

NEW PRODUCT

GEOVANE FOR TURBINES



High precision yaw adjustment for wind turbines

TRUE NORTH ORIENTATION



YAW ANGLE FROM TRUE NORTH

The Geovane for wind turbines, Geovane WT™ enable wind turbine manufacturers and wind farm operators to accurately determine the yaw alignment (True North orientation). Suitable for both active wake control and advanced sector management.

In the wind energy industry, there is a clear need for more accurate orientation of wind direction sensors to precisely determine the wind direction uncertainty during the development of a wind farm. **Since 2017, we have catered some of this need and successfully manufactured and supplied Geovanes for precision alignment of wind vanes for wind resource assessment as well as power performance studies.**

During that time period we have also received numerous requests from the industry to adapt the Geovane for it to be used on wind turbines, more precisely in wind plant optimization (wake control and sector management). **We have listened to these requests and now have the Geovane ready for mounting on wind turbines. We have called it Geovane WT™.**

FOR ACTIVE WAKE CONTROL AND ADVANCED SECTOR MANAGEMENT

Wind turbine manufacturers and wind farm operators can now take full advantage of the Geovanes unique ability to precisely determine True North using the position of the sun. The Geovanes patented design is equipped with high-resolution optoelectronic sensors composed of 2048 photo sensing pixels and is installed in the back of the turbine nacelle, together with the rest of the sensors that control the turbine. This offers a state-of-the-art approach for aligning wind turbines with respect to True North. Precision orientation of the wind turbine's nacelle with respect to True North presents several advantages for both active wake control (optimal alignment or misalignment angles) as well as advanced sector management.

Wind turbine control is essential for optimal performance, safe operation, and structural stability and given that wind turbines within a wind farm impact each other's power production and

loads through their wakes, knowing the exact yaw alignment of your turbines has become ever more important for wind farm optimization.

As wind turbines extract energy from the air stream, a slower, more turbulent flow trails behind their rotors, called the "wake". In wind farms, wake interaction leads to losses in power capture and accelerated structural degradation when compared to freestanding turbines.

One method for active wake control is called wake redirection control and consists of steering the wakes away from downstream wind turbines. Wake redirection can be achieved by operating the wind turbines with a yaw misalignment. To know your yaw alignment (and therefore yaw misalignment) at all times, wind turbines all need to use the same reference point for alignment. **This can now be achieved by using the Geovane WT™.**

For more information please contact export@kintech-engineering.com or visit our website www.kintech-engineering.com

