

## Ceilometer CL51

Accurate, reliable high range cloud detection under almost any conditions



### Key benefits

#### Fully automatic 24/7 operation in all weather conditions

The CL51 is built to deliver even in extreme weather. Protection measures include optical filters for solar defense, automatic window blower with heater, backup battery, comprehensive self-diagnostics with contamination monitoring, and status reporting.

#### Exceptional data accuracy

The CL51 detects three cloud layers simultaneously — including the detection of Cirrus clouds — and generates a full range of measurements even under the most demanding conditions.

#### Detailed measurement of high range clouds

Enhanced single-lens technology ensures excellent performance with a strong, stable signal over its full cloud reporting range up to 13km (43,000ft) and backscatter profiling over full range up to 15km (49,200ft).

#### Low maintenance and cost of ownership

Extensive self-diagnostics, automated field adjustments, and practical modularity make the CL51 easy to maintain and affordable to operate.

**Fast, accurate cloud and visibility detection is crucial to creating precise forecasting, situational awareness, and air quality reporting. Even when the weather is at its worst, Vaisala's CL51 captures the detailed cloud layer data needed to build precision simulations of existing conditions, including clouds above 15km (49,200ft). After all, the quality of weather modeling is only as good as the data you collect.**

The CL51 was designed to tackle the specific challenges of cloud height and mixing layer height, especially for high range clouds. The automated system leverages a pulsed diode lidar technology and single-lens optics to gather highly detailed measurements on multiple cloud layers — even when physical visibility is limited — so you gain the comprehensive, actionable understanding of meteorological conditions you need, exactly when you need it.

## CL51 at a glance

### Applications

- Reliable cloud detection and reporting from low-level clouds up to high-level cirrus clouds.
- Inputting cloud height and sky condition source data for situational awareness and numerical weather prediction models.
- Vertical profiling data to provide comprehensive understanding of the atmosphere all the way up to 15km.
- Identifying the vertical extent of aerosol layers for reliable air quality monitoring and forecasting.
- Automatic monitoring of boundary layer structures and verification of numerical weather forecasting and dispersion models.
- Supporting air quality data processing systems to study the interaction between pollutants and meteorological factors.

### Key features

**Advanced single-lens optics and processing** provides improved performance over dual-lens systems, especially for low clouds and low inversion layers, precipitation, and fog.

**Pulsed diode lidar** for reliable operation and long life expectancy.

**Full backscatter profiling** with detailed accuracy and reliability in all weather conditions up to 15km (49,200ft).

**Fast measurement technology** that delivers accurate detection of the fine cloud base structure, such as the detection of thin stratus cloud patches below a solid cloud base.

**Complete, preconfigured delivery**, including main assembly, sensors, and power equipment for easy installation. Fits on the foundation of earlier Vaisala ceilometers for quick upgrades.

## Why Vaisala?

### The industry's most dependable technology

Vaisala cloud measurement systems are built on nearly 50 years of industry leadership. The precision and ruggedness of our technology has also been validated time and time again under the harshest conditions with thousands of units deployed in more than 110 countries. Our ceilometers meet the stringent requirements for use by the national weather services of the United States, Germany, and the Czech Republic, as well as the U.S., Canadian, and Russian national aviation administrations.

### Support you can count on

Look to Vaisala for dependable support, project capabilities, and training so you can get the most from your system. With decades of experience providing the best technologies and the finest support, Vaisala's philosophy of partnership is unmatched in the industry.

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