

ZephIR Lidar



ZephIR 300M

ZephIR 300 Marine is bankable,
and fully-marinated for use by you



The industry's most validated wind lidar¹ for ground-based, 10 metre to 200+ metre wind measurements ideal for site resource assessment, power curve measurements and bankable Annual Energy Prediction (AEP) campaigns at the lowest cost of lidar ownership available with no requirement for annual servicing or calibration within the 3 year service period.

¹Over 500 performance validations against a consistent, IEC compliant met mast site

3 years continuous use offshore

ZephIR 300M is fully-marinated, designed specifically for use offshore, and in addition to the extensive 3 year service life includes, as standard:

Multi-layered, highly insulated, plastic moulded lidar housing, with additives to provide high UV stability and improved marine growth resistance

Highest grade of marine connectors available for all peripheral items, 2000+hrs salt spray tested

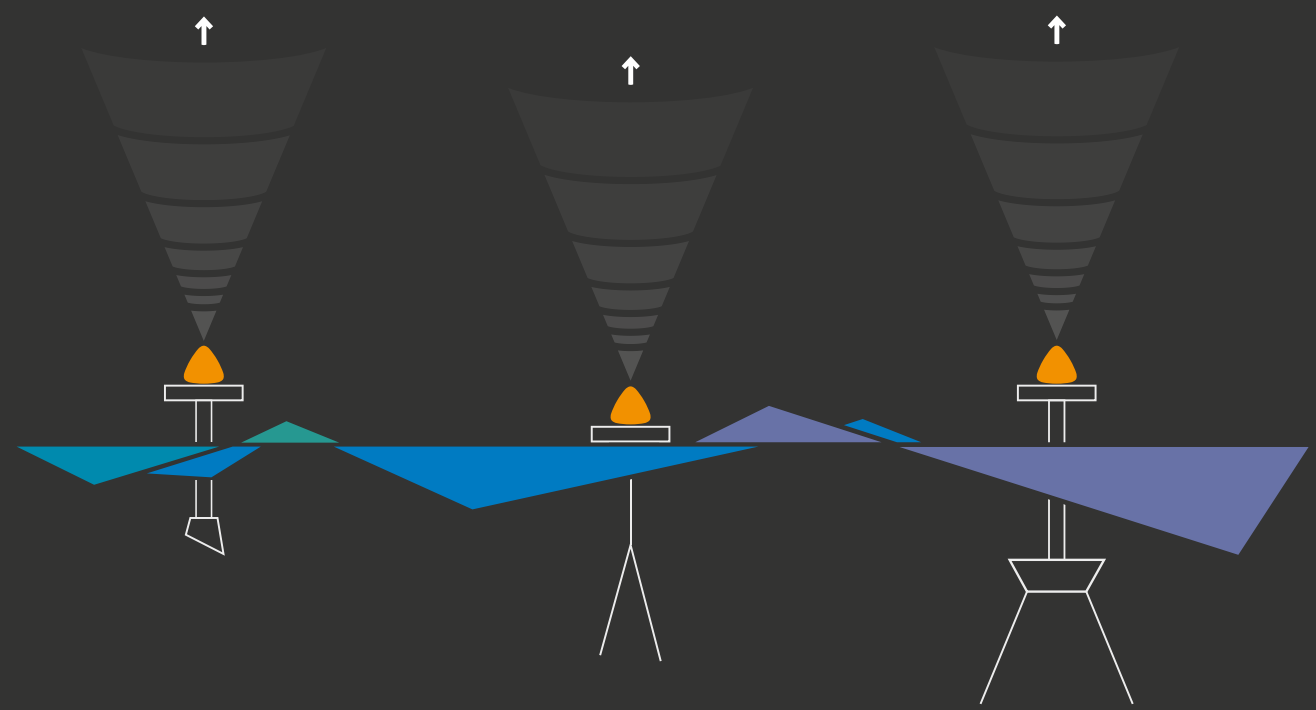
Custom stainless steel frame to allow for ease of handling and efficient securing to any platform surface

Marine MET station with improved yaw determination, for floating offshore platforms

Fully stainless steel window wiper system with silicone blade

External cooling system / air movement fans upgraded to IP68

resource assessment offshore



Offshore: fixed platform

Offshore: floating platform - buoy

Offshore: floating platform - tension leg

90% of floating wind lidar platform manufacturers choose ZephIR for resource assessment offshore.

On fixed platforms, technical advisors DNV GL and Natural Power place equivalent accuracy and uncertainty results from an energy prediction based on data from ZephIR 300 mounted on a stationary offshore platform as from an energy prediction based on data from a conventional offshore hub height met mast.

Economic savings can also be realised in the area of offshore wind resource assessment in addition to overcoming practical challenges where met masts are not a viable option. And, with ever larger turbines offshore the need to understand the full swept area wind characteristics / resource becomes increasingly important.

specification

DATA HEADING	UNIT	EXPLANATION
Reference	-	Numerical reference of each record
Time and date	-	In text format, to the nearest second
Timestamp	Seconds	Time and date of the reading as numerical value in seconds
Info. flags	-	Operational mode information
Status flags	-	Internal ZephIR status
Battery	Volts	Internal battery voltage
Generator	Volts	External supply voltage, if present
Upper temp / lower temp	Degrees Celsius	Pod temperature
Pod humidity	Percent	Internal ZephIR humidity
GPS	Decimal Degrees	GPS location (lat and long)
ZephIR bearing	Degrees	Direction of the ZephIR wrt True North
Tilt	Degrees	Pitch and roll away from vertical
Air Temp.	Degrees Celsius	Ambient temperature
Pressure	Millibar / Hectopascals	Ambient pressure
Met station wind speed	Metres per second	Horizontal wind speed measured by the Met station
Met station direction	Degrees	Wind direction measurement by the Met station
Raining	-	Rain sensor detects rain
Horizontal wind speed	Metres per second	Horizontal wind speed measured by ZephIR
Vertical wind speed	Metres per second	Vertical wind speed measured by ZephIR
Horizontal min / max	Metres per second	Minimum / maximum horizontal wind speeds measured by ZephIR
TI	-	Turbulence Intensity

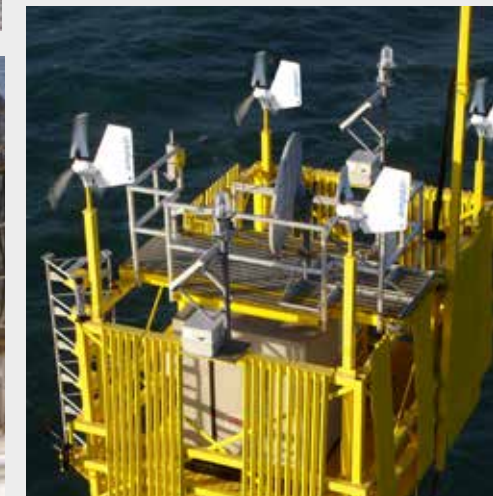
PERFORMANCE	ZephIR 300M
Range (min.)	10 metres
Range (max.)	200 metres
Probe length @ 10 m	± 0.07 metres
Probe length @ 100 m	± 7.70 metres
Heights measured	10 (user-configurable)
Sampling rate	50Hz
Averaging period	user configurable (1 second as standard)
Scanning cone angle	30° (other angles available)
Speed accuracy variation*	< 0.1 m/s
Speed range	< 1 m/s to 70 m/s
Direction accuracy variation*	< 0.5°

OPERATIONS	ZephIR 300M
Temp range (min.)	-40°C
Temp range (max.)	+50°C
Power consumption	69 Watts**
Power input	12 V
Weight	45 kg
Service interval	36 months

DATA	ZephIR 300M
10 minute averaging	90Kb / day
1 second data	3MB / day
On board storage	36 months
Data transfer	LAN; MODBUS; WIFI; Global SIM; Sat Comms
Timestamp / Location	GPS

SAFETY	ZephIR 300M
Laser classification	Class 1 Eye Safe
Eye safety standard	IEC 60825-1
IP Rating	IP67
Compliance	Full CE accreditation

* As measured against a calibrated moving target. ** In off-grid, DC power situations, excluding any convertor losses and in standard climates. Always refer to manufacturers guidelines on power before specifying 3rd party power solutions. Alternatively use the ZephIR Power support package.



experience, unmatched

No other wind lidar device matches our experience offshore.

Beatrice platform, North Sea	2005
Horns Rev, North Sea	2006
Fino 1, North Sea	2006
NaiKun, Hecate Strait	2006
TME, Italy	2008
Cleveland Crib, Great Lakes	2009
DWW, US	2009
Fino 3, North Sea	2010
Robin Rigg, Solway Firth	2010
RWE (ECN/SSC), Germany	2010
EDF, Teeside	2010
Oriel, Ireland	2010
Saorgus, Dublin Array	2011
NaRec, UK	2011
CLP, Hong Kong	2011
Fugro Oceanor SeaWatch, Norway	2011
BNET, China	2011
ECN Fixed Mast platform, North Sea	2011
Fugro Oceanor SeaWatch, Norway, North Sea	2011

RWE, NSO platform, North Sea	2011
Forewind Cavendish Platform, North Sea	2011
ECN Fixed Mast platform, North Sea	2012
Energia2020 Gas Platform, Med Sea	2012
BNET, China	2012
RWE, NSO platform, North Sea	2013
Babcock Spar Buoy, Gwynt y Mor, Irish Sea	2013
SSC Fixed Platform, North Sea	2013
Firth of Forth	2013
Fugro Oceanor SeaWatch, Norway, North Sea	2013
RWE Mast, Gwynt y Mor, Irish Sea	2014
NaRec Fixed Platform, North Sea	2014
Fugro Oceanor SeaWatch, Norway, North Sea	2014
Confidential, Scottish Waters	2014
SeaRoc Fixed Buoy, New Jersey	2014
Bell Rock Lighthouse, Dundee	2014
Siemens Offshore Wind Farm	2015
AXYS WindSentinel, Offshore Wind Farm	2015
FloatMast, Greece	2015


"Equivalent accuracy and uncertainty results can be obtained from an energy prediction based on data from ZephIR 300 mounted on a stationary platform as from an energy prediction based on data from a conventional offshore hub height met mast." - DNV GL



we are wind lidar

For over ten years ZephIR Lidar has been providing high-resolution wind measurements onshore, offshore - on both fixed and floating platforms - and mounted on wind turbines for wind energy and meteorological applications globally.

All with the original wind lidar product family ZephIR 300, ZephIR DM and now ZephIR 300M.



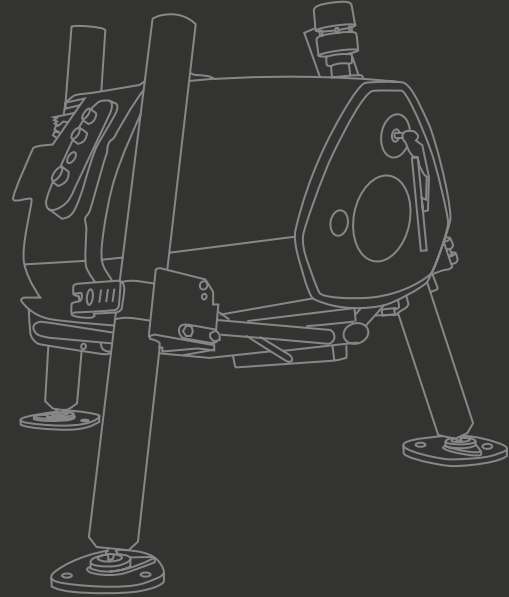
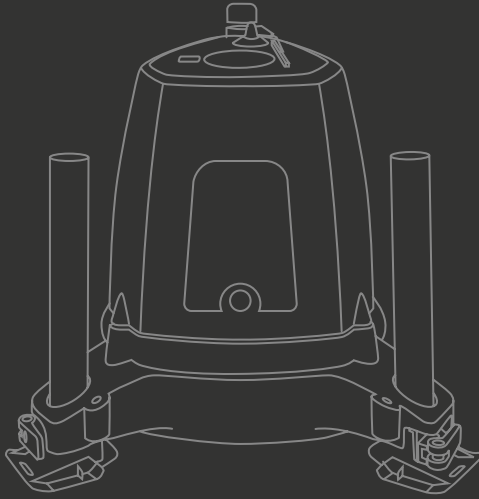
continuous wave wind lidar

At the heart of ZephIR 300, ZephIR 300M and ZephIR DM lives one of the most robust and sensitive continuous wave lasers available.

And that's important because it let's us give you an extensive service period helping to reduce your operational costs, a wind data point every 20 milliseconds to 'freeze' any motion encountered when mounted on turbines or on floating buoys, full rotor scanning for turbine upwind characteristics expected in forthcoming IEC guidelines, and 50Hz data capture for true 1 second measurements.

Not all lidars are the same, ours is easy to remember though -

**extensive warranty, DNV GL Stage 3,
3% lower energy uncertainty than an IEC onshore met mast
at an equivalent cost over 3 years
and has 3 legs.**



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