



Ceilometer

Cloud measurement with state-of-the-art signal processing

Overview

The CS135 LIDAR Ceilometer measures cloud height and vertical visibility for meteorological and aviation applications. Using lidar (light detection and ranging) technology, the instrument transmits

fast, low-power laser pulses into the atmosphere and detects back-scattered returns from clouds and aerosols above the instrument.

Benefits and Features

- › Novel split-lens design for high signal-to-noise ratio, maximum sensitivity and extended range
- › Robust, reliable Campbell Scientific electronics
- › State-of-the-art signal processing
- › Competitive pricing
- › Integrated heater, blower and radiation shield
- › Filter to protect detector from direct sunlight

Technical Description

The CS135 employs a novel split-lens design to increase optical signal-to-noise ratio over other instruments while maintaining Class 1M eye safety by integrating larger optics into a compact package. This optical design provides an alternative to traditional biaxial or common-optics designs. The optical isolation of traditional biaxial systems is maintained to increase detector sensitivity, while the low overlap height of common-optics systems is incorporated to allow measurements at close ranges.

This hybrid approach, along with state-of-the-art electronics measures cloud height and vertical visibility with high accuracy, stability, and repeatability. With a rugged environmental enclosure that protects the instrument from the harshest conditions, the CS135 measures the atmosphere with high stability and repeatability.

The enclosure provides sufficient space to house a Campbell Scientific CR1000 datalogger and communications peripherals.



Ordering Information

Ceilometer

CS135 CSL Lidar Ceilometer.

Power Options (choose one)

- 110 Powers the sensor using 110 Vac.
- 220 Powers the sensor using 220 Vac.

Configuration Options (choose one)

- S Standard configuration
- M Mixing layer height (MLH) configuration

Specifications

Instrument Performance

- › Maximum Reporting Range: 10 km (32,800 ft)
- › Minimum Reporting Resolution: 5 m (15 ft)
- › Hard Target Range Accuracy: $\pm 0.25\%$, ± 4.6 m
- › Reporting Cycle: 2 to 120 s
- › Cloud Layers Reported: Up to four layers
- › Vertical Visibility: Reported when there is obscuration but no clouds detected
- › Laser Wavelength: 905 nm
- › Eye Safety: Class 1M

Electrical

- › Power: 110, 115, 230 Vac $\pm 10\%$; 50 to 60 Hz; 470 W maximum
- › Battery: Internal 12 Vdc, 2 Ah battery provides 2 hr measurement, without blower/heater, in the event of main power supply failure.
- › Laser safety compliance: EN60825-1:2001
- › Electrical safety compliance: EN61010-1
- › EMC compliance: BS EN 61326:2006

Interfaces

- › Data: RS-232, RS-485
- › Maintenance: USB 2.0 (USB 1.1 compatible)
- › Baud Rate: 300 to 115200 bps

Mechanical

- › Dimensions including base: 100.0 x 33.0 x 31.6 cm (39.4 x 13.0 x 12.4 in)
- › Weight without cables: 32 kg (71 lb)
- › Weight without cables, outer cowling, and enclosure: 25 kg (55 lb)

Shipping

- › Weight: 58 kg (128 lb)
- › Dimensions: 120.0 x 45.0 x 45.0 cm (47.2 x 17.7 x 17.7 in)

Environmental

- › Temperature Range excluding battery: -40° to 60° C
- › Battery Temperature Range: -20° to 50° C
- › Humidity Range: 0 to 100% RH

Standard Features

- › Solar Shield Optical Filter Protection for Direct Exposure to sunlight
- › Automated Reporting of Instrument Window Status
- › Internal Temperature and Humidity Measurement
- › Blower and Heater
- › Integrated 2-axis inclinometer for highest range accuracy
- › Vertical, 6° , 12° , 18° , and 24° tilt positions
- › Backscatter Profile Output

Ships With

- › (1) Concrete bolts, washers, and nuts kit
- › (1) Digital communication cable, 10 m
- › (1) Mounting bracket
- › (1) Power cable, 10 m

