



WINDCUBE⁺

100S/200S/400S

3D Doppler Lidar



The WINDCUBE 3D scanning Doppler LIDAR is a versatile tool for recovering accurate real-time wind and aerosol backscatter measurements in any scanning geometry up to more than 10km. State of the art structure detection algorithm offers the capability to detect, locate and classify clouds and aerosol layers in the troposphere, as well as to monitor the height of the Atmospheric Boundary Layer (ABL).

Hardware and software standard features

- Wind, aerosol backscatter and clouds measurements up to a maximum of 14km
- Versatile and user-friendly configuration tailorable to multiple scanning patterns and measurement needs
- Autonomous remote operation
- 1 year initial warranty coverage with onsite maintenance service options for high uptime and long lifetime

Applications

- Atmospheric sciences and climatology
- Boundary Layer profiling for observation networks
- Weather monitoring & decision support
- Structural engineering
- Air quality monitoring and forecasting
- Industrial emissions monitoring
- Aerospace & Defense



PERFORMANCE & MEASUREMENT PARAMETERS

Maximum wind, cloud and aerosol detection range	14 km
Typical Wind measurement range*	WINDCUBE 100S: 3km (100m resolution, 1s accumulation time) WINDCUBE 200S: 6km (100m resolution, 1s accumulation time) WINDCUBE 400S: 10km (200m resolution, 1s accumulation time)
Wind velocity range	LOS velocity from -30m/s to +30m/s (PPI, RHI, LOS scenarios) Horizontal wind speed range in DBS** mode depends on elevation angle
Precision of velocity measurements	Better than 0.5m/s
Accumulation time	0.1 to 10s (1s is standard)
Physical range resolution	WINDCUBE 100S/200S: 25, 50, 75, 100m WINDCUBE 400S: 75, 100, 150, 200m Up to 320 range gates can be configured individually, with a possible overlap of range gates down to 1m
Output data	Radial wind velocity and Doppler spectrum broadening Carrier-to-Noise Ratio (CNR) 3D wind components (DBS scenario)
Options	Backscatter profile, cloud and aerosol detection, PBL height Local meteorological conditions with optional TPH sensor

* The measurement range depends on various parameters such as accumulation time, physical data and display resolution, scanner rotation speed and atmospheric conditions.

** Consisting in 1 vertical LOS and 4 fixed LOS pointing at cardinal directions (with a user programmable elevation angle).

SCANNING FEATURES

Scanning Patterns	PPI (Plan Position Indicator) RHI (Range Height Indicator) DBS (Doppler Beam Swinging)** Fixed LOS (Line of Sight)
Scanning angles	Azimuth: 0 to 360° (with 0.01° increment) Elevation: -10° to 90° (with 0.01° increment) Endless rotation
Scanning speed	Up to 30°/s (increment of 0.01°/s) User programmable
Scanning modes	Endless loop User defined scenarios scheduler

HARDWARE

Laser Source	Pulsed laser @ 1.54µm Eye safety: Class 1M (compliant with IEC/EN60825-1)
outdoor conditions	IP65 (dust and splash water resistant) Operating ambient temperature range: -25°C to 45°C (-13°F to 113°F) Operating humidity: 10% to 100%
Dimensions	(L-W-H) (mm): 1008 x 814 x 1365
Power Consumption	500 W to 1600 W

About Leosphere

Leosphere, founded in 2004, is the world leader in ground-based and wind turbine-nacelle mounted Lidar (Light Detection and Ranging) equipment for atmospheric observation. The company designs, develops, manufactures, sells and services turnkey remote-sensing instruments for wind measurement and aerosol characterization.

For more information

Leosphere
14-16 rue Jean Rostand
91400 Orsay France

Contact us
Tel.: +33 (0)1 81 87 05 00
Email: info@leosphere.com

www.leosphere.com

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