

Wall Industries, Inc.

PSPRL0801D SERIES

Up to 240 Watts
90~264 Vac Input
Dual Output, Active PFC
AC/DC Switching Power Supply



Type E



Type F



Type C



Type U

FEATURES:

- Dual Output
- RoHS Compliant
- Remote ON/OFF
- Full Range AC Input
- 4 Mechanical Options Available
- Approved to UL, TUV, CE, and CB
- Power Factor Corrected to EN61000-3-2 Class D
- Smallest 240W with 1U Height Power Density: 10.41 Watts/cu in



DESCRIPTION:

The PSPRL0801D series of AC/DC switching power supplies offers up to 240 Watts of output power. This series has dual output models with remote ON/OFF and 90~264VAC input voltage range. These supplies also have over voltage, short circuit, over temperature, and over power protection. Models are available in U-Chassis (Type U), U-Chassis with top cover (Type C), Enclosed with rear side built-in fan (Type E), and Enclosed with top built-in fan (Type F) designs. These supplies have UL/cUL 60950-1, TUV EN60950-1, CB, and CE Mark EN55022 and EN55024 safety approvals.

SPECIFICATIONS: PSPRL0801D 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 @ 90VAC
Inrush Current	35A max. @ 115VAC and 70A max. @ 230VAC; cold start.
Remote ON/OFF	Designated as INH on pin 4 of CN3. Requires a low signal to inhibit output.
PFC	Power factor correction pass EN61000-3-2 Class D.

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Output Power (<i>See Note 2</i>)	240 Watts max. with 25CFM airflow.
Output Adjustability	Output adjustable $\pm 5\%$ minimum.
Regulation	$\pm 5\%$
Output Current	See Table
Ripple & Noise (<i>See Note 3</i>)	1% (peak to peak)
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	16ms min. at 80% of full load and 120VAC
Overshoot	Turn-on & off overshoot < 5% over nominal voltage.
Turn On Delay	1 second maximum at 120VAC.

PROTECTION

Over Voltage Protection	Unit latching down when output exceeds 130% and recycle AC input to reset.
Short Circuit Protection	Trips without damage and auto-recovery.
Over Temperature Protection	Unit protected against excessive operating ambient 85°C $\pm$ 5°C; automatic recovery.
Over Power Protection	Foldback mode 110~140%; auto-recovery.
Input Fusing Protection	One F5A/350V fuse inserted into primary.

GENERAL SPECIFICATIONS

Switching Frequency	70KHz fixed frequency.
Efficiency	70% typical (Measured at 230VAC and full load).
Withstand Voltage	1500VAC input line to chassis (10mA DC cut-off current). 3000VAC primary to secondary windings; 1500VAC primary to core. All for 3 sec.
Leakage Current	3.5mA @ 240VAC
Burn In	45 $\pm$ 5°C for 1 hour @ 230VAC with full load.
Power Good	Designated as PG on CN3 and TTL high 100-500ms after DC regulation. It goes low at least 1ms before loss of regulation and has ability to sink 100mA.
Power Supply On	Green LED designated as LED1 on the PCB.
Grounding Test	Apply 25A from ground pin of the three prong plug to the far most earth. Max. allowable resistance is 0.1 Ω .
Fan Drive	12VDC/300mA offering to drive an external fan.
Fan Fail (FF) Alarm	Designated as FF on pin 3 of CN3 is an open collector output rated for 28VDC/5mA sink current maximum; it will go high when a fan failure is detected.

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	5 ~ 50Hz, acceleration ± 7.35 m/(s x s) on X, Y, and Z axis.
Cooling (<i>See Note 2</i>)	U Type (U-Chassis): 240W max with 25CFM forced airflow or 120W under convection cooling. C Type (U-Chassis with top cover): 240W max with 25CFM forced airflow or 120W under convection cooling. E Type (Enclosed with rear side built-in fan): 240W max. F Type (Enclosed with top built-in fan): 240W max.
MTBF	100,000 hours (according to MIL-HBK-217F) at 30°C.

PHYSICAL SPECIFICATIONS

Weight	U Type (U-Chassis): 17.64oz (500g) C Type (U-Chassis with top cover): 19.40oz (550g) E Type (Enclosed with rear side built-in fan): 22.93oz (650g) F Type (Enclosed with top built-in fan): 21.16oz (600g)
Dimensions (L x W x H)	U Type (U-Chassis): 5 x 3.2 x 1.5 inches (127.00 x 81.28 x 38.10 mm) C Type (U-Chassis with top cover): 5 x 3.2 x 1.66 inches (127.00 x 81.28 x 42.10 mm) E Type (Enclosed with rear side built-in fan): 6.5 x 3.2 x 1.6 inches (165.10 x 81.28 x 40.64 mm) F Type (Enclosed with top built-in fan): 5 x 3.2 x 2 inches (127.00 x 81.28 x 50.8 mm)

SAFETY

Emissions	FCC Part 15, CISPR 22 class B, conducted.
Safety Regulations	Approved to UL60950-1, TUV EN60950-1, CE Mark EN55022 & EN55024 regulations and CB.

MODEL SELECTION TABLE

Model ⁽¹⁾		Input Voltage Range	Output Voltage	Maximum Output Current		Maximum Output Power ⁽²⁾	
				Type U (Convection)	Types E, F, C, & U (forced air)	Type U (Convection)	Types E, F, C, & U (forced air)
PSPRL0801Dx-0512	V1	90 ~ 264VAC	+5VDC	12A	24A	120W	240W
	V2		+12VDC	6.67A	13.33A		
PSPRL0801Dx-0524	V1	90 ~ 264VAC	+5VDC	12A	24A	120W	240W
	V2		+24VDC	3.33A	6.67A		
PSPRL0801Dx-0548	V1	90 ~ 264VAC	+5VDC	12A	24A	120W	240W
	V2		+48VDC	1.67A	3.33A		
PSPRL0801Dx-1224	V1	90 ~ 264VAC	+12VDC	6.67A	13.33A	120W	240W
	V2		+24VDC	3.33A	6.67A		

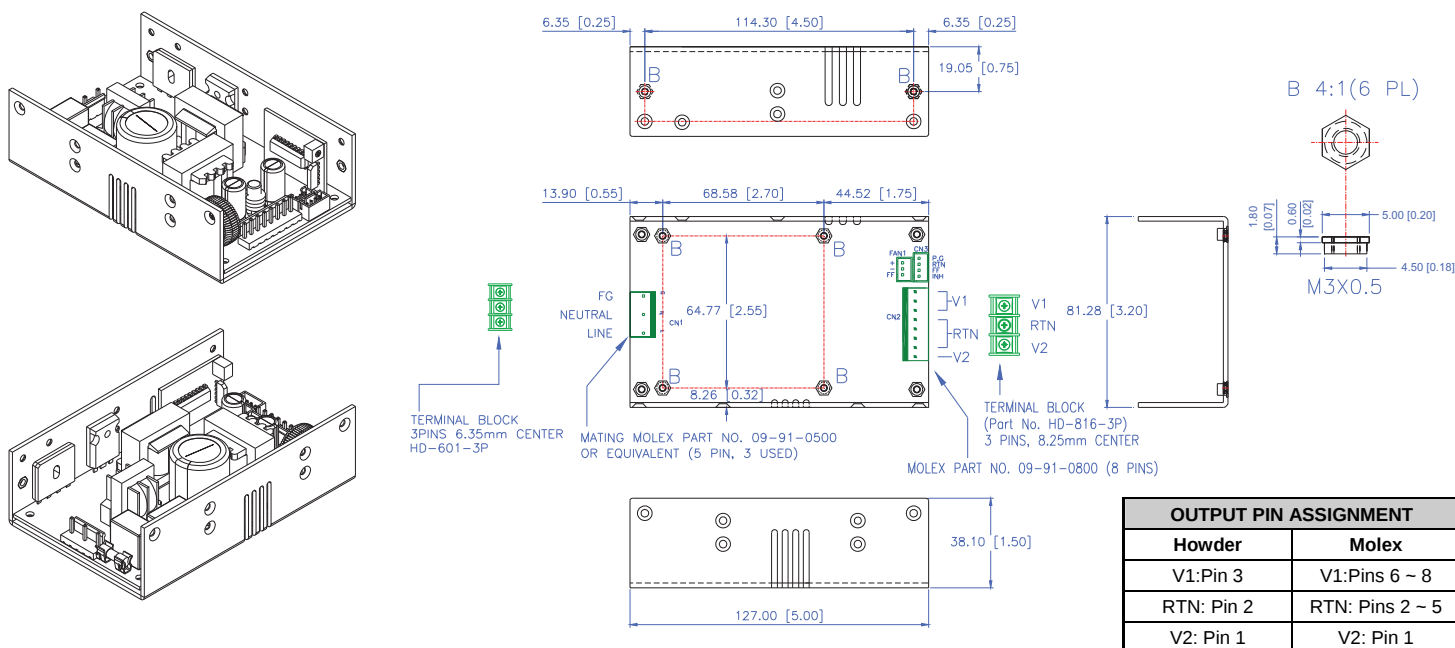
NOTES

- Mechanical Options: The “x” in the model number can be U for U-chassis type, C for U-chassis with top cover, E for enclosed type with rear side built-in fan, or F for enclosed type with top side built-in fan.
- U Type Models:** U-Chassis @ 240W max. with 25CFM max. forced airflow or 120W convection cooled output.
C Type Models: U-Chassis with top cover @ 240W max. with 25CFM max. forced airflow or 120W convection cooled output.
E Type Models: Enclosed with rear side built-in fan @ 240W max.
F Type Models: Enclosed with top built-in fan @ 240W max.
- Ripple and noise is measured from 10KHZ to 20MHZ bandwidth at output with 0.1μF ceramic and 22μF electrolytic capacitors in parallel.
- Provides peak power to 600W within 500μs for all models; for longer duty duration must contact manufacturer.
- 10% minimum load is required to maintain the ripple and regulation specifications.
- Output is fully isolated.

MECHANICAL DRAWINGS

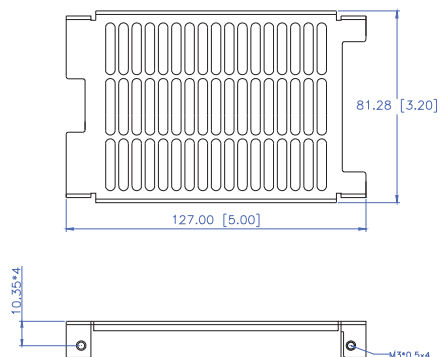
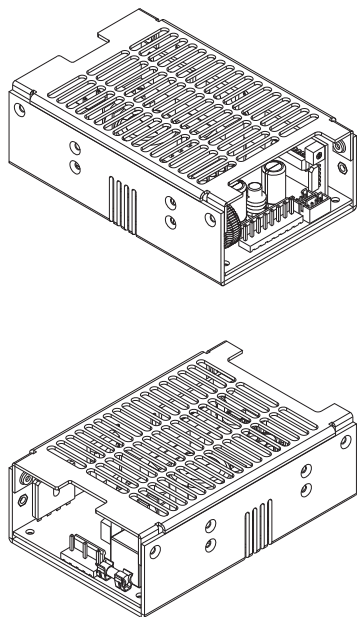
Type “U” Models (U-Chassis): 5(L) x 3.2(W) x 1.5(H) Inches; Weight: 17.64oz

Unit: mm [inches]



Type “C” Models (U-Chassis with Top Cover): 5(L) x 3.2(W) x 1.66(H) Inches; Weight: 19.40oz

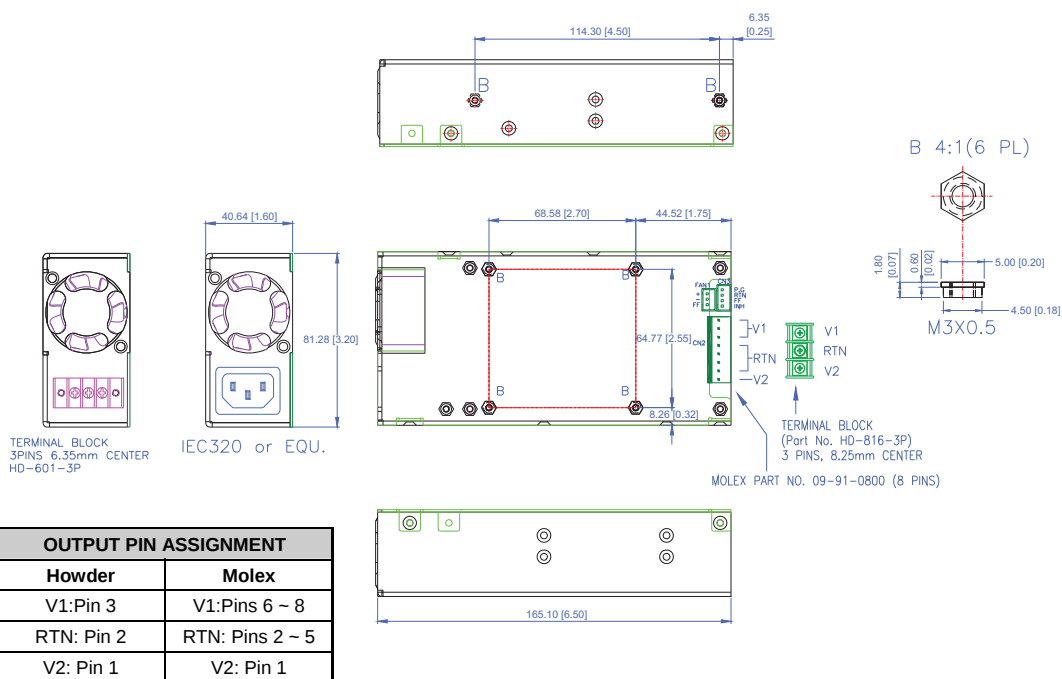
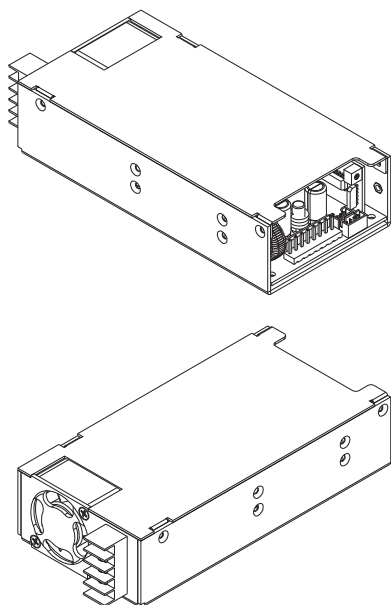
Unit: mm [inches]



OUTPUT PIN ASSIGNMENT	
Howder	Molex
V1: Pin 3	V1: Pins 6 ~ 8
RTN: Pin 2	RTN: Pins 2 ~ 5
V2: Pin 1	V2: Pin 1

Type “E” Models (Enclosed with Rear Side Built-in Fan): 6.5(L) x 3.2(W) x 1.6(H) Inches; Weight: 22.93oz

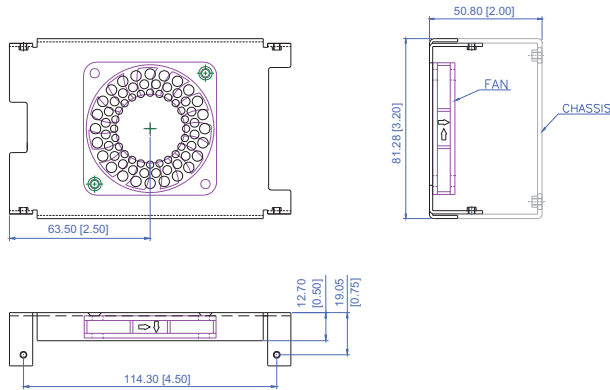
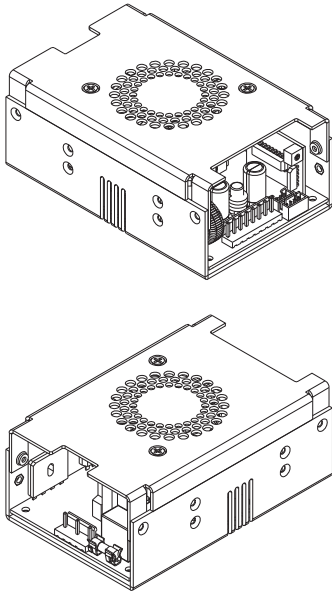
Unit: mm [inches]



OUTPUT PIN ASSIGNMENT	
Howder	Molex
V1: Pin 3	V1: Pins 6 ~ 8
RTN: Pin 2	RTN: Pins 2 ~ 5
V2: Pin 1	V2: Pin 1

Type "F" Models (Enclosed with Top Built-in Fan): 5(L) x 3.2(W) x 2(H) Inches; Weight: 21.16oz

Unit: mm [inches]



OUTPUT PIN ASSIGNMENT	
Howder	Molex
V1: Pin 3	V1: Pins 6 ~ 8
RTN: Pin 2	RTN: Pins 2 ~ 5
V2: Pin 1	V2: Pin 1

I/O CONNECTOR PIN ASSIGNMENT

Input Connector (CN1):

Molex Part No. 09-91-0050 or equivalent (5pin, 3used), PCB is Labeled: L=Line; N=Neutral;
G=Chassis Ground Mating Pins; Moles Engineering Series 2478, 2578, 8818.
Terminal block - Howder M3 Part No. HD-601-3P

Output Connector (CN2):

Molex Part No. 09-91-0800
Terminal block - Howder M3 Part No. HD-816-3P

Output Pin Assignment:

DUAL OUTPUT	
Howder	Molex
V1: Pin 3	V1: Pins 6 ~ 8
RTN: Pin 2	RTN: Pins 2 ~ 5
V2: Pin 1	V2: Pin 1

Mounting Inserts:

6 Paces M3x0.7. Maximum Penetration 4mm see outline drawing for location.

Logic Signal Connector (CN3):

Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04);
Mating Pins: JST SXH-002T-P0.6 FOR AWG 30 to 26.

Fan driver connector (FAN2):

Mating connector is JST P/N XHP-3 (3 pins 0.98 pitch) or equivalent (CHYAO SHIUNN JS-2001-03).

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

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