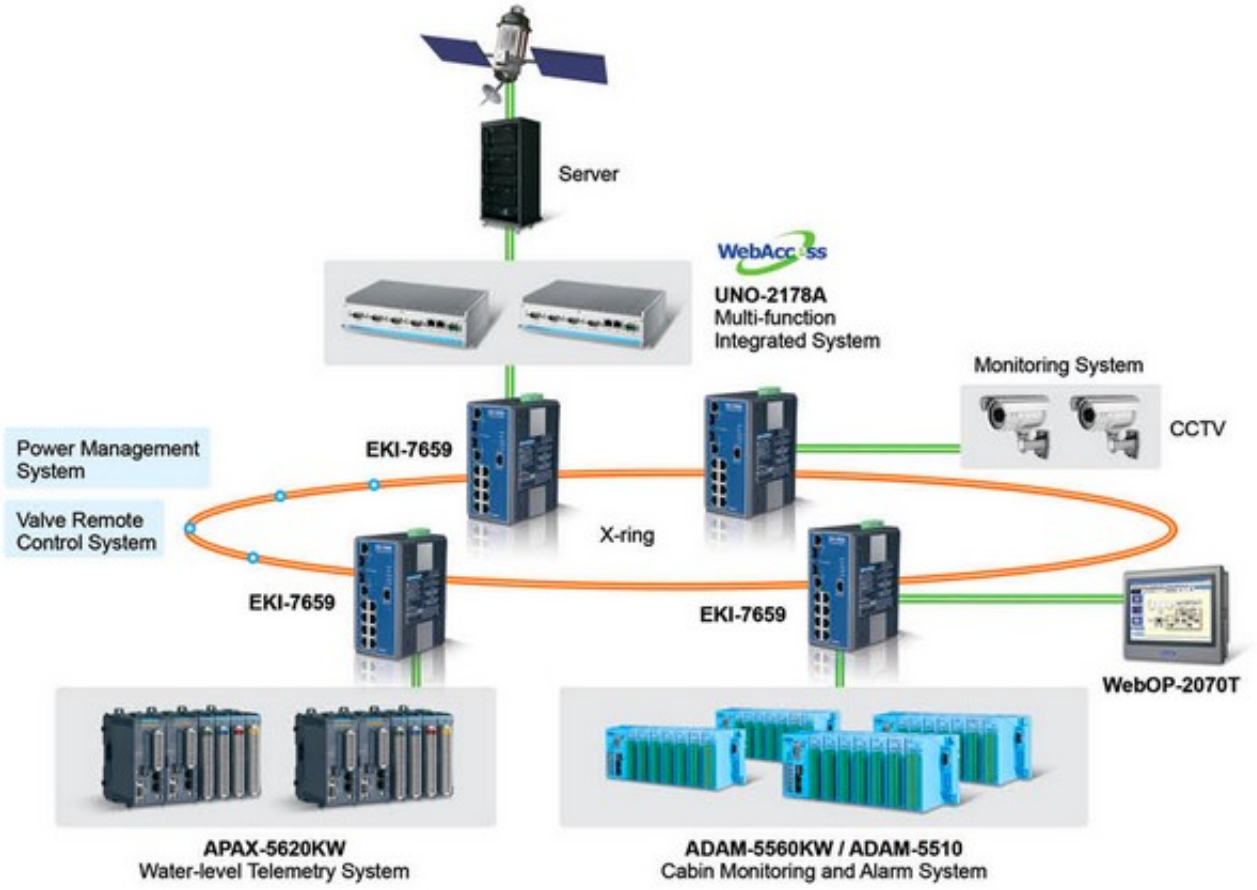
Vessel Alarm Monitoring & Management System

Ship control technology is developing toward the trend of integrated automation.



Project Introduction:

While the world´s shipping industry puts emphasis on shipping safety, reliability, and economy, the requirement of ship equipment control is also getting higher. Ship control technology is developing toward the trend of integrated automation, which is achieved by a multi-functional integrated system including the cabin automation, navigation automation, machinery automation, and loading automation. Sub-control systems are based on ship type and degree of automation, including remote control host, cabin monitoring and alarm, power management, valve control, water-level telemetry, ballast control, and automatic navigation.

System Requirements

The ship integrated platform management system adopts 1000Mb ring-based Ethernet or 100Mb star-based Ethernet network, using computer software system as the core to integrate the original independent monitoring alarm system, power management system, valve remote control system, water-level telemetry system, deck mechanical control systems, video monitoring system, remote wireless transmission system, and other subsystems through a reliable network. While maintaining independent subsystems, it integrates the functions of subsystems as a whole to achieve ship data sharing, in order to ensure ship information transmission for efficient control and management.

System Description

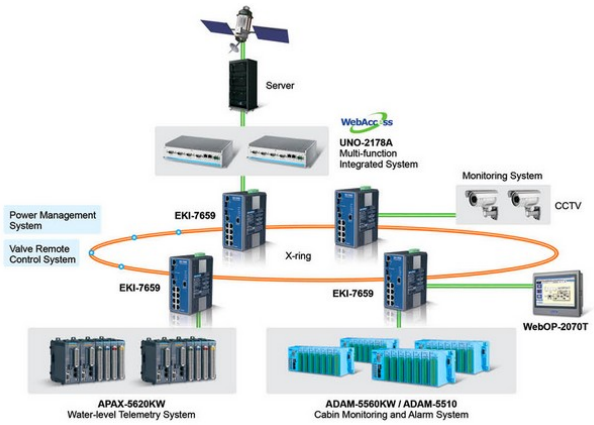
This casestudy used the EKI-7659 to form aring-based fiber-optic backbone network. APAX-5620 and ADAM-5550 were installed in cabins to controlvarious subsystems, to monitor intelligent devices through extended serial ports and CAN ports, and to complete logic control and information and data storage in the case of communication interrupt. WOP achieved remote alarm function, and WebAccess Professional configuration software ranon UNO-2178 rugged computer platformto collect, monitor, store, and display data. The above can add redundancy based on needs.

Project Implementation:

Advantech WebAccess	Browser-based HMI/SCADA Software
ADAM-5091	4-port RS-232 Modules
ADAM-5095	2-port CAN Module with Isolation Protection
WOP-2070	[RTOS] 7" WVGA Operator Panel with WebOP Designer Software

UNO-2178	Intel® Atom? D510 Automation Computers with 6 x USB, 8 x COM, 2 x Mini PCIe
EKI-7659	8+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch

System Architecture



Conclusion

Advantech PAC perfectly combines strong reliability, robust control performance, flexible I/O topology, and excellent environment adaptability. Coupled with other Advantech automation products, it forms complete integrated solutions to assist customers in easily creating ship integrated platform management systems.