Overview

- AC inputs available: 85 – 264 Vac, 208/240 Vac 3-Phase
- Power factor corrected (some models)
- Up to 4 kW
- DC inputs available: 100 – 380 Vdc
- User and field configurable
- Compact sizes as small as: 3.4” x 6.0” x 9.5” (86.4 x 152.4 x 241.3 mm)
- Fan cooled
- Efficiency >80%
- Up to 20 regulated outputs (up to 10 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
- Low leakage option available (some models)

Description

The MegaPAC family of products offers four different versions of user configurability to meet almost any set of input and output requirements. Leveraging Vicor’s modular DC-DC converters, MegaPAC family products combine feature-laden front ends 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.
MegaPAC Family

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>Input Voltage</th>
<th>Output Power</th>
<th>Number of Outputs</th>
<th>ConverterPACs per Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini MegaPAC</td>
<td>9.5” x 6.0” x 3.4” (241.3 x 152.4 x 86.4 mm)</td>
<td>90 to 132/180 to 264 Vac Strappable 260 to 380 Vdc</td>
<td>1,000 W @ 115 Vac or 230 Vac</td>
<td>1 to 10 (5 slots)</td>
<td>ModuPAC, JrPAC, DualPAC, RamPAC, BatPAC</td>
</tr>
<tr>
<td>PFC MegaPAC-EL/HPEL[a]</td>
<td>15.6” x 6.0” x 3.4” (396.2 x 152.4 x 86.4 mm)</td>
<td>85 to 264 Vac 100 to 380 Vdc</td>
<td>1,200 W @ 115 Vac 2,400 W @ 230 Vac</td>
<td>1 to 16 (8 slots)</td>
<td>QPAC, DualQPAC, JrQPAC, FinQPAC[b] FinQPAC requires 2 slots</td>
</tr>
<tr>
<td>PFC MegaPAC/HP</td>
<td>12.3” x 6.0” x 3.4” (312.4 x 152.4 x 86.4 mm)</td>
<td>85 to 264 Vac 100 to 380 Vdc</td>
<td>2,400 W @ 230 Vac 1,200 W @ 115 Vac</td>
<td>1 to 16 (8 slots)</td>
<td>ModuPAC, JrPAC, DualPAC, RamPAC, BatPAC, FinPAC[a] FinPACs require 2 slots</td>
</tr>
<tr>
<td>4kW MegaPAC</td>
<td>14.0” x 7.5” x 4.9” (355.6 x 190.5 x 124.5 mm)</td>
<td>208 or 240 Vac Three Phase 260 to 352 Vdc</td>
<td>4,000 W - 3 phase</td>
<td>1 to 20 (10 slots)</td>
<td>ModuPAC, JrPAC, DualPAC, RamPAC, BatPAC, UniPAC[b]</td>
</tr>
</tbody>
</table>

[a] Low noise ripple for EL power supplies is 10 mV p-p or 0.15% whichever is greater
[b] ConverterPACs with Maxi module

MegaPAC Configuration

DC-DC Converter
At the heart of every MegaPAC 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 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. Using a different front end for each product line, almost any input power can be accommodated. The result is a customized power supply with off-the-shelf delivery.
### MegaPAC Specifications
(Typical at 25°C, nominal line and 75% load, unless otherwise specified)

<table>
<thead>
<tr>
<th>Input Characteristics</th>
<th>Mini MegaPAC</th>
<th>4 kW MegaPAC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>85 – 264 Vac</td>
<td>115 – 230 Vac, Strappable</td>
</tr>
<tr>
<td>Standard line</td>
<td></td>
<td>47 – 500 Hz</td>
</tr>
<tr>
<td>Vantage line</td>
<td></td>
<td>47 – 63 Hz</td>
</tr>
<tr>
<td>Inrush current</td>
<td>25 A pk @ 115 Vac</td>
<td>80 A pk @ 115 &amp; 230 Vac</td>
</tr>
<tr>
<td>Ride through time</td>
<td>&gt;20 ms at nom. line, full load</td>
<td></td>
</tr>
<tr>
<td>Power fail</td>
<td></td>
<td>&gt;3 ms warning</td>
</tr>
</tbody>
</table>

### Output Characteristics
Load regulation 0.2% max. from 10% to full load; 0.5% from no load to 10% load

Set point accuracy | Standard Line: 1.0% for standard voltages, 2.0% for special or adjustable voltages | Vantage Line: 2.0% for standard voltages, 5.0% for special or adjustable voltages |

Ripple and noise (20 MHz BWL) | Std. outputs: 2% or 100 mV p-p max. whichever is greater, 10% min. load VSW options: 50 mV p-p max. for outputs, ≤15 Vdc, 150 mV p-p max. 15 V-V<sub>OUT</sub> ≤24 V, 1% V<sub>OUT</sub> >24 V 2nd Generation QPAC, FinPAC, FinQPAC, and UniPAC performance dependent on the converter module used. (Output of module is unfiltered.) QPAC, DualQPAC, JuniorQPAC, RamPAC: 10 mV p-p max. or 0.15%, whichever is greater.

Overcurrent protection | 105 – 130% >5 V outputs | 30 – 125% ≤5 V outputs |

Overvoltage protection | ModuPACs and QPACs: 115 – 135% |

Efficiency | 80% typical | 82% typical | 82% typical |

Output power | 1,600 W @ 40°C (230 Vac) PFC MegaPAC; PFC MegaPAC-EL (Low Noise) | 1,000 W @ 45°C (115/230Vac) | 4,000 W @ 45°C (3Φ); |
| | 2,400 W @ 40°C (230 Vac) PFC MegaPAC HP and PFC MegaPAC HPEL | 1,500 W @ 45°C (1Φ); |
| | 1,200 W @ 40°C (115Vac) PFC MegaPACs | | |

### Environmental
Storage temperature | -40°C to +85°C |

Operating temperature | Vantage line full power: 0 to +40°C | 0 to +45°C | 0 to +45°C |
| Vantage line half power: 0 to +60°C | 0 to +65°C | 0 to +65°C |
| Standard line full power: -20 to +40°C | -20 to +45°C | -20 to +45°C |
| Standard line half power: -20 to +60°C | -20 to +65°C | -20 to +65°C |

Safety approvals | cTÜVus, CE Mark Low Voltage Directive |

Product weights (fully configured) | 9.75 lbs. (4.43 kg) (PFC MegaPAC & HP) | 12.8 lbs. (5.8 kg) (PFC MegaPAC EL) | 6.25 lbs. (2.84 kg) |
| | 13.0 lbs. (6.0 kg) (PFC MegaPAC HPEL) | 22.0 lbs. (10 kg) |

Limited warranty | 2 Years |

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[a] PFC MegaPACs: The maximum operating temperature is 40°C. If using a VI-200 with output voltage < 12 V and >150 W, the operating temperature decreases to 35°C. This also applies when using a FinPAC with output voltage <24 V and > 500 W. Mini MegaPAC & 4 kW MegaPACs: The operating temperature is 45°C using any combination of modules and output voltages as long as the front-end rating is not exceeded. Normal derating applies to half power if the ambient temperature is 20°C hotter.
### ConverterPAC Overview
- 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
- Low noise option: 10 mV p-p or 0.15%, whichever is greater
- 80 – 90% efficiency
- Current source outputs available

### Modular ConverterPAC for MegaPAC Family Product

<table>
<thead>
<tr>
<th>Converters</th>
<th>Module(s) Used</th>
<th>Maximum Output Power</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VE-200 and VE-J00 ConverterPACs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ModuPAC (M) (RoHS = GM)</td>
<td>1 VE-200 DC-DC Converter</td>
<td>Up to 200 Watts per ConverterPAC</td>
</tr>
<tr>
<td>RamPAC (R) (RoHS - GR)</td>
<td>1 VE-J00 DC-DC Converter</td>
<td>Up to 100 Watts for applications requiring low ripple/noise</td>
</tr>
<tr>
<td>1 Ripple Attenuator Module (VI-RAM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DualPAC (D) (RoHS - GD)</td>
<td>2 VI-J00 DC-DC Converters</td>
<td>Dual Output; Up to 100 Watts each output</td>
</tr>
<tr>
<td>JuniorPAC (J) (RoHS - GJ)</td>
<td>1 VI-J00 DC-DC Converter</td>
<td>Up to 100 Watts</td>
</tr>
<tr>
<td>BatPAC (B) (RoHS - GB)</td>
<td>1 VI-200 BatMod</td>
<td>A 200 W programmable current source that can be configured as a battery charger</td>
</tr>
<tr>
<td>QPAC [c] Low Noise (L) (RoHS - GL)</td>
<td>1 VI-200 DC-DC Converter with differential and common mode filters</td>
<td>Up to 200 Watts for applications requiring as low as 10 mVp-p output noise</td>
</tr>
<tr>
<td>JrQPAC [c] Low Noise (LJ) (RoHS - GLJ)</td>
<td>1 VE-J00 DC-DC Converter with differential and common mode filters</td>
<td>Up to 100 W</td>
</tr>
<tr>
<td>DualQPAC [c] Low Noise (LD) (RoHS - GLD)</td>
<td>2 VI-J00 DC-DC Converters with differential and common mode filter</td>
<td>Dual Output; Up to 100 Watts each output</td>
</tr>
<tr>
<td><strong>Maxi ConverterPACs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UniPAC (XU) (RoHS - GXU)</td>
<td>1 Maxi DC-DC Converter</td>
<td>Up to 500 Watts; Applicable for 3-phase / 4 kW product</td>
</tr>
<tr>
<td>FinPAC [d] (PZ) (RoHS - GPZ)</td>
<td>1 Maxi DC-DC Converter</td>
<td>Up to 600 Watts; Applicable for PFC MegaPAC High Power</td>
</tr>
<tr>
<td>FinQPAC [d] (PZL) (RoHS - GPL)</td>
<td>1 Maxi DC-DC Converter with discrete output filter</td>
<td>Up to 600 Watts; Applicable for PFC MegaPAC-HPEL</td>
</tr>
</tbody>
</table>

[c] Only for the extended length MegaPACs
[d] FinPACs and FinQPACs require two (2) slots
MegaPAC 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.
MegaPAC 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.
Connection Diagrams

PFC MegaPAC/PFC MegaPAC-High Power/
PFC MegaPAC-EL/PFC MegaPAC-HPEL

INPUT CONNECTIONS: J9
- J9-3 L1N
- J9-2 L2
- J9-1 Earth Ground

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

IN: 120 VAC

OUT: +5V OUT, 300 mA

Connection Diagrams, Input

Mini MegaPAC

INPUT CONNECTIONS: J9
- J9-15 120 VAC
- J9-12 AC Neutral
- J9-10 AC Hot
- J9-1 Earth Ground

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 NC
- J10-7 NC
- J10-8 NC
- J10-9 Vcc +5V, 0.3A
- J10-10 Signal Ground
- J10-11 AC Power OK
- J10-12 General Shutdown

IN: 120 VAC

OUT: +5V OUT, 300 mA

Connection Diagrams, Output

ModuPAC, JuniorPAC, RamPAC

J2 (REMOTE SENSE)
- TRIM PIN ACCESS + SENSE - SENSE
- SIGNAL VOUT

J3 DC OK (POWER GOOD)
- Vcc IN
- POWER GOOD
- POWER GOOD INVERTED
- SIGNAL GROUND

MATING HARDWARE
- HOUSING: MOLEX P/N: 50-24-1003
- TERMINALS: MOLEX P/N: 16-02-0105
- CRIMP TOOL MOLEX P/N: 63811-8700

BatPAC

J2 (BATPAC REMOTE INTERFACE)
- CURRENT LIMIT ADJUST
- VOLTAGE LIMIT ADJUST
- CURRENT MONITOR

MATING HARDWARE
- HOUSING: MOLEX P/N: 50-37-5043
- TERMINALS: MOLEX P/N: 08-70-1040
- CRIMP TOOL MOLEX P/N: 63811-5200

DualPAC

J1 (OUTPUT CONNECTORS)
- 1 AND 4 V - OUT
- 2 AND 5 V - OUT
- 3 R/SENSE 6 - R/SENSE

J2 (REMOTE SENSE)
- TRIM PIN ACCESS + SENSE - SENSE

MATING HARDWARE
- HOUSING: MOLEX P/N: 30-07-9493
- TERMINALS: MOLEX P/N: 08-02-0105
- CRIMP TOOL MOLEX P/N: 11-01-0197

FinPAC

P2 REMOTE SENSE T
- RIM/SC & POWER GOOD

MATING HARDWARE
- HOUSING: MOLEX P/N: 50-57-5073
- TERMINALS: MOLEX P/N: 08-70-1040
- CRIMP TOOL MOLEX P/N: 63811-5200
Connections Diagrams (continued)

Connection Diagrams, Output (Continued)

QPAC, JuniorQPAC

**QPAC, JuniorQPAC**

![Diagram](attachment:image.png)

### Connections Diagrams, Output (Continued)

**QPAC, JuniorQPAC**

- **+VOUT**
- **OUTPUT ADJUST**
- **-VOUT**
- **P2-PIN1**

**DualQPAC**

- **J1-B-PIN1**
- **J1-A-PIN1**

**Connections Diagrams (continued)**

**FinQPAC**

![Diagram](attachment:image.png)

### ConverterPAC Options

<table>
<thead>
<tr>
<th>Option</th>
<th>ModuPAC (M)</th>
<th>BatPAC (B)</th>
<th>DualPAC (D)</th>
<th>Junior PAC (J)</th>
<th>RamPAC (R)</th>
<th>DualQPAC (LD)</th>
<th>QPAC (L)</th>
<th>Junior QPAC (LJ)</th>
<th>UniPAC (XU)</th>
<th>FinPAC (PZ)</th>
<th>FinQPAC (PZ)<strong>(f)</strong></th>
<th>FinQPAC (PLZ)<strong>(f)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong> Power Good</td>
<td>OPT</td>
<td>NA</td>
<td>NA</td>
<td>OPT</td>
<td>OPT**(i)**</td>
<td>OPT**(i)**</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
</tr>
<tr>
<td><strong>T</strong> Trim: +10%/-10%</td>
<td>OPT**(i)**</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>OPT**(i)**</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
</tr>
<tr>
<td><strong>F</strong> Trim: +10%/-50%</td>
<td>OPT**(i)**</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>OPT**(i)**</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>OPT</td>
<td>OPT</td>
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<td>OPT</td>
<td>OPT</td>
<td>OPT</td>
</tr>
<tr>
<td><strong>V1 VXI Low Noise</strong> (150 mV p-p 15 V &lt;Vout ≤24 V)</td>
<td>OPT</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
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<td>NA**(h)**</td>
<td>NA**(h)**</td>
</tr>
<tr>
<td><strong>V2 VXI Low Noise</strong> (50 mV p-p ≤15 V)</td>
<td>OPT</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
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<td>NA**(h)**</td>
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<td>NA**(h)**</td>
<td>NA**(h)**</td>
</tr>
<tr>
<td><strong>V3 VXI Low Noise</strong> (1% Vout &gt;24)</td>
<td>OPT</td>
<td>NA</td>
<td>OPT**(i)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
<td>NA**(h)**</td>
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<tr>
<td><strong>Parallelable</strong></td>
<td>STD</td>
<td>STD</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>STD</td>
<td>STD</td>
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</tr>
<tr>
<td><strong>Autosense</strong></td>
<td>STD</td>
<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>STD</td>
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<td>STD</td>
<td>STD</td>
<td>STD</td>
<td>STD</td>
</tr>
</tbody>
</table>

**Option**

- **FinPACs and FinQPACs require two slots**
- **Module dependent, 3.3 V, 10 – 15 V “T” option only**
- **All QPACs and RamPACs have output ripple of 10mV p-p or 0.15% whichever is greater**
- **Per slot based indicator**

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**WARRANTY**

Vicor products are guaranteed for two years from date of shipment against defects in material or workmanship when in normal use and service. This warranty does not extend to products subjected to misuse, accident, or improper application or maintenance. Vicor shall not be liable for collateral or consequential damage. This warranty is extended to the original purchaser only.

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Information furnished by Vicor is believed to be accurate and reliable. However, no responsibility is assumed by Vicor for its use. Vicor components are not designed to be used in applications, such as life support systems, wherein a failure or malfunction could result in injury or death. All sales are subject to Vicor’s Terms and Conditions of Sale, which are available upon request.

Specifications are subject to change without notice.

The latest data is available on the Vicor web site at vicorpower.com.

Westcor, a division of Vicor, designs and builds medium to high power configurable power supplies incorporating Vicor’s high density DC-DC converters and accessory components. Westcor’s product line includes:

- PFC Mini
- PFC Micro
- PFC MicroS
- Mini MegaPAC
- PFC MegaPAC
- PFC MegaPAC (High Power)
- PFC MegaPAC-EL (Low Noise)
- 4 kW MegaPAC
- ConverterPACs
- FlatPAC-EN

See Design Guides for detailed information about all MegaPAC products. They can be downloaded in PDF format from the website at www.vicorpower.com.