



Wall Industries, Inc.

PSRL0402D Series  
400 Watt with Airflow

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

## FEATURES

- 2 Year Warranty
- Power Factor Corrected to EN61000-3-2 Class D
- 3.3/ 5/ 12/ 24V Dual Output Optional Combinations
- U-Chassis Type Drive Max 250W Under Air Convection
- U-Chassis & Enclosed with Built-in Fan Mechanical Options
- 1U Height Size and High Power Density: 6.25 Watts/cu Inches
- Both Medical & ITE Safety Approvals for the PSRL0402DM Series



E Type (Enclosed with built-in Fan): 9(L) x 5(W) x 1.6(H) inches.  
U Type (U-Chassis Type): 8(L) x 5(W) x 1.6(H) inches.



## SPECIFICATIONS: PSRL0402D 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 Note 4)                                                                 |
| Output Adjustability          | Output user adjustable ±5% minimum.                                                                      |
| Total Regulation              | ±5%                                                                                                      |
| 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.                                                      |

### 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          | 75% minimum (measuring at 230V 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.                                                                                                     |
| Grounding Test      | Apply 40A from ground pin to the earthed connection point. Max allowable resistance is 0.1 ohm.                                                      |
| 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.                  |



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| SPECIFICATIONS (CONTINUED)   |                                                                                                                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 $\pm 7.35 \text{ m/(s}^2\text{)}$ 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.                                                                                                                                      |
| PHYSICAL SPECIFICATIONS      |                                                                                                                                                                                         |
| 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                                                                                                                                                                                 |
| 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      | Output Current |          | Regulation | Ripple & Noise |
|-----------------|---------------------------|----------------|----------|------------|----------------|
|                 |                           | Convection     | 22.95CFM |            |                |
| PSRL0402Dx-0312 | V <sub>1</sub> : +3.3 VDC | 30A            | 40A      | ± 5%       | ± 1%           |
|                 | V <sub>2</sub> : +12 VDC  | 16.7A          | 25A      | ± 5%       | ± 1%           |
| PSRL0402Dx-0324 | V <sub>1</sub> : +3.3 VDC | 30A            | 40A      | ± 5%       | ± 1%           |
|                 | V <sub>2</sub> : +24 VDC  | 8.34A          | 12.5A    | ± 5%       | ± 1%           |
| PSRL0402Dx-0512 | V <sub>1</sub> : +5 VDC   | 30A            | 40A      | ± 5%       | ± 1%           |
|                 | V <sub>2</sub> : +12 VDC  | 16.7A          | 25A      | ± 5%       | ± 1%           |
| PSRL0402Dx-0524 | V <sub>1</sub> : +5 VDC   | 30A            | 40A      | ± 5%       | ± 1%           |
|                 | V <sub>2</sub> : +24 VDC  | 8.34A          | 12.5A    | ± 5%       | ± 1%           |
| PSRL0402Dx-1224 | V <sub>1</sub> : +12 VDC  | 16.7A          | 25A      | ± 5%       | ± 1%           |
|                 | V <sub>2</sub> : +24 VDC  | 8.3A           | 12.5A    | ± 5%       | ± 1%           |

## NOTES

- PSRL0402D Series is designated as PSRL0402Dx-y where x can be U-chassis (Type U), U-chassis with top cover (Type C), or Enclosed with side built-in Fan (Type E), y can be 0312, 0324, 0512, 0524 and 1224 for output voltage.
- 10% minimum load is required for all outputs to maintain the ripple and regulation.
- Output is fully isolated.
- Total combined power of V1 and V2: 400W max. with 22.95 CFM forced air and 250W convection cooling for PSRL0402DU-1224; 400W for PSRL0402DE-1224 by self-cooling. 300W max. with 22.95 CFM forced air and 200W convection cooling for other PSRL0402DU-y models; 300W for other PSRL0402DE-y models by self-cooling.





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## I/O CONNECTOR PIN ASSIGNMENT

### Input Connector (CN1):

PSRL0402DU Series: mating Molex Part No. 09-91-0700 equivalent (7 pin, 5 used), or Howder Terminal block (HD-121-3P).

PSRL0402DE Series: IEC320 or equivalent Snap-in mounting type or DINKLE Terminal block (DT-35-A02W-03).

### 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-2001-05) 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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