

Open Frame (Suffix "O")



Size: 3.00 x 2.00 x 1.16 inches

U-Chassis (Suffix "U")



Size: 3.60 x 2.44 x 1.54 inches

Enclosed Case (Suffix "C")



Size: 3.60 x 2.44 x 1.54 inches

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 2 MOPP Insulation
- 85~264 VAC (120~370 VDC) Input Voltage Range
- -25°C to +80°C Operating Temperature Range
- Over Voltage, Over Load, and Short Circuit Protection
- Low Standby Power Consumption under 0.3W
- Compliant to RoHS EU Directive 2011/65/EU
- CE Mark Meets 2006/95/EC, 2011/95/EC, & 2004/108/EC
- ANSI/AAMI ES60601-1, EN60601-1, and IEC60601-1 3rd Edition Medical Approvals
- Open Frame, U-Chassis, Enclosed Case, & 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, 15V, 24V, 28V, 36V, and 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, are CE Marked, and meet 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 - 264 VAC (120 - 370 VDC)	12 VDC	8.33 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	3.57 A	180mVp-p	100W	92%	
PSMAD100-36S-O		36 VDC	2.78 A	190mVp-p	100W	91%	
PSMAD100-48S-O		48 VDC	2.08 A	340mVp-p	100W	91%	
PSMAD100-12S-U	85 - 264 VAC (120 - 370 VDC)	12 VDC	8.33 A	120mVp-p	100W	90%	U-Chassis
PSMAD100-15S-U		15 VDC	6.67 A	150mVp-p	100W	90%	
PSMAD100-24S-U		24 VDC	4.17 A	240mVp-p	100W	90%	
PSMAD100-28S-U		28 VDC	3.57 A	280mVp-p	100W	91%	
PSMAD100-36S-U		36 VDC	2.78 A	360mVp-p	100W	91%	
PSMAD100-48S-U		48 VDC	2.08 A	480mVp-p	100W	91%	
PSMAD100-12S-C	85 - 264 VAC (120 - 370 VDC)	12 VDC	8.33 A	120mVp-p	100W	90%	Enclosed Case
PSMAD100-15S-C		15 VDC	6.67 A	150mVp-p	100W	90%	
PSMAD100-24S-C		24 VDC	4.17 A	240mVp-p	100W	90%	
PSMAD100-28S-C		28 VDC	3.57 A	280mVp-p	100W	91%	
PSMAD100-36S-C		36 VDC	2.78 A	360mVp-p	100W	91%	
PSMAD100-48S-C		48 VDC	2.08 A	480mVp-p	100W	91%	
PSMAD100-12S-D	85 - 264 VAC (120 - 370 VDC)	12 VDC	8.33 A	120mVp-p	100W	90%	DIN Rail
PSMAD100-15S-D		15 VDC	6.67 A	150mVp-p	100W	90%	
PSMAD100-24S-D		24 VDC	4.17 A	240mVp-p	100W	90%	
PSMAD100-28S-D		28 VDC	3.57 A	280mVp-p	100W	91%	
PSMAD100-36S-D		36 VDC	2.78 A	360mVp-p	100W	91%	
PSMAD100-48S-D		48 VDC	2.08 A	480mVp-p	100W	91%	

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 3 for model number setup.
2. DIN rail option is only available for enclosed case type models.

SPECIFICATIONS: PSMAD100 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.

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
Input Inrush Current	230VAC				60	A
Power Factor Correction			0.95			
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					100	W
Output Current			See Table			
Minimum Load			0			%
Ripple & Noise (20MHz BW)	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	%/°C
PROTECTION						
Over Voltage Protection	% of Vout (nom); latch mode		115		130	%
Over Load Protection	% of Iout rated; hiccup mode		115		150	%
Short Circuit Protection			Continuous, automatic recovery			
GENERAL SPECIFICATIONS						
Switching Frequency				60		kHz
Isolation Voltage	1 minute (2MOPP insulation)		Input to Output	4000		VAC
			Input to FG	1500		
			Output to FG	1500		
Isolation Resistance	500VDC		0.1			GΩ
Leakage Current	264VAC				75	µA

SPECIFICATIONS: PSMAD100 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.

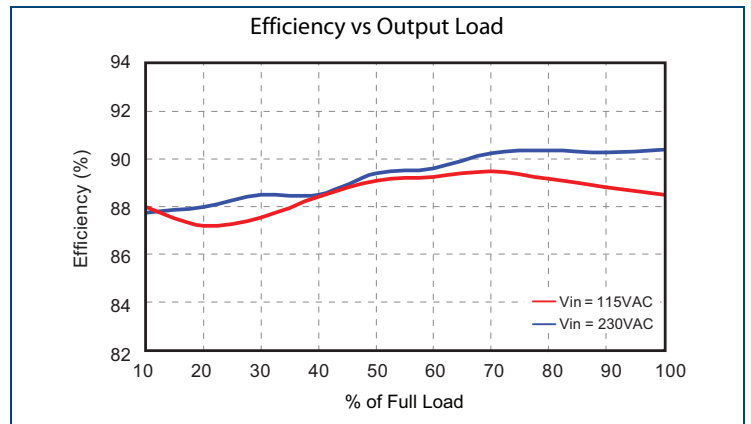
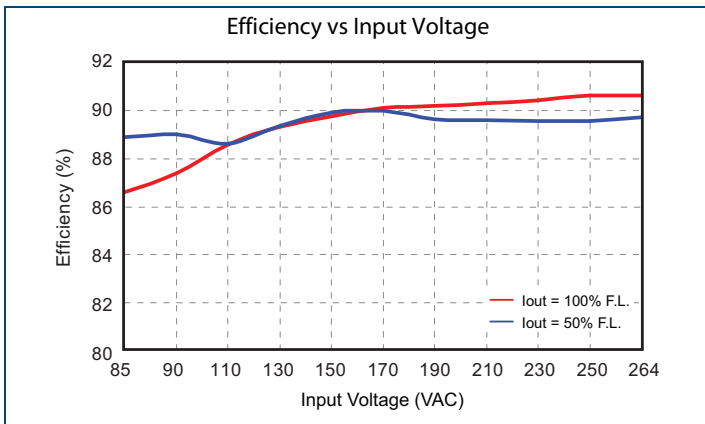
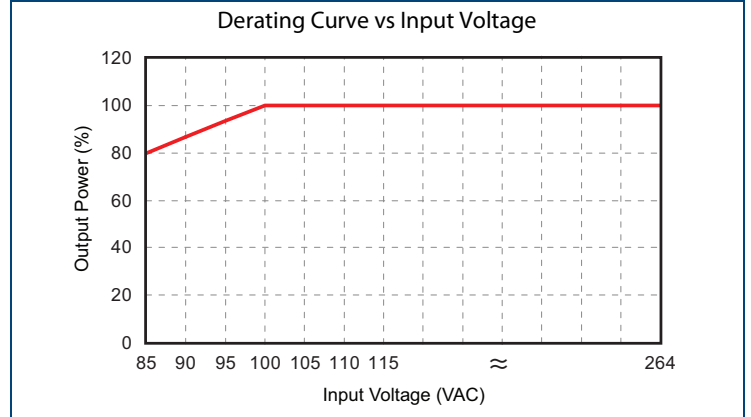
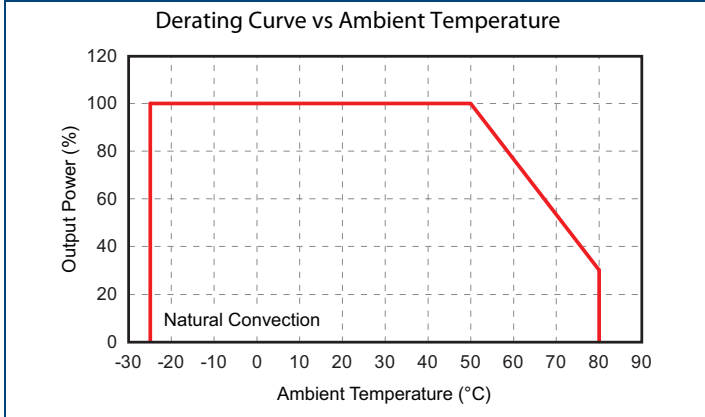
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
ENVIRONMENTAL SPECIFICATIONS					
Operating Ambient Temperature	Convection cooled: 100W (with derating)	-25		+80	°C
Storage Temperature Range		-40		+85	°C
Operating Altitude		5000 meters			
Thermal Shock		IEC68-2-27			
Vibration		IEC68-2-6			
Relative Humidity	Non-condensing	5		90	% RH
MTBF	BELLCORE TR-NWT-000332 Case 1: 50% Stress, Ta=40°C	1,919,000 hours			
	MIL-HDBK-217F, Ta=25°C, full load (G/B, controlled environment)	276,000 hours			
PHYSICAL SPECIFICATIONS					
Weight	Open Frame Models (Suffix "-O")	5.50oz (156g)			
	U-Chassis Models (Suffix "-U")	6.84oz (194g)			
	Enclosed Case Models (Suffix "-C")	7.41oz (210g)			
Dimensions (L x W x H)	Open Frame Models (Suffix "-O")	3.00 x 2.00 x 1.16 in (76.2 x 50.8 x 29.5 mm)			
	U-Chassis Models (Suffix "-U")	3.60 X 2.44 X 1.54 in (91.4 x 62.0 x 39.2 mm)			
	Enclosed Case Models (Suffix "-C")	3.60 X 2.44 X 1.54 in (91.4 x 62.0 x 39.2 mm)			
SAFETY & EMC					
Safety Approvals	ANSI/AAMI ES60601-1, IEC60601-1, and EN60601-1 3rd edition				
EMI	Conducted	EN55011, EN 55022 and FCC Part 18			Class B
	Radiated				Class A
Harmonic Currents	EN61000-3-2	Full load	Class A and Class D		
Voltage Flicker	EN61000-3-3				
ESD	EN61000-4-2	Air±8kV and Contact ±6kV			Perf. Criteria A
Radiated Immunity	EN61000-4-3	10 V/m			Perf. Criteria A
Fast Transient	EN61000-4-4	±2kV			Perf. Criteria A
Surge	EN61000-4-5	±2kV			Perf. Criteria A
Conducted Immunity	EN61000-4-6	10 Vrms			Perf. Criteria A
Dip and Interruptions	EN60601-1-2	230VAC 50Hz	30%	500ms	Perf. Criteria A
			60%	100ms	Perf. Criteria A
			>95%	10ms	Perf. Criteria A
			>95%	5000ms	Perf. Criteria B
	EN60601-1-2	100VAC 50Hz	30%	500ms	Perf. Criteria A
			60%	100ms	Perf. Criteria B
			>95%	10ms	Perf. Criteria A
			>95%	5000ms	Perf. Criteria B

MODEL NUMBER SETUP

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

(1) DIN Rail option is only available for enclosed case models.

CHARACTERISTIC CURVES



MECHANICAL DRAWING

OPEN FRAME MODELS (SUFFIX "-O")

CON 1 - Input Connector	
Pin 1	Line
Pin 3	Neutral

CON 2 - Output Connector	
Pins 1, 2	-Vout
Pins 3, 4	+Vout

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

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

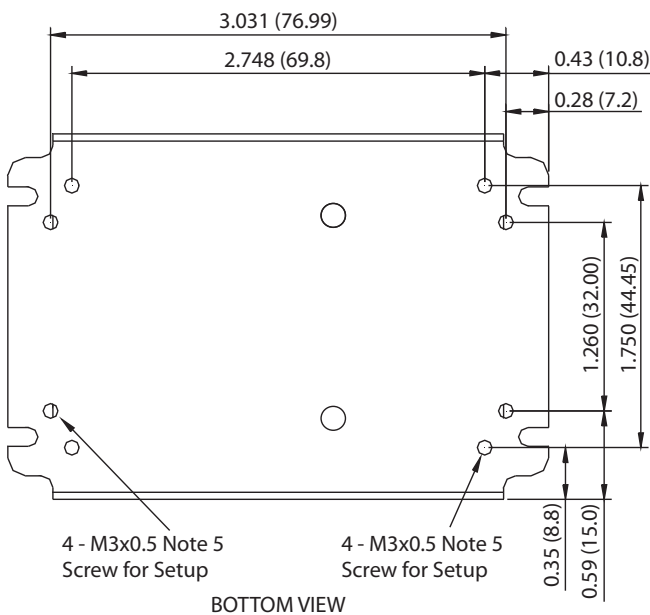
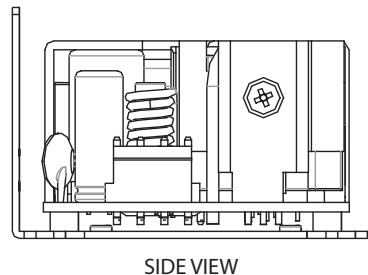
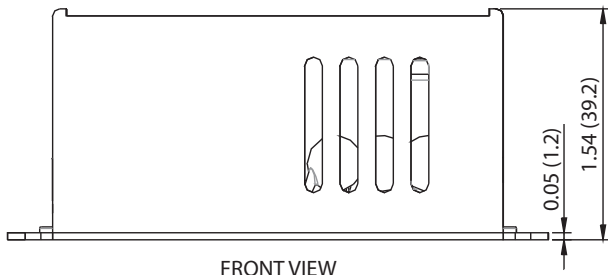
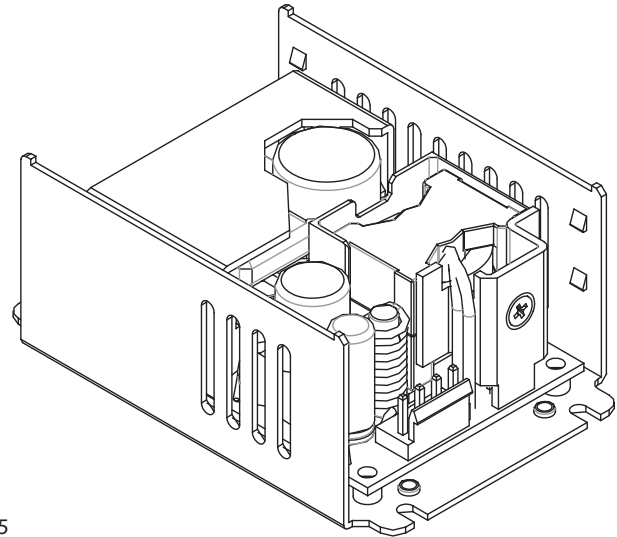
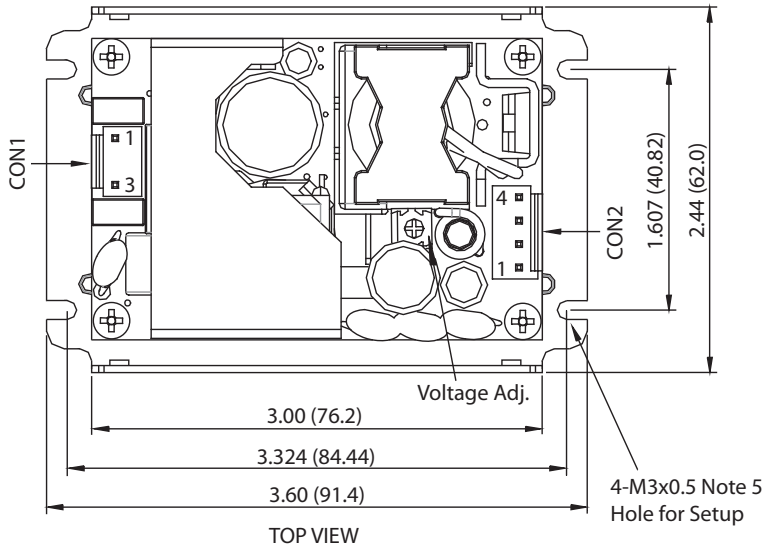
Mounting holes marked with \oplus must be connected to safety earth

NOTES

- Unit: inches (mm)
- Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin Pitch Tolerance: ±0.01 (±0.25)
- Pin Dimension Tolerance: ±0.004 (±0.1)
- M3x0.5 screw locked torque MAX 5Kgf.cm/0.49N.m
- All dimensions are for reference only

MECHANICAL DRAWING

U-CHASSIS MODELS (SUFFIX "-U")



CON 1 - Input Connector	
Pin 1	Line
Pin 3	Neutral
Mates with JST housing VHR-3N and JST Series SVH-21T-P1.1 crimp terminals	

CON 2 - Output Connector	
Pins 1, 2	-Vout
Pins 3, 4	+Vout
Mates with JST housing VHR-4N and JST Series SVH-21T-P1.1 crimp terminals	

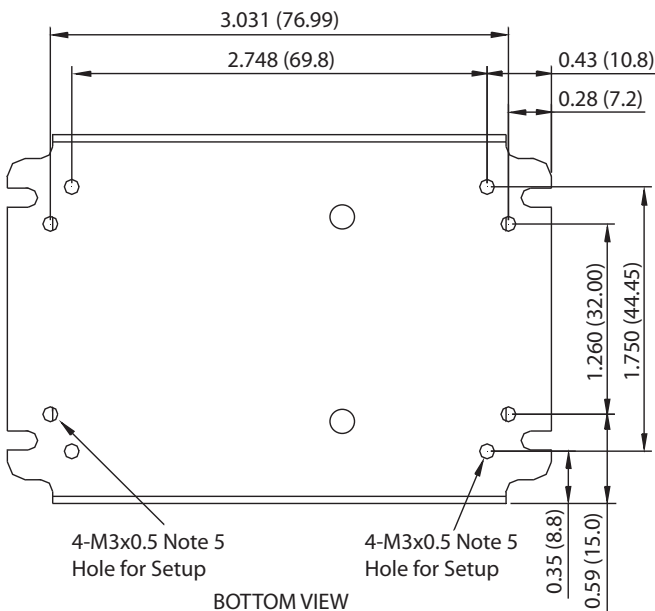
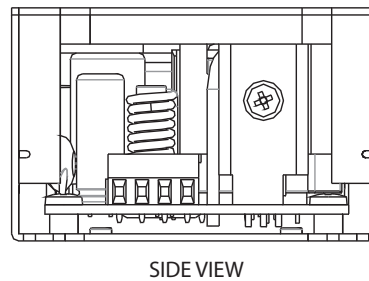
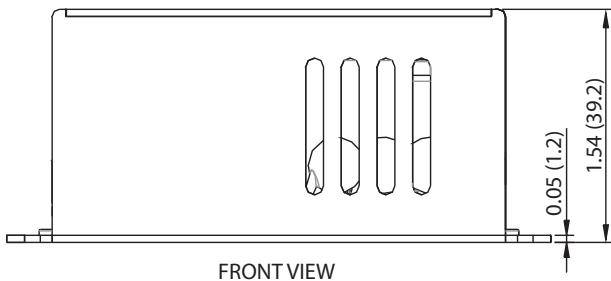
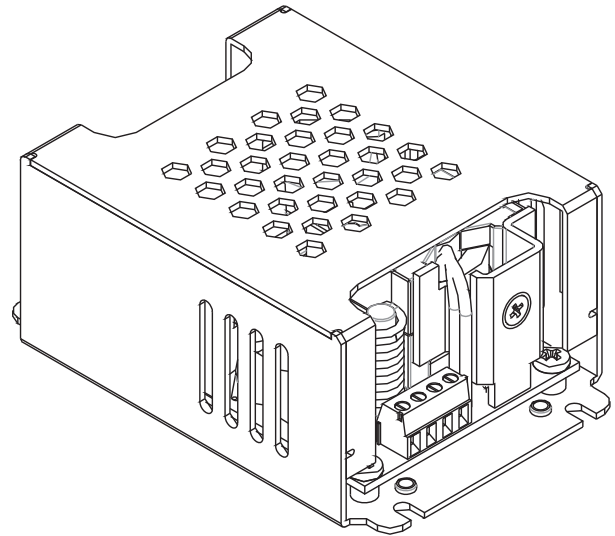
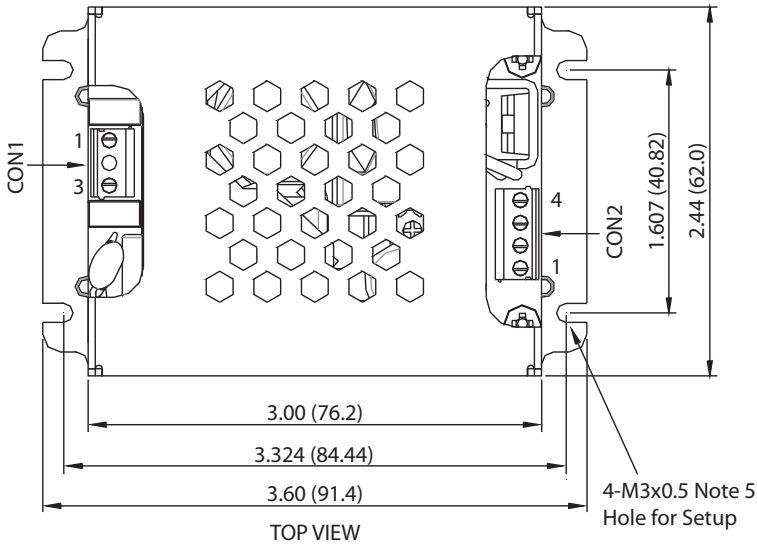
Mounting holes marked with \oplus must be connected to safety earth

NOTES

- Unit: inches (mm)
- Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin Pitch Tolerance: ±0.01 (±0.25)
- Pin Dimension Tolerance: ±0.004 (±0.1)
- M3x0.5 screw locked torque MAX 5Kgf.cm/0.49N.m
- CON1 and CON2 screw locked torque MAX 2Kgf.cm/0.2N.m
- CON1 and CON2 wire dimensions range 26~16AWG
- All dimensions are for reference only

MECHANICAL DRAWING

ENCLOSED CASE MODELS (SUFFIX "-C")



CON 1 - Input Connector	
Pin 1	Line
Pin 3	Neutral
Mates with JST housing VHR-3N and JST Series SVH-21T-P1.1 crimp terminals	

CON 2 - Output Connector	
Pins 1, 2	-Vout
Pins 3, 4	+Vout
Mates with JST housing VHR-4N and JST Series SVH-21T-P1.1 crimp terminals	

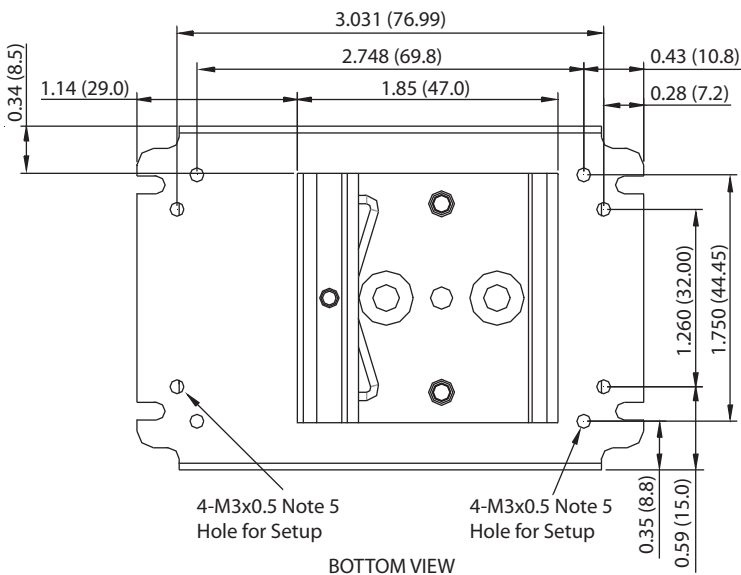
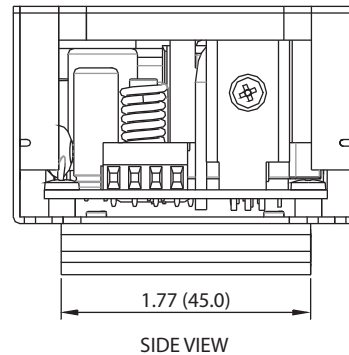
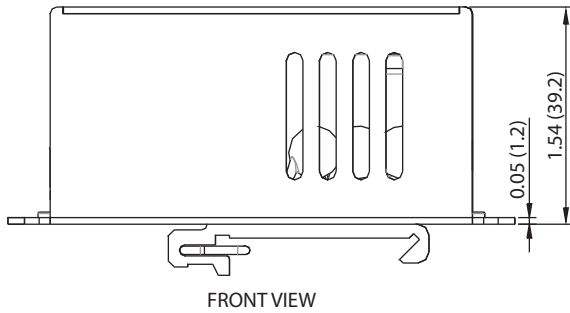
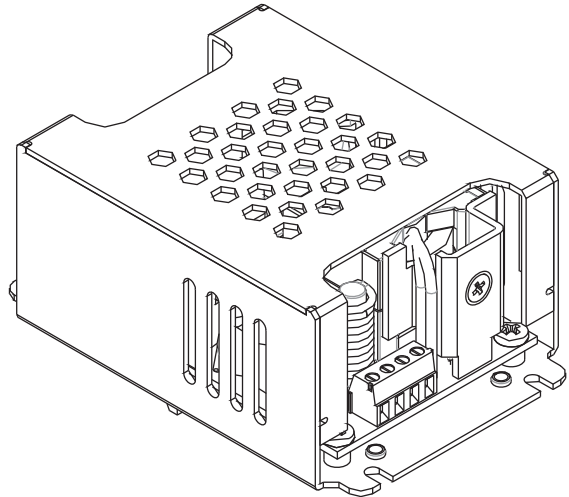
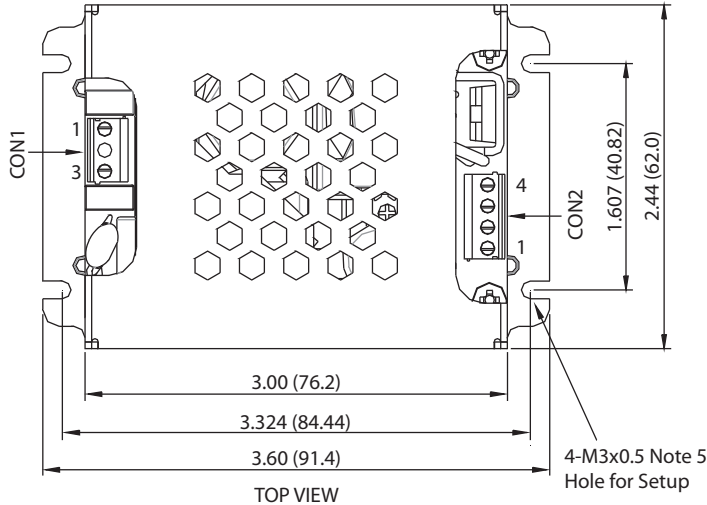
Mounting holes marked with ⊕ must be connected to safety earth

NOTES

- Unit: inches (mm)
- Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin Pitch Tolerance: ±0.01 (±0.25)
- Pin Dimension Tolerance: ±0.004 (±0.1)
- M3x0.5 screw locked torque MAX 5Kgf.cm/0.49N.m
- CON1 and CON2 screw locked torque MAX 2Kgf.cm/0.2N.m
- CON1 and CON2 wire dimensions range 26~16AWG
- All dimensions are for reference only

MECHANICAL DRAWING

DIN RAIL MODELS (SUFFIX "-D")



CON 1 - Input Connector	
Pin 1	Line
Pin 3	Neutral

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

CON 2 - Output Connector	
Pins 1, 2	-Vout
Pins 3, 4	+Vout

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

Mounting holes marked with \oplus must be connected to safety earth

NOTES

- Unit: inches (mm)
- Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin Pitch Tolerance: ±0.01 (±0.25)
- Pin Dimension Tolerance: ±0.004 (±0.1)
- M3x0.5 screw locked torque MAX 5Kgf.cm/0.49N.m
- CON1 and CON2 screw locked torque MAX 2Kgf.cm/0.2N.m
- CON1 and CON2 wire dimensions range 26~16AWG
- DIN Rail option is only available for enclosed case models
- All dimensions are for reference only

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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