

VAISALA

WindCube Offshore: Floating Lidar System Integration

Solutions Brochure





Offshore wind energy is growing rapidly around the world, and lidar is making it faster and more cost-efficient to conduct accurate Wind Resource Assessments (WRA).

By replacing the need for expensive and time-consuming met masts, lidar supports the challenges of WRA to prove wind availability and characteristics – essential to ensure project viability and return on investment.

WindCube®: Made for offshore

Vaisala's WindCube lidar solutions are the most comprehensive set of offshore-ready measurement technologies in the world. Known as the iconic and trusted gold standard in wind lidar, the turnkey product suite offers innovative, reliable, and highly accurate solutions for thousands of customers.

The rugged and marinized WindCube Offshore is the reference lidar for all phases of offshore wind energy development and operations. A Floating Lidar System (FLS), supported by WindCube Offshore, is a versatile measurement device that can be deployed for greenfield WRA nearly anywhere. Based on outstanding metrology, WindCube Offshore provides highly accurate measurements covering the heights of modern offshore turbines over multiple distances.

Powerful partnerships

Vaisala is proud to partner with industry-leading FLS integrators to provide the best technology, service and support. Together, we deliver cutting-edge technology and seamless integration, empowering our customers with unparalleled insights to optimize their offshore wind operations and maximize efficiency.

WindCube Offshore FLS Integration Partners



ACCURASEA | [accurasea.com](https://www accurasea.com)

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Countries/regions served: Global

Accurasea strives to provide wind measurements of unparalleled accuracy in any weather or ocean condition, minimizing resource assessment uncertainty. The organization is the result of a collaborative R&D project combining the skills and expertise of two French industry experts and two French research institutes.

Accurasea offers a highly stable FLS that incorporates a self-sustaining renewable energy system for autonomous operation, and accommodates an extensive array of sensors, including Stage 2 WindCube Offshore, the reference lidar for offshore wind measurements. With strategic partnerships established worldwide, Accurasea deploys cutting-edge technology in any location.



AKROCEAN | [akrocean.com](https://www akrocean.com)

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Countries/regions served: Worldwide

AKROCEAN is a marine renewable energy player in France providing environmental data collected at sea as a service. AKROCEAN owns and operates a fleet of modular, self-powered buoys designed to host a wide range of metocean and environmental sensors. WINDSEA is a new generation of turnkey FLS for Wind Resource Assessment and metocean measurements, Stage 2 validated with WindCube Offshore according to the Carbon Trust OWA Roadmap. The floating lidars have been deployed around the world where they have accumulated tens of thousands of days of data reaching best industry practices.

"We trust Vaisala in terms of system quality and reliability. Their track record onshore, offshore, and with floating lidar systems has greatly helped."



AXYS Technologies Inc. | axys.com

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AXYS has built rugged, accurate solutions for offshore environments for nearly fifty years, and has provided thousands of months of turn-key wind and metocean data campaigns. Its dedicated product developers, field engineers and local partners combine to support wind and metocean data needs throughout the lifecycle of a wind farm.

The AXYS FLiDAR WindSentinel Wind Assessment buoy was first deployed in 2009 and has consistently provided leading energy developers with accurate, reliable, secure, and complete data sets, even in the world's harshest environments. Its ability to reliably power dual lidars (such as WindCube Offshore) and a large quantity of metrological and environmental sensors allows clients to maximize the value of their data campaign investments. The AXYS fleet also includes two other Stage 2 buoy single-lidar model options to maximize the flexibility of campaign design.



Hangzhou Blue Aspirations Technology Co., Ltd | blue-aspirations.com

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Countries/regions served: China and Scotland,
with a global focus

Blue Aspirations is uniquely positioned to address the needs of Asia's fast-growing offshore wind sector. The organization boasts state-of-the-art assembly facilities in China, several patented technologies, active research and development initiatives, and an excellent track record of providing accurate data on time and on budget.



Fugro | fugro.com

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Countries/regions served: Global

As a leading Geo-data specialist, Fugro collects and analyses comprehensive information about Earth and the structures built upon it. Fugro's 11,000 employees across 57 countries serve clients mainly in the energy, infrastructure and water industries, both offshore and onshore. Their services help clients design, build, operate and ultimately decommission their offshore assets safely and sustainably.

Fugro's SEAWATCH® Wind Lidar Buoy provides continuous, real-time metocean and environmental data which is used in the development and design of offshore wind projects. Integration of the WindCube to the SEAWATCH® FLS builds up on its long proven track record of accurately measuring wind data offshore while adding the advantages of pulsed lidar technology.

Their newly-developed FLS solution, BA-FLS-NX5, is based on proven technologies such as WindCube Offshore lidar that provides reliable and accurate measurements up to 300m. This cutting-edge device has quickly gained recognition in the Chinese offshore wind market and, through more than 30 deployments, has achieved a system and data availability above 97% through harsh sea conditions and typhoons.



Ocergy Inc. | [OCG-Data.com](https://www.ocergy.com)

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Countries/regions served: Worldwide

At the crossroad between green energy generation and marine biodiversity, Ocergy develops "sustainable offshore solutions" that contribute to solving climate change by reducing our carbon footprint while enabling the harvesting of renewable energies.

OCG-DATA is Ocergy's FLS solution – a zero-emission, energy-autonomous environmental buoy that offers unparalleled availability with excellent motion characteristics for complete biodiversity assessment and metocean data acquisition. OCG-DATA is used to characterize metocean conditions for wind farm development with state-of-the-art instruments, including WindCube Offshore lidar for bankable wind measurements with high precision and accuracy.



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Ørsted develops, constructs and operates offshore and onshore wind farms, solar farms, energy storage facilities, renewable hydrogen and green fuels facilities, and bioenergy plants. Recognized on the CDP Climate Change A List as a global leader on climate action, Ørsted was the first energy company to have its science-based net-zero emissions target validated by the Science Based Targets initiative (SBTi).

Ørsted's FLS is the first uncrewed surface vessel (USV) for offshore met-ocean campaigns, and has achieved Stage 2 validation by DNV for use in wind farm development operations. Designed as a generic sensor platform, the USV can collect large amounts of data, including wind conditions. The collected wind data is expected to lower uncertainties in the Annual Energy Production for new offshore wind farms.

Lidar is the clear winner offshore

In a detailed analysis published in 2020, DNV compared today's most commonly used wind measurement technologies: met masts, fixed lidar, FLS, scanning lidar, and other methods such as met buoys.

Among their findings about lidar:

- Shown to provide better data and modelling with reduced uncertainty and risk
- Costs on average 80% less than met masts to develop and deploy
- Achieves the best practice performance criteria set out by the Carbon Trust OWA Roadmap





Why Vaisala?

We are innovators, scientists, and discoverers who are helping fundamentally change how the world is powered. Vaisala elevates wind and solar customers around the globe so they can meet the greatest energy challenges of our time. Our pioneering approach reflects our priorities of thoughtful evolution in a time of change and extending our legacy of leadership.

Vaisala is the only company to offer 360° of weather intelligence for smarter renewable energy, nearly anywhere on the planet. Every solution benefits from our 85+ years of experience, deployments in 170+ countries, and unrivaled thought leadership.

Our innovation story, like the renewable energy story, continues.

