

CE376

Compact Automatic Aerosol LiDAR

The CE376 is the latest compact, eye-safe elastic backscatter LiDAR, featuring outstanding performances for the automated, continuous monitoring of aerosols.

To enhance aerosol characterization it operates across three channels: 532 nm, 808 nm (NIR) and depolarization at 532 nm.

The rugged, fully integrated system operates without shutdown, human attendance, authorization, nor maintenance. With its thermal enclosure, the LiDAR can withstand extreme environmental conditions.

The CE376 is particularly easy to install (indoor or outdoor with its thermal enclosure) and to transport to different sites.

It is therefore, the perfect solution to monitor industrial dust emissions, urban pollution, volcanic ash and all type of aerosol particles.



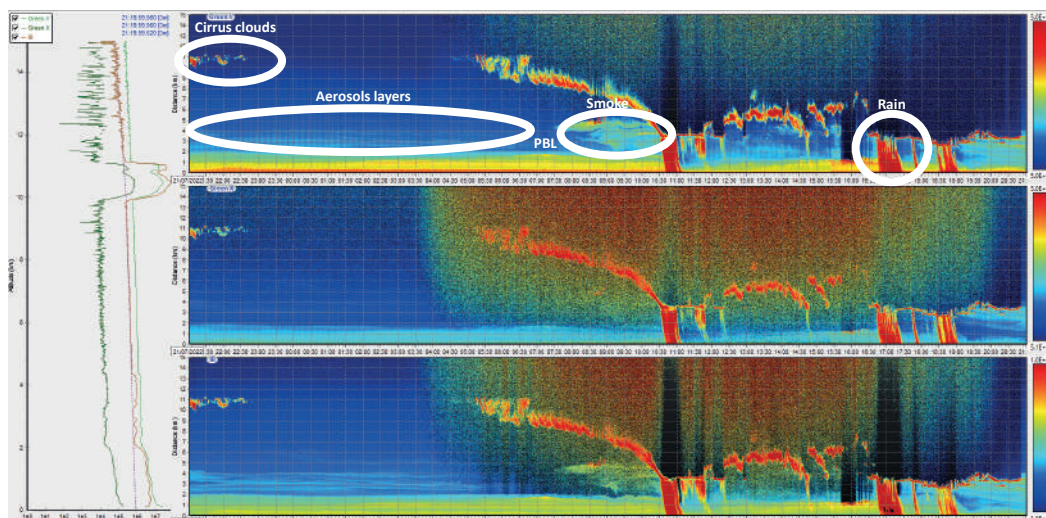
Features

- The typical measurement range (with AOD = 0.2) exceeds 15 km at night and 5 km during the day
- Very short blind zone (< 150 m) with a full overlap at 700 m (Green, NIR)
- Compliance with EN-60825/ANSI Z136 (Eye-safety)
- Robust optical and electronic architecture for transport and long-term deployment
- Straightforward polarization calibration through remote access
- Real time «quicklook» visualization
- Automatic backscatter/extinction profiles (Klett inversion with AOD or LiDAR ratio)
- Planet Boundary Layer (PBL) and cloud detection
- Aerosol characterization for each layer and stratification analysis

Applications

- Air quality monitoring & forecast
- Climate change studies
- Airport / Aviation
- Atmospheric sciences
- Aerosol and cloud modelling
- Numerical Weather Prediction (NWP)

Software



(Left) LiDAR overlap-Range Corrected Signal (RCS) profiles at 532 nm (parallel and cross) and 808 nm, (Right) RCS Quicklooks for 532 nm parallel (top), 532 nm cross (middle) and 808 nm (bottom) (from LidarII acquisition and visualization software)

Technical specifications

Source

Laser type	Green laser: frequency doubled Nd:YAG NIR laser: pulsed laser diode
Wavelengths	Green laser: 532 nm NIR laser: 808 nm
Pulse energy	Green laser: ~6 µJ NIR laser: ~4 µJ
Repetition rate	4.7 kHz
Pulse width	< 15 ns For IR ~200 ns

Optics

Instrument configuration	Biaxial system
Telescope diameter	96 mm for both emission and reception
Full emission divergence	NIR channel: 450 µrad Green channel: 420 µrad
Full FOV reception	NIR channel: 510 µrad Green channel: ~550 µrad
Eye-safety	Yes: IEC 60825-1 compliant
Bandwidth (FWHM)	NIR channel: 0.6 nm Green channel: 0.2 nm

Data

Data acquisition mode	Photon counting
Continuous acquisition	Yes
Acquisition time	≥ 1 s
Electronic range resolution	15 m
Electronic range	From 15 m to up to 30.72 km
Data transfer to PC	USB or Ethernet

CE376 Models

Reference	Channels	Parameters
CE376-G	532 nm	- Vertical aerosols and clouds profile - PBL height - Extinction/Backscatter profiles
CE376-GP	532 nm, depolarization	- Vertical aerosols and clouds profile - Depolarization profile (Particle shape) - PBL height - Extinction/Backscatter profiles
CE376-N	808 nm	- Vertical aerosols and clouds profile - PBL height - Extinction/Backscatter profiles
CE376-GN	532 nm / 808 nm	- Vertical aerosols and clouds profile - Ångström exponent profile (Particle size) - PBL height - Extinction/Backscatter profiles
CE376-GPN	532 nm, depolarization / 808 nm	- Vertical aerosols and clouds profile - Ångström exponent profile (Particle size) - Depolarization profile (Particle shape) - PBL height - Extinction/Backscatter profiles

Environmental conditions

Operational temperature	+18°C to +28°C (see thermal enclosure option)
Humidity range	5% to 45%

Power

Power supply	100-250 VAC / 50-60 Hz
Typical power consumption	40 W
Maximum power consumption	200 W

Mechanical Specifications

Transportability	Yes
Dimensions	713 x 463 x 691 mm
Weight	35 kg (might change depending on the option)

Thermal Enclosure (in option)

Operational temperature (external)	-30°C to +55°C
Power supply	115-230 VAC (50 Hz / 60 Hz)
Typical power consumption	1300 W
Humidity range	0-100%
Dimensions	900 x 950 x 1300 mm
Weight	93 kg
Indice of Protection (IP)	NEMA 4 / IP 65

