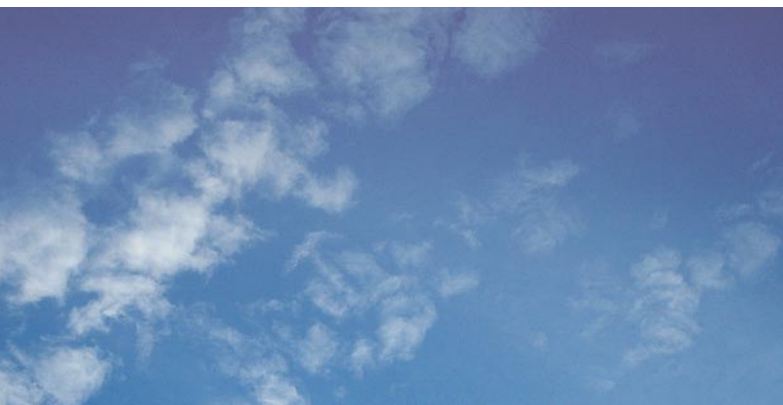




# Ceilometer CHM 15k

## Measuring aerosol height profiles and visibilities



### Making the weather measurable

The CHM 15k ceilometer measures such atmospheric parameters as cloud height, boundary layer height and visibility. With an operating range of 15 kilometers it is the first device to reliably detect cloud layers and cirrus clouds at greater height. The CHM 15k can determine the height and penetration depth of several cloud layers.

### Optical metrology for exact results

An opto-electronic laser sensor uses the LIDAR method to record the measured data, LIDAR being an optical version of radar. A laser emits light pulses into the atmosphere. The light which is scattered back by air molecules and aerosols is collected in special optics to be measured by a highly sensitive photo receiver.

Smart algorithms analyze the pulse flight time and the intensity of back-scattered light to calculate a height-resolved aerosol profile along with other related measurement values.

### Simple recording and analysis of measured data

Measured values are output via a standard interface and the CHM 15k can be configured with simple control commands. Three data telegrams are available. Delivery includes a capability for output of raw data in NetCDF format. For greater convenience of communications and graphical viewing of measured values, an optional visualization software may be provided.

### Reliable operation in any climate

The CHM 15k is prepared to work throughout the year and in any weather. Its robust weather-proof casing meets the standards for IP65 internal protection. With optics of dedicated design and an automatic heating & cooling system, the CHM 15k knows no fogging or frosting problems.

### Benefits

- Great measuring range up to 15 kilometers
- Simple and eyesafe routine operation
- Service-friendly modular device setup

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### Specifications

Measuring parameters		Electrical parameters	
Measuring principle	Optical (LIDAR)	Power supply	230 V (AC), ±10 %
Measuring range	30 m - 15 km	Power consumption	250 W (standard) 800 W (in maximum heating mode)
Resolution	15 m	Operating safety	
Time to measure	programmable: typical: 5 s ... 60 min 15 s ... 30 s (for cloud heights < 5 km) 60 s (for cloud heights > 5 km) 600 s (for planetary boundary layers and visibilities)	Environmental requirements ISO 10109-11	
Targets	Aerosols, clouds	Laser protection class 1M according to DIN EN 60825-1:2003-10	
Quantities to be measured	Cloud heights (standard: three layers), penetration depth, vertical visibility, height of planetary boundary layer	Internal protection class IP65	
Light source	Nd:YAG solid-state laser, wavelength 1,064 nm	EMC Class B, DIN EN 61326	
Interfaces and software for data output and device configuration		Certifications CE	
Standard interface	RS485	Dimensions	
Optional interfaces	RS232, RS422, LAN	Enclosure dimensions all over (L x W x H) 0.5 m x 0.5 m x 1.55 m	
Data telegrams	Measured data and device settings are transmitted in a data telegram. Three types of data telegrams are available: <i>Standard</i> , <i>Extended</i> and <i>Raw Data</i>	Packaging dimensions for transport (L x W x H) 0.65 m x 0.8 m x 1.67 m	
Optional software	Software for convenient visualizing measured results and easy communication with the CHM 15k	Net weight 70 kg	
		Operating conditions	
		Temperature -40 °C ... +50 °C	
		Relative humidity 0 % ... 100 %	

### The data telegrams in detail

#### Standard data telegram

Output interval, date, time, 3 detected cloud layers, 3 detected penetrations depths, vertical visibility, max detection range, local altitude, measuring unit (m/ft), system status, precipitation index, checksum

#### Extended data telegram

Standard telegraph combined with additional status messages and device specific parameters

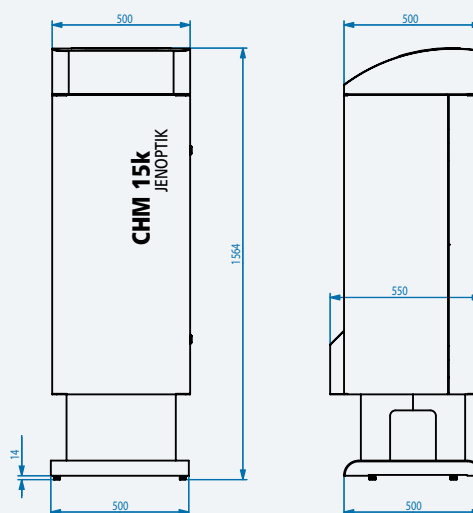
#### Raw data telegram

Extended telegraph with measured raw data (in NetCDF format)

#### Exemplary data telegram

...; 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.



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