



**Size:** 4.29 x 2.30 x 1.18 inches  
109.0 x 58.5 x 30.0 mm

**Weight:** 10.93oz (310g)

**FEATURES**

- RoHS Compliant
- Class I and Class II Construction
- 3000VAC I/O Isolation
- 85~100 Watts Output Power
- High Efficiency up to 93%
- Fully Encapsulated Plastic Case
- Low Leakage Current < 250µA
- Remote ON/OFF Control
- Optional Screw Terminal
- Active PFC Function: > 0.95 (230VAC) and >0.99 (115VAC)
- 12V, 15V, 24V, and 48V Single Output Models
- PCB Mountable Switching Power Supply
- Universal Input Voltage Range: 90-264VAC (120-370VDC)
- Short Circuit, Over Power, and Over Voltage Protection
- Four M3 Mounting Holes on Bottom Side (Optional)
- Meets EN55022 Class B
- UL/cUL 60950-1, CE, and CB Safety Approvals

**DESCRIPTION**

The PSAQC100 series of AC/DC power supplies provides up to 100 watts of output power in a 4.3" x 2.30" x 1.18" encapsulated PCB mountable package. This series consists of single output models with a universal input range of 90-264VAC (120-370VDC). Some features include remote ON/OFF control, low leakage current < 250µA, active PFC function, 3000VAC I/O isolation, and high efficiency up to 93%. This series is also protected against over power, over voltage, and short circuit conditions. All models are RoHS compliant and have UL/cUL 60950-1, CE, and CB safety approvals and meet EN55022 Class B.

**MODEL SELECTION TABLE**

Model Number	Input Voltage Range	Output Voltage	Output Current		Ripple & Noise <sup>(3)</sup>	Output Power	Efficiency	Maximum Capacitive Load
			Min Load <sup>(1)</sup> <sub>(2)</sub>	Max Load				
PSAQC100-12S	90~264 VAC (120~370 VDC)	12 VDC	3%	7.08A	120mVp-p	85W	90%	50,000µF
PSAQC100-15S		15 VDC	3%	5.66A	150mVp-p	85W	90%	40,000µF
PSAQC100-24S		24 VDC	3%	4.2A	200mVp-p	100W	92%	6,000µF
PSAQC100-48S		48 VDC	3%	2.1A	240mVp-p	100W	93%	560µF

**NOTES**

1. A minimum loading on the output is required to maintain all specified regulations. Operation under no-load conditions will not damage these devices; however, they may not meet all listed specifications.
2. The minimum load increases by 0.16% for every 1°C drop in temperature (at input = 90~219VAC)
3. Ripple & noise is measured at 20MHz bandwidth, full load, and with 47µF and 0.1µF capacitors in parallel across the output.
4. It is necessary to add a Varistor 14S471K in parallel on the L/N input side and a 10R/Ø15 Thermistor in series on the L input side.
5. Screw terminal mechanical options available. Please call factory for ordering details.

**TECHNICAL SPECIFICATIONS: PSAQC100 SERIES**

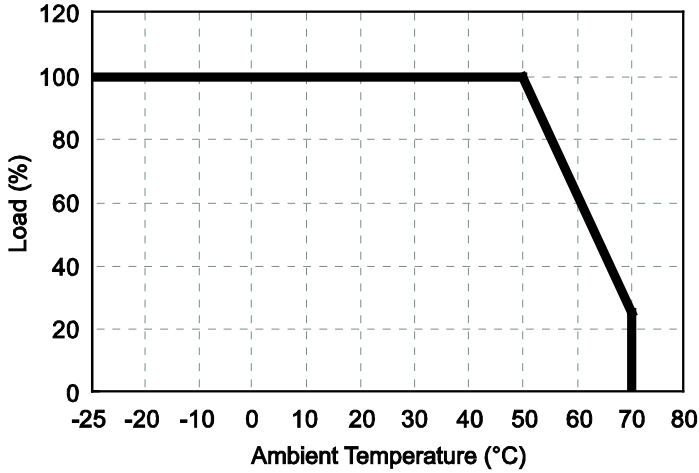
All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>					
Input Voltage	AC input voltage range	90		264	VAC
	DC input voltage range	120		370	VDC
Input Frequency		47		63	Hz
Input Current	At 115VAC and full load			2.0	A
	At 230VAC and full load			1.0	
Inrush Current (<2ms)	At 115VAC and cold start			30	A
	At 230VAC and cold start			60	
Power Factor	At 115VAC and full load	0.99			
	At 230VAC and full load	0.95			

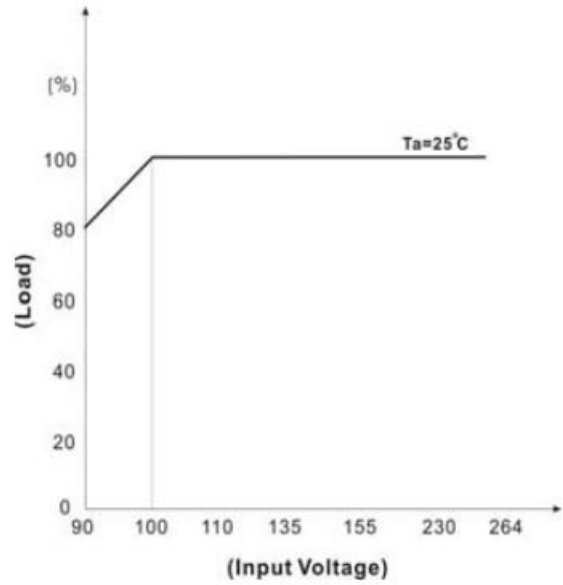
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Accuracy		-2		+2	%
Output Trim	See page 5	-5		+5	%
Line Regulation	Low Line to High Line	-1		+1	%
Load Regulation	5% - 100% full load	-1		+1	%
Output Power		See Table			
Output Current		See Table			
Minimum Load	Increases by 0.16% for every 1°C drop in temperature (at 90~219VAC)	3			%
Ripple & Noise (20MHz BW)	Measured with 0.1µF and 47µF capacitors in parallel	See Table			
Max Capacitive Load	At 230VAC	See Table			
Hold-up Time	At 110VAC and 90% Vout	10			ms
Temperature Coefficient	0~50°C	-0.03		+0.03	%/°C
PROTECTION					
Short Circuit Protection		Hiccup mode, auto-recovery			
Over Voltage Protection		Zener diode clamp			
Over Power Protection	Auto-recovery	105		108	%
GENERAL SPECIFICATIONS					
Efficiency		See Table			
Switching Frequency		100		133	kHz
Isolation Voltage	Input to Output	3000			VAC
	Input to FG	1500			
	Output to FG	500			
Leakage Current				0.5	mA
ENVIRONMENTAL SPECIFICATIONS					
Operating Temperature	With derating (see derating curve)	-25		+70	°C
Storage Temperature		-25		+85	°C
Humidity				95	% RH
Cooling		Free air convection			
Vibration	10~500Hz, 10 min./1 cycle, 60 min. each along X, Y, Z axes		2		G
MTBF	25°C (MIL-HDBK-217F, Notice 1)	250,000			hours
PHYSICAL SPECIFICATIONS					
Weight		10.93oz (310g)			
Dimensions (L x W x H)	Tolerance of ±0.1mm	4.3 x 2.30 x 1.18 inches (109.0 x 58.5 x 30.0 mm)			
SAFETY & EMC					
Safety Approvals		UL60950-1, CE, CB			
EMI (Conducted & Radiated Emissions)	Conductive plane to be connected to safety earth	EN61000-6-3, EN 55022 Class B			
EMS (Noise Immunity)		EN55024, EN61000-4-2,3,4,5,6,8,11			
Surge		2KV L-N, 4KV L N-FG			

DERATING

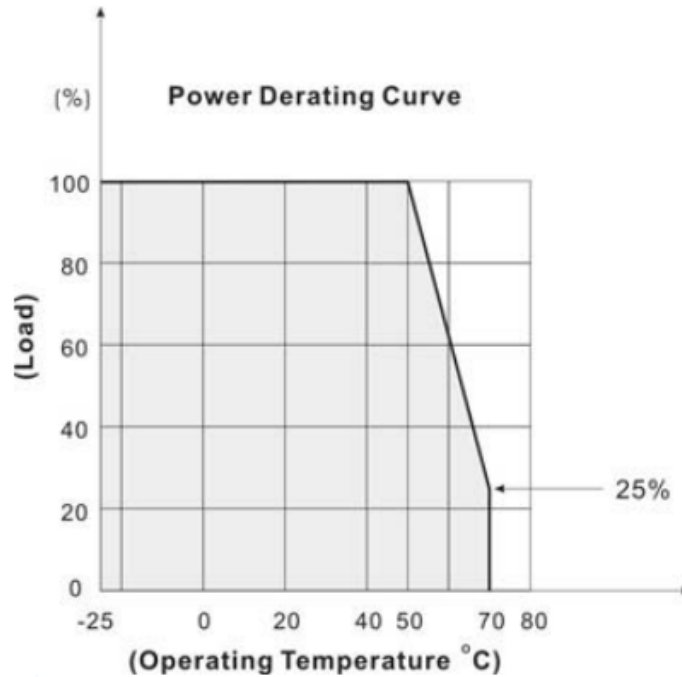
Load vs Ambient Temperature



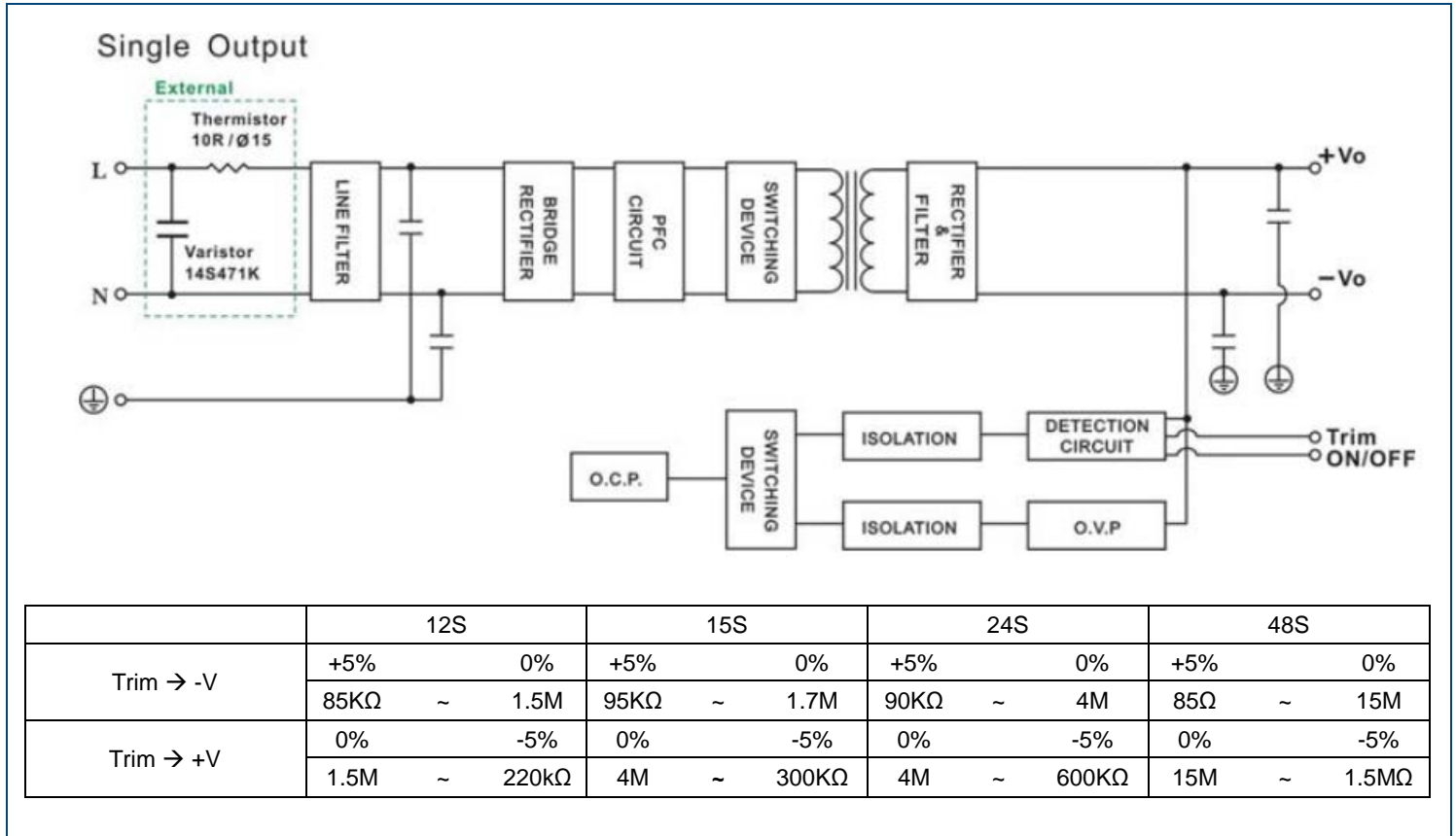
Load vs Input Voltage



Power Derating Curve



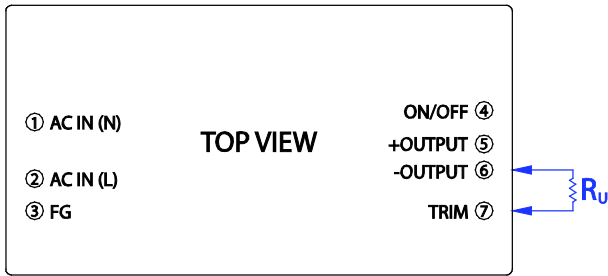
BLOCK  
DIAGRAM



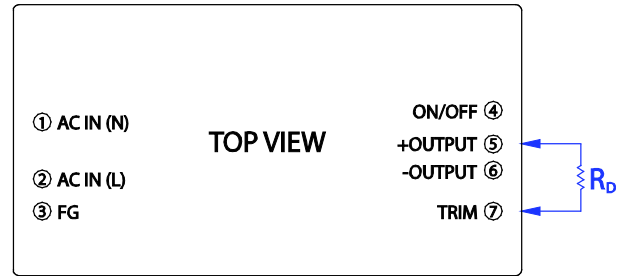
**OUTPUT TRIM**

Output voltage adjustability is for single output models only. Output voltage set-point adjustment allows the user to increase or decrease the output voltage set-point of a module. This is accomplished by connecting an external resistor between the TRIM pin and either the +OUTPUT or -OUTPUT pins. With an external resistor between the TRIM and -OUTPUT pins, the output voltage set-point increases. With an external resistor between the TRIM and +OUTPUT pins, the output voltage set-point decreases.

**Trim Up**



**Trim Down**



PSAQC100-12S		
Trim	V <sub>out,up</sub>	R <sub>up</sub>
0%	12.00V	1500kΩ
1%	12.12V	1217kΩ
2%	12.24V	934kΩ
3%	12.36V	651kΩ
4%	12.48V	368kΩ
5%	12.60V	85kΩ

PSAQC100-15		
Trim	V <sub>out,up</sub>	R <sub>up</sub>
0%	15.00V	1700kΩ
1%	15.15V	1379kΩ
2%	15.30V	1058kΩ
3%	15.45V	737kΩ
4%	15.60V	416kΩ
5%	15.75V	95kΩ

PSAQC100-12S		
Trim	V <sub>out,down</sub>	R <sub>down</sub>
0%	12.00V	1500kΩ
1%	11.88V	1244kΩ
2%	11.76V	988kΩ
3%	11.64V	732kΩ
4%	11.52V	476kΩ
5%	11.40V	220kΩ

PSAQC100-15		
Trim	V <sub>out,down</sub>	R <sub>down</sub>
0%	15.00V	1700kΩ
1%	14.85V	1420kΩ
2%	14.70V	1140kΩ
3%	14.55V	860kΩ
4%	14.40V	580kΩ
5%	14.25V	300kΩ

PSAQC100-24S		
Trim	V <sub>out,up</sub>	R <sub>up</sub>
0%	24.00V	4000kΩ
1%	24.24V	3218kΩ
2%	24.48V	2436kΩ
3%	24.72V	1654kΩ
4%	24.96V	872kΩ
5%	25.20V	90kΩ

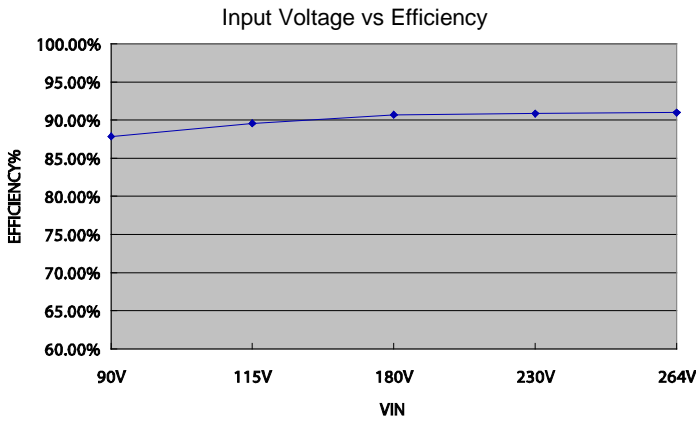
PSAQC1000-48S		
Trim	V <sub>out,up</sub>	R <sub>up</sub>
0%	48.00V	15000kΩ
1%	48.48V	12017kΩ
2%	48.96V	9034kΩ
3%	49.44V	6051kΩ
4%	49.92V	3068kΩ
5%	50.40V	85kΩ

PSAQC100-24S		
Trim	V <sub>out,down</sub>	R <sub>down</sub>
0%	24.00V	4000kΩ
1%	23.76V	3320kΩ
2%	23.52V	2640kΩ
3%	23.28V	1960kΩ
4%	23.04V	1280kΩ
5%	22.80V	600kΩ

PSAQC1000-48S		
Trim	V <sub>out,down</sub>	R <sub>down</sub>
0%	48.00V	15000kΩ
1%	47.52V	12300kΩ
2%	47.04V	9600kΩ
3%	46.56V	6900kΩ
4%	46.08V	4200kΩ
5%	45.60V	1500kΩ

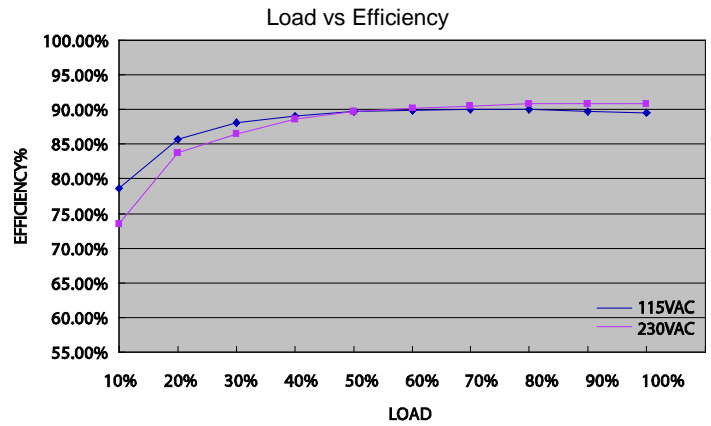
**EFFICIENCY VS LOAD CURVES**

**PSAQC100-12S**



VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	87.87	89.51	90.67	90.88	90.96

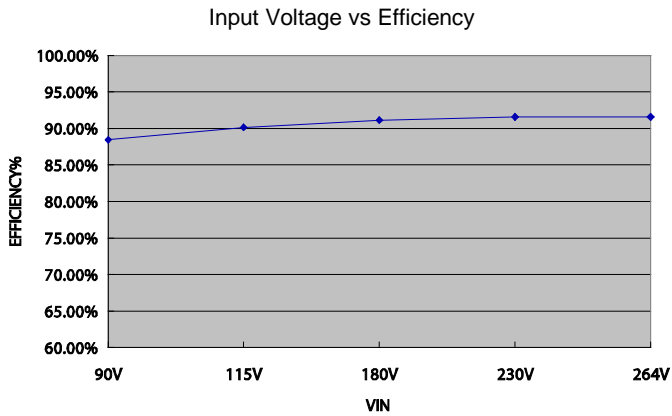


LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	78.62	85.67	88.07	89.14	89.76
230V (%)	73.49	83.84	86.57	88.55	89.76

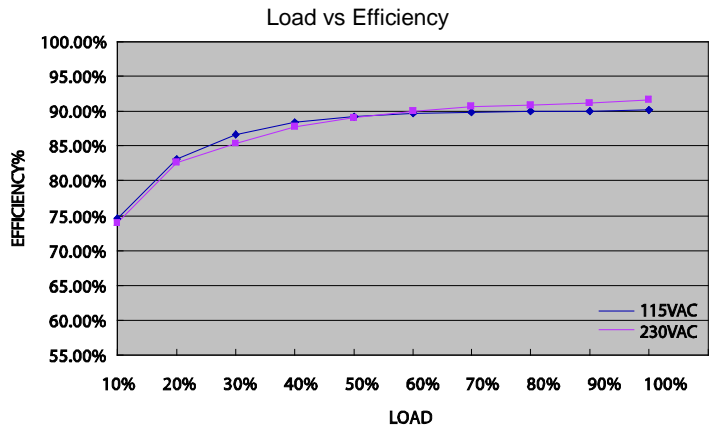
Load (%)	60	70	80	90	100
115V (%)	89.95	90.00	90.02	89.77	89.51
230V (%)	90.22	90.58	90.83	90.85	90.88

**PSAQC100-15S**



VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	88.41	90.17	91.11	91.59	91.53

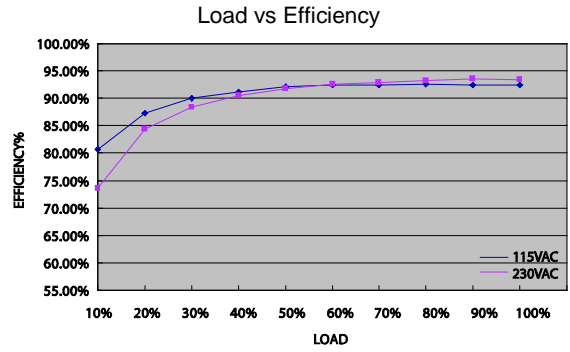
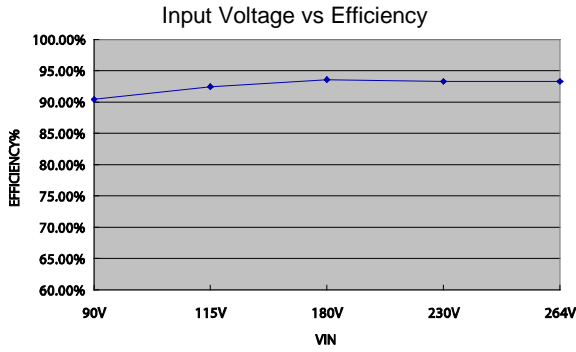


LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	74.53	83.09	86.59	88.41	89.20
230V (%)	73.94	82.70	85.31	87.77	89.14

Load (%)	60	70	80	90	100
115V (%)	89.70	89.93	89.99	90.11	90.17
230V (%)	89.97	90.63	90.91	91.15	91.59

PSAQC100-24S



VIN VS Efficiency

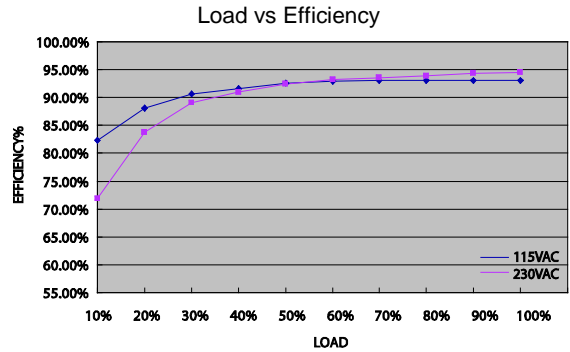
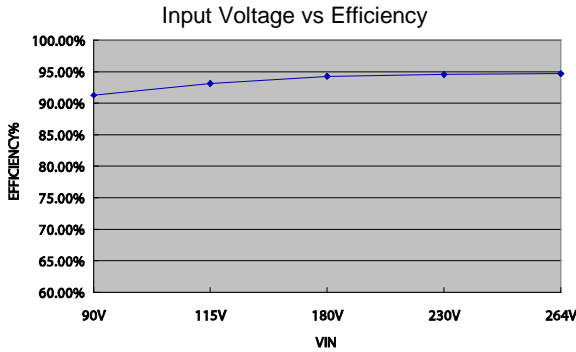
Input Voltage (V)	90	115	180	230	264
Efficiency (%)	90.45	92.45	93.62	93.62	93.26

LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	80.71	87.31	90.00	91.22	92.10
230V (%)	73.63	84.39	88.42	90.56	91.76

Load (%)	60	70	80	90	100
115V	92.41	92.51	92.53	92.47	92.45
230V	92.54	92.97	93.28	93.52	93.35

PSAQC100-48S



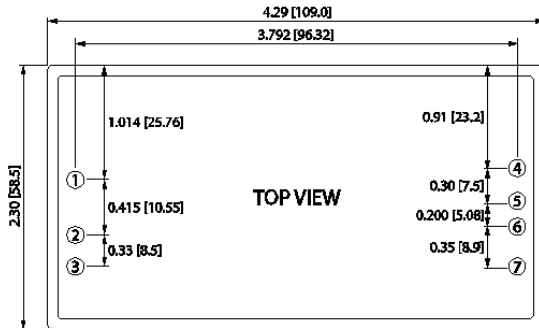
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	91.22	93.13	94.24	94.59	94.66

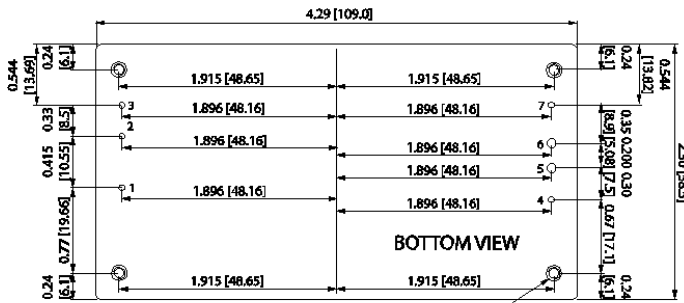
Load (%)	10	20	30	40	50
115V (%)	82.39	88.10	90.73	91.67	92.58
230V (%)	71.87	83.73	89.12	91.05	92.41

Load (%)	60	70	80	90	100
115V (%)	92.92	93.02	93.11	93.16	93.13
230V (%)	93.18	93.63	93.95	94.32	94.59

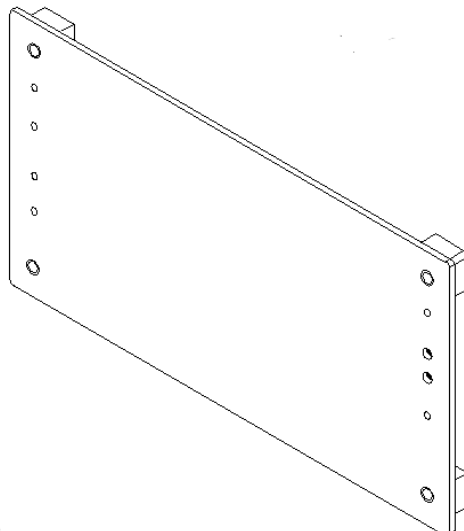
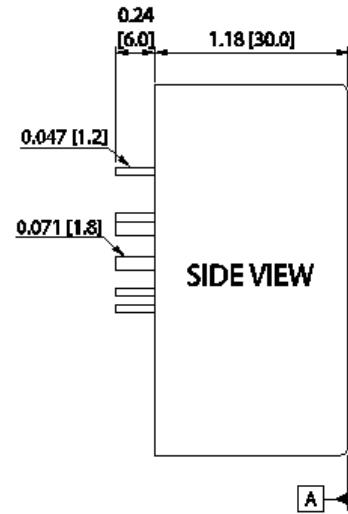
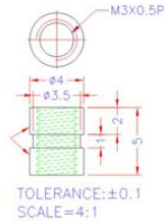
MECHANICAL DRAWING



PIN#	Φ	Single
1	1.2±0.1%mm	AC IN (N)
2	1.2±0.1%mm	AC IN (L)
3	1.2±0.1%mm	FG
4	1.2±0.1%mm	ON/OFF
		(Provide +5VDC Controlled)
5	1.8±0.1%mm	+DC OUT
6	1.8±0.1%mm	-DC OUT
7	1.2±0.1%mm	Trim



M3 X 0.5 FULL THREAD-THRU 4X  
CAUTION: Mounting hardware protrusion into unit must not exceed a maximum depth of 0.20 [5.0] from surface-A



- NOTES:
1. Unit: Inches (mm)
  2. Tolerance: ±0.004 [±0.1]
  3. Pin Diameter Tolerance: ±0.004 [±0.1]
  4. Reserve Pin 4 hole on the PCB. If Remote On/Off function is not being used, connect Pin 4 circuit layout with Pin 6 or keep Pin 4 floating.
  5. All dimensions are for reference only.

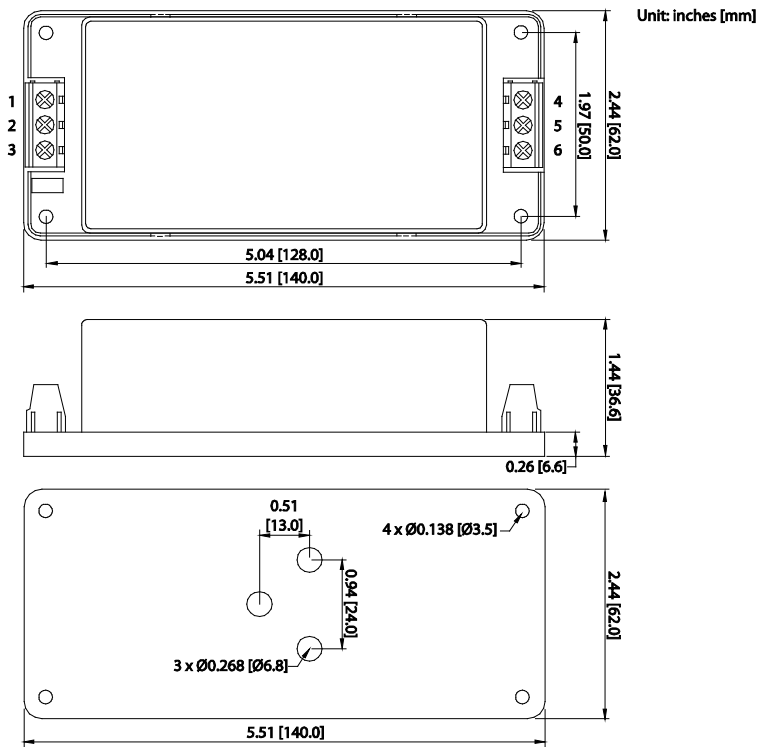


SCREW TERMINAL  
OPTIONS

PSAQC100-A2



PIN CONNECTIONS	
PIN	ASSIGNMENT
1	AC IN (L)
2	AC IN (N)
3	FG
4	ON/OFF
5	+OUTPUT
6	-OUTPUT
7	TRIM



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.

Contact **Wall Industries** for further information:

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