



Wall Industries, Inc.

**PSRL0402-I Series**  
**400 Watt with Airflow**  
**Forced Current Sharing Series**  
**Single Output Medical Approved**  
**AC/DC Switching Power Supply with Active PFC**

**FEATURES**

- 2 Year Warranty
- N+1 Forced Active Current Sharing
- Power Factor Corrected to EN61000-3-2 Class D
- Providing Peak Power 700W within 500uS Duty Duration
- 1U Height Size and High Power Density: 6.25 Watts/cu in
- U-Chassis & Enclosed with Built-in Fan Mechanical Options
- Current Monitoring and Remote Voltage Adjustment (Margin)
- Both Medical & ITE Safety Approvals for the PSRL0402M-I Series



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: PSRL0402-I 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.

**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 LED 1 on the PCB.
Grounding Test	Apply 40A from ground pin to the earthed connection point. Max allowable resistance is 0.1 ohm.



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SPECIFICATIONS (CONTINUED)	
<b>GENERAL SPECIFICATIONS (CONTINUED)</b>	
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. <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 <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. <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

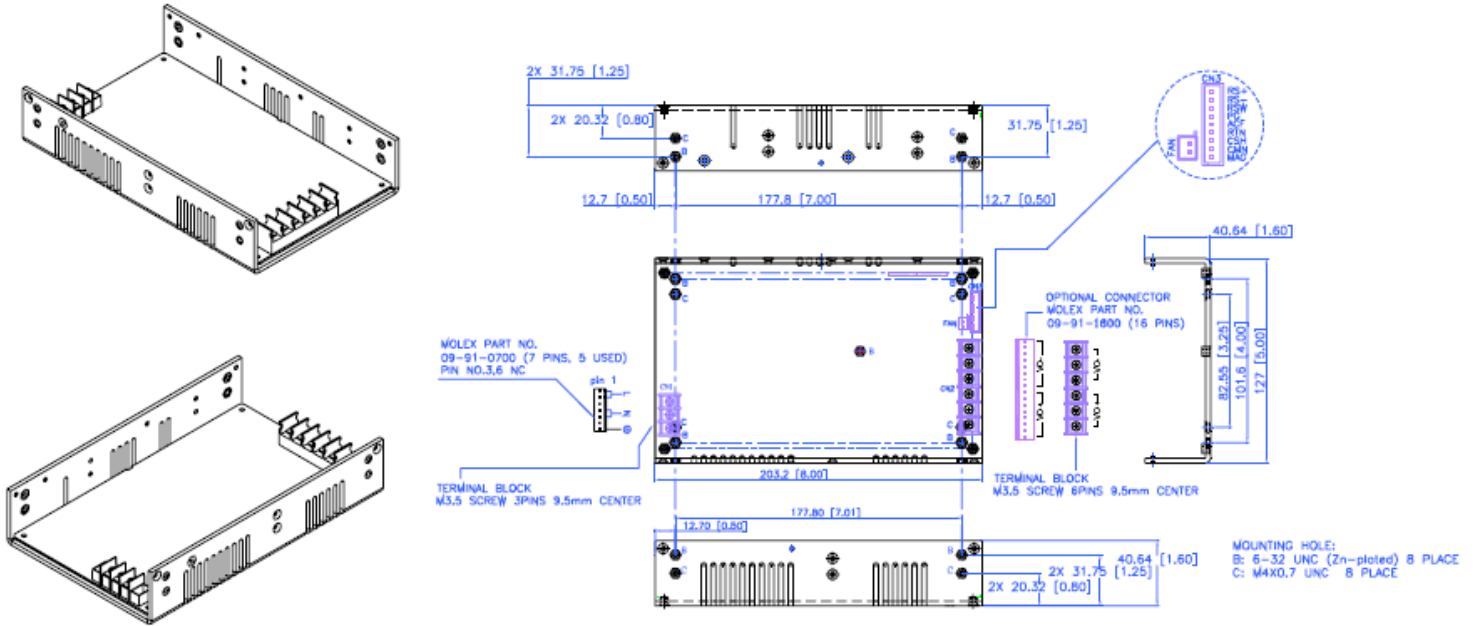
Model	Output Voltage Range	Preset Voltage	Output Current		Regulation	Ripple & Noise
			Type U (Convection)	Type U (with forced air) & Type E		
PSRL0402x-03I	2 – 3.3 VDC	3.3 VDC	45A	60A	+/- 1%	+/- 1%
PSRL0402x-05I	5 – 6 VDC	5 VDC	45A	60A	+/- 1%	+/- 1%
PSRL0402x-12I	12 – 15 VDC	12 VDC	20.84A	33.33	+/- 1%	+/- 1%
PSRL0402x-18I	16 – 21 VDC	18 VDC	13.89A	22.22	+/- 1%	+/- 1%
PSRL0402x-24I	22 – 30 VDC	24 VDC	10.42A	16.67	+/- 1%	+/- 1%
PSRL0402x-36I	31 – 41 VDC	36 VDC	6.94A	11.11	+/- 1%	+/- 1%
PSRL0402x-48I	42 – 58 VDC	48 VDC	5.21A	8.33	+/- 1%	+/- 1%

## NOTES

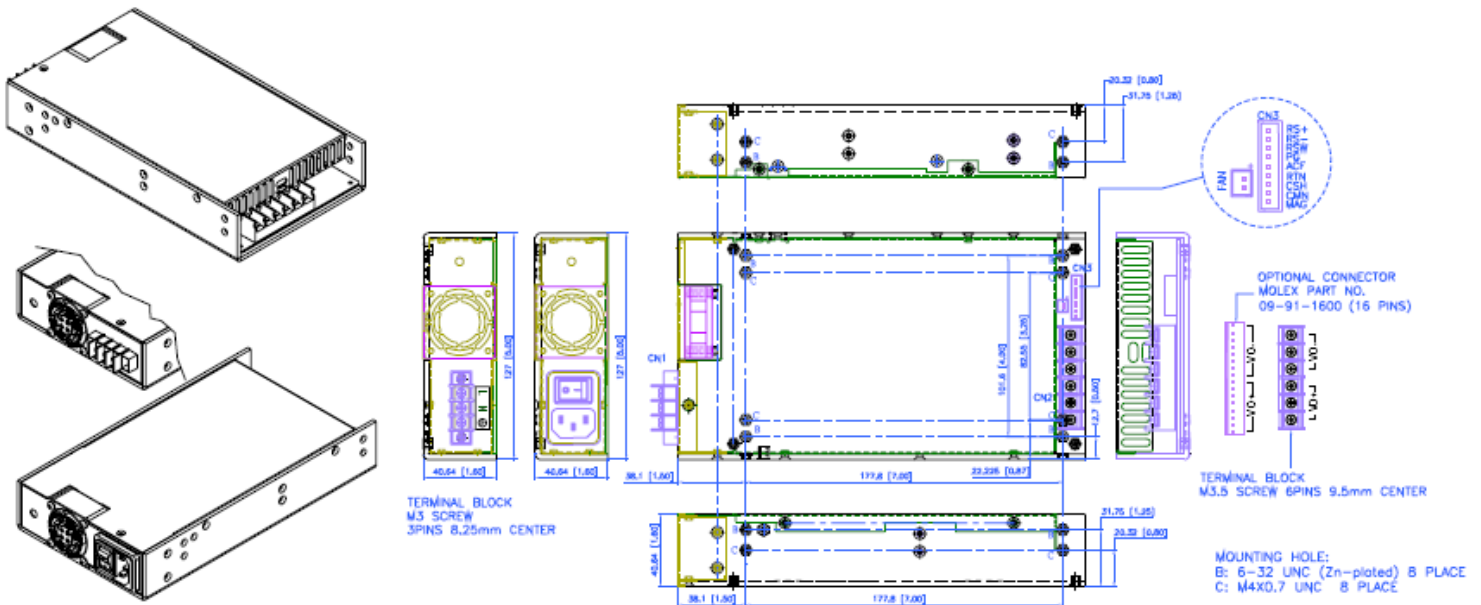
- PSRL0402-I Series is designated as PSRL0402x-y where x can be blank (U-chassis), C (U-chassis with top cover), or E (Enclosed with side built-in fan), y can be 03I, 05I, 12I, 18I, 24I, 36I or 48I. "I" represents forced current sharing OR-ring diode).
- PSRL0402U-I Series: 400W max. with 23CFM airflow or 250W max. under convection cooling; (Option: Top Cover)
- PSRL0402E-I 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

**PSRL0402U-I Series (U-Chassis Type): 8(L) x 5(W) x 1.6(H) inches; Weight: 1.3kg; Option: Top Cover.**



**PSRL0402E-I Series (Enclosed with built-in Fan Type): 9(L) x 5(W) x 1.6(H) inches; Weight: 1.6kg.**



Output Pin Assignment		
	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):**

PSRL0402U-I Series: mating Molex Part No. 09-91-0700 equivalent (7 pin, 5 used), or Howder Terminal block Part No. HD-121-3P.  
PSRL0402E-I 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