



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.



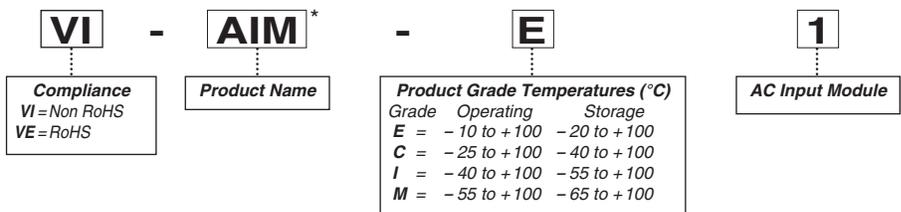
Actual size:
2.28 x 2.4 x 0.5 in
57,9 x 61,0 x 12,7 mm

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 100 | °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 ¹ | | Vac | No strapping; no damage below low line |
| | | 47 – 440 | | Hz | |
| Inrush current | | <40 A at peak line (264 Vrms) | | | |

¹Dependent 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 | |

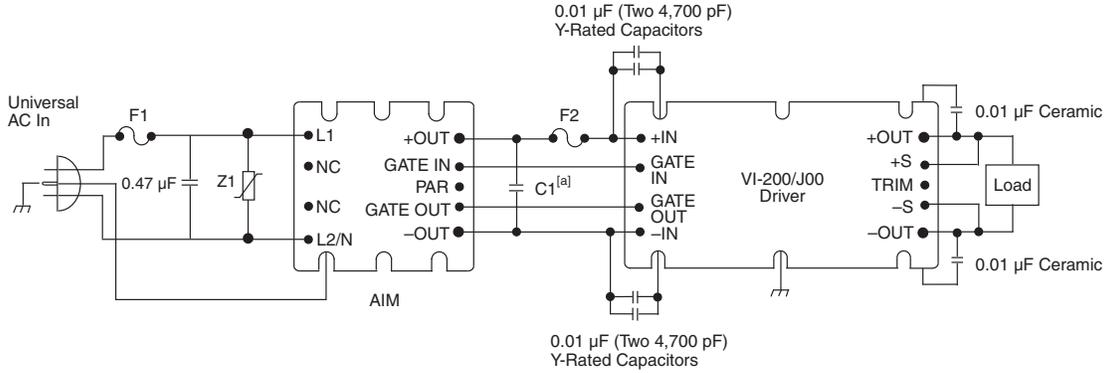
■ AGENCY APPROVALS

| 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 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) | |

VI-AIM Connection Diagram, Typical Application



^[a] 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

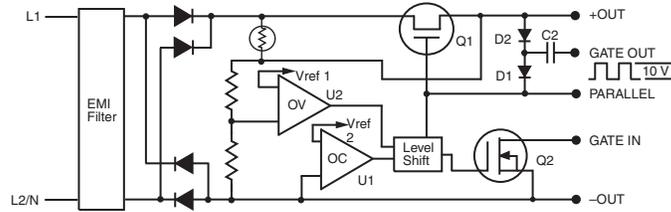
Fuse 1: 6.3A/250V (IEC 5X20 mm) Buss GDB-6.3 or 7 A / 250 V (3AG 1/4" x 1 1/4") Littlefuse 314-007

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

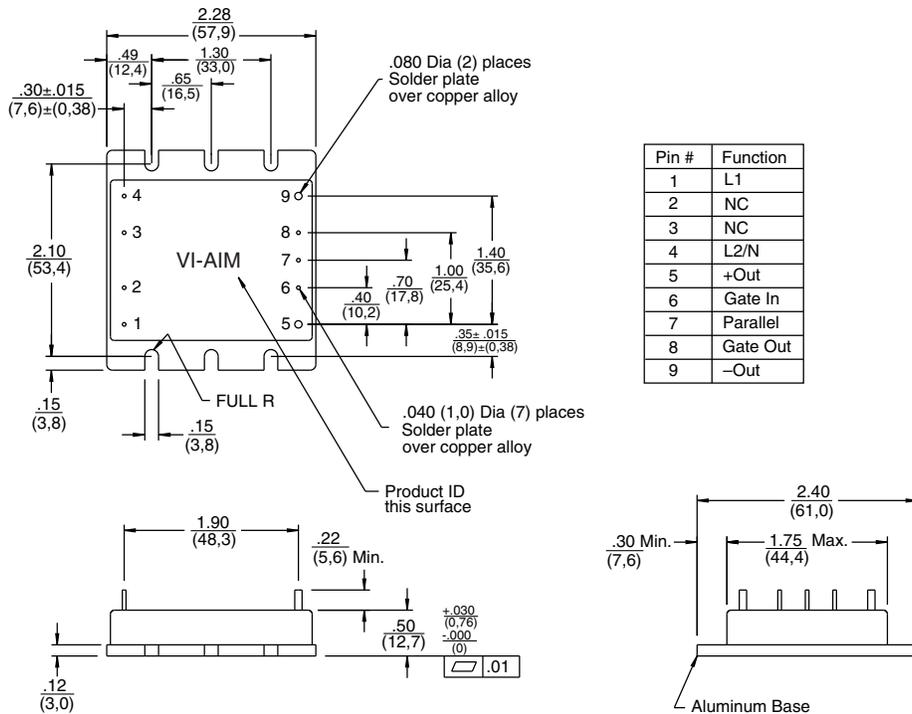
For VI-X6X-XX — Buss PC-Tron 3 A (250 V)

For VI-X5X-XX — Buss PC-Tron 5 A

VI-AIM Block Diagram



Mechanical Diagram



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