



# Laser Ceilometer Model 8339

**allweatherinc**

## Overview

The 8339 Laser Ceilometer, manufactured by AWI, measures cloud heights and thicknesses, 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 its backscatter is analyzed. The altitude of each cloud base and top can then be determined. Because some clouds have poorly defined borders or a sparse composition, their altitudes are much more difficult to measure. Depending on the current and historical sky conditions, an adaptive algorithm determines the number of returns needed to maintain accuracy.

## Accuracy by Design

The accurate measurement of cloud heights and thicknesses in all weather conditions, including heavy precipitation and low clouds, can be subject to serious errors in other ceilometers. Proprietary algorithms and digital techniques from 20 years of cloud detection research and manufacturing are applied to the 8339 ceilometer, allowing it to provide accurate information even in difficult circumstances.

In addition, the 8339 ceilometer 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. Their input was used to engineer the package

and configuration of "Line Replacement Units," so that repairs 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
<b>Laser</b>	
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
<b>Power Requirements</b>	
Power Supply	95–240 V AC, 47–64 Hz, 100 W
Power Consumption with Optional Heater/Blower	600 W
Battery Backup	Ceilometer electronics only
<b>Mechanical</b>	
Serial Connector	Conxall® Mini-Con-X® 7280-5SG-300 Field Connector
Enclosure	NEMA 4X stainless steel
Mounting	Single-leg pedestal 2.5" pipe, unistrut mounted

## ORDERING INFORMATION

Part Number	Description
8339-F	110 V AC Ceilometer
8339-G	220 V AC Ceilometer
83396-00	110–120 V AC Heater/Blower
83397-00	200–240 V AC Heater Blower
83395-00	Battery Back-up Kit
M491742-00	Ceilometer Data Cable
M491745-01	50 ft Ceilometer Power Cable
M491762-02	Heater/Blower Data and Power Cable
M491763-01	Service Port Cable
M028181-00	Desiccant
M488318-00	Galvanized Pipe for Mounting Ceilometer

## DIMENSIONS & WEIGHTS

Dimensions (Ceilometer)	9" x 16" x 19" (23 x 41 x 48 cm)
Dimensions (Ceilometer & heater/blower)	16" x 20" x 27" (41 x 51 x 67 cm)
Ceilometer Weight	43 lbs (19.5 kg)
Heater/Blower Weight	18 lbs (8 kg)
Dimensions	26" x 24" x 15" (67 x 61 x 38 cm)
Shipping Weight	60 lbs. (27.3 kg)



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