



## MicroPAC



## AC-DC Power Supply

### Features

- High efficiency up to 92%
- Small Size
- High power density (25 W/In<sup>3</sup>)
- Up to 1300 W (Configuration dependent)
- Low power standby mode (Green mode)
- Universal Input ((47-63 Hz) (400 Hz) (85 to 264 Vac)
- DC Input (120 – 300 Vdc)
- Up to 4 isolated outputs
- Standard 12 V, 14 V, 24 V, 28 V, 36 V & 48 V output
- Aux isolated 5 V @ 500 mA bias standby supply
- Output parallel capability
- All customer interface signals are isolated
- Output series capability
- Output current sharing
- MicroPAC to MicroPAC Current sharing
- Optional power shed capability
- Over temperature warning
- Over temperature shut down
- Intelligent fan control
- Field replaceable fan
- Individual output enable / disable
- All output enables / disable capability
- TTL control signals
- Visual LED display panel
- External Serial interface and GUI (Part Number CI-01)

### Product Description

The MicroPAC is the first Westcor product to utilize Vicor's VI Chip technology. The power supply uses BCM modules to provide up to 4 isolated semi regulated output voltages of 12, 14, 24, 28, 36 and 48 Vdc and up to 1300 W of continuous power in a very small highly efficient package. The isolated outputs may be placed in parallel/series configurations and for applications requiring higher power levels MicroPAC power supplies can be configured in arrays up to several KW. Safety agency approvals limit the configured output voltages to 60Vdc. Configurations and applications where output voltages are greater than 60Vdc are non-SELV.

This factory configurable rugged power supply supports a wide range of customer power requirements and is especially suited for distributed power architectures. The design offers a small flexible cost effective solution for applications requiring Power Factor Correction, high efficiency and power density even in environmentally challenging conditions.

### Part Numbering

**UP** - **a** - **b** **b** **b** **b** - **c** **d** **e**

MicroPAC Constant

Number of outputs, 1 to 4

Output Configuration					
<i>Fill in character from chart below for each output</i>					
	<b>b =</b>	<b>Vout</b>	<b>Watts</b>	<b>b =</b>	<b>Vout Watts</b>
<b>A</b>	12	300		<b>G</b>	48 325
<b>B</b>	12	600		<b>H</b>	48 650
<b>C</b>	12	900		<b>I</b>	48 975
<b>D</b>	12	1200		<b>J</b>	48 1300
<b>E</b>	24	600		<b>K</b>	36 900
<b>F</b>	24	1200		<b>T</b>	28 600
<b>P</b>	14	300		<b>U</b>	28 1200
<b>Q</b>	14	600		<b>M</b>	[a] [a]
<b>R</b>	14	900		<b>Z</b>	[b] [b]
<b>S</b>	14	1200			

[a] M defines a slot with an air block filler, no BCM board  
 [b] Z indicates the slot is populated with a BCM board that is connected in series or parallel with the adjacent slot

**Cooling**

**F** = Fan  
**L** = -40C Fan  
**M** = Confrontal Coat

**Interface Customer Option  
Non-Safety Related**

**S** = Standard (TTL levels)  
Signaling and Control

**RoHS Compliant**

**G** = RoHS  
**N** = Non-RoHS

**Examples:**

**UP1-FZZZ-FSG** Denotes a single output of 24 V 1200 W with a standard fan, standard TTL signaling and control, RoHS compliant

**UP4-AAAA-LSN** Denotes 4 output unit, each output is 12 V 300 W. The fan is a -40°C capable unit, standard TTL signaling, and the unit is non-RoHS

# End of Life - Not Recommended for New Designs

## Specifications

Input			
Input Voltage	85 – 264 Vac	DC Rating: 120 Vdc – 300 Vdc	
External Fuse	(¼" x 1¼") Cooper Bussmann, ABC-15, rated 15 A Littelfuse, 505 series, rated 16 A/500 Vac	(5 x 20 mm) Littelfuse, 216 series, rated 16 A (¼" x 1¼") Littelfuse, 505 series, rated 16 A /500 Vdc	
Frequency	47 ~ 400 Hz		
Inrush Current	30 A Peak		
Efficiency	≥92% @ Full load @ 25°C ambient 48 V output	≥91% @ Full load @ 25°C ambient 12 V output	
Power factor (115-230 Vrms)	.99 / .96 typ. Meets EN61000-3-2		
Turn-on time	Ac-on: 1 sec typ. 1.5 sec maximum		
Conducted EMI	EN55022 Class B Information technology equipment — Radio disturbances characteristics — Limits and methods of measurement BS EN55022:1998; CISPR 22:1997, incorporating corrigendum		
Harmonic distortion	Meets IEC 61000-3-2		
Isolation	Meets IEC 60950		
Leakage current	< 3.5 mA @ 264 Vac @ 63 Hz		
Hold up time	20 mS typical		
Warranty	2 Years		
Output			
Number of outputs	1 to 4		
Normal output voltages	12 V, 14 V, 24 V, 28 V, 36 V and 48 V (contact factory for details)		
Maximum output current	100 A @ 12 V	85.71A @ 14 V	[27 A @ 48 V]
Auxiliary output	5 V @ 0.5 A 50 mV p-p		
Voltage regulation	12 V +/- 3%	14 V +/- 3% typ.	48 V +/- 2%
Ripple and noise (20 MHz bandwidth) (full load)	12 V output (150 mV ~ 300 mV p-p) typ. 14 V output (150 mV ~ 300 mV p-p) typ.	48 V output (600 mV - 900 mV) typ.	
Current sharing accuracy	5 to 10%		
Short circuit protection	"Fold-Back" Technique		
Over voltage protection	12 V output set point 12.5 V typical	48 V modules 50 V typical	
Thermal protection	All outputs disabled when internal temperature exceeds safe operating		
Maximum load	12 V up to 1200 W	14 V up to 1200 W	
Maximum load	48 V up to 1300 W		
Maximum load	5.0 V Aux up to 2.5 W		
Maximum load capacitance	1000 µF per 12 V output	1000 µF per 14 V output	100 µF per 48 V output

# End of Life - Not Recommended for New Designs

## Specifications cont.

Environmental	
Storage temperature	-40°C ~ +85°C
Operating temperature	-20°C ~ +55°C (Extended temperature range is available; -40°C to +55°C) (-40°C to 65°C 50% load) -20°C ~ +65°C @ 50% load
Functional shock	MIL-STD 810F Method 516.5 procedure 1, terminal peak saw-tooth wave, 40G 11 mS
Vibration	Mil-STD 810G for minimum integrity vibration
Humidity	95% non condensing
Cooling	Fan cooled (field replaceable) temperature speed control
Electromagnetic Compatibility	
	EN61000-6-1n European General EMC Immunity
IEC 61000-4-11 [50 Hz]	Voltage Dips 30% for 0.5 prd, pc C Voltage Interrupts (pc C)
IEC 61000-4-4 [TRANSIENT]	EFT/Burst ± 1 kV AC leads ± 500 V DC leads. 5/50 nsec 5 kHz rep rate (pc B)
IEC 61000-4-5 [SURGE]	Power line Surge AC in ± 2 kV CM ± 1 kV DM DC in ± 500 V CM & DM 1.2/μSec (pc B)
EN 61000-4-6 [0.15 to 80 MHz]	RF Common Mode Input leads, AC & DC leads, CDN 150 kHz to 80 MHz, 3 Vrms with 80% AM @1 kHz (pa A)
EN 61000-4-2 [ELECTROSTATIC]	Electrostatic Discharge ± 4 kV Contact ± 8 kV Discharge (pc B)
EN 61000-4-3	RF E-Field 80 MHz to 1 GHz 3 V/m with 80% AM @ 1 kHz (pc A)
EN 61000-4-8	Power Freq H-Field 3A/M @ 50 Hz (pa A)
Reliability	
FIT	3,449 FITS, 50% duty cycle at 25°C ambient; 45% RH +/- 10%, 90% total output load; any specified input voltage; sea level operation
Service life	5 Years
Safety & Regulatory	
UL / cUL (recognized)	UL 60950-1:2007 CAN C22.2 No. 60950-1-07
EN	EN 60950-1/A12:2011
IEC	60950-1-2005 2 Ed. +A1:2009

Please see User Guide for more information.

## Mechanical Drawings

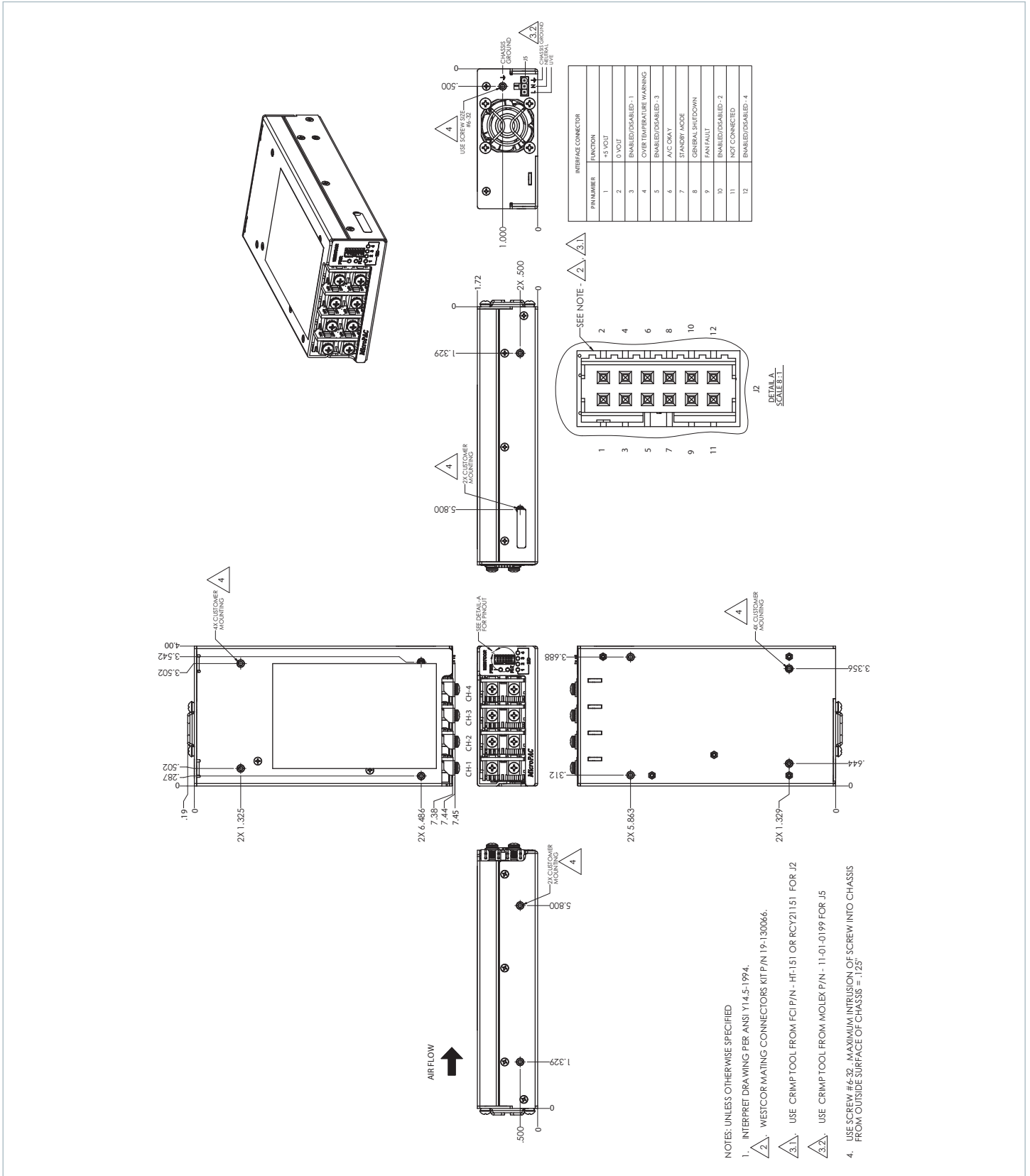


Figure 1 — Physical Dimensions and Electrical Connections

## **Vicor's comprehensive line of power solutions includes high density AC-DC and DC-DC modules and accessory components, fully configurable AC-DC and DC-DC power supplies, and complete custom power systems.**

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