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Find the *Aitech Defense Systems E103* at our website: ***Click HERE***

E103
1/2-ATR Short VME Enclosure



- ***Rugged Chassis for Mobile Military Applications***
- ***Designed for Harsh Mechanical, Climatic, Chemical and Electrical Stresses***
- ***Environmentally Sealed***
- ***Compact and Lightweight with 5 Standard VME Slots***
- ***Internally Conduction-Cooled; Externally Radiation and Convection-Cooled***
- ***Fully Sealed Faraday Cage and Complete EMI/RFI Power Line Filtering***
- ***Customized Front Panel Connectors***
- ***Multi-Output Removable Power Supply***

Aitech Defense Systems, Inc.
A member of the Ai-Rugged Group
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Overview

Aitech's E103 convection-cooled VME computer enclosure is built to be rugged and reliable as well as lightweight and compact. EMI/RFI protected and environmentally sealed, the E103 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.

Sturdy Mechanical Design

The E103 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 the front panel of the enclosure for easy access. Side and back walls are externally finned for radiation and convection-cooling. Designed with a built-in handle, the E103 is also equipped with hooks and mounting holes to facilitate installation in standard 1/2-ATR short mounting trays.

Board Capacity

The E103 accommodates 5 standard VME boards with 0.8 inch pitch, including:

- IEEE 1101.2 conduction-cooled VME cards
- Commercial VME boards without front panels

VME Backplane

The backplane is VME64x compliant with 160-pin, 5-row J1/J2 connectors and 95-pin PO connectors in all slots.

Any of the pins in rows A and C, and user defined pins in rows Z and D of the J2 connectors, as well as the 95 I/O pins from each of the P0 connectors (up to a maximum of 512), can be routed to front panel I/O connectors.

Front Panel

The front panel features a flexible configuration of connectors that conform to military standards, one for input power and all others for I/O. It may also be equipped with any of the following options: LED indicator to track system operation, On/Off switch and external grounding screw.

Thermally Efficient

The E103 does not require forced air or base plate cooling. Heat is conducted through the aluminum sidewalls and radiated/convected to the surroundings by means of the external vertical fins on the side and back walls of the enclosure.

Electro-Magnetic Compatibility

Aitech's E103 minimizes emission and susceptibility interference with these features:

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

Environmental Sealing

The E103 is sealed against humidity and splash. Enclosure mating surfaces are sealed with hollow silicone rubber O-ring seals. Connectors and other accessories are protected in the same manner.

Corrosion Resistant Finish

External surfaces of the E103 are hard anodize coated for excellent corrosion resistance. As an option, epoxy paint in standard military colors is available with nonstandard colors upon request.

Internal surfaces are chemical conversion coated for corrosion resistance and electrical conductivity. All finishes and components are fungus resistant.

High Performance Power Supply

The removable power supply provides continuous high current, high efficiency operation, under the most adverse conditions. It is easily replaced by the user to avoid enclosure maintenance downtime.

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	+100 °C to +110 °C

- **Input Power**

Voltage Range (DC)	18 V to 36 V
Nominal Input Voltage	24 V to 28V

- **Transient Suppression**

  Meets requirements of:
  - MIL-STD-1275AT (except ignition, cranking and single fault conditions)
  - MIL-STD-704D

- **Isolation Resistance**

  500 V to output of enclosure

- **Output Power**

	Outputs			
	1	**2**	**3**	**4**
Voltage (VDC)	+5	+12	-12	+3.3
Current (A)	20	1	1	11
Line/Load Regulate (%)	0.5	0.5	0.5	0.5
Ripple/Noise (P-P mV)	50	100	100	50

- **Total Output Power** 160 W
- **General Parameters**

Power Fail Warning	>4 mS
Efficiency	>75%

Enclosure Environmental Spec

- **Operating Temp.** -46 °C to +60 °C
- **Humidity**

  5%-95% relative humidity with condensation

- **Vibration**

Sine*	Cycling of 10 g (max) at 5 to 500 Hz
Random*	16 g RMS at 20 to 2000 Hz
Transportation	Loose cargo vibration

- **Shock*** - Single half-sine shocks:

  40 g peak

  3 axes

  11 ms duration

- **Transit Drop**** 1 ft. drop on concrete
- **Bench Handling**

  4-in unpackaged drop at a 45° angle to simulate conditions during servicing

- **Low Pressure**

Operating:	Up to 15,000 ft
Storage:	Up to 40,000 ft

- **Salt Fog** 5% salt spray
- **Fine Dust** Wind and fine dust particles
- **EMI/RFI**

  Designed to meet the emanation and susceptibility limits of MIL-STD-461, as per MIL-STD-462 requirements, CE102, CS101, CS114, & RE102.

* Mounted on Aitech mounting tray

** Packed in cargo box

General Specifications

- **Dimensions**

  Standard 1/2-ATR short mounting footprint:
  4.88 x 12.52 in (W x D)

  Maximum external dimensions with fins and handle:
  4.88 x 15.75x 7.7 in (W x D x H)

- **Weight**

  Less than 14 lbs. (without boards)

- **Power Dissipation Capability**

  More than 75 W at 60 °C ambient air temperature (maximum ΔT of 25 °C at card edge).

Development System Compatibility

To provide for a smooth transition between development and deployment, Aitech offers an equivalent, low-cost commercial integrated system with standard VME boards and an AC-operated, fan-cooled enclosure.

Accessories

Aitech offers a wide range of custom mounting options and cable sets.

For more information about Aitech's rugged and military VME enclosures or any Aitech product, please contact your local sales representative or our sales office.

For more information about the E103 or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248).

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