



Ceilometer CHM 15k | CHM 15k-x

Measuring clouds, aerosol height profiles and visibility



Making the weather measurable

The CHM 15k and CHM 15k-x ceilometers measure aerosol height profiles. They determine cloud base heights, penetration depths, mixing layer height and vertical visibility. Within their operating range of up to 15 kilometers (50,000 feet), they reliably detect multiple cloud layers and cirrus clouds. Both models measure and process data using the LIDAR technique. The extended CHM 15k-x model is optimized for mixed layers and aerosol studies.

High optical sensitivity for exact results

A laser source with long lifetime together with a special optical design enables the use of small bandwidth filters. And together with a highly sensitive photo receiver, the CHM 15k devices are able to provide exact measuring results in day- and nighttime.

Reliable operation in any climate

The CHM 15k device family is prepared to work throughout the year and in any climate. Due to their double case structure combined with a window blower and an automatic heating system, the ceilometers are not interfered with fogging or precipitation.

Benefits

- Great measuring range up to 15 km (50,000 ft)
- Enhanced multiple cloud layer detection
- Simple and eye-safe routine operation
- Service-friendly modular device setup
- Various data telegrams, including raw data
- GUI software for device control and display of measured backscatter data in NetCDF format

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Specifications

Measuring parameters

Measuring principle	Optical (LIDAR)
Measuring range	15 m - 15,000 m (50 ft ... 50,000 ft)
Accuracy ¹⁾	± 5m (± 16 ft)
Resolution of backscatter data	standard: 15 m (50 ft) optional: 5 m (16 ft)
Hardware resolution	200 MHz (Sampling rate)
Time to measure	5 s ... 60 min (programmable)
Targets	Aerosols, clouds
Quantities to be measured	- Cloud base (max. 5 layers, preset: 3 layers) - Cloud amount - Penetration depth - Vertical visibility - Height of mixing layer
Light source	Nd:YAG solid-state laser, wavelength 1064 nm

¹⁾ measured on hard target in 10 km distance

Interfaces and software for data output and device configuration

Standard interface	RS485
Optional interfaces	RS232, RS422, LAN, CIBUS
Communication	Measured data and settings are transmitted in data telegrams. Easy device configuration and firmware upgrades with JO-DataClient software.
Optional software	JO-Visual Software for convenient visualizing measured results

Electrical parameters

Power supply	230 / 110 V(AC), ±10 %
Power consumption	250 W (standard) 800 W (in maximum heating mode)

Operating safety

Environmental compliance	ISO 10109-11
Laser protection class	1M according to DIN EN 60825-1
Internal protection class	IP 65
EMC	Class B, DIN EN 61326-1
Electrical safety	DIN EN 61010-1
Certifications	CE

Dimensions

Enclosure dimensions all over (L x W x H)	500 mm x 500 mm x 1550 mm
Packaging dimensions for transport (L x W x H)	650 mm x 800 mm x 1670 mm
Weight	70 kg (complete system) 9.5 kg (measuring unit only)

Operating conditions

Temperature	-40 °C ... +55 °C
Relative humidity	0 % ... 100 %

The data telegrams in detail

1 - Standard data telegram

Output interval, date, time, detected cloud layers, penetration depths, vertical visibility, max. detection range, local altitude, unit (m/ft), system status, precipitation index, checksum

2 - Extended data telegram

Standard telegram combined with additional status messages and device specific parameters

3 - Raw data telegram

Extended telegram with measured raw data (in NetCDF format)

4 - CHM data telegram

Output interval, date, time, sky condition index, cloud layers, cloud penetration depths, VOR, cloud amount total, cloud amount, mixing layer height, mixing layer quality index, unit, status, checksum

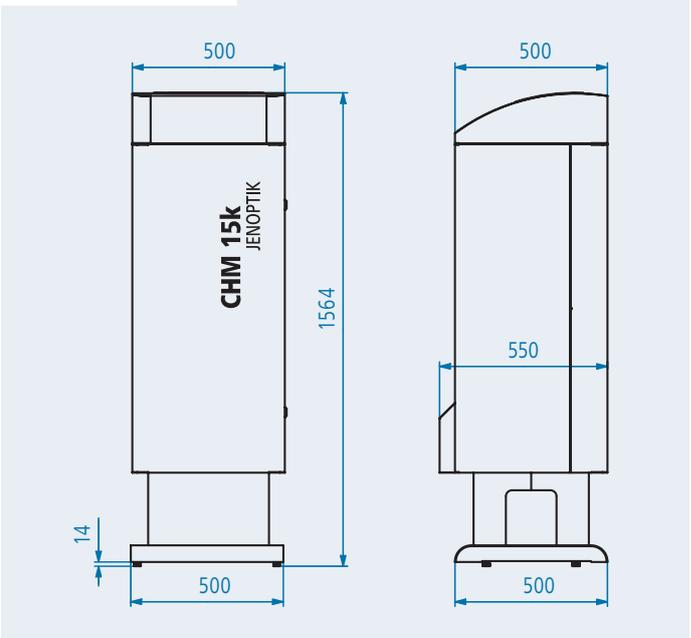
5 - CHM raw data telegram

CHM 15 k data telegram with raw data

Exemplary data telegram (standard)

...; 29.05.06; 05:25; 00330; 01913; 07725; 0150; 0112; 0772; 01968; 08498; +060; m; 11111111; ...

Dimensions CHM 15k



It is our policy to constantly improve the design and specifications. Accordingly, the details represented herein cannot be regarded as final and binding.



JENOPTIK | Defense & Civil Systems
ESW GmbH | Sensor Systems Business Unit
Pruessingstrasse 41 | 07745 Jena | Germany
Phone +49 3641 65-3041 | Fax -3573
lasensors.dcs@jenoptik.com
www.jenoptik.com/lasensors



Edificio Antalia
Albasanz, 16
28037 MADRID
Tel. 91 567 97 00
Fax: 91 570 26 61

www.alavaingenieros.com

Torre Mapfre-Vila Olímpica
Marina, 16 - Planta 11-C2
08005 BARCELONA
Tel. 93 459 42 50
Fax: 93 459 42 62

alava@alava-ing.es