

WINDCUBE[®] v2 OFFSHORE



LEOSPHERE
Lidar Environmental Observations

Global Partners in Lidar Wind Technologies

WINDCUBE®v2 Offshore Key Benefits

- Ultra portable (45kg) - simple installation on stable or moving platforms
- Lowest cost of ownership
- Class 1 anemometer matched accuracy
- Unmatched reliability and data availability
- Backed by the industry leaders



WINDCUBE®v2 Offshore : Reduce Costs and Uncertainty



Offshore wind represents a promising opportunity in the wind industry. High yielding winds in close proximity to coastal metropolitan areas make offshore wind a desirable potential source of clean energy. To realize this potential in the development of offshore wind projects, developers must secure

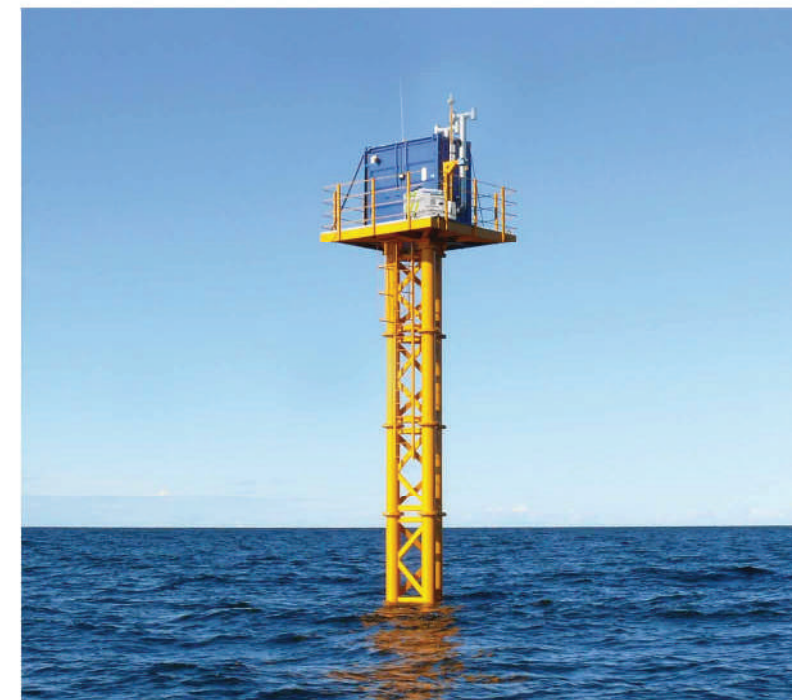
financing which requires accurate estimates of future wind speeds and forecasts of the associated amount of power.

Accurate, easy to deploy, and affordable equipment is needed to measure the wind on stable or moving platforms located several kilometers from the shore. Installations of offshore met masts on large and heavy platforms require large vessels, weeks of work by highly trained technicians and engineers, and calm sea conditions. This costs millions and is dramatically time consuming in a wind farm project. The reduction of capital costs required for assessing the wind resource offshore with high accuracy at modern hub heights has therefore become a critical challenge for the offshore wind industry. A Lidar remote sensor integrated on a stable platform or buoy is the

most cost effective and optimized solution currently available.

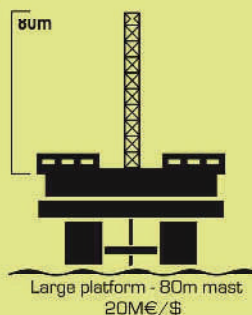
The original WINDCUBE® v2 Lidar Remote Sensor is already in use in more than 20 countries worldwide, in various applications, from early stage prospecting and bankable resource assessment to site suitability measurements and power performance verifications.

The WINDCUBE® v2 Offshore uses the same technology core as the standard WINDCUBE V2 and has been reinforced to operate for extended periods in harsh sea conditions (saltwater, humidity and bird presence). It is the ultimate wind measurement tool to reduce both investment costs and uncertainties thanks to 200m wind measurements.



COURTESY OF EESTI ENERGIA

Budget range for various wind measurements solutions



Applications

Project sitting & Wind ressource:

An ideal tool for site evaluations with simple installation and no permitting required.

Power Performance:

Use during all stages of your wind farm project, from turbine commissioning to permanent monitoring of your farm's power deliverables.

Unmatched Turbulence

Measurements:

Turbulence Intensity, Turbulent Kinetic energy, inflow angle.



Technical Data

Specifications

MEASUREMENTS

| | |
|--------------------------------|-------------|
| Range | 40m to 200m |
| Data sampling rate | 1s |
| Number of programmable heights | 12 |
| Speed accuracy | 0.1m/s |
| Speed range | 0 to +60m/s |
| Direction accuracy | 2° |

ELECTRICAL

| | |
|-------------------|------------------------------------|
| Power supply | 18-32V DC / 93 to 264 VAC 50-60 Hz |
| Power consumption | 45W |

ENVIRONMENTAL

| | |
|------------------------|----------------------------------|
| Temperature range | -30°C to +45°C / -22 °F to 108°F |
| Operating humidity | 0 ... 100 %RH (non condensing) |
| Housing classification | IP67 |
| Shocks & vibration | ISTA / FEDEX 6A |
| Safety | Class 1M IEC/EN 60825-1 |
| Compliance | CE |

TRANSPORTATION

| | |
|--------|--|
| Size | System : 543 x 552 x 540mm Transport case : 685x745x685mm |
| Weight | System : 45 kg Transport case : 21 kg |

SOFTWARE/DATA

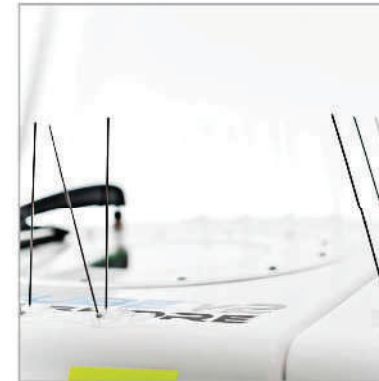
| | |
|-----------------------------|---|
| Data format | ASCII |
| Data storage | SSD and compact flash (backup storage) |
| Data transfer | LAN/USB |
| Standard WINDSOFT™ Software | Configuration & control Real time display Diagnostic |
| Output data | 1s/10min Horizontal & vertical wind speed min & max, direction, SNR Quality factor (data availability) GPS coordinates |

Lidar Technology Overview

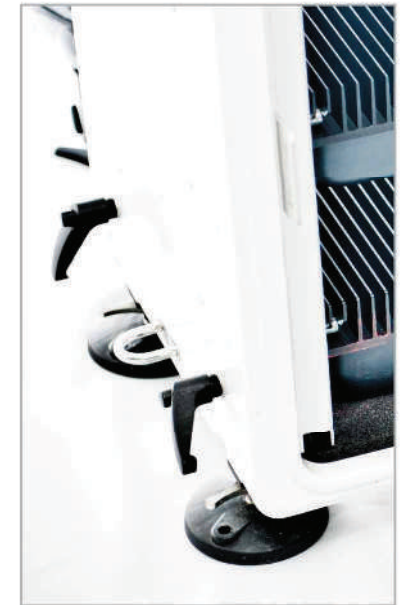
The WINDCUBE® v2 Offshore is an active remote sensor that utilizes the Light Detection and Ranging technique. Wind Lidar relies on the measurement of Doppler shifted laser light that is backscattered by aerosol particles in the atmosphere. Lidar is the only remote sensing technology to measure the absolute speed of the wind, making it the best choice to meeting the wind industry's high accuracy requirements.



WINDCUBE V2 OFFSHORE WIPER



ANTI-ROOSTING BIRD SPIKES



IP67 INTERNAL MODULES

EXTERIOR

- Salt atmosphere compliant IEC 60068-2-52
- Marine markings • Anti-roosting bird spikes
- Zinc coating protection • Marine protected wires
- IP67 enclosures





Optional Features and Services



WINDCUBE® POWER PACK M50PV

Based on fuel cell technology, the WINDCUBE® Power Pack is the ultimate solution for remote locations. This stand-alone power supply is ultra portable, environmental friendly, affordable, and available worldwide.



WINDCUBE® ANYWHERE SAT/3G

The built-in modem and universal SIM card provide a secure, web-based interface from any location. The WINDCUBE® Anywhere option features remote access to real-time data, system health monitoring, and data management.



GPS GEOFENCING SECURITY

The optional GPS security provides reliable, affordable, peace of mind. Over 100 units have been operating worldwide.

LIDAR BUOY SOLUTIONS

Several buoy manufacturers offer integrated WINDCUBE Lidar floating solutions



COURTESY OF 3E

OFFSHORE CAMPAIGN BY DEWI

The Germany Wind Energy Institute DEWI GmbH has been operating their WINDCUBE® v2 Offshore for over a year with 98% data availability, including high data accuracy on mean wind speeds.



COURTESY OF NASS&WIND

QUALITY & DELIVERY

Our optimized lean manufacturing processes allow us to deliver your WINDCUBE® v2 product with minimal lead time in a repeated quality. Continuous operation contract available, guaranteeing maximum system availability over the life of your project.

WARRANTY & MAINTENANCE CONTRACTS

- Standard 1-year warranty on parts and labor
- Standard 1-year service plan including annual maintenance
- Dedicated staff for offshore services. OPITO-approved BOSIET training certified



Customer Service & Worldwide Support

No Matter Where
Your Wind Site Is

Diagnostic support within 48 hours

v2



info@lidarwindtechnologies.com
www.lidarwindtechnologies.com