

OneView[®] Foundation Monitor



SOFTWARE SOLUTIONS



HARDWARE SOLUTIONS



CONSULTING



INSTALLATION AND COMMISSIONING



VALUE ADDING SERVICES





Foundation Monitor

The patented Foundation Monitor Kit from SCADA International is a unique invention that delivers reliable early warning signals about emerging foundation problems for on-shore and off-shore wind turbines. The solution delivers the ability to spot those turbines that show abnormal vertical movement and need to be stopped and/or have a physical inspection. The movement will occur in case of defective foundations or foundations that are not properly anchored into the ground.

How it works

The logic of the system is to measure the vertical movement (tilt) of the tower by using the principal of pendulum. A cylinder enclosed pendulum is mounted to the tower wall and three sensors in the bottom of the OneView® Foundation Monitoring Kit measure the vertical movement. To reduce the effect of tower vibrations and other "noise", a minor amount of oil is added to the bottom of the solution.

When installing the system, a tower specific calibration is carried out in order to make it possible to rule out any construction born tilt. An algorithm placed in PLC program, based on the input from the three sensors, defines the vertical movement of the tower. A central main PLC is placed in one of the towers, and it monitors foundation movements locally, but also monitors additional distributed I/O modules in other towers via a local network.

Interface to SCADA system

The combination of a pendulum, three separate sensors, a strong logarithm program and a central main PLC placed locally secures accurate and timely data. The data are highly accessible through a standard interface.

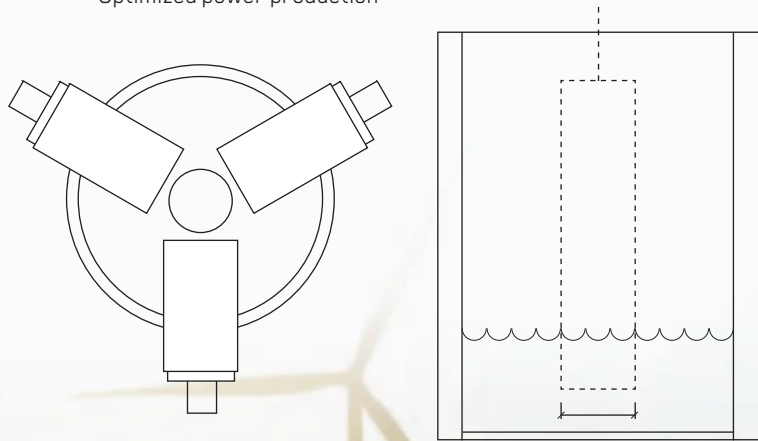
The monitoring system can be connected via interface to SCADA International's OneView® SCADA system or another SCADA system preferred by the customer.

Features

- Continuous monitoring of the vertical movement by pendulum and 3 sensors
- Algorithm placed in PLC program, defines the vertical movement of the tower
- Central PLC is physically placed in one of the towers but also additionally distributed I/O modules in other towers via network
- Via standard interface connect to hosted OneView® SCADA system of customers' SCADA system
- Ability to use Predictor and Virtual Events from OneView® to detect high risk towers and set up automatic alarms

Benefits

- Unique patented invention
- Accurate and timely data
- Reliable early warning signals
- Data accessible through standard interface
- Preventive maintenance and reduced service costs
- Optimized power production



Turning data to decision support

If data from the Foundation Monitor are explored by the Predictor and Virtual Event modules in OneView® SCADA they are turned into decision supporting information. The Predictor module can monitor tower tilt for comparable turbines and detect tilt outliers and automatically send alarms to relevant persons.

By adding the Virtual Events module in the OneView® SCADA system, a turbine or turbine type specific alarm setup can be configured. The Virtual alarm setup can take into account all tilt relevant information in the SCADA system e.g. the turbine physics, the soil where the tower stands, power production, wind speed and wind direction and data from various sensors. All this combined with easy installation means that the patented Foundation Monitor delivers a high value for the investment involved.



We share your passion for green energy

Since its foundation in 2006, SCADA International has grown to be a leading solution provider within the global renewable energy industry. With an extensive track record and deep roots in the Danish wind heritage our services span the entire value chain including SCADA Hardware Solutions, Software Solutions, Installation & Commissioning, Consulting and Value Adding Services.

Headquartered in Denmark, SCADA International employs close to 100 wind and SCADA specialists at offices in Germany, Poland, Ukraine, United Kingdom and USA. The company is certified according to ISO 9001, ISO 14001 and OHSAS 18001.

Why our customers choose SCADA International

An increasing number of companies in the renewable sector in Europe and North America choose SCADA International as their partner when it comes to SCADA systems and SCADA installation, surveillance, support and maintenance.

When choosing SCADA International you get solutions that are:

- Made for the renewables
- Customized
- Scalable
- Open
- Reliable
- And support your business model

Company references

- Afaplan
- Aldesa Nowa Energia
- Centrica Renewables Energy
- DONG Energy
- E.ON
- EDF Energies Nouvelles
- Enel
- Energia Renewables
- Eneria
- ESB International
- Eurowind Energy
- GE Wind Energy
- Nexus Energie
- Nordex
- Ostwind
- PGE Energia Natury
- RegEnPro
- ScottishPower
- SEMCO Maritime
- Senvion
- Siemens
- STEAG New Energies
- Suzlon Energy
- TransAlta Corporation
- Vestas
- VATTENFALL
- WKN AG

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