

AC-DC Converter

**POWER
SOLVE**

PAK3000 Series 3000W Active PFC Single Output

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Features

- Universal AC Input with 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
- Forced current sharing for parallel operation
- Power OK signal (Power good, logic low)
- Remote ON/OFF, Remote Sense function
- OVP, OLP, OTP, SCP, Fan Failure Protections



Electrical Specification

Input Voltage	90-264VAC, 47-63Hz / 127-370VDC. Below 100VAC, derate load linearly to 90% at 90VAC
Power Factor	EN61000-3-2 (0.98 at 230VAC / 0.99 at 115VAC at full load)
AC Input Current (typ.)	36A at 115VAC / 18A at 230VAC
Inrush Current	60A at 115VAC / 90A at 230VAC
Leakage Current	<2.5mA at 240VAC
Output Voltage	See Table
Output Current	See Table
Voltage Tolerance	±1%
Voltage Adjust Range	±5.0% typical adjustment by potentiometer
Overload Protection	105-110% of rated output power. Constant I Limiting, output latches off, recycle AC input to recover
Overvoltage Protection	Variable OVP, 120% ±5% of Vout. Output latches off, recycle AC input to recover
Over Temperature Protection	80±5°C. Shuts down output, recovers automatically when temperature goes down
Auxiliary Power	+5V @ 0.5A (±3%)
Remote ON/OFF Control	External switch or NPN transistor to turn on/off
Power OK Signal	Open drain signal low when PSU turns on. Max. sink current 20mA, max. drain voltage 40V
Output Voltage Programming	Adjustment of output voltage between 30-105% of rated output (see graph)
Output Current Programming	Adjustment of output current between 40-105% of rated output (see graph)
Operating Temperature Range	-25°C to +60°C. Above 30°C, derate linearly to 70% load at 60°C
Operating Humidity	20-90% RH non-condensing
Storage Temperature Range	-40°C to +85°C
Storage Humidity	10-95% RH non-condensing
Temperature Coefficient	±0.02%/°C (0-50°C)
Vibration	10-500Hz, 1G 10min./1 cycle, period 60 mins each along X, Y & Z axes. Compliance to IEC 60068-2-6-2007
Safety Standards	UL60950-1 2nd edition, TUV EN60950-1: 2006+A11 Approved
Withstand Voltage	I/P-O/P: 3KVAC, I/P-FG: 1.5KVAC, O/P-FG: 0.5KVAC
Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: 100MΩ / 500VDC
EMI Conduction & Radiation	EN55022: 2006 Class A
Harmonic Current	EN61000-3-2: 2006 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
Cooling	Controlled by power rating & temperature (internal fan). Ensure 50mm free space at each end.
Dimensions	305(L) x 127(W) x 127(H) mm
Weight	6.4Kg

Notes:

1. All parameters NOT specifically mentioned are measured at 230Vac input, rated load and 25°C ambient temperature
2. Ripple and noise are measured at 20MHz bandwidth by using a 12" twisted pair wire terminated with a 0.1µF ceramic & 47µF electrolytic capacitors across the output
3. Derating is required at low input voltages. Below 100Vac, derate linearly to 90% load at 90Vac
4. When parallel connected, only one unit may operate if the total output load is less than 5% of rated load
5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC Directives

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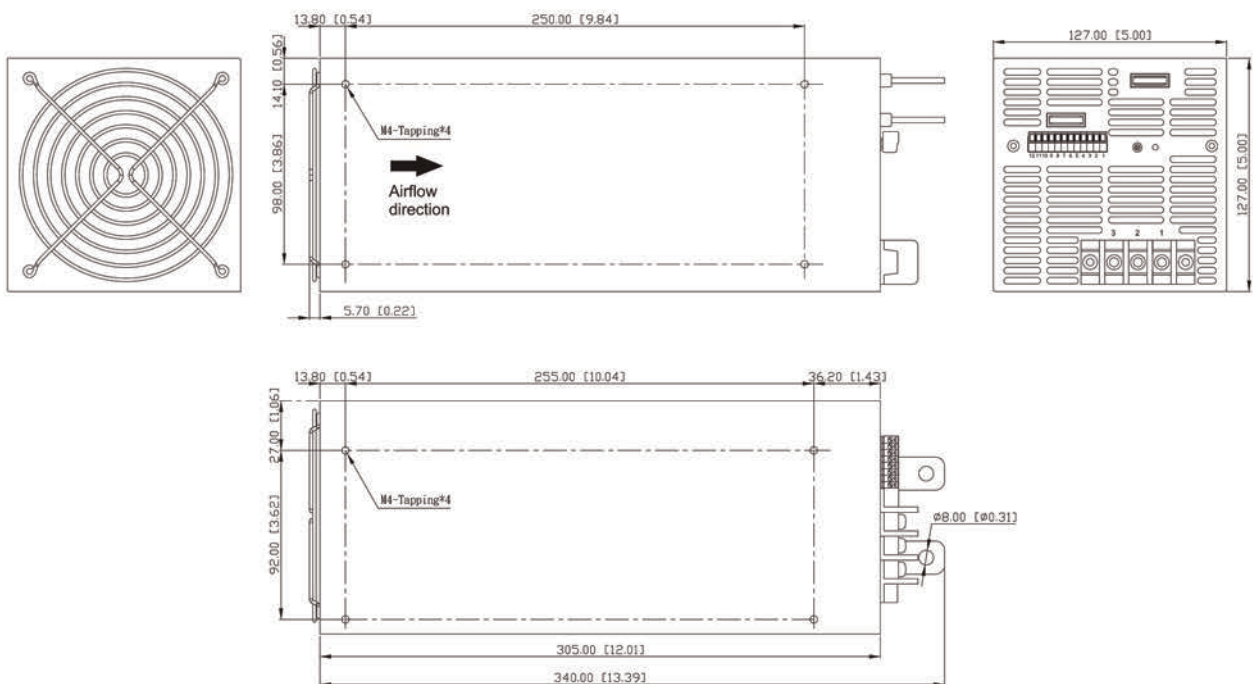


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Output Voltage and Current Ratings

MODEL	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	RIPPLE & NOISE	LINE REG.	LOAD REG.	POWER Max.	EFF.
PAK3000-12	12V	250A	150mV p-p	±0.5%	±0.5%	3000W	87%
PAK3000-15	15V	200A	150mV p-p	±0.5%	±0.5%	3000W	88%
PAK3000-24	24V	125A	150mV p-p	±0.5%	±0.5%	3000W	89%
PAK3000-27	27V	111A	150mV p-p	±0.5%	±0.5%	3000W	89%
PAK3000-48	48V	62.5A	150mV p-p	±0.5%	±0.5%	3000W	90%

Mechanical Details



Connection Details

Input Connector

Pin No.	Function	Description
1	ACL	Live
2	ACN	Neutral
3	PE	Earth

Control Connector

Pin No.	Function	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+	Remote ON/OFF (+)
7	EN-	Remote ON/OFF (-)
8	GND	Ground
9	POK	Power OK
10	VCI	V Program
11	ACI	I Program
12	PAR	Parallel Operation Current Share

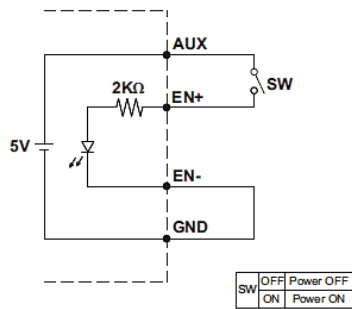
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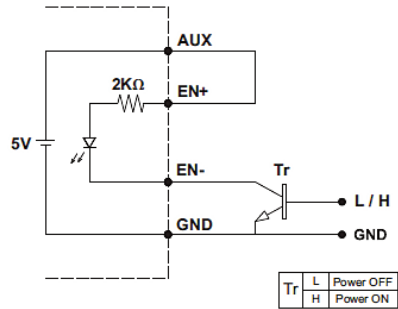
Remote ON/OFF

(A)



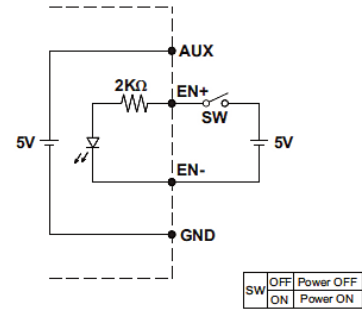
(A) Using internal 5V auxiliary source

(B)



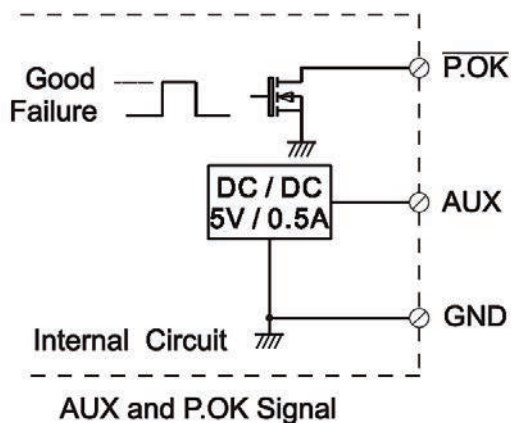
(B) ON / OFF Control by NPN transistor

(C)



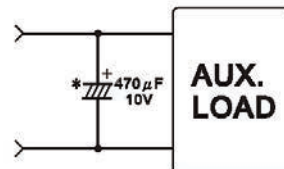
(C) Using external voltage source

Power OK Signal

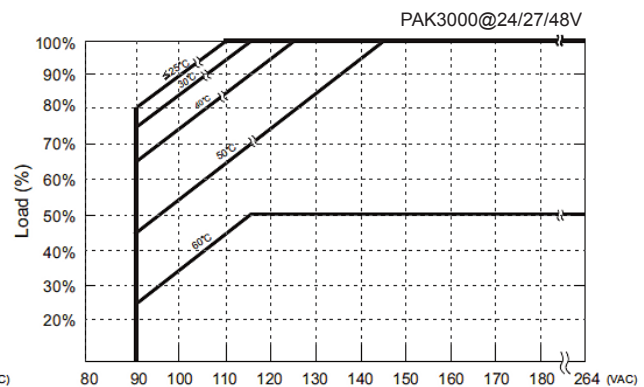
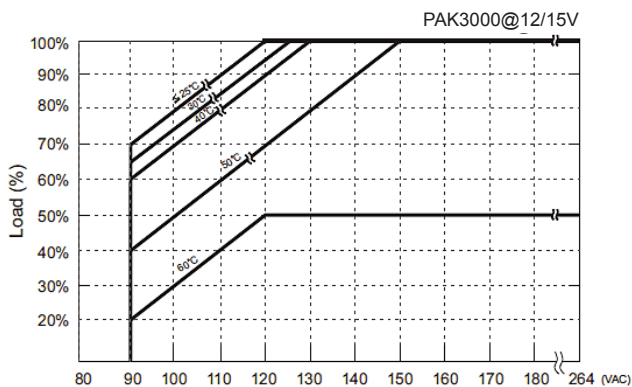


*Place an additional capacitor to have a better performance of auxiliary power operation.

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



Derating Curve



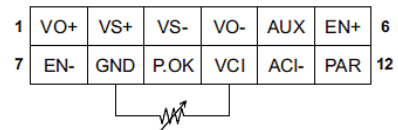
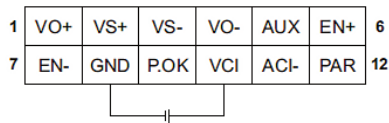
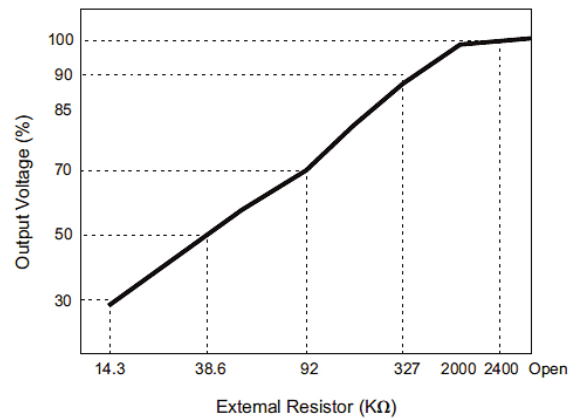
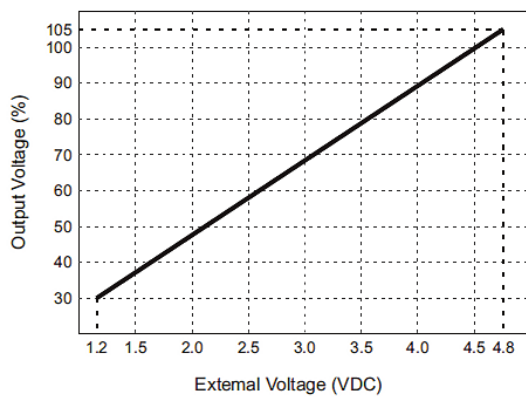
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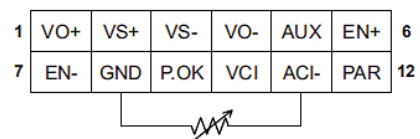
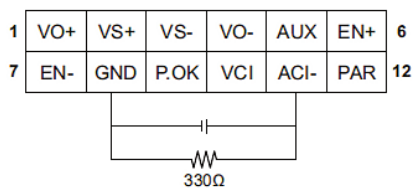
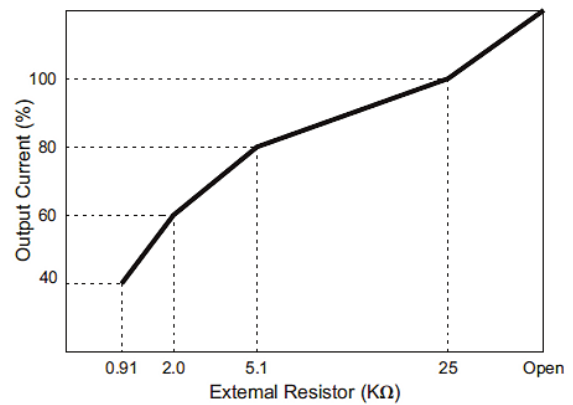
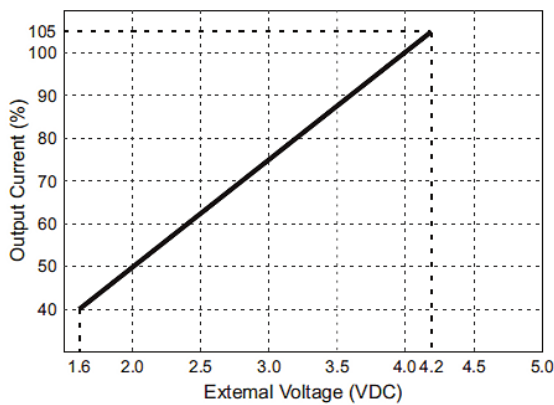
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Output Voltage & Current Trim

Output Voltage Trim



Output Current Trim

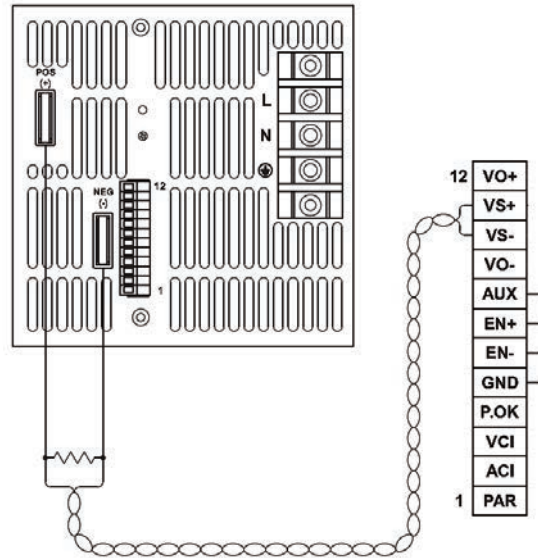


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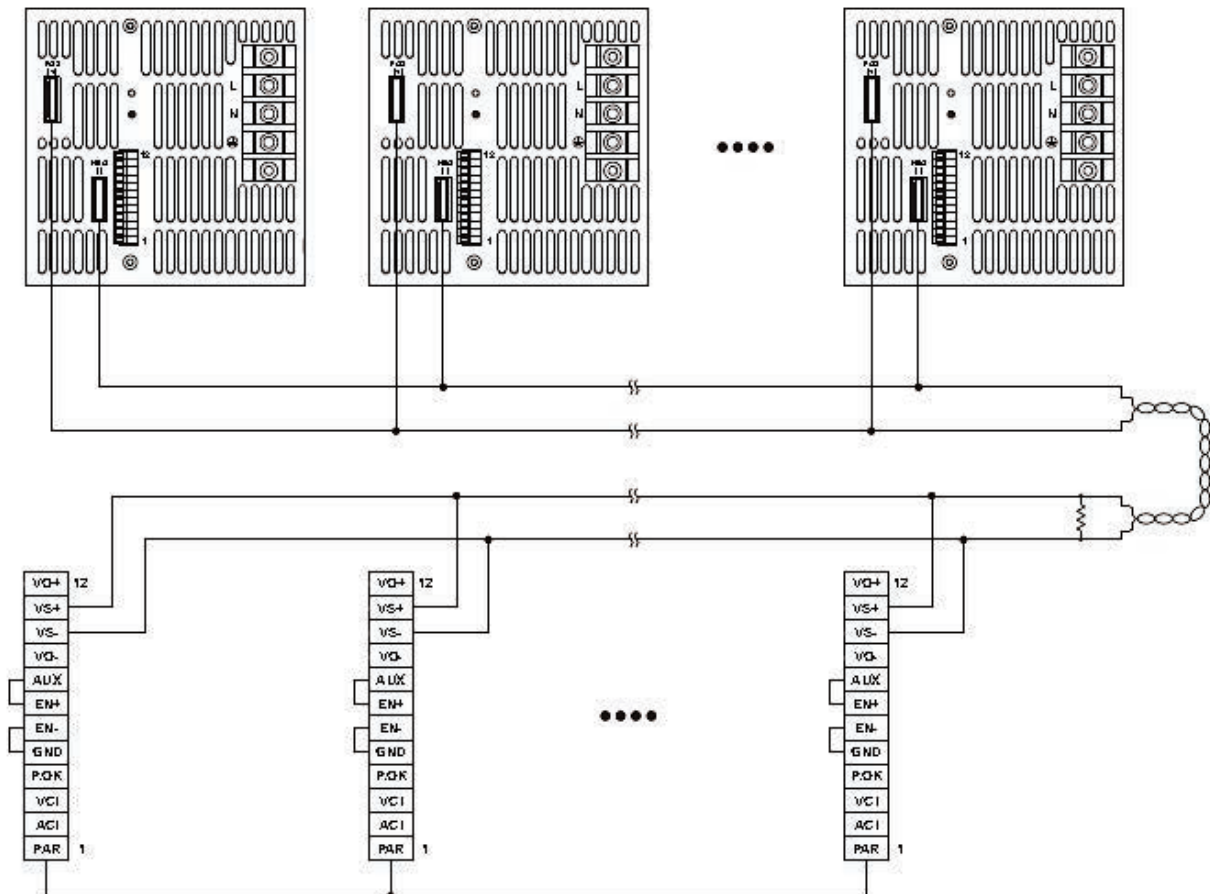


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Remote Sense



Current Sharing with Remote Sense



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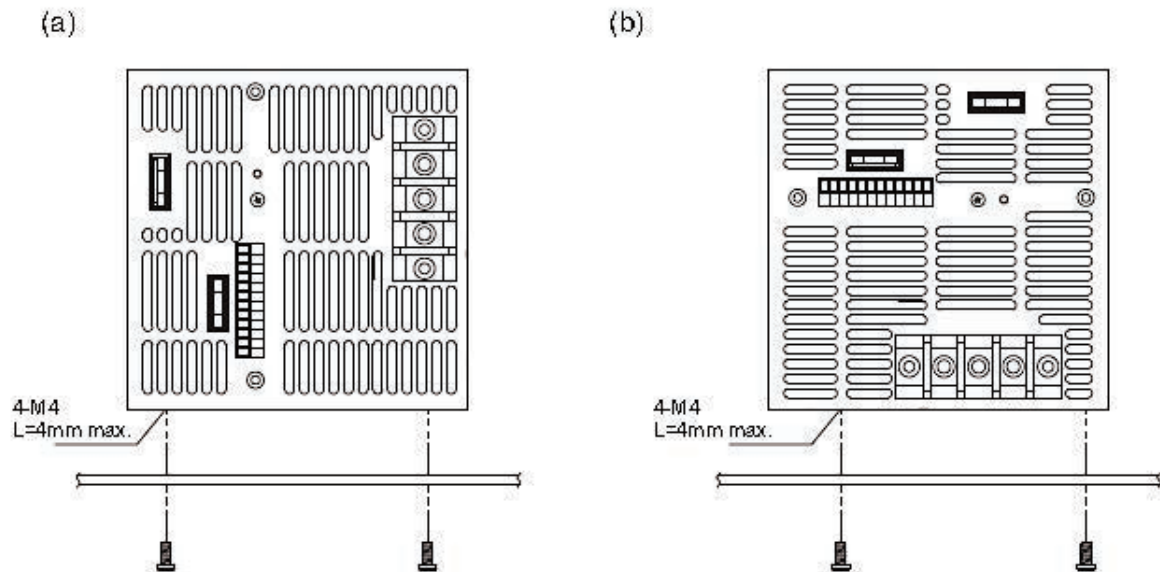


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Installation Instructions

1. Mounting Directions

1-1 Recommended standard mounting methods:



2. Mounting Method

2-1 There are ventilating holes on the front and back side panels, do not obstruct; allow 50mm at least for air flow.

2-2 The Maximum allowable penetration of screw is 4mm. Incomplete threading should not be penetrated.

2-3 Recommended the torque of mounting screw:
M4 screw: 1.27N · m (13.0kgf · cm)

