



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_{AC}
- 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_{DC} 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 _{IN} converter
180 – 264 Vac	VI-x6x-xx	Used with a 200 – 400V _{IN} converter
85 – 264 Vac	VI-x7x-xx	Used with a 100 – 375V _{IN} 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 ^[1]		V_{AC}	No strapping; no damage below low line
		47 – 440		Hz	
Inrush current		<40A at peak line ($264V_{RMS}$)			

^[1] 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 0.47 μF 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.

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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