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WHEN MEASUREMENTS MATTER

SkyVUE™8
LIDAR Ceilometer

SkyVUE™8
8 km Ceiling LIDAR Ceilometer

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

Overview

The SkyVUE™8 is a generously specified ceilometer for airports, helipads (on or offshore) and meteorological applications. It meets or exceeds all the necessary ICAO, CAA and WMO requirements and recommendations.

Its robust construction requires minimal maintenance and enables continuous use in either static or mobile applications in harsh environments. Its compact design and low weight of 18 kg makes it easy to transport and deploy.

The SkyVUE™8 has an operating range of 8 km, one of the highest in its class. It is easy to use and features advanced signal processing and unique optics to provide superior resolution and performance.

The SkyVUE™8 has many standard features, from a tilting base and two-axis inclinometer for automatic correction of cloud heights. Heaters, blowers and sun filter enable operation under all conditions, making deployments possible around the world.

Unique standard features include an easy-to-operate Stratocumulus calibration, long-life back-up battery and twin clocks to augment its many continuous diagnostic self-checks, to provide assurance of continuous, reliable and accurate performance.

Benefits and Features

- Single lens design for high signal-to-noise ratio, maximized detector sensitivity, resulting in greater performance at low and high altitude
- High performance and high specification at a competitive price
- Low power consumption with multiple power options
- Tilt angles to 24°, improving performance during precipitation events and reducing impact of solar glare
- Unique continuous comparison of two separate internal quartz clocks to eliminate possibility of clock drift, ensuring measurement confidence
- User-friendly stratocumulus calibration capability and easy test with supplied calibrator plate provided as standard, meaning the unit can be calibrated and easily set up in the field

Technical Description

The SkyVUE™8 LIDAR ceilometer measures cloud height and vertical visibility for meteorological and aviation applications. Utilizing LIDAR (LIght Detection And Ranging) technology, the ceilometer transmits fast, low-power laser pulses into the atmosphere and detects back-scattered returns from clouds and aerosols above the instrument.

A unique, efficient, single lens design increases optical signal-to-noise ratio allowing for larger optics in a compact package improving accuracy and measurement performance.

This approach, along with state-of-the-art electronics, provides a powerful and stable platform from which to measure cloud height and vertical visibility to high accuracy. The SkyVUE™8 measures the atmosphere with high stability and repeatability delivering excellent performance in even the harshest of conditions.

The SkyVUE™8 provides information on cloud height, sky condition (up to five layers), vertical visibility and raw backscatter profiles to a range of 8 km.

The unique stratocumulus calibration capability, which allows users to calibrate measurements of scatter coefficients, uses a simple and user-friendly field method, giving complete confidence in the scatter profiles reported and removes the requirement to have the unit sent back for calibration.

Reliable range measurement is further assured by cross checking two separate internal quartz clocks, eliminating the possibility of unidentified errors due to clock drift.

The SkyVUE™8 can be tilted at various angles and up to 24°. A small tilt is important as it allows the ceilometer to resist high levels of reflection from large raindrops and frozen particles that can impair vertical type sensors. The tilt also improves rain run-off on the ceilometer window, resulting in a much higher performance compared with vertical ceilometers.

Tilting to 24° also means that it can be operated anywhere in the world without the sun shining into the lens and resulting in missing data. An internal 2-axis inclinometer provides automatic correction of cloud height at all angles, ensuring ease of installation and confidence that cloud heights are automatically corrected throughout the lifetime of the installation.

The SkyVUE™8 complies with ICAO, CAA and WMO guidance and meets or exceeds all recommendations and specifications (this includes ICAO 9837, ICAO Annex 3, CAP437 and CAP746).

Specifications

Instrument Performance

- Reporting range: 0-8 km (26,250 ft)
- Minimum reporting resolution: 5 m (15 ft)
- Hard target range accuracy: ±0.05% ±4.6 m
- Reporting cycle: 2 to 600s
- Cloud layers: Up to four layers reported
- Sky condition: Up to five layers with cover in oktas according to WMO requirements for SYNOP and METAR codes as standard
- Laser type: InGaAs
- Laser wavelength: 912 nm ±5 nm

Electrical Specification

- AC power source: 115/230V AC ±15% (auto switching)
  50-60 Hz power drain from 230V is 15W minimum, with all the heaters on
- DC power source only: 10-40V DC, current drain 1 Amp at 12V DC. The AC heaters are not used when powered from DC alone.
- Battery: Internal 12V 7Ah battery back-up
- Interfaces:
  Data - RS-232 / RS-422 / RS-485 / Ethernet option
  Maintenance - USB 2.0 (USB 1.1 compatible)
  Baud rate - 300 - 115200
- Laser safety compliance: EN 60825-1:2014
- EMC compliance: EN 61326-1:2013
- Electrical safety: EN 61010-1:2010

Mechanical Specification

- Dimensions: 73.7 x 29.4 x 24 cm (including tilt base)
- Weight: 18 kg

Environmental Specification

- Temperature range excluding battery: -40°C to 60°C, -40°F to 140°F
- Humidity range: 0 - 100% RH
- IP rating: IP66 (NEMA 4x)
- Wind speed: 55 m/s

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