

Enclosed Enclosed with Fan 1 Enclosed with Fan 2 **Open Frame** rece Size: 5in x 3in x 1.58in Size: 5in x 3.41in x 1.97in Size: 5in x 3.41in x 1.97in Size: 5.83in x 3.15in x 1.60in **OPTIONS FEATURES** Package Type Input Voltage Range of 85~264VAC • Over Load, Over Voltage, Over Temperature, and -Open Frame Adjustable Output Voltage Short Circuit Protection -Enclosed Input Protection Low Leakage Current Fan Type Low Standby Current Protection Class I -Top Fan Power Good Remote ON/OFF -Side Fan

 Fan Speed -Fixed -Variable

APPLICATIONS

- Medical
- Automation
- Datacom
- IPC
- Industrial
- Measurement
- Telecom

- Very High Efficiency
- RoHS Compliant
- REACH Compliant
- 5 Year Warranty

DESCRIPTION

- 2xMOPP
- 4000VAC Reinforced Insulation
- Designed to Meet IEC/EN/ANSI/AAMI ES 60601-1 & IEC/EN/UL 60950-1, 62368-1

The PSMAC450 series of AC/DC medical power supplies offers up to 450 watts of output power in an open frame or enclosed package. This series consists of adjustable single output models with a wide input voltage range of 85~264VAC. Features of this series include low leakage and standby current, high efficiency, power good, remote on/off, input protection, as well as over load, over voltage, and short circuit protection. This series is both RoHS and REACH compliant, has 2xMOPP, complies with protection class I, and is designed to meet IEC/EN/ANSI/AAMI ES 60601-1 & IEC/EN/UL 60905-1, 62368-1. Please contact factory for order details.

MODEL SELECTION TABLE												
	Fan Connector Models											
Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current @230VAC					Max	Output Power			
			Natural Convection	Conduction Cooling	Forced Air 21 CFM External Fan	Ripple & Noise	No Load Input Power	Efficiency	Capacitor Load	Natural C Convection	Conduction Cooling	Forced Air
PSMAC450-12Sx (Y)		12VDC	20.8A	23.3A	37.5A	250mVp-p	0.3W	91%	31250µF	250W	280W	450W
PSMAC450-15Sx (Y)		15VDC	16.6A	18.6A	30.0A	300mVp-p	0.5W	92%	20000µF	250W	280W	450W
PSMAC450-24Sx (Y)		24VDC	13.3A	14.55A	18.75A	240mVp-p	0.5W	93%	7820µF	320W	350W	450W
PSMAC450-28Sx (Y)	85~264VAC (120-370VDC)	28VDC	11.4A	12.5A	16.1A	280mVp-p	0.5W	93%	5750µF	320W	350W	450W
PSMAC450-36Sx (Y)	(120-370700)	36VDC	8.9A	9.72A	12.5A	360mVp-p	0.5W	93%	3500µF	320W	350W	450W
PSMAC450-48Sx (Y)		48VDC	6.65A	7.3A	9.4A	480mVp-p	0.5W	94%	1960µF	320W	350W	450W
PSMAC450-53Sx (Y)		53VDC	6.05A	6.6A	8.55A	530mVp-p	0.5W	94%	1600µF	320W	350W	450W

MODEL SELECTION TABLE

	Top & Side Fan Models							
Model Number ⁽²⁾	Input Voltage Range		Output Current	Pipplo & Noiso	No Load Input	Max. Capacitor Load	Efficiency	Output
		Output voltage	Forced Air-Internal Fan		Power			Power
PSMAC450-12SEz	85~264VAC (120~370VDC)	12VDC	37.5A	250mVp-p	0.4W	31250µF	91%	
PSMAC450-15SEz		15VDC	30.0A	300mVp-p	W8.0	20000µF	92%	
PSMAC450-24SEz		24VDC	18.75A	240mVp-p	W8.0	7820µF	93%	
PSMAC450-28SEz		28VDC	16.1A	280mVp-p	0.8W	5750µF	93%	450W
PSMAC450-36SEz		36VDC	12.5A	360mVp-p	W8.0	3500µF	93%	
PSMAC450-48SEz		48VDC	9.4A	480mVp-p	0.8W	1960µF	94%	
PSMAC450-53SEz		53VDC	8.55A	530mVp-p	0.8W	1600µF	94%	

Wall Industries, Inc. • Tel: 603-778-2300 • Toll Free: 888-597-9255 • website: www.wallindustries.com • e-mail: sales@wallindustries.com



SPECIFICATIONS							
	All specifications are based on 25°C, F	Full Load, and 230VAC Input unless ot	nerwise note	ed.			
	We reserve the right to change s	pecifications based on technological a	dvances.				
SPECIFICATION	TEST CO	NDITIONS	Min	Тур	Max	Unit	
INPUT SPECIFICATIONS				1		1	
Operating Input Voltage Range	AC Input		85		264		
			120		370		
	100VAC Full Load		4/		5.8		
Input Current	240VAC, Full Load				24	- A	
No Load Input Power	230VAC		See	Table	1		
Leakage Current	264VAC				100	μA	
Power Factor			0.95				
Input Inrush Current	230VAC				100	A	
Input Protection	Internal Fuse In Line and Neutral			T6.3A/	250VAC		
OUTPUT SPECIFICATIONS			1				
Output Voltage			1.0	See	Table	0/	
Initial Set Voltage Accuracy	230VAC, Full Load		-1.0		+1.0	%	
	No Load to Full Load		-0.2		+0.2	%	
Load Regulation	10% Load to 90% Load		-0.5		+0.5	- %	
Voltage Adjustability	Maximum output deviation is inclusiv	ve of remote sense	-0.4		+8	%	
voltage / tajaotability	Forced Air Cooling	All			450		
	r crocd / in coomig	12VDC 15VDC Output Models			280	-	
Output Power ⁽³⁾	Conduction Cooling @230VAC	Others			350	Watts	
	Natural Convection @230VAC	12VDC 15VDC Output Models			250		
		Others			320	-	
Output Current				See	Table	1	
Minimum Load				0		%	
	With a 1µF/25V 1206 X7R MLCC	12VDC Output		250			
		15VDC Output		300		1	
	With a 1µF/50V 1206 X7R MLCC	24VDC Output		240	240		
Ripple & Noise (20MHz BW)	28VDC Output			280		mVp-p	
				360		m v p p	
	48VDC Output			490			
	Mith = 0.4E(400)/ 4000 XZD MI CO			400			
	With a 0.1µF/100V 1206 X/R MLCC	Back Deviation		530		0()/	
Transient Response	2 5A/us			<u> </u>		%V0ut	
Start Lin Time	2.5A/µs	Recovery Time		600	2000	µs mo	
Rise Time				30	2000	me	
Hold Un Time	115VAC Full Load			14		ms	
Temperature Coefficient			-0.02	14	+0.02	%/°C	
Standby Power Supply	Always present when AC supplied		0.02	5V/20	00mA		
Fan Power Supply	Fixed fan speed function			12V/5	500mA		
REMOTE ON/OFF			1				
	Positive Logic	Main power ON		Open or	3~12VDC		
Main Output Remote Control	Referenced to "-Control"	Main Power OFF	Short or		0~1.2VDC		
	*Standby Power Always Present	Input current of Control	-0.5		1	mA	
PROTECTION							
Short Circuit Drotaction	Protection Level 1 (Nominal)		Con	tinuous, Aut	omatic Reco	overy	
Short Circuit Protection	Protection Level 2 (Instantaneous Hi	gh Current)		La	atch		
Over Load Protection	% of lout Rated; Hiccup Mode		115		155	%	
Over Voltage Protection	% of Vout(nom); Latch Mode	110		135	%		
Over Temperature Protection	Internal thermistor; Latch Mode		110		125	°C	
ENVIRONMENTAL SPECIFICAT	IONS						
Operating Ambient Temperature	With derating	Fan Connector Mode Models	-40		+85	ംറ	
		Top & Side Fan Models	-40		+80		
Storage Temperature	Fan Connector Mode Models		-40		+85	- °C	
	Top & Side Fan Models		-40		+80		
Operating Altitude	With derating		-		5000	m	
Relative Humidity	Non-Condensing		5	IFOOO	95	%RH	
Vibration	IEC60008-2-27						
MTRE	MIL-HDBK-217E To-25% Eulite	d		100 200	000-2-0	Houro	
	MIL-HDBK-217F, Ta=25°C, Full Load			409,300		Hours	



SPECIFICATIONS								
All s	pecifications are based on 25°C, F	ull Load, and 230VAC Input unless othe	erwise note	d.				
	We reserve the right to change sp	pecifications based on technological adv	/ances.	I	I	1		
SPECIFICATION	TEST	CONDITIONS	Min	Тур	Max	Unit		
GENERAL SPECIFICATIONS								
Efficiency				See	Table	1		
Switching Frequency	230VAC, Full Load	15VDC Output Models		75		kHz		
		Others		65				
Isolation Voltage	1 minutes (2MOPP insulation)	Input to Output	4000			VAC		
		Input (Output) to F.G.	2500					
Isolation Resistance	500VDC		0.1			GΩ		
Main Output Power Good Signal	*Referenced to "GND"	Power Good		Lo	w			
		Power Off		Open C	Collector			
PHYSICAL SPECIFICATIONS								
	Open Frame Models			16.2902	z (462g)			
Weight	Enclosed Fan Connector Mode	Enclosed Fan Connector Mode Models						
Weight	Top Fan Models	18.48oz (524g)						
	Side Fan Models	19.47oz (552g)						
	Open Frame Medela	5in x 3in x 1.58in						
	Open Flame Models	(127mm x 76.2mm x 40.1mm)						
	Enclosed Ean Connector Mode	5in x 3.41in x 1.97in						
Dimonsions $(L \times M \times H)$	Enclosed Fair Connector Mode	(127mm x 86.6mm x 50mm)						
	Top Ean Models		5in x 3.41in x 1.97in					
		(127mm x 86.6mm x 50mm)						
	Sido Ean Models	5.83in x 3.15in x 1.60in						
		(148.2mm x 80mm x 40.6mm)						
SAFETY CHARACTERISTICS								
Safety Approvals		IEC/EN/ANSI/AAMI ES 60601-1			CB· I	II (Demko)		
		IEC/EN/UL 60950-1, 62368-1 ⁽⁵⁾			05.0			
	EN55011 EN55032 EN60601	EN55011 EN55032 EN60601-1-2 and ECC Part 18/15			Class B			
		Radiated	Class A					
Harmonic Currents	EN61000-3-2	Full Load			Cla	iss A and D		
Voltage Flicker	EN61000-3-3							
EMS	EN55024 and EN60601-1-2							
ESD	EN61000-4-2	Air ±15kV and Contact ±8kV			Per	f. Criteria A		
Radiated Immunity	EN61000-4-3	3V/m			Per	f. Criteria A		
Fast Transient	EN61000-4-4	±2kV			Per	f. Criteria A		
Surge	EN61000-4-5	DM ±1kV and CM ±2kV			Per	f. Criteria A		
Conducted Immunity	EN61000-4-6	20 Vr.m.s			Per	f. Criteria A		
Power Frequency Magnetic Field	EN61000-4-8	30 A/m			Per	f. Criteria A		
Dip and Interruptions	EN61000-4-11							
Protection Type						Class I		

NOTES

- 1. "x" in fan connector model numbers indicate either open frame or enclosed frame. "X" can either be "A" for open frame or "E" for enclosed case. No suffix on the model number indicates fan connector with fixed fan speed control.
 - Add "Y" suffix to model number to indicate fan connector with variable fan speed control. Ex: PSMAC450-12SEY
- 2. "z" in top & side fan model numbers indicate fan type options. The fan options are as follows. Please note that top and side fan options are available for **enclosed models only:**
 - F1: Fixed Fan Speed, Top Fan
 - F2: Fixed Fan Speed, Side Fan
 - Y1: Variable Fan Speed, Top Fan
 - Y2: Variable Fan Speed, Side Fan
- 3. See derating curve for detailed rating.
- 4. For optimum EMI performance, the power supply should be mounted to a metal plate grounded to all 4 mounting holes of the power supply. To comply with safety standard, this plate must be properly grounded to protective earth.
- 5. This product is Listed to applicable standards and requirements by UL.

Due to advances in technology, specifications subject to change without notice.



CHARACTERISTIC CURVES-



Wall Industries, Inc. • Tel: 603-778-2300 • Toll Free: 888-597-9255 • website: www.wallindustries.com • e-mail: sales@wallindustries.com





EFFICIENCY GRAPHS



MECHANICAL DRAWINGS



All tolerances in inch [mm]

2. Tolerance: x.xx±0.02 [x.x±0.5] x.xxx±0.01 [x.xx±0.25]

3. Screw 1 locked torque: MAX 5.2Kgf-cm/0.51N.m

IVIALES WILLI
Molex housing: 90143-0008
Molex crimp terminals: 900119

Wall Industries, Inc. • Tel: 603-778-2300 • Toll Free: 888-597-9255 • website: www.wallindustries.com • e-mail: sales@wallindustries.com









7N-0266-F:



CON3 Housing

Pin 1	+Fan	yellow	26AWG
Pin 2	+V Sense	gray	26AWG
Pin 3	+Control	orange	26AWG
Pin 4	+PG	blue	26AWG
Pin 5	+Standby	red	22AWG
Pin 6	-Fan (GND)	brown	26AWG
Pin 7	-V Sense	green	26AWG
Pin 8	-Control (GND)	brown	26AWG
Pin 9	No wire		
Pin10	-Standby (GND)	black	22AWG

Length (L): 500mm typical



OUTPUT SENSING



Rev C

MODEL NUMBER SETUP

PSMAC	450	-	12	S	E	Y
Series Name	Output Power		Output Voltage	Output Quantity	Package Type	Fan Options (See Note 1)
			 12: 12VDC 15: 15VDC 24: 24VDC 28: 28VDC 36: 36VDC 48: 48VDC 53: 53VDC 	S: Single	A: Open Type E: Enclosed Type	 Blank: Fan connector with fixed fan speed control Y: Fan connector with variable fan speed control F1: Top Fan, fixed fan speed F2: Side Fan, fixed fan speed Y1: Top Fan, variable fan speed Y2: Side Fan, variable fan speed

NOTES

1. F1, F2, Y1, & Y2 Fan options are only available with the enclosed package.



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.

Rev C

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:	2 (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.