



Data Sheet

PFC FlatPAC™

575 W Power Factor Corrected AC-DC Power Supply



Features

- Inputs: 85 – 264 Vac universal
- Meets FCC Part 15, EN55022, Class A conducted emissions
- 75-85% efficiency
- cTÜVus, CE marked
- Remote sense and current limit
- 8 mS min. ride-through time
- OVP and thermal shutdown
- Up to 575 W output

Product Highlights

The PFC FlatPAC uses Vicor's field-proven VI-HAM and Maxi DC-DC converters to deliver up to 575 Watts of clean, reliable power. The PFC FlatPAC is a single-output power supply available with standard output voltages from 3.3 – 54 Vdc. It operates from an input of 85 – 264 Vac, includes active power factor correction (0.99 power factor), and meets EN61000-3-2 harmonic current limits. Internal filtering provides compliance to EN55022-A conducted EMI. It is available in Vicor's low profile 1.37" (34,8 mm) FlatPAC chassis, in either finned or conduction-cooled (CC) versions.

Not recommended for new designs.

Actual size:
9.25 x 4.9 x 1.37 in
234,8 x 124,4 x 34,8 mm

PFC FlatPAC Selection Chart

VI-CMU [a] - [] - [] - []
[a] E for RoHS compliant

[] Output Voltage

Y = 3.3 V	L = 28 V
0 = 5.0 V	J = 36 V
1 = 12 V	4 = 48 V
2 = 15 V	G = 54 V
3 = 24 V	

[] Product Grade Temps. (°C)

E = 0 to +85 case
C = 0 to +85 case
I = -30 to +85 case

[] Output Power/Current Vout

V _{OUT} ≤ 5 V	V _{OUT} ≥ 12 V
Q = 80 A	M = 575 W

[] Options

CC = Conduction cooled

FLATPAC SPECIFICATIONS

(typical at = 25°C, 120/240 Vac line and 75% load, unless otherwise specified)

■ INPUT CHARACTERISTICS

Parameter	Min	Typ	Max	Unit	Note
AC line input					
Universal	85		264	Vac	
Line frequency		47 – 63		Hz	Unit will operate at 400 Hz but may not meet Power Factor or Total Harmonic Distortion specs. Efficiency may be reduced.
Inrush current					
230 Vac operation, full load			20	A	
Ride-through time (full load)					
85 – 264 Vac	8			ms	
Dielectric withstand					
Primary to chassis GND		2,121		Vdc	
Primary to secondary		4,242		Vdc	
Secondary to chassis GND		707		Vdc	
Power Factor	0.99				
Total Harmonic Distortion			7.5%		Sinusoidal, 115 Vac, full load
			8.5%		Sinusoidal, 230 Vac, full load

■ OUTPUT CHARACTERISTICS (see datasheet for V375 Maxi family for additional info)

	E-Grade			C-, I-Grade			Units	Note
	Min	Typ	Max	Min	Typ	Max		
Set point accuracy		1%	2%		0.5%	1%	V _{NOM}	
Line regulation								
low line			0.5%		0.02%	0.2%	V _{NOM}	85 – 264 Vac, 0 – 350 W
nominal to high line			0.5%		0.02%	0.2%	V _{NOM}	115 – 264 Vac, 0 – 575 W
Load regulation								
low line			1%		0.2%	0.5%	V _{NOM}	85 – 264 Vac, 0 – 350 W
nominal to high line			1%		0.2%	0.5%	V _{NOM}	115 – 264 Vac, 0 – 575 W
Output temperature drift		0.02			0.01	0.02	%/°C	Over rated temperature
Long term drift		0.02			0.02		%/1 k hours	
Output ripple								
3.3 V			150		120	150	mVp-p	20 MHz bandwidth
5 V			5%		120	150	mVp-p	20 MHz bandwidth
12-54 V			3%		2%	3%	p-p	20 MHz bandwidth
Output voltage trimming	10%		110%	10%		110%		See vicorpower.com for trim calculator
Total remote sense compensation			0.5			0.5	Volts	0.25 V max. neg. leg
OVP set point		125%		115%	120%	125%	V _{NOM}	Recycle power
Current limit	102%		135%	102%		135%	I _{NOM}	Automatic restart
Short circuit current	70%		140%	70%		135%	I _{NOM}	

FLATPAC SPECIFICATIONS

(typical at = 25°C, 120/240 Vac line and 75% load, unless otherwise specified)

■ THERMAL CHARACTERISTICS

	E-Grade			C-, I-Grade			Units	Note
	Min	Typ	Max	Min	Typ	Max		
Efficiency		70 – 80%			75 – 85%			
Shut down temp. — case	90	95	105	90	95	105	°C	Cool and recycle power to restart
Operating temp. — case			85			85	°C	See Thermal Curves

■ MECHANICAL SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Note
Weight		44.8 (1304)			Ounces (Grams)

■ SAFETY AGENCY APPROVALS

cTÜVus	UL 60950-1, CSA 60950-1, EN60950-1, IEC 60950-1
CE	Low voltage directive 73/23/EEC

■ ENVIRONMENTAL CHARACTERISTICS/PRODUCT GRADE DESIGNATORS

Parameter	Min	Typ	Max	Unit	Note
Storage temperature		-20 to +100		°C	C-Grade and E-Grade
		-55 to +100		°C	I-Grade
Operating temperature (case)		0 to +85		°C	C-Grade and E-Grade
		-30 to +85		°C	I-Grade

■ EMI / EMC CHARACTERISTICS (Performed on selected samples representative of the PFC FlatPAC product family.)

Parameter	Min	Typ	Max	Unit	Note
Conducted emissions					EN 55022:1998, CISPR 22: 1997; Class A
Radiated emissions					EN 55022:1998, CISPR22: 1997; Class B
Harmonic current emissions					EN 61000-3-2/A14: 2000; Class A.
Voltage fluctuations and flicker					EN 61000-3-3:1995
Electrostatic discharge					EN 61000-4-2: 1995; Level 4; Compliance Criteria A; 8 kV Contact, 15 kV Air Discharge
RF radiated immunity, E-field					EN 61000-4-3: 1996 & Amendment 1, 1998; Table 1; 80 MHz to 2.0 GHz; Level 3 (10 V/m); Compliance Criteria A.
Electrical fast transients/burst					EN 61000-4-4: 2004, Class 3, Compliance Criteria B: 0.5 kV; 1.0 kV; and 2.0 kV.
Power line surge immunity					EN 61000-4-5, Class 3; Compliance Criteria B, Common-Mode: 2.0 kV; Differential-Mode: 1.0 kV.
RF conducted immunity					EN 61000-4-6: 1996 w/Amendment 1; Level 3; (10 V _{RMS}); Performance Criteria A; 150 kHz to 80 MHz.
Voltage dips and interrupts					EN61000-4-11: 1994; Class 3; Compliance Criteria B

Note: All temperature derating performed at 120 Vac input

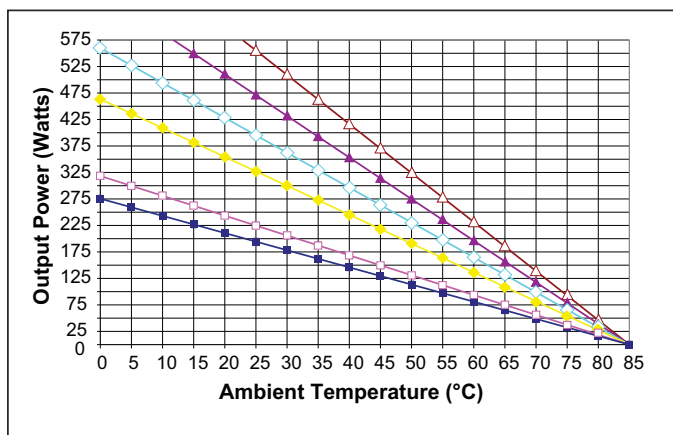


Figure 1 — Output power derating vs. temperature, $V_{out} \geq 12\text{ V}$

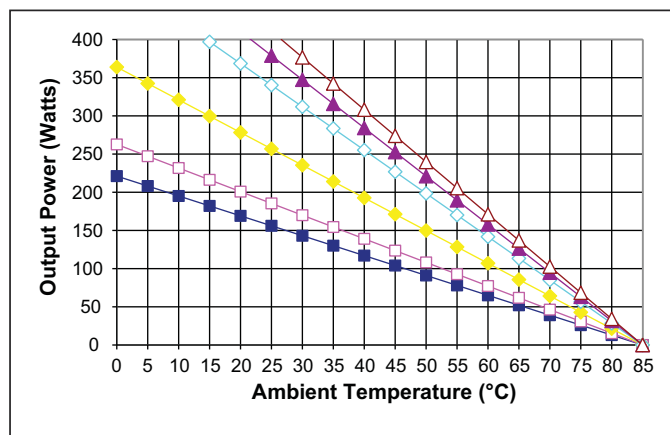


Figure 2 — Output power derating vs. temperature, $V_{out} = 5\text{ V}$

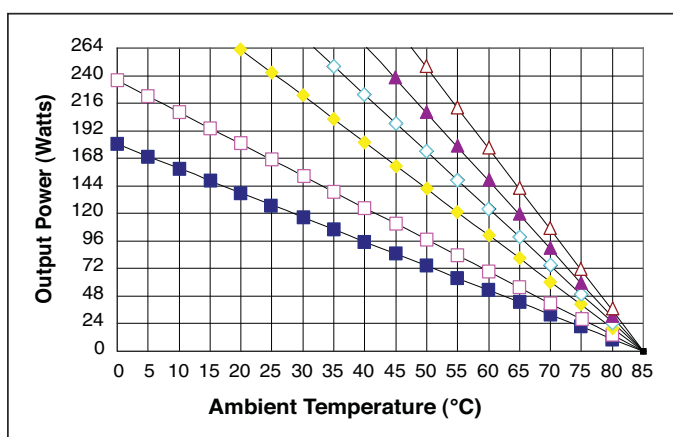


Figure 3 — Output power derating vs. temperature, $V_{out} = 3.3\text{ V}$

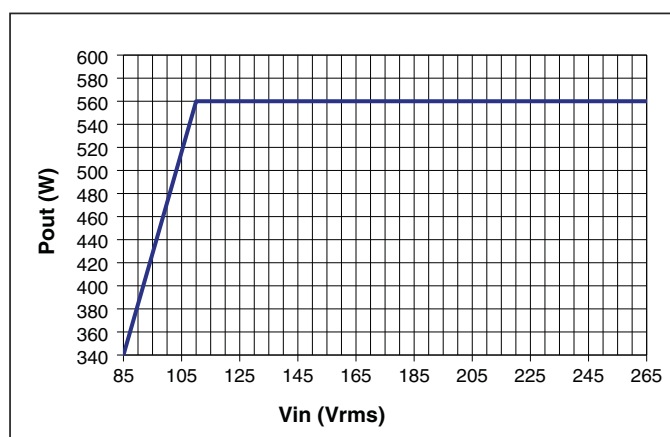


Figure 4 — PFC FlatPAC Output Power Vs. Input Voltage

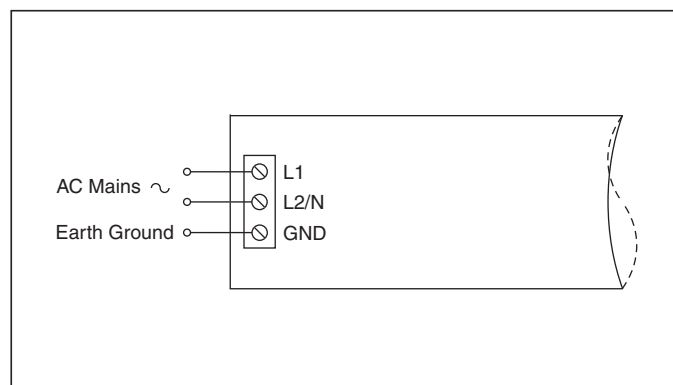


Figure 5 — AC input connections

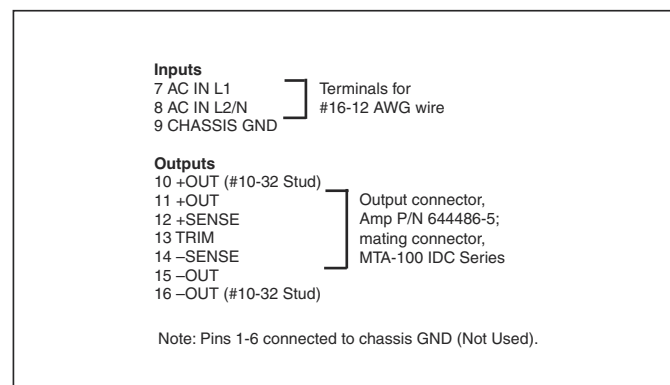


Figure 6 — Electrical connections

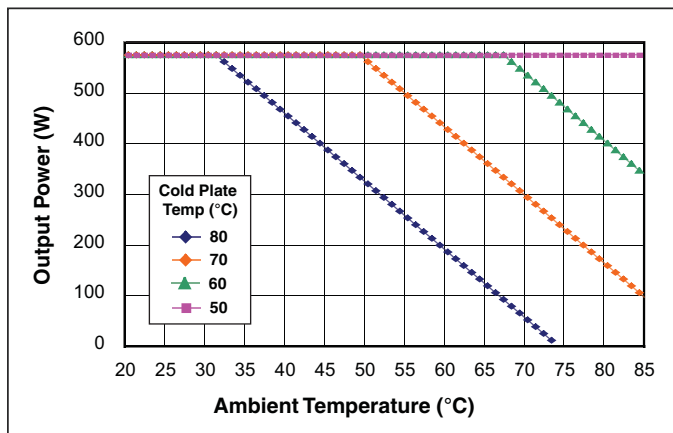


Figure 7 — Power de-rating conduction cooled option

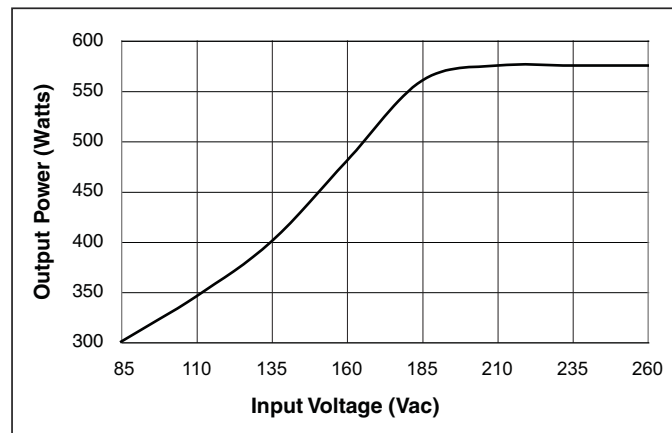
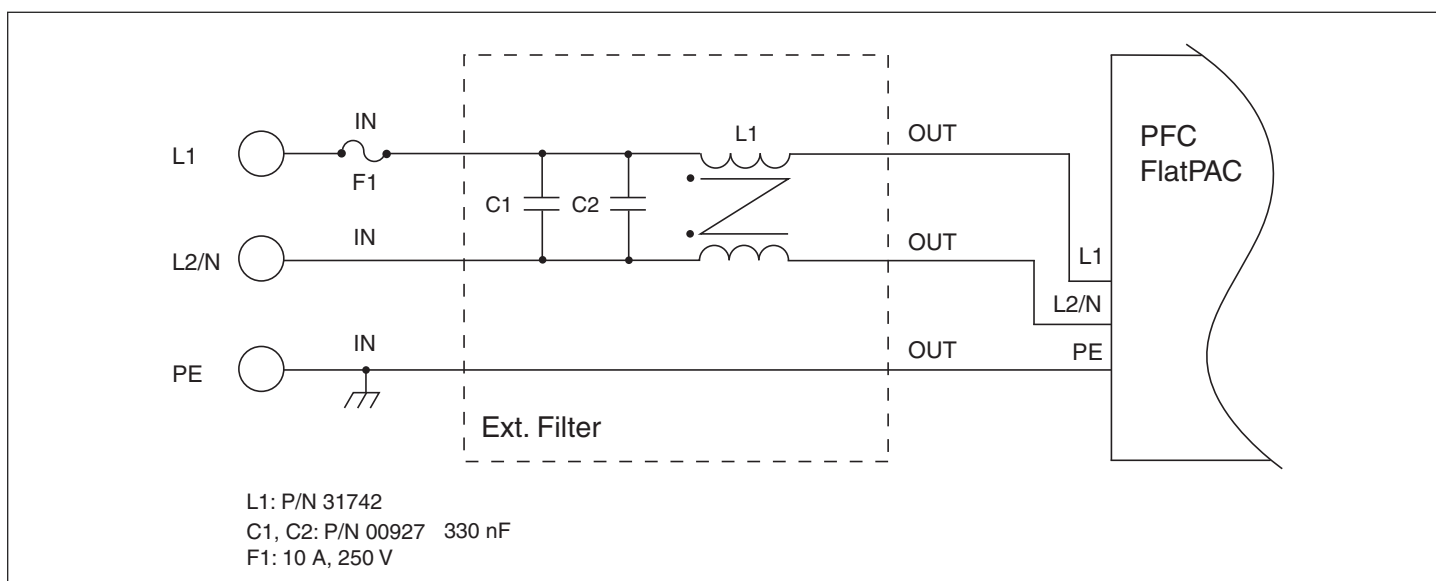


Figure 8 — Output power start-up de-rating @ -30° C (I-Grade only). 5 minute warm up required before full power (see Figure 4) is available.

Optional filter to meet EN55022 CLASS B compliance



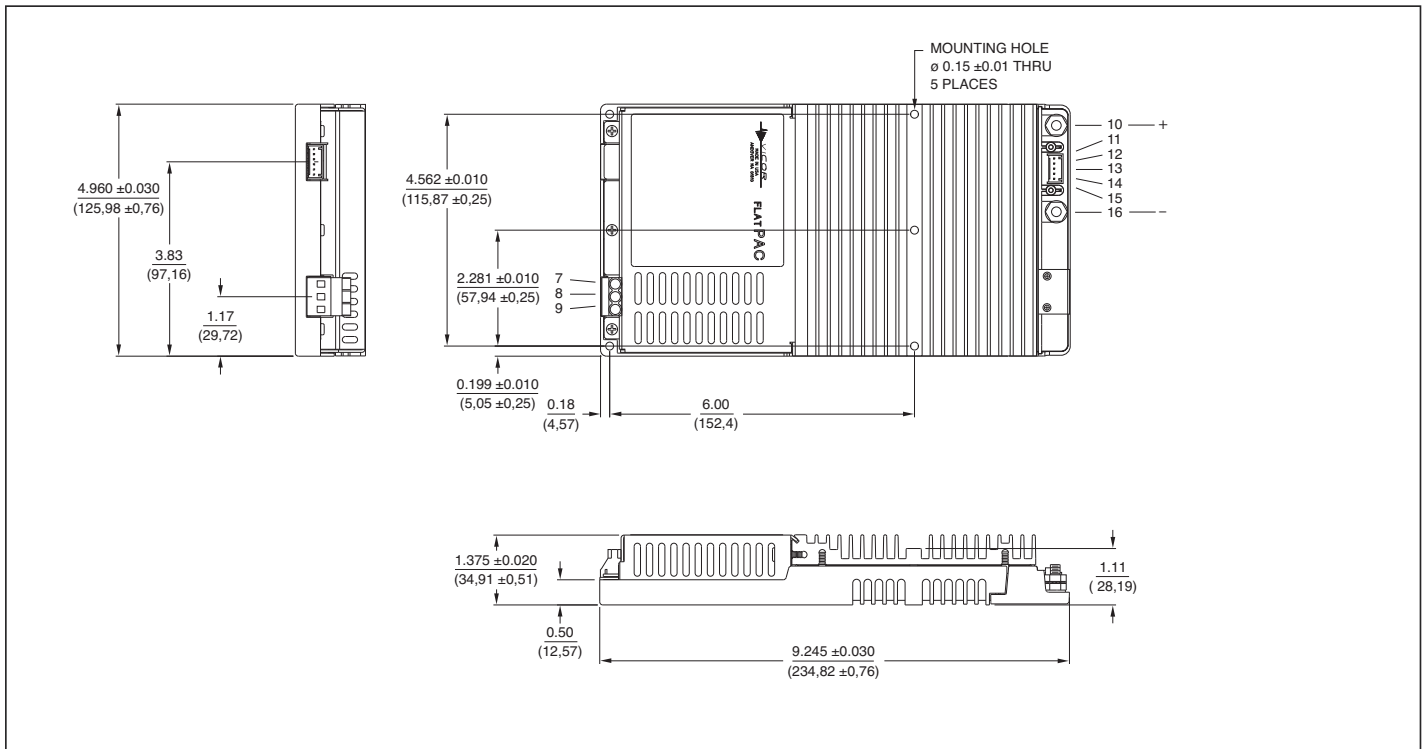


Figure 9 — Mechanical drawings; convection cooled.

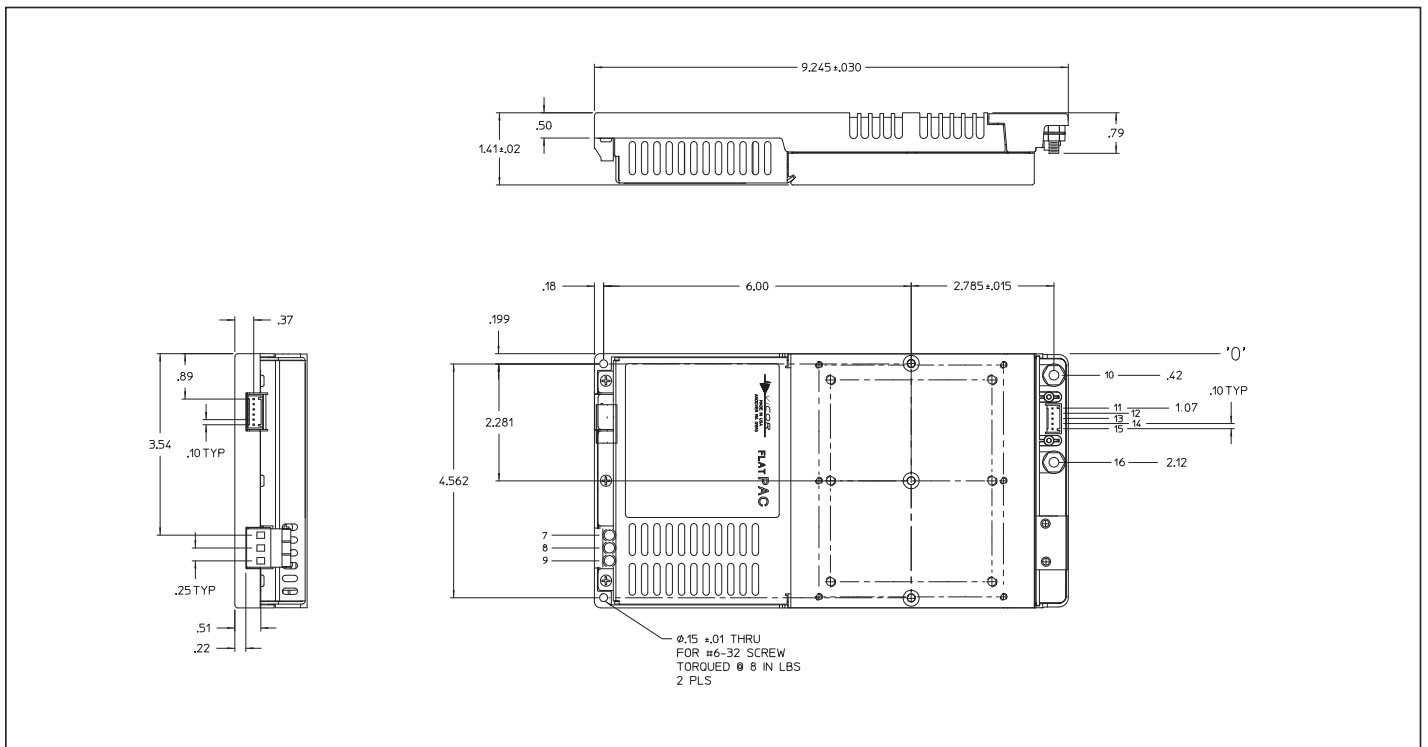


Figure 10 — Mechanical drawings; conduction cooled.

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Vicor Corporation
25 Frontage Road
Andover, MA, USA 01810
Tel: 800-735-6200
Fax: 978-475-6715

email
Vicor Express: vicorexp@vicr.com
Technical Support: apps@vicr.com