SMS Guard™

Autonomous, retrofittable sensor kit for wind turbines

Technical Data Sheet

SMS Guard™ is a simple to install instrumentation package that enables continuous integrity monitoring of offshore wind turbines. SMS Guard™ gives operators full control of the loads acting on- and the motions of the tower and sub-structure. The data can be used for continuous integrity monitoring and early detection of anomalies both in the turbine itself, in the tower and substructure and the seabed support of the substructure.

In addition to live integrity monitoring, the data can be used by operators to maximise the operating life of offshore wind turbines and to optimise the design of future wind turbines, thus reducing LCOE considerably. The SMS Guard™ is a true IoT solution where all data is made available through an open API, enabling cloud computing and collaborative data analytics.

Key Benefits

- Live integrity monitoring of bottom fixed wind turbines
- Load and fatigue monitoring of the tower and substructure
- Continuous monitoring of substructure – seabed interaction
- Automatic detection of turbine anomalies
- Data made available through open APIs enabling data analytics and collaboration

Key Features

The system is typically installed immediately above the cable hang-off deck however, the exact elevation of the system is not critical for its functionality. The installation entails a small cabinet containing a 6-axis inertial motion unit and 4 strain sensors that are placed at 90 degrees intervals around a cross section of the tower structure. The system only requires a single power supply and either WiFi or LAN connection and will then automatically start streaming of measurement data. Once connected the operator will get immediate access to a set of standard integrity monitoring dashboards showing:

- Bending moment at the cross section where the system is installed
- Horisontal accelerations at the sensor elevation
- Rotational rates at the sensor elevation

All the above parameters will be plotted and correlated with wave height and wind speed based on satellite monitoring of the region. More advanced monitoring such as monitoring of seabed stiffness and damping, response frequency monitoring and structural fatigue can be added upon request.

4Subsea helps operators reduce cost of operations and maximise life of assets using autonomous sensors in combination with data analytics and specialist engineering competence. Products in the Smart Monitoring Sensors (SMS) range are SMS Motion™, SMS Strain™, SMS Magic Hand™, SMS Gateway™, SMS ComCentral™, and SMS Guard™. Technology applications include monitoring of wellhead integrity, risers, mooring lines, subsea spools and manifolds, as well as monitoring of pipelines and subsea structures for oil & gas and offshore wind sub-structures.
Subsea is a leading provider of technology and services that help operators maintain production from subsea oil and gas fields and offshore wind farms. By combining expert engineering competence, practical experience and a digital service, we ensure the integrity of assets all the way from reservoir to deck.

The company was established in 2007 and clients include all the major oil and gas operators as well as the large suppliers of subsea equipment. Subsea is headquartered in Asker, Norway with additional offices in Bergen, Kristiansand, Stavanger, Macaé, and Rio de Janeiro, and with local presence in Aberdeen and Perth. More info at www.4subsea.com.

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