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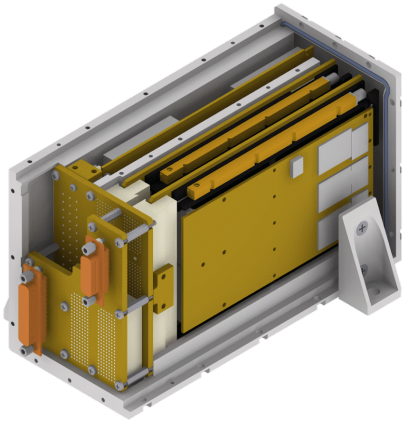
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Find the *Aitech Defense Systems E902* at our website: ***Click HERE***

E902

Rugged 3U CompactCPI Enclosure





- ***Rugged 2 slot, 3U CompactPCI Powered Enclosure***
- ***Designed for Harsh Mechanical, Climatic, Chemical and Electrical Stresses***
- ***Environmentally and EMI Sealed Enclosure for Conduction-Cooled modules***
- ***Compact for 2 Standard ANSI/VITA 30.1-2002 Conduction cooled, 3U CompactPCI Modules***
- ***Conduction-cooled via Chassis Baseplate***
- ***28Vdc 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 – D-Sub Connectors***
- ***Designed for Harsh Mechanical, Climatic, Chemical and Electrical Stresses***

Overview

Aitech's E902 cold plate cooled enclosure is built to be rugged and reliable as well as lightweight and compact. EMI/RFI protected and environmentallysealed, the E902 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.

Aitech Defense Systems Inc.
A member of the Ai-Rugged Group
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E902
Rugged 3U CompactCPI Enclosure

Mechanical Design

The E902 chassis utilizes a bonded and fastened construction technique and is made of durable CNC machined 6061-T6 aluminum. Stepped corner joints enhance the structural and EMI integrity. All fasteners are stainless steel and removable panel threaded holes have self-locking stainless steel helicoils to withstand severe vibration and shock.

Board Capacity

The E902 accommodates 2 conduction-cooled 3U CompactPCI board per VITA 30.1-2002 with 0.8 inch pitch, and a 3U conduction-cooled power supply.

CompactPCI Backplane

The backplane is 3U CompactPCI compliant with J1 and J2 connectors in all slots. DC input power is routed to the power supply via a separate screened harness so as to prevent radiated or conducted EMI.

Transition Module

Some I/O signals from both CompactPCI slots are routed via the transition module to the front panel connectors. Any change of cards may require the change of transition module to accommodate different Dsub connectors.

Access Panels

Removable front and rear access panels features a flexible configuration of user-defined Dsub connectors, one for input power and the other two connectors are for I/O. All connectors are located on the rear access panel.

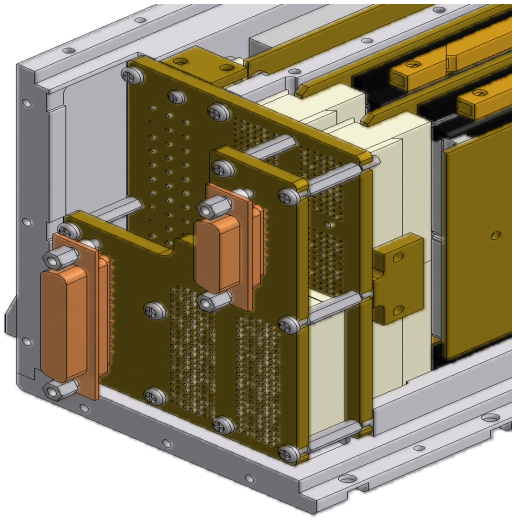
Thermally Efficient

The conduction-cooled, VITA30.1-2002 compliant boards are environmentally sealed within the chassis. The CompactPCI boards are positively clamped to the side walls of the chassis providing a direct thermal path to the base plate. The power supply's DC to DC converters come in direct contact with the base plate.

Electro-Magnetic Compatibility

Aitech's E902 minimizes radiated emissions and susceptibility interference with these features:

- Bolted corners with conductive surfaces provide 2.5 milliohms or less of DC resistance
- Conductive O-ring gaskets provide environmental and electro-magnetic sealing
- Separately shielded input power assembly
- Ferrite suppression on the input power assembly eliminate conducted emissions



Construction of Backplane I/O

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Environmental Sealing
The E902 is sealed against intrusion of external environment contaminants found in military applications, including: humidity, sand and dust, and contaminant splash. Conductive EMI gaskets are installed around each of the front panel connector. Enclosure mating surfaces are sealed with silicon rubber O-ring seals.

Corrosion Resistant Finish
External surfaces of the E902 are finished with either epoxy paint or chemical conversion coated 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:

- Two DC-DC converter modules to provide four isolated outputs
- Minimum of 500V isolation from input to output, eliminating any possibility of ground loops
- Outputs are protected against short-circuit and overvoltage
- Input protected against reverse polarity high voltages, ripple and spikes
- Thermal shutdown capability
- For memory retention capabilities, the power supply holds up the output power rails for an additional 4 msec (min) after input drops under 18VDC
- Options for additional output hold-up times are available and dependent on output loading for corrosion resistance and electrical conductivity. All finishes and components are fungus resistant.

Power Supply Specifications

- **Thermal Characteristics**

  Thermal Shutdown 100 to +110 °C

- **Input Power**

  Voltage Range (DC) 18 to 36 Vdc

  Nominal Input Voltage 24V

  Reverse Polarity Protected 0 to 40Vdc

- **Transient Suppression**

Meets requirements of:

  - MIL-STD-1275AT (with minor exceptions)
  - MIL-STD-704D

- **Isolation Resistance**

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

- **Output Power**

	Outputs [Vdc]			
	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

- **Holdup Circuit**

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

- **General Parameters**

  Power Fail Warning >4 ms

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E902
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Efficiency * >75%

General Specifications

- **Dimensions**

3.63” x 8.52” x 4.80” (W x D x H)

Maximum external dimensions:
5.38” x 8.72” x 4.80” (W x D x H), includes connectors and mounting flanges

- **Power Dissipation Capability**

More than 28 W at 71 °C ambient free air temperature at sea level
With cold plate temperature of 55 °C , the internal temperature is at a maximum 85 °C at card edge.

Environmental Specifications

- **Operating Cold Plate Temp.** -40 °C to +71 °C
- **Non-operating Temp.** -55 °C to +125 °C
- **Humidity**

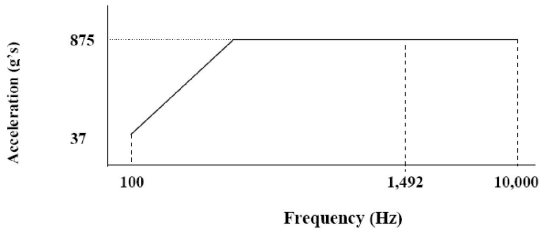
5% - 95% relative humidity with condensation

- **Vibration**

Sine: Cycling of 10 g (max) at 5 to 500 Hz
Random: 17.197 g_{RMS} at 20 to 2000 Hz
Transportation: Loose cargo vibration

- **Shock** – see below for details:

Frequency	SRS (G’s)
100 Hz	37
1,492 Hz	875
10,000 Hz	875



- **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 70,000 ft
Storage: Up to 70,000 ft

- **Salt Fog** 5% salt spray

- **Fine Dust** Wind and fine dust particles

- **Acceleration** Up to 38g on all 3 axes and sustain operation at a velocity of over Mach 3

- **EMI/RFI**

Per MIL-STD-461D, part IV with line filter:
- CS101 (20 Hz – 50 kHz)
- CE102 (10 kHz – 10 MHz)
- CS114 (10 kHz – 400 MHz)
- RE101 (30 Hz – 1 MHz)
- RE102 (10 kHz – 50 GHz)
- RS101 (30 Hz – 1 MHz)
- RS103 (10 kHz – 100 GHz)

- **Weight**

Less than 11 lbs
(Conduction-cooled boards included)

* Packed in suitable shipping/cargo container

For more information about the E902 or other Aitech products, please contact Aitech Defense Systems sales department at 888-248-3248

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