



MicroPAC



AC-DC Power Supply

Features

- High efficiency up to 92%
- Small Size
- High power density (25 W/In³)
- 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 - b b b b

MicroPAC Constant

Number of outputs, 1 to 4

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

c

Cooling

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

d

Interface Customer Option
 Non-Safety Related

S = Standard (TTL levels)
 Signaling and Control

e

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

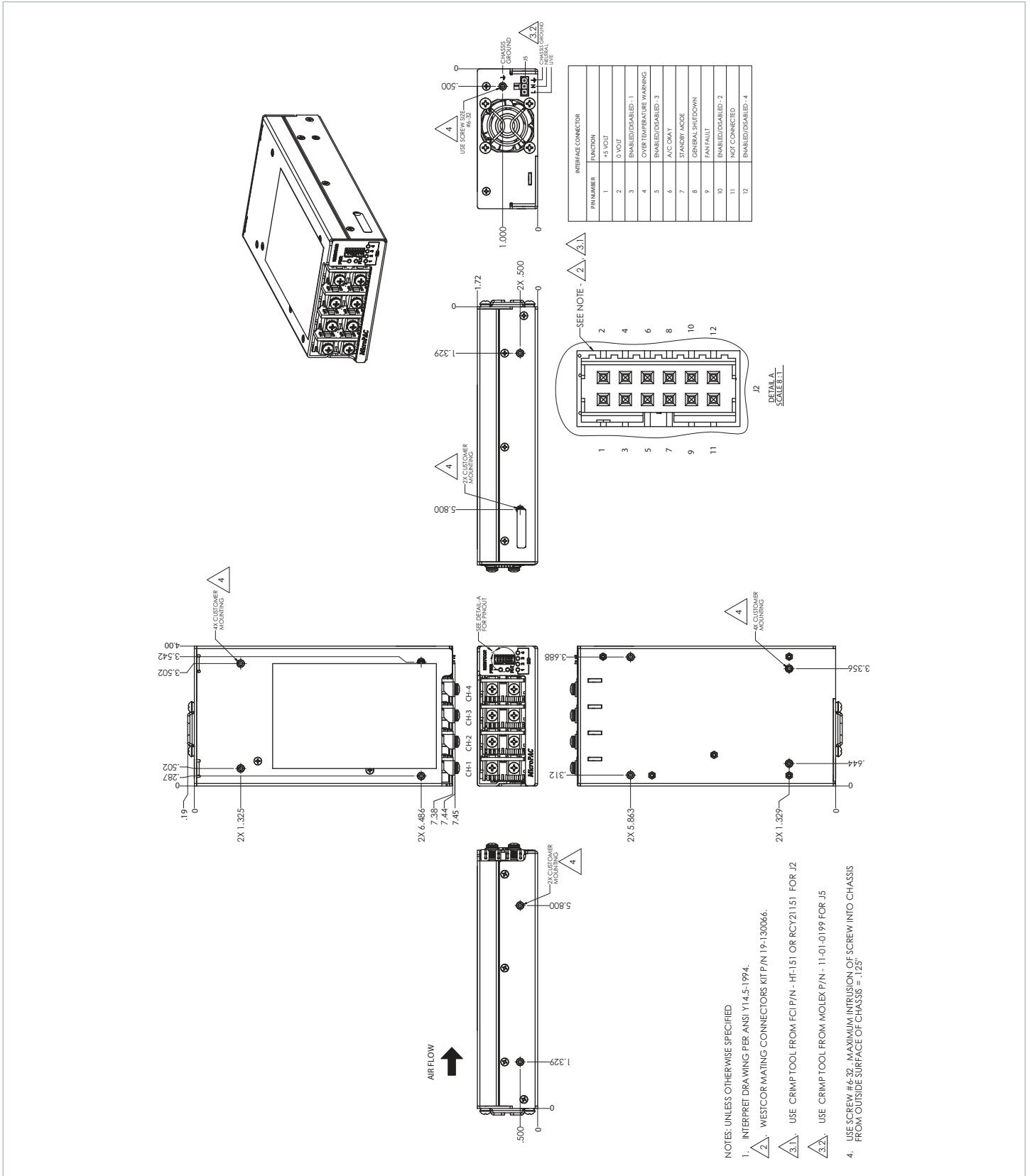


Figure 1 — Physical Dimensions and Electrical Connections

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.

Information furnished by Vicor is believed to be accurate and reliable. However, no responsibility is assumed by Vicor for its use. Vicor makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication. Vicor reserves the right to make changes to any products, specifications, and product descriptions at any time without notice. Information published by Vicor has been checked and is believed to be accurate at the time it was printed; however, Vicor assumes no responsibility for inaccuracies. Testing and other quality controls are used to the extent Vicor deems necessary to support Vicor's product warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Specifications are subject to change without notice.

Vicor's Standard Terms and Conditions

All sales are subject to Vicor's Standard Terms and Conditions of Sale, which are available on Vicor's webpage or upon request.

Product Warranty

In Vicor's standard terms and conditions of sale, Vicor warrants that its products are free from non-conformity to its Standard Specifications (the "Express Limited Warranty"). This warranty is extended only to the original Buyer for the period expiring two (2) years after the date of shipment and is not transferable.

UNLESS OTHERWISE EXPRESSLY STATED IN A WRITTEN SALES AGREEMENT SIGNED BY A DULY AUTHORIZED VICOR SIGNATORY, VICOR DISCLAIMS ALL REPRESENTATIONS, LIABILITIES, AND WARRANTIES OF ANY KIND (WHETHER ARISING BY IMPLICATION OR BY OPERATION OF LAW) WITH RESPECT TO THE PRODUCTS, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR REPRESENTATIONS AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, INFRINGEMENT OF ANY PATENT, COPYRIGHT, OR OTHER INTELLECTUAL PROPERTY RIGHT, OR ANY OTHER MATTER.

This warranty does not extend to products subjected to misuse, accident, or improper application, maintenance, or storage. Vicor shall not be liable for collateral or consequential damage. Vicor disclaims any and all liability arising out of the application or use of any product or circuit and assumes no liability for applications assistance or buyer product design. Buyers are responsible for their products and applications using Vicor products and components. Prior to using or distributing any products that include Vicor components, buyers should provide adequate design, testing and operating safeguards.

Vicor will repair or replace defective products in accordance with its own best judgment. For service under this warranty, the buyer must contact Vicor to obtain a Return Material Authorization (RMA) number and shipping instructions. Products returned without prior authorization will be returned to the buyer. The buyer will pay all charges incurred in returning the product to the factory. Vicor will pay all reshipment charges if the product was defective within the terms of this warranty.

Life Support Policy

VICOR'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE CHIEF EXECUTIVE OFFICER AND GENERAL COUNSEL OF VICOR CORPORATION. As used herein, life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness. Per Vicor Terms and Conditions of Sale, the user of Vicor products and components in life support applications assumes all risks of such use and indemnifies Vicor against all liability and damages.

Intellectual Property Notice

Vicor and its subsidiaries own Intellectual Property (including issued U.S. and Foreign Patents and pending patent applications) relating to the products described in this data sheet. No license, whether express, implied, or arising by estoppel or otherwise, to any intellectual property rights is granted by this document. Interested parties should contact Vicor's Intellectual Property Department.

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

email

Customer Service: custserv@vicorpower.com
Technical Support: apps@vicorpower.com