
ABB MARINE & PORTS | DIGITAL SERVICES

ABB Ability™ Marine Advisory System - OCTOPUS Offshore



OCTOPUS Suite

Offshore

ABB's OCTOPUS suite is providing decision support and performance management solutions for vessels related to the offshore industry. The OCTOPUS suite offers a broad variety of modular functionality and is the industry leader in vessel motion prediction solutions.

ABB Ability™ Marine Advisory System - OCTOPUS

The OCTOPUS suite offers a broad variety of modular functionality that helps to increase the efficiency, safety and workability of a single vessel or entire fleet. OCTOPUS based technology has been installed on hundreds of ships.

For offshore vessels, ABB offers several modules within the software that maximize the operational window, safety and efficiency during offshore operations. OCTOPUS is able to provide data through secure links to shoreside ABB Ability™ Collaborative Operations Centers, providing additional visibility to all stakeholders, ensuring end to end transparency.

The OCTOPUS shore tools provide a fleet view, which don't just provide basic data but also enable Fleet Managers to plan key maintenance tasks, such as hull and propeller cleaning

Optimization modules

Operation and response forecast

This solution gives a clear advice for safe operation in difficult weather conditions. The weather forecast(s) and measurements are transferred in an actual response forecast. OCTOPUS-Onboard automatically imports the needed information, calculates the hydrodynamic properties and displays the expected responses.

OCTOPUS can give a forecast for any location onboard the vessel and any type of motion and acceleration. This means the master has a powerful tool to increase the safety and workability.

Helideck response forecast

OCTOPUS is capable of delivering a safe time win-



now for the heli-operation based on the OCTOPUS response forecast. In this window the most optimal heading and maximum allowable motions can be selected to ensure a safe heli-operation.

Gangway motion monitoring & forecasting

OCTOPUS can provide motion monitoring & forecasting for the gangway, so that gangway limitations are not exceeded and gangway operations can be safely executed.

As the system can be adapted to the vessel operational needs, the OCTOPUS response forecast system is used by almost any kind of oceangoing vessel.

Advanced Motion Monitoring

The Advanced Motion Monitoring set-up provides virtual measurement of motions, velocities and accelerations in any thinkable location on the vessel, such as CoG of the cargo or a high point in a crane boom tip. By the installation of three MMS acceleration meters, the user can monitor any location by simply adding a virtual location in the system, the MMS-3 system calculates motions and accelerations at the given virtual location with high accuracy. With this setup all critical parts of the vessel

and cargo can be monitored with redundancy and without the need of a physical sensor installed on difficult locations.

DP Capability forecast

For vessels equipped with a Dynamic Positioning system, the DP Capability 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.

Advanced Energy Management and Monitoring

Energy flow

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.

Advanced Performance monitoring

Depending on the wishes of client, there is a choice between a performance monitoring set-up which enables data collection and visualization for a set of signals to help monitoring the vessels operations/ daily operational costs and to work as a supporting tool for the Ship Energy Efficient Management Plan (SEEMP). The advanced performance

monitoring set-up provides unlimited amount of signals that can be monitored and provides dynamic KPI (key performance index) targets which can be used to follow the performance of the vessel subsystems.

ABB Ability™ Marine Fleet Portal:

Easy access to vital information

- Measured and forecasted vessel motions and accelerations
- Sailed routes and location
- Fuel & performance KPI's for individual vessel 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. Advanced analytics ABB offers a broad range of analytics and consulting services:

- Energy Analytics
- Operation Modes & Movement Analytics
- Customer training
- Feasibility studies
- Sea-keeping and wave analysis
- Remote support, data health checks and troubleshooting.

Our holistic approach

The total offering from ABB's digital portfolio is the most comprehensive suite available within the maritime industry and provides seamless exchange of data, full integration of sensors, automation, ship software and cloud solutions. Important elements within the suite are decision support software for safety and comfort and energy efficient operations and remote diagnostics technology that preventatively and continuously monitors critical equipment onboard of a ship.

Furthermore, ABB has invested heavily in shore side expertise, analytics firepower and engineering availability to provide 24/7 support from our ABB Ability™ Collaborative Operations Centers that support troubleshooting, maintenance planning, benchmarking and interventions based on predictive diagnostics.

The DP Capability Forecast gives a clear and complete indication of the operational windows for weather-sensitive operations at sea.



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Additional information

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