

# MWS<sup>®</sup>-M525

Micro Weather Sensor

## The True All-In-One Meteorological Sensor

### Key Features

- Integrated Sensing, Processing, Power, and Communications
- Two-Way Iridium Satellite Connectivity
- Expansion Port
- Rugged and Portable
- Easy 60-Second Installation
- Autonomous Operations

### Weather Data Reported

- Temperature
- Barometric Pressure
- Altimeter Setting
- Relative Humidity
- Wind Speed
- Peak Wind Speed
- Wind Direction
- Visibility
- Dust Accumulation
- Compass Reading
- Precipitation Amount / Type
- Lightning Distance
- Lightning Frequency

### Other Data Reported

- Visual Imagery
- GPS Longitude and Latitude
- GPS Elevation
- Compass Orientation
- Angular Tilt

### Patents

D734,182 | D796,353 | D796,972  
9,784,887 | 10,429,546



The MWS<sup>®</sup>-M525 is a low-cost, lightweight, ruggedized, autonomous all-in-one weather sensor. It eliminates the need for an external data logger, processor, communications unit, solar power system, and all the cables required to connect them. These components and parameters are fully integrated into the M525. Used as an unattended ground sensor (UGS), it is capable of being deployed globally in remote or denied locations for meteorological monitoring to improve situational awareness. The M525 can be hand- or air-emplaced and supports continuous, real-time weather reporting for ground and air operations, including incident meteorology for wildfire and disaster support.

The M525 combines all weather observation capabilities into a single, compact package weighing 3.2 pounds, including unique integrated features such as a 360° panoramic imaging for “eyes on the ground” observations, self-locating GPS and compass, and a host of state-of-the-art sensors to give a complete, current, and accurate weather picture. Internal rechargeable batteries for sustained operations, as well as global satellite command/control connectivity, allow for fully remote, autonomous operation of the system.

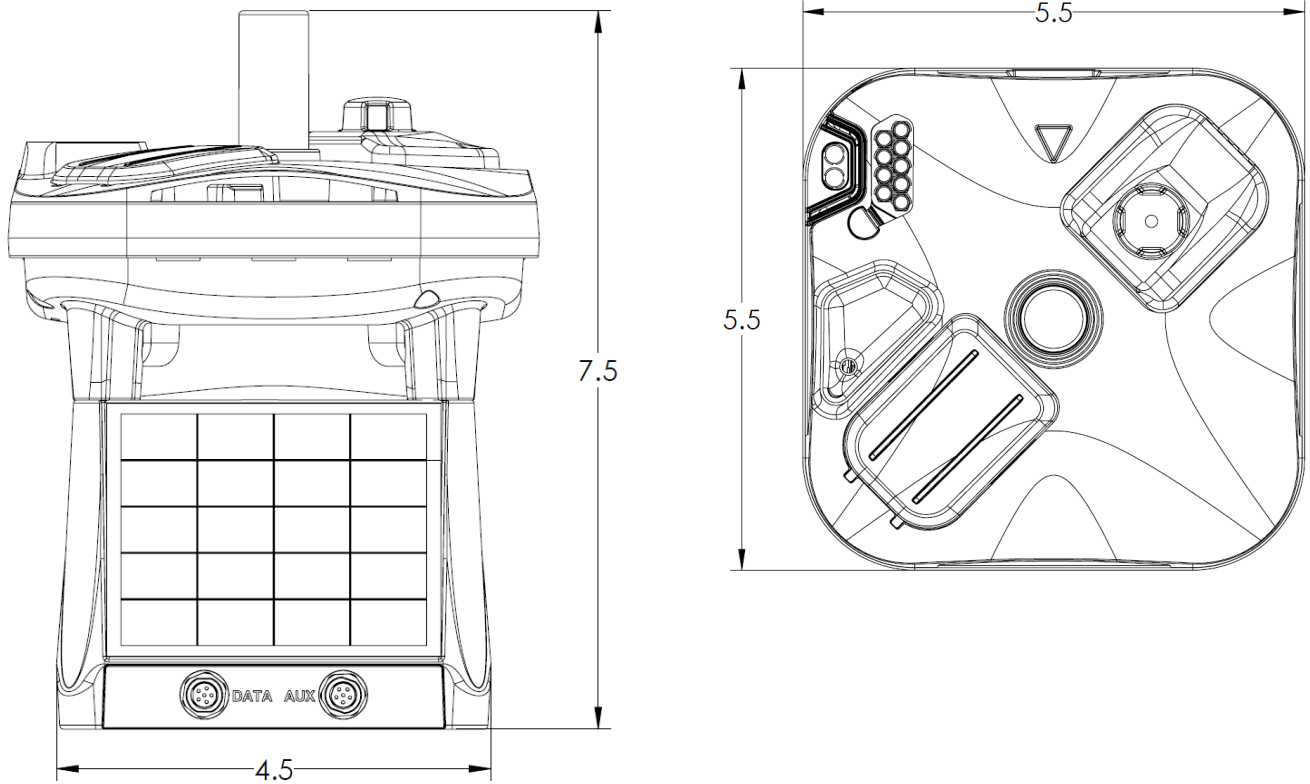


With its unique mix of capabilities, the M525 provides an enhanced and unparalleled rugged system capability at a significantly reduced cost compared to legacy tactical meteorological systems.



**DIMENSIONS**

Small enough to fit inside a backpack, the M525 is easily transportable to any environment. Weighing just 3.2 pounds, it can be readily deployed by hand or by air into any location for accurate weather sensing and data collection.

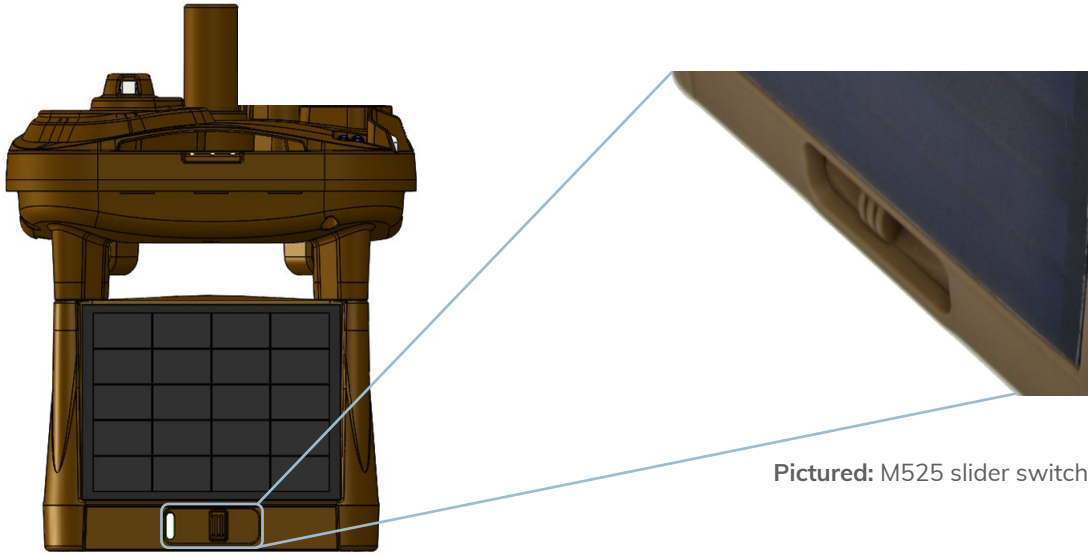


**UNIT PROPERTIES**

<b>Weight</b>	1.45 kg (3.2 lb)
<b>Dimensions</b>	H: 19 cm (7.5 in.) W: 14 cm (5.5 in.) D: 14 cm (5.5 in.)
<b>Operating Temperature</b>	Minimum: -40°C (-40°F) Maximum: +60°C (+140°F)
<b>Mounting Hardware</b>	1/4-20 threaded camera mount
<b>Power Management</b>	<b>Solar Cell Array and Onboard Nickel-Cadmium Batteries</b> Continuous operation and the ability to endure extended periods of harsh environmental conditions and rugged deployments
<b>Communications</b>	<b>Integrated Two-Way Iridium Satellite Transmitter and Receiver:</b> Transmits data to command and control elements via satellite and can receive commands for observing or image requests
<b>Expansion Port</b>	<b>Threaded M8 Serial Connector Rated to IP67 Waterproof Standards</b> Allows new capabilities to be added and easy integration of other fielded sensors, including external power and laptop connectivity as well as easy integration of other field sensors, including solar radiation, fuel moisture, surveillance, and CBRNE sensors.
<b>Compliance</b>	Manufactured under ISO 9001, AS9100, AS9110 Quality Management System

## CONTROLS

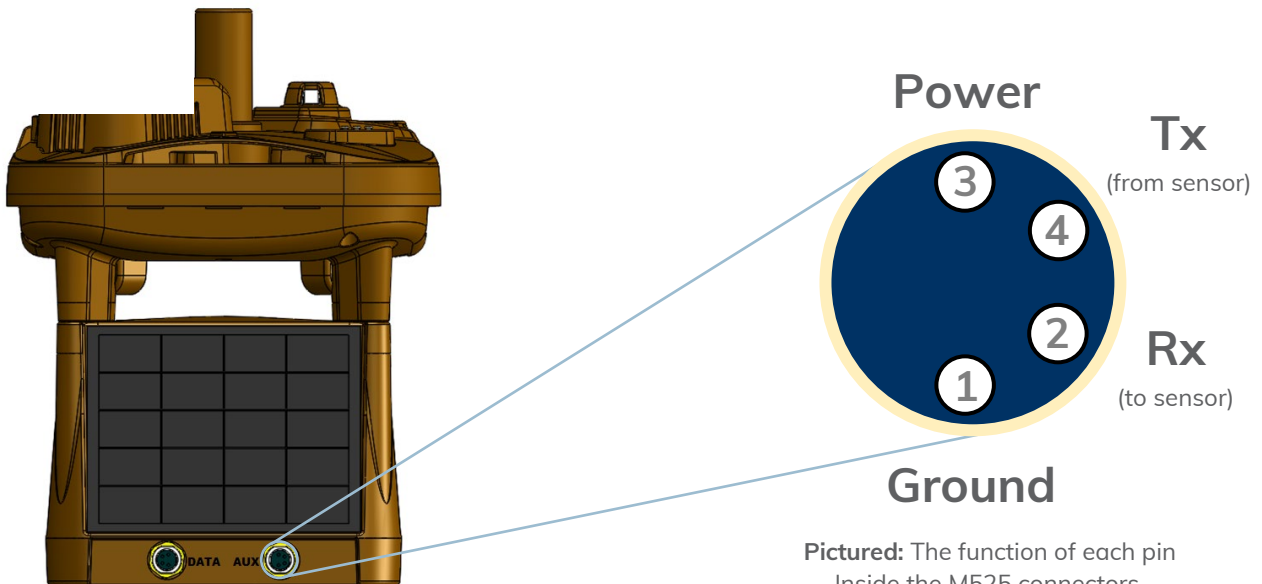
The controls on the M525 are simple, requiring no special training or setup. The sensor can be up and running in under 60 seconds. Simply power the system on with a single slider switch, and it automatically configures itself for autonomous operation with user-configurable settings, which can be accessed and changed remotely.



Pictured: M525 slider switch

## CONNECTIVITY

The M525 features two M8-4 female connectors that are keyed with four pins to prevent mis-insertion and ensure a strong connection throughout the most adverse terrain or weather conditions. They also include screw engagements with O-ring seals to achieve a waterproof rating of IP67 when mated or when a plastic cover cap is in place. They support cables up to 50 meters in length and enable new capabilities to be added and easily integrated, including connectivity to laptops, external power sources, and other remote sensors.



Pictured: The function of each pin  
Inside the M525 connectors.

## SENSOR SPECIFICATIONS

<b>Temperature</b>	Range: -40 to 60°C (-40 to 140 °F) Resolution: 0.1°C Accuracy: ± 0.2°C at 25°C (77°F)
<b>Barometric Pressure</b>	Range: 600 to 1110 mb Resolution: 0.01 mb Accuracy: ± 0.5 mb at 25°C (900-1100 mb)
<b>Humidity</b>	Range: 0 to 100% Resolution: 1% Accuracy: ± 2%
<b>Precipitation</b>	Range: 0 to 152 mm/hr (0 to 6 in/hr) Resolution: 0.25 mm/hr (.01 in/hr) Accuracy: ± 2.5 mm/hr (0.1 in/hr) or 10% (whichever is greater)
<b>Wind Speed</b>	Range: 0 to 28 m/s (0 to 55 knots) Resolution: 0.5 m/s (1 knot) Accuracy: ± 3%
<b>Wind Direction</b>	Range: 0° to 359° Resolution: 1° Accuracy: ± 5°
<b>Angular Tilt</b>	Range: -90° to +90° Resolution: 0.1° Accuracy: ± 1°
<b>Visibility</b>	Range: 10 to 10,000 m (0 to 6.2 mi) Resolution: 100 m (0.06 mi) Accuracy: ±10%
<b>Dust Accumulation</b>	Range: 0 to 100% (Quality Control Sensor) Resolution: 1% Accuracy: ± 10%
<b>Lightning Distance</b>	Range: 0 to 40 km (0 to 25 mi) Resolution: 3.2 km (2 mi) Accuracy: Varies
<b>360° Imaging Sensor</b>	4 wide-angle color images with 320 x 240 resolution

## STANDARDS AND CERTIFICATIONS

Designed and tested in accordance with:

- **MIL-STD-810G**  
Test Method Standard for Environmental Engineering Considerations and Laboratory Tests
- **MIL-STD-461F**  
Electromagnetic Emissions and Susceptibility Requirements for the Control of Electromagnetic Interference
- **FCC Part 15**

## ACCESSORIES AVAILABLE

- Line of Sight Radio Supports Two-Way Data up to 11 km (7 mi)
- 6 m USB cable
- Up to 150 m (500 ft) Cabled Data Connection in 15 m (50 ft) Sections
- Extended Range Ceilometer to 7620 m (25k ft)



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 DS-M525-04-2020

