

EN Question	EN Answer
CHM 8k / CHM 15k: What are the maximum cable lengths for the CHM 8k / CHM 15k?	The standard cable length for power supply and data transfer is 10 m. Longer cable connections are also possible. Please feel free to contact us for this.
CHM 8k / CHM 15k: Can the status of the NTP query (time server) be verified?	As of firmware version 1.020, the web interface / page "Process Status" displays the server name, status of availability, current time offset, query interval, etc.
	Note: If the time offset exceeds 1000 s (approx. 17 minutes), the iterative adjustment via the NTP protocol no longer works. The time must then be set manually, e.g. via the web interface, or the device must be restarted. The time is newly set at system startup when the NTP server is available.
CHM 8k / CHM 15k: How should the device be installed in relation to the sun?	How should the device be installed in relation to the sun?
	The device side with the door should face south. In case of high solar radiation (south of 35° northern latitude), the device should additionally be tilted to the north via an adapter angle in order to keep the influence of solar radiation as low as possible.
	This applies to the northern hemisphere. For the southern hemisphere, the opposite cardinal directions apply.
	Please consider that measurements against the sun are not possible for an optical measuring device. We offer corresponding angle adapters as accessories. Please feel free to contact us on this subject.
CHM 8k / CHM 15k: Is it possible to get the device-specific overlap data for own calculations?	The overlap data corresponding to your device can be sent to you in the form of a file. Please contact us at <a href="mailto:met-service@otthydromet.com">met-service@otthydromet.com</a>
CHM 8k / CHM 15k: Does the device have a window contamination control?	Depending on the degree of soiling of the windows, a corresponding NetCDF variable (state_optics) is reduced from its original value of 100. A warning is issued when a certain limit value (70) is reached and the status code of the device is changed. This can be used as a recommendation for cleaning the windows.
CHM 8k / CHM 15k: In which cases does the case fan start?	When the device is started: for typ. 2 minutes, in case of dirty or wet panes as well as detected rain, for cooling at interior temperatures > 39 °C and per default every hour for removal of dust, pollen, etc. To minimize possible noise pollution, the activation of the fan can be limited via the BlowerMode parameter. Please pay attention to the correctly set parameter TimeZoneOffsetHours for compliance with possible night/rest times. Further information can be found in the manual, chapter 8.1
CHM 8k / CHM 15k: Why is Cloud Cover -2 displayed after starting the device?	For the calculation of the cloud cover at least the last 30 minutes of the measured data are used. Without the complete data (temporal) no calculation is possible -> "-2" is output.

CHM 8k / CHM 15k: What should be considered with regard to the use of SD cards?	Cards with a memory capacity of up to 32GB can be used from Speed Class 10 on. We recommend industry standard. Formatting must be done with FAT32 file system. Formatting via the web interface is possible and recommended. To change the card, the device must be shut down and externally disconnected from the power supply and secured against being switched on again.
CHM 8k / CHM 15k: Why is there a delay in displaying data in the web interface or why is it only displayed after clicking "Update"?	Automatic display has been disabled on the Viewer page to keep traffic low on low data rate connections. The other data is updated every 15s. On the Process Status page, the data is updated every 60s.
CHM 8k / CHM 15k: How should the NetCDF variables "time" and "range" be interpreted?	"time" means the end time of the measurement
	"range" means the beginning of the range
CHM 8k / CHM 15k: Can the device be operated, restarted or deactivated remotely?	The device can be configured, restarted and shut down conveniently and password protected via the RS485 interface as well as via LAN/WAN and web interface.
	Both the firmware and the operating system are restarted via 'restart system'.
	Via 'shutdown system' the system is shut down and must be switched on again for a restart on site. Please take this into account, especially if the device is not installed in the immediate vicinity.
CHM 15k: In which applications is the ceilometer CHM15k in use?	Please find a detailed description of the functionality in the manual.
	The View into the Sky - Applications with the Cloud Height Sensor CHM15k! Watch our webinar recording where we present completely different application scenarios, where our cloud height sensor CHM15k can be the sensor of your choice!
	To the webinar recording: Applications with CHM15k <a href="https://www.youtube.com/watch?v=dQLKy9bygv0&amp;index">https://www.youtube.com/watch?v=dQLKy9bygv0&amp;index</a>
CHM 15k: On-site calibration & on-site check of the calibration - How to do? How often to do?	Lufft is offering a cloud simulator tool to check the instrument quality in field.
	The simulator generates different light pulses and background light levels to test the detection unit and the data acquisition path of our CHM units. The starting point is the laser itself. The laser pulse is detected by the simulator and time shifted LED pulses are generated. By comparison with the instrument specific production protocol the user can easily see differences in the calibration. The simulator takes a test time of 30 minutes in maximum and should be repeated once per year to verify the status of the system.
	In case the instrument is showing an error or the results of the simulator are out of specs, the LOM (laser optic module) of the CHM instrument shall be exchanged. It can be repaired and recalibrated in lab.

	Furthermore, on-site calibration in field can be done to achieve absolute backscatter values from aerosol layers. The absolute calibration can be done in two different ways:
	1) comparison with another lidar instrument, which should have a sensitivity 10 times better than the ceilometer and should have at least the same range resolution of 5m.
	2) clear sky calibration and specific rain cloud calibration ( both methods will be implented by the European Met services shortly. There is an ongoing project to deliver the algorithms. Please check:
	<a href="http://www.toprof.ima.cnr.it/index.php/short-term-scientific-mission/8-1-short-term-scientific-mission">http://www.toprof.ima.cnr.it/index.php/short-term-scientific-mission/8-1-short-term-scientific-mission</a>
	<a href="http://www.toprof.ima.cnr.it/images/toprof/working_group/TOPROF_WG1_2015_UpdatedWorkPlan.pdf">http://www.toprof.ima.cnr.it/images/toprof/working_group/TOPROF_WG1_2015_UpdatedWorkPlan.pdf</a>
	Advantage: The Rayleigh calibration and the cloud calibration method do not need additional equipment.
	The on-site calibration takes 24 h to 1 week to be able to compare different cloud and aerosol layer situations. In a rainy season, in permanent low cloud, brown cloud or in foggy places the on-site atmospheric calibration might not work at all and our cloud simulator check of the lab calibration gives you the best result.
CHM 15k: How to find/choose correct firmware version corresponding to your hardware version	A new firmware version for the CHM 15k comes in two hardware-dependent variants:
	Firmware version 0.xxx_550 (e.g. 0.743_550)
	Firmware Version 0.xxx_552 (e.g. 0.743_552)
	The version 0.735_552 and all subsequent versions X.XXX_552 apply to newer CHM 15k devices which have been built since June, 2015. From the installed firmware version 0.733 on, you can find the right update version through on the CHM web interface.
	For devices with firmware versions before 0.733, you can recognize the compatibility by means of the OS version (web interface --> device tab "firmware"):
	For OS: 12.12.1 please use the firmware version 0.735_550 and for OS: 15.06.1 the firmware version 0.735_552.
	If you have uploaded the wrong version accidentally, the status bit 12 is set. You can install the appropriate version again.

	<b>You can find the new firmware in the download area of the CHM 15k product page.</b>
CHM 15k: What is the minimum distance between two devices in order to prevent mutual interference of the backscatter signals?	A distance of 50 cm between the instruments is sufficient, provided that the levelling screws in the base of the instrument ensure a mutual tilting of 0.5°.