

Automation Upgrade on THV Patricia Trinity House, UK

ABB upgrades alarm monitoring system onboard THV Patricia to reduce risk of downtime

THV Patricia

The 86m long multi functional tender THV Patricia serves sea-marks, beacons and lighthouses around the coast of England, Wales and the Channel Islands. THV Patricia is operated by Trinity House. The history of Trinity House goes back to 1514 when Henry VIII granted the Royal Charter to a fraternity of mariners called the Guild of the Holy Trinity "... to regulate the pilotage of ships in the King's streams."

"The cooperation between Trinity House ship's engineering team and the ABB engineers was very good. Although it was a tight delivery schedule, both the ship crew and ABB engineers persevered to make sure the system was completed prior to departure of the vessel. The expertise and professionalism from the service engineers during commissioning the system was good and ensured all comments from the Factory Acceptance Test were resolved and with no outstanding comments from the Site Acceptance Test. Currently we are still working closely with ABB to ensure the system performs as expected and to resolve minor issues. We would like to thank the team for a successful project."

Trinity House's Robert van Duin, Engineering Superintendent and Gavin Johnson, Technical Superintendent

Requirements

The requirement was for the modernisation of the old ABB alarm and monitoring system, COMPAL 61, which was currently installed on the THV Patricia which included duty alarm systems, bridge alarm system and watch alarm system. The main issue was that of obsolescence and the increased risk of downtime if a failure occurred.



The order was received through ABB UK's Marine and Cranes Division based in Aberdeen at the end of December 2012 and the installation of the system commenced February 2013. ABB Marine and Crane in Hamburg were responsible for the hardware and software delivery. Within a little over three weeks from the start of installation, the system was back in service. The close collaboration between Trinity House, ABB Aberdeen and ABB Hamburg made it possible to meet the tight deadline.

Scope of Supply

Alarm Monitoring and Control System AMCS 500

This system replaced the obsolete COMPAL 61 alarm system which contained the obsolete T200 and CS31 control units, obsolete operator panel 35BS40, obsolete panel type 11HC22 and obsolete printer, with a modern active AMCS 500 system.

AMCS 500 integrated or reused all existing field signals with new user interface in one control Ethernet network. Old electronic components and panels of COMPAL 61 were not to be reused. The new AMCS 500 includes standardised alarm handling and user interface functions. The alarm list is generated and stored on the operator panel OP 500 server or OS 500 server operator station, so that no printer is required. The data is available for analysis and printout on any PC.

Exhaust gas temperature monitoring was integrated into the new AMCS 500 and OP 500 user interface. Alarm handling is configurable for cylinder high temperatures and exhaust gas high/low deviations. Existing thermo-couple signals were reused.

Duty Alarm and Engineer Call System EAS 500

The obsolete Duty Alarm system EAS 96, based on obsolete ABB CS31 components and different engineer panels was modernised with a separate EAS 500 system.

This order included the modernisation of all obsolete electronic CS31 components, one 10" TFT panel, in ECR console, one 10" TFT panel in bridge console, and six 7.5" TFT panels for engineers and public rooms.

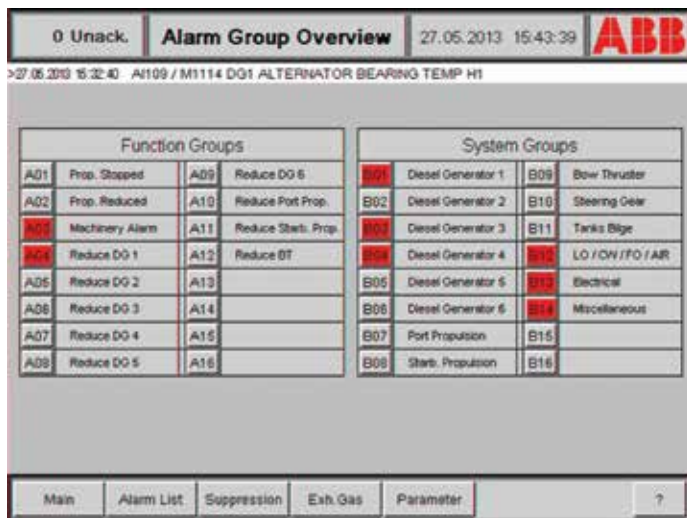
The 7.5" TFT panels would not fit in the existing mounting enclosures, therefore new enclosures were provided. The existing hardware was removed and the new enclosures fitted.

All the existing field signals were reused in the new EAS 500 system. Interconnection to alarm groups from AMCS 500 remained through hardware I/O signals.

Bridge Alarm System

The obsolete bridge alarm system COMPAL 91 and one bridge panel were modernised with a separate AC500 system.

This included the modernisation of all obsolete electronic CS31 components and one 10" TFT panel in the bridge console. All existing office, cabin and public room panels included only hardware components like lamps, buttons and horns. These were reused in the new AC500 solution to reduce the cost for new components and installation of new cables and panel.



Screen shot of new alarm system

All existing signals were reused in the new bridge alarm system. Old electronic components were not to be reused.

The functionality of the obsolete watch alarm system, PAS90, was integrated into the BAS 500 bridge alarm system and is BNWAS compatible.

Maintenance and diagnostic features

The AC500 itself offers extensive built-in diagnostic options. The system's user friendly software based diagnostics include local LED indications and easy-to-read LCD display.

Factory Acceptance Test – FAT

According to classification requirements, the proposed AMCS 500 alarm system required official FAT and Classification certificate for each delivery.

Benefits

- Upgraded alarm and monitoring system which reduces the risk of failure.

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