With SINAVY[CIS] EMCS, the Engineering, Monitoring and Control System for submarines, operation and control of all subsystems is based on one standardized comprehensive concept and performed at one central control console.

SINAVY[CIS] EMCS – multiple tasks – and everything under control

A submarine is a highly complex system comprising a variety of subsystems. Among other things, the trim, regulation, pressure and ventilation systems must be controlled and monitored. To simplify operation and further support the operator, all systems are controlled and monitored using one central system.

It is reassuring to know that for the realization of such a comprehensive automation project all life-cycle phases, from planning to system start-up and beyond, lie in the hands of a single company with years of specialized experience.

Five good reasons for SINAVY[CIS] EMCS

- Increased availability
- Supporting the crew by fulfilling routine tasks
- End-to-end automation solutions from a single source; all components are seamlessly integrated from engineering to system startup and optimized for economical updates and upgrades with SINAVY[CIS] LCM (Life Cycle Management)
- Uniform, comprehensive concept for easier operation, processing, monitoring and display of processes
- Comprehensive, worldwide after-sales service support for the entire life span

SINAVY[CIS] EMCS

The high availability automation solution for submarines

Marine Solutions

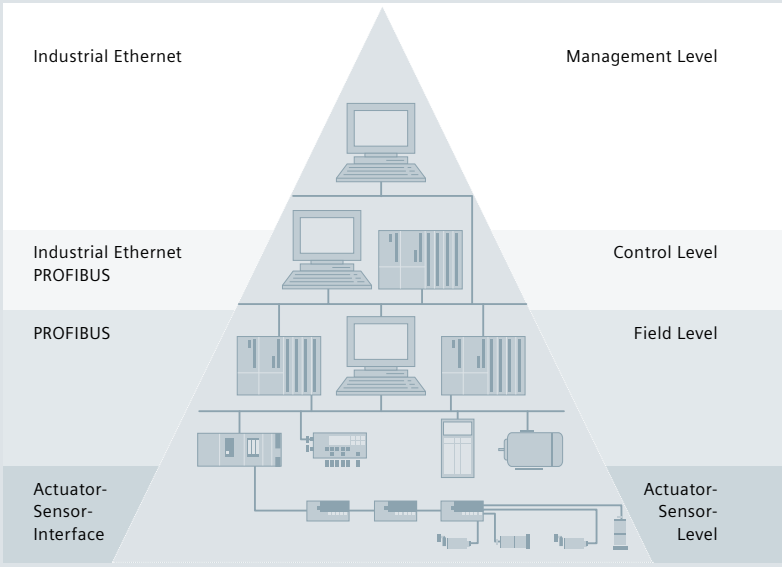
SIEMENS

SINAVY[CIS] EMCS – our solution in detail

Siemens offers a comprehensive services package, ranging from professional consultation for navy and shipyards, system engi-neering, design, manufacturing and delivery to system start-up, at-sea testing, and after-sales service. With our Life Cycle Management (SINAVY[CIS] LCM), we also ensure that the system always remains up-to-date with the latest technological advance-ments over the long term.

The proven SINAVY[CIS] EMCS automation solution combines the most diverse subsystems installed aboard a submarine to form a smoothly functioning entity.

Comfortable and highly available
Processes are handled in a decentralized manner by the control system with the help of self-sufficient LPUs (Local Processing Units). With its redundant data bus, the system offers the highest degree of operational reliability and fault tolerance. All components are standardized, industrial serially-produced "Commercial-off-the-Shelf" (COTS) elements.



OBTS – On board Training System

SINAVY[CIS] – Completely Integrated Solutions for the Navy

As a comprehensive specific solution for naval vessels, our SINAVY[CIS] product family integrates all the products and services you need for sustained maximization of your ship's performance.

For each particular task, a solution has been defined that

- **horizontally** improves all of your ship's operations
- **vertically** integrates the ship's information and security management end-to-end, helping to make better-founded decisions
- and, at the same time, is designed for optimum vessel-specific maintenance and comes with assured further development **over the whole life cycle.**

Due to this unique combination of horizontal, vertical and life cycle dimensions, our solutions all carry the genes of an exhaustive and sustained plant productivity in their very core.

For More Efficiency. More Performance. More Power. Completely Integrated Solutions from Siemens.

Operational safety is priority no.1
With SINAVY[CIS] EMCS, operation and monitoring of subsystems is performed via central and local operation terminals. All process data are immediately available on the monitor. For safety reasons, operator input is subjected to a plausibility check before execution. The system automatically takes into account the current operating mode (e.g. surface, diving, silent mode) of the submarine. In addition, a broad spectrum of internal test functions ensures the continuous automatic monitoring of hard- and software of the SINAVY[CIS] EMCS, including the bus system and interfaces to external devices. Process data are stored for long-term archiving and can, if necessary, be accessed immediately for analysis purposes.

Optional expansion possibilities for even more functionalities
Featuring a variety of optional expansion possibilities, SINAVY[CIS] EMCS can be flexibly tailored to meet the specific needs of the respective type of submarines. Among others, these features include:

- Central battery monitoring,
- Cruise-range calculation,
- Central pier monitoring, as well as
- Training (SINAVY[CIS] OBTS / LBTS – On board / Land Based Training System).

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