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...+90º 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.
### 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
\[ \pm 10 \%, 45 \ldots 65 \text{ Hz} \]

**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**)

**Modem Terminal**
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.