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Find the *Aitech Defense Systems E119* at our website: ***Click HERE***

E119
Dual-Slot VME Enclosure



- **Rugged Chassis for Mobile Military Applications**
- **Two 6U Conduction Cooled VME64x Card Slots**
- **Compact and Lightweight - Ideal for Airborne Applications**
- **Designed for Harsh Mechanical, Climatic, Chemical and Electrical Stresses**
- **Environmentally Sealed**
- **Internally Conduction-Cooled; Externally Convection, Radiation and Conduction Cooled**
- **Fully Sealed Faraday Cage and Complete EMI/RFI Power Line Filtering**
- **Standard Front Panel Connector Configuration Enables Quick Prototyping**
- **Multi-Output Integral 28 Vdc Power Supply**
- **Customization Options: Front Panel, I/O Connectors, I/O Harnessing, Mounting and Finish**

Aitech Defense Systems, Inc.
A member of the Aitech Rugged Group
19756 Prairie Street, Chatsworth, Ca. 91311
Tel: (888) Aitech-8 (248-3248) Fax: (818) 718-9787 e-mail: sales@rugged.com web: www.rugged.com

Overview

Aitech's E119 Dual Slot VME computer enclosure is built to be rugged and reliable as well as very lightweight and compact. EMI/RFI protected and environmentally sealed, the E119 is capable of withstanding extreme environmental conditions of altitude, temperature, humidity, shock, vibration, EMI and chemical exposure. This makes it ideal for use in all military environments and especially in airborne applications.

Sturdy Mechanical Design

The E119 is constructed of durable CNC machined 6061-T6 aluminum. Fasteners are stainless steel and often-used threads have self-locking stainless steel helicoils to withstand severe vibration and shock. All connectors are located on one side of the enclosure for easy access. Sides and top walls are externally finned for radiation and convection cooling.

The bottom plate is smooth and flat for additional conduction cooling when a cold plate is available.

Bosses integral to the enclosure sidewalls enable convenient mounting of the enclosure either directly to a mounting surface (hard mounting) or via vibration isolators.

VME Backplane and Board Capacity

The E119 accommodates two standard IEEE 1101.2, 6U conduction-cooled VME64x cards.

The backplane supports the VME64x bus, including 5-row, 160-pin P1 & P2 connectors, and a 95-pin P0 in both slots.

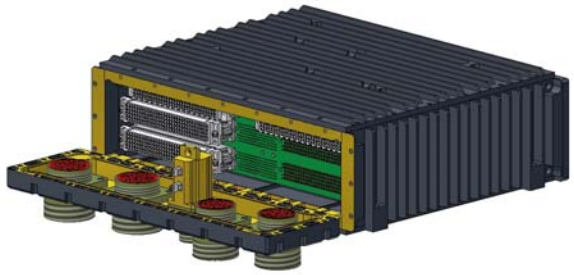
Any of the 410 pins in rows A and C, user defined pins in rows Z and D of the P2 connectors, and the I/O pins from each of the two P0 connectors can be routed to the front panel I/O connectors.

The backplane is equipped with DIN41612 I/O connectors, designed for a detachable crimp type wire harness, to connect I/O signals between the backplane and front panel I/O connectors, using harnessing internal to the chassis.

Front Panel I/O Connector Options and I/O Harnessing

The I/O panel is available in the following three configurations (see Front Panel I/O Connectors ordering information).

- ***Option 0 = Standard COTS Configuration***: Suitable for quick and easy prototyping, this configuration includes five circular D38999 Series III connectors (1 power + 4 I/O) providing a total of 290 I/O pins. Also provided is a chassis grounding screw for external strap connection. All the required connectors and pins are furnished with the chassis, enabling the customer to manufacture the required internal harnessing. Location of the internal harnessing is shown in the figure below.



- ***Option 1 = Blank Panel (Power Connector Only)***: Power connector and line filter are provided. The remainder of the front panel is blank (no openings for the other connectors) enabling customers to create their own custom front panel configurations.
- ***Option 2 = Custom Configuration****:* Fully customized front panel configuration, with a customer specified combination of military connectors and any of the following features: LED indicators, On/Off switch, ETM, etc. For such custom orders, Aitech will manufacture and install the I/O harnessing in accordance with customer specifications. Enclosures with custom front panel configurations are completely assembled, wired, and tested at Aitech, and are ready to use out of the box.

Front panel mating connectors are available for Options 0 and 2 to enable customers to manufacture power and I/O cabling (see Front Panel Mating Connectors ordering information). Mating connectors are furnished without backshells.

Thermally Efficient

The E119 does not require forced air-cooling. Heat is conducted through the aluminum walls and radiated/convected to the surroundings by means of the external vertical fins on the sides and top walls of the enclosure. The enclosure can also be mounted to a cold plate, thus enhancing the thermal path by adding conduction cooling through the bottom base plate in addition to the radiation and natural convection.

Mounting options

The E119 is available with two mounting options (see Mounting Options ordering information):

- ***Option 0 = Standard built-in hard mounting:*** Four 10-32 captive screws in the enclosure sidewalls, for hard mounting to a base plate. Suitable for cold plate applications.
- ***Option 1 = External wire rope vibration isolation:*** Two helical wire rope type vibration isolators, mounted to the bottom of the enclosure to enhance vibration and shock survivability of the enclosure and its payload.

Electromagnetic Compatibility

Aitech's E119 minimizes emission and susceptibility interference with these features:

- Metal-to-metal clamping with conductive surfaces and fasteners
- Conductive O-rings and seals
- Line feed through filters on the inner surface of the I/O panel for reduced EMI/RFI noise to/from power cable, additional line filter module on the power supply board.
- Isolated chassis ground with external grounding screw.

Environmental Sealing

The E119 is sealed against humidity rain and splash. Enclosure mating surfaces are sealed with hollow silicon rubber seals. Connectors and other accessories are protected a similar manner.

Corrosion Resistant Finish

The E119 external surfaces are black hard anodize coated for excellent corrosion resistance. Epoxy paint in standard military colors is optionally available upon request.

Internal surfaces are chemical conversion coated for corrosion resistance and electrical conductivity. All finishes and external components are salt-fog dust and fungus resistant.

High Performance Power Supply

The power supply provides continuous high current, high efficiency operation, under the most adverse conditions.

Major features include:

- DC-DC converters, designed to operate even with irregular or noisy power sources
- MOSFET output switching technology
- Fully isolated inputs and outputs, eliminating the possibility of ground loops
- Outputs are protected against short-circuits, thermal breakdown, overvoltage and overshoot.
- Input protected against reverse polarity, high voltages, ripple and spikes

Power Supply Specifications

- **Thermal Characteristics**
  Thermal Shutdown 125 °C
- **Input Power**
  Voltage Range (DC) 18 to 36 V
- **Transient Suppression**
  Meets requirements of:
  - MIL-STD-704A, D & E
  - MIL-STD-1275A (except ignition, cranking and single fault conditions)
- **Isolation Resistance**
  >10 MΩ at 120 V input to chassis
  >10 MΩ at 100 V output to chassis
  >10 MΩ at 500 V input to output

- **Output Power**

	Outputs			
	1	**2**	**3**	**4**
Voltage (VDC)	+5	+12	-12	+3.3
Current (A)	20	8	1	10
Line/Load Regulate (%)	0.5	0.5	0.5	0.5
Ripple/Noise (P-P mV)	50	50	50	50

- **Total Output Power** 150 W
- **General Parameters**

  Power Fail Warning >4 ms

  Efficiency 85% (typical)

Environmental Specifications

- **Operating Temp.**

  Ser 200 level Enclosure: -40 °C to +71 °C*

  Ser 400 level Enclosure: -55 °C to +71 °C*
- **Non-operating Temp.**

  Ser 200 level Enclosure: -50 °C to +85 °C

  Ser 400 level Enclosure: -62 °C to +100 °C
- **Low Pressure**

  Operating: Up to 70,000 ft

  Storage: Up to 70,000 ft

  *Maximum operating temperature is a function of total power dissipation and altitude. The 71°C temperature is for power dissipation of 50 Watts with card edge of 85 °C @ sea level.
- **Humidity**

  5%-100% relative humidity with condensation
- **Vibration**

  Sine: Cycling of 5*/8** g (max) at 5 to 500 Hz

  Random: 10*/16** g_{RMS} at 20 to 2000 Hz

  Transportation: Loose cargo vibration
- **Shock** - Single half-sine shocks:

  40*/65** g peak

  3 axes

  11 ms duration

  * Hard mounted
  ** Mounted on isolators
- **Transit Drop*** ** 3 ft. drop on concrete

  *** Packed in its cargo box
- **Bench Handling**

  4-inch unpackaged drop at a 45° angle to simulate conditions during servicing
- **Salt Fog** 5% salt spray 48H
- **Dust** Wind and fine dust
- **EMI/RFI**

  Designed to meet the emanation and susceptibility limits of MIL-STD-461, as per MIL-STD-462 requirements, CE101/102, CS101/102,114, & RE101/102 RS101/103

General Specifications

- **Dimensions**

  The net dimensions of the enclosure including front panel connectors, but not including vibration isolators are:

  10.04" x 9.62" x 3.18" (W x D x H)
- **Weight**

  Less than 6 lbs. (without boards)
- **Power Dissipation Capability**

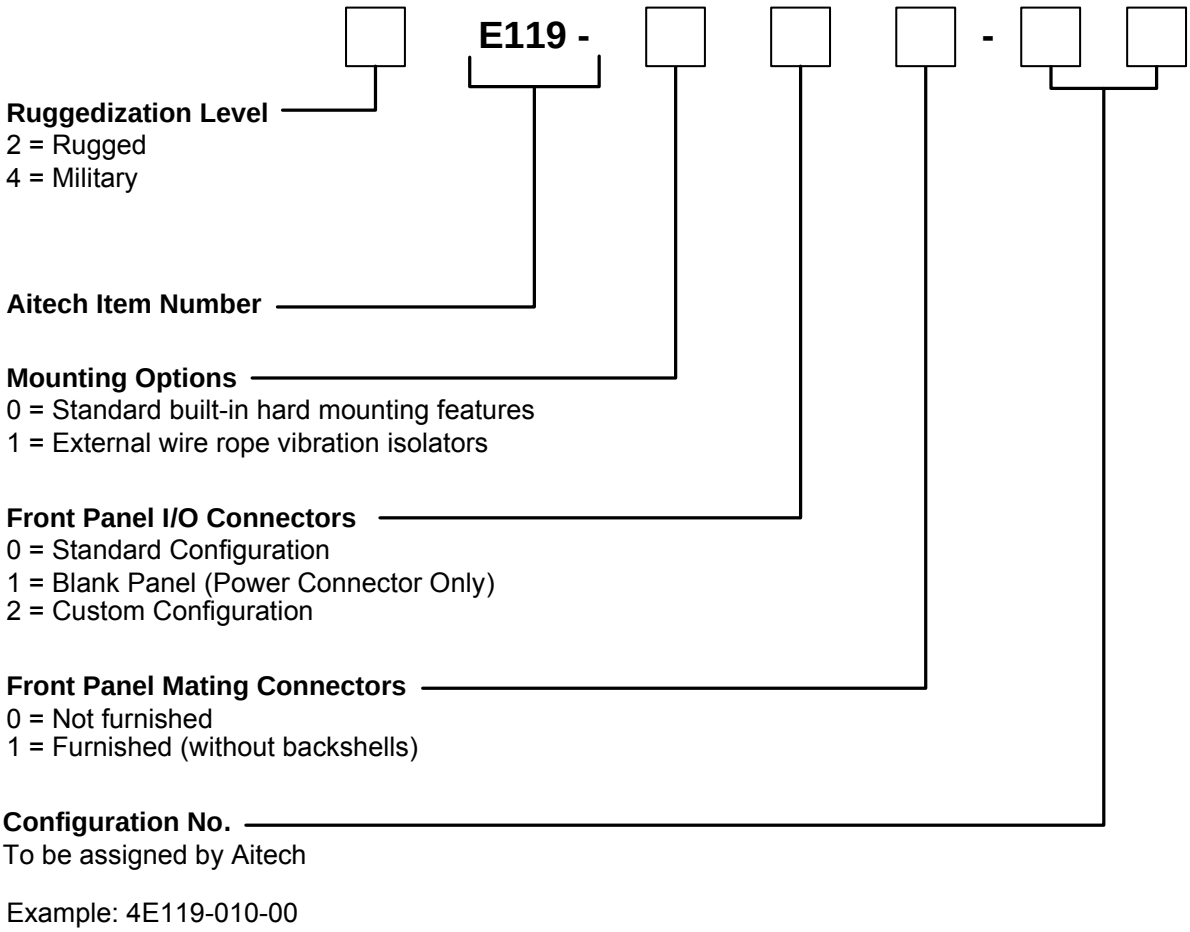
  In Radiation/Convection + Conduction cooling mode (standard hard mounting):

  More than 50 W at 71 °C ambient free air temperature at sea level, with cold plate temperature of 55 °C, (internal temperature is maximum 85 °C at card edge).

  In Radiation/Convection mode (with optional vibration isolation mounting):

  More than 40 W at 71°C ambient free air temperature at sea level, (internal temperature is maximum 85 °C at card edge).

Ordering Information for the E119



Example: 4E119-010-00

For more information about the E119 or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248)

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