Efficient automation for vessels of the future

Gain a competitive edge by maximizing availability of your fleet and increasing security
Global competition, rising operating expenses, and increasingly stringent environmental regulations imposed by the International Maritime Organization ‒ these are just some of the challenges the shipping industry is facing today. Achieve more cost-efficient operation and continued compliance with evolving safety standards by advancing your maritime solution with high-performance emission monitoring and process instrumentation technology.

Backed by more than 130 years of experience in automation for marine and industry applications, we are leading in industry automation and your trusted partner over the entire life cycle of your fleet. Whatever your marine application, you can fully optimize it with our automation solutions – from bow to stern.

Shaping the digital future of the marine industry
Your partner for all automation tasks

Operating a ship involves various and complex processes. With our integrated automation solutions, you can optimally coordinate them. Take a closer look on three automation tasks on the following pages. They will help you open up optimization potentials for onboard processes and minimize possible sources of error. And enjoy peace of mind.

Optimizing marine applications with industry standards

Comprehensive communication via PROFINET

- The leading Ethernet standard for automation tasks
- Fast data exchange with high security at all levels – control systems for bilge pumps, winches, etc. through to overall vessel management systems
- Flexible and open – maximum freedom to implement various network topologies and innovative concepts
- Robust industry standard – including communication via industrial WLAN or fiber optics

High security with Defense in Depth

- Multilayered concept to fully protect your ship – based on plant security, network security, and system integrity and complying with ISA 99/IEC 62443
- Segmentation of subnetworks – to further increase security
- Reliable protection against unauthorized access – user authentication and allocation of access rights
Stability in all weathers and sea conditions is vital for cargo ships. A reliable tank ballast system prevents wrong trims, heel, and draft. Automate work steps with the anti-heeling control system.

**SIMATIC IPC – S7-1500 software controller**
- PC-based control, independent of operating system
- Complete engineering in TIA Portal, no Windows setting required
- Easy realization of interfaces to PC applications and integration of real-time high-level language code
- Broad range of hardware platforms with SIMATIC IPCs

**SIMATIC HMI – comfort panels**
- Highest usability for easy operation of the machine
- Ranging from 4” to 22”, with touch screen and/or operating keys
- Brilliant displays in widescreen format
- Multiple interfaces for process communication, integrated PROFINET switch for 7” and up

**SIMATIC ET 200**
- Decentral periphery system for hazardous environments to reduce wiring effort
- Modular and easy-to-expand system
- Highly compact design and easy handling with push-in or screw terminals
Safeguard people and systems with a holistic alarm and monitoring system that includes automation components from Siemens.

**SIMATIC S7-1500**
- The controller with advanced system functions and high performance
- System-integrated diagnostics without additional engineering effort
- Maximum user friendliness to minimize service efforts

**Industrial Security**
- Integrated security functionality in automation products to implement Defense in Depth concept
- Network security with cell protection concept using SCALANCE S or the security communication processors for SIMATIC
- System integrity with know-how protection and authentication of users and their access rights

**TIA Portal**
- One engineering framework for all products
- Maximum user friendliness and low engineering effort
- Shared database and smart library concept enable usage of overlapping functions

**Highlights**
- Faults are quickly located and fixed – no special tools or additional engineering effort needed
- Clear display of engine’s current state – as numeric values or bar graphs
- High system availability and low cabling effort – thanks to optical ring main with redundancy manager
- Defense in Depth – consistent security concept from the integration of the security function into the products to security services for entire ships
Whether towing, anchor or mooring winches – winches are one of the most frequently used applications in the shipbuilding industry. They have to function reliably and smoothly at all times.

**SIMATIC S7-1200**
- Compact controller with integrated IOs, technology and communication functions
- Networking options via various communication standards (PROFINET, Modbus, IO-Link, AS-i, etc.)
- Flexible design and modular expansion

**SIMATIC HMI – basic panels**
- Clear display and user interface with wide-screen displays ranging from 4” to 12”
- Basic configuration and functionality with optimal price-performance ratio
- Perfect interplay with SIMATIC S7-1200

**Safety integrated**
- One controller for standard and safety applications
- Easy integration of safety functionality into existing applications from basic to advanced automation
- Integration translates into a reduced wiring effort and an efficient fault diagnosis

- Highlights
  - Standard components like SIMATIC S7-1200 and basic panels have relevant shipbuilding approvals and are available worldwide
  - Integrated safety solution – SIMATIC S7-1200 is the only microcontroller that’s also available in a safety version
  - Remote maintenance worldwide – thanks to integrated PROFINET interfaces
  - Monitoring wear of drive components with condition monitoring – for predictive maintenance at the next port
Complying with all shipbuilding approvals

The MS Ostfriesland is the first environmentally friendly ferry powered by Liquefied Natural Gas (LNG). During its retrofit, the ferry also received a state-of-the-art alarm and monitoring system from MWB Elektrotechnik Service GmbH. It is based on the product line S7-1500 from Siemens and includes components of the ET 200MP and ET 200S series. The system excels through high availability thanks to its ring topology and the redundancy manager integrated into the network components. Alarms are shown on the display and operating unit in the engine control room. The integrated system diagnosis enables fast error localization and troubleshooting without additional engineering – thanks to the TIA Portal.

Reference: MS Ostfriesland, Germany

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Complying with all shipbuilding approvals

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<th>Shipbuilding approvals</th>
<th>ABS</th>
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<th>GL</th>
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* Planned
Siemens offers automation and drives products. With industrial security functions that support safe operation of the plant or machine. They are an important component in a holistic industrial security concept. With this in mind, our products undergo continuous development. We therefore recommend that you keep yourself informed with respect to our product updates, and that you only use the latest versions in each case.

You can find information on this at: http://support.automation.siemens.com.

There you can also register for a newsletter specifically about these products. To ensure the secure operation of a plant or machine, it is also necessary to take suitable preventive action (e.g. cell protection concept) and to integrate the automation and drive components into a state-of-the-art, holistic industrial security policy for the entire plant or machine. Products used from other manufacturers should also be taken into account here.

For more information, go to www.siemens.com/industrialsecurity

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