DP and Integrated Control Systems Networks

Authors: Nick Cranch, *Global Maritime Ltd*. and
Doug Phillips, *American Global Maritime*

Abstract

Modern Integrated Control Systems (ICS) on DP vessels often rely on Dual Networks as the medium for communication between outstations and control computers. Networks have been adopted for the reduced cost benefits over hard-wired, speed of data transfer and the ability to modify/add to the networks with minimum downtime/effort.

DP vessels are now so reliant on dual networks; that class societies have accepted that no direct control of propulsion is necessary, because they are confident that the networks are dual redundant. This has not however turned out to be the case, there have been a number of failures of both networks, and the DP / ICS suppliers have had to redesign their networks to make them more reliable.

This presentation reviews some of the double failure incidents that have occurred. Outlines the technical aspects of networks (but not in too technical a way) and the solutions being offered by the suppliers.

The format of the presentation is be as follows

- Network incidents - review of reported incidents
- Topography – Bus, Star, Ring – (Simrad, Alstom, Nautronix)
- Protocols – Ethernet, Field Bus – (Simrad, Alstom, Nautronix)
- Components – twisted pair cable, coax cable, fibre, hubs, switches, converters, etc
- Criteria of acceptability for DP and ICS Networks
- Automatic monitoring
- Customer Acceptance Testing
- On board testing and monitoring by operator/ET
- Class requirements
- Failure Modes of ICS and DP Networks

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