



allweatherinc

Laser Ceilometer Model 8339

Overview

The 8339 Laser Ceilometer, manufactured by AWI, measures cloud height and thickness, in addition to vertical visibility, detecting up to four cloud layers simultaneously to a distance of 25,000 vertical feet. Its precision makes it ideal for applications requiring the highest in performance and reliability, such as aviation and meteorological studies.

A laser pulse is emitted into the atmosphere and backscatter analyzed. Using the speed of light, the altitude of each cloud base and top is determined. Due to poorly defined borders or a sparse composition, some clouds are much more difficult to measure than others. Depending on the current and historical sky conditions, an adaptive algorithm determines the number of returns needed to maintain accuracy.

Accuracy by Design

Accurate measurement of cloud height and thickness is all weather conditions, including heavy precipitation and low clouds, can cause serious errors in other ceilometers. Proprietary algorithms and digital techniques from 20 years of cloud detection research and manufacturing are applied, allowing the 8339 ceilometer to provide accurate information even in difficult circumstances.

In addition, the Model 8339 is Federal Aviation Administration (FAA) certified, meeting all of the most current regulatory requirements.

Long Life

Sensing circuits and optimization algorithms control the pulse frequency, output power and temperature of the



laser itself in order to dramatically extend its life.

Extensive Self-Diagnostics

An array of self-tests executed in the background during operation detects faults and reports them, along with identifying the replaceable module associated with the fault. Errors are reported both visibly in the sensor and electronically through the output string.

Designed by Our Customers

Quickly diagnosing a failed module is only one part of quickly restoring operational readiness. The serviceable design of the 8339 was influenced by our customers. Using their input to engineer the package and configuration of "Line

Replacement Units," repair can be accomplished in 30 minutes or less.

In addition, the 8339 is enclosed in a NEMA 4X stainless steel package that will stand up to the harshest environmental conditions. From corrosive marine air to blowing desert sand, the 8339 is designed to last.

Solid Reputation

Over the years, AWI has developed a reputation for accuracy and reliability and is the preferred development partner of the FAA. In addition to supplying over 1,800 ASOS, AWOS and AWSS systems to the FAA, NWS, and Department of Defense, our solutions also meet the stringent requirements of international standards organizations around the world, including the ICAO, WMO, and Transport Canada.

SENSORS

SPECIFICATIONS

Parameter	Specification
Measurement Range	12,500 or 25,000 ft. (selectable)
Resolution	12.5 ft
Accuracy	±20 ft
Cloud Layers	Up to 4, base and depth
Measurement Cycle	Configurable to 30, 60, or 120 second sampling per reporting interval; can be set to 180 seconds when no clouds detected
Operating Temp.	-40°C to +60°C
Storage Temp.	-50°C to +70°C
Relative Humidity	0–100%, condensing
Laser	
LIDAR	InGaAs, pulsed diode
Wavelength	905 ± 10 nm
Pulse Width	50 ns
Collector Type	Si avalanche photodiode, variable gain, temp compensated
Optics	Side-by-side optical channels
Laser Safety	FDA Class I, 21 CFR1040
Power Requirements	
Power Supply	95–240 V AC, 47–64 Hz, 100 W
Mechanical	
Enclosure	NEMA 4X stainless steel
Mounting	Single-leg pedestal; 2.5" pipe, unistrut mounted

ORDERING INFORMATION

Part Number	Description
8339-F	110 VAC Ceilometer
8339-G	220 VAC Ceilometer
83391-00	115 VAC Heater/Blower
83392-00	230 VAC Heater Blower
83395-00	Battery Back-up Kit
M491762-00	Service Port Cable
M028181-00	Desicant
M491763-01	Service/Programming Cable
M488318-00	Galvanized Pipe Kit

DIMENSIONS & WEIGHTS

Dimensions (Ceilometer)	9" x 16" x 19" (230 x 410 x 480 mm)
Dimensions (Ceilometer & heater/blower)	16" x 20" x 27" (410 x 510 x 690 mm)
Ceilometer Weight	43 lbs (19.5 kg)
Heater/Blower Weight	18 lbs (8 kg)
Shipping Dimensions	26" x 24" x 15" (660 x 610 x 381 mm)
Shipping Weight	60 lbs. (27.22 kg)



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