



Laser Ceilometer Model 8340

allweatherinc

Overview

The Model 8340 Laser Ceilometer measures the height and thickness of up to four cloud layers simultaneously to a distance of 40,000 vertical feet. It can also report vertical visibility.

Its precision makes it ideal for applications requiring the highest performance and reliability, such as aviation and meteorological studies.

A laser pulse is emitted towards the zenith above the Ceilometer, and the backscatter is analyzed. The laser pulse moves at speed of light, and the difference between the emission of the pulse and the return of the backscattered signal is used to calculate the altitude of each cloud base and top.

Some cloud types have poorly defined borders or a sparse composition, and are much more difficult to measure than others. Depending on the current and historical sky conditions, an adaptive algorithm determines the frequency at which the pulses should be emitted to maintain accuracy.

Accuracy by Design

Weather conditions such as heavy precipitation and low clouds can lead to reporting errors in other Ceilometer designs. Proprietary algorithms and digital techniques developed by All Weather Inc. based on 20 years of cloud detection research and manufacturing experience are used by the Model 8340 Ceilometer to provide accurate information even in difficult circumstances.



Long Life

Sensing circuits and optimization algorithms control the pulse frequency, output power, and temperature of the laser itself in order to extend its life dramatically.

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

The serviceability design of the 8340 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.

The 8340 is enclosed in a NEMA 4X electro-polished 304 stainless steel package that will stand up to the harshest environmental conditions from corrosive marine air to blowing desert sand. The 8340 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	up to 40,000 ft
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
Power Consumption with Optional Heater/Blower	600 W
Battery Backup	Ceilometer electronics only
Mechanical	
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
8340-F	110 V AC Ceilometer
8340-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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