 16 – 21 VDC          | 18 VDC         | 13.89A              | 22.22                             | +/- 1%     | +/- 1%         |
| PSRL0402Mx-24(I) | 22 – 30 VDC          | 24 VDC         | 10.42A              | 16.67                             | +/- 1%     | +/- 1%         |
| PSRL0402Mx-36(I) | 31 – 41 VDC          | 36 VDC         | 6.94A               | 11.11                             | +/- 1%     | +/- 1%         |
| PSRL0402Mx-48(I) | 42 – 58 VDC          | 48 VDC         | 5.21A               | 8.33                              | +/- 1%     | +/- 1%         |

## NOTES

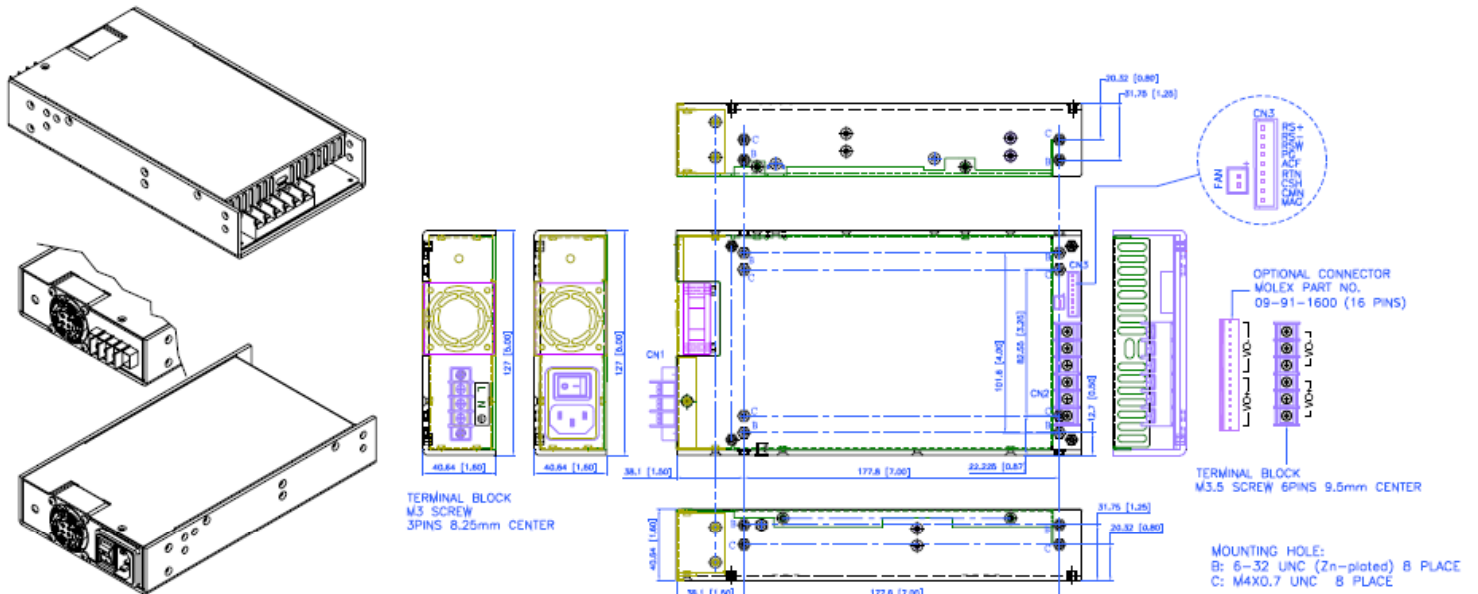
- PSRL0402M Series is designated as PSRL0402Mx-yz where x can be blank (U-chassis), C (U-chassis with top cover), or E (Enclosed with side built-in fan), y can be 03, 05, 12, 18, 24, 36, or 48 for output voltage, z can be blank or I where I denote forced current sharing option (OR-ring diode). See PSRL0402M-I Series for forced current sharing.
- PSRL0402MU Series: 400W max. with 23CFM airflow or 250W max. under convection cooling; (Option: Top Cover)
- PSRL0402ME Series: 400W max. with built-in fan flow.
- All output ranges are covered in agency certification and the preset voltage will be set as standard models. If any request is not standard output, please contact us prior to ordering.
- Providing peak power to 700W within 500uS for all models, longer duty duration need contact manufacture.
- 1% minimum load is required to maintain the ripple and regulation.
- Output is fully isolated.

**MECHANICAL DRAWINGS**

**PSRL0402MU Series (U-Chassis Type): 8(L) x 5(W) x 1.6(H) inches; Weight: 1.3kg; Option: Top Cover.**



**PSRL0402ME Series (Enclosed with built-in Fan Type): 9(L) x 5(W) x 1.6(H) inches; Weight: 1.6kg.**



| Output Pin Connection |            |             |
|-----------------------|------------|-------------|
|                       | Howder     | Molex       |
| <b>Vo+</b>            | Pins 1 – 3 | Pins 1 – 8  |
| <b>Vo-</b>            | Pins 4 – 6 | Pins 9 – 16 |



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## **I/O CONNECTOR PIN ASSIGNMENT**

### **Input Connector(CN1):**

PSRL0402MU Series: mating Molex Part No. 09-91-0700 equivalent (7 pin, 5 used), or Howder Terminal block Part No. HD-121-3P.

PSRL0402ME Series: IEC320 or equivalent Snap-in mounting type or DINKLE Terminal block Part No. DT-35-A02W-03 (3 pin).

### **Output Connector (CN2):**

Mating Molex 16 pins (09-91-1600), or Howder (HD-121-6P) M3.5, 8 pins terminal block, 9.5MM Center.

### **Output Pin Assignment:**

(See table)

### **Logic signal connectors (CN3):**

Mating JST XHP-9 or equivalent (CHYAO SHIUNN JS-2001-09) Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

### **Mounting Inserts:**

6-32, M4 4 Places individually with maximum penetration 0.15 inches on bottom side and 0.25 inch on both sides