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Find the *Aitech Defense Systems E191* at our website: ***Click HERE***

E191

2 Slot, 3U CompactPCI Enclosure



- ***Rugged 2 Slot, 3U CompactPCI Chassis for Mobile Military Applications***
- ***Designed for Harsh Mechanical, Climatic, Chemical and Electrical Stresses***
- ***Environmentally Sealed Enclosure for Conduction-Cooled modules***
- ***Compact and Lightweight for 2 Standard ANSI/VITA 30.1-2002 Conduction-cooled 3U CompactPCI Modules***
- ***Internally Conduction-Cooled; Externally Air-Cooled***
- ***28 VDC Power Input per MIL-STD-704 with environmentally sealed, EMI/EMC-compliant Power Input Filter***
- ***Standard Output, High Performance, Modular and Removable Power Supply***
- ***Customized Front Panel Connectors – MIL-DTL-38999***

Aitech Defense Systems Inc.
A member of the Aitech Rugged Group
19756 Prairie Street, Chatsworth, CA 91311
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Overview

Aitech's E191 air-cooled enclosure is built to be rugged and reliable as well as lightweight and compact. EMI/RFI protected and environmentally sealed, the E191 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.

Mechanical Design

The E191 is constructed of durable extruded 6063-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.

Board Capacity

The E191 accommodates 2 standard conduction-cooled 3U CompactPCI boards per VITA 30.1-2002 with 0.8 inch pitch, and a 3U conduction-cooled power supply.

CompactPCI Backplane

The backplane is 3U compact PCI compliant with J1 and J2 connectors in all slots

28V DC input power is routed to the power supply section of the backplane via a separate shielded harness to prevent radiated or conducted EMI.

Transition Module

All I/O signals from both Compact PCI slots are routed to the Rear I/O Transition Module standard D-connectors. I/O harness can be easily customized for specific applications.

Access Panel

Removable front access panel provides access to the cPCI card cage and power supply slot. Removable rear access panel features a flexible configuration of user-defined circular connectors, one for input power and all others for I/O. All connectors are located on the rear access panel.

Thermally Efficient

The E191 is cooled by natural convection. The conduction-cooled, VITA 30.1-2002 compliant boards are environmentally sealed within the chassis.

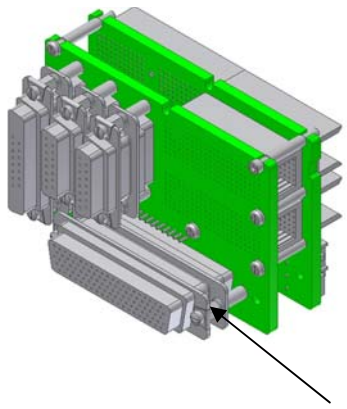
The Compact PCI boards are positively clamped to the side walls of the chassis.

The Power supply's DC to DC converters mount to chassis bottom.

Electro-Magnetic Compatibility

Aitech's E191 minimizes emission and susceptibility interference with these features:

- Bolted corners with conductive surfaces provide 2.5 milliohms or less of DC resistance
- Conductive gaskets provide environmental and electro-magnetic sealing.
- Separate shielded input power assembly
- Line filter capacitors on the input power assembly control conducted emissions



User Backplane I/O Transition Module

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Environmental Sealing

The E191 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 conductive gaskets. Connectors and other accessories are protected also in the same manner.

Corrosion Resistant Finish

External surfaces of the E191 are finished with black hard anodize for excellent corrosion resistance. The finish is also available in other standard 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:

- Two DC-DC converters, designed to provide four isolated outputs with a power rating for up to 140W.
- 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 ms (min) following the removal of input power (per the ANSI/VITA standards).
- Options for additional output hold-up times are available and dependent on output loading

Power Supply Specifications

- **Thermal Characteristics**

Thermal Shutdown	+100 to +110 °C

- **Input Power**

Voltage Range (DC)	18V to 36V
Nominal Input Voltage	24V to 28V
Reverse Polarity	Protected 0 to 40VDC

- **Transient Suppression**

  Meets requirements of:
  - MIL-STD-1275A, except ignition, cranking, and single fault conditions.
  - MIL-STD-704D

- **Isolation Resistance**

  >1MΩ at 250V input to output or chassis.

- **Output Power**

	Outputs			
	1	**2**	**3**	**4**
Voltage (Vdc)	+5	+3.3	+12	-12
Current (A)	18	11	1	1
Ripple/Noise (mV_{p-p})	<50	<50	<100	<100

- **Total Output Power** 140 W
- **Hold-up Circuit**

  Enables all outputs for at least 4 ms after input drops under 18Vdc

- **General Parameters**

Power Fail Warning	>4 ms
Efficiency	>75%

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General Specifications

- **Dimensions**

  Standard E191 mounting footprint:
  5.59” x 5.84” (W x D)

  Maximum external dimensions:
  5.59” x 10.11” x 3.45” (W x D x H)

- **Power Dissipation Capability**

  20W at 50°C still air, natural convection, sea level, maintaining card edge at less than 85°C.

  Higher power possible through mounting feet or moving air (consult factory to discuss installation and power/thermal design).

Environmental Specifications

- **Operating Temperature**

  Series 200 level Enclosure: -40 °C to +55 °C*

  Series 400 level Enclosure: -55 °C to +55 °C*

- **Non-operating Temperature**

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

  Series 400 level Enclosure: -62 °C to +100 °C

- **Humidity**

  5% - 95% relative humidity with condensation

- **Vibration**

  Sine* Cycling of 10 g (max) at 5 - 500 Hz
  Random* 0.1g^2/Hz at 20 - 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 22,000 ft

  Storage: Up to 60,000 ft

- **Salt Fog**

  5% salt spray

- **Fine Dust**

  Wind and fine dust particles

- **EMI/RFI**

  Per MIL-STD-461D, part IV with line filter:
  - CS101 (20Hz – 50KHz)
  - CE102 (10Khz – 10 MHz)
  - CS114 (10KHz – 400 MHz)
  - RE102 (10KHz – 10 GHz)

- **Weight**

  Less than 4.5 lbs (Conduction-cooled boards not included)

* Mounted on Aitech mounting tray
** Packed in suitable shipping/cargo container

For more information about the E191 or any Aitech product, please contact Aitech Defense Systems' sales department at (888) Aitech-8 (248-3248).

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