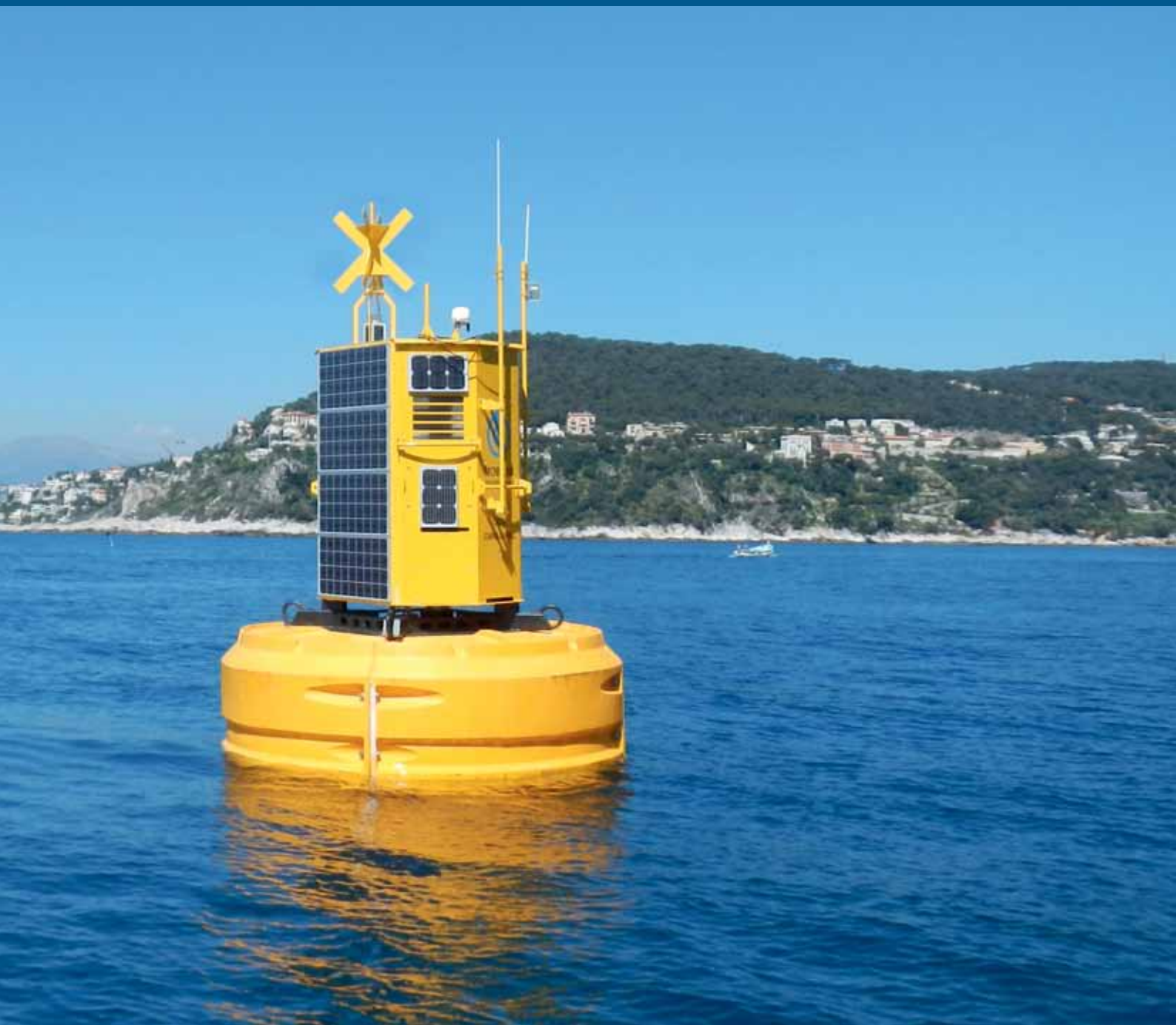
Cost-effective, Accurate
Offshore Wind Measurements

FLiDAR
POWERED BY WINDCUBE®



- **Fast design and manufacture**
- **Reduced O&M time and cost**
- **Highly accurate**
- **Proven survivability**

FLiDAR is a floating LiDAR based measurement device designed for the harshest offshore conditions. Developed jointly by leading marine and resource assessment specialists – Offshore Wind Assistance *(OWA, a subsidiary of DEME)* and 3E.

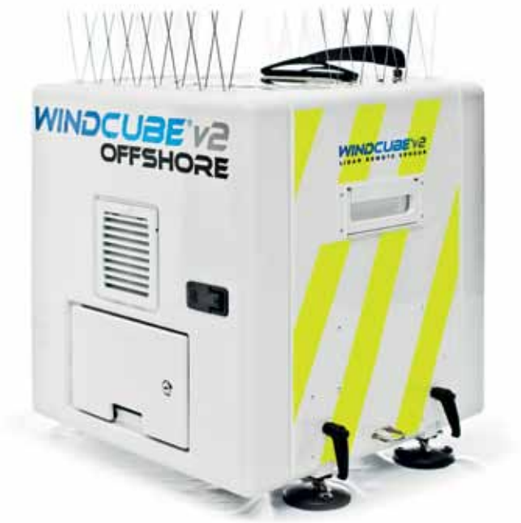
It has been successfully tested and validated in both North Sea and Irish Sea conditions *(15 km offshore)* and has proven very high accuracy and availability levels.

FLiDAR is made up of an offshore WINDCUBE® v2 LiDAR mounted on an industry standard buoy and powered by an autonomous renewable energy *(PV + wind)* system. A mechanical stabilisation unit and advanced correction algorithm ensures maximum stability and excellent measurement data accuracy.

FLiDAR can be deployed in a single day and can provide crucial data throughout project development.

REFERENCES

DONG energy | CARBON TRUST | MAINSTREAM RENEWABLE POWER | RWE The energy to lead

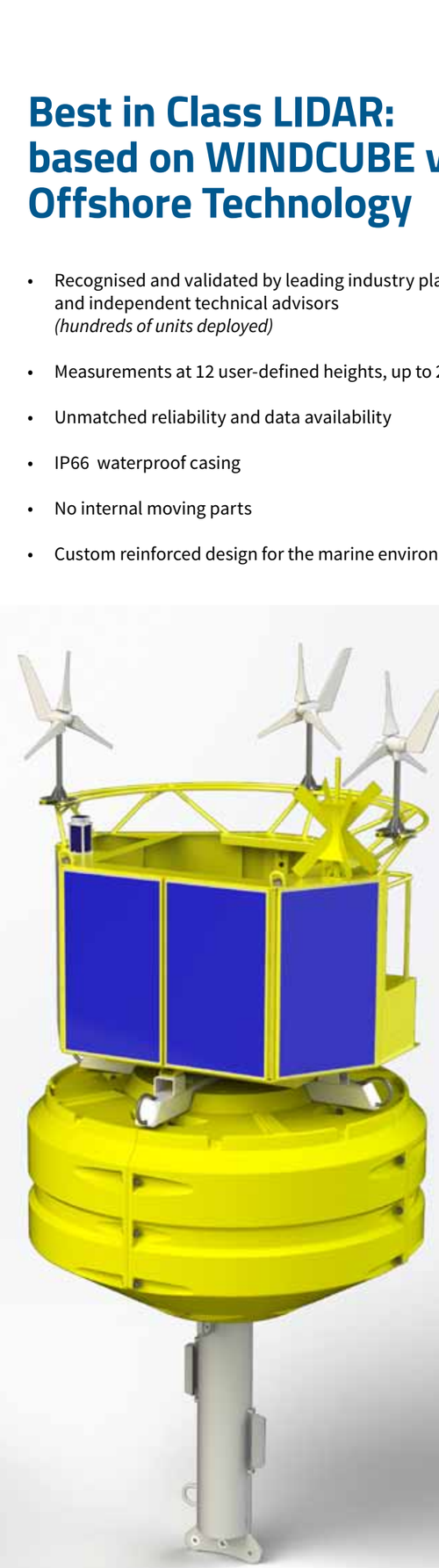


Best in Class LIDAR: based on WINDCUBE v2 Offshore Technology

- Recognised and validated by leading industry players and independent technical advisors *(hundreds of units deployed)*
- Measurements at 12 user-defined heights, up to 200 m
- Unmatched reliability and data availability
- IP66 waterproof casing
- No internal moving parts
- Custom reinforced design for the marine environment

Exceptionally Accurate, Robust and Reliable

- Passive mechanical stabilising system and an online correction algorithm deliver very high accuracy in real offshore conditions
- Standard marine buoy with successful track-record *(hundreds of deployments)* in all kinds of weather conditions
- Flexible and secure mooring arrangement to allow deployment in all water depths
- Offshore-specific components
- State-of-the-art monitoring, control and communication systems



Product Specifications

NON CONTRACTUAL

WIND MEASUREMENTS

Measurement Height Range	40 to 200m *(Exact Range Gate programmable depending on user requirements and sea conditions)* plus ultrasonic wind sensor on deck
Number of Programmable Heights	12
Wind Speed Range	0 to +55m/s *(Exact Wind Speed Range depends on sea conditions)*
Wind Speed Accuracy	< 2%
Wind Direction Range	0 to 360°
Wind Direction Accuracy	< 5°
Atmospheric Pressure	600hPa to 1100hPa *(accuracy of ±2hPa)*
Humidity	0 to 100%
Data Sampling Rate	1Hz
	1s and 10 minute horizontal wind speed *(at each measurement height)*
	Maximum; Minimum; Average; Standard Deviation *(10 minute data)*
	Data Availability
	GPS Coordinates
	Air pressure, Air temperature, Relative humidity
Laser Eye Safety	Class 1M IEC/EN 60825-1

POWER SYSTEM

	Stand-alone/Autonomous Renewable Energy-based Power System
PV Panels	4 x 250W PV Panels
Micro-Wind Turbines	3 x 200W Micro-Wind Turbines
Energy Storage	Battery pack to provide redundancy – adapted to location
Autonomy	At least 7 days

TELECOMMUNICATIONS SYSTEM

Data Transfer Protocol	GPRS/Satellite/LAN/WiFi
10 Minute Average Wind Data	Automatic File Transfer by GPRS/Satellite
	(1 file per day -previous calendar day measurement period)
High Frequency Wind Data	Locally stored on non-volatile memory *(on-board PC)*
	Accessible remotely via GPRS/modem dial-up connection or WiFi
Data Format	ASCII
Data Storage	SSD and Compact Flash *(back-up storage)*
Warning Detection and Notification	Data Availability
	Loss of Data Communication
	GeoFencing *(Drift Alert)*
	Electrical System
	Battery State of Charge + other *(humidity, temperature)*

BUOY STRUCTURE

Dimensions	4m x 4m x 6m *(3m above / 3m below the water line)*
Weight	8 tonnes
Operational Water Depth	5m to 50m *(Greater depths can be accommodated by adapting mooring arrangement)*
Colour	RAL 1003 Signal Yellow

Photo: courtesy of Mobilis

CONTACT US
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LEOSPHERE | OWA Offshore & Wind Assistance | 3E www.3E.eu