

Rugged COTS Switchers

Product Highlights

The PFC MegaPAC MI product line offers unprecedented flexibility and configurability to meet a wide range of demanding applications and environments. Building on Vicors highly reliable and well-proven DC-DC converters, The PFC MegaPAC MI combines a powerful, feature laden front end with slide-in output assemblies called ConverterPACs

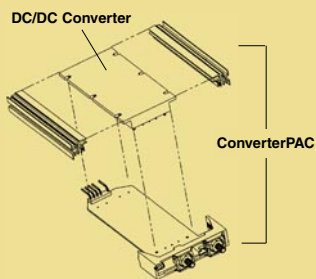
User configurability is at the heart of every MegaPAC. A wide variety of the same length ConverterPACs can be installed, exchanged, or removed with the turn of just one screw. This means the MegaPAC can be reconfigured to meet evolving power requirements. Given its range of configurability, the MegaPAC is appropriate for virtually any application from prototype through production.

Features

- AC inputs available: 85–264 Vac
- Power factor corrected
- DC inputs available: 100–380 Vdc
- User and field configurable
- Fan cooled
- Efficiency > 80%
- MIL-STD-810 for shock and vibration
- MIL-STD-704 and 1399 for overvoltage and transients
- -40°C operation
- Optional conformal coating
- Up to 32 regulated outputs (8 slots) from 1 to 95 Vdc and above
- Full power to 45°C on most products
- OVP, OTL, OCP on most outputs
- Autosense
- Power fail warning
- Sequencing and general shut down
- Agency approved cTÜVus, CE Marked
- Current sharing



MegaPAC Configuration



DC-DC Converter

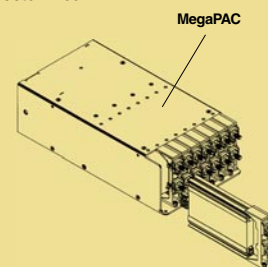
At the heart of every MegaPAC MI are Vicor zero-current switching, DC-DC converters. The modularity of the design combined with the breadth of the product line means virtually any output voltage can be provided.

ConverterPAC

ConverterPACs are the slide-in output assemblies that allow each MegaPAC MI to be easily configured to user-specified output requirements. Using the Vicor DC-DC converter, up to 600 W of output power can be provided per ConverterPAC. Larger power needs are easily handled by paralleling ConverterPACs.

MegaPAC

Each MegaPAC houses an array of user-selected ConverterPACs to provide a customized power supply. With the front end's ability to operate from both 85–264 Vac and 100–380 Vdc, a wide of input power sources can be accommodated. The result is a customized power supply with off-the-shelf delivery.



Product	Size	Input Voltage	Output Power	# of Outputs	Slot Configurations
PFC MegaPAC MI	12.3" x 6.0" x 3.4" (312,4 x 152,4 x 86,4)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 1,600 W @ 230 Vac	1-32 Outputs (8 slots)	ModuPAC(M), JrPAC(J), BatPAC(B) DualPAC(D), RAMPAC(R), FlexPAC(FSS)
PFC MegaPAC-HP MI	12.3" x 6.0" x 3.4" (312,4 x 152,4 x 86,4)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 2,400 W @ 230 Vac	1-25 Outputs (8 slots)	ModuPAC(M), JrPAC(J), BatPAC(B), DualPAC(D), RAMPAC(R), FinPAC(PZ), FlexPAC(FSS)

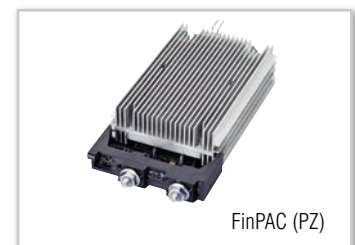
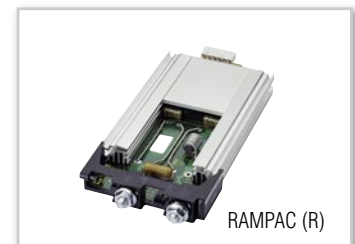
* FinPACs and FinQPACs require two slots

Modular ConverterPACs for PFC MegaPAC MI

Name	Modules	Output Power
FlexPAC (FSS)	2 - 4 Wide range outputs	Up to 200 W max. each output adjustable 2 -25 V 50 W or 10 A max. per output
VI-J00 / VI-200 Series ConverterPACs		
ModuPAC (M)	1 VI-200 DC-DC converter	Up to 200 Watts per ConverterPAC
RAMPAC (R)	1 VI-J00 DC-DC converter	Up to 100 Watts, for applications requiring low ripple/noise 1 Ripple Attenuator Module (VI-RAM)
DualPAC (D)	2 VI-J00 DC-DC converters	Dual Output; Up to 100 Watts each output
JuniorPAC (J)	1 VI-J00 DC-DC converter	Up to 100 Watts
BatPAC (B)	1 VI-200 BatMod	A 200 W programmable current source that can be configured as a battery charger
Maxi Series ConverterPACs		
FinPAC (PZ)	1 Maxi DC-DC converter	Up to 600 Watts Applicable for PFC MegaPAC High Power
* Only for the extended length MegaPACs. ** FinPACs and FinQPACs require 2 slots.		

ConverterPAC Features and Options

- Output voltages from 2 – 95 Vdc
- Output power up to 600 W
- DC OK
- Adjustment ranges from 50% to 110% of nominal
- Autosense/Remote sense
- Output ripple and noise:
2% or 100 mV whichever is greater
“V” Option (max.): 50 mV for Vout <=15 V;
150 mV for 15 V <Vout <=24 V;
1% or less Vout >24 V
- 80 – 90% Efficiency
- Current source outputs available



PFC MegaPAC MI and PFC MegaPAC-HP MI Specifications

(Typical at 25°C, nominal line and 75% load, unless otherwise specified)

Input Characteristics

Input	85 – 264 Vac
Line regulation	0.2% max. from 10% to full load
Inrush current	25 A pk @ 115 Vac; 25 A pk @ 230 Vac
Ride through time	>20 ms at nom. line, full load
Power fail	>3 ms warning
Conducted EMI (47-63 Hz)	EN55022 and FCC Level A Level B configuration dependent
Power factor	0.99 (115 Vac); 0.98 (230 Vac)
Surge immunity (Common mode & normal mode)	EN 61000-4-5 Class 3, Performance Criteria B
Transients and Overvoltage	MIL-STD 704 and 1399

Output Characteristics

Load regulation	0.2% max. from 10% to full load; 0.5% from no load to 10% load
Set point accuracy	1.0% for standard voltages, 2.0% for special or adjustable voltages <i>See Vicor module specifications. A preload may be necessary for modules trimmed down below 90% of norm. output voltage.</i>
Ripple and noise (20 MHz BWL)	Std. outputs: 2% or 100 mV p-p max. whichever is greater, 10% min. load VXI options: 50 mV p-p max. for outputs, ≤15 Vdc; 150 mV p-p max. 15 V < V _{OUT} ≤ 24 V; 1% V _{OUT} > 24 V 2nd Generation FinPAC, performance dependent on the converter module used. (Output of module is unfiltered.) RAMPAC: 10 mV p-p max. or 0.15%, whichever is greater. FlexPAC 50 mV pk-pk
Overcurrent protection	105 – 130% >5 V outputs; 30 – 125% ≤5 V outputs
Overvoltage protection	ModuPACs only: 115 – 135%
Efficiency	80% typical
Output power	1,600W @ 45°C (230Vac), PFC MegaPAC MI; 1,200W @ 45°C (115Vac), PFC MegaPAC HP MI; 2400W @ 45C (230 Vac, PFC MegaPAC HP MI

Environmental

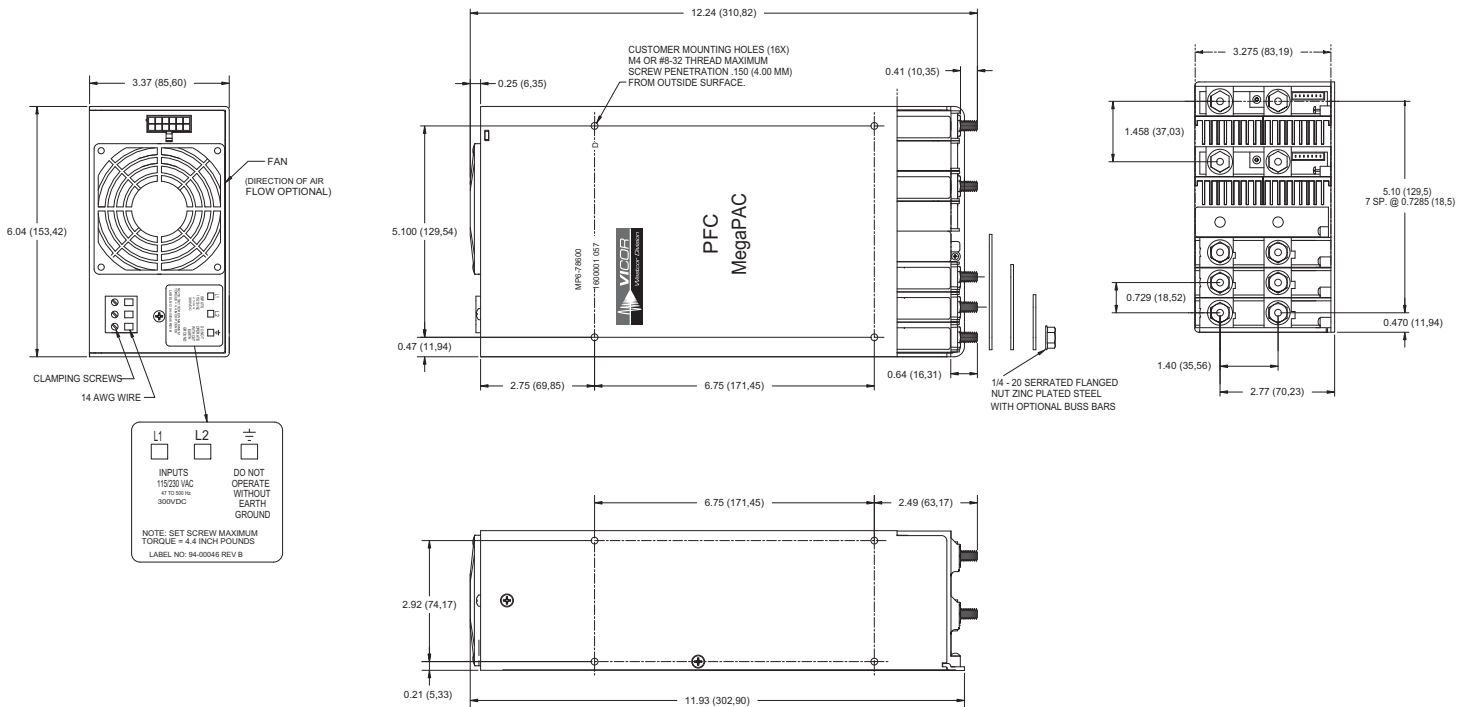
Storage temperature	-40°C to +85°C
Operating temperature*	
Full power	-40°C to +45°C
Half power	-40°C to +60°C
Safety approvals	cTUVus, CE Mark, Low Voltage Directive <i>Certain wide temperature models may not carry all safety certificates.</i>
Product weights (fully configured)	9.75 lbs. (4.43 kg)
Limited warranty	2 Years

* PFC MegaPACs MI: Maximum operating range may be configuration dependent. Contact factory for your specific model.

PFC MegaPAC MI and PFC MegaPAC-HP MI Mechanical Drawings

(Note: Newer power supplies have redesigned output studs which are 1/8th inch longer. Design guides available online at vicorpower.com for more details.)

PFC MegaPAC / PFC MegaPAC- High Power

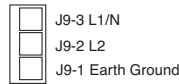


Connection Diagrams

Connection Diagrams, Input

INPUT CONNECTIONS

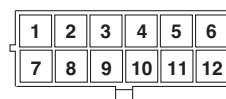
J9



J10 Interface

J10-1	E/D-1
J10-2	E/D-2
J10-3	E/D-3
J10-4	E/D-4
J10-5	E/D-5
J10-6	E/D-6
J10-7	E/D-7
J10-8	E/D-8
J10-9	Vcc +5V, 0.3A
J10-10	Signal Ground
J10-11	AC Power OK
J10-12	General Shutdown

J10

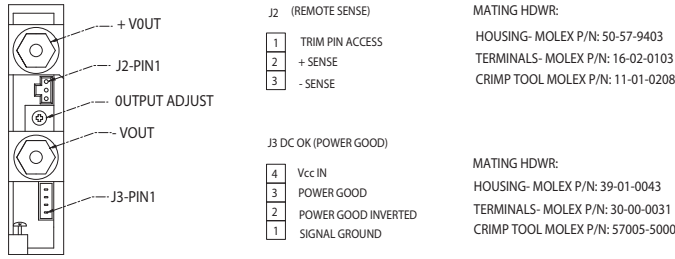


Housing-Molex P/N: 39-01-2120
Terminal-Molex P/N: 39-00-0039
Crimp Tool-Molex P/N: 11-01-0197

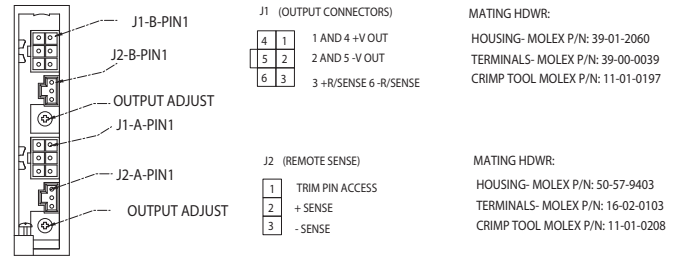
Connection Diagrams (cont.)

Connection Diagrams, Output

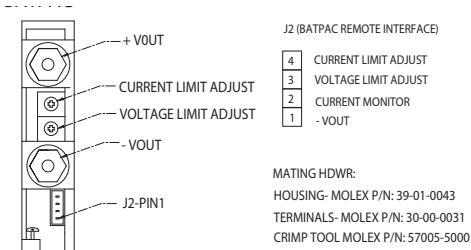
ModuPAC, JuniorPAC, RAMPAC



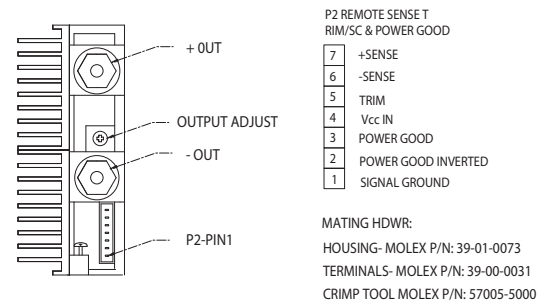
DualPAC



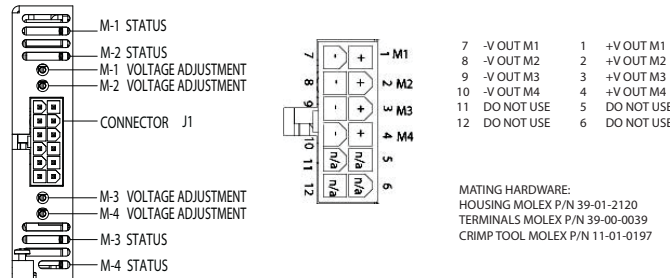
BatPAC



FinPAC



FlexPAC



ConverterPAC Options

Option	ModuPAC (M)	BatPAC (B)	DualPAC (D)	JuniorPAC (J)	RAMPAC (R)	FinPAC (PZ)*	FlexPAC (FSS)
D Power Good	OPT	NA	NA	OPT	OPT	OPT	NA
T Trim: +10%/-10%	OPT	NA	OPT	OPT	OPT	OPT	NA
F Trim: +10%/-50%	OPT	NA	OPT	OPT	OPT	OPT	NA
V1 VXi Low Noise (150 mV p-p 15 V < Vout ≤ 24 V)	OPT	NA	OPT	OPT	NA	NA	STD
V2 VXi Low Noise (50 mV p-p ≤ 15 V)	OPT	NA	OPT	OPT	NA	NA	STD
V3 VXi Low Noise (1% Vout > 24)	OPT	NA	OPT	OPT	NA	NA	STD
Parallelable	STD	STD	NA	NA	NA	STD	NA
Autosense	STD	NA	STD	STD	NA	STD	NA

*FinPACs require two slots

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