

## WEATHER

# Ceilometers

## Model 8339-FAA



### Overview

The ADB Safegate 8339-FAA Laser Ceilometer measures cloud height and thickness, in addition to vertical visibility, detecting up to four cloud layers simultaneously to a distance of 12,500 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

Weather conditions such as heavy precipitation and low clouds can lead to reporting errors in other ceilometer designs. Proprietary algorithms and digital techniques from 20 years of cloud detection research and manufacturing are applied to the 8339-FAA Ceilometer to enable it 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.

The 8339-FAA Ceilometer 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-FAA Ceilometer is designed to last.

### 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.

### Serviceability

The Laser Ceilometer is designed for in field serviceability, an MTTR of less than 30 minutes. The modular design enables easy in field repairs and reduces the need for factory recalibration. Additionally, the modular design limits the need for a large spare part inventory while minimizing the lifecycle service costs.

### Solid Reputation

Over the years, ADB Safegate has developed a reputation for accuracy and reliability of aviation infrastructure. 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.

# Ceilometers

## Specifications

Parameter	Specification
<b>Measurement Performance</b>	
<b>Measurement Range</b>	0 – 3.8 km (0 – 12 500 ft)
<b>Reporting Resolution</b>	4 m (12 ft)
<b>Accuracy</b>	±6 m (20 ft)
<b>Reporting Interval</b>	30, 60 or 120 second sampling per reporting interval; can be set to 180 seconds when no clouds detected
<b>Cloud Layers</b>	up to four, base and depth
<b>Laser</b>	
<b>LIDAR</b>	Pulsed InGaAs diode
<b>Wavelength</b>	905 nm ± 10 nm
<b>Pulse Width</b>	50 ns
<b>Operating Environment</b>	
<b>Operating Temperature</b>	-40°C to +60°C (-40°F to +140°F)
<b>Storage Temperature</b>	-50°C to +70°C (-58°F to +158°F)
<b>Humidity</b>	0 to 100% RH
<b>Wind</b>	Up to 65 m/s (145 mph) (125 kts)
<b>Power Requirements</b>	
<b>Input Power</b>	115 VAC ± 10 %, 45–65 Hz, 100 W With Optional Heater/Blower 600 W
<b>Backup Battery</b>	Internal, 12 V, 5 A·h
<b>Serial Ports</b>	
<b>Data Output</b>	RS-232, RS-485
<b>Maintenance Port</b>	RS-232
<b>Serial Parameters</b>	300, 1200, 4800, or 9600 bps, 8-N-1
<b>Compliance</b>	
<b>EMC</b>	CE EN 61326 04, EN55011, EN 61326 04, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11
<b>Electrical Safety</b>	CE IEC/EN 61010 – 1
<b>Eye Safety</b>	FDA Class I, 21 CFR 1040, Class 1M IEC/ EN60825-1
<b>Mechanical</b>	
<b>IP Rating</b>	IP66 (NEMA 4X)
<b>Ceilometer Enclosure</b>	Stainless Steel
<b>Heater/Blower Enclosure</b>	Aluminum
<b>Mounting</b>	Unistrut mounted on single- leg pedestal; 2½" pipe

## Ordering Information

8339-FAA	115 VAC Ceilometer
83396-00	115 VAC Heater/Blower
83395-00	Battery Backup Kit
M491742-00	Data Port Cable
M028181-00	Desiccant
M491763-01	Service/Programming Cable
M488318-00	Galvanized Pipe Mounting Kit

## Dimensions & Weights

<b>Dimensions</b>	Ceilometer	48 cm H x 40 cm W x 22cm D (19" x 16" x 9")
	w/ Heater/Blower	67 cm H x 51 cm W x 41 cm D (27" x 20" x 16")
<b>Weight</b>	Ceilometer	24 kg (53 lb)
	Heater/Blower	27.2 kg (60 lb)
<b>Container</b>	Size	66 cm x 61 cm x 38 cm (26" x 24" x 15")
	Weight	27.2 kg (60 lb)