

WindCube Offshore

The industry standard lidar for efficient, safe turbine install operations



Key benefits

Unrivaled situational awareness

WindCube Offshore provides accurate wind measurement up to 300m, with 20 simultaneous measurement heights per second. This provides an unrivaled, immediate view of the wind profile anywhere on the ocean.

At-a-glance insights and reporting

WindCube Offshore comes equipped with WindCube Insights — Fleet software, an easy-to-use, secure, cloud-based tool providing real-time insights and simple management.

A simple, unobtrusive, practical solution

WindCube Offshore units are small and lightweight, and their rugged, industrial designs can withstand even the harshest marine environments. They are among the most flexible and accurate wind measurement technologies anywhere, and they can easily be moved or repurposed for additional campaigns.

Supported by the industry leader

WindCube Offshore is supported by Vaisala's decades of experience, scientific leadership, and industry-standard support services — all of which enable customers to get the most from their equipment over long service lives.

Offshore wind energy is booming, as is demand for Wind Turbine Installation Vessels (WTIV). But the same abundant wind that a turbine is meant to capture can cause significant delays and safety risks during loading, transportation, and installation — especially with next-generation turbine blades stretching to more than 100 meters in length.

Offshore companies need accurate, reliable wind data on board the vessel to maintain safe and efficient operations — and even more so during harsh weather conditions. Up-to-date wind profile insights increase weather forecast confidence and help maximize weather windows for loading and transportation of turbine components, crane lifting operations, and crew changes.

WindCube® Offshore lidar provides accurate, actionable wind insights in even the harshest maritime conditions. Rigorously validated and extraordinarily flexible, it ensures that wind conditions are measured, understood, and can be acted on in real-time. This provides critical improvements to safety, efficiency, weather transparency, and operational continuity on important WTIV missions.

WindCube Offshore at a glance

Applications

- Accurate wind nowcasting for optimized turbine install or maintenance events
- Real-time insights for streamlined supply operations at port or at offshore
- Enhanced situational awareness and short-term forecasting

Key features

Pulsed lidar technology providing constant accuracy up to 300m in any weather/cloud conditions, with excellent data availability and comparatively low power consumption

Ruggedized maritime design with an IP67 waterproof casing, making WindCube Offshore suitable for nearly any ship-mounted application

Includes WindCube Insights — Fleet software for fast insights and simple system management

APIs and flexible system integrations to accommodate various user configurations and existing digital environments

Specifications

Wind data provided	Wind speed, wind direction, wind speed standard deviation, vertical wind speed
Range	40m to 300m
Speed accuracy	0.1 m/s (in static mode)
Speed range	0 to 49+ m/s
Speed uncertainty	2-3% when used static; 3-4% when mounted on a buoy
Direction accuracy	2° (in static mode)
Beam geometry	4 inclined beams at 28° + 1 vertical beam
Power consumption	45W nominal to 110W
Data storage	120GB industrial disk (10+ years of data); WindCube Insights secure cloud-based server
Communication	LAN, USB, 4G router, Modbus RTU, Wi-Fi
Temperature range	-20°C to 40°C / -4°F to 104°F
Compliance	CE, FCC, ICES
Output data	1s/1, 2, 5, 10min averaged (user-defined); standard deviation; direction; CNR (signal-to-noise ratio); GPS coordinates; data availability
Data sampling rate	1Hz
Corrosion resistance	IEC 60068-2-11 (salt spray), 500 hours; IEC 60068-2-52 (2017), (dry/wet salt spray), 30 cycles
Waterproofness	IP67 waterproof casing; additional locks and belts
Software	Standard: WindCube Insights software Optional: Reprocess software for motion correction
Services	Standard: 3-year limited warranty Optional: 3-year warranty extension; 3-year maintenance
Other options	Geofencing for fixed installation

Why Vaisala?

Weather and environmental insights are the greatest catalysts for successful maritime operations. From sensors to systems and digital services, Vaisala technology empowers maritime leaders to confidently meet new challenges and harness new opportunities.

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

1. Master the weather, master the sea

The weather affects maritime operations—whether onshore or offshore—more than any other factor. It also reveals the vast potential of the sea. We enable maritime leaders to harness that potential while navigating pressing challenges driven by climate change.

2. Oceans of insight

The maritime industry is a complex ecosystem, with valuable information to be found everywhere. Our integrated, end-to-end solutions turn that information into practical insights for new competitive advantages.

3. Currents of innovation

Maritime is evolving, and the currents of innovation are taking us to a more sustainable and weather-aware industry. Vaisala markets leading-edge solutions backed by our unmatched legacy of scientific leadership.

4. Champions for sustainability

We help provide a proactive, informed approach to navigating sustainability initiatives and saying ahead of regulatory pressures. Along the way, we protect and strengthen the ecosystems of which we are all part.

VAISALA

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