

WindCube Scan for Urban & Industrial Systems 3d scanning Doppler lidar for air quality monitoring and forecasts



Key benefits

Unrivaled situational awareness

Get a full, essential picture of both atmospheric boundary layer and wind conditions with accurate simultaneous wind, boundary layer, clouds and aerosol backscatter measurements.

Full flexibility

Take advantage of full 3D scanning with typical ranges up to 10km and multiple scanning patterns that can be tailored for many campaign types: monitoring, atmospheric cross sectioning, wind profiling, and more.

At-a-glance insights and reporting

Gain rich campaign insights through your choice of data management tools. WindCube Scan offers flexible data management through API requests, communication with an FTP server, or a user-friendly and robust graphical user interface.

Easy and reliable operation

Count on the robust casing and heated scanner lens for high performance even in harsh conditions including humidity, dust, ice, heavy rain and snow. Can be installed in urban and industrial areas, and moved and repurposed to support different projects. Best-in-class components provide continuous and timely measurements plus hands-off maintenance. Go even further with 4G connectivity — no Ethernet cable needed.

Supported by the industry leader

Rely on Vaisala's industry-leading warranty and servicing package for sustained performance and accurate, reliable measurements. Our decades of experience, scientific leadership, and industry-leading support services help you get the most from your equipment over its full life span.

Weather has a direct effect on air quality, and local wind and atmospheric boundary layer (ABL) dynamics are major factors influencing pollution dispersion. WindCube® Scan for Urban & Industrial Systems provides air quality forecasters with long-range, accurate wind and aerosol backscatter measurements to improve situational awareness of pollutant levels, their travel and their danger to communities.

An accurate understanding of ABL fluctuations provides excellent awareness of pollutant levels. Wind assessment shows the transport of pollutants by wind, local-level recirculation and horizontal dispersion. These factors often drive the dispersion of pollutants: Measuring them can drive accurate decision-making and show which mitigation efforts are the most effective.

WindCube Scan for Urban & Industrial Systems performs simultaneous, state-of-the-art wind, aerosol backscatter, cloud and boundary layer height measurements 24/7 with high-level data processing. It is a versatile tool for recovering accurate wind and aerosol backscatter measurements, in real time, in any scanning geometry up to 6 km, 8 km, or 10 km (depending on model).

You can detect, locate and classify clouds and aerosol layers in the troposphere, as well as monitor the height of the ABL, thanks to the state-of-the-art structure detection algorithm. The technology is also useful for mines, ports and other industries that generate substantial particulate emissions which are carried by the wind in hard-to-predict ways.

WindCube Scan for Urban & Industrial Systems at a glance

Applications

- Urban air quality monitoring and forecasting
- Aerosol/dust emissions monitoring and tracking for mining, ports and other industries
- Boundary layer profiling for air quality observation networks
- Weather monitoring and decision support
- Atmospheric sciences and air quality research

Specifications

	100P	100S	200S	400S
Typical wind measurement range	Up to the boundary layer	6 km	8 km	10 km
Maximum acquisition range		14 km+	15 km+	18 km+
Scanner rotation speed	Up to 50°/s			
Accumulation time	From 0.1s to 10s			
Data transfer	Graphical User interface / FTP / SSD swap / API			
Data format	NetCDF data format			
API type	REST web API			
API functionalities	Lidar scan configuration and monitoring; status/activities/logs monitoring; data (JSON stream and NetCDF files) download			
Dimensions	830 x 1008 x 1355 mm (L x W x H)			
Weight	220kg			
Temperature range	-40°C to +55°C (-40° to 131 F°)			
Power consumption	1100W maximum average power with brief peaks up to 1600W			
	Designed for quick and efficient onsite services			

Why Vaisala?

With the right access to the right information, people become more aware, active and committed. They gain a deeper connection to their environment and new ways of thinking about business and community.

Vaisala is driven by passion, relentless curiosity and the desire to create a better world, as reflected by our guiding principles for urban weather and environment:

- 1. Exceptional products grounded in science and innovation** — Vaisala's scientific leadership and innovation in inventing unrivaled weather and environment products have reflected the spirit of our company for 85 years.
- 2. Insight every day** — The combined power of our weather and environmental solutions provide dependable intelligence people can confidently act on; enabling businesses and communities to make better decisions.
- 3. Champions for smarter, safer, more sustainable urban communities** — Vaisala empowers businesses and community leaders; helping them to fulfill their operational missions for their cities.
- 4. Inspired solutions rooted in the Finnish way** — Finland has boldly demonstrated that a culture of resilience and a connection to nature can create new ways of smarter, sustainable living.

VAISALA

vaisala.com/airquality



Scan the code for more information

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