



Wall Industries, Inc.

PSRL0402 Series
www.DataSheet4U.com
400 Watt with Airflow

Medical Approved Single Output
AC/DC Switching Power Supply with Active PFC

FEATURES

- 2 Year Warranty
- 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
- Both Medical & ITE Safety Approvals for the PSRL0402M 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 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 RSW 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 RS+ and RS- 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 PG 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.



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SPECIFICATIONS (CONTINUED)	
GENERAL SPECIFICATIONS (CONTINUED)	
Grounding Test	Apply 40A from ground pin to the earthed connection point. Max allowable resistance is 0.1 ohm.
Current Sharing	Designated as CSH 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 CMN on the CN3 for current sense for a 0.5V to 3VDC to represent 0% to 100% output current.
Margin	Designated as MAG on the CN3 providing 50% of output voltage remote adjustment by applying 0.4 ~ 5V signal on MAG .
AC Fail (optional)	Designated as ACF 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 LED in front panel (E Type only). Any protection occurred or RSW applied low signal will emit orange.
ENVIRONMENTAL SPECIFICATIONS	
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	U Type (U-Chassis): 400W max with 23CFM airflow or 250W max under convection cooling. E Type (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.
PHYSICAL SPECIFICATIONS	
Weight	U Type (U-Chassis): 1.3Kg E Type (Enclosed with side built-in fan): 1.6Kg
Dimensions	U Type (U-Chassis): 8(L) x 5(W) x 1.6(H) inches. E Type (Enclosed with side built-in fan): 9(L) x 5(W) x 1.6(H) inches.
Warranty	2 years
SAFETY	
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

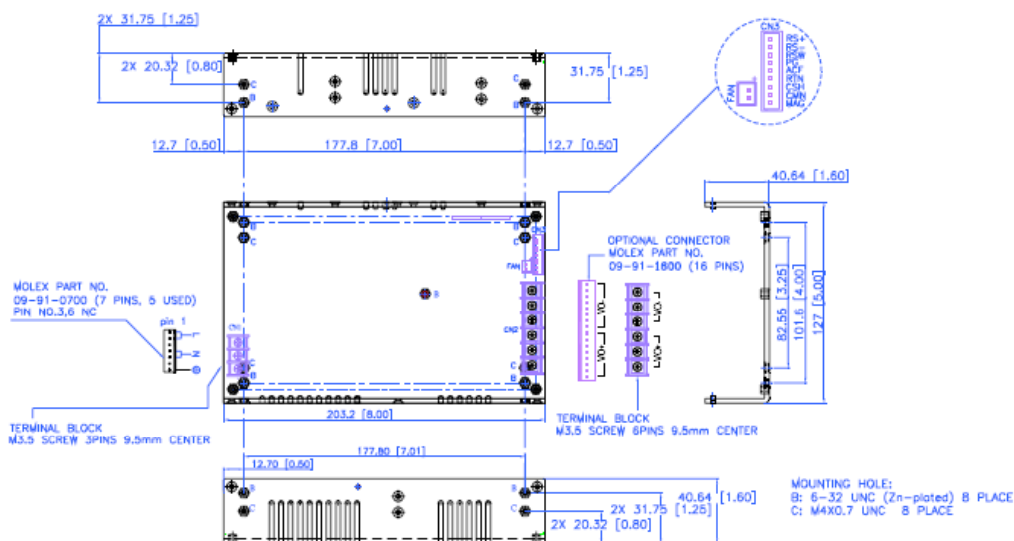
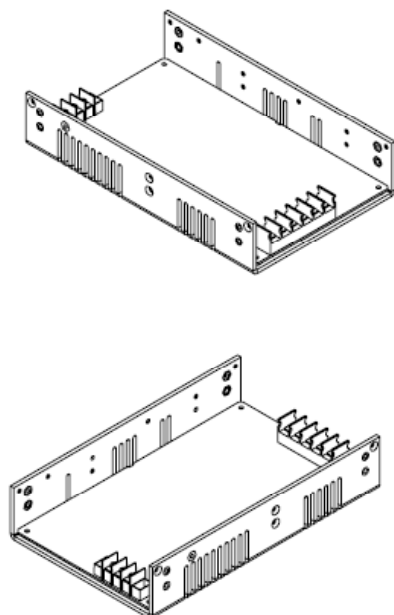
Model	Output Voltage Range	Preset Voltage	Output Current		Regulation	Ripple & Noise
			Type U (Convection)	Type U (with forced air) & Type E		
PSRL0402x-03(I)	2 – 3.3 VDC	3.3 VDC	45A	60A	+/- 1%	+/- 1%
PSRL0402x-05(I)	5 – 6 VDC	5 VDC	45A	60A	+/- 1%	+/- 1%
PSRL0402x-12(I)	12 – 15 VDC	12 VDC	20.84A	33.33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

NOTES

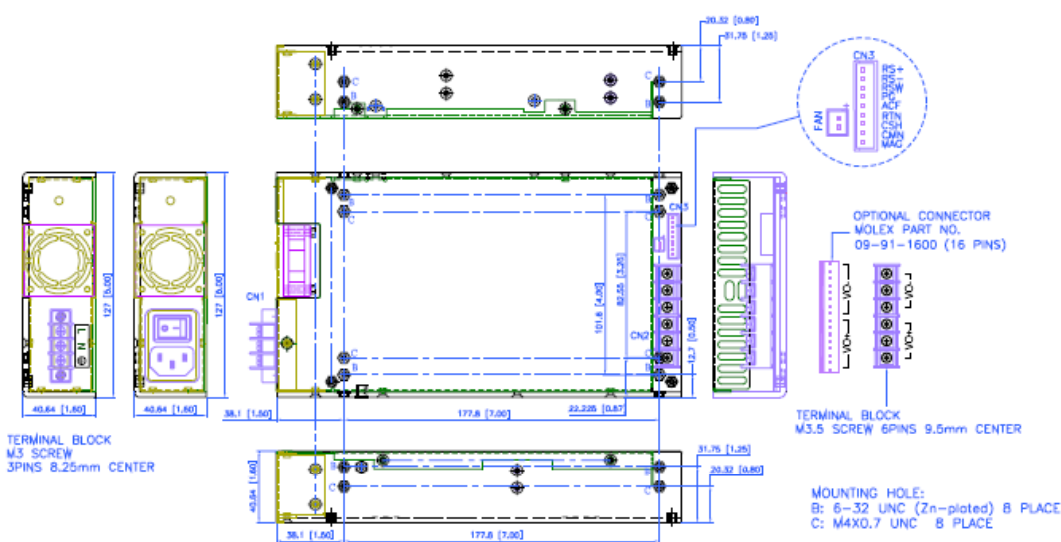
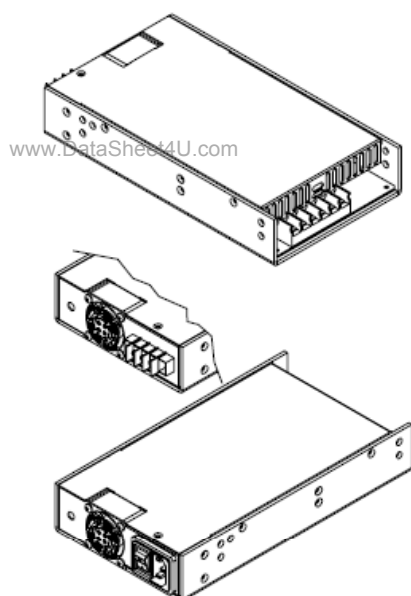
- PSRL0402 Series is designated as PSRL0402x-yz where x can be blank (U-chassis), C (U-chassis with top cover), or E (Enclosed with side built-in fan), y can be 03, 05, 12, 18, 24, 36 or 48 for output voltage, z can be blank or I where I denote forced current sharing option (OR-ring diode). See PSRL0402-I Series for forced current sharing.
- PSRL0402U Series: 400W max. with 23CFM airflow or 250W max. under convection cooling; (Option: Top Cover)
- PSRL0402E 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 Series (U-Chassis Type): 8(L) x 5(W) x 1.6(H) inches; Weight: 1.3kg; Option: Top Cover.



PSRL0402E 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
Vo+	Pins 1 – 3	Pins 1 – 8
Vo-	Pins 4 – 6	Pins 9 – 16



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I/O CONNECTOR PIN ASSIGNMENT

Input Connector(CN1):

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

PSRL0402E 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

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