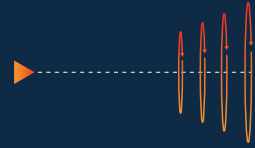


Wind speed at light speed

 **ZXLidars**

Product Guide 2021



Turbine-mounted wind measurements from horizontal profiling Lidar

The only Lidar to measure the full shear and veer wind profile of a wind turbine. Accurately and automatically detect complex flow conditions such as wakes. Operate in all environmental conditions with market-leading Lidar sensitivity. Compensate for turbine movement automatically for accurate measurements above ground level, e.g. hub height.

ZX TM at a glance:

- Remotely measure the wind ahead of wind turbines from 10m to 550m.
- See a turbine's true potential with an independent Power Performance Measurement.
- Remove cup anemometer or Nacelle Transfer Function uncertainty or calibration issues.
- Application and campaign-focused User Interface ensuring ease of data handling.
- Standard industry-accepted methodologies and measurements for: Power Curves, Nacelle Transfer Function calibration including Yaw Alignment, and Wake Detection.
- Extensive 3 year service period ensuring the lowest cost of through-life ownership.
- Suitable for installation on all major turbine platforms.
- Approved by Siemens Gamesa Renewable Energy and other leading OEMs for Power Performance Testing.



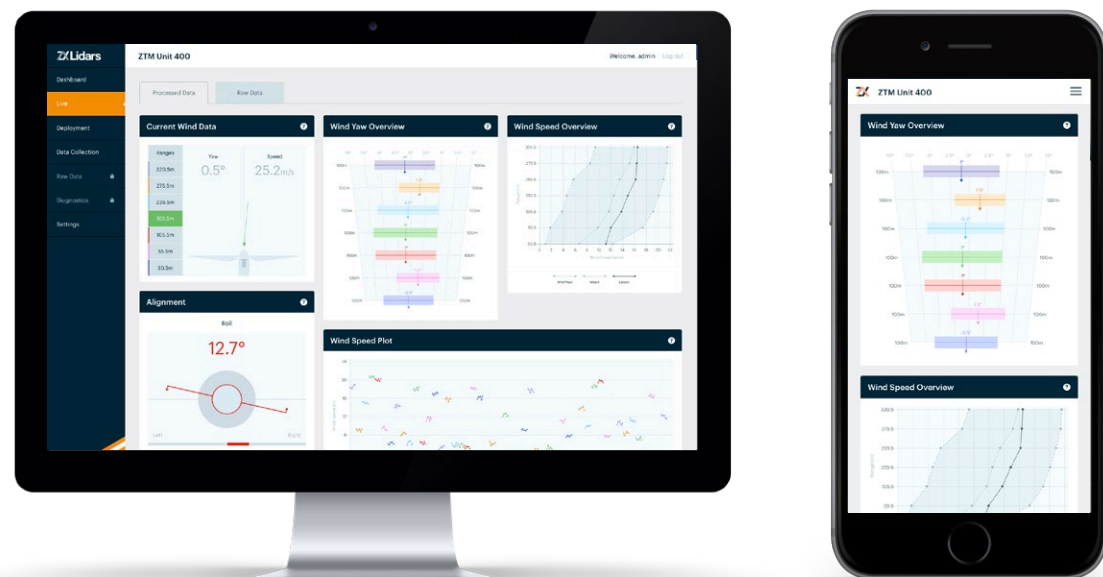
Optimise wind turbines, wind farms and wind projects

Improve the Levelised Cost of Energy of a wind farm by:

- Producing more energy for the same cost.
- Reducing operating costs for the same production.
- Increasing project value with more certain wind measurements.

ZX TM features include:

- Lidar Control Unit (LCU) mounted in the nacelle, and a Lidar Optical Head (LOH) mounted on the Turbine Integration Kit (TIK) which is mounted on to the nacelle roof.
- 17 Horizontal measurement ranges and up to 13 Vertical Slices at each range – the most comprehensive measurement capability of any Lidar, delivering Rotor Equivalent Wind Speed and Slices for IEC Power Curves.
- High Lidar directional positional accuracy on turbine essential for any set point changes relative to rotor alignment using unique patented auto-alignment technique in addition to roll / inclination sensors on board.
- Extensive 3 year service life as standard.
- High availability with all laser energy focused at each measurement range, with low susceptibility to turbine blades due to short measurement integration time (50Hz).
- “Application mode” software helping you to define Key Performance Indicators, campaign duration and to include turbine parameters, in addition to the initial installation and easy configuration of the Lidar.



ZTM Specification

Measurements

Configurations	3" Lidar optical head, 15 or 30 degree half-angle scan 17 horizontal ranges with configurable dwell times 13 vertical slices at each range across the rotor disk
Wind characteristics	Wind speed, shear, veer, wind yaw misalignment, turbulence, rotor equivalent wind speed (REWS), windflow complexity
Scan & Data sample rate	Full rotor scan for REWS measurement 50Hz / 20ms measurements
Speed range	0.5 - 45 m/s (wind loading survivability up to 70 m/s)
Accuracy	Wind speed, 0.1 m/s Wind direction, 0.5°
Measurement range	10m - 550m

Product

Weight	Lidar Optical Head (LOH): 20 kg Lidar Control Unit (LCU): 29 kg Turbine Integration Kit (TIK): 35kg
Size	LOH: 356 x 285 x 823 mm LCU: 209 x 513 x 630 mm Cable length: 10 m
IP Rating	LOH: IP 66 LCU: IP 65 Salt resistant, IEC 60068-2-52 Marine atmosphere compliant Operating humidity 0 to 100% RH
Ambient temperature range	LOH: -30 to 50°C / LCU: -40 to 60°C
Warranty / Maintenance	3 year warranty as standard No factory maintenance or calibration required during 3 year service period
AC Power	Standard climate (0 to +40°C): 94 W Hot climate (+40 to +60°C): 180 W Cold Climate (-40 to 0°C): 275 W
Compliance	Class 1 Eye Safe Infrared Laser, IEC60825-1
Mounting	Wind turbine nacelle, platform or ground mounted

Access

Interfaces	Ethernet (LAN) M12 or RJ45 (adaptor cable) WLAN 802.11 Modbus (TCP) Cellular modem (optional)
Data storage	24 months
User interface	Web-based interface via laptop, mobile or tablet (see opposite)
Data outputs	CSV Files Compressed (Optionally Encrypted)
Timestamp	GPS, Local time offset, NTP

**Your Lidar adventure starts today
by speaking to ZX Lidars.**

Email sales@zxlidars.com

Call +44 (0) 1531 651 000

Web ZXLidars.com

Office The Old Barns, Fair Oaks Farm, Hollybush, Ledbury, HR8 1EU, UK

ZX Lidars is a registered trademark of Zephir Ltd.
Our Registered Office is The Greenhouse, Dalry, Castle Douglas, DG7 3XS, UK.
Registered No. SC317594. VAT No. GB243692648

The logo for ZX Lidars, featuring the letters 'ZX' in a stylized, bold font with three parallel diagonal lines to the left of the 'X', followed by the word 'Lidars' in a clean, sans-serif typeface.