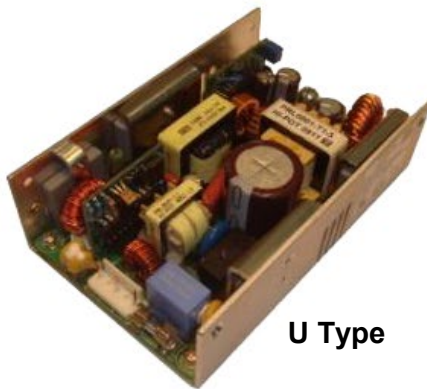


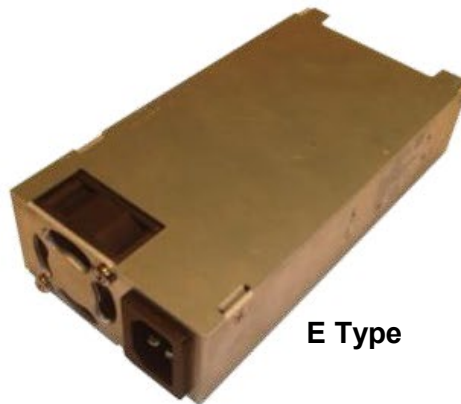
Wall Industries, Inc.

PSPRL1103M SERIES

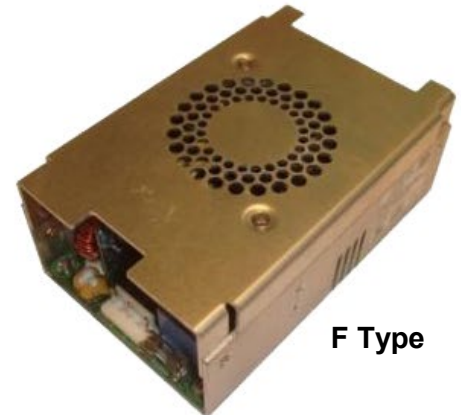
90~264VAC Input Voltage Range
150W Convection Cooling, 300W with Forced Air
PFC, Single Outputs
U-Chassis & Enclosed with Built-in Fan Options
Medical AC/DC Switching Power Supplies



U Type



E Type



F Type



FEATURES

- RoHS Compliant
- High Quality & Reliable Component Usage
- Variable Fan Speed & Low Acoustical Noise
- 90~264VAC Input Voltage Range
- Output Voltages Available from 12~52VDC
- Power Factor Corrected to EN61000-3-2 Class D
- MTBF: 100,000 Hours (MIL-HDBK-217F)
- Compact 300W with 1U Height Power Density: 12.5 Watts/cu in
- Providing Peak Power 600W within 500 μ s Duty Duration
- U-Chassis and Enclosed with Built-in Fan Mechanical Options
- Short Circuit, Over Power, Over Voltage, and Over Temperature Protection
- UL60601-1, EN60601-1, IEC60601-1 (3rd Edition) Medical Approvals

DESCRIPTION

The PSPRL1103M series of medical AC/DC switching power supplies offers up to 300 Watts of output power. This series consists of single output models with PFC corrected to EN61000-3-2 Class D and a 90~264VAC input voltage range. These supplies also have short circuit, over voltage, over power, and over temperature protection. Models are available in U-Chassis (Type U), enclosed with rear-side built-in fan (Type E), and enclosed with top-side built-in fan (Type F) designs. This series has UL60601-1, EN60601-1, and IEC60601-1 (3rd Edition) medical approvals. All models in this series are RoHS compliant.

**SPECIFICATIONS: PSPRL1103M 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 ~ 63Hz
Input Current	5A at 90VAC full load
Inrush Current	35A max at 115VAC and cold start; 70A max at 230VAC and cold start
Power Factor Correction (PFC)	Power Factor Correction Pass EN61000-3-2 class D

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Output Power (<i>See Note 2</i>)	See Table
Output Adjustability	Output adjustable $\pm 5\%$ minimum
Regulation (<i>See Note 4</i>)	$\pm 1\%$
Output Current	See Table
Minimum Load	1% minimum load is required to maintain the ripple and regulation
Ripple & Noise (<i>See Note 4</i>)	$\pm 1\%$ (measured from 10KHz to 20MHz bandwidth with 0.1 μ F ceramic and 22 μ F electrolytic capacitors in parallel on the output)
Transient Response	Returns to within 1% in less than 2.5ms for a 50% load change and the peak transient does not exceed 5%
Overshoot	Turn-on & off overshoot < 5% over nominal voltage
Hold-Up Time	16ms min. at 120VAC and 80% of full load
Turn-on Delay	1 second maximum at 230VAC

PROTECTION

Input Fusing Protection	Dual F5A/250V fuses inserted in primary
Over Power Protection	110~140% of I-max; automatic recovery
Over Voltage Protection	Unit latches down when output voltage exceeds 130%; recycle AC input to reset
Short Circuit Protection	Trip without damage and automatic recovery
Over Temperature Protection	Unit protected against excessive operating ambient 110°C $\pm 5^\circ$ C; automatic recovery

GENERAL SPECIFICATIONS

Switching Frequency	PFC: 50K~70KHz PWM: 65K~75KHz
Efficiency	88% typical at 230VAC and full load
HI-POT test	Input Line to Chassis 1500VAC (10mA DC cut off current) for 3 seconds
	Primary to Secondary 4000VAC for 3 seconds
	Primary to Core 1500VAC for 3 seconds
Leakage Current	< 300 μ A at 264VAC
Grounding Test	Apply 25A from ground pin of the three prong plug to the far most earth. Max allowable resistance is 0.1 Ω
Burn-in	45 $\pm 5^\circ$ C for one hour at 230VAC and full load.

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 (non-condensing)	5% to 90% RH
Storage Humidity (non-condensing)	5% to 95% RH
Vibration	5~50Hz, acceleration ± 7.35 m/s ² on X, Y, and Z axis.
Cooling	U Type Models Convection
	E & F Type Models Fan
MTBF	100,000 hours at 30°C according to MIL-HDBK-217F

FUNCTIONS

Remote ON/OFF	Designated as INH on pin 4 of CN3, requires a low signal to inhibit output.
Power Supply ON	Green LED designated as LED 1 on the PCB
Power Good	Designated as PG on the CN3 goes high 100-500ms after DC regulation and goes low 1ms before loss of regulation (open collector)
Fan Drive	12VDC/300mA is available 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.

PHYSICAL SPECIFICATIONS

Weight	U Type Models	1.10 lbs (500g)
	E Type Models	1.32 lbs (600g)
	F Type Models	1.43 lbs (650g)
Dimensions (L x W x H)	U Type Models	5 x 3.2 x 1.5 inches (127 x 81.28 x 38.1 mm)
	E Type Models	6.5 x 3.2 x 1.6 inches (165.1 x 81.28 x 40.64 mm)
	F Type Models	5 x 3.2 x 2 inches (127 x 81.28 x 50.8)

SAFETY & EMC

Safety Approvals	UL60601-1 ⁽⁶⁾ , EN60601-1, IEC60601-1 (3 rd Edition)
EMI Conduction & Radiation	EN60601-1-2 class B
Harmonic Current	EN61000-3-2, 3
EMS Immunity	IEC61000-4-2,3, 4, 5, 6, 8, 11

MODEL SELECTION TABLES

U-CHASSIS MODELS (TYPE "U")

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage ⁽¹⁾	Preset Voltage ⁽¹⁾	Output Current		Output Power ⁽²⁾	
				Convection	Forced Air	Convection	Forced Air
PSPRL1103MU-12	90 ~ 264 VAC	12 ~ 13.8 VDC	12 VDC	12.5A	25A	150W	300W
PSPRL1103MU-15		14 ~ 16 VDC	15 VDC	10A	20A	150W	300W
PSPRL1103MU-24		23 ~ 28 VDC	24 VDC	6.25A	12.5A	150W	300W
PSPRL1103MU-36		35 ~ 43 VDC	36 VDC	4.17A	8.33A	150W	300W
PSPRL1103MU-48		44 ~ 52 VDC	48 VDC	3.125A	6.25A	150W	300W

ENCLOSED WITH REAR-SIDE BUILT-IN FAN MODELS (TYPE "E")

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage ⁽¹⁾	Preset Voltage ⁽¹⁾	Output Current	Output Power ⁽²⁾
PSPRL1103ME-12	90 ~ 264 VAC	12 ~ 13.8 VDC	12 VDC	25A	300W
PSPRL1103ME-15		14 ~ 16 VDC	15 VDC	20A	300W
PSPRL1103ME-24		23 ~ 28 VDC	24 VDC	12.5A	300W
PSPRL1103ME-36		35 ~ 43 VDC	36 VDC	8.33A	300W
PSPRL1103ME-48		44 ~ 52 VDC	48 VDC	6.25A	300W

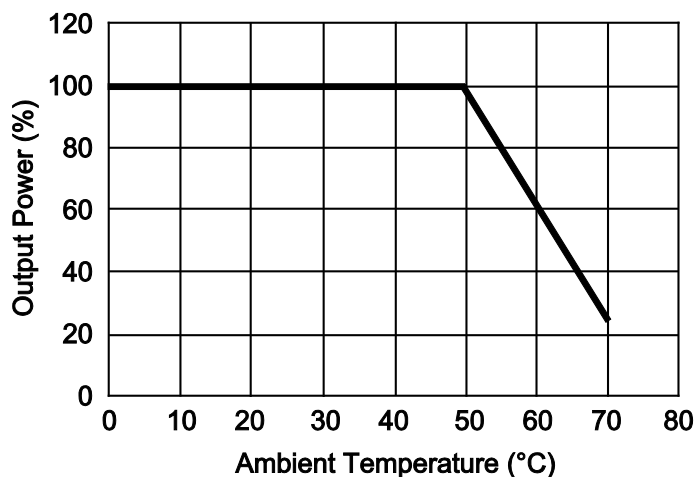
ENCLOSED WITH TOP-SIDE BUILT-IN FAN MODELS (TYPE "F")

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage ⁽¹⁾	Preset Voltage ⁽¹⁾	Output Current	Output Power ⁽²⁾
PSPRL1103MF-12	90 ~ 264 VAC	12 ~ 13.8 VDC	12 VDC	25A	300W
PSPRL1103MF-15		14 ~ 16 VDC	15 VDC	20A	300W
PSPRL1103MF-24		23 ~ 28 VDC	24 VDC	12.5A	300W
PSPRL1103MF-36		35 ~ 43 VDC	36 VDC	8.33A	300W
PSPRL1103MF-48		44 ~ 52 VDC	48 VDC	6.25A	300W

NOTES

1. All output ranges are covered in agency certifications and the preset voltage will be set as standard models if nothing different is requested. If desired preset output does not appear, please contact factory.
 2. **PSPRL1103MU Models** (U-Chassis): Needs 25CFM min. forced airflow to achieve 300W maximum power.
PSPRL1103ME Models (Enclosed with rear-side built-in fan): 300W max. with built-in fan airflow.
PSPRL1103MF Models (Enclosed with top-side built-in fan): 300W max. with built-in fan airflow.
 3. Provides peak power to 600W within 500 μ s for all models; for longer duty duration must contact manufacturer.
 4. 1% minimum load is required to maintain the ripple and regulation specifications.
 5. Output is fully isolated.
 6. This product is Listed to applicable standards and requirements by UL.
- *Due to advances in technology, specifications subject to change without notice.*

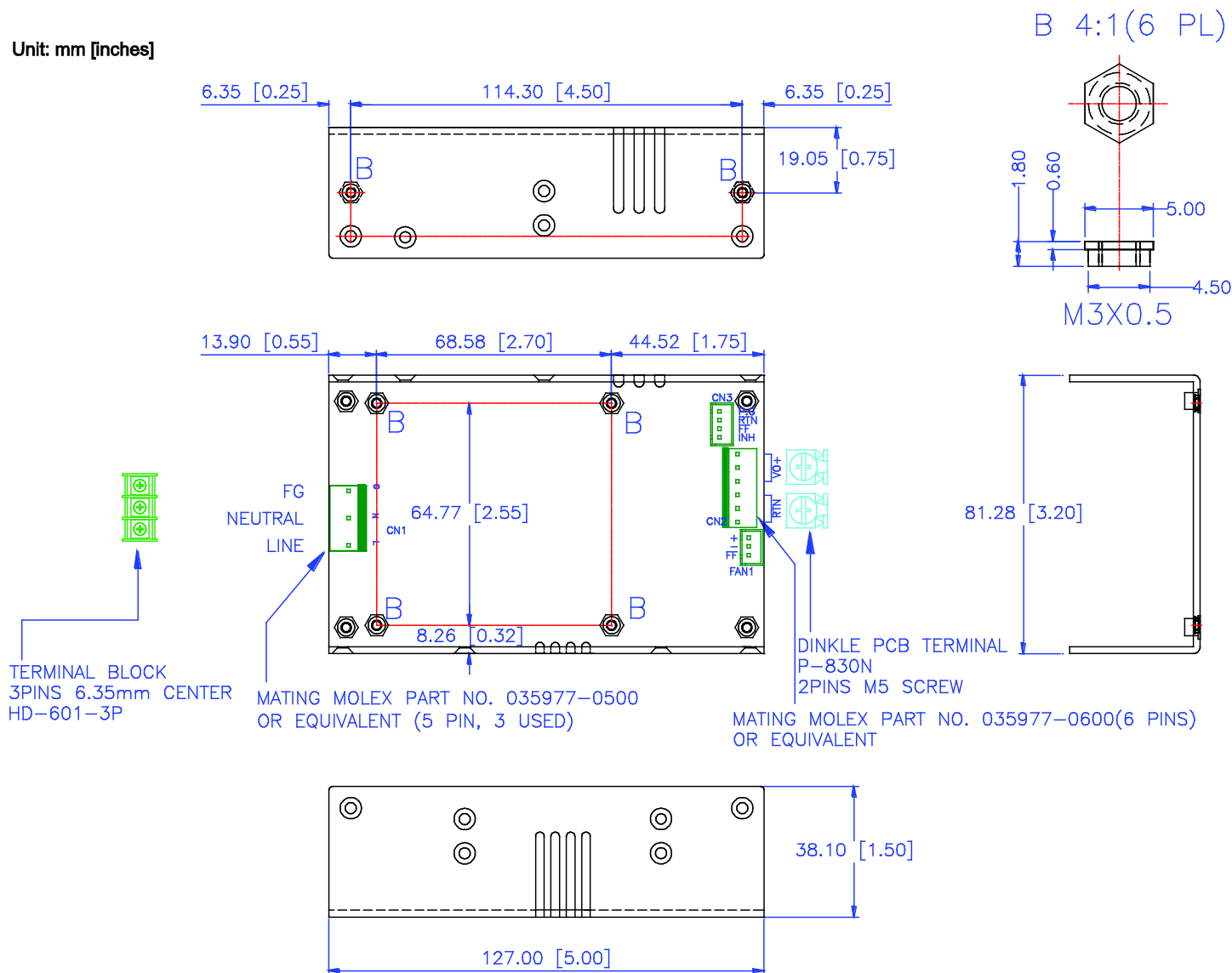
DERATING CURVE



MECHANICAL DRAWING

U-Chassis Models (Type "U"): 5(L) x 3.2(W) x 1.5(H) inches; Weight: 1.10 lbs

Unit: mm [inches]



I/O CONNECTOR PIN ASSIGNMENTS:

Input Connector (CN1):

PSPRL1103M U & F (U-Chassis & Enclosed with Top-Side Built-in Fan Types): Mating Molex Part No. 035977-0590 or equivalent (5pin, 3 used) or Terminal Block: Howder M3 screws 3 pin 6.35mm center Part No. HD-601-3P; PCB Labeling: L=Line, N=Neutral, G=Chassis Ground
PSPRL1103ME (Enclosed with Rear-Side Built-In Fan Type): IEC320 snap-in mounting type or Terminal Block: Howder HD-602-3P.

Output Connector (CN2):

Mating Molex Part No. 035977-0690; Terminal B-Dinkle P830N, M5 screws

Mounting Inserts:

6 places M3. Maximum penetration 0.15" (3.8mm). See drawing for location.

Logic Signal Connectors (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 (FAN1):

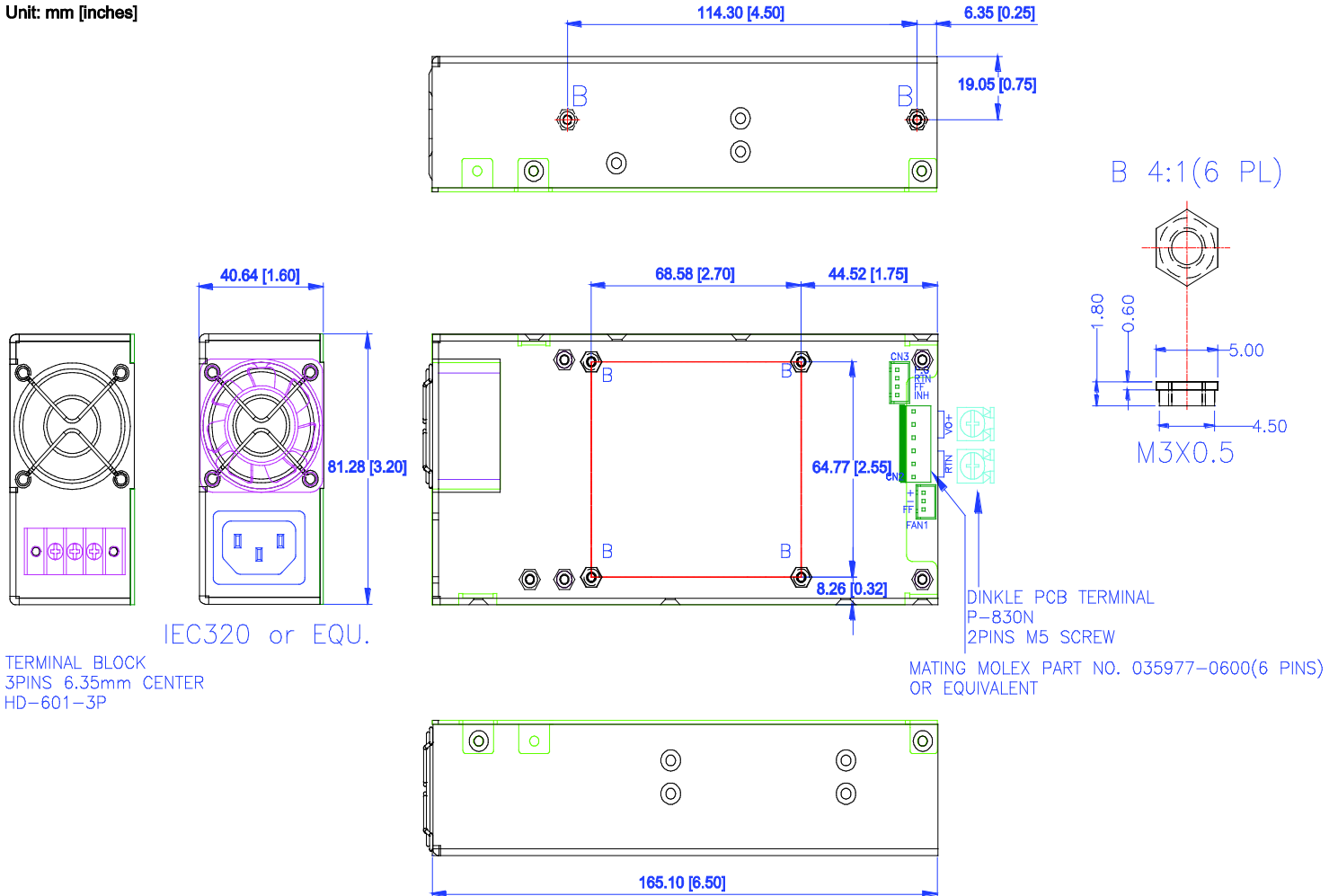
Mating Connector is JST P/N XHP-3 (3 pins 0.98 pitch) or equivalent (CHYAO SHIUNN JS-2001-03).

OUTPUT PIN ASSIGNMENT		
	Dinkle	Molex
VO+	Pin 2	Pins 4~6
VO-	Pin 1	Pins 1~3

MECHANICAL DRAWING

Enclosed with Rear-Side Built-in Fan Models (Type "E"): 6.5(L) x 3.2(W) x 1.6(H) inches; Weight: 1.32 lbs

Unit: mm [inches]



I/O CONNECTOR PIN ASSIGNMENTS:

Input Connector (CN1):

PSPRL1103M U & F (U-Chassis & Enclosed with Top-Side Built-In Fan Types): Mating Molex Part No. 035977-0590 or equivalent (5pin, 3 used) or Terminal Block: Howder M3 screws 3 pin 6.35mm center Part No. HD-601-3P; PCB Labelling: L=Line, N=Neutral, G=Chassis Ground
PSPRL1103ME (Enclosed with Rear-Side Built-In Fan Type): IEC320 snap-in mounting type or Terminal Block: Howder HD-602-3P.

Output Connector (CN2):

Mating Molex Part No. 035977-0690; Terminal B-Dinkle P830N, M5 screws

Mounting Inserts:

6 places M3. Maximum penetration 0.15" (3.8mm). See drawing for location.

Logic Signal Connectors (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 (FAN1):

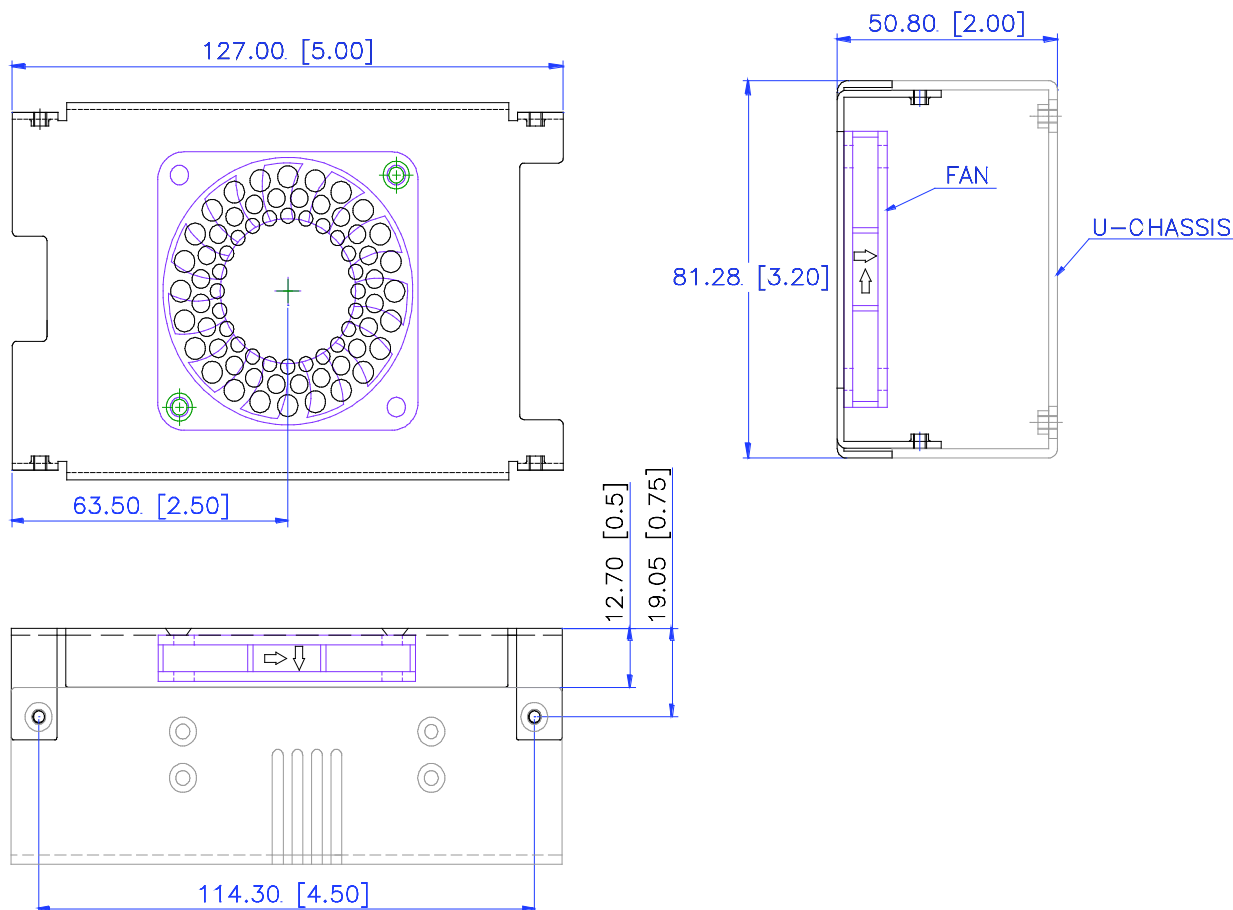
Mating Connector is JST P/N XHP-3 (3 pins 0.98 pitch) or equivalent (CHYAO SHIUNN JS-2001-03).

MECHANICAL DRAWING

Enclosed with Top-Side Built-in Fan Models (Type "F"): 5(L) x 3.2(W) x 2(H) inches; Weight: 1.43 lbs

Unit mm [inches]

*FOR PSPRL0801F. & PSPRL1103F. SERIES
 COVER WITH BUILT-IN DC FAN



I/O CONNECTOR PIN ASSIGNMENTS:

Input Connector (CN1):

PSPRL1103M U & F (U-Chassis & Enclosed with Top-Side Built-in Fan Types): Mating Molex Part No. 035977-0590 or equivalent (5pin, 3 used) or Terminal Block: Howder M3 screws 3 pin 6.35mm center Part No. HD-601-3P; PCB Labeling: L=Line, N=Neutral, G=Chassis Ground
 PSPRL1103ME (Enclosed with Rear-Side Built-in Fan Type): IEC320 snap-in mounting type or Terminal Block: Howder HD-602-3P.

Output Connector (CN2):

Mating Molex Part No. 035977-0690; Terminal B-Dinkle P830N, M5 screws

Mounting Inserts:

6 places M3. Maximum penetration 0.15" (3.8mm). See drawing for location.

Logic Signal Connectors (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 (FAN1):

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

OUTPUT PIN ASSIGNMENT		
	Dinkle	Molex
VO+	Pin 2	Pins 4~6
VO-	Pin 1	Pins 1~3



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: 2015 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:

Phone: ☎(603)778-2300
Toll Free: ☎(888)597-9255
Fax: ☎(603)778-9797
E-mail: sales@wallindustries.com
Web: www.wallindustries.com
Address: 37 Industrial Drive
Exeter, NH 03833

©2019 Wall Industries, Inc. Specifications subject to change without notice. Wall Industries is not responsible for typographical errors. The information contained herein is for informational purposes only. This information is provided by Wall Industries and we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information contained in this document for any purpose. All product and manufacturer names are trademarks or registered trademarks of their respective companies.