

Open Frame



Size: 5in x 3in x 1.58in

Enclosed Case



Size: 5in x 3.41in x 1.97in

Enclosed Case with Top Fan



Size: 5in x 3.41in x 1.97in

Enclosed Case with Side Fan



Size: 5.83in x 3.15in x 1.60in

**OPTIONS**

- Package Type
  - Open Frame or Enclosed
- Protection Type
  - Class I or II
- Fan Type
  - Top Fan or Side Fan
- Fan Speed
  - Fixed or Variable

**FEATURES**

- 85~264VAC Input Voltage
- Adjustable Output Voltage
- 3000VAC Reinforced Insulation
- Power Good
- Low Leakage Current
- Low Standby Power
- Remote ON/OFF
- 3 Years Warranty
- Input Protection
- Over Voltage, Over Load, and Short Circuit Protection
- Protection Class I or II
- RoHS Compliant
- REACH Compliant
- Open Frame or Enclosed Package Available
- Top or Side Fan Available with Fixed or Variable Fan Speed
- Designed to Meet IEC/EN/UL 60950-1 Safety Standards

**APPLICATIONS**

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

**DESCRIPTION**

The PSIAC450 series of AC/DC power supplies offers up to 450 watts of output power in an open frame or enclosed case. This series consists of adjustable single output models with a wide input voltage range of 85~264VAC. Features of this series include low leakage current and standby power, remote ON/OFF, top or side fan, and input protection as well as over voltage, over load, and short circuit protection. This series is both RoHS and REACH compliant, and it is designed to meet IEC/EN/UL 60950-1 safety standards. Please contact factory for ordering details.

**MODEL SELECTION TABLE**

**Fan Connector Models**

Model Number <sup>(1)</sup>	Input Voltage Range	Output Voltage	Output Current			Ripple & Noise	No Load Input Power	Output Power			Efficiency
			Natural Convection	Conduction Cooling	Forced Air 21 CFM External Fan			Forced Air Cooling	Conduction Cooling	Natural Convection	
PSIAC450-12Sx (Y)	85~264VAC (120~370VDC)	12VDC	20.8A	23.3A	37.5A	250mVp-p	0.3W	450W	280W	250W	91%
PSIAC450-15Sx (Y)		15VDC	16.6A	18.6A	30.0A	300mVp-p	0.3W	450W	280W	250W	92%
PSIAC450-24Sx (Y)		24VDC	13.3A	14.55A	18.75A	240mVp-p	0.5W	450W	350W	320W	93%
PSIAC450-28Sx (Y)		28VDC	11.4A	12.5A	16.1A	280mVp-p	0.5W	450W	350W	320W	93%
PSIAC450-48Sx (Y)		48VDC	6.65A	7.3A	9.4A	480mVp-p	0.5W	450W	350W	320W	94%
PSIAC450-53Sx (Y)		53VDC	6.05A	6.6A	8.55A	530mVp-p	0.5W	450W	350W	320W	94%

**MODEL SELECTION TABLE**

**Top & Side Fan Models**

Model Number <sup>(2)</sup>	Input Voltage Range	Output Voltage	Output Current	Ripple & Noise	No Load Input Power	Output Power	Efficiency
			Forced Air Internal Fan			Forced Air Cooling	
PSIAC450-12SEz	85~264VAC (120~370VDC)	12VDC	37.5A	250mVp-p	0.4W	450W	91%
PSIAC450-15SEz		15VDC	30A	300mVp-p	0.4W		92%
PSIAC450-24SEz		24VDC	18.75A	240mVp-p	0.8W		93%
PSIAC450-28SEz		28VDC	16.1A	280mVp-p	0.8W		93%
PSIAC450-48SEz		48VDC	9.4A	480mVp-p	0.8W		94%
PSIAC450-53SEz		53VDC	8.55A	530mVp-p	0.8W		94%

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
<b>INPUT SPECIFICATIONS</b>						
Input Voltage Range	AC Input		85		264	VAC
	DC Input		120		370	VDC
Input Frequency			47		63	Hz
Input Current	100VAC, Full Load				5.8	A
	240VAC, Full Load				2.4	
No Load Input Power	230VAC		See Table			
Leakage Current	264VAC				300	µA
Power Factor			0.95			
Input Inrush Current	230VAC				100	A
Input Protection	Internal Fuse In Line and Neutral		T6.3A/250VAC			
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage			See Table			
Initial Set Voltage Accuracy	230VAC, 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			-8		+8	%
Output Power <sup>(3)</sup>	Forced Air Cooling	All			450	Watts
	Conduction Cooling, 230VAC	12VDC Output & 15VDC Output			280	
		Other Models			350	
	Natural Convection, 230VAC	12VDC Output & 15VDC Output			250	
		Other Models			320	
Output Current			See Table			
Minimum Load				0		%
Ripple & Noise (20MHz bandwidth)	With a 1µF/25V 1206 X7R MLCC	12VDC Output Models		250		mVp-p
		15VDC Output Models		300		
	With a 1µF/50V 1206 X7R MLCC	24VDC Output Models		240		
		28VDC Output Models		280		
	48VDC Output Models		480			
With a 0.1µF/100V 1206 X7R MLCC	53VDC Output Models		530			
Transient Response	Load step from 50~75% change at 2.5Aµs	Peak Deviation		3		%Vout
		Recovery Time		600		µs
Start-Up Time					2000	ms
Rise Time				30		ms
Hold Up Time	115VAC, Full Load			14		ms
Temperature Coefficient			-0.02		+0.02	%/°C
Standby Power Supply			5V at 2000mA			
Fan Power Supply			12V at 500mA			
<b>PROTECTION</b>						
Short Circuit Protection	Protection Level 1 (nominal)		Continuous, Automatic Recovery			
	Protection Level 2 (instantaneous high current)		Latch			
Over Load Protection	% of Iout rated; Hiccup Mode		115		155	%
Over Voltage Protection	% of Vout(nom); Latch mode		110		135	%
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Temperature	With derating	Fan Connector Models	-40		+85	°C
		Top & Side Models	-40		+80	
Storage Temperature	Fan Connector Models		-40		+85	°C
		Top & Side Models	-40		+75	
Operating Altitude					5000	m
Relative Humidity	Non-Condensing		5		95	%RH
Thermal Shock			MIL-STD-810F			
Shock			IEC60068-2-27			
Vibration			IEC60068-2-6			
MTBF	MIL-HDBK-217F Ta=25°C, Full Load			409,300		Hours
<b>GENERAL SPECIFICATIONS</b>						
Efficiency			See Table			
Switching Frequency	230VAC, Full Load	15VDC Output Models		75		kHz
		Other Models		65		
Isolation Voltage	1 minutes (Reinforced Insulation)	Input to Output	3000			VAC
		Input (Output) to F.G.	2000			
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
<b>PHYSICAL SPECIFICATIONS</b>						
Weight	Fan Connector Models	Open Frame	16.29oz (462g)			
		Enclosed Case	17.77oz (504g)			
	Top Fan Models	18.48oz (524g)				
	Side Fan Models	19.47oz (552g)				
Dimensions (L x W x H)	Fan Connector Models	Open Frame	5in x 3in x 1.58in (127mm x 76.2mm x 40.1mm)			
		Enclosed Case	5in x 3.41in x 1.97in (127mm x 86.6mm x 50mm)			
	Top Fan Models	5in x 3.41in x 1.97in (127mm x 86.6mm x 50mm)				
	Side Fan Models	5.83in x 3.15in x 1.60in (148.2mm x 80mm x 40.6mm)				
<b>SAFETY CHARACTERISTICS</b>						
Safety Approvals			Designed to Meet		IEC/EN/UL 60950-1 <sup>(5)</sup>	
EMI <sup>(4)</sup>	EN55011, EN55032, and FCC Part 15	Conducted		Class B		
		Radiated		Class A		
Harmonic Currents	EN61000-3-2	Full Load	Class A and D			
Voltage Flicker	EN61000-3-3					
ESD	EN61000-4-2	Air ±15kV and Contact ±8kV				
Radiated Immunity	EN61000-4-3	3V/m				
Fast Transient	EN61000-4-4	±2kV				
Surge	EN61000-4-5	DM ±1kV and CM ±2kV				
Conducted Immunity	EN61000-4-6	20 Vr.m.s				
Power Frequency Magnetic Field	EN61000-4-8	30A/m				
Dip and Interruptions	EN61000-4-11 and EN55024					
Protection Class	No Suffix					Class I
	"B" Suffix					Class II

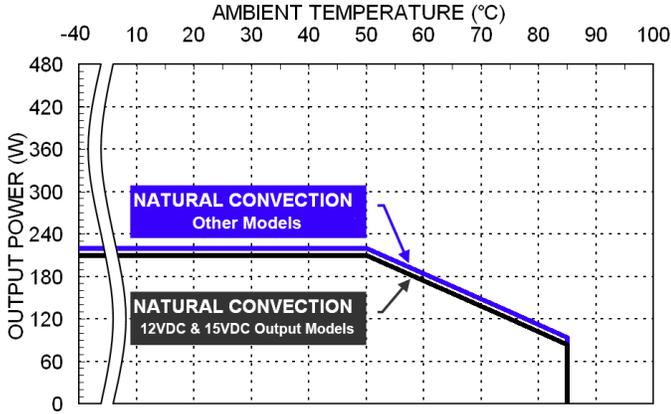
**NOTES**

- "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. PSIAC450-12SEY
- "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
- Please refer to the derating curve for detailed rating.
- 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 standards, this plate must be properly grounded to protective earth.
- This product is Listed to applicable standards and requirements by UL.

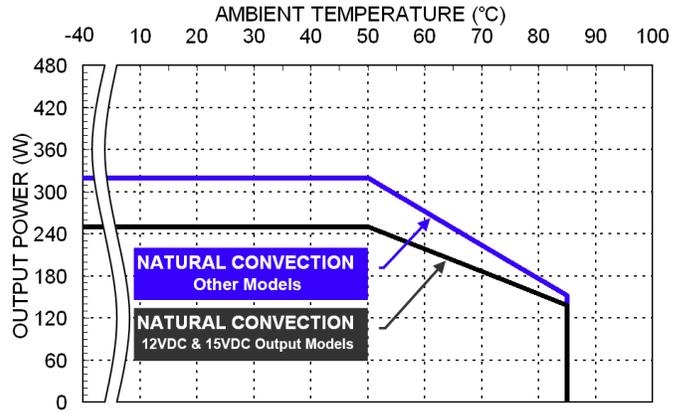
*\*Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

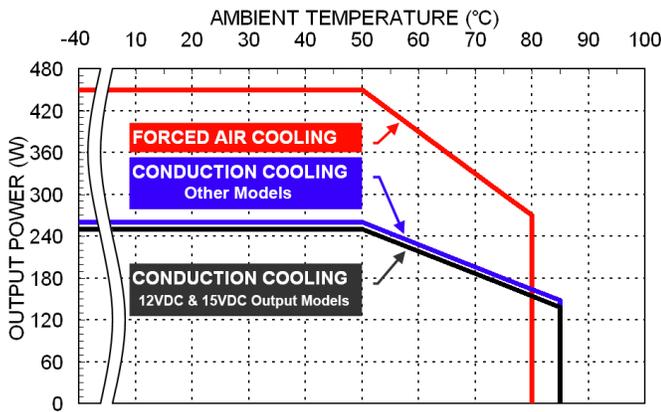
Derating Curve vs. Ambient Temperature  
Vin=115VAC & Natural Convection; Open Frame & Enclosed



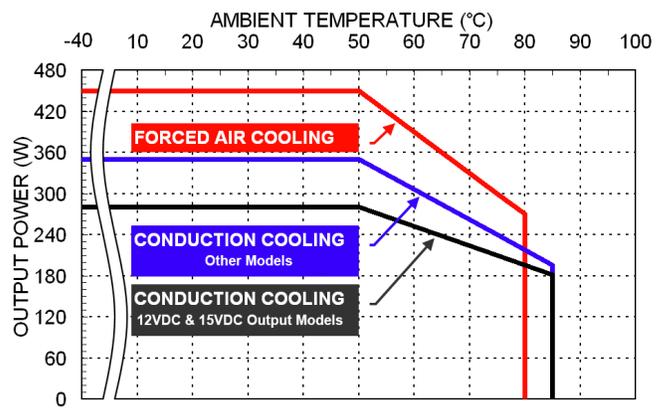
Derating Curve vs. Ambient Temperature  
Vin=230VAC & Natural Convection; Open Frame & Enclosed



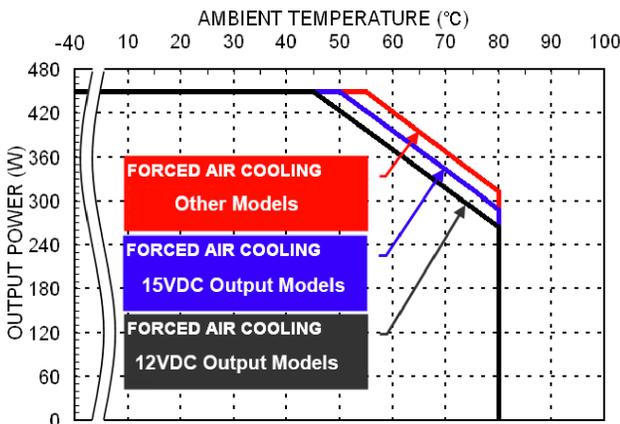
Derating Curve vs. Ambient Temperature  
Vin=115VAC and Conduction Cooling; Open Frame & Enclosed  
Forced Air Cooling with 21CFM (External Fan)



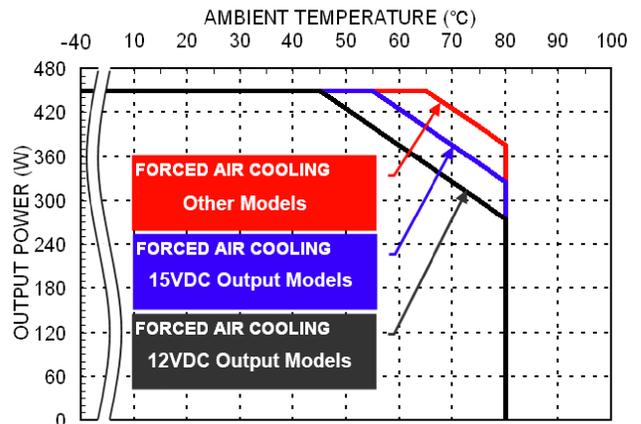
Derating Curve vs. Ambient Temperature  
Vin=230VAC and Conduction Cooling; Open Frame & Enclosed  
Forced Air Cooling with 21CFM (External Fan)



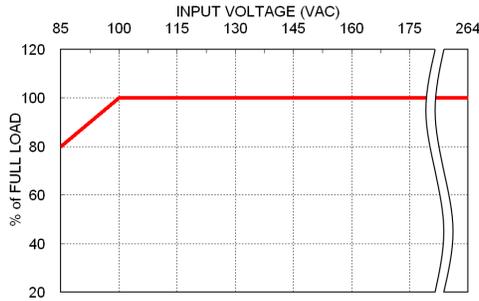
Derating Curve vs. Ambient Temperature  
Vin=115VAC and Forced Air Cooling (Internal Fan)  
Top & Side Fan Models



Derating Curve vs. Ambient Temperature  
Vin=230VAC and Forced Air Cooling (Internal Fan)  
Top & Side Fan Models

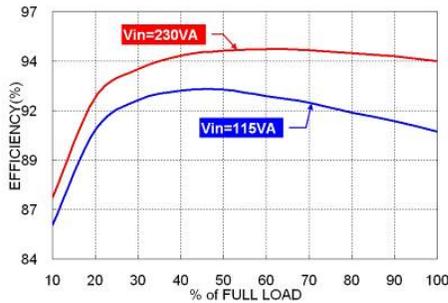


Derating Curve vs. Input Voltage



EFFICIENCY GRAPHS

Efficiency vs. Output Load  
24VDC Output Models with Forced Air Cooling

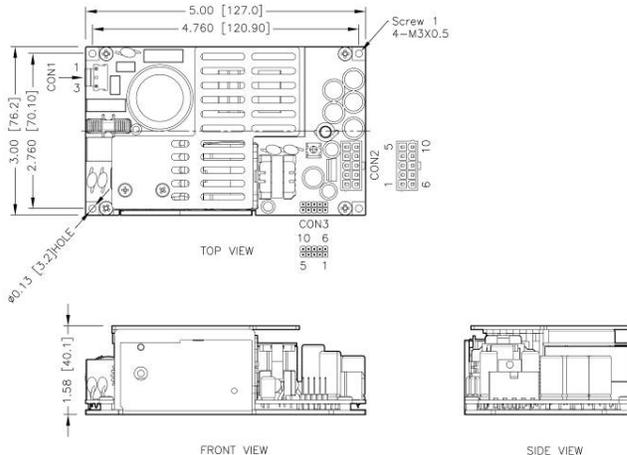


Efficiency vs. Input Voltage  
24VDC Output Models with Forced Air Cooling



MECHANICAL DRAWINGS

Fan Connector Models-Open Frame



CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with

Molex housing: **09-50-8031**

Molex crimp terminals: **2478,6838,45570**

CON2-Output Connector

Pin 1,2,3,4,5	+Vout
Pin 6,7,8,9,10	-Vout

Mates with

Molex housing: **39-01-2105**

Molex crimp terminals: **5555,45750**

CON3-Aux Connector

Pin 1	+Fan	Pin 6	-Fan
Pin 2	+V Sense	Pin 7	-V Sense
Pin 3	+Control	Pin 8	-Control
Pin 4	+PG	Pin 9	-PG
Pin 5	+5V	Pin 10	-5V

Mates with

Molex housing: **90143-0008**

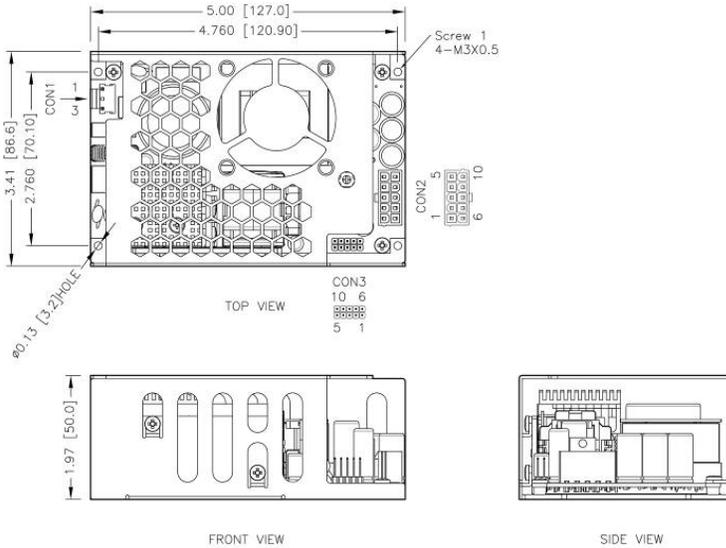
Molex crimp terminals: **90119**

\*Either one of four screw holes can be considered as PE connection for CLASS I application

Notes

- All dimensions in inch [mm]
- Tolerance: x.xx±0.02 [x.xx±0.5]  
x.xxx±0.01 [x.xx±0.25]
- Screw 1 locked torque: MAX 5.2kgf-cm/0.51N.m

Fan Connector Models-Enclosed Case



CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with

Molex housing: **09-50-8031**

Molex crimp terminals: **2478,6838,45570**

CON2-Output Connector

Pin 1,2,3,4,5	+Vout
Pin 6,7,8,9,10	-Vout

Mates with

Molex housing: **39-01-2105**

Molex crimp terminals: **5556,45750**

CON3-Aux Connector

Pin 1	+Fan	Pin 6	-Fan
Pin 2	+V Sense	Pin 7	-V Sense
Pin 3	+Control	Pin 8	-Control
Pin 4	+PG	Pin 9	-PG
Pin 5	+5V	Pin 10	-5V

Mates with

Molex housing: **90143-0008**

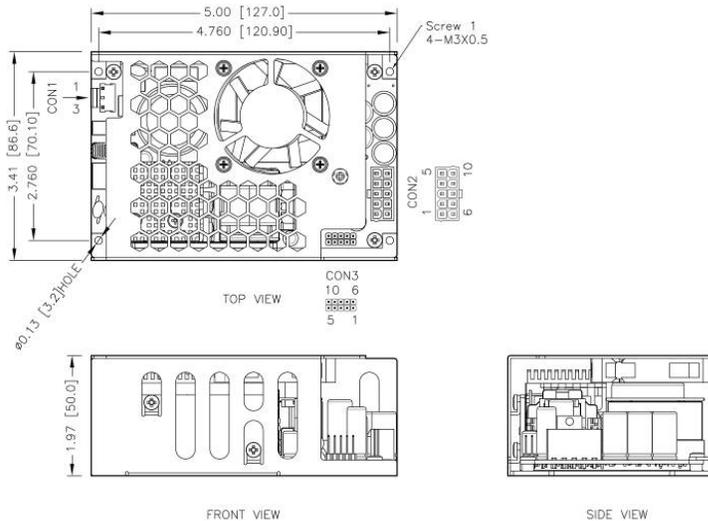
Molex crimp terminals: **90119**

\*Either one of the four screw holes can be considered as PE connection for CLASS I application

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. Screw locked torque: MAX 5.2kgf-cm/0.51N.m

Top Fan Models



CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with

Molex housing: **09-50-8031**

Molex crimp terminals: **2478,6838,45570**

CON2-Output Connector

Pin 1,2,3,4,5	+Vout
Pin 6,7,8,9,10	-Vout

Mates with

Molex housing: **39-01-2105**

Molex crimp terminals: **5556,45750**

CON3-Aux Connector

Pin 1	+Fan	Pin 6	-Fan
Pin 2	+V Sense	Pin 7	-V Sense
Pin 3	+Control	Pin 8	-Control
Pin 4	+PG	Pin 9	-PG
Pin 5	+5V	Pin 10	-5V

Mates with

Molex housing: **90143-0008**

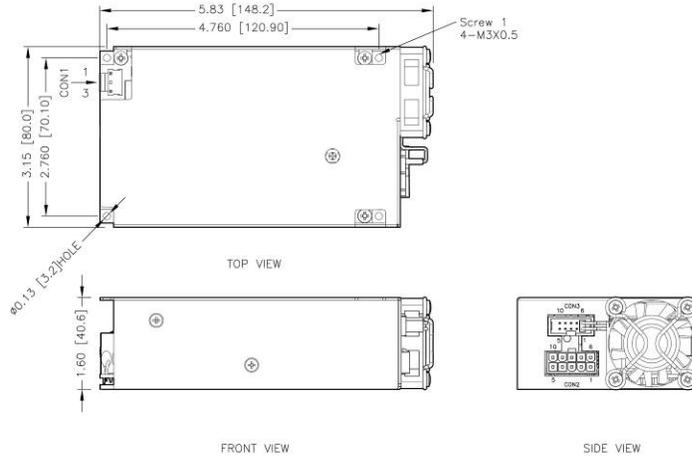
Molex crimp terminals: **90119**

\*Either one of four screw holes can be considered as PE connection for CLASS I application

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. Screw 1 locked torque: Max 5.2kgf-cm/0.51N.m
4. FAN dimensions: 50x50x10mm; Air flow: 11.4 CFM
5. The fan's life is shorter than power supply and has only 2 year warranty.

Side Fan Models



CONNECTORS

CON1-Input Connector

Pin 1	Line
Pin 3	Neutral

Mates with

Molex housing: **09-50-8031**

Molex crimp terminals: **2478,6838,45570**

CON2-Output Connector

Pin 1,2,3,4,5	-Vout
Pin 6,7,8,9,10	+Vout

Mates with

Molex housing: **39-01-2105**

Molex crimp terminals: **5556,45750**

CON3-Aux Connector

Pin 1	+Fan	Pin 6	-Fan
Pin 2	+V Sense	Pin 7	-V Sense
Pin 3	+Control	Pin 8	+Control
Pin 4	+PG	Pin 9	-PG
Pin 5	+5V	Pin 10	-5V

Mates with

Molex housing: **90143-0008**

Molex crimp terminals: **90119**

\*Either one of four screw holes can be considered as PE connection for CLASS I application.

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. Screw 1 locked torque: MAX 5.2kgf-cm/0.51N.m
4. FAN dimension: 40x40x10mm; Airflow: 9.5C CFM
5. The fan's life is shorter than power supply and has only 2 years warranty

MODEL NUMBER SETUP

PSIAC	450	-	12	S	A	Y	B
Series Name	Output Power		Output Voltage	Output Quantity	Package Type	Fan Option (See Note 1)	Protection Class
			<b>12:</b> 12VDC <b>15:</b> 15VDC <b>24:</b> 24VDC <b>28:</b> 28VDC <b>48:</b> 48VDC <b>53:</b> 53VDC	<b>S:</b> Single	<b>A:</b> Open Frame <b>E:</b> Enclosed Case	<b>Blank:</b> Fan Connector with Fixed Fan Speed Control <b>Y:</b> Fan Connector with Variable Fan Speed Control <b>F1:</b> Top Fan, fixed fan speed <b>F2:</b> Side Fan, fixed fan speed <b>Y1:</b> Top Fan, variable fan speed <b>Y2:</b> Side fan, variable fan speed	<b>Blank:</b> Class I <b>B:</b> Class II

NOTES

1. Please note, top and side fan options are only available for enclosed case models.

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## 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:

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