

CONVENIENT AND EFFICIENT SHIP OPERATION

Voith control system with the M1 automation system
from Bachmann electronic



Outstanding results can be achieved if propulsion and control systems are perfectly integrated with each other. The Voith control system now offers faster actuation and more precise propulsion control. The specializations of the Voith technology group include the area of propulsion components and systems for shipping. For over 80 years the company has been developing and manufacturing the optimum propulsion system for all ship types – ferries, platform suppliers, tugs or support ships. Voith has recently developed a control system for its propulsion systems that both increases ease of operation and ensures more efficient ship operation. Bachmann electronic's M1 automation system is one of its most important components.

Open architecture

»One frequently stated customer request for the supply of a complete system consisting of propeller and controller was a key reason for developing our own control system,« Kristian Wege, head of Electrical Ship Remote Controls at Voith, recalls the beginnings of the project. The company very quickly developed a control system to the highest technical standard and perfectly matched to the benefits of the company's own propulsion systems. At the same time the greatest possible openness was ensured, so that components already in place can still be used without any problem. Communication inside the system is implemented with interfaces such as CAN-Bus, Modbus TCP/IP and RTU, Profibus DP, OPC UA or NMEA. The user-friendly M-Target for Simulink® interface is a key benefit of the M1 automation system. Voith uses MATLAB/Simulink® as standard software for developing complex open-loop and closed-loop control systems. The program code automatically generated from the simulations can be implemented directly on the M1 automation system. The

» The open system architecture enables the implementation of a wide range of control systems in the shortest possible time. «

Kristian Wege,
Head of Electronic Remote Control,
Voith Digital Solutions GmbH
Product Creation VT Marine

software thus provides the basis for the early analysis, validation and verification of individual software components and enables considerable time and cost savings when working on and commissioning the system.

Precision even in high swells

The Voith control system offers faster actuation and more precise propulsion control. This is of particular benefit to all ships and floating platforms requiring accurate control and dynamic high precision positioning – even in rough seas. The modern systems from Voith can even compensate up to 90 percent of the rolling motion of the ship.

Secure remote access

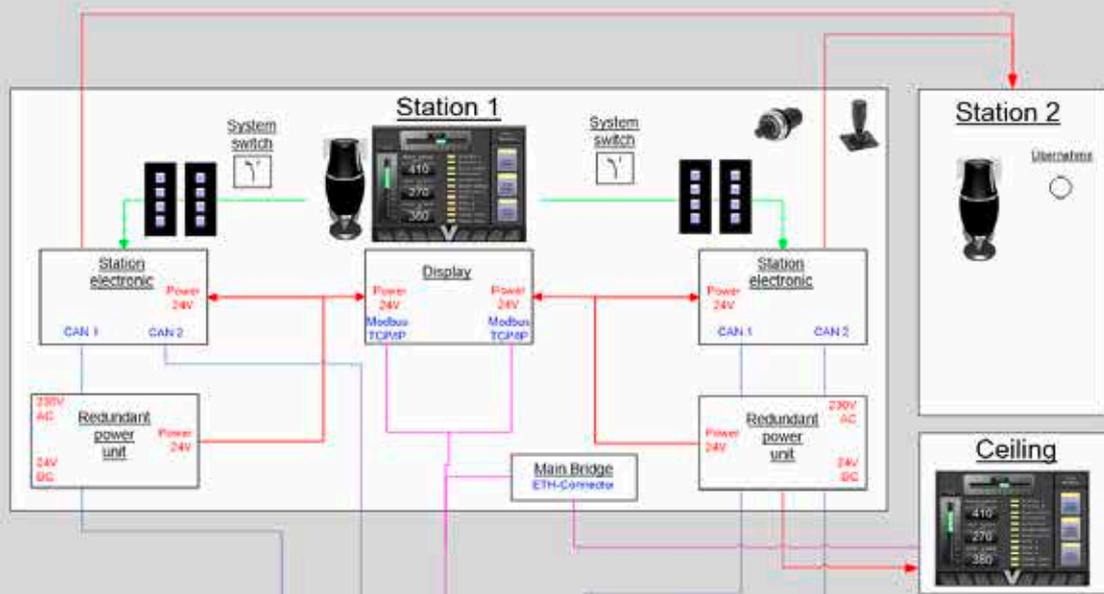
Bachmann electronic's M1 automation system is also one of the most important components of this system. The control system shows all data and the occurrence of faults for monitoring. The monitoring here can be implemented both locally on the bridge as well as in the engine or propeller room, also remotely via an integrated visualization software. The M1 webMI pro visualization software enables pro-

VOITH

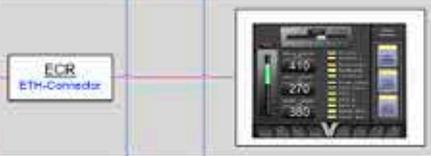
Voith Turbo is a division of the Voith Group founded in 1867. The company is setting new standards in the energy, oil and gas, paper, raw materials and transport sectors, and has a turnover of 4.3 billion euros with over 20,000 employees in more than 60 countries. Voith Turbo specializes in intelligent propulsion solutions and systems. Customers from a wide range of sectors, such as oil and gas, energy, mining and mechanical engineering, marine engineering, rail and utility vehicles rely on the top technologies of Voith Turbo.

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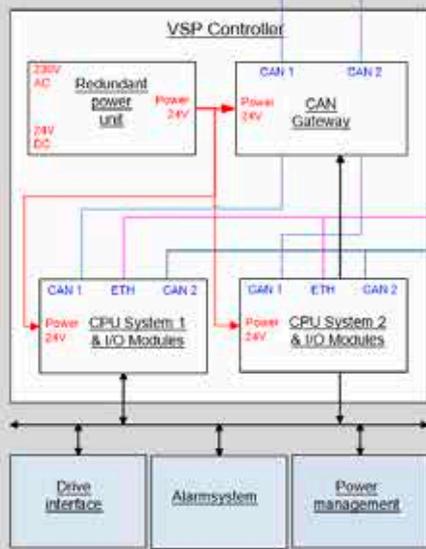
Bridge



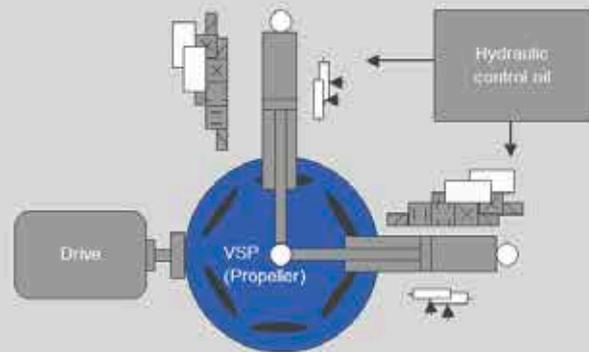
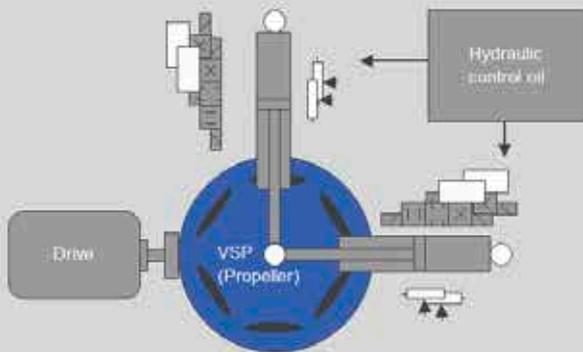
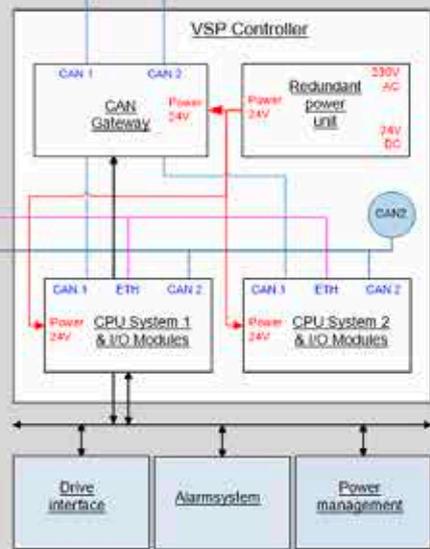
ECR room



Propeller room



Propeller room



blem-free remote diagnostics via a cell phone or satellite network. A specialist can also read all the operating states and error logs, set new parameters or install updates whilst observing the highest security standards. Secure remote access considerably shortens the reaction times in the event of technical problems and enables the creation of completely new maintenance and service concepts.

Maximum ease of operation

The development of the control system also placed particular importance on optimum operability. For example, individual bridge components – joystick, steering wheel, control lever and intuitive touch display – were ergonomically designed in collaboration with Stuttgart University. The Voith control system also features the new

electronic control and assistant functions which reduce fuel consumption by giving handling recommendations.

Satisfaction for all involved

»Voith is impressed by Bachmann's M1 automation system. A reliable hardware and the clear configuration interface for implementing hardware and software projects, as well as extensive diagnostic and analysis options are the outstanding features of the controller package,« Kristian Wege says. Voith's customers also benefit from the short response times required for customizations and the low commissioning costs. The smooth completion of these processes is ensured due to the continuous testing and optimizations during the development phase of the control system.



◀ The M1 automation system is installed in the engine room where it records all the operating data and any faults. The monitoring can be carried out from the bridge as well as in the engine or propeller room. M1 webMI pro also enables remote access for service and maintenance at any time.