Abstract

Redundancy in critical control systems and ship’s machinery in order to increase safety on ship, is necessary in modern ships. The project that was designed, implemented and is presented in this thesis, is trying to increase safety of a board, through the construction of a backup system that is able to control seawater valves. The installed SCADA system does not have a redundant control system for seawater valves which is a disadvantage. Control of the valves is achieved through the ship’s installed SCADA system. The SCADA system consists of an HMI, the PLC in which the automation and control of the valves is executed, and the AS-i Bus (Actuator Sensor Interface). AS-i Bus (Network) consists of the AS-i Master (Gateways) that receives data from the PLC, through Profibus protocol and converts it to AS-i protocol in order to send data over AS-i cable to AS-i slaves. It also consists of AS-i cable that transfers data and power to the slaves. In order to create a backup system to control the seawater valves we have to program and install an HMI, a PLC and AS-i Master. The technology of the installed Control & Monitoring System dates back to the first half of 2000. It is a question the compatibility of AS-i modules and PLC that are going to be used with the slave modules that have already been installed in the
system.

References

20. DCM 1271. Nurnberg, Germany: SIEMENS.

Index Terms

Computer Science  Information Sciences
Keywords

SCADA, PLC, AS-i Bus (Actuator Sensor Interface Bus), HMI, Valves