Ceilometer CHM 15k „NIMBUS“
Measuring clouds, aerosol height profiles and visibility

Jenoptik Laser Technology inside

cloud height

The “NIMBUS” series is the second generation of proven CHM 15k ceilometers measuring aerosol height profiles using the LIDAR technique. 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. The “NIMBUS” series is equipped with an integrated controller offering improved range resolution and a comfortable web interface.

1500m

1300m

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High optical sensitivity for exact results
Accurate results in day- and nighttime are obtained by

- a solid state laser source with long lifetime
- small bandwidth filters
- a highly sensitive photo receiver

Reliable operation in any climate
The CHM 15k series 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, precipitation, freezing or overheating.

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, precipation 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 15k data telegram
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

5 - CHM 15k raw data telegram
CHM 15k 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; ...

Jenoptik Ceilometer CHM 15k“Nimbus“			Order No.
Ceilometer			**8350.00**
Technical Data	Dimensions (LxWxH)	500 mm x 500 mm x 1550 mm	
	Weight	70 kg (130 kg incl. packaging)	
Operating conditions	Temperature	-40°C ... 55°C	
	Relative humidity	0% ... 100%	
	Wind	55 ms^{-1}	
Measuring parameters	Measuring principle	Optical (LIDAR)	
	Measuring range (CBH)[1]	5 m ... 15,000 m (16 ft ... 50,000 ft)	
	Accuracy[2]	± 5m (± 16 ft)	
	Range resolution	5 m (16 ft)	
	Sampling rate	100 MHz	
	NetCDF raw data resolution	15 m (full range, compact file sizes) 5 m (5 m to 150 m range)	
	Time to measure	2 s ... 600 s (programmable)	
	Targets	Aerosols, clouds	
	Quantities to be measured	- CBH1, preset: 3 layers; maximum 9 layers - Cloud penetration depth - Cloud amount and sky condition index - Vertical visibility (VOR) - Height of aerosol layer - Aerosol backscatter profiles	
	Light source	Nd:YAG solid-state laser, wavelength 1064 nm	
Interfaces and software for data output and device configuration	Standard interface	RS485, LAN	
	Optional interfaces	RS232 or Modem V.21, V.22, V.22bis	
	Communication	LAN Port: Web-Interface Serial Port: JO-DataClient Software or standard terminal programs	
	Optional software	Viewer-Software for convenient visualizing measured results	
Electrical parameters	Power supply	Standard: 230 VAC, ±10% Optional: 110 VAC, ± 10%	
	Power consumption	250 W (Standard) 800 W (in maximum heating mode)	
	UPS functionality (opt.)	Internal backup battery for electronics, > 1 hrs	
Operating safety	Environmental requirements	ISO 10109-11	
	Laser protection class	1M according to IEC 60825-1:2007	
	Internal protection class	IP65	
	EMC	Class B, DIN EN 61326-1	
	Electrical safety	DIN EN 61010-1	
	Certifications	CE	

[1] CBH - Cloud Base Height [2] measured on hard target in 10 km distance

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