O Type: Open Frame

Size: 3in x 2in x 1.16in

U Type: U-Chassis

Size: 3.6in x 2.44in x 1.54in

C Type: Enclosed Case

Size: 3.6in x 2.44in x 1.54in

DN Type: Din Rail

Size: ~3.60in x 2.45in x 1.54in

OPTIONS

- Mechanical Type
- Output Voltage
- Protection Type

FEATURES

- Protection Type Class I and Class II
- Active Power Factor Correction
- 2 x 3 Inch Footprint
- Low Leakage Current Under 75µA
- High Efficiency up to 92%
- Adjustable Output Voltage
- Built-In EMI Filter
- 5000m Operating Altitude
- 100 Watts Maximum Output Power
- 4000VAC Input to Output MOPP Insulation
- 85~264VAC (120~370VDC) Input Voltage Range
- -25ºC to 80ºC Operating Temperature Range
- Over Voltage, Over Load, and Short Circuit Protection
- Low Standby Power Consumption under 0.3W
- Compliant to RoHS II and REACH, CE Marked
- Designed to Meet Efficiency Level VI
- ANSI/AAMI ES60601-1, EN60601-1, & IEC60601-1 3rd Edition Safety Approvals
- Open Frame, U-Chassis, Enclosed Case, and Din Rail Mechanical Options Available

DESCRIPTION

The PSMAD100 series of AC/DC medical power supplies provides 100 watts of output power in a compact 2 x 3 inch footprint. These supplies feature a universal 85-264VAC (120~370 VDC) input, enabling them to be used anywhere in the world. The off load power draw is less than 0.3 watts, which complies with many energy-saving initiatives. 12V~48VDC single output voltages are available for this series, all of which have a ±10% adjustment range. These supplies also feature a low leakage current of less than 75µA at 264VAC and are designed to withstand 4000VAC, input to output. The PSMAD100 series has an operating temperature range of -25°C to +80°C, active power factor correction, and a high efficiency up to 92%. These supplies are also protected against short circuit, over voltage, and over current conditions. The PSMAD100 series has ANSI/AAMI ES60601-1, EN60601-1, and IEC60601-1 3rd edition medical safety approvals, is CE marked, designed to meet Efficiency Level VI, and meets the conducted and radiated EMI requirements of EN55011, EN55022 and FCC Part 18. Open frame, U-chassis, enclosed case, and DIN rail mechanical options are available. Class I and Class II protection types are also available.

MODEL SELECTION TABLE

Model Number(1)	Input Voltage Range	Output Voltage	Output Current	Ripple & Noise	Output Power	Efficiency	Package Type
PSMAD100-12S-O	85 - 264VAC (120 – 370VDC)	12 VDC	8.34 A	120mVp-p	100W	91%	Open Frame
PSMAD100-15S-O		15 VDC	6.67 A	150mVp-p	100W	92%	
PSMAD100-24S-O		24 VDC	4.17 A	160mVp-p	100W	92%	
PSMAD100-28S-O		28 VDC	3.58 A	180mVp-p	100W	92%	
PSMAD100-36S-O		36 VDC	2.78 A	190mVp-p	100W	91%	
PSMAD100-48S-O		48 VDC	2.09 A	340mVp-p	100W	91%	
PSMAD100-12S-U	85 – 264VAC (120 – 370VDC)	12 VDC	8.34 A	120mVp-p	100W	91%	U-Chassis
PSMAD100-15S-U		15 VDC	6.67 A	150mVp-p	100W	92%	
PSMAD100-24S-U		24 VDC	4.17 A	160mVp-p	100W	92%	
PSMAD100-28S-U		28 VDC	3.58 A	180mVp-p	100W	92%	
PSMAD100-36S-U		36 VDC	2.78 A	190mVp-p	100W	91%	
PSMAD100-48S-U		48 VDC	2.09 A	340mVp-p	100W	91%	
PSMAD100-12S-C	85 – 264VAC (120 – 370VDC)	12 VDC	8.34 A	120mVp-p	100W	91%	Enclosed Case
PSMAD100-15S-C		15 VDC	6.67 A	150mVp-p	100W	92%	
PSMAD100-24S-C		24 VDC	4.17 A	160mVp-p	100W	92%	
PSMAD100-28S-C		28 VDC	3.58 A	180mVp-p	100W	92%	
PSMAD100-36S-C		36 VDC	2.78 A	190mVp-p	100W	91%	
PSMAD100-48S-C		48 VDC	2.09 A	340mVp-p	100W	91%	
PSMAD100-12S-DN	85 – 264VAC (120 – 370VDC)	12 VDC	8.34 A	120mVp-p	100W	91%	Din Rail
PSMAD100-15S-DN		15 VDC	6.67 A	150mVp-p	100W	92%	
PSMAD100-24S-DN		24 VDC	4.17 A	160mVp-p	100W	92%	
PSMAD100-28S-DN		28 VDC	3.58 A	180mVp-p	100W	92%	
PSMAD100-36S-DN		36 VDC	2.78 A	190mVp-p	100W	91%	
PSMAD100-48S-DN		48 VDC	2.09 A	340mVp-p	100W	91%	

SPECIFICATIONS

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.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Operating Input Voltage Range	AC Input		85		264	VAC
	DC Input		120		370	VDC
Input Frequency	AC Input		47		63	Hz
Input Current	115VAC and Full Load				1.15	A
	230VAC and Full Load				0.55	
No Load Input Power	230VAC				0.3	W
Power Factor Correction			0.95			
Input Inrush Current	230VAC				60	A
Input Protection	Internal Fuse in line and Neutral		T3.15A/250VAC			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Initial Set Voltage Accuracy	230VAC and Full Load		-1.0		+1.0	%
Line Regulation	Low Line to High Line at Full Load		-0.2		+0.2	%
Load Regulation	No Load to Full Load		-0.5		+0.5	%
	10% Load to 90% Load		-0.4		+0.4	
Voltage Adjustability			-10		+10	%
Output Power			See Table			
Output Current			See Table			
Minimum Load				0		%
Ripple & Noise (20MHz bandwidth)	With 10µF/25V 1206 X7R MLCC capacitor	12V output model		120		mVp-p
	With 10µF/25V 1206 X7R MLCC capacitor	15V output model		150		
	With 1µF/50V 1206 X7R MLCC capacitor	24V output model		160		
	With 1µF/50V 1206 X7R MLCC capacitor	28V output model		180		
	With 1µF/50V 1206 X7R MLCC capacitor	36V output model		190		
	With 0.1µF/100V 1206 X7R MLCC capacitor	48V output model		340		
Transient Response	Load step from 50~75% change at 2.5A/µs	Peak Deviation			3	% Vout
		Recovery Time		500		µs
Start-Up Time					1000	ms
Rise Time				20		ms
Hold Up Time	115VAC and Full Load		16			ms
Temperature Coefficient			-0.02		+0.02	%/ºC
PROTECTION						
Short Circuit Protection			Continuous, Automatic Recovery			
Over Load Protection	% if Iout rated; Hiccup Mode		115		150	%
Over Voltage Protection	% of Vout (nom); Latch Mode		115		135	%
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	Natural Convection with Derating		-25		+85	ºC
Storage Temperature			-40		+85	ºC
Operating Altitude				5000		M
Relative Humidity	Non-Condensing		5		95	% RH
Thermal Shock			MIL-STD-810F			
Shock			IEC68-2-27			
Vibration			IEC68-2-6			
MTBF	MIL-HDBK-217F Ta=25ºC, Full Load			790,300		hours
GENERAL SPECIFICATIONS						
Efficiency			See Table			
Switching Frequency				60		kHz
Isolation Voltage	1 minute (2MOPP Insulation)	Input to Output	4000			VAC
		Input to F.G.	1500			
		Output to F.G.	1500			
Isolation Resistance	500VDC		0.1			GΩ
Leakage Current	264VAC				75	µA

SPECIFICATIONS

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.

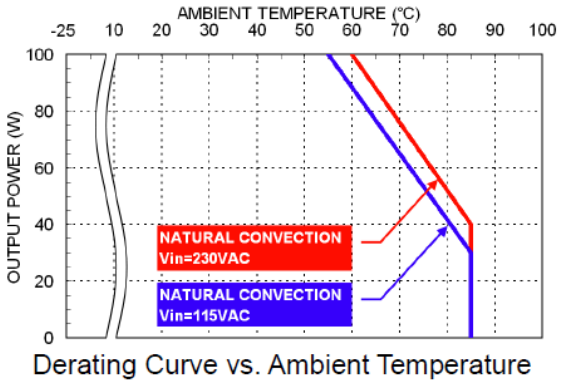
SPECIFICATION	TEST CONDITIONS				Min	Typ	Max	Unit
PHYSICAL SPECIFICATIONS								
Weight	O Type					5.50oz (156g)		
	U Type					6.84oz (194g)		
	C Type					7.41oz (210g)		
	DN Type					8.18oz (232g)		
Dimensions (L x W x H)	O Type					3in x 2in x 1.16in (76.2mm x 50.8mm x 1.16mm)		
	U & C Types					3.6in x 2.44in x 1.54in (91.4mm x 62.0mm x 1.54mm)		
	DN Type					~3.60in x 2.45in x 1.54in (~76.3mm x 62.23mm x 39.2mm)		
SAFETY & EMC CHARACTERISTICS								
Safety Approvals	ANSI/AAMI ES60601-1 EN60601-1 IEC60601-1							
EMI	EN55011, EN55022 and FCC Part 18					Conducted Radiated		Class B Class A
Harmonic Currents	EN61000-3-2	Full Load						
Voltage Flicker	EN61000-3-3							
ESD	EN61000-4-2							
Radiated Immunity	EN61000-4-3							
Fast Transient	EN61000-4-4							
Surge	EN61000-4-5							
Conducted Immunity	EN61000-4-6							
Power Frequency Magnetic Field	EN61000-4-8							
Dip and Interruptions	EN60601-1-2	230VAC 50Hz	30% 60% >95% >95%	500mS 100mS 10mS 5000mS				Perf. Criteria A Perf. Criteria A Perf. Criteria A Perf. Criteria B
	EN60601-1-2	100VAC 50Hz	30% 60% >95% >95%	500mS 100mS 10mS 5000mS				Perf. Criteria A Perf. Criteria B Perf. Criteria A Perf. Criteria B

NOTES

(1) Protection types Class I and Class II are available for this series. Class I comes standard and for Class II add the suffix “B” to the model number. See page 7 for model number setup for model number setup.
(2) Din Rail option is only available for enclosed case type models.

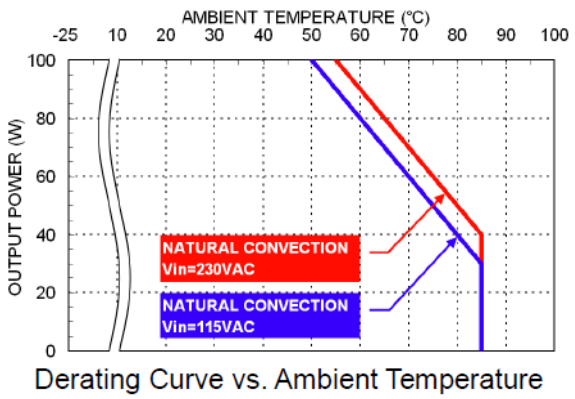
DERATING CURVES

Derating Curve vs. Ambient Temperature
C Type and DN Type



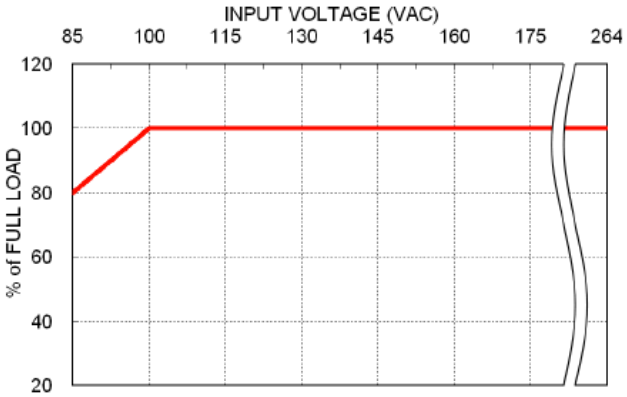
Derating Curve vs. Ambient Temperature

Derating Curve vs. Ambient Temperature
O Type and U Type



Derating Curve vs. Ambient Temperature

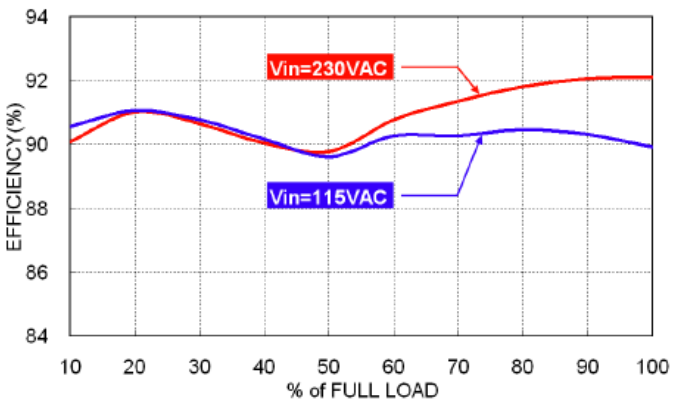
Derating Curve vs. Input Voltage



Derating Curve vs. Input Voltage

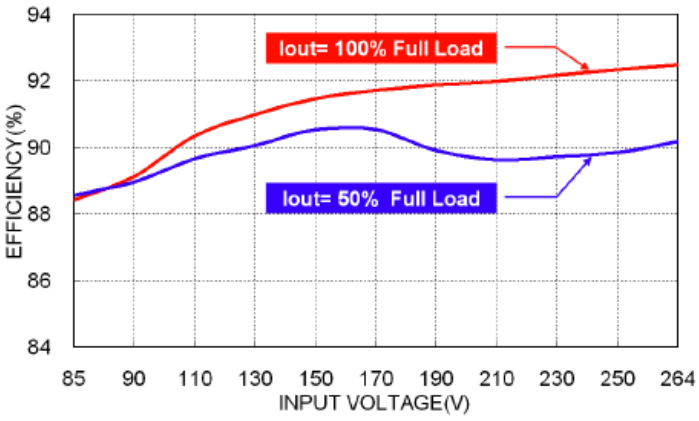
EFFICIENCY GRAPHS

Efficiency vs. Output Load
PSMAD100-24S-x



Efficiency vs. Output Load

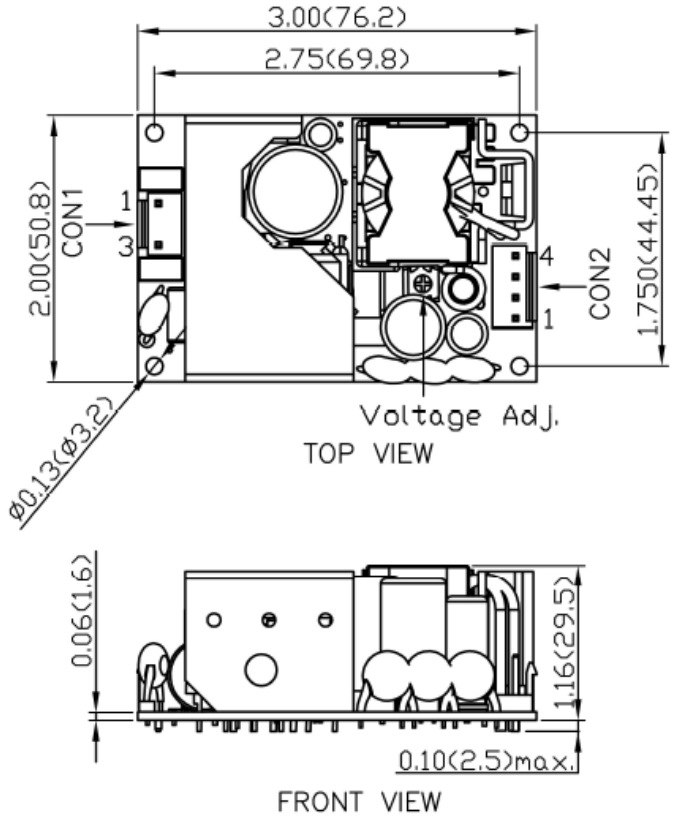
Efficiency vs. Input Voltage
PSMAD100-24S-x



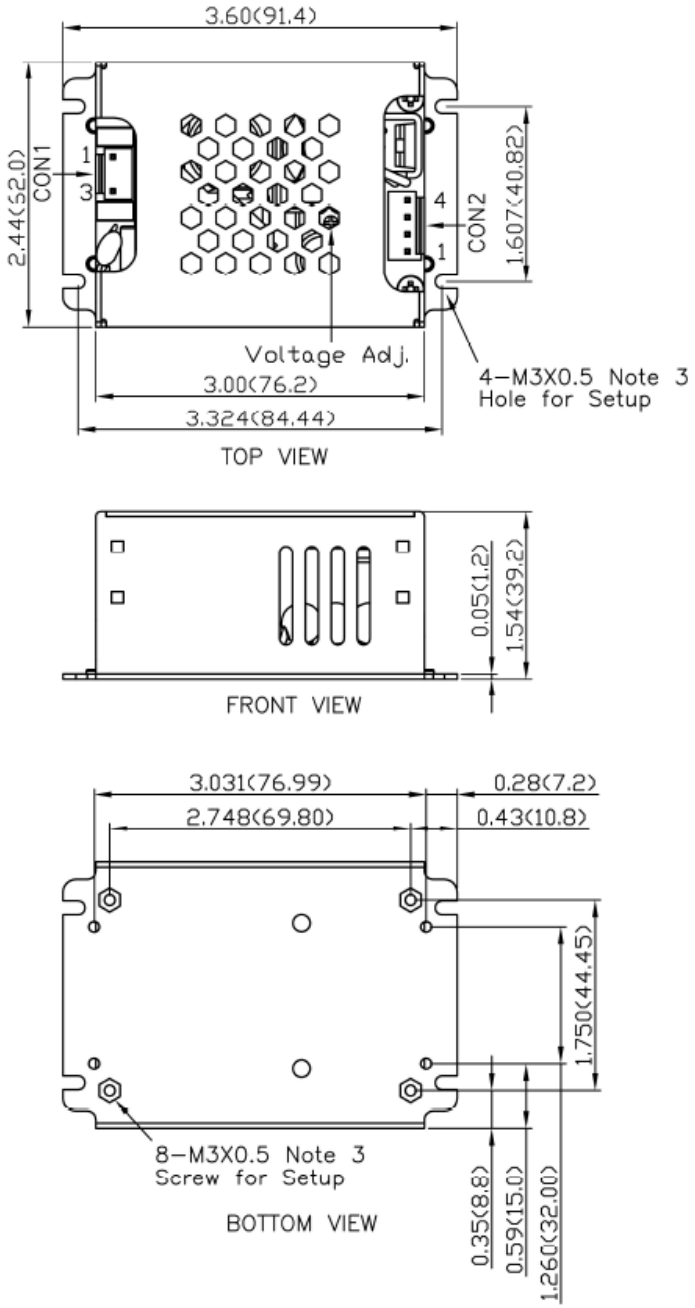
Efficiency vs. Input Voltage

MECHANICAL DRAWINGS

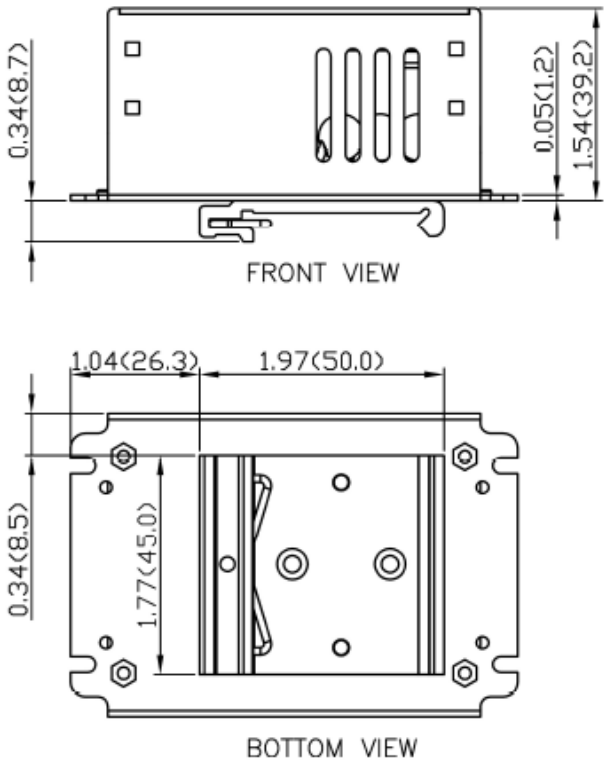
O Type: Open frame



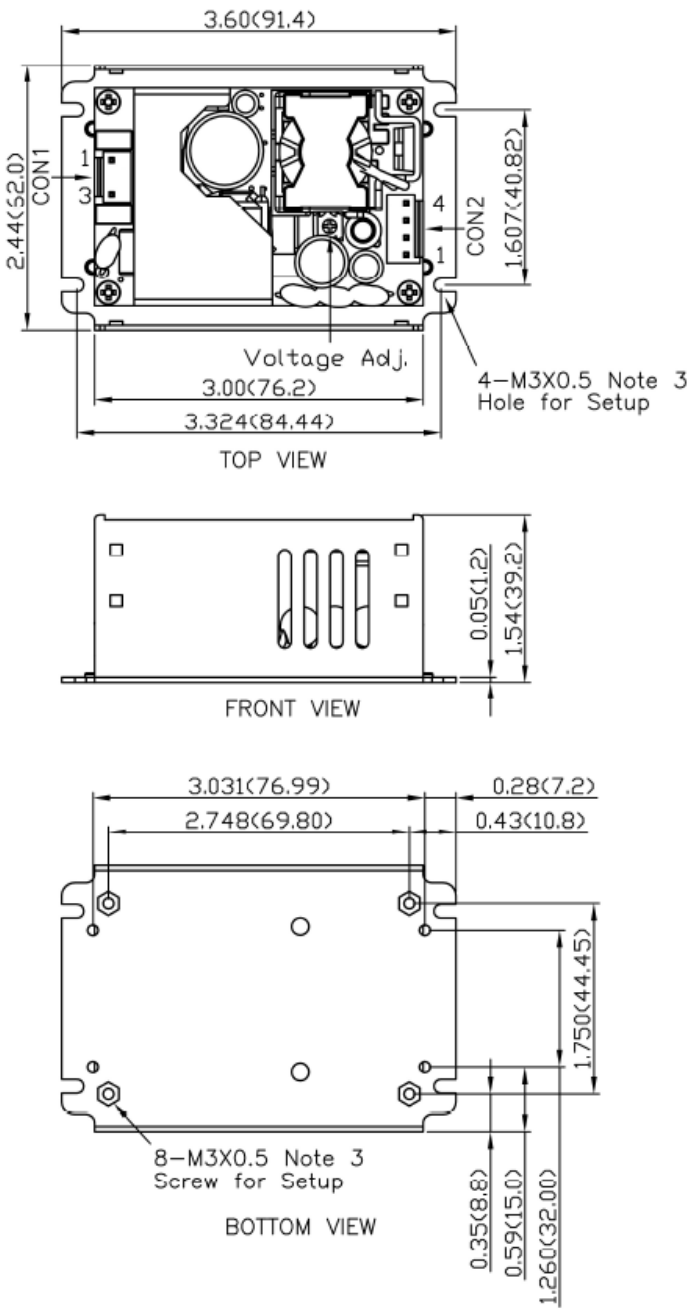
C Type: Enclosed Case



DN Type: Din Rail



U Type: U-Chassis



Notes:

1. All dimensions in inch (mm)
2. Tolerance: x.xx±0.02 (x.x±0.5) x.xxx±0.01 (x.xx±0.25)
3. M3x0.5 screw locked torque MAX 5Kgf.xm/0.49N.m

CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with
JST housing: **VHR-3N**
JST crimp terminals: **SVH-21T-P1.1**

Mounting holes marked with ⏚ must be connected to safety earth for CLASS I application

CON2-Output Connector

Pin 1,2	-Vout
Pin 3,4	+Vout

Mates with
JST housing: **VHR-4N**
JST crimp terminals: **SVH-21T-P1.1**

MODEL NUMBER SETUP

PSMAD	100	-	12	S	-	O	B
Series Name	Output Power		Output Voltage	Output Quantity		Package Type	Protection Type
	100: 100 Watts		**12:** 12VDC **15:** 15VDC **24:** 24VDC **28:** 28VDC **36:** 36VDC **48:** 48VDC	**S:** Single		**O:** Open Frame **U:** U-Chassis **C:** Enclosed Case **DN:** DIN Rail (1)	**None:** Class I **B:** ClassII

NOTES
1. DIN Rail Option is only available for enclosed case models.

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.

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