



KONGSBERG

Ship Performance System



Prepare yourself for SEEMP compliance

The **Kongsberg Ship Performance System** is based upon Kongsberg's automation technology and Marorka software modules. The on-board system is designed to assist operators in optimising the fuel consumption of the vessel, and to monitor performance and emissions.

Using real-time measurements, the Kongsberg Ship Performance System provides functionality for on-board decision support and analysis of vessel key performance indicators.

The Ship Performance System will simplify the establishment of SEEMP in compliance with IMO mandatory regulations.

The Ship Performance System collects operational data from all main power producers and consumers, providing the basis for the energy management of the vessel;

- Main propulsion shaft power
- Electrical power production
- Boiler steam production
- Fuel oil consumption

The Ship Performance System can be set up to transmit the collected data directly by e-mail to a web server for viewing ashore.

The Ship Performance System may be delivered as an integrated part of the Kongsberg K-Chief 600 automation system or as a stand-alone installation.

A user-friendly human-machine interface with a practical selection of process pictures is offered.

Save environment



Save cost



- Fuel savings
- Reduced emissions
- SEEMP compliant

- Decision support
- Reporting
- History

- Voyage
- Inventory
- Emission calculations

Typical system configuration

The enclosed configuration drawing shows a typical integrated system solution with ship-to-shore connection.

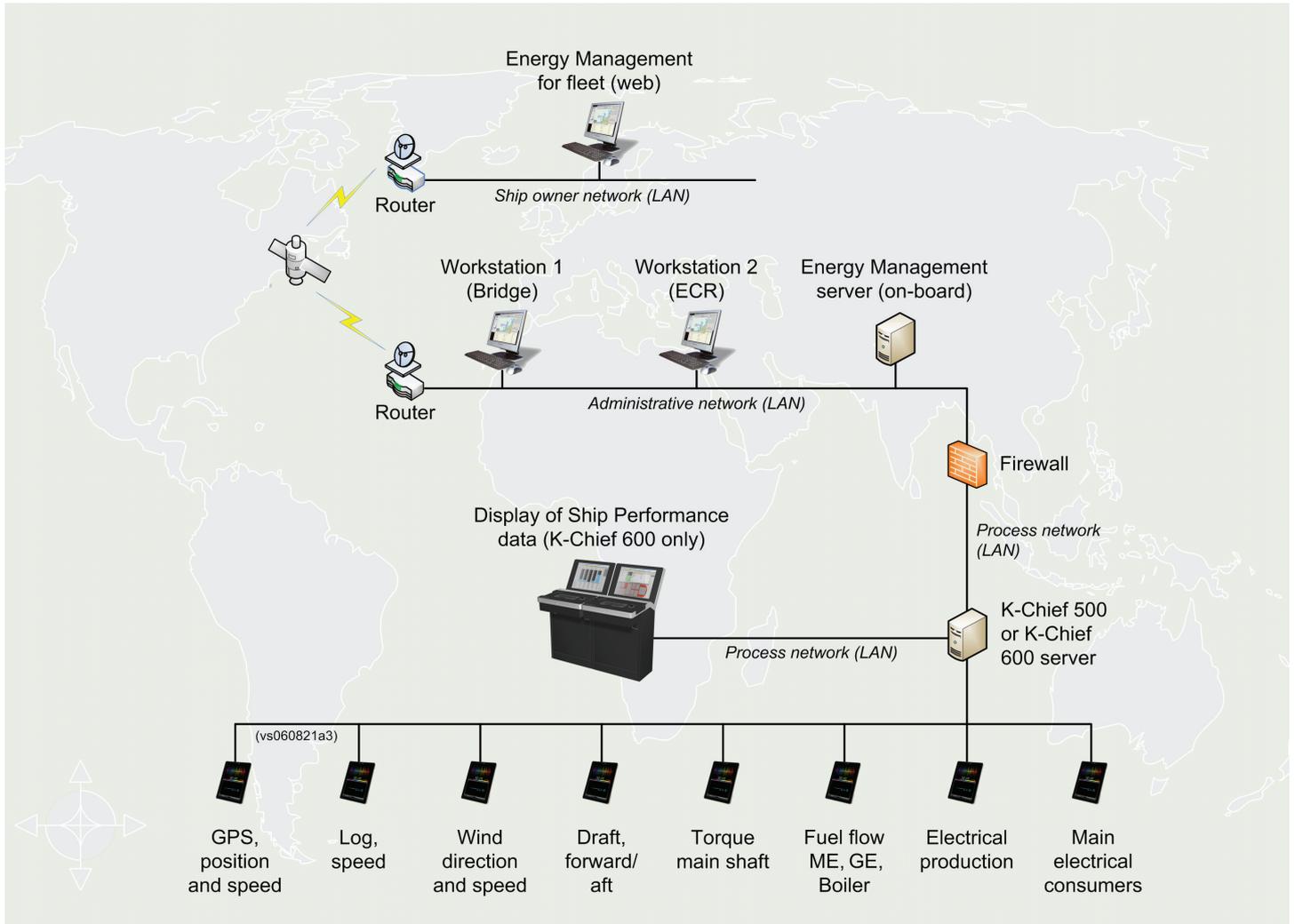
This configuration allows for seamless integration between the Ship Performance System and the K-Chief 600 automation system.

Typical input signals are:

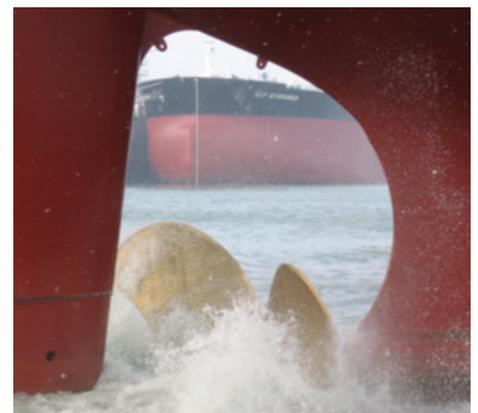
- GPS, position and speed
- Log, speed
- Wind direction and wind speed
- Draft (forward/aft)
- Torque main shaft
- Fuel flow for ME, GE and Boiler
- Electrical production
- Main electrical consumers

Sensor signals are normally interfaced as standard 4-20 mA / 0-10 V or by serial communication lines (standard marine NMEA/MODBUS).

The Distributed Processing Units within the automation system are handling all inputs.



Typical system configuration



System modules

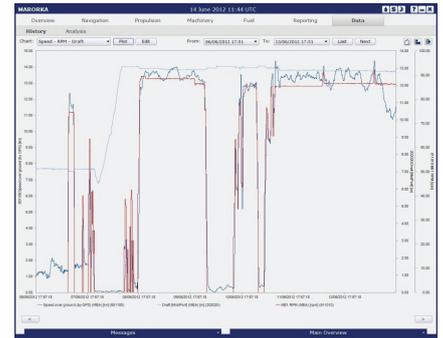
The system includes custom made process views containing easy-to-read information about the ship performance. Other software modules, such as optimal trim/performance, can be provided as options.



Overview module



Fuel Manager module



History module

The **Overview** module provides a ship performance overview with all key performance indicators.

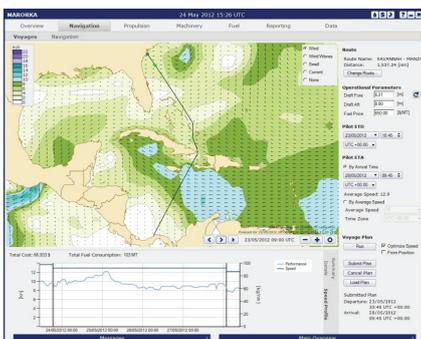
- Log speed (knots)
- GPS speed (knots)
- ME fuel consumed (kg/h)
- Shaft power (kW)
- Steam power (kW)
- Electrical power (kW)
- Fuel performance (kg/nm)
- Specific fuel oil consumption (g/kWh)
- Hull performance (kWh/nm)
- Propeller power (MW)

The **Fuel Manager** module keeps an up-to-date record of fuel remaining on-board. Fuel consumption of different consumers is measured or manually applied. Fuel properties and additions are measured and displayed. This allows for detailed reporting of fuel consumptions.

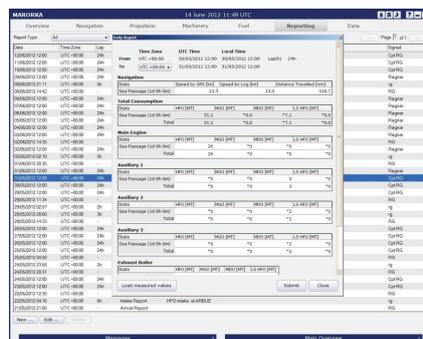
- Fuel flow meter
- Bunker properties
- Manual input
- Remaining on board for each fuel type

The **History** module is designed to visualize how the numerous ship operational parameters affect fuel efficiency. Graphical trending of operational values over a period of time is displayed, thus helping the crew locate focus areas for improving energy efficiency and fuel savings.

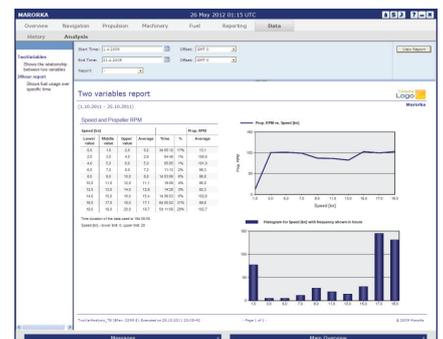
- All signals and measurements
- Plot/compare any measured value, over a period of time



Voyages module



Reporting module



Analysis module

The **Voyages** module assists in effective voyage planning. Using a simulation model, it identifies the speed profile that results in minimized voyage costs for a given route, ETD and ETA.

- Weather forecast
- Draft (forward/aft)
- ETA and ETD
- Route
- Optimized speed profile
- Voyage fuel cost
- Estimated fuel used

The **Reporting** module is designed for automatic reporting of manual and measured values. Customized and pre-made report forms are available.

- Noon report
- Bunker report
- Departure report
- Arrival report
- Inventory report

The **Analysis** module facilitates the creation of performance, fuel, energy consumption and emission reports.

- Variable reports
- Noon report

Related products

The Kongsberg Ship Performance System is configurable for all standard ship types. Other Kongsberg product applications included are briefly described in the following.

K-Chief 600, automation system

The K-Chief 600 offers cost effective solutions and modular design. The system allows flexibility in configuring the system to individual requirements, covering the whole range from low complexity alarm systems to highly integrated control and monitoring systems.

Ship@Web, ship- to-shore data transfer

Ship@Web is an information management system designed to enable continuous access to primary vessel data both on-board the vessel and from ashore. The Ship@Web application is based on web technology. A safe communication structure is provided.

Metapower, torque measurement system

Kongsberg MetaPower measures torque on the rotating shaft. The patented optical technology provides high accuracy and long term stability. This system can be applied on both FPP and CPP propeller systems, driven by any kind of propulsion machinery, with or without gear.

Engine Performance monitoring

The Kongsberg / AVL Engine Performance concept enables permanent online monitoring and diagnosis of propulsion and auxiliary engines. The system forms the basis for condition-based maintenance (CBM).

C-Loading, loading computer

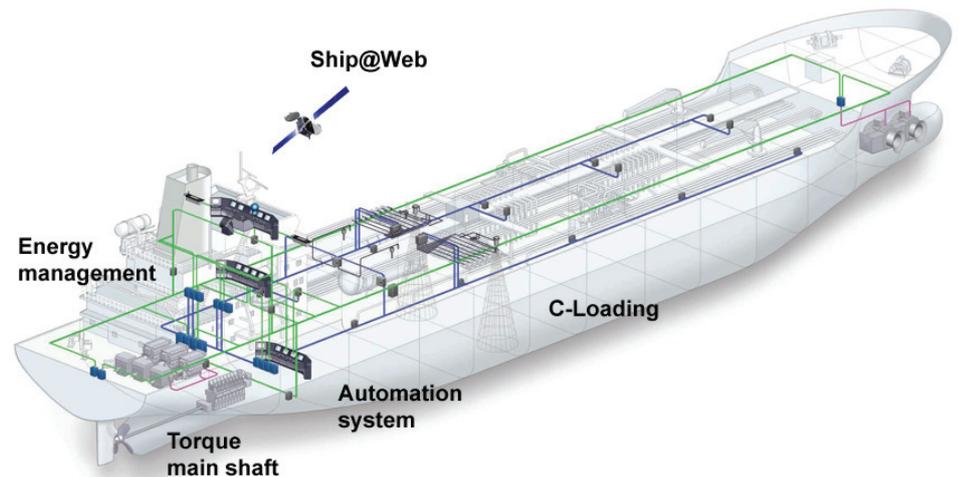
The Kongsberg loading computer system utilizes a 3-D model of the vessel's hydrostatic as the basis for calculation of loading conditions, floating position and stability, and longitudinal strength. This creates a precise description of the actual loading conditions.

C-Voyage, voyage planning and position reporting

C-Voyage enables the fleet to have a complete overview of the voyages with all data and reports. Daily transfer of data to the office version gives the office the necessary information about the position and status for each vessel, and analysis of each vessel's consumption and speed.

C-Maintenance, planned maintenance

C-Maintenance is a complete tool for keeping control of the vessel's maintenance, both planned and unplanned. Digital report forms are included.



Note! This datasheet is subject to change without prior notice.

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