Wind iris

Turbine Performance Lidar

Avent Lidar Technology is a joint investment of

RENEWABLE NRG SYSTEMS

LEOSPHERE

avent Lidar Technology

TURBINE-MOUNTED LIDAR SOLUTIONS

Wind iris

Wind measurements made profitable

You cannot control the wind, but you can control what you get from it. Knowing the real wind conditions enables you to make the right decisions to extend the reliability and economical performance of your wind farm. The Wind Iris™ provides you with this knowledge and control.

What about Lidar assisted turbine control?

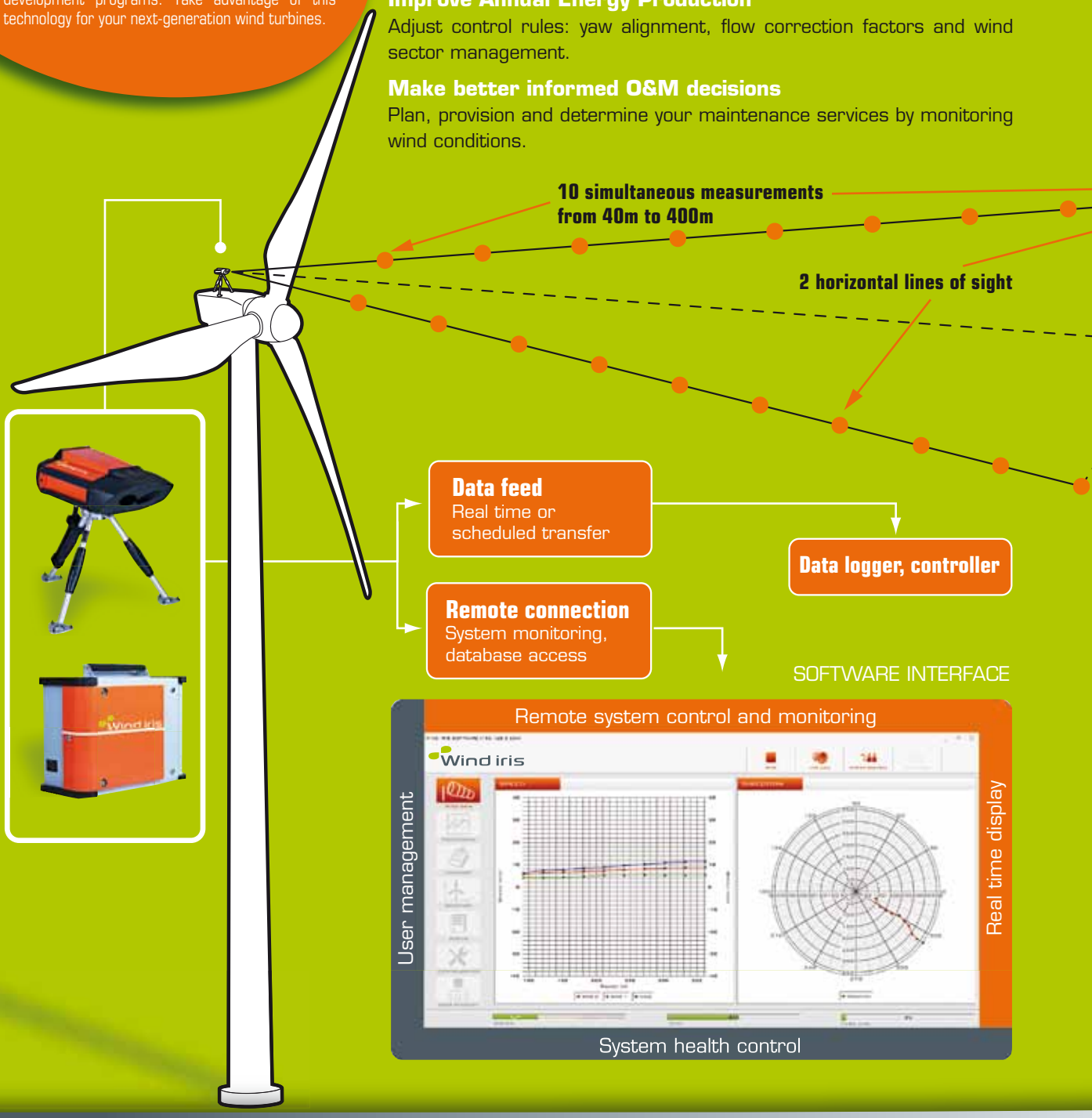
Avent develops integrated solutions for turbine manufacturers, with a deep operational experience and understanding of Lidar-assisted turbine control development programs. Take advantage of this technology for your next-generation wind turbines.

Optimize and protect your asset

Detect under performance
Fast turbine testing, proven IEC 61400-12-1 equivalent power curves without a mast – ideal for offshore.

Improve Annual Energy Production
Adjust control rules: yaw alignment, flow correction factors and wind sector management.

Make better informed O&M decisions
Plan, provision and determine your maintenance services by monitoring wind conditions.

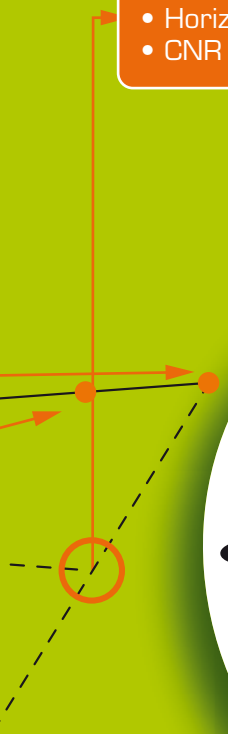


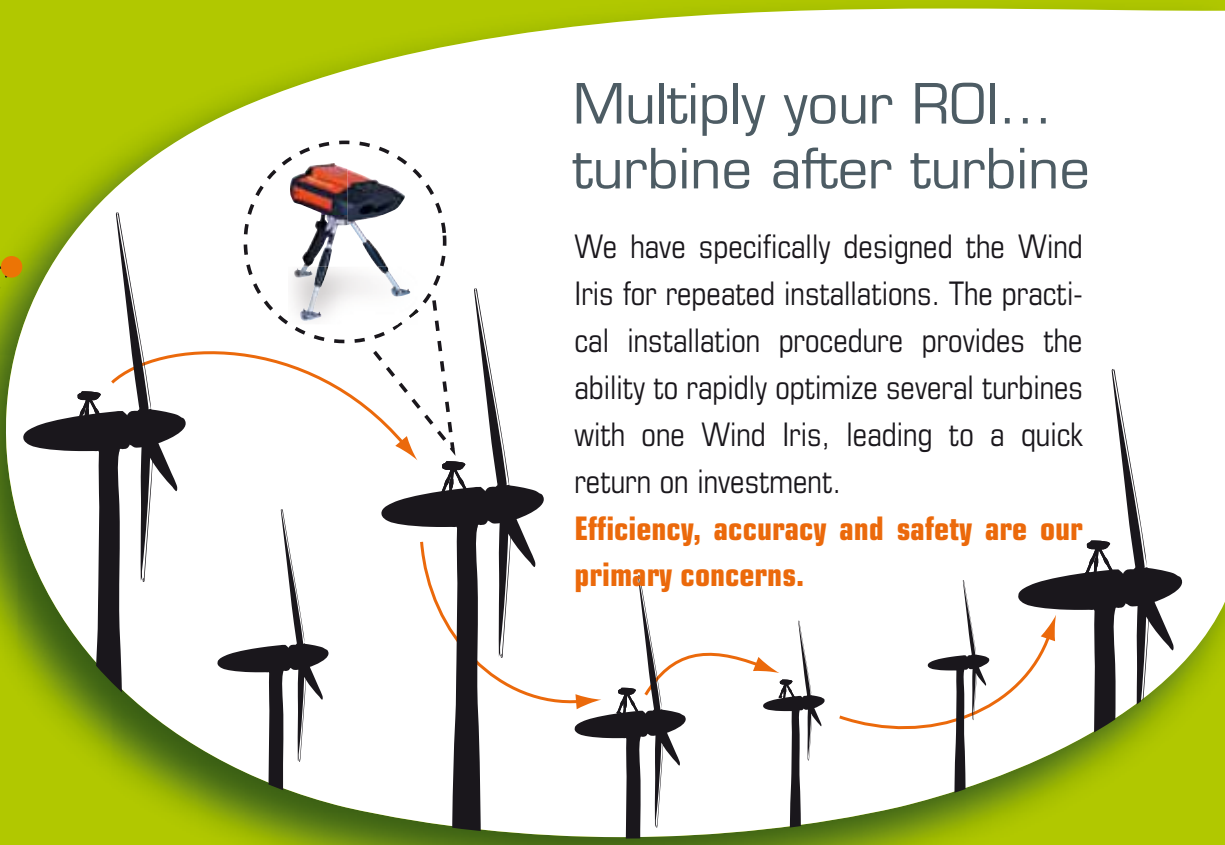
Lidar technology, one step higher

The Wind Iris is based on Leosphere's leading WINDCUBE® pulsed Lidar technology, and is the first remote sensor dedicated to turbine-mounted measurements. It measures the horizontal wind speed and direction from 40m to 400m upwind of the turbine. Real time and average data can then be transferred automatically or stored in a data logger.

Wind Iris data

- Horizontal wind speed and direction
- CNR (signal to noise ratio)
- Tilt and roll angles
- Timestamp
- Radial wind speeds
- Range





Multiply your ROI… turbine after turbine

We have specifically designed the Wind Iris for repeated installations. The practical installation procedure provides the ability to rapidly optimize several turbines with one Wind Iris, leading to a quick return on investment.

Efficiency, accuracy and safety are our primary concerns.

½ day installation in 4 steps

1. Lift

Compact size allows for the use of the wind turbine's crane.

2. Handle

Ergonomic handles and rigging points ensure safety.

3. Position

Flexible tripod for easy installation on any turbine.

4. Align

Integrated level and laser lines for precise alignment of tilt, roll and yaw.

Technical specifications

Functional

	Accurate performance monitoring mode	High frequency turbulence and control mode
Range	80 to 400 meters	40 to 200 meters
Probed length	60 meters	30 meters
Data sampling rate	1 - 2Hz	1 - 4Hz
Laser source	Fiber pulsed laser 1,54µm	
Number of measuring distances	10	
Speed accuracy	0.1m/s	
Speed range	-10 to +40m/s	
Direction accuracy	+/- 0.5°	
Opening angle	15° half angle (30° upon request)	
Leveling accuracy	+/- 0.05°	
Window cleaning device	Patented non-mechanical wiper	

Operational

Optical Head	L81cm, W54cm, H33cm	30kg
Processing Unit	L71cm, W33cm, H59cm	37kg
Tripod	Hmin 68cm, Hmax 82cm	15kg
Cable length	7 meters	
Temperature range	-30°C to +60°C	
Operation humidity	0 to 100% (splash water and marine environment resistant)	
Power supply	120 - 240VAC (50/60Hz)	
Power consumption	350 Watts	
Communication ports	CAN Bus, RJ45	
Communication protocol	TCP/IP, CAN	
Data storage	> 6 months (128 GB SSD)	
	MySQL database access	

Contact us to discuss which configuration is best for you!

Options

3G Modem

Remote access to the Wind Iris from any location

CAN Bus

Customization and other interfaces upon request

Warranty extensions

Up to 3 years for peace of mind

Longer cable

10m to provide additional flexibility for larger turbines

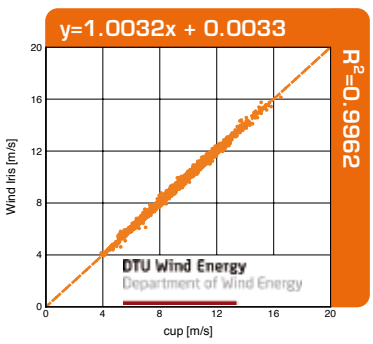
Quality commitment

We have implemented a Quality System that documents our R&D, Manufacturing and Customer Service practices. This ensures our customers and partners that our products and services comply with international regulatory certifications and consistently meet our standards of excellence.

Certifications

Eye safety	›	IEC 60825-1
Housing	›	IEC 60529, IP65 (optical head), IP64 (processing unit)
Shocks & vibrations	›	IEC 60068-2
EMC & Lightning	›	IEC 61326-1, IEC 62311, IEC 61000-4, FCC part 15
Electrical safety	›	IEC 61010-1
Other tests completed	›	Wind tunnel test, cold temperatures, snow, freezing rain

Download full studies and find out more at aventlidartechnology.com



Validation of the Wind Iris against IEC 61400-12-1 met mast[1]

[1]Nacelle Lidar for power curve measurement: Avedøre campaign, R. Wagner et al., DTU Wind Energy Technical Report.

Key Features

- 400m range with the accuracy of a class 1 anemometer
- High reliability design with no moving parts
- ½ day installation on any turbine
- Flexible Lidar modes for every site requirement
- Reduced power curve uncertainties without a mast

Wind iris

Customer Service

Our certified engineers provide support during every step of your project: training of your team, engineering assistance on installation, remote monitoring of your fleet… We will help you define the best maintenance program for your needs.

They trust us

Through collaborative partnerships, we strive to advance the industry by developing innovative and dedicated solutions, from high-quality instrumentation to fully integrated systems.

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Want to know more about the Wind Iris or discuss a specific Lidar project?

Reach us at contact@aventlidar.com or call us at +33 (0) 181 870 730

Visit : www.aventlidartechnology.com

About us

Avent Lidar Technology is a privately held company formed to develop and manufacture Lidar-based, wind turbine-mounted systems worldwide.

avent Lidar Technology

Avent Lidar Technology is a joint investment of

LEOSPHERE

Lidar environmental observations specialists
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