

O Type- Open Frame



Size: 3in x 2in x 1.04in

C Type- Enclosed Type



Size: 3.53in x 2.38in x 1.31in

U Type- U Chassis Type



Size: 3.53in x 2.38in x 1.36in

DN Type- Din Rail Type



Size: 2.27in x 2.37in x 1.31in

OPTIONS

- Package Type
- Connector Option
- Class I or Class II

APPLICATIONS

- Medical Equipment
- Automation
- Telecom/Datacom
- Industry Control System
- Measurement Equipment
- IPC

FEATURES

- Wide Input Voltage Range of 85 to 264VAC, 47 to 63Hz
- Built-In Class B EMI Filter
- Adjustable Output Voltage
- 4000VAC Reinforced Insulation
- 2xMOPP
- Protection Type Class I and Class II
- Low Leakage Current Under 75μA
- Operating Altitude of 5000M
- IEC/EN/ANSI/AAMI ES60601-1 UL:E360199 and IEC/EN/UL 60950-1 CB:UL (Demko) Safety Approvals
- Over Voltage, Over Load, and Short Circuit Protection
- CE Marked
- RoHS and REACH Compliant

DESCRIPTION

The PSMAD40 series of AC/DC medical power supplies provides 40 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. 5V, 7.5V, 9V, 12V, 15V, 18V, 24V, 28V, 36V, 48V, and 53V single output voltages are available for this series, all of which have a maximum 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 PSMAD40 series has an operating temperature range of -40°C to +85°C, and a high efficiency up to 93%. These supplies are also protected against short circuit, over voltage, and over load conditions. The PSMAD40 series has IEC/EN/ANSI/AAMI ES60601-1 UL:E360199 and IEC/EN/UL 60950-1 CB:UL (Demko) safety approvals, is CE marked, and meets the conducted and radiated EMI requirements of EN55011, EN55032, EN60601-1-2 and FCC Part 18/15. Open frame, U-chassis, enclosed case, and DIN rail mechanical options are available. Class I and Class II protection types and 3 connector types are also available.

MODEL SELECTION TABLE

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current	Ripple & Noise	No Load Input Power	Output Power	Efficiency
PSMAD40-05S-x	85~264VAC (120~370VDC)	5VDC	8A	75mVp-p	0.11W	40W	90%
PSMAD40-075S-x		7.5VDC	5.34A	75mVp-p	0.11W	40W	90%
PSMAD40-09S-x		9VDC	4.45A	75mVp-p	0.11W	40W	91%
PSMAD40-12S-x ⁽²⁾		12VDC	3.34A	75mVp-p	0.11W	40W	92%
PSMAD40-12S1-x		12VDC	3.34A	75mVp-p	0.11W	40W	90%
PSMAD40-15S-x ⁽²⁾		15VDC	2.67A	75mVp-p	0.11W	40W	92%
PSMAD40-15S1-x		15VDC	2.67A	75mVp-p	0.11W	40W	90%
PSMAD40-18S-x		18VDC	2.23A	75mVp-p	0.11W	40W	91%
PSMAD40-24S-x		24VDC	1.67A	75mVp-p	0.11W	40W	92%
PSMAD40-28S-x		28VDC	1.43A	75mVp-p	0.11W	40W	91%
PSMAD40-36S-x		36VDC	1.12A	75mVp-p	0.11W	40W	92%
PSMAD40-48S-x		48VDC	0.84A	150mVp-p	0.11W	40W	93%
PSMAD40-53S-x		53VDC	0.77A	150mVp-p	0.11W	40W	92.5%

SPECIFICATIONS

All specifications are based on 25°C, 230VAC Input, and Full Load 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	100VAC and Full Load				1.0	A		
	240VAC and Full Load				0.5			
No Load Input Power	230VAC			0.11		W		
Leakage Current	264VAC				75	µA		
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	5V Models	-0.7		+0.7	%		
		All Others	-0.5		+0.5			
	10% Load to 90% Load	5V Models	-0.6		+0.6			
		All Others	-0.4		+0.4			
Voltage Adjustability	Single Output	53V Models	-20		+10	%		
		All Others	-10		+10			
Output Power			See Table					
Output Current			See Table					
Minimum Load				0		%		
Ripple & Noise (20MHz bandwidth)	10µF/25V 1206 X7R MLCC	5V, 7.5V, 9V, 12V, 15V, 18V Models		75		mVp-p		
	1µF/50V 1206 X7R MLCC	24V, 28V, 36V Models		75				
	0.1µF/100V 1206 X7R MLCC	48V, 53V Models		150				
Transient Response	Load step from 50~75% change at 2.5A/µs	Peak Deviation			3	%Vout		
		Recovery Time		600		µs		
Start Up Time					1000	ms		
Rise Time				20		ms		
Hold Up Time	115VAC and Full Load			25		ms		
Temperature Coefficient			-0.02		+0.02	%/°C		
PROTECTION								
Short Circuit Protection			Continuous, Automatic Recovery					
Over Load Protection	% of Iout; Hiccup Mode			145		%		
Over Voltage Protection	% of Vout(nom); Latch Mode		125		140	%		
ENVIRONMENTAL SPECIFICATIONS								
Operating Ambient Temperature	Natural Convection with Derating		-40		+85	°C		
Storage Temperature			-40		+85	°C		
Operating Altitude					5000	M		
Relative Humidity	Non-Condensing		5		95	%RH		
Shock			IEC60068-2-27					
Vibration			IEC60068-2-6					
MTBF	MIL-HDBK-217F, Full Load		3,010,000 hrs					
GENERAL SPECIFICATIONS								
Efficiency			See Table					
Switching Frequency	230VAC	5V Models		70		kHz		
		All Others		120				
Isolation Voltage	1 minute (2MOPP insulation)	Input to Output	4000			VAC		
		Input (Output) to F.G	2500					
Isolation Resistance	500VDC		0.1			GΩ		

SPECIFICATIONS

All specifications are based on 25°C, 230VAC Input, and Full Load 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: Open Frame Models		4.02oz (114g)		
	C Type: Enclosed Models		5.96oz (169g)		
	U Type: U Chassis Models		5.43oz (154g)		
	DN Type: Din Rail Models		6.70oz (190g)		
Dimensions (L x W x H)	O Type: Open Frame Models		3in x 2in x 1.04in (76.2mm x 50.8mm x 26.5mm)		
	C Type and U Type: Enclosed and U Chassis Models		3.53in x 2.38in x 1.31in (89.7mm x 60.5mm x 33.3mm)		
	DN Type: Din Rail Models		3.67in x 2.37in x 1.31in (93mm x 60.4mm x 33.3mm)		
SAFETY & EMC CHARACTERISTICS					
Safety Approvals ⁽³⁾	IEC/EN/ANSI/AAMI ES 60601-1 IEC/EN/UL 60950-1			UL: E360199 CB:UL(Demko)	
EMI	EN55011, EN55032, EN60601-1-12 and FCC Part 18/15 ⁽⁴⁾		Conducted	Class B	
			Radiated	Class B	
Harmonic Currents	EN61000-3-2	Full Load		Class A	
Voltage Flicker	EN61000-3-3				
EMS	EN55024, EN60601-1-2 and complies with EN 61850-3				
ESD	EN61000-4-2	Air ±15kV Contact ±8kV			Perf. Criteria A
Radiated Immunity	EN61000-4-3	20 V/m			Perf. Criteria A
Fast Transient	EN61000-4-4	±2kV			Perf. Criteria A
Surge	EN61000-4-5	DM ±1kV			Perf. Criteria A
Conducted Immunity	EN61000-4-6	20 Vr.m.s			Perf. Criteria A
Power Frequency Magnetic Field	EN61000-4-8	30 A/m			Perf. Criteria A
Dip and Interruptions	EN61000-4-11				Perf. Criteria A

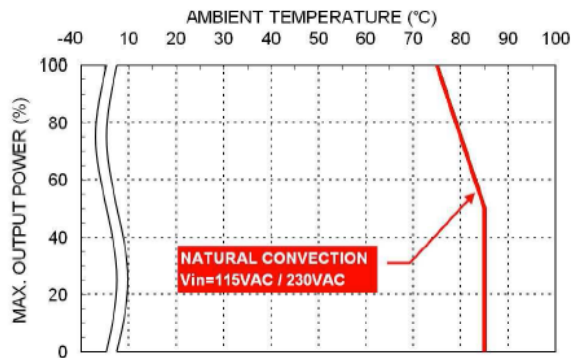
NOTES

- (1) The "x" in the model number indicates the optional package type. "x" can either be "O" for Open Frame Type, "C" for Enclosed Type, "U" for U-Chassis Type, or "DN" for Din Rail Type.
- (2) Please note that PSMAD40-12S-x and PSMAD40-15S-x have higher efficiency than PSMAD40-12S1-x and PSMAD40-12S1-x. This allows for higher ambient temperature operation.
- (3) This product is listed to applicable standards and requirements by UL.
- (4) External components may be required for class I application.

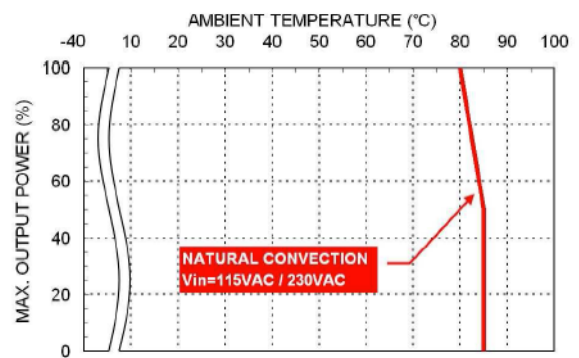
Due to advances in technology, specifications are subject to change without notice.

DERATING CURVES

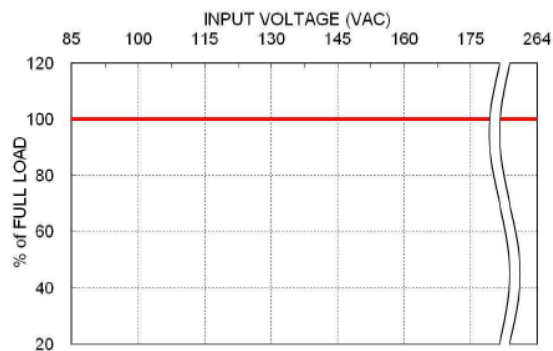
Derating Curve vs. Ambient Temperature
5V, 7.5V, 9V 12S1V 15S1V, 28V Models



Derating Curve vs. Ambient Temperature
12V, 15V, 24V, 36V, 48V, 53V Models

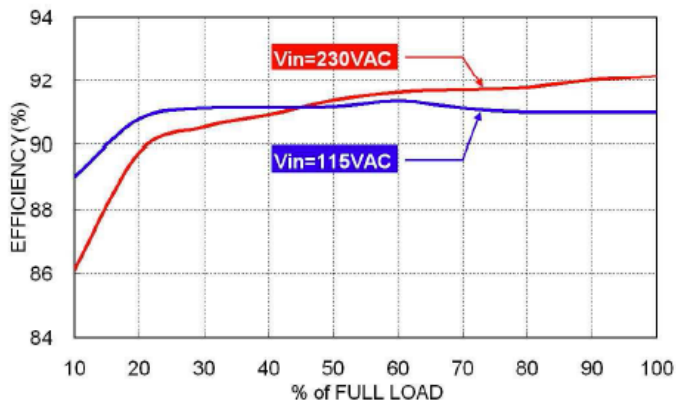


Derating Curve vs. Input Voltage

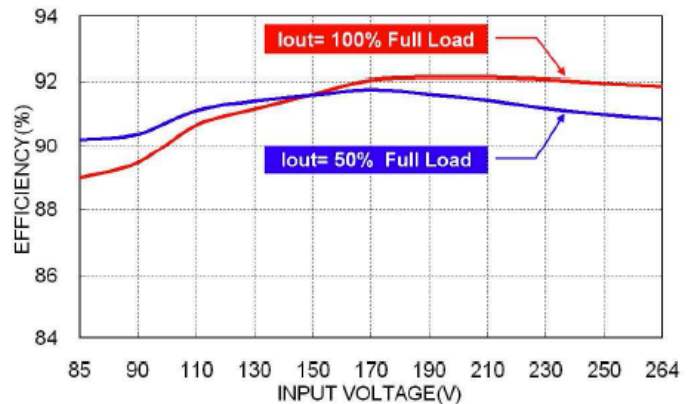


EFFICIENCY GRAPHS

Efficiency vs. Output Load
PSMAD40-24S-U

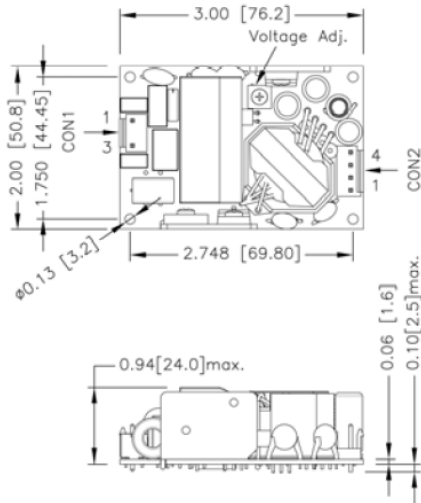


Efficiency vs. Input Voltage
PSMAD40-24S-U



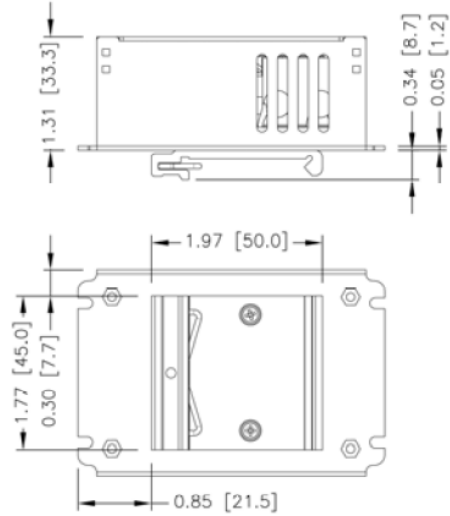
MECHANICAL DRAWINGS

O Type- Open Frame



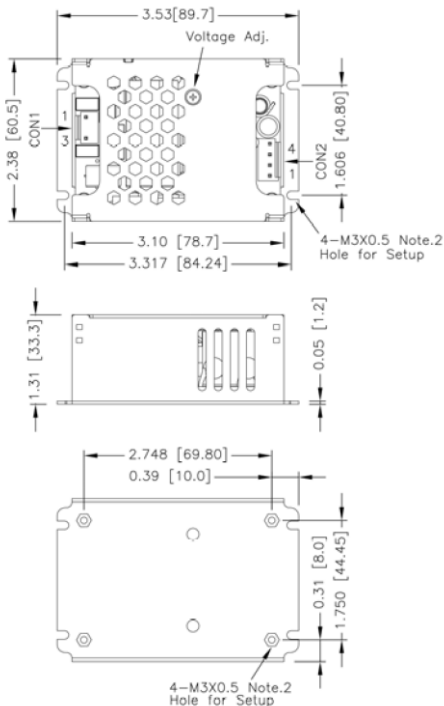
FRONT VIEW

DN Type- Din Rail Type



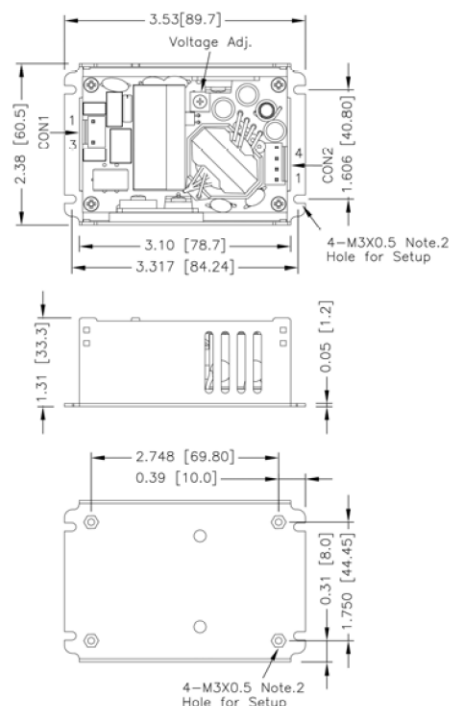
BOTTOM VIEW

C Type- Enclosed Type



BOTTOM VIEW

U Type- U Chassis Type






BOTTOM VIEW

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

CONNECTORS

CON1-Input Connector		CON2-Output Connector	
Pin 1	Line	Pin 1, 2	-Vout
Pin 3	Neutral	Pin 3, 4	+Vout

*Either one of four screws holes of Open/Chassis type can be considered as PE connection for CLASS I application.

Blank:	JST Type	M	Molex Type	T	Terminal Block
	Mates with Housing CON1: VHR-3N CON2: VHR-4N Crimp Terminals CON1: SVH-21T-P1.1 CON2: SVH-21T-P1.1		Mates with Housing CON1: 09-50-8031 CON2: 09-50-8041 Crimp Terminals CON1: SD-2478 CON2: SD-2478		Mates with Screw locked torque MAX 2Kgf.cm/0.2N.m Wire dimension range 26~16AWG

MODEL NUMBER SETUP

PSMAD	40	-	15	S	-	E	□	T
Series Name	Output Power		Output Voltage	Output Quantity		Package Type	Protection Type	Connector
			05: 5VDC 075: 7.5VDC 09: 9VDC 12: 12VDC 15: 15VDC 24: 24VDC 28: 28VDC 36: 36VDC 48: 48VDC 53: 53VDC	S: Single		O: Open Type U: U Chassis Type C: Enclosed Type DN: Din Rain Type	Blank: CLASS I B: CLASS II	Blank: JST Type M: Molex Type T: Terminal Block

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 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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