Wall Industries, Inc.

PSAK3000 SERIES

90~264VAC (127~370VDC) Input
3000 Watts Output Power
Single Output, Active PFC
AC/DC Switching Power Supplies

FEATURES

- Single Output
- Internal Ball Bearing Fan
- RoHS Compliant
- Universal AC Input
- Active PFC
- Programmable Output Voltage (30% ~ 105%)
- Programmable Output Current (40% ~ 105%)
- High Efficiency up to 90%
- +5V / 0.5A Auxiliary Output
- 3U Profile, High Power Density 10.8W/in^3
- Forced Current Sharing at Parallel Operation
- Power OK Signal (Power Good, Logic Low)
- Remote ON/OFF, Remote Sense Function
- Protection: Over Voltage, Over Load, Over Temperature, Short Circuit Protection, and Fan Failure

DESCRIPTION

The PSAK3000 series of AC/DC switching power supplies offers 3000 Watts of output power in a 12.01” x 5.00” x 5.00” enclosed case. This series has a universal input voltage range of 90~264VAC (127~370VDC) and single outputs of 12, 15, 24, 27, and 48VDC. Standard features include high efficiency up to 90%, active power-factor-correction, programmable output voltage and output current, remote on/off, remote sense, power OK signal, and internal ball bearing fan. This series also has over voltage, short circuit, over load, and over temperature protection. All models are RoHS compliant and have UL/cUL, TUV, and CE safety approvals.

SPECIFICATIONS: *PSAK3000 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.

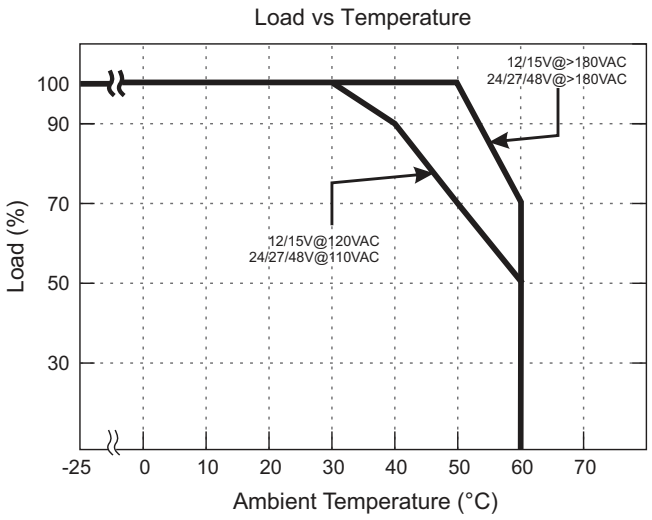
INPUT SPECIFICATIONS		
Input Voltage Range *(see note 3)*		90 ~ 264VAC (127 ~ 370VDC)
Input Frequency		47 ~ 63Hz
AC Current		36A typ. @ 115VAC; 18A typ. @ 230VAC
Inrush Current		45A typ. @ 115VAC; 90A typ. @ 230VAC
Power Factor (typical)		EN61000-3-2 (0.99 @ 115VAC, 0.98 @ 230VAC and full load)
OUTPUT SPECIFICATIONS		
Output Voltage		See Table
Output Power		3000W
Output Voltage Adjustability		±5.0% typical adjustment by potentiometer (VR1)
Voltage Tolerance *(see note 2)*		±1.0%
Load Regulation		±0.5%
Line Regulation		±0.5%
Output Current		See Table
Ripple & Noise *(see note 1)*		150mVp-p max.
Setup, Rise Time		800ms at full load, 200ms at full load
Hold-Up Time		20ms typ. @ 230VAC and full load
Temperature Coefficient		±0.02% / °C (0 ~ 50°C)
PROTECTION		
Short Circuit Protection (SCP)		yes
Over Voltage Protection (OVP)		Variable OVP, 120% ±5% Vout. Protection Type: Latch-style (recovery after reset AC power ON or inhibit)
Over Load Protection (OLP)		105% ~ 110% rated output power Protection type: Constant current limiting. Latch-style (recovery after reset AC power ON or inhibit)
Over Temperature Protection (OTP)		80±5°C Protection type: Shutdown output voltage (auto-recovery after temperature goes down)
FUNCTIONS		
Auxiliary Power		5V @ 0.5A (±3%)
Remote ON/OFF Control *(see page 5)*		External switch or NPN transistor to turn ON / OFF
Remote Sense		yes
Power OK Signal *(see page 6)*		Open drain signal low when PSU turns on. Max. sink current: 20mA, Max. drain voltage: 40V
Output Voltage Trim *(see page 5)*		Adjustment of output voltage is between 30 ~ 105% of rated output
Output Current Trim *(see page 5)*		Adjustment of output current is between 40 ~ 105% of rated output
Parallel (Current Sharing) *(see note 4)*		yes
GENERAL SPECIFICATIONS		
Efficiency (typical)		See Table
Withstand Voltage	Input to Output	3000VAC (for 1 minute)
	Input to FG	1500VAC (for 1 minute)
	Output to FG	500VAC (for 1 minute)
Isolation Resistance		100MΩ @ 500VDC (input to output, input to FG, output to FG)
Leakage Current		< 2.5mA @ 240VAC
ENVIRONMENTAL SPECIFICATIONS		
Working Temperature		-25°C to +60°C (see derating curve)
Storage Temperature		-40°C to +85°C
Working Humidity		20% to 90% RH (non-condensing)
Storage Humidity		10% to 95% RH
Vibration		Compliance to IEC 68-2-6, IEC 68-2-24
Cooling		Controlled by power rating and temperature (internal ball bearing fan)
PHYSICAL SPECIFICATIONS		
Weight, Packing		14.11 lbs (6400 g); 2pcs/12.8kg/0.46 CUFT
Dimensions (L x W x H) *(see page 4)*		12.01 x 5.00 x 5.00 inches (305 x 127 x 127 mm)
SAFETY & EMC *(see note 5)*		
Safety Standards		UL60950-1, 2nd Edition, TUV EN60950-1: 2006+A11 Approved
EMI Conduction & Radiation		EN55022: 2006 Class A
Harmonic Current		EN61000-3-2: 20006 Class B, EN61000-3-3: 1995+A1: 2001+A2: 2005
EMS Immunity		EN61204-3: 2000, EN55024: 1998+A1: 2001+A2: 2003 light industry level, criteria A

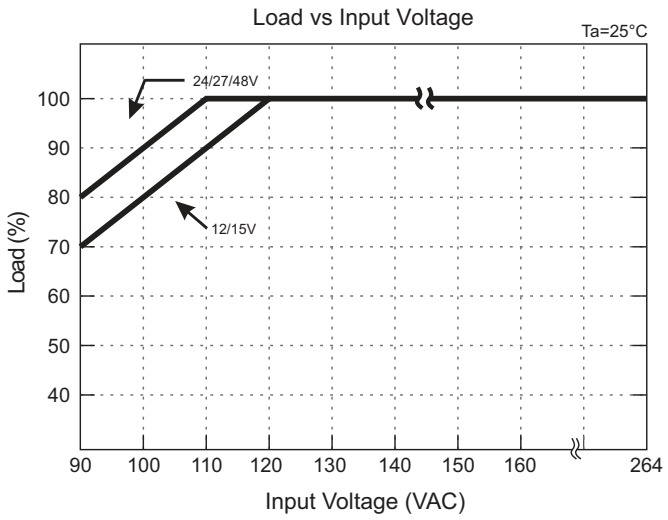
MODEL SELECTION TABLE						
Model Number	**Input Voltage (3) Range**	**Output Voltage**	**Output Current**	**Output (1) Ripple & Noise**	**Output Power**	**Efficiency**
PSAK-3000-12	90 ~ 264 VAC (127 ~ 370 VDC)	12 VDC	250A	150mVp-p	3000W	87%
PSAK-3000-15	90 ~ 264 VAC (127 ~ 370 VDC)	15 VDC	200A	150mVp-p	3000W	88%
PSAK-3000-24	90 ~ 264 VAC (127 ~ 370 VDC)	24 VDC	125A	150mVp-p	3000W	89%
PSAK-3000-27	90 ~ 264 VAC (127 ~ 370 VDC)	27 VDC	111A	150mVp-p	3000W	89%
PSAK-3000-48	90 ~ 264 VAC (127 ~ 370 VDC)	48 VDC	62.5A	150mVp-p	3000W	90%

NOTES

1. Ripple & noise is measured at 20MHz bandwidth by using a 12" twisted pair-wire terminated with a 0.1µF capacitor and a 47µF capacitor in parallel.
2. Tolerance includes set up tolerance, line regulation, and load regulation.
3. For voltages near the low end of the input voltage range, see the derating curve for the power supply output rating.
4. When in parallel operation only one unit might operate if the total output load is less than 5% of the rated load condition.
5. The power supply is considered a component which will be installed into final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

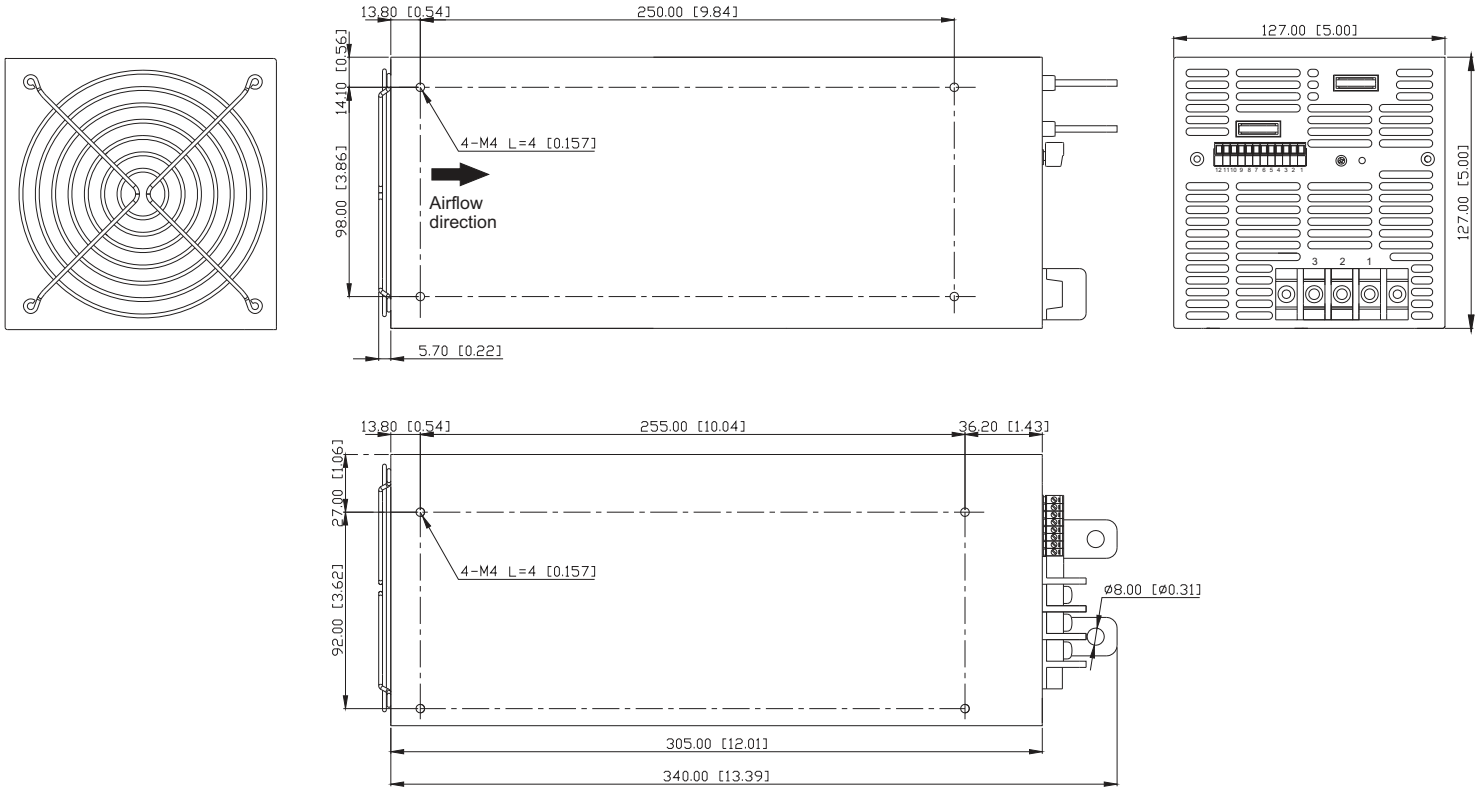
DERATING CURVES





MECHANICAL DRAWING

Unit: mm [inches]

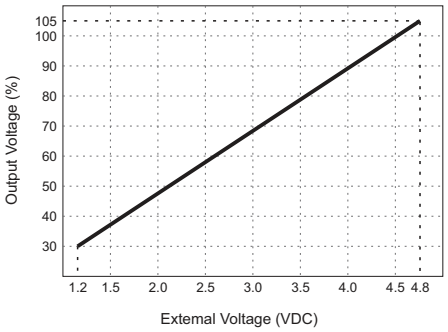


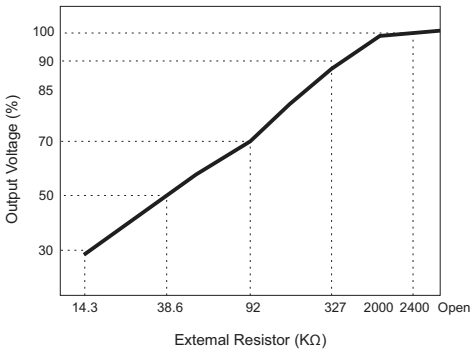
AC Input Terminal Pin Number Assignment	
Pin No.	**Assignment**
1	AC(L)
2	AC(N)
3	⏚

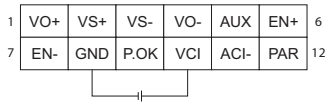
Control Pin Number Assignment		
Pin No.	**Assignment**	**Description**
1	VO+	Local output voltage sense (+)
2	VS+	Remote voltage sense (+)
3	VS-	Remote voltage sense (-)
4	VO-	Local output voltage sense (-)
5	AUX	+5V / 0.5A Auxiliary power
6	EN+	Inhibit ON/OFF (+)
7	EN-	Inhibit ON/OFF (-)
8	GND	Ground
9	P.OK	Power OK
10	VCI	V program
11	ACI	I Program
12	PAR	Parallel operation current share

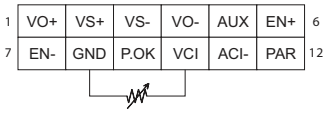
FUNCTIONS

1. Output Voltage Trim

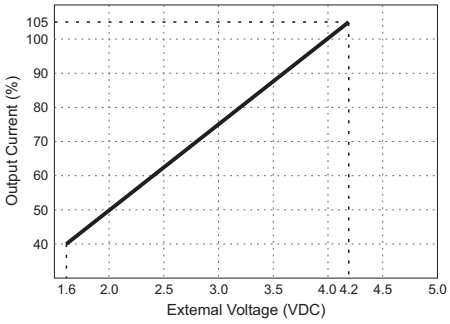


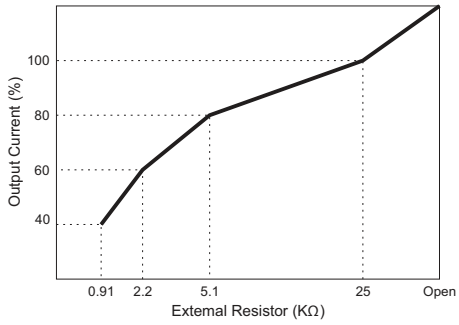


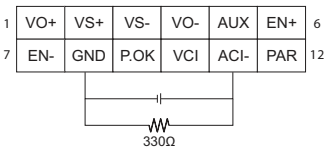


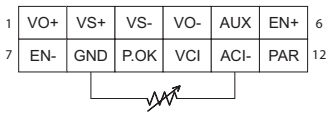


2. Output Current Trim



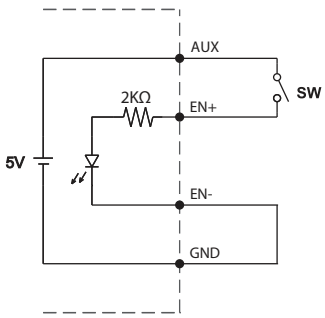






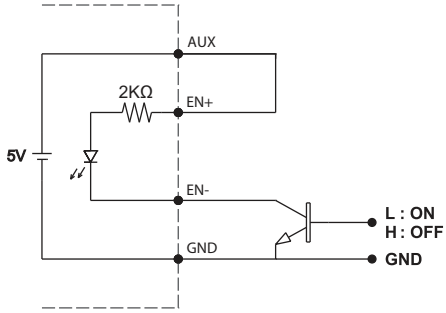
3. Remote ON/OFF

(A)



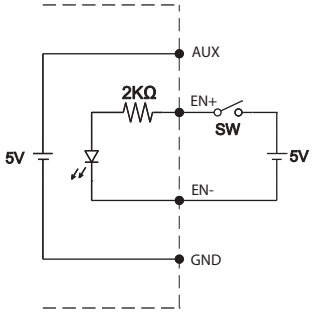
(A) Using Internal 5V auxiliary source

(B)



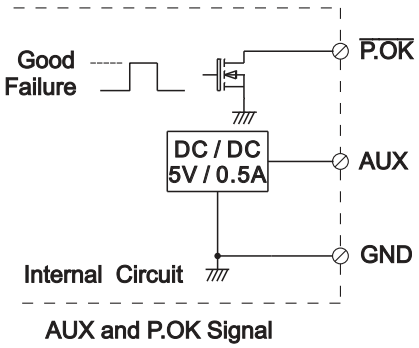
(B) ON/OFF Control by NPN transistor

(C)



(C) Using external voltage source

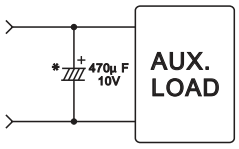
4. Power OK Signal



AUX and P.OK Signal

* Place an additional capacitor to have a better performance of auxiliary power operation.

* The grounding of "AUX" power should be connected to "GND" port. If "V-" is connected as Ground, make sure to short the GND and V- ports.

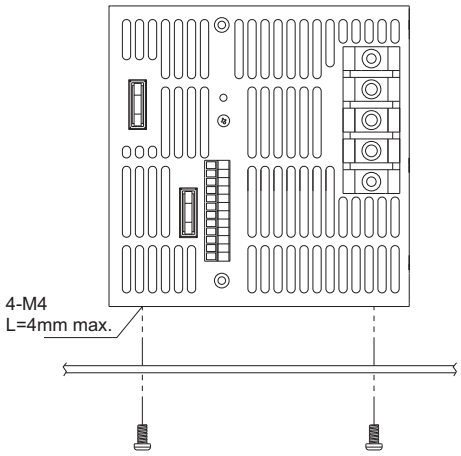


INSTALLATION INSTRUCTIONS

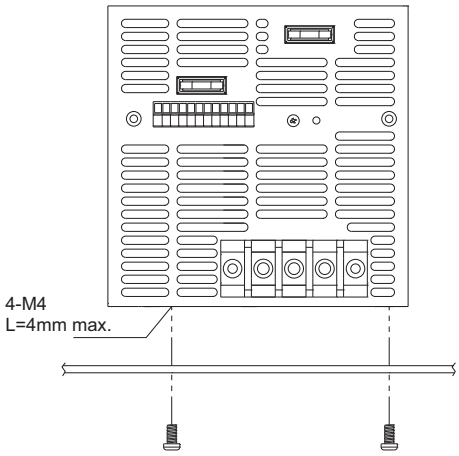
1. Mounting Directions

1.1 Recommended standard mounting methods:

(A)



(B)

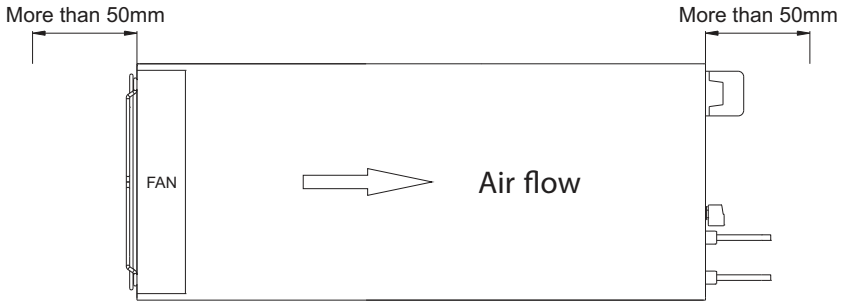


2. Mounting Method

2.1 There are ventilating holes on the front and back side panels. Do not obstruct; allow at least 50mm for airflow.

2.2 The maximum allowable penetration of the screws is 4mm. Incomplete threading should not be penetrated.

2.3 Recommended torque of mounting screw:
M4 screw: 1.27N • m (13.0kgf • cm)



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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