



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 (264 V_{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) | |

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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