

BMS

Ballistic Meteorological Sensor

Rugged Vehicle-Mounted Multi-Sensor

- RS-422 Serial Communication
- Compact Design
- 10-Second Power Up
- Built-In Diagnostics and Fault Reporting

Data Collected

- Crosswind
- Headwind
- Temperature
- Humidity
- Barometric Pressure
- Auxiliary Temperature



The **Ballistic Meteorological Sensor (BMS)** is a meteorological sensing unit that measures local wind, temperature, barometric pressure, and relative humidity for use in improving ballistics fire control accuracy and for support of network data sharing while mounted to the exterior of a ground vehicle. The BMS sensor also features built-in diagnostics and fault reporting in less than 10 seconds from power-up with continuous diagnostics and fault checking while operating.

The sensing unit has no moving parts, requires no special tools, and requires zero field level maintenance due to a complete solid-state design and manufacturing process. It is designed to minimize equipment damage, degradation of efficiency, or mission failure due to operator-induced errors, improper cabling, power failure or electrical overstress of components, and improper installation, storage operation, handling, maintenance, and transportation. A single shielded cable connects to the unit delivering power to operate the system and provides the RS-422 data lines to support sensor communication with a local user.



The BMS was designed, tested, and qualified to work in the harshest of environmental conditions, including humidity, salt, fog, sand, dust, altitude, solar radiation, snow, ice, wind, rain, shock, and vibration, all while meeting military ground vehicle EMI requirements.



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SPECIFICATIONS

Crosswind Velocity	Range: 0–38 m/s (0 to 85 mph) Resolution: 0.04 m/s (0.1 mph) Accuracy: Greater of ±0.5 m/s or 5% (±1.12 mph)
Headwind Velocity	Range: 0–38 m/s (0 to 85 mph) Resolution: 0.04 m/s (0.1 mph) Accuracy: Greater of ±0.5 m/s or 5% (±1.12 mph)
Temperature	Range: -40 to +71°C (-40 to 159.8°F) Resolution: 0.1°C (0.18°F) Accuracy: 1°C (±1.8°F)
Humidity	Range: 0–100% Resolution: 1% Accuracy: ±4%
Barometric Pressure	Range: 690.8–1097 mb (20.4–32.4 in Hg) Resolution: 0.33 mb (0.01 in Hg) Accuracy: ±5.07 mb (±0.15 in Hg)
Power-up	<10 seconds
Diagnostics	Continuous sensor and processor fault detection
Operating Hours	>24,000 operating hours, assuming 100% usage
Useful Life	Service Life: 20 years Shelf Life: 5 years



STANDARDS AND CERTIFICATIONS

- **MIL-STD-130N**
Department of Defense Standard Practice: Identification Marking of U.S. Military Property
- **MIL-STD-252B**
Classification of Visual and Mechanical Defects for Equipment, Electronic, Wired, and Other Devices
- **MIL-STD-810G**
Environmental Engineering Considerations and Laboratory Tests
- **MIL-STD-1472G**
Department of Defense Design Criteria Standard: Human Engineering
- **MIL-STD-461F**
Department of Defense Interface Standard, Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment

UNIT PROPERTIES

Weight*	5.89 kg (13 lb)
Dimensions*	H: 69.2 cm (27.25 in.) W: 11.8 cm (4.65 in.) L: 11.8 cm (4.65 in.)
Operating Temperature	Minimum: -40°C (-40°F) Maximum: +71°C (+160°F)
Mounting Hardware	BMS Mounting Bracket with Data Acquisition Output
Power Requirements	5 +/- 0.25 V, < 1 watt
Communications	RS-422 Data Connection
Compliance	Manufactured under ISO 9001, AS9100, AS9110

*With Mast Assembly



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