



# Alternating Input Module

VI-AIM™

Actual size:  
2.28 x 2.4 x 0.5in  
57,9 x 61,0 x 12,7mm



## Universal AC Input Front End Module

### Features & Benefits

- RoHS compliant (VE versions)
- Universal input: 85 – 264V<sub>AC</sub>
- Output power: 250W
- Operating temperature: 100°C
- Efficiency: 97%
- Integral EMI filtering
- Input transient protection
- Inrush limiting
- CE Marked

### Product Highlights

The AIM (Alternating Input Module) is an AC front-end module which interfaces directly with worldwide AC mains. The AIM provides line rectification, EMI/RFI filtering, transient protection and inrush limiting in a half brick package measuring 2.28" x 2.4" x 0.5".

The AIM is used in conjunction with Vicor VI-200 or VI-J00 DC-DC converters to realize a universal AC input, high-density, low-profile switching power supply with outputs from 1 – 95V<sub>DC</sub> and a total power rating up to 200W. An external capacitor is used to satisfy system hold-up requirements. Internal EMI filtering meets EN55022 and FCC Part 15, Class A emissions limits.

### Absolute Maximum Ratings

Parameter	Rating	Unit	Notes
Maximum value of hold-up capacitance	1200	μF	
Thermal resistance	0.4	°C/Watt	Baseplate-to-sink
Operating temperature	–55 to +100	°C	M-Grade
Storage temperature	–65 to 100	°C	M-Grade
Transient surge withstand			
Common mode	1.2/50μs, 2kV pulse, 2 joules 0 to 360 degree phase angle		EN61000-4-5 IEC 801-5
Normal mode	1.2/50μs, 1kV pulse, 2 joules 0 to 360 degree phase angle		With external MOV

VI-AIM Input Voltage	Compatible DC-DC Converter	Notes
85 – 132 Vac	VI-x5x-xx	Used with a 100 – 200V <sub>IN</sub> converter
180 – 264 Vac	VI-x6x-xx	Used with a 200 – 400V <sub>IN</sub> converter
85 – 264 Vac	VI-x7x-xx	Used with a 100 – 375V <sub>IN</sub> converter

### Part Numbering

VI	-	AIM	*	-	E		1
⋮		⋮			⋮		⋮
Compliance		Product Name			Product Grade Temperatures (°C)		AC Input Module
VI = Non RoHS					Grade Operating	Storage	
VE = RoHS					E = – 10 to +100	– 20 to +100	
					C = – 25 to +100	– 40 to +100	
					I = – 40 to +100	– 55 to +100	
					M = – 55 to +100	– 65 to +100	

\* For Mega Module packaging option add an L before the product name.  
Example: Vx-LAIM-xx

## Specifications

(typical at  $T_{BP} = 25^{\circ}\text{C}$ , nominal line and 75% load, unless otherwise specified)

### INPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
AC line input		85 – 264 <sup>[1]</sup>		$V_{AC}$	No strapping; no damage below low line
		47 – 440		Hz	
Inrush current		<40A at peak line (264V <sub>RMS</sub> )			

<sup>[1]</sup> Dependent upon input range of compatible DC-DC converter.

### OUTPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Output voltage		120 – 373		$V_{DC}$	Peak of AC line
Output power		250		W	Delivered to converter(s)
Hold-up time		Application specific			A function of external capacitance and power
Efficiency		97%		%	

### SAFETY SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Dielectric withstand					
Input to output		None			Provided by DC-DC converter
Input/output to baseplate		1,500		$V_{RMS}$	

### AGENCY APPROVALS

Safety Standards	Agency Markings	Notes
Conducted EMI/RFI	VDE 0871/FCC Part 15, Class A EN55022, Class A	With compatible DC-DC converter modules External 0.47μF capacitor required
UL1950, CSA 22.2-950, EN60950		

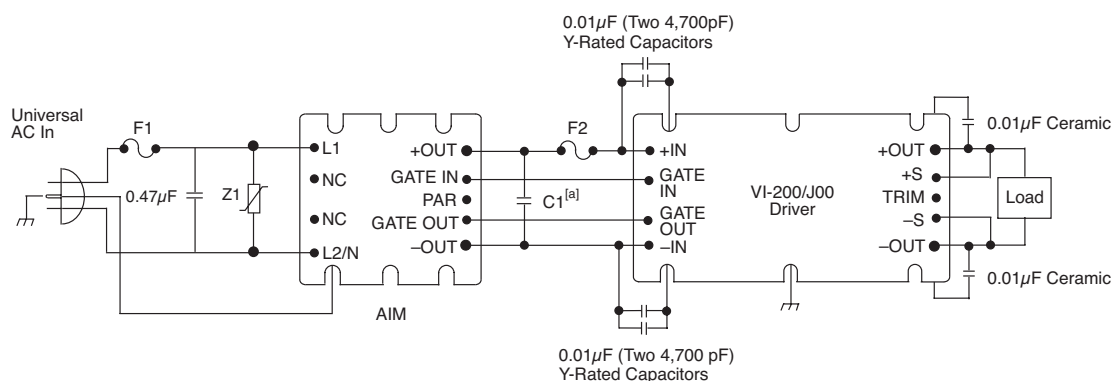
### GENERAL SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Size		2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7)		in (mm)	Mega Module, SlimMod and FinMod packages available
Weight		3.0 (85)		Ounces (Grams)	

## Storage

Vicor products, when not installed in customer units, should be stored in ESD safe packaging in accordance with ANSI/ESD S20.20, "Protection of Electrical and Electronic Parts, Assemblies and Equipment" and should be maintained in a temperature controlled factory/warehouse environment not exposed to outside elements controlled between the temperature ranges of 15°C and 38°C. Humidity shall not be condensing, no minimum humidity when stored in an ESD compliant package.

## VI-AIM Connection Diagram, Typical Application



<sup>[a]</sup> Consult factory or refer to Selecting Capacitors for AIM Modules on page 34 of the VI-200 and VI-J00 Design Guide .

Z1: MOV Part #30076

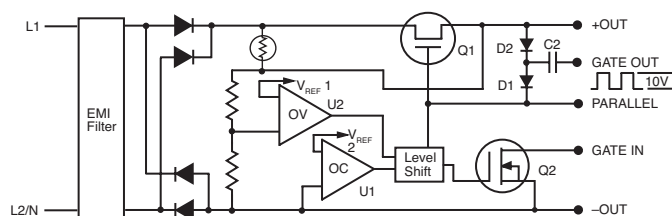
Fuse 1: 6.3A/250V (IEC 5X20mm) Buss GDB-6.3 or 7A / 250V (3AG 1/4" x 1 1/4") Littlefuse 314-007

Fuse 2: For VI-X7X-XX — Buss PC-Tron 2.5A (250V)

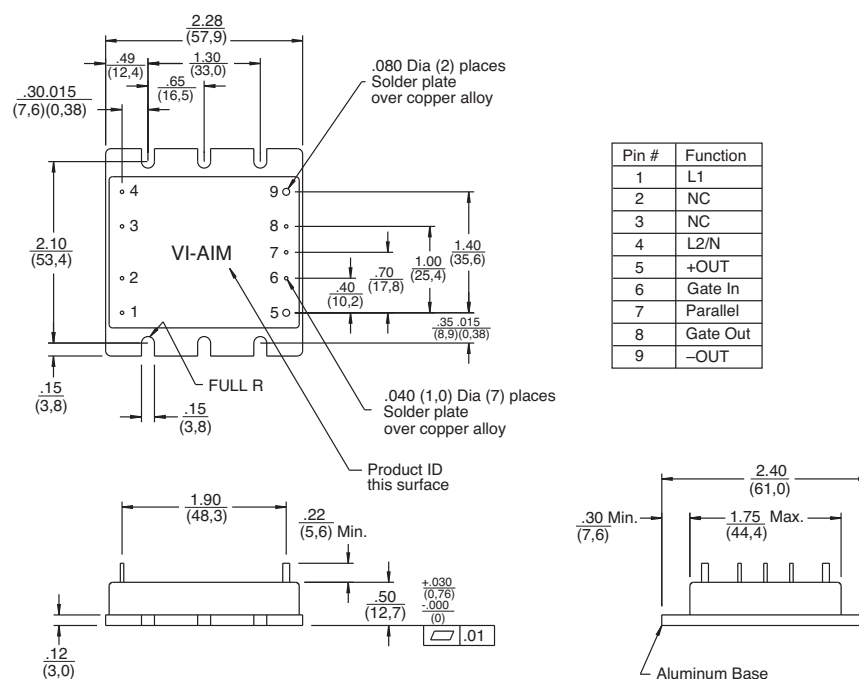
For VI-X6X-XX — Buss PC-Tron 3A (250V)

For VI-X5X-XX — Buss PC-Tron 5A

## VI-AIM Block Diagram



## Mechanical Diagram



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