

CE376

Compact Automatic Aerosol LiDAR

The CE376 is the latest compact, eyesafe backscatter LiDAR, featuring outstanding performances for the automated continuous monitoring of aerosols.

It operates in the visible (green) and/or in the near infrared (NIR) with options for depolarization channels for enhanced aerosol characterization.

The rugged, fully integrated system operates without shutdown, any 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), to transport and even to use onboard a vehicle or a plane.

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



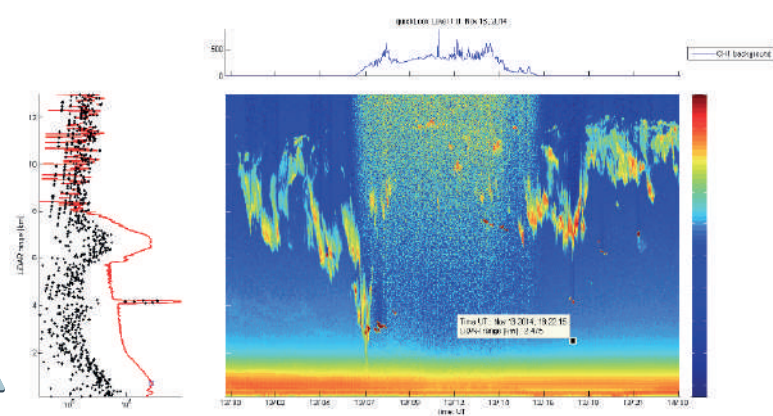
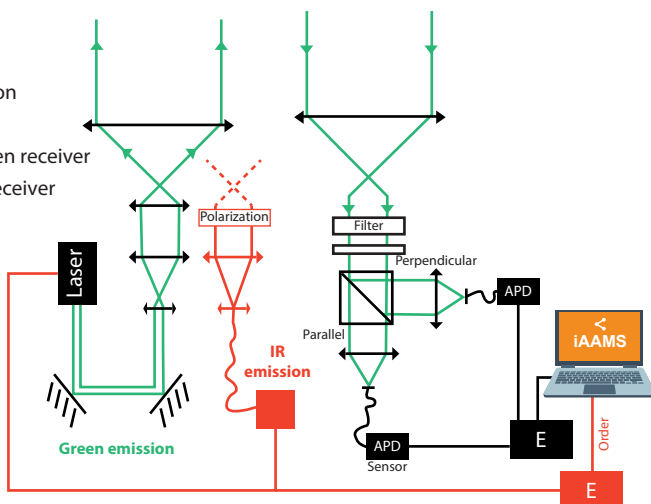
Features

- Aerosol measurements up to 18 km by night time (9 km by day time)
- Very short blind zone (< 100 m) with an overlap from 1 km
- Real time «quicklook» visualization
- Automatic extinction and backscattering profiles
- High stability and low maintenance
- Aerosol characterization for each layer and stratification analysis
- Eye safety compliance with EN-60825/ANSI Z136
- Planet Boundary Layer (PBL) detection
- Easy transportation → Outdoor / indoor / mobile operation

Applications
● Air quality monitoring
● Climate change
● Airport / Aviation
● Atmospheric sciences
● Aerosol and cloud modeling
● Numerical Weather Prediction (NWP)

Technology

- 4 channels**
- 1 Green emission
 - 1 IR emission
 - 2 channels green receiver
 - 2 channels IR receiver



Vertical profile of Ln(PR2) data with indication of Signal to Noise Ratio (dots). Quicklook of range corrected data and time graph of background noise.

Measurement principle of the CE376 LiDAR. $\lambda_1 = 532 \text{ nm}$, $\lambda_2 = 808 \text{ nm}$.
E = Electronic card ; APD = Avalanche Photo Diode.

Technical specifications

Source

Laser type	Green laser: frequency doubled Nd:YAG NIR laser: pulsed laser diode
Wavelengths	Green: 532 nm NIR < 850 nm
Pulse energy	Green laser: 5-10 μ J NIR laser: 3-5 μ J
Repetition rate	4.7 kHz
Pulse width	< 15 ns For IR ~200 ns

Optics

Telescope type	Galilean
Telescope diameter	100 mm for both emission and reception
Effective focal length	200 mm
Total beam divergence	Emission: 100 μ rad, Reception: 200 μ rad
Instrument configuration	Biaxial
Eye-safety	Yes
Detector type	APD QE 55% / 70%

Data

Data acquisition mode	Photon counting
Continuous acquisition	Yes
Data counting rate	25 Mc/s
Electronic range resolution	15 m gates
Electronic range	From 100 m up to 30 km (2048 gates)
Data transfer to PC	USB or Ethernet

CE376 Models

Reference	Description	Available bands
CE376-G	Green	532 nm
CE376-GP	Green with depolarization	+ information on the presence of aspherical particles (ashes, sand, cirrus) in each layer
CE376-N	NIR	Invisible
CE376-NP	NIR with depolarization	+ information on the presence of aspherical particles (ashes, sand, cirrus) in each layer
CE376-GN	Green + NIR	Information on the particle size in each layer
CE376-GPN	Green with depolarization + NIR	+ information on the presence of aspherical particles (ashes, sand, cirrus) in each layer
CE376-GNP	Green + NIR with depolarization	+ information on the presence of aspherical particles (ashes, sand, cirrus) in each layer
CE376-GPNP	Green with depolarization + NIR with depolarization	+ information on the presence of aspherical particles (ashes, sand, cirrus) in each layer

Environmental conditions

Temperature range	+15°C to +25°C without thermal enclosure -20°C to +45°C with thermal enclosure
Humidity range	0-80% without thermal enclosure 0-100% with thermal enclosure

Power

Power supply	110/230V AC and 28 V DC, < 300 W Automatic switching
Autonomy	10 min with uninterruptible power supply option

Mechanical Specifications

Transportability	Yes
Dimensions (H x W x D)	710 x 450 x 650 mm
Weight	35 kg (might change depending on the option)

Thermal Enclosure (in option)

Temperature range (external)	-20°C to +45°C
Power supply	200 W
Size (H x W x D)	1270 x 860 x 760 mm
Weight	90 kg

