IWOS®

Integrated Weather Observation System

The Modular, Portable, and Autonomous Meteorological System

Key Features

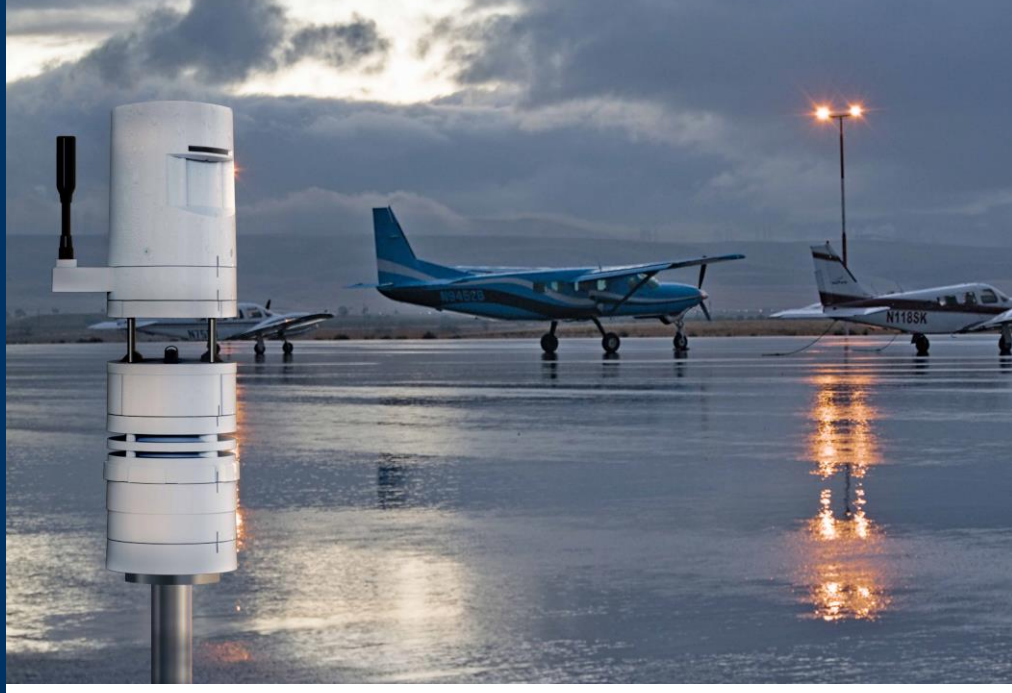
- Modular Architecture with Wide Range of Sensor Modules
- Integrated Data Processing, Power, and Communications
- Available with Iridium Satellite, hardwired, RF, or Cellular Comms
- Compact Packaging
- Rugged and Portable
- 5-Minute Installation
- Autonomous Operations

Weather Data Reported

- Ambient Temperature
- Barometric Pressure
- Precipitation
- Altimeter Setting
- Relative Humidity
- Wind Speed / Direction
- Compass Reading
- Longitude / Latitude
- Lightning Distance / Frequency
- Cloud Layers up to 25,000 ft.
- Sea Surface Temperature
- Wave Height / Period / Direction
- Lightning Direction*
- Present Weather*
- Visibility*
- 360° Panoramic Imagery*

*Available in 2024

Patents
11,561,325



The **Integrated Weather Observation System (IWOS®)** is the compact, wireless, rugged weather station that can be customized to any customers' specific needs. This system can replace legacy weather stations that require hardline power or permanent installation. It integrates up to eight environmental sensing modules with satellite or cellular communications in a package that fits into a single case and weighs less than 25 lb. In addition to its portability, performance, and professional-grade construction, the modular design of the IWOS lends itself to higher accuracy, higher availability, and a lower lifecycle cost.

The environmental sensing modules offer a complete range of weather sensing parameters that include temperature, pressure, humidity, wind speed and direction, lightning distance and frequency, and cloud layers up to 25,000 ft. The modular structure also enables quick replacement and allows room for future growth and advancements.

The IWOS can deliver meteorological conditions in almost real time in nearly any environment, from terrestrial to maritime, to support a variety of applications, including military and commercial aviation. It can be powered via an AC or solar power system, as well as transmit data via Iridium satellite, hardwire, radio or cellular communications. With its modular, portable, and autonomous features, the IWOS is the ideal replacement for automatic weather stations and their peripherals.

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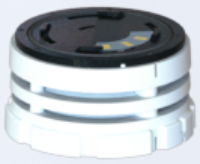
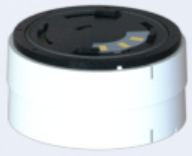
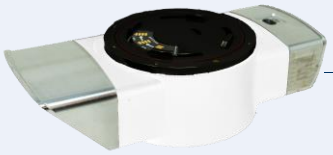
SYSTEM MODULES

The IWOS combines up to eight highly accurate environmental sensing modules into a portable, ruggedized, and completely customizable package. These modules include four redundant pressure sensors, a precipitation sensor that can detect accumulation and rate, and a LIDAR ceilometer that measures cloud layers up to 25,000 feet.

MODULE SPECIFICATIONS

Module		Parameters	Range	Resolution	Accuracy
Ceilometer & Precipitation Module		▪ Cloud Layers	0–7620 m (0–25,000 ft)	33 ft (10 m)	±100 ft (30.5 m) from 0–7620 m (0 to 25,000 ft)
		▪ Precipitation Accumulation & Rate	0–152 mm/hr (0–6 in/hr)	0.25 mm/hr (.01 in/hr)	±2.5 mm/hr (0.1 in/hr) or 10% (whichever is greater)
Ultrasonic Wind Sensor Module		▪ Wind Speed ▪ Max Wind Speed	0–51.4 m/s (0–100 knots)	0.5 m/s (1 knot)	±1 kt up to 10 kts ±3 kts above 10 kts
		▪ Wind Direction ▪ Max Wind Direction	0° to 359°	1°	±4°
Temperature, Humidity & Pressure Sensor Module		▪ Ambient Temperature	-40°C to 60°C	0.1°C	±0.1°C
		▪ Relative Humidity	0–100%	1%	±1.5% (0–80%) ±2% (>80%)
		▪ Barometric Pressure	600–1110 mb	0.01 mb	±0.5 mb
High Accuracy Pressure Module		▪ Barometric Pressure	500–1150 mb	0.01 mb	±0.1 mb
Lightning Sensor & Command Module		▪ Lighting Distance/ Frequency	0–40 km (0–25 mi)	3.2 km (2 mi)	Varies
Visibility & Present Weather Module*		▪ Visibility	▪ 0–20 km (0–12.4 mi)	TBD	TBD
		▪ Present Weather	▪ WMO 4680 present weather code		

*Currently in development

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PACKAGES AVAILABLE

The IWOS can be configured with up to eight ruggedized modules to meet the specific needs of any customer. Intellisense Systems is offering three ready-made configurations of the IWOS so that clients in key industries and applications can rest assured that they are receiving the most accurate weather data from their IWOS.

	Primary Application:	Terrestrial	Maritime	Aviation
	Colors Available:	▪ Coyote Brown ▪ Haze Gray ▪ White	▪ Haze Gray ▪ White	▪ Coyote Brown ▪ Haze Gray ▪ White
MEASUREMENTS & CAPABILITIES	Temperature	●	●	●
	Barometric Pressure	●	●	●
	Relative Humidity	●	●	●
	Wind Speed	●	●	●
	Wind Direction	●	●	●
	Angular Tilt	●	●	●
	GPS	●	●	●
	Compass	●	●	●
	Lightning Count	●	●	●
	Lightning Distance	●	●	●
	Sea Surface Temperature	o	●	o
	Wave Height	o	●	o
	Wave Period	o	●	o
	Wave Direction	o	●	o
	Precipitation Amount	o	o	●
	Ceilometer	o	o	●
	Visibility	Λ	Λ	Λ
	Present Weather	Λ	Λ	Λ
	360° Panoramic Camera	Λ	Λ	Λ

Table Key:

● = Standard

o = Optional

Λ = Available in 2024

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STANDARDS AND CERTIFICATIONS

Designed and tested in accordance with:

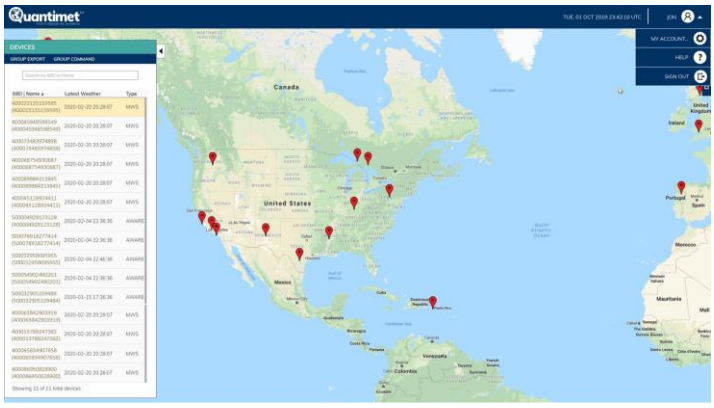
- **MIL-STD-810G**
  Test Method Standard for Environmental Engineering Considerations and Laboratory Tests
- **MIL-STD-461F**
  Electromagnetic Emissions and Susceptibility Requirements for the Control of Electromagnetic Interference
- **FCC Part 15**

ACCESSORIES AVAILABLE

- Up to 150 m (500 ft) Cabled Data Connection in 15 m (50 ft) Sections
- Solar Panel and Battery Kit

AVAILABLE WITH QUANTIMET®

The IWOS is compatible with Quantimet®, the cloud-based software solution from Intellisense Systems that enables users to access and export data from anywhere in the world. With Quantimet, users can view and plot data, receive status updates, and remotely command their IWOS from any Internet-enabled device. This service stores your data using a cloud-based data-logger so that it is always backed-up and accessible, preventing lengthy trips into the field where your devices are located.



UNIT PROPERTIES

Weight	Min: 5.22 kg (11.5 lb) Max: 11.34 kg (25.0 lb)
Dimensions	H: 36–51 cm (14–20 in.) D: 13 cm (5 in.)
Operating Temperature	Min: -40°C (-40°F) Max: +60°C (+140°F)
Mounting Hardware	Quick-release mechanism and adaptable with 3/8-in 16-threaded tripod mount
Power Management	**Solar and Battery Power** Continuous operation and the ability to endure extended periods of harsh environmental conditions and rugged deployments
Communications	**Integrated Two-Way Iridium Satellite Transmitter and Receiver.** Transmits data to command-and-control elements via satellite and can receive change commands for observing or image requests
Expansion Port	**Threaded USB Serial Connector supports cable lengths up to 50 meters.** Allows new capabilities to be added and easy integration with other devices, including laptop connectivity, external power, CBRNE, surveillance, solar radiation, fuel moisture, and other remote sensors
Compliance	**Manufactured under ISO 9001 and AS9100**

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