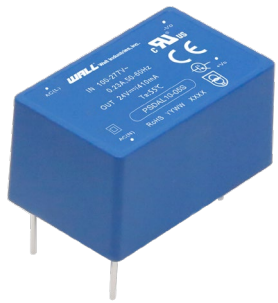
Horizontal Model

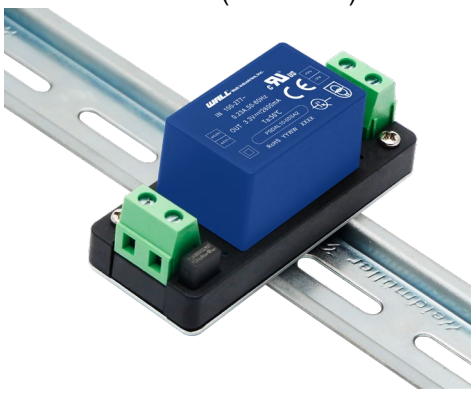


Size: 1.56 x 1 x 0.83in (40 x 25.4 x 21mm)

Chassis Mount (“A2” Suffix)

Size: 2.99 x 1.24 x 1.17in (76 x 31.5 x 29.8mm)

DIN Rail (“A4” Suffix)



Size: 2.99 x 1.24 x 1.351in (76 x 31.5 x 34.4mm)

OPTIONS

- Case Type
  -Horizontal Package
  -Chassis Mount
  -DIN Rail

FEATURES

- Ultra-Wide Input Voltage Range 85~305VAC (100~430VDC)
- High Efficiency
- RoHS Compliant
- Over Voltage Category OVC III (Meets EN61558)
- Short Circuit, Over Current, and Over Voltage Protection
- EMI Performance Meets CISPR32/EN55032 Class B, EN55014
- IEC/UL62368-1, EN61558, EN60335-1 Safety Approvals & EN62368-1 (Report)

APPLICATIONS

- Industrial
- Instrumentation
- Communication
- Civil Applications

DESCRIPTION

The PSDAL10 series of AC/DC converters offers up to 10 watts of output power in a compact horizontal, chassis mount, or DIN rail package. This series consists of single output models with an ultra-wide 85-305VDC (100~430VDC) input range. Features of this series include short circuit, over current, and over voltage protection and the plastic case meets UL94V-0 flammability. This series is RoHS compliant and has IEC/UL62368-1, EN61558, EN60335-1 safety approvals & EN62368-1 (Report).

MODEL SELECTION TABLE

Model Number[1]	Input Voltage Range	Output Voltage	Output Current	Maximum Capacitive Load	Typ. Efficiency	Output Power	Max. Ripple & Noise	Certification
PSDAL10-03S	85~305VAC (100~430VDC)	3.3V	2600mA	6600μF	74%	8.6W	100mV	UL/EN/IEC
PSDAL10-05S		5V	2000mA	5000μF	79%	10W		
PSDAL10-09S		9V	1100mA	3600μF	81%			
PSDAL10-12S		12V	830mA	2000μF	84%			
PSDAL10-15S		15V	660mA	820μF	84%			
PSDAL10-24S		24V	410mA	470μF	85%			

SPECIFICATIONS

All specifications are based on 25°C, Humidity <75%, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	AC Input		85		305	VAC
	DC Input		100		430	VDC
Input Frequency			47		63	Hz
Input Current	115VAC				0.23	A
	230VAC				0.15	
Inrush Current	115VAC			25		A
	230VAC			40		
Leakage Current	277VAC/50Hz			0.1mA RMS max.		
Fuse[2]				2A/300V, slow-blow, required		
Hot plug				Unavailable		
OUTPUT SPECIFICATIONS						
Output Voltage				See Table		
Voltage Accuracy				±2		%
Line Regulation	Full Load			±0.5		%
Load Regulation	0%-100% Load			±1.0		%
Output Power				See Table		
Output Current				See Table		
Minimum Load			0			%
Maximum Capacitive Load				See Table		
Ripple & Noise[3]	20MHz Bandwidth (peak-peak value)			50	100	mV
Stand-by Power Consumption	230VAC	3.3/5/9/12/15V		0.10		W
		24V		0.12		
Hold-Up Time	115VAC Input			8		ms
	230VAC Input			40		
Temperature Coefficient				±0.02		%/ºC
PROTECTION						
Short Circuit Protection				Hiccup, Continuous, Self-Recovery		
Over Current Protection				≥110%Io, self-recovery		
Over Voltage Protection	Output voltage clamp or hiccup	3.3/5V		≤7.5		VDC
		9V		≤15		
		12/15V		≤20		
		24V		≤30		
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature			-40		+85	ºC
Storage Temperature			-40		+85	ºC
Storage Humidity					95	%RH
Soldering Temperature	Wave-Soldering			260±5ºC; time: 5-10s		
	Manual-Welding			360±10ºC; time: 3-5s		
Power Derating	-40ºC to -25ºC	85VAC-115VAC	2.2			%/ºC
	+50ºC to 70ºC	3.3/5V	2.5			
	+55°C to +70°C	9/12/15/24V	3.33			
	+70°C to +85°C		0.66			
	85VAC-100VAC		0.83			%/VAC
	2000m-5000m		6.7			%/Km
MTBF	MIL-HDBK-217F@25ºC			>3,200,000		h
Design Life	230VAC	Ta: 25°C 100% Load		>130x10^3		h
		Ta: 55°C 100% Load		>20x10^3		
		Ta: 55°C 80% Load		>27x10^3		
GENERAL SPECIFICATIONS						
Efficiency	230VAC			See Table		
Switching Frequency				65		kHz
Isolation	Input-Output, Electric Strength Test for 1min, leakage current <5mA		4000			VAC
Insulation Resistance	Input-Output, at 500VDC		100			MΩ

SPECIFICATIONS

All specifications are based on 25°C, Humidity <75%, Nominal Input Voltage, and Rated Output 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	Horizontal Package				1.2oz (34g)		
	Chassis Mounting				1.90oz (54g)		
	DIN Rail Mounting				2.61oz (74g)		
Dimensions (L x W x H)	Horizontal Package				1.56in x 1in x 0.83in (40mm x 25.4mm x 21mm)		
	Chassis Mounting				2.99in x 1.24in x 1.17in (76mm x 31.5mm x 29.8mm)		
	DIN Rail Mounting				2.99in x 1.24in x 1.35in (76mm x 31.5mm x 34.4mm)		
Case Material					Black Plastic, Flame-Retardant and Heat-Resistant (UL94 V-0)		
Cooling Method					Free Air Convection		
SAFETY CHARACTERISTICS							
Safety Standards/Certifications[4]	IEC/UL62368-1, EN61558-1, EN60335-1 Safety Approval & EN62368-1 (Report)						
EMI	CE	CISPR32/EN55032					Class B
		CISPR32/EN55032					Class B[6]
		EN55014-1					
	RE	CISPR32/EN55032					Class B
		CISPR32/EN55032					Class B[6]
		EN55014-1					
Safety Class							Class II
Immunity	ESD	IEC/EN61000-4-2	Contact ±8kV/Air ±15kV				Perf. Criteria B
		EN55014-2					Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m				Perf. Criteria A
		EN55014-2					Perf. Criteria A
	EFT	IEC/EN61000-4-4	±2kV				Perf. Criteria B
		IEC/EN61000-4-4	±4kV[5]				Perf. Criteria B
		IEC/EN61000-4-4	±4kV[6]				Perf. Criteria A
		EN55014-2					Perf. Criteria B
	Surge	IEC/EN61000-4-5	Line to Line ±1kV				Perf. Criteria B
		IEC/EN61000-4-5	Line to Line ±2kV[5]				Perf. Criteria B
		IEC/EN61000-4-5	Line to Line ±2kV/line to ground ±4kV [6]				Perf. Criteria A
		EN55014-2					Perf. Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s				Perf. Criteria A
		EN55014-2					Perf. Criteria A
	Voltage dips, short interruptions and voltage variations	IEC/EN61000-4-11	0%, 70%				Perf. Criteria B
		EN55014-2					Perf. Criteria B

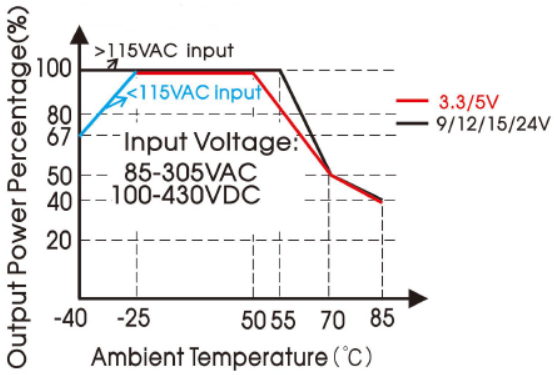
NOTES

1. Chassis mount and DIN rail models are available for this series. To indicate chassis mount model, add “A2” to product model number. To indicate DIN Rail model, add “A4” to product model number.
2. Chassis Mount & DIN Rail package series include fuse.
3. Tip and barrel method is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor, please contact factory for more information.
4. This product is Listed to applicable standards and requirements by UL.
5. See Fig. 2 for recommended circuit.
6. See Fig. 3 for recommended circuit
7. When the output terminal of the product needs to be connected to PE through a Y capacitor or close to the metal frame. Refer to Fig. 3 for the recommended circuit.
8. If product is not operated within required load range, it is not guaranteed that the product performance will comply with all parameters in the datasheet.
9. Products classified according to ISO14001 and related environmental laws and regulations. It should be handled by qualified units.
10. Customization available.

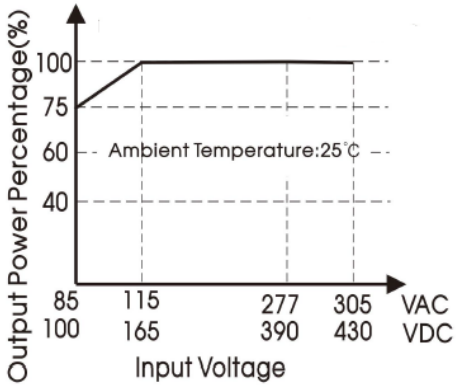
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

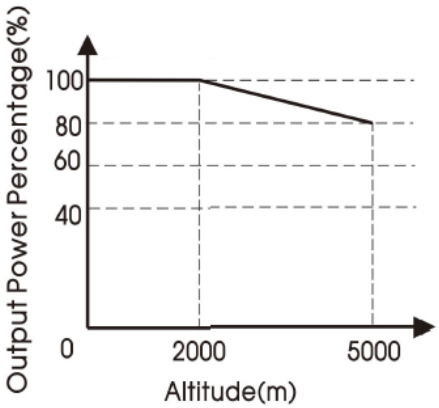
Temperature Derating Curve



Input Voltage Derating Curve



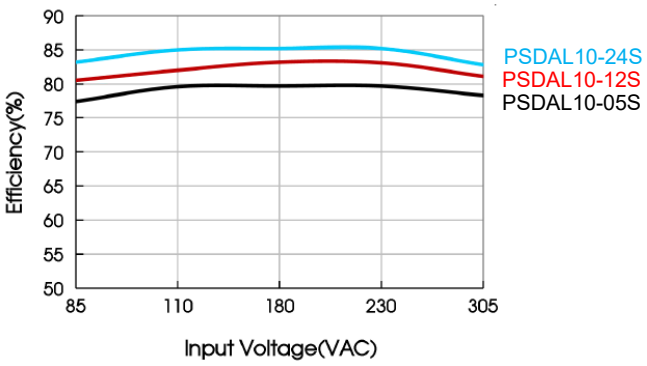
Altitude Derating Curve



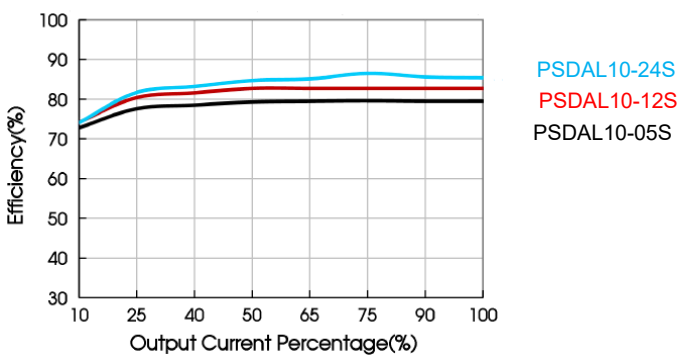
Note:
1. With an AC input between 85-115Vand a DC input between 100-165VDC, the output power must be derated as per temperature derating curves.
2. This product is suitable for applications using natural air cooling, if in a closed environments, please contact factory.

EFFICIENCY GRAPHS

Efficiency vs. Input Voltage (Full Load)

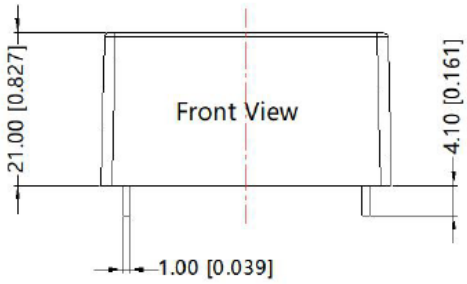


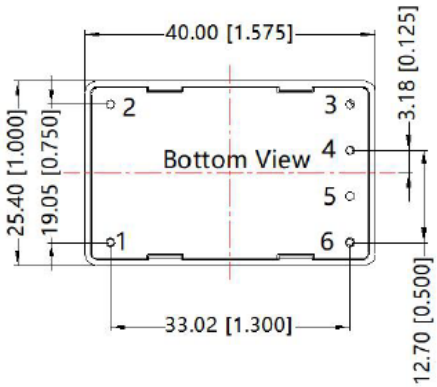
Efficiency vs. Output Load (Vin=230VAC)



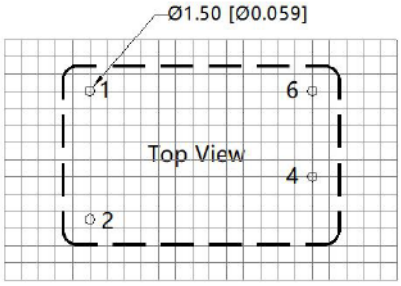
MECHANICAL DRAWINGS

Horizontal Model





THIRD ANGLE PROJECTION



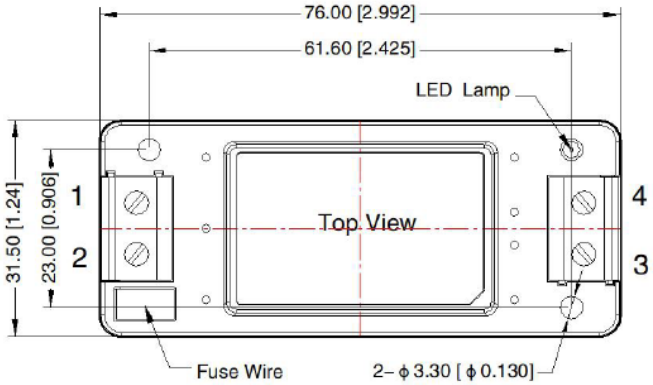
Note: Grid 2.54*2.54mm

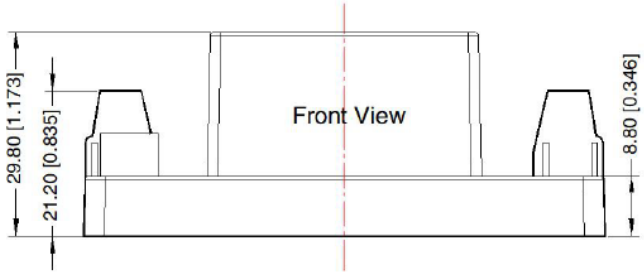
Pin-Out

Pin	Function
1	AC(L)
2	AC(N)
3	No Pin
4	+Vo
5	No Pin
6	-Vo

Note:
Unit: mm [inch]
Pin diameter tolerances: ±0.10 [±0.004]
General tolerances: ±0.50 [±0.020]

Chassis Mount (“A2” Suffix)





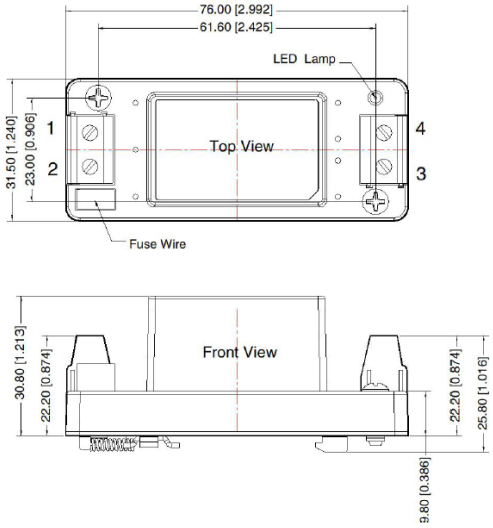
THIRD ANGLE PROJECTION

Pin-Out

Pin	Function
1	AC(N)
2	AC(L)
3	-Vo
4	+Vo

Note:
Unit: mm [inch]
Wire range: 24-12AWG
Tightening Torque: Max 0.4 N·m
General Tolerances: ±1.00 [±0.039]

DIN Rail (“A4” Suffix)



THIRD ANGLE PROJECTION

Pin-Out

Pin	Function
1	AC(N)
2	AC(L)
3	-Vo
4	+Vo

Note:
Unit: mm [inch]
Wire Range: 24-12AWG
Tightening torque: Max 0.4 N·m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ±1.00 [±0.039]

DESIGN REFERENCE

1. Typical Application

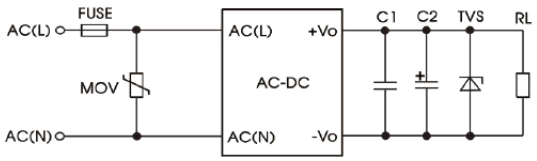


Fig. 1 Typical Circuit Diagram

Element Model	FUSE	MOV	C1(μF)	C2(μF)	TVS
PSDAL10-03S	2A/300V, slow blow, required	S10K350	1μF/50V	220uF/16V	SMBJ7.0A
PSDAL10-05S				220uF/16V	SMBJ7.0A
PSDAL10-09S				100uF/25V	SMBJ12A
PSDAL10-12S				100uF/25V	SMBJ20A
PSDAL10-15S				100uF/25V	SMBJ20A
PSDAL10-24S				100uF/35V	SMBJ30A

Output Filter Components:
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to data sheet). Choose a capacitor voltage rating with at least 20% margin (not exceeding 80%). C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

2. EMC Compliant Recommended Circuit

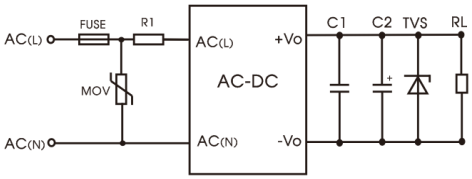


Fig. 2 EMC Application Circuit with Higher Requirements

Component	Recommended Value
FUSE	2A/300V, slow-blow, required
MOV	S14K350
R1	6.8Ω/3W (wire-would resistor)

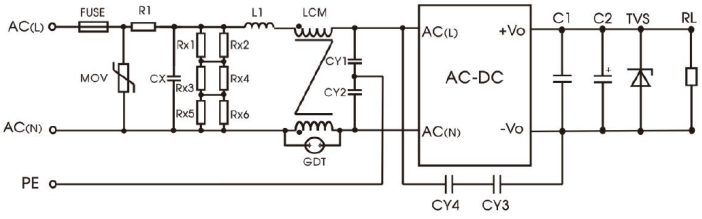


Fig. 3 Recommended Circuit for Class I Equipment

Component	Recommended Value
FUSE	2A/300V, slow-blow, required
MOV	S14K350
CX	334K/305VAC
R1	12Ω/5W (wire-would resistor)
L1	1.2mH/0.5A
CY1/CY2	2.2nF/400VAC
CY3/CY4	1nF/400VAC
GDT	300V/1KA
LCM	20mH, Contact factory for recommendation

Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleeder resistance of CX and the recommended resistance value is 1.5MΩ/150VDC

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:

Phone: ☎(603)778-2300
Toll Free: ☎(888)597-9255
Fax: ☎(603)778-9797
E-mail: sales@wallindustries.com
Web: www.wallindustries.com
Address: 37 Industrial Drive
Exeter, NH 03833