

ABB MARINE & PORTS | DIGITAL SERVICES

ABB Ability™ Marine Advisory System – OCTOPUS Project Cargo vessels



OCTOPUS Suite

Project Cargo vessels



The OCTOPUS system increases the overall efficiency of ship operations at sea, leading to cost savings up to 10%. Its performance management solution consists of a modular and comprehensive decision support tool kit to optimize the workability and safety of a ship and to minimize the overall fuel and energy costs for the whole fleet.

Increasing profitability and safety in shipping

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.

“With OCTOPUS, we can understand what to expect on any given course, even two and three days ahead, and select the one that is the safest and most efficient for us. The system works, and you feel more confident. Our entire heavy lift fleet is equipped with OCTOPUS and this has raised the overall reliability. When using the OCTOPUS fleet portal, we can track ship motions to make sure they stay within the limitations of the vessel.”
– Jan de Jonge, Senior Marine Engineer, Boskalis.

Motion monitoring & forecasting

For vessels involved in the transportation of project cargo, ABB has now developed a tailored cost efficient OCTOPUS solution that increases the safety and efficiency of these vessels.

The OCTOPUS system takes the vessel responses into account when planning the route of the vessel. The system will have a vessel specific forecast of motions, velocities and accelerations for the Center of Gravity (COG) of the vessel. This means that a master has a far more accurate insight of the impact of the weather on the vessel and her cargo and therefore has the possibility to make decisions in a far earlier stage, leading to savings on fuel and ETA. The one sensor motion set-up which is installed on the bridge of the vessel, allows accurate insight in roll & pitch motions, velocities and accelerations. Alarms are given when thresholds are exceeded. All information is available without the need to preconfigure the system for each new project. This way ship-owners with limited in-house engineering capabilities have a cost-effective alternative, whilst having access to a high quality motion forecast.

Speed Optimization

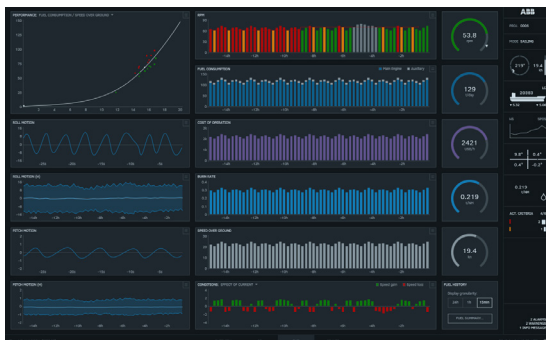
RPM/ Speed Optimization minimizes fluctuations in propeller RPM. A customer study shows that the propulsion energy consumption can be reduced by 3,7%. The optimum speed/RPM profile is calculated by using intended route, required ETA, weather forecast and vessel characteristics.

Energy diagram

This module helps to minimize 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.

A SEEMP Compliant fuel monitoring solution

With daily fuel costs taking in a huge portion of the daily operational costs of a vessel and new SEEMP (Ship Energy Efficient Management Plan) regulations within the shipping industry, having an insight in fuel consumption KPI's (Key Performance Indicators) becomes increasingly important for shipping companies. ABB's SEEMP solution is capable of measuring and displaying important vessel fuel consumption KPI's and making this data available as well on the vessel as on the onshore operations department.



OCTOPUS MRV Software

ABB's MRV software has been certified by Verifavia as a tool to monitor all parameters required to comply with within the EU's Monitoring Reporting and Verification (MRV) regulation requirements. The system is in compliance with the requirements of the Regulation (EU) N° 2015/757, the associated Delegated and Implementing Acts and the ISO IEC 25051 standard on software engineering. The MRV web-portal can be accessed from any internet browser for both manual input of the data and report generation.

SFOC

The SFOC Monitoring module gives a dynamic view to the performance of diesel generators. The performance is evaluated by calculating how much fuel the engine uses to produce certain amount of energy in g/kWh (SFOC). The performance is visualized with three SFOC curves; manufacturer, baseline after maintenance and current state. Reduced performance of the diesel generator can be noticed as lower engine performance index. It is also visible as growing difference between current and baseline curves.

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.

ABB Ability™ Marine Fleet Portal:

Easy access to vital information

Fuel & performance kpi's for individual vessels and benchmarking within the fleet.

- 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.
- Measured and forecasted vessel motions and accelerations.
- Sailed routes and location.
- 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 Merchant 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.

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ABB B.V.

Digital Services

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