



KONGSBERG

PRODUCT SHEET



K-CHIEF 700 RETROFIT

UPGRADE SOLUTION AVM, SVC, K-CHIEF 700 & K-CHIEF 700 AUTOMATION SYSTEM

In general the expected life time of marine electronics is lower than the vessels. To improve the maintainability and reduce the maintenance cost a system retrofit will be the most viable solution. A retrofit will be an upgrade, of obsolete equipment, to secure stable and secure performance during the vessels life time.

The K-chief 700 retrofit solution includes replacement of existing KONGSBERG equipment, such as operator stations, processors and monitors. Typically existing cabling and cabinets are reused.

The retrofit solution provides significant benefits to the users:

- Existing functionality is maintained and enhanced in the new platform
- Improved functionality enabling new operations and enhancing performance
- Manage changes in class and governmental regulations
- Increased maintainability and reduced maintenance costs

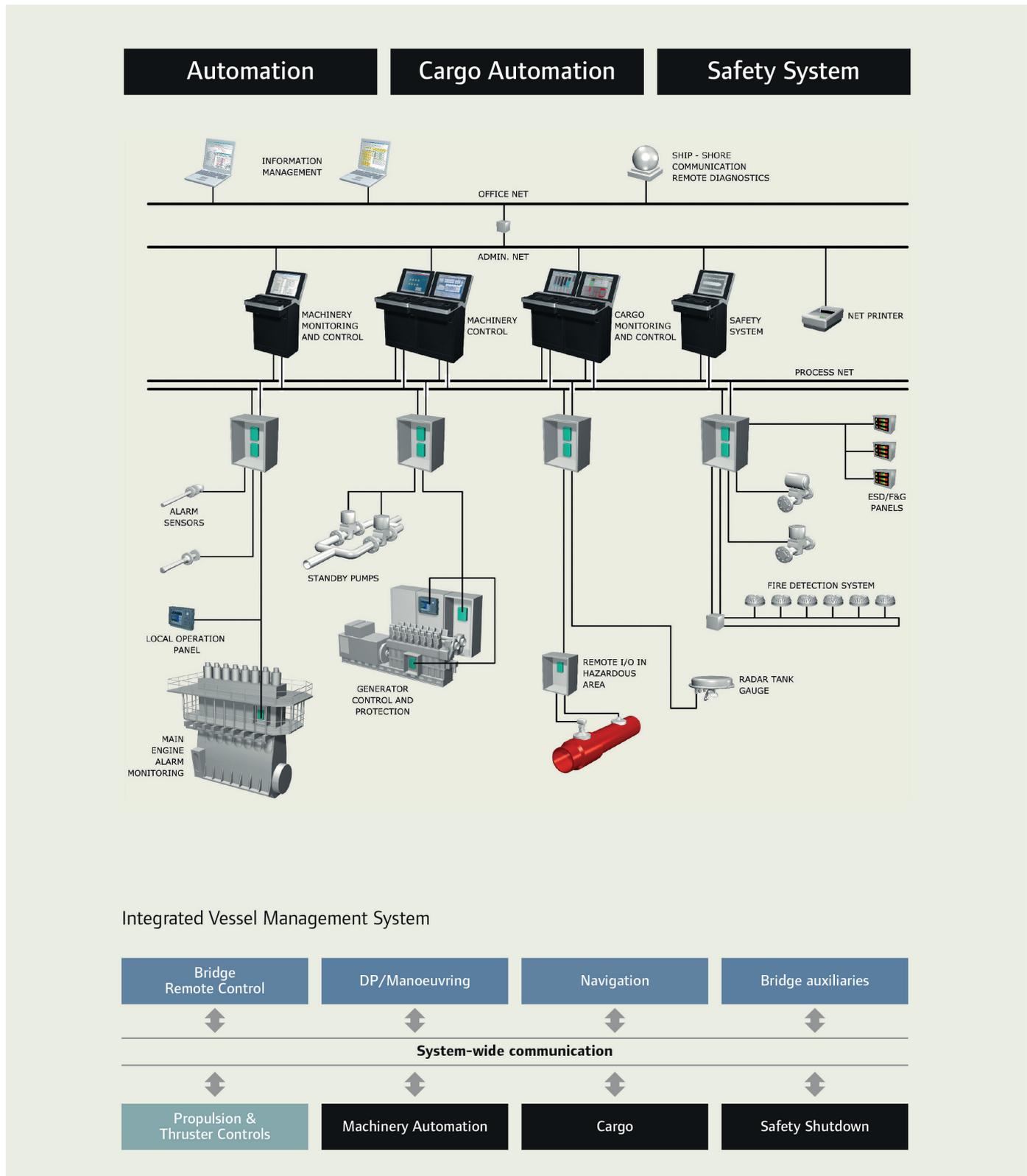


K-CHIEF 700 SYSTEM

The K-Chief 700 alarm, monitoring and control system is a highly flexible concept, providing competitive solutions for all types of vessels. From the most basic alarm system for unmanned machinery operation, to fully integrated automation systems covering PMS, machinery, propulsion and cargo operations. K-chief 700 is made for seamless integration with K-Pos and K- Bridge systems.

With the distributed and scalable system design, with I/O modules and controllers located close to the process, K-Chief700 is Ideal for replacing existing vessel systems. Upgrade kits are ready available for retrofit of existing Kongsberg systems.

The layout below shows a typical K-Chief 700 system



Operator station & process control

The main computer will be replaced by a new Marine approved Operator Station based on Windows 7. K-Chief 700 is designed for monitors supporting 16:9 format with improved HMI. Existing consoles can be reused or new consoles can be installed on request. Existing watch calling system can be kept as is or upgraded to the new "Touch Panel" watch call system with using same interface and cabling. Old controllers will be replaced with our latest remote control units. Replacement kits for existing I/O cards will be used. I/O field termination is kept untouched, reducing installation and commissioning time.



History station

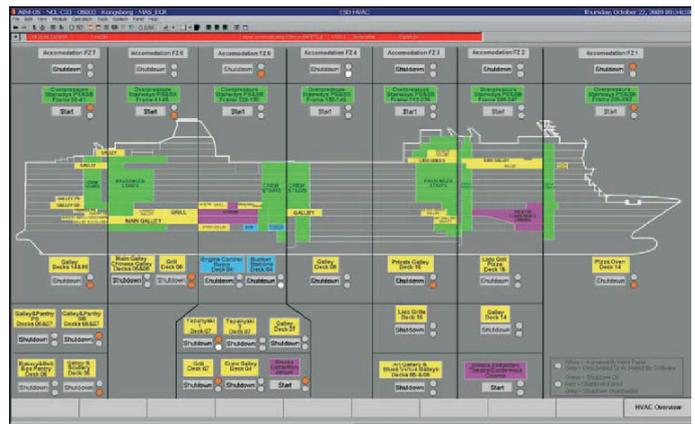
Kongsberg Maritime brings the History station one step further with a new reliable Common Data logger (K-IMS ready server). K-IMS is a communications platform developed by KONGSBERG for the offshore and maritime industry. A key element is flow of data and the interpretation of these combined with safe and reliable transfer of data. The Trend application allows the user to analyse trends and alarms for selected tags/sensors from all systems on the vessels. Historic data can be viewed by selecting date and time period. Alarm frequency is indicated on the timeline to enhance the troubleshooting process.



Safety system

KONGSBERG supplies a full family of integrated and reliable Safety Systems (K-SAFE) covering Emergency ShutDown (ESD), Process Shutdown (PSD) and Fire and Gas Detection and Protection (F&G) systems. With and upgrade of safety system the CE-Tool is used online to provide the actual programmed C&E-charts directly on the Safety System HMI. This is a very effective solution for operation, C&E-testing during both project execution and emergency operation of the plant. This ensure total control of inhibits, overrides and the logical correlation of the Cause and Effects.

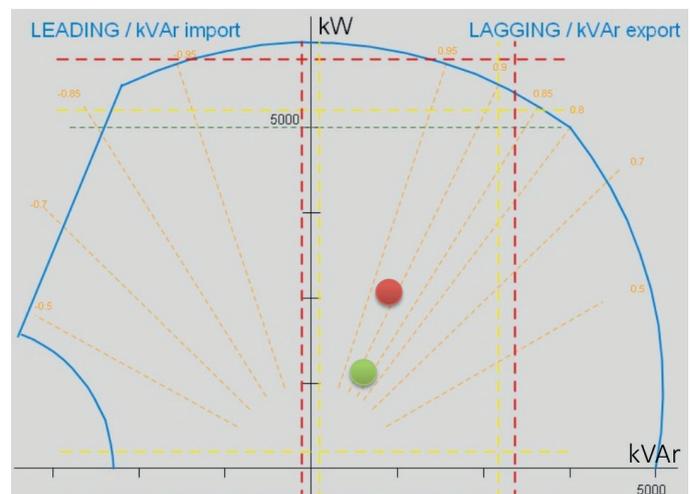
Fault detection and advanced self test functionality are important aspects to assure that the safety system will be able to perform its specified task on demand. Our solutions are Complying with SIL 1,SIL2 and SIL 3 requirements.



Power management system

Optimizing fuel consumption and reducing maintenance with holding high safety standard are key elements of the K-Chief PMS. Through the years we have grown our understanding of the dynamics between heavy consumers and producers of power.. Hence we have incorporated new functionality in the system to further reduce fuel consumption and maintenance. Lower NOx emissions and lower maintenance by running fewer engines with the patented Dynamic Load Prediction (DLP)and Dynamic Load Compensation(DLC). K-Chief power management system provides high redundancy and segregation, as well as blackout prevention features yielding stable power supply without interruption. The Advanced Generator Supervisor (AGS) system is an expansion to the Power Management System to detect failures in the generator's speed and voltage control system, and to prevent the fault from escalating into a critical situation.

This makes K-Chief 700 PMS more than a simple package. It has a proven collaboration with DP and Thruster Control and is packed with innovative features and academic methods all according to class regulations



REMOTE SUPPORT - SAVING COST AND TIME

Our Remote solution use online systems and health monitoring features to provide Kongsberg customer support with remote access to ensure systems reliability. Both Proactive and Reactive remote support functionalities are adapted. The system is designed to address the challenge of establishing a secure and reliable remote session to the vessel control system via satellite communications. The technical solution is using well proven technology adapted to maritime environments.



MALWARE PROTECTION

Kongsberg Malware Protection is designed to work in a maritime environment. Malicious software can cause serious damage and downtime for vessels. Updated Malware Protection is vital to ensure a safe and efficient operation. With Malware Protection, kongsberg has redefined control system Malware Protection.

- No negative impact on critical control systems equipment
- Always updated Malware Protection
- Network protection, securing critical networks
- USB protection
- Supports low band with high latency satellite connections
- Alarms and notifications through SNMP
- High availability
- Portable updated scan engine.



LIFE CYCLE SUPPORT

PLANNING & DESIGN	PROJECT ENGINEERING & DEVELOPMENT	INSTALLATION & COMMISSIONING	OPERATION & MAINTENANCE	MODERNISATION
		On-line support »		
		Technical support »		
Technical consulting »				
	Design and software engineering »			
			Field service »	
			Repairs and spare parts »	
			Optimization and modernization »	



Specifications subject to change without any further notice.

SUPPORTED BY PROFESSIONALS

Our systems are easy to install and maintain – supported by professionals either on-site or through remote connectivity. They are designed for optimal operational availability and allow for favourable life-cycle expenditure

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