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Find the *Aitech Defense Systems E120* at our website: ***Click HERE***

E120

3/4-ATR Short VME Enclosure



- ***Rugged ¾ ATR-Short, 8 Backplane Slots***
- ***Designed for Harsh Mechanical, Climatic, Chemical and Electrical Stresses***
- ***Environmentally Sealed Enclosure for Conduction-Cooled modules***
- ***Compact and Lightweight for 8 Standard ANSI/IEEE 1101.2-1992 VMEbus, or ANSI/VITA 30.1 Conduction-cooled CompactPCI Modules***
- ***Internally Conduction-Cooled; Externally Forced Air-Cooled***
- ***Fully Sealed Faraday Cage and Complete EMI/RFI Power Line Filtering***
- ***Customized Front Panel Connectors – MIL-C-38999 or better***
- ***Multi-Output, High Performance, Modular and Removable Power Supply***
- ***Environmentally sealed, EMI/EMC-compliant Power Input Filter***

Aitech Defense Systems Inc.
A member of the Ai-Rugged Group
9301 Oakdale Avenue, Chatsworth, CA 91384
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Overview

Aitech's E120 ¾ ATR-Short forced air-cooled enclosure is built to be rugged and reliable as well as lightweight and compact. EMI/RFI protected and environmentally sealed, the E120 is capable of withstanding extreme environmental conditions of altitude, temperature, moisture, shock, vibration, EMI and chemical exposure, making it ideal for use in military and aerospace environments.

Sturdy Mechanical Design

The E120 is constructed of durable CNC machined 6061-T6 aluminum. Fasteners are stainless steel and removable cover threads have self-locking stainless steel helicoils to withstand severe vibration and shock. All I/O connectors are located on the front panel of the enclosure for easy access. The chassis is forced air-cooled through a finned back wall and bulkhead. Designed with a built-in handle, the E120 is also equipped with two front mounting hooks and two rear hold-down pin receptacles to facilitate installation in standard ARINC 404 3/4-ATR mounting trays.

Board Capacity

The E120 accommodates 8 standard VMEbus boards with 0.8 inch pitch, including:

- 8 conduction-cooled cards (IEEE 1101.2 or VITA 30.1)
- 3/4 ATR conduction-cooled power supply

VMEbus Backplane

The backplane is VME64x compliant with 160-pin, 5-row J1/J2 DIN connectors and 95-pin P0 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.

DC input power is routed to the power supply via a separate screened harness so as to prevent radiated or conducted EMI.

Front Panel

The front panel features a flexible configuration of user-defined 38999-style 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: elapsed-time meter, LED indicator to track system operation, On/Off switch and external grounding lug.

Thermally Efficient

The E120 is cooled by forced air blown from the rear end of the enclosure to two side heat exchangers. The conduction-cooled, 1101.2-compliant boards are environmentally sealed within the chassis.

Electro-Magnetic Compatibility

Aitech's E120 minimizes emission and susceptibility interference with these features:

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

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Environmental Sealing

The E120 is sealed against intrusion of external environment contaminants found in military applications, including: humidity, sand and dust, and contaminant splash. Enclosure mating surfaces are sealed with silicon rubber O-ring seals. Connectors and other accessories are protected also in the same manner.

Corrosion Resistant Finish

External surfaces of the E120 are finished with epoxy paint for excellent corrosion resistance. The finish is available in standard military colors with nonstandard colors available 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 module provides continuous high current, high efficiency operation, under the most adverse conditions. The power supply may be easily replaced by the user to avoid enclosure maintenance downtime.

Major features include:

- Three DC-DC converters, designed to operate even with irregular or noisy power sources
- Hi-Q MOSFET output switching technology
- Fully isolated inputs and outputs, eliminating the possibility of ground loops
- Outputs are protected against short-circuit, thermal breakdown, overvoltage and overshoot
- Input protected against reverse polarity high voltages, ripple and spikes
- For memory retention capabilities, the power supply holds up the output power rails for an additional 4 msec following the removal of input power.
- Options for additional hold-up times are available and dependent on output loading

Power Supply Specifications

- **Thermal Characteristics**

Thermal Shutdown	100 °C to +110 °C

- **Input Power**

Voltage Range (DC)	16 V to 36V
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 or enclosure

- **Output Power**

	Outputs			
	1	**2**	**3**	**4**
Voltage (VDC)	+5	+3.3	+12	-12
Current (A)	25	6	1	1
Ripple/Noise (P-P mV)	50	50	100	100

- **Total Output Power** 170 W
- **General Parameters**

Power Fail Warning	>4 mS
Efficiency	>75%

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General Specifications

- **Dimensions**

  Standard ¾ ATR Short mounting footprint:
  7.50” x 12.52” x 7.62” (W x D x H)

  Maximum external dimensions:
  7.50” x 16.53” x 7.62” (W x D x H), includes carrying handles, etc.

- **Power Dissipation Capability**

  More than 150 W at 60°C forced air temperature (maximum ΔT of 25°C at card edge).

Environmental Specifications

• **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**
Meets emission and susceptibility limits (MIL-STD-461B, part IV, class A3 as per MIL-STD-462 requirements CE102, CS101, CS114, & RE102)

- **Weight**

  Less than 22 lbs
  (Cond.-cooled boards not included)

* Mounted on Aitech mounting tray
** Packed in cargo box

For more information about the E120 or other Aitech products, please contact Aitech Defense Systems sales department at 888-248-3248.

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