

SEASYacht™

INTEGRATED BRIDGE AND AUTOMATION SYSTEM.
ENHANCED COMFORT, EFFICIENCY AND RELIABILITY.



MARINE AUTOMATION SOLUTIONS

a **FINCANTIERI** company



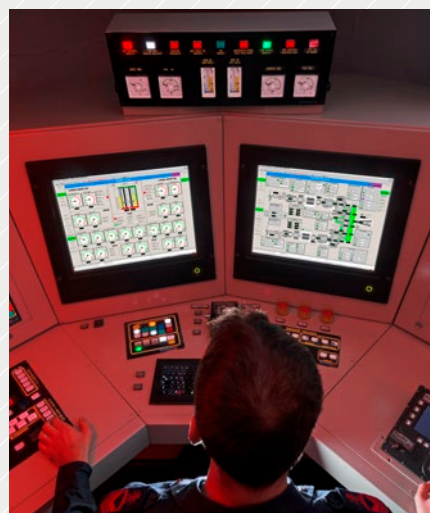


The future of Automation is now

— Seastema S.p.A. is a company involved in the design, development and supply of integrated automation systems for different areas of the marine industry, with particular expertise in the naval sector, and in the design, development and supply of entertainment systems. The headquarter is in Genoa (Italy) with branch offices in Lucca and in Trieste.

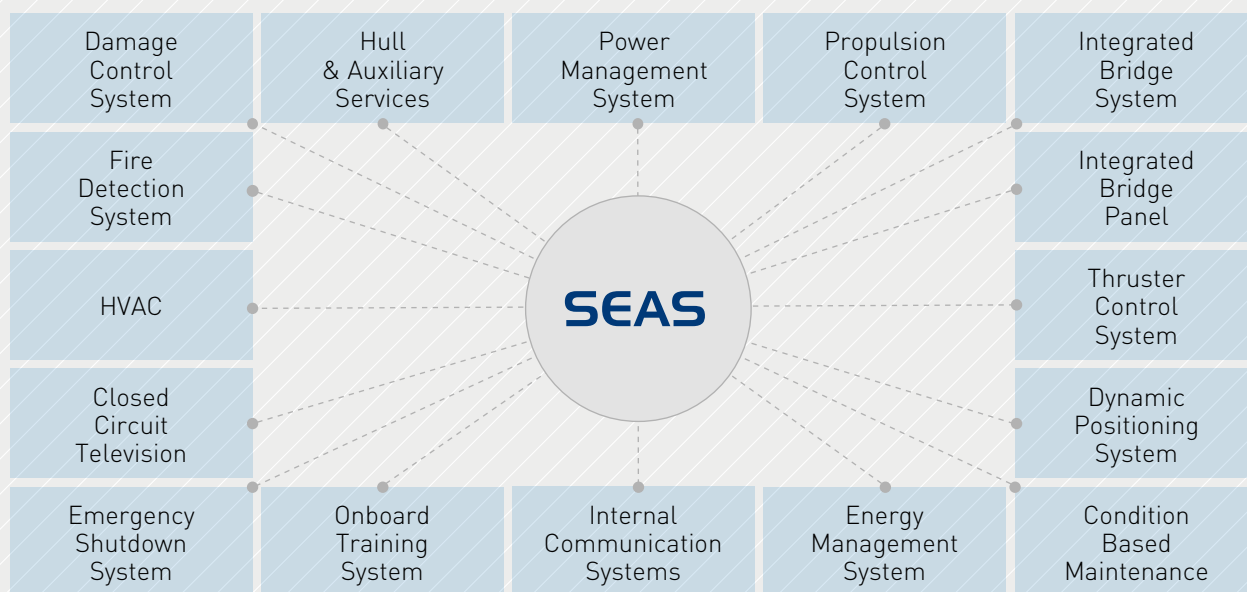
— Seastema continuously cooperates with external Partners and Research Institutions in order to increase the products portfolio with reliable solutions, to maximize innovation and to develop strategic products.

Seastema provides end users with a global after-sales service throughout the entire life cycle of the ship even supported by partners organizations.



SEAS: a global vision

— Seastema's Enhanced Automation System (SEAS) is a single control and supervision system that is able to integrate all single sub-systems on board and to provide a unique interface to the operators by the use of multifunctional operator stations. This high level of integration and the extensive use of automated functions leads toward a reduction of the operating costs and an advance in the ship operability in terms of safer and more efficient operations.



a **FINCANTIERI** company

— Seastema S.p.A. is a Fincantieri Group company. Fincantieri is one of the world's largest shipbuilding groups. It is world leader in cruise ship construction and a reference player in other sectors, from naval vessels to cruise ferries, from mega yachts to special high value-added vessels, ship repairs and conversions and offshore vessels. Headquartered in Trieste, the Group has more than 20,000 employees, of whom 7,700 are in Italy, and 21 shipyards in four continents. Fincantieri is a major western shipbuilder and the biggest in terms of diversification and presence in every high value-added sector.

SEASYacht™

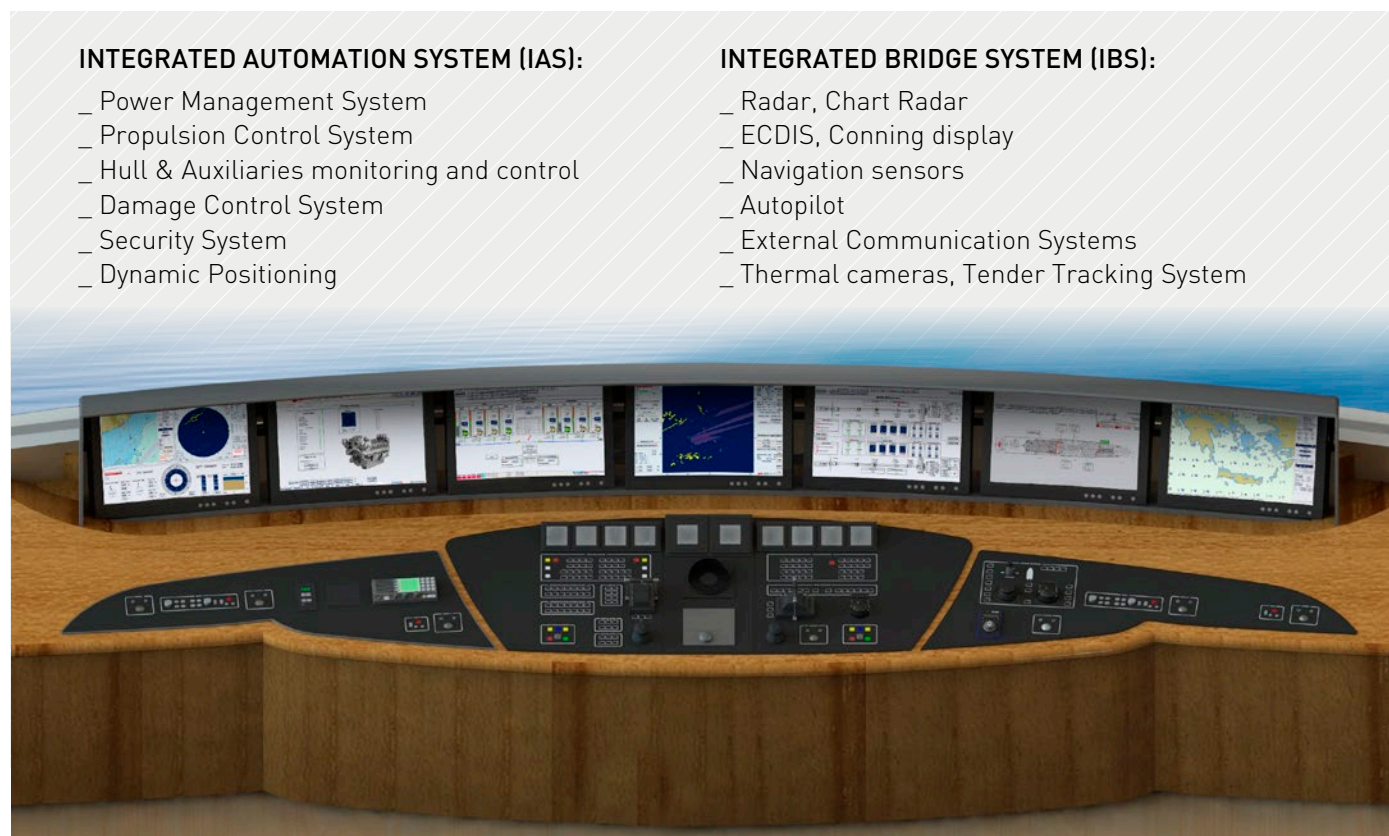
INTEGRATED BRIDGE AND AUTOMATION SYSTEM FOR YACHTS
ENHANCED COMFORT, EFFICIENCY AND RELIABILITY.

A step forward on the bridge of Large Yachts

- SEASTEMA SEASYacht™ is a control and monitoring system that integrates Navigation, Automation and Safety Systems in a common infrastructure operated by multifunctional consoles with homogeneous HMI specifically designed for large Yachts and strictly compliant with the class requirements and the higher international safety standards.
- The high level of integration and the increased number of automated features of SEASYacht™ package are the best answer to the new requirements of operational efficiency coming from the Yachts Captains. Seastema experience in Ship Automation projects and the specific solutions for power management, propulsion control, machinery automation, safety management and navigation systems integration applied on Yachts help our customers to maximize machinery and bridge operation efficiency, minimizing the fuel consumption and improving readiness in operations and safety on board.

High standards solutions

- Combining cutting-edge technology in ship automation with leading expertise in ship-building, Seastema, with SEASYacht™, offers state of the art Integrated Automation and Navigation Systems for Yachts. Typical scope of supply includes the Integrated Bridge System, the Integrated Automation System, Safety and Security Systems. All systems are designed to guarantee the highest level of redundancy for the maximum of availability and ship operability in case of damage or emergency conditions.



INTEGRATED AUTOMATION SYSTEM (IAS):

- _ Power Management System
- _ Propulsion Control System
- _ Hull & Auxiliaries monitoring and control
- _ Damage Control System
- _ Security System
- _ Dynamic Positioning

INTEGRATED BRIDGE SYSTEM (IBS):

- _ Radar, Chart Radar
- _ ECDIS, Conning display
- _ Navigation sensors
- _ Autopilot
- _ External Communication Systems
- _ Thermal cameras, Tender Tracking System

- SEASYacht™ IBP (Integrated Bridge Panel) completes the integration of the equipment on the bridge console. It is a bridge panel realized by a high quality membrane foil that includes the operator and commands for all the devices on the bridge. The result is a very clean design of the bridge console and a very efficient and safe way to operate the ship.

Leader in integrated solutions

— Open systems technology, leading expertise in developing large Ship automation systems and specific know how in Automation Systems for Yachts, make Seastema the ideal partner in developing the high level of integration needed to improve ship operation and efficiency. Our basic concept is the ship management operation through a single system with all subsystems managed through IAS monitors. This vision extends the Machinery Automation Concept to an Integrated Automation System that includes the full integration of the onboard electronic systems such as Damage Control, Emergency Shutdown, Navigation and Communication Systems. Seastema solutions include extended packages with their high level of functional integration, providing advantages in terms of both smaller need for ship manning and more interoperability from the operator workstations.

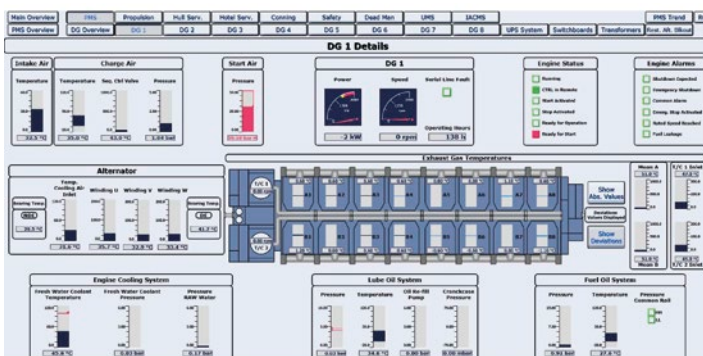
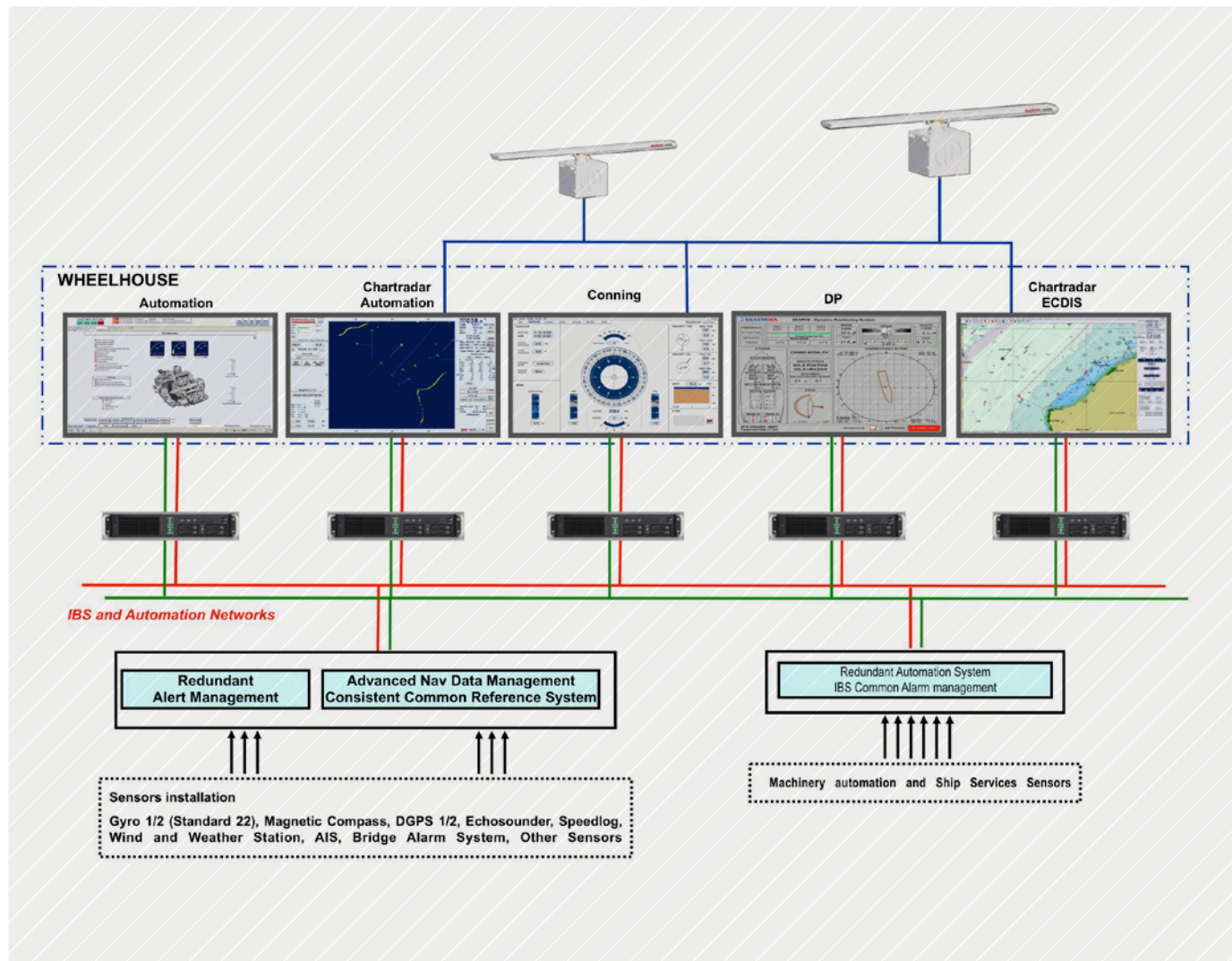
Integrated Bridge and Automation System

— The SEASYacht™ Integrated Bridge and Automation System (IBAS) integrates ship automation and navigation systems on the same network. All electronic devices are connected to the same system and exchange the same information. This system enables the operator to work with the following packages by the same multifunctional operator workplace: Radar, ECDIS, Conning, Safety systems, Security systems and Ship Automation.



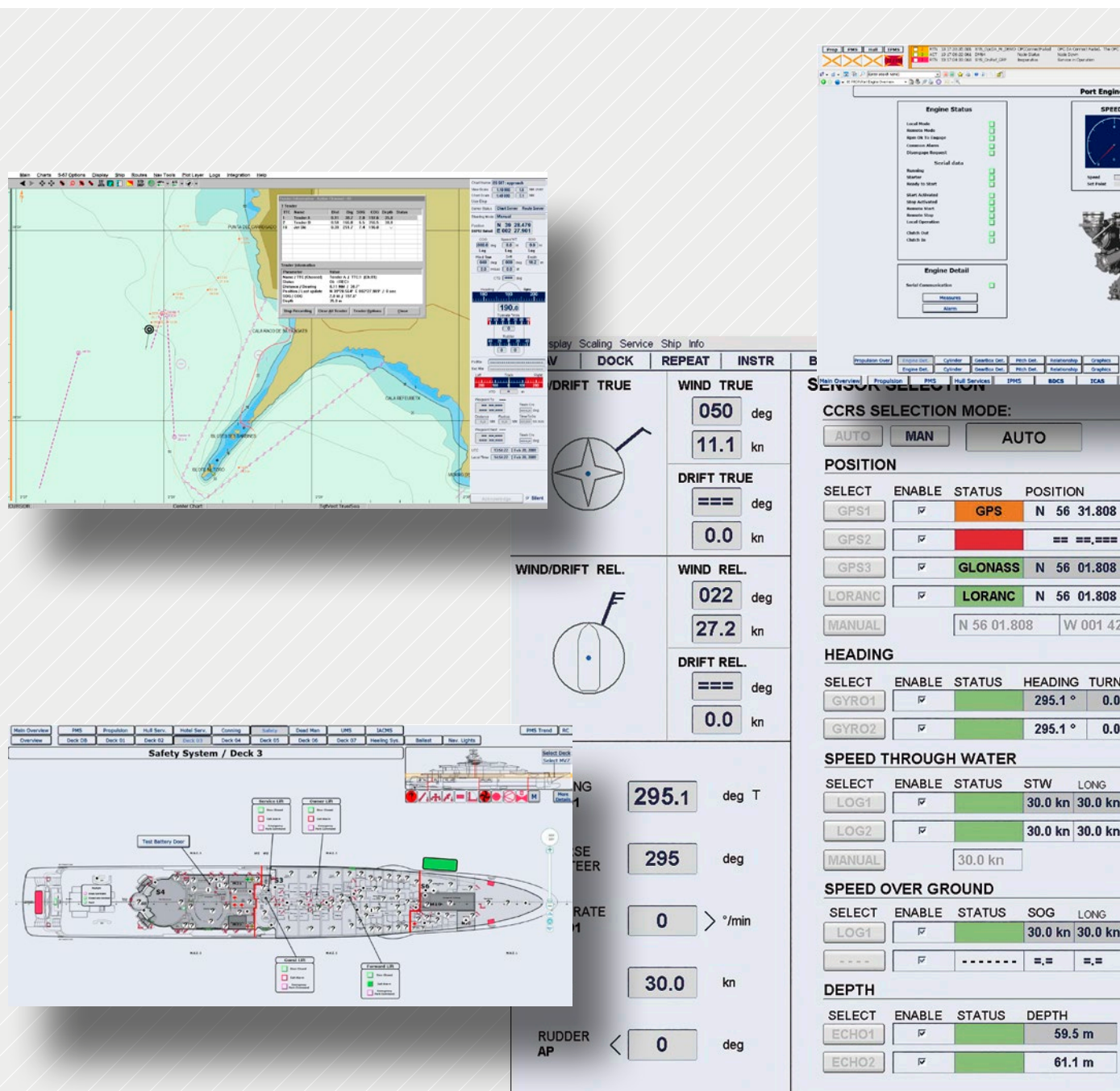
System Reliability and Availability

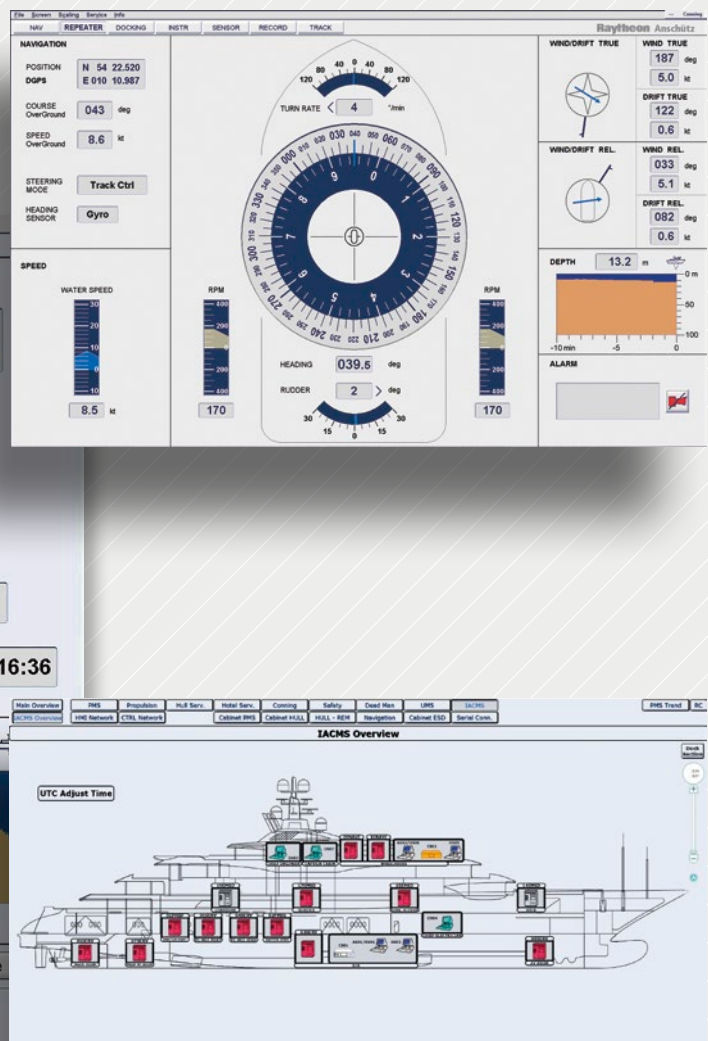
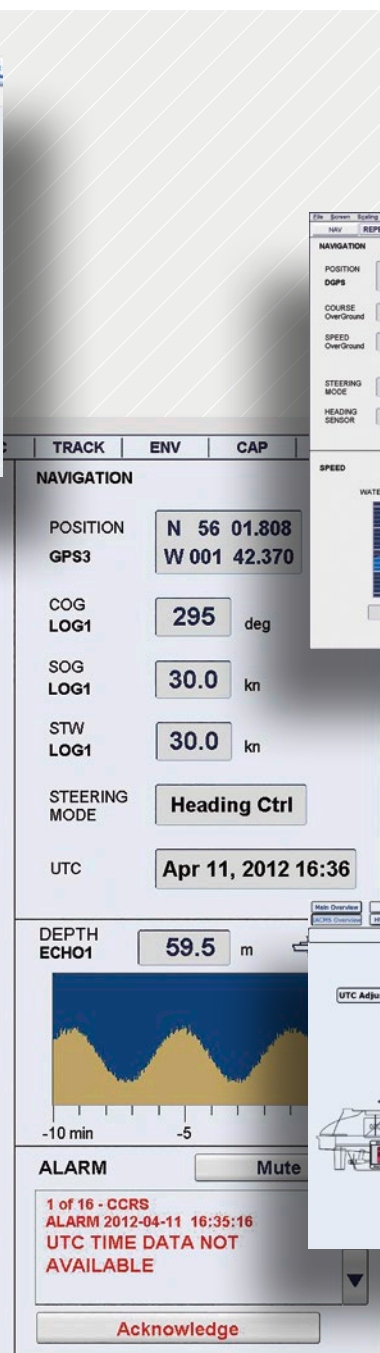
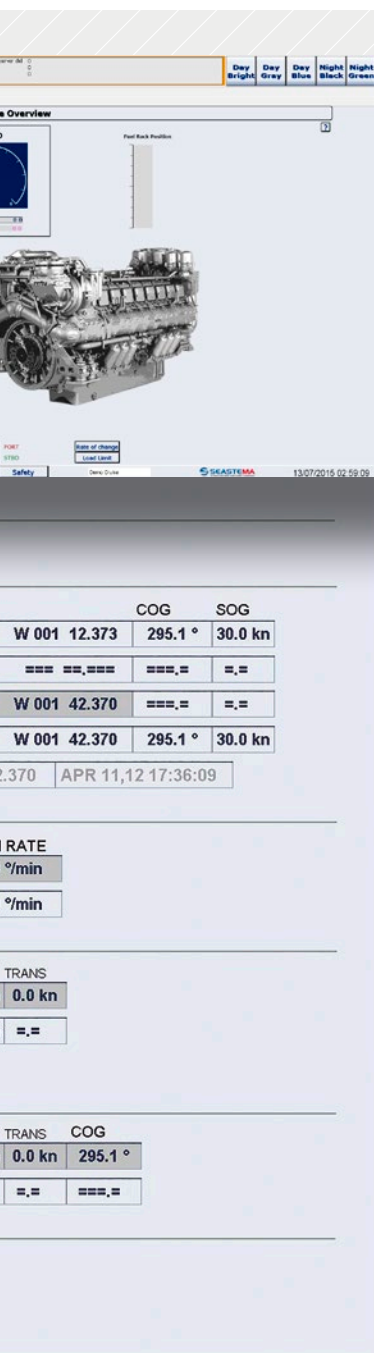
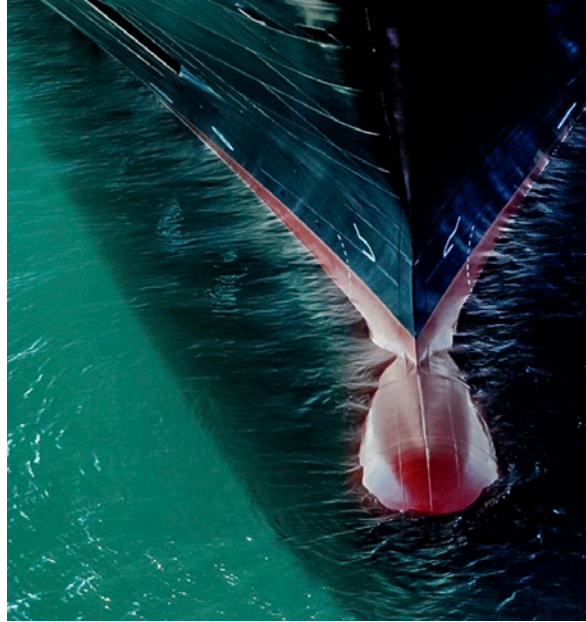
— Reliability and availability are granted by the system design requirements such as fault tolerance, multi-level redundancy, and rugged design to withstand the toughest marine environments, advanced self-diagnostic tools, online configuration and easy maintenance procedures that help to minimize restoring time. All systems are approved by the relevant Classification Societies.



State of the art technology

- Easy navigation through the Yacht navigation and machinery information, immediate data access, storage and management are all enabled by the SEASYacht™ Software platform that is at the core of the system.
- Personalized workplaces, intuitive and flexible navigation for focused and fast information access, integrated data for informed decision-making and comprehensive operator functionality for reliable control are distinctive features of the SEASYacht™ package.
- SEASYacht™ object oriented technology presents the entire ship equipment information in a simple graphic way. To access information and operations of any object, simply click on it and all relevant information and operating features appear at the user fingertips.





From requirements to turn-key projects

BASIC DESIGN

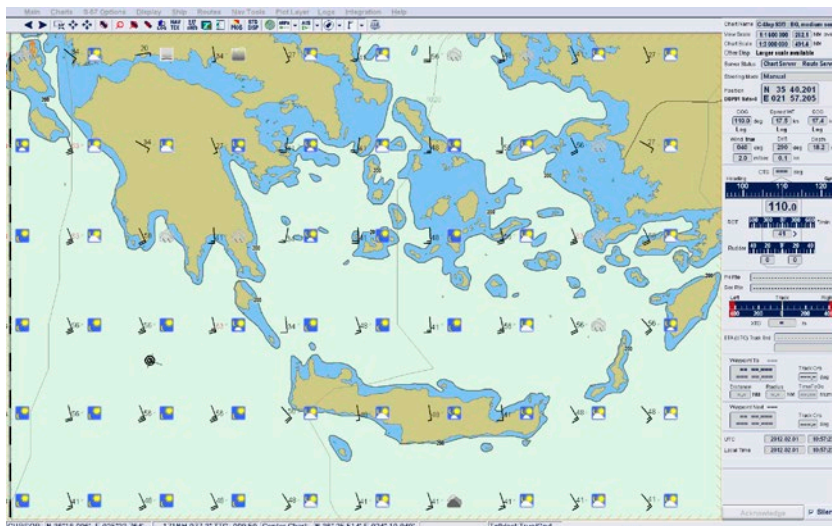
— The basic design of the automation and navigation systems starts with the preliminary stage of close cooperation with the customers to define the most efficient solution for them while also taking into consideration the Yacht's characteristics and the Owner's requirements. Our considerable experience demonstrates that this approach results in an Integrated Bridge and Automation System that provides added value to the whole ship.

PROJECT MANAGEMENT

— Meeting project targets is a must for our professional project management team. Shipyards and Owners organizations are supported from the beginning to the end of a project with a single contact point committed to implementing all technical and contractual requirements.

SYSTEM CONFIGURATION AND LAY-OUT

— Based on our experience, system configuration, layout and console dimensions and functions, number and dimensions of the cabinets can be defined in the early stages in order to help GA definition. Detailed information will follow during the project design phase.





SYSTEM SPECIFICATIONS

— Starting from functional specification and technical requirements, the project starts with detailed engineering and test specification, which are the basis for each project development, in compliance with our engineering process. Particular requirements, fault and damage analysis and redundancies, are carefully analyzed in this phase.

SOFTWARE AND HARDWARE DESIGN

— Application software is the heart of the SEASYacht™ package. By combining our in-depth knowledge of ship processes, high-level programming tools, standard libraries for ship automation and by using a set of Software modules approved for Navigation equipment, we develop solutions that meet the most important requirements for fast and accurate control and human machine interface. The hardware design is also critical because it must be such as to meet all requirements for environmental and fault tolerance requirements.

INSTALLATION ACTIVITIES

— Correct system installation requires engineering, planning and supervision tasks ensuring that all work is punctually and accurately completed in accordance with all requirements. Our expert team can provide added value to projects all over the world, often utilizing local people as their workforce.

TESTING AND COMMISSIONING

— Testing activities are carefully planned; from the factory acceptance test that is carried out on the entire system, to on board tests where our commissioning team verify that all interfaces are running correctly and make any necessary final adjustments during berthing and sea-trials. Noise, vibration and EMC requirements, and even particular demanding temperature requirements sometimes require specific tests that are performed in specialized laboratories.

A commitment for the whole life cycle

- Service activities begin with the ship's operation and last for its entire lifetime. Seastema utilizes COTS products that have a very extensive life cycle and provide 3 stages before obsolescence: Active products, Classic products (new developments are stopped) and Limited products (limited production).
- Next product generations overlap to existing ones in a way that enable transitions also skipping one generation.
- This fact allows Customers to plan system upgrades only when necessary, reducing as much as possible the impact on the installed systems and ensuring a very long life time. To assist crews all over the world, Seastema can rely on a worldwide flexible service organization that often involves also technical partners based in the operative area of the ships.
- The life cycle concept, the large use of COTS products available everywhere and the worldwide service network ensure high system availability during the whole operating life of the ship.



Added Value applications

- The most advanced technologies, leading competences in marine automation and navigation systems and an in-depth knowledge of customers needs provide the ideal mix for the best solutions in a project.
- Seastema's customer oriented organization ensures projects go smoothly, from the project detail's definition, together with the client's technical organizations, to the project implementation, commissioning and ship delivery.
- SEASYacht™ as a single system providing a unique plant interface to the operators, is the quickest route towards a reduction of the operating costs and an advance in ship operability for safer and more efficient Ship management.
- Seastema's commitment in helping customers to improve ship efficiency and ship operations at all levels, together with Seastema's high level of customer care, functional knowledge, automation technologies and worldwide service network result in a genuine added value to the ship.

Selected IAS References

Ships's name	FB262, MY 90 mt
Shipyard	Benetti
In progress	
Integrated Automation System	3,000 I/O
Integrated Bridge and Navigation System	

Ships's name	MY 120 mt MY, MARYAH E.
Shipyard	Elefsis Shipyard
Delivered	2015
Integrated Automation System	7,300 I/O

Ships's name	C.6218, MY 142 mt Ocean Victory
Shipyard	Fincantieri
Delivered	2014
Integrated Automation System	5,000 I/O
Integrated Bridge and Navigation System	

Ships's name	C. 2189, MY 75 mt GRACE E.
Shipyard	Perini Navi
Delivered	2014
Integrated Automation System	1,600 I/O





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