

# Vaisala CT25K Laser Ceilometer

- **Unique single-lens optical design**
- **Measurement range up to 7.5 km (25,000 feet)**
- **Reports up to three cloud layers simultaneously**
- **Operates reliably in all weather**
- **Requires very little maintenance**
- **Approved by the FAA**

With over 1,000 installed worldwide, the Vaisala CT25K is a field-proven and popular laser ceilometer for measuring cloud height and vertical visibility. It employs pulsed diode laser Light Detection and Ranging (LIDAR) technology to detect clouds, precipitation and other obstructions to vision.

## **SINGLE-LENS DESIGN**

The CT25K's unique single-lens design ensures excellent performance at low altitudes, which really counts for aviation safety. Starting at a height of virtually 0, the Vaisala CT25K Laser Ceilometer measures cloud height - or vertical visibility if the cloud base is obscured - with unmatched accuracy. The single-lens design also ensures reliable measurement in fog, rain, snow and haze. No field adjustments are needed.

## **ADVANTAGES OF TILTING**

The CT25K can be tilted on its pedestal base, allowing the beam to be directed manually in any direction between  $-15^{\circ}$ ... $+90^{\circ}$  from the vertical. Tilting improves the protection given by the shield to the window, and makes it easy to perform field testing against a hard target. In the measurement unit, a tilt angle sensor automatically corrects the cloud distance reading to the vertical cloud height.

## **FULLY AUTOMATIC AND SELF-MONITORING**

The CT25K is fully automatic. It transmits messages containing cloud height and instrument status information to a controller, display unit or central computer. Its software includes an extensive set of self-diagnostic routines to ensure reliable operation and easy trouble-shooting. The CT25K also has a modular structure and easy-access door to ensure fast servicing and high data availability.



## **OPTIONAL ALGORITHM AND SOFTWARE**

Vaisala's Sky Condition Algorithm is provided as an option. This algorithm calculates the cloud amounts and the heights of different cloud layers, in order to construct an approximation of the entire sky. Vaisala CT-VIEW software can be used to view backscatter profiles, cloud detection and backscatter density graphs, and to perform data logging and storage functions in the Windows PC environment.

The CT25K can be used stand-alone or as an integrated sensor in a weather observation system comprising many sensors, displays and central computers.

## TECHNICAL INFORMATION

### PERFORMANCE

Measurement range	0 ... 25,000 ft (0 ... 7.5 km)
25,000 ft acquisition time	15 s
Accuracy (against hard target)	$\pm 2\% \pm 1/2 \times [\text{resolution}]$
Resolution	50 ft
Range gates	500
Laser	Pulsed diode, InGaAs MOCVD
Wavelength	905 nm
Eye safety	Class 1M EN60825 Class 1 21CFR1040
Measurement cycle	Programmable 15 ... 120 seconds

### ELECTRICAL

Power*)	100/115/230 VAC max. 400 W including heating $\pm 10\%$ , 45 ... 65 Hz
Interfaces	Two serial lines, RS-232, RS-485, RS-422 Modem Bell/ITU-T 300 ... 9,600 Bd Modem Bell103, Bell212A ITU-T V.21, V.22, V22bis

### DATA MESSAGES

Cloud hits and status only
Cloud hits, status, internal monitoring data and full backscatter profile
Cloud hits, status and compressed backscatter profile
Sky condition (optional)

### OUTPUT OPTIONS

DD50 Digital Display
Graphic PC display software CT-VIEW
DR23 Chart Recorder

### MECHANICAL

Dimensions	
Total	1335(h) × 447(w) × 378(d) mm
Measurement unit	672(h) × 308(w) × 244(d) mm
Weight	
Total	35 kg
Measurement unit	16 kg
Installation to the single-leg pedestal as standard, allowing tilting between -15 ... +90°	
Automatic window blower/heater and protection shield	

### ENVIRONMENTAL

Temperature range	-50 ... +60 °C
Humidity	0 ... 100 % RH
Protection class	IP65
Vibration during operation	0.5 G, 10 ... 500 Hz (IEC68-2-6 FC)
EMC/EMI	CISPR 22B/FCC 15 Part J or IEC 801-5 (2 kV) 3 V/m 14 kHz - 1 GHz IEC801-3 IEC 801-4 Level 3
Static	8 kV (IEC801-2 Level 4)
Wind	Gusting up to 60 m/s
Electrical safety	EN60950

### ACCESSORIES\*)

Maintenance Terminal	
Modem	DMX55 (300 bits/s) DMX50 (300 ... 9,600 bits/s)
Tropical window (protects components against direct sunlight)	
Cable termination boxes	
Sky condition software	
Fiberglass pedestal for highly corrosive environments	
Shock absorbing mounting pad	

\*) Please specify power and optional accessories when ordering.