ABB Ability™ Marine Advisory System – OCTOPUS
Merchant vessels
ABB offers the widest portfolio of marine software and optimization systems to the maritime market. Its performance management solution consists of a modular and comprehensive decision support toolkit to optimize the workability and safety of a ship and to minimize the overall fuel and energy costs for the whole fleet.

**ABB’s OCTOPUS suite**

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. The most recent software enables easy customization of screen layouts depending on customer demands. OCTOPUS-based technology has been installed on hundreds of ships.

**Optimization modules**

**Motion monitoring & forecasting**

The OCTOPUS software suite is the industry leader in vessel motion prediction solutions and 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’s responses and performance.

The system enables state of the art responses and performance. This module minimizes fluctuations in propeller RPM to reduce losses by 1%. The optimum speed/RPM profile is calculated by using intended route, required ETA, weather forecast and vessel characteristics.

**Speed Optimization**

This module 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.

**Energy diagram**

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**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.

**Cleanhull 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.

**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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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. The most recent software enables easy customization of screen lay-outs depending on customer demands. OCTOPUS-based technology has been installed on hundreds of ships.
Additional information

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