



# Lufft CHM 8k Ceilometer

## Highest confidence under low clouds

**Confident detection of low clouds with minimum False Alarm Rate (FAR) and an outstanding Probability of Detection (POD) even at extreme conditions**

**Maximum sensor uptime and data availability thanks to integrated data storage and a robust battery backup (-40 °C to 60 °C)**

**Minimum maintenance from self-cleaning construction: Snow gets melted, water flows down and washes dust away**

**Safe and certified operation in compliance with UL50e (North America), TÜV (Europe), ICAO GRF**

**Easy installation and handling thanks to self-contained design - no additional computer needed**

**High flexibility from support of multiple communication protocols and software standards**

The new Lufft CHM 8k ceilometer empowers meteorologists at weather services and airports to make the right decisions with highest confidence and minimal maintenance. Especially in the critical height below 1 km, the Lufft CHM 8k detects cloud bases in any place and season with outstanding precision and reliability. Internal data storage and a battery backup enable unmatched sensor uptime and data availability even at the harshest conditions.

Using Lidar technology, the CHM 8k measures aerosol backscatter profiles to detect cloud bases, cloud penetration depths, and aerosol structures in multiple layers. The ceilometer also outputs vertical visibility and a sky condition index within an operating range of up to 8,000 m (26,200 ft).

The CHM 8k is equipped with an integrated controller offering a fully embedded real-time calculation of all target parameters via intuitive user interfaces.

### **High optical sensitivity for exact results**

Accurate results in day and night time are obtained by:

- a pulsed diode laser with long life-time
- an optimized field of view design
- a highly sensitive photo receiver

### **Reliable operation in any climate**

The CHM 8k is prepared to work throughout the year and in any climate. The double cased structure combined with a window blower and automatic heating system, ensures measurements are resistant to fogging, precipitation, freezing, and overheating.

# Technical Specifications

## Ceilmeter CHM 8k

### The data outputs

#### 1. Standard data output

Output interval, date, time, unit, sky condition index, total cloud cover, cloud layers, cloud penetration depths, VOR, max. detection range, quality index aerosol layer, aerosol layer heights, status, checksum

#### 2. Extended data output

Standard output combined with additional status messages and device specific parameters

#### 3. Raw data output

Extended output with measured raw data (in NetCDF format)

#### 4. Custom data output

Can be programmed by the user (programming language is xml)

Measuring Principle & Parameters	Measuring principle	Lidar (optical, time of flight)
	Description	Aerosol backscatter profile $\beta_{att}(r)$
	Range	5 m ... 10 km (16 ... 32.808 ft)
	Time resolution	2 ... 600 s
	Reported range resolution	5 ... 30 m in 5 m steps
Target Parameters	Quality and auxiliary values	External and internal temperature, window status, laser status, receiver status, internal rH
	Quantities given in layers	Cloud base height, cloud penetration depth, aerosol layer height
	Accuracy (measured on hard target in 8 km distance)	$\pm 5$ m ( $\pm 16$ ft)
Communication	Additional quantities	Cloud cover, vertical visibility, Sky Condition Index
	Standard interfaces	RS-485 (ASCII communication), LAN (web interface, (S-)FTP, NetTools)
Electrical Parameters	Optional interfaces	DSL modem
	Power supply	230 VAC or 115 VAC, $\pm 10$ %
	Power consumption	250 W (without housing heater) 450 W (with housing heater)
Laser-optical Parameters	UPS functionality (opt.)	Internal backup battery for electronics, > 1 hrs
	Light source	Laser diode
	Wavelength	905 nm
	Pulse energy	<2 $\mu$ J
	Pulse repetition frequency	8 kHz
Operating Safety	Filter Bandwidth	25 nm
	Field of view receiver	1.1 mrad
	Environmental compliance	ISO 10109 - 11
	Laser protection class	1M, IEC 60825-1:2014
Operating Conditions	Protection level housing	IEC 60529: IP66 UL 50/50E: Typ 4X CSA C22.2 94.1/94.2 : Typ 4X
	General safety	EC 61010-1 (TÜV Rheinland certified) UL 61010-1 (TÜV SÜD certified) AS 61010.1 (Australia and New Zealand) CAN/CSA-C22.2 No.61010-1 (TÜV SÜD)
	Temperature range	-40 ... 60 °C
	Relative humidity	0 ... 100 %
	Wind	60 m/s
Physical	Dimensions	500 x 500 x 1.550 mm
	Weight	70 kg (130 kg incl. packaging)
	Maximum operating altitude	5.000 m

#### Optional components:

Adapter bracket AW15, Adapter bracket AW05, Simulator, Battery backup (currently available in Europe and Asia)

## Dimensions

