



# Data Sheet

# VI-AIM

## Universal AC Input Front End Module



### Features

- RoHS compliant (VE versions)
- Universal input: 85 – 264 Vac
- Output power: 250 W
- 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 – 95 Vdc and a total power rating up to 200 W. An external capacitor is used to satisfy system hold-up requirements. Internal EMI filtering meets EN55022 and FCC Part 15, Class A emissions limits.



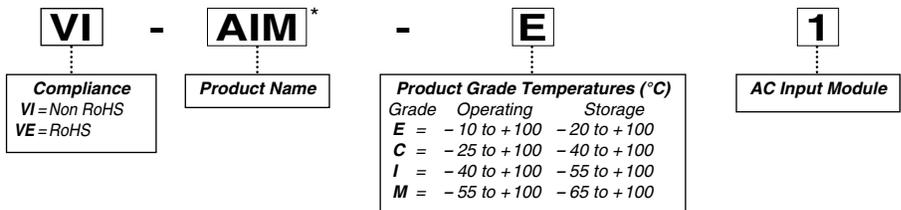
Actual size:  
2.28 x 2.4 x 0.5 in  
57,9 x 61,0 x 12,7 mm

### 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 105	°C	M-Grade
Transient surge withstand			
Common mode	1.2/50 μS, 2 kV pulse, 2 joules 0 to 360 degree phase angle		EN61000-4-5 IEC 801-5
Normal mode	1.2/50 μS, 1 kV 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 – 200 Vin converter
180 – 264 Vac	VI-x6x-xx	Used with a 200 – 400 Vin converter
85 – 264 Vac	VI-x7x-xx	Used with a 100 – 375 Vin converter

### Part Numbering



\* 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>		Vac	No strapping; no damage below low line
		47 – 440		Hz	
Inrush current		<40 A at peak line (264 Vrms)			

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

### ■ OUTPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Output voltage		120 – 373		Vdc	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		Vrms	

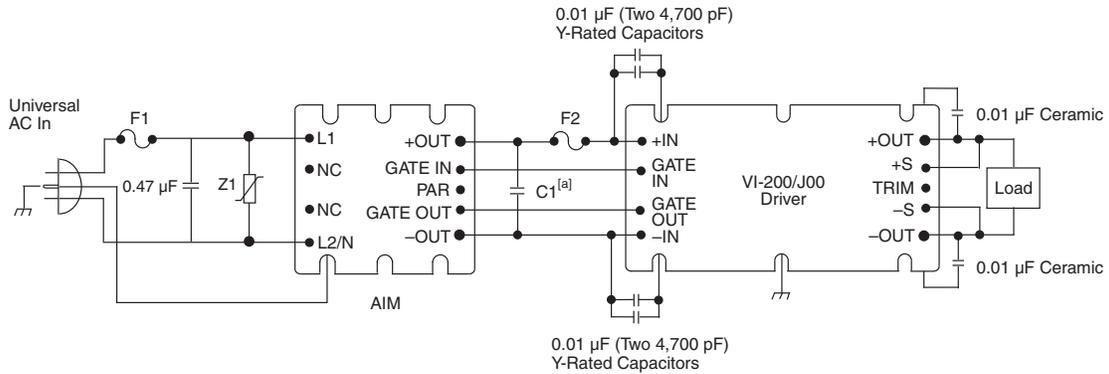
### ■ AGENCY APPROVALS

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 $\mu\text{F}$ 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)	

# 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

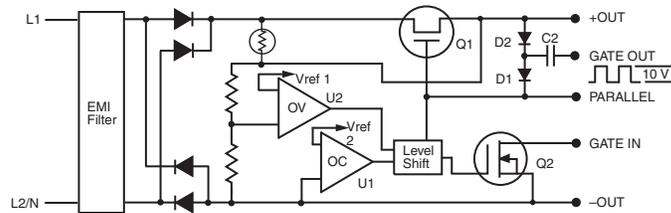
Fuse 1: 6.3A/250V (IEC 5X20 mm) Buss GDB-6.3 or 7 A / 250 V (3AG 1/4" x 1 1/4") Littlefuse 314-007

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

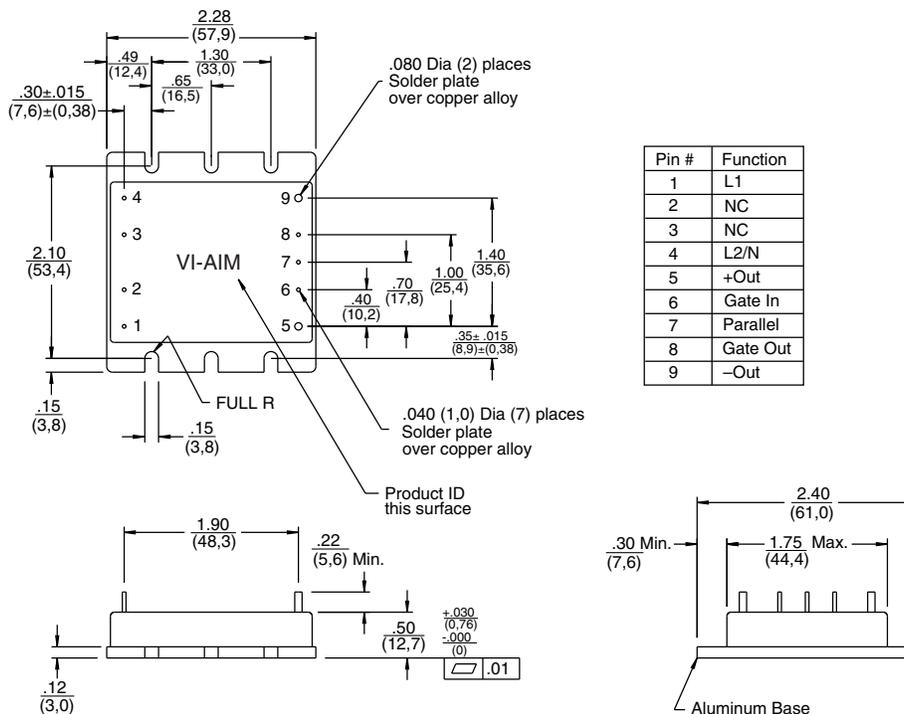
For VI-X6X-XX — Buss PC-Tron 3 A (250 V)

For VI-X5X-XX — Buss PC-Tron 5 A

## VI-AIM Block Diagram



## Mechanical Diagram



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