



Wall Industries, Inc.

PSRL5016X3 Series  
Active PFC  
300 Watt Single Output  
AC/DC Switching Power Supply

## FEATURES

- RoHS Compliant
- Optional Top Cover Available
- Universal AC Input / Full Range
- Remote Sense & Remote On/Off
- High Power Density: 7.15 Watts/cu in.
- Power Factor Corrected to EN61000-3-2 Class D
- Approved to UL/CUL/TUV/CB/CE & Class B Emissions
- Providing Peak Power 700W within 500uS Duty Duration
- U-Chassis & Enclosed with Built-in Fan Mechanical Options
- Protections: Short Circuit/ Overload/ Over Voltage/ Over Temp



U Type (U-Chassis): 7(L) x 4(W) x 2(H) inches

E Type (Enclosed with built-in fan): 8(L) x 4(W) x 2(H) inches



## SPECIFICATIONS: PSRL5016X3 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   | 5A at 90VAC full load   |
| Inrush Current  | 35A max @ 230VAC with full load and cold start.                                   |
| Leakage Current | 1.5mA @ 240VAC  |
| Remote ON/OFF   | Defined <b>INH</b> (Pin 4) on CON3, requiring a TTL low signal to inhibit output. |

### OUTPUT SPECIFICATIONS

|                               |  |
|-------------------------------|--|
| Output Voltage                | See Table  |
| Output Power Range            | 300 Watts max with airflow. (See Note 2)   |
| Output Adjustability          | Output user adjustable $\pm 5\%$ minimum.  |
| Total Regulation              | $\pm 1\%$  |
| Output Current                | See Table  |
| Ripple & Noise (peak to peak) | $\pm 1\%$  |
| 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 overshoot < 5% over nominal voltage.   |
| Turn On Delay                 | 1 second maximum at 120VAC.  |
| Remote Sense                  | Designated as <b>V1S+</b> (Pin1) and <b>V1S-</b> (Pin2) on the CON3. Voltage compensates for up to 0.5V line drop. |

### PROTECTION

|                                    |  |
|------------------------------------|--|
| Over Voltage Protection            | Unit latching down when output exceeds 130% and recycle AC input to reset. |
| Short Circuit Protection           | Trip without damage and auto-recovery.                                     |
| Over-Temperature Protection        | Unit protected of excessive operating ambient 85°C and automatic recovery. |
| Over-Power Protection              | Hiccup mode 110-140% and auto-recovery.                                    |
| Input Voltage Protection           | Power shut down under 80 $\pm 5$ VAC, and recovered over 86VAC.            |
| Input Circuit Protection (Primary) | One 250V/ 8A fuse inserted.  |

### GENERAL SPECIFICATIONS

|                   |   |
|-------------------|---|
| Efficiency        | 80% minimum (Measuring at 230VAC and full load).  |
| Withstand Voltage | 1500 VAC input line to chassis (10mA DC cut off current); 3000VAC between primary and secondary windings. Primary to core 1500VAC. All for 3 seconds. |
| Burn In           | 45 $\pm 5$ °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 CON3 will go high 100-500ms after regulation and goes low 1ms before loss of regulation.                               |
| Grounding Test    | Apply 25A from ground pin of the three prong plug to the far most earth. Max allowable resistance is 0.1 ohm.   |
| LED Display       | Bi-color <b>LED1</b> emit green for Power On and emit orange when protection is enabled or INH is applied a low signal.                               |



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| SPECIFICATIONS (CONTINUED)          |   |
|-------------------------------------|---|
| <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                           | 5 ~ 50Hz, acceleration 7.35 m/(s x s) on X, Y, and Z Axis.  |
| Cooling                             | <b>U Type</b> (U-Chassis): 22CFM forced airflow to achieve maximum power.<br><b>E Type</b> (Enclosed with built-in fan): Self cooled by built-in fan. |
| 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): 950g<br><b>E Type</b> (Enclosed with built-in fan): 1050g  |
| Dimensions                          | <b>U Type</b> (U-Chassis): 7(L) x 4(W) x 2(H) inches.<br><b>E Type</b> (Enclosed with built-in fan): 8(L) x 4(W) x 2(H) inches.                       |
| <b>SAFETY</b>                       |   |
| Emissions                           | FCC part15, CISPR 22 Class B, Conducted.  |
| Safety Regulations                  | Approved to UL60950-1, CSA C22.2 No. 60950-1-03, TUV EN60950-1, CE Mark (LVD) EN61000-3-2,3, & IEC61000-4 Series Regulations and CB.                  |

## MODEL SELECTION TABLE

| U-Chassis Models (U Type) |                      |                |                |            |                |
|---------------------------|----------------------|----------------|----------------|------------|----------------|
| Model                     | Output Voltage Range | Preset Voltage | Output Current | Regulation | Ripple & Noise |
| PSRL5016U3-12             | 12 - 15 VDC          | 12 VDC         | 25A            | ±1%        | ±1%            |
| PSRL5016U3-18             | 16 - 21 VDC          | 18 VDC         | 18.75A         | ±1%        | ±1%            |
| PSRL5016U3-24             | 22 - 30 VDC          | 24 VDC         | 13.64A         | ±1%        | ±1%            |
| PSRL5016U3-36             | 31 - 41 VDC          | 36 VDC         | 9.68A          | ±1%        | ±1%            |
| PSRL5016U3-48             | 42 - 55 VDC          | 48 VDC         | 7.15A          | ±1%        | ±1%            |

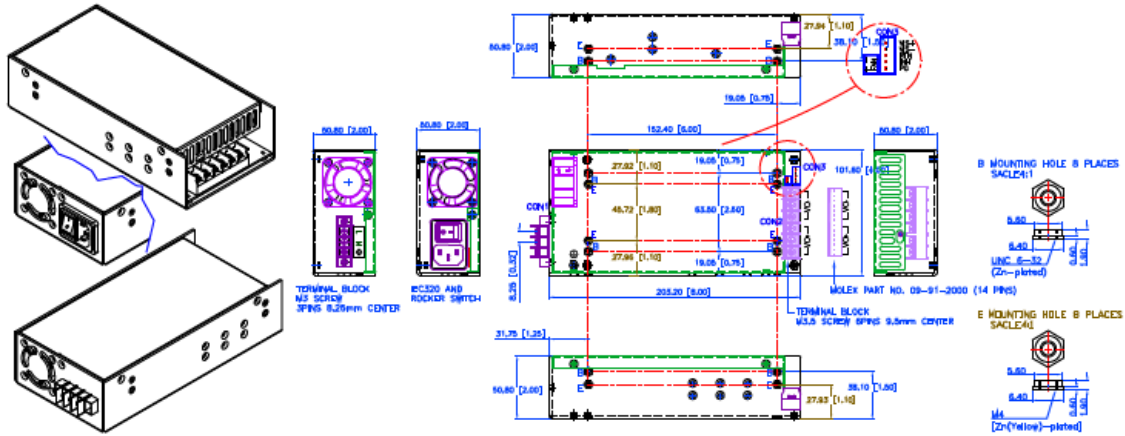
| Enclosed with Built-in Fan Models (E Type) |                      |                |                |            |                |
|--|----------------------|----------------|----------------|------------|----------------|
| Model                                      | Output Voltage Range | Preset Voltage | Output Current | Regulation | Ripple & Noise |
| PSRL5016E3-12                              | 12 - 15 VDC          | 12 VDC         | 25A            | ±1%        | ±1%            |
| PSRL5016E3-18                              | 16 - 21 VDC          | 18 VDC         | 18.75A         | ±1%        | ±1%            |
| PSRL5016E3-24                              | 22 - 30 VDC          | 24 VDC         | 13.64A         | ±1%        | ±1%            |
| PSRL5016E3-36                              | 31 - 41 VDC          | 36 VDC         | 9.68A          | ±1%        | ±1%            |
| PSRL5016E3-48                              | 42 - 55 VDC          | 48 VDC         | 7.15A          | ±1%        | ±1%            |

## NOTES

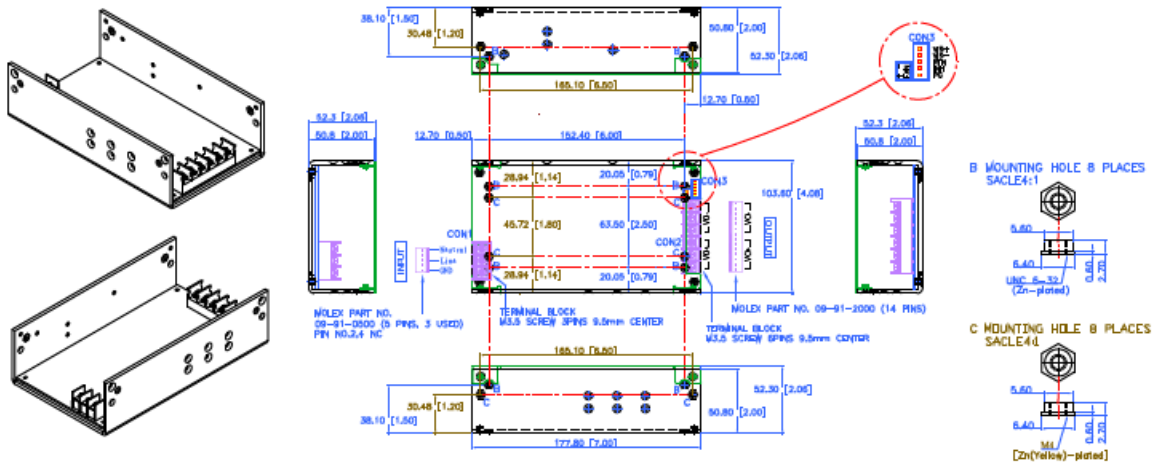
1. E Type Models (Enclosed with built-in fan): Self-cooled by built-in fan;  
U Type Models (U-Chassis): 22 CFM forced airflow to achieve maximum power.
2. Providing peak current for 500uS with standard models, longer duty duration should contact manufacture.
3. All output ranges are covered in agencies certification and preset voltage will be set as standard mode if any request other than standard output then should contact us in advance.
4. 1% minimum load is required to maintain the ripple and regulation.
5. Ripple and noise is measured from 10KHZ to 20MHZ bandwidth at output terminals with parallel 0.1µF ceramic and 22µF electrolytic capacitors.
6. Output is fully isolated.
7. Optional Top cover available please call factory for ordering details.

**MECHANICAL DRAWINGS**

**E Type (Enclosed with built-in Fan Type): 8(L) x 4(W) x 2(H) inches; Weight: 1050g**



**U Type (U-Chassis Type): 7(L) x 4(W) x 2(H) inches; Weight: 950g; Option: Top Cover**



**I/O CONNECTOR PIN ASSIGNMENT**

**AC Input Connector (CON1):**

U Type: Mating Molex Part No. 09-91-0500 equivalent (5 pin, 3 used), or M3, 3 pins terminal block 8.25mm center.  
 E Type: IEC320 or equivalent Snap-in mounting type or M3.5, 6 pins Terminal block 9.5mm center.

**Output Connector (CON2):**

Mating Molex 14 pins (09-91-2000), or Howder (HD-121-6P) M3.5, 6 pins terminal block, 9.5MM Center.

**Output Pin Assignment:**

(See table at right).

**Logic signal connectors (CON3):**

Mating JST XHP-5 or equivalent (CHYAO SHIUNN JS-2001-05).  
 Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

**Mounting Inserts:**

4 Places 6-32. Max. Penetration 0.13" on bottom side and 4 places 0.25" on both sides.

**Fan Drive:**

Mating JST XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02).

| Output Pin Connection |            |             |
|-----------------------|------------|-------------|
|                       | Howder     | Molex       |
| <b>Vo+</b>            | Pins 1 – 3 | Pins 1 – 7  |
| <b>Vo-</b>            | Pins 4 – 6 | Pins 8 – 14 |