ABB’s OCTOPUS Suite is a comprehensive motion monitoring, forecasting and decision-support toolkit which improves efficiency, availability and safety of offshore vessels during weather-sensitive operations. The OCTOPUS suite offers a broad variety of modular functionality and is the industry leader in vessel motion prediction and monitoring solutions.

**ABB’s OCTOPUS suite**

ABB’s Marine Software OCTOPUS suite combines wave measurements, weather forecasts, and navigation data like speed, course, RPM and the voyage plan, with ship characteristics, loading conditions, and motion sensor measurements. This facilitates continuous monitoring as well as simulation and forecasting of the ship responses and performance. Warnings can be instigated for possible hazards and their consequences. For offshore vessels, ABB offers several modules within the software that maximize the operational window and safety during offshore operations, such as: vessel & crane tip motion measurement, Operational Forecast including motions & DP Capability and Helideck Monitoring System & Forecast. OCTOPUS based technology has been installed over more than 400 ships.

**Marine Software system for OSV’s**

- Maximized workability
- Just-in-time stop/start
- Effective utilization of smaller operational windows
- More productive hours
- More time for transit, which means lower transit speed and therefore less damages and stress to the vessel
- Reduced fuel cost
- Reduced emissions
- Minimizing overall energy costs
- Optimum load sharing between various onboard energy producers

**ABB Transport Monitoring System (TMS)**

TMS comprises a very reliable set of instruments designed for the measurement of ship motions. OCTOPUS-TMS was developed in co-operation with MARIN and end-users. OCTOPUS-TMS is designed to deliver highly stable measurements with a minimum of internal disturbance. TMS is the perfect cost-efficient solution when it comes to measuring motions, velocities and accelerations of vessels with a high degree of accuracy and a large flexibility. The three-sensor set-up provides measurement of motions on any desired location or cargo on the vessel. Nowadays, TMS is installed on approximately 150 vessels.
OCTOPUS Fleet portal: Easy access to vital information

- Measured and forecasted vessel motions and accelerations
- Sailed routes and location
- Fuel & performance KPI’s for individual vessels and benchmarking within the fleet
- Alarms and notifications in case of sensor time outs or failures

Authorized users can access their own part of the protected website to retrieve the latest information. After the voyage, the recorded data is evaluated and the impact on the cargo can be analyzed. The database can be made accessible for all parties required. It can be used to tune motion calculation (specifically roll motion) and for various other purposes, such as fatigue analysis.

Operation and (gangway) response forecast

This solution gives a clear advice for operation in heavy weather conditions. The weather forecast(s) and measurements are transferred in an actual response forecast. ABB’s Marine Software automatically imports the needed information, calculates the hydrodynamic properties and displays the expected responses. This way during transit, too heavy motions and accelerations of the gangway can be avoided. Different displays for heading control and optimization, and visualization and planning of operational windows are available.

Operational forecast

For vessels equipped with a Dynamic Positioning system, the ABB’s Operational forecast software includes a prediction if the vessel is capable to maintain her DP position during an operation. This leads to maximized workability, less fuel consumption and more productive hours during operations where the DP system is used.
- A clear and complete indication of the operational windows for weather-sensitive operations at sea including vessel motions and DP Capability
- Reduced fuel consumption because of efficient usage of DP thrusters.
- Better and efficient preparation and execution of projects
- Less damages and stress to the vessel
- Optimal use of man and machine in a safe environment, leading to significant cost reductions.

Energy Management System

This system minimizes overall energy costs. It compares and analyzes the historical and current operational data of the vessel, then provides decision support on where to focus energy efficiency efforts. The solution consists of onboard & onshore modules for energy monitoring and optimization.

Clean hull module

Estimates hull and propeller fouling based on an advanced data model of the vessel. This helps shore staff to coordinate the cleaning schedule and calculation of return on investment.

Power plant optimization

Assists onboard staff configuring the optimum energy balance onboard. It calculates and advises the optimum load sharing between the various producers such as auxiliary engines, shaft generator, waste heat recovery- and energy storage systems.

Emission monitoring

The OCTOPUS suite supports automatic Emission monitoring, allowing onboard visualization and shore side reporting. This assists owners and operators alike with compliance of upcoming air pollution regulations globally and within Emission Control Areas.

Service and consultancy

ABB has in-house expertise covering the following fields:
- Before and After analysis
- Periodic reporting and advise
- Customer training and coaching
- Feasibility studies
- Sea-keeping and wave analysis
- Remote support, data health checks and troubleshooting.

For more information, please contact:

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