

MPE-3U

Multi-Platform Enclosure

Military Application



Description

The SprayCool® MPE-3U is a small, lightweight, rugged, high-performance direct-spray enclosure. Designed to provide unparalleled flexibility, the MPE 3U can enable survivability for both commercial grade and rugged electronics in harsh military environment applications. Capable of protecting both commercial grade or rugged electronics, the MPE-3U is truly versatile, in a small, light, and cost-effective format.

Using its patented direct spray evaporative technology, electronics are protected in the MPE's sealed, closed-loop environment, ensuring electronics survivability in extreme operating environments, encompassing both temperature and vibration. Architected to reduce non-recurring engineering expenses for custom products, the MPE-3U can be delivered in any payload configuration without mission-specific development.

Leveraging open industry standards and common commercial grade electronics, the MPE 3U enclosure can allow customers to quickly field common applications without redesign or re-qualification across a broad range of vehicle types and applications.

Platforms

- Ground vehicles
- Unmanned aerial systems (UAS)
- Rotor wing aircraft

Applications

- Sensor processing
- Electronic warfare (EW)
- Mission computing
- Command and control

The MPE enclosure (also available in a 6U model) offers a new standard of scalable thermal performance, environmental isolation, and flexible design, that simplifies integration while meeting today's and tomorrow's customer needs in harsh environments.

Product Features

- Meets demanding environmental requirements of MIL-STD-810F
- EMI per MIL-STD-461,462
- Sealed construction prevents moisture and dust contamination
- Open system architecture for 3U VPX, cPCI/cPCIe, and VME/VME-64X
- Configurable I/O, backplane, and power supply
- Supports MIL-STD-704, 1275B power input
- No air filters or other frequent maintenance items
- Flexible heat exchanger up to 2kW
- Scalable from (7) 3U slots
- Supports self-diagnostics & BIT
- Optional mounting features including shock isolation
- Compatible with ½ATR short mounting MPE

Specifications

Service	Air
Configurations	Up to 11 user slots
Dimensions:	12.62"L x 6.38"W x 10.625"H
Cooling capacity:	up to 2kW (w/ heat exchanger)
Storage temperature:	-65°to 85°C
Operating temperature:	-55°to 71°C (optional: -65°C)
Reliability:	14,000 hours MTBFPower
Power consumption:	80W maximum (for cooling system)
Input power:	MIL-STD-704 and 1275B
Weight:	18.0 lbs (includes power supply, backplane, and I/O)
Backplanes:	VPX, cPCI/cPCIe, VME/VME-64X
Environmental:	Exceeds humidity, salt fog, fungus, thermal shock, sand, and dust requirements of VITA 47

Contact Information

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SprayCool® Technology

SprayCool's patented two-phase "direct spray" liquid cooling technology deploys a fine mist of non-corrosive, non-toxic, non-conductive liquid (Fluorinert™ by 3M), sprayed in a thin layer, which evaporates and cools electronics. The process continuously cycles within a sealed, closed loop system. In doing so, SprayCool products isolate the electronics from dirty, corrosive environments found in military and industrial applications resulting in temperature-optimized, higher performance, and more durable electronic devices, often without the need of dedicated environmental control systems.

MPE-3U with Heat Exchanger

Capabilities

- Ability to mix commercial cards and custom/rugged electronics, significantly reducing integration risk, time, and costs
- Lowest system cost compared to conduction or other liquid alternatives
- Enables highest electronics density available at extreme environments
- Enables highest electronics reliability available today
- Sealed to provide maximum protection against contamination
- Does not require additional ECS capacity
- Scalable, meets various electronics payload requirements
- Minimize size, weight, and power (SWaP) consumption
- Altitudes up to 55,000 ft (75,000 ft optional)



Heat Exchanger

Capacity	0 to 500 W	500 to 1000 W
Dimensions	9.7" x 9.4" x 5"	11" x 7.5" x 6.5"
Weight*	6.5 lbs	9.9 lbs

*Weight includes: heat exchanger core, fans and fluid

Optional Accessories

- Custom backplane can accommodate any configuration of power supply or system slots
- Attitude independent (AI) valves adhere to mobility requirements of platform (the need for inverted operation)
- Custom I/O panel
- Fluid fill and drain system
- Fluid handling tool
- System integration cart
- Fluid heaters (extreme cold operation)
- Operational redundancy (n+1) electronics