

MARINE BRIDGE SOLUTIONS

INTEGRATED NAVIGATION SYSTEM (INS)



Marking another milestone in the evolution of its iconic display family, Kelvin Hughes has developed its next generation Integrated Navigation System (INS) designed for all types of vessels up to and including the largest state-of-the-art cruise ships.

The Kelvin Hughes INS offers a market leading user interface, for ease of operation and maintenance with full integration to all existing navigation equipment and sensors. The INS has been designed according to IMO performance standard MSC.252(83) and IEC test standard 61924-2.

TRUE MULTIFUNCTION TASK SOLUTIONS

Kelvin Hughes Multifunction Displays (MFD's) provide configurable access to all tasks critical to navigation - Radar, ECDIS, Conning Displays, Bridge Alarm Management and a host of other information, while maintaining the ability to view external systems - all from a central user focused MFD console.

- Heading and position data
- Steering control systems
- CCTV / thermal cameras
- Machinery control and automation systems
- Alarm systems
- Vessel optimisation display
- Integrated Platform Management System (IPMS)
- Ship stability system

All external applications are connected via secure gateways, meaning failure of external equipment cannot spread across the critical navigation network.

Kelvin Hughes MFD's use space saving, minimalistic design, which reduces the installation cost to operators, providing exceptional reliability, and allow for simple retrofit solutions to be offered to all vessels.

USER CENTRIC DESIGN

Kelvin Hughes patented 3-button operation allows for unparalleled simplicity of operation. Extensive feedback from military and commercial customers has resulted in an immediately recognisable user interface that provides the navigator all the information required on demand, with minimal effort.

The use of the intuitive key tooltips and common dialogues and controls throughout the system allows all operators to focus on critical navigation tasks without distraction.

The Kelvin Hughes INS is designed to easily enable Bridge Resource Management (BRM) procedures. The latest addition to this is the inclusion of a common track label across all MFD's which allows each operator to talk about a common target number ensuring that there is no misunderstanding when discussing targets likely to pose a navigation hazard. This feature has been designed from the ground up with industry user input.



RADAR



ECDIS



CONNING



BAM



DP

Detect and Protect.

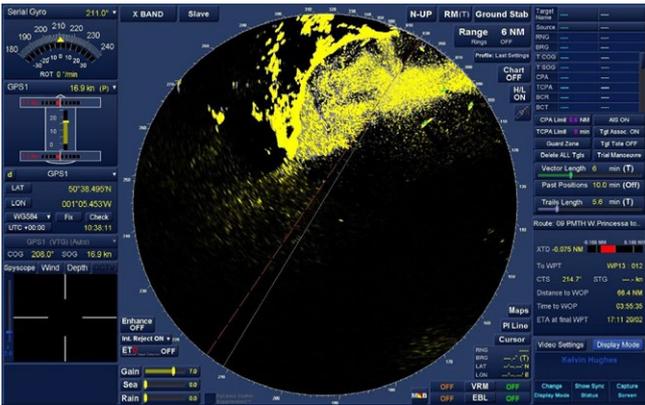
KELVIN HUGHES
A Hensoldt Company.

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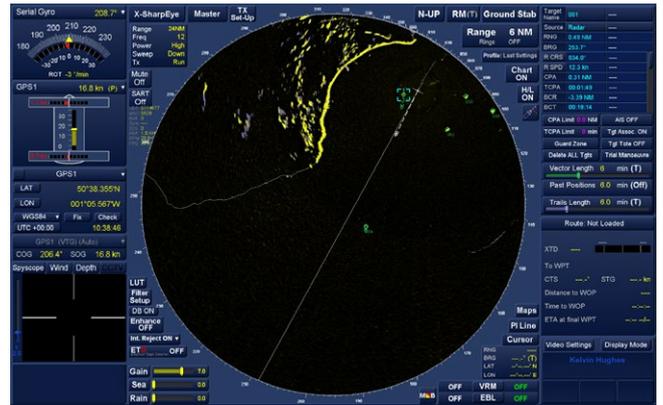
UNPARALLELED RADAR PERFORMANCE

Kelvin Hughes MFD's incorporate high reliability solid state drives that not only boost performance of the system but offer significantly improved reliability.

Kelvin Hughes is the only company to offer both S-Band and X-Band solid state radars approved to IEC-62388 ED2. The core design philosophy is to reduce operator workload by automating the majority of controls. All radars include automatic continuous performance monitoring, and state-of-the-art detection performance is assured by the use of enhanced doppler processing, meaning that Kelvin Hughes radars can detect small targets in rain and sea clutter which are invisible to conventional radars.

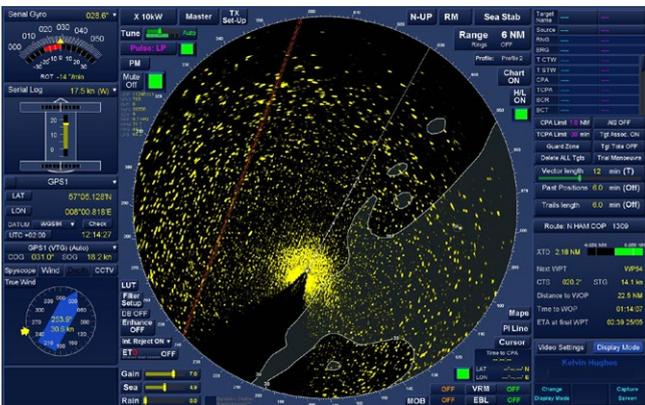


Conventional Radar

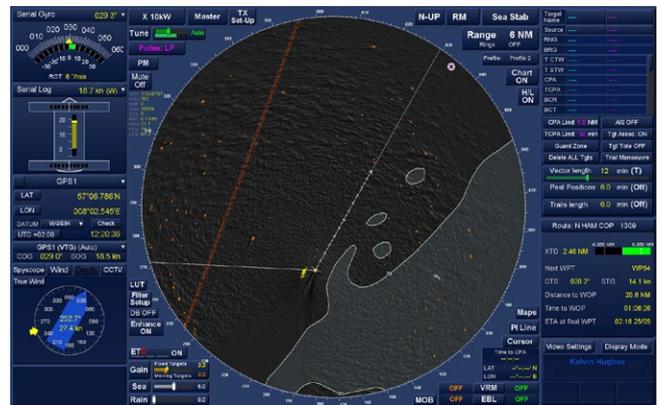


SharpEye™ X-Band Radar

With Enhanced Target Detection (ETD) built into a single display, challenging targets such as ice and low RCS targets can be detected with ease.



Conventional Radar Display



Radar Display using ETD Mode

TRACK CONTROL SYSTEM

Through the integration of ECDIS and Autopilot Kelvin Hughes offers a unique Track Control function which features automatic steering along a set route of waypoints. This enables the vessel to maintain the plotted route automatically at all times with minimum intervention from the navigator.

The operator is also alerted to navigational warnings and potential dangers before the vessel is at risk.



Track Control Mode

DISTRIBUTED AND RELIABLE

The design philosophy of the Kelvin Hughes INS is that no one component should cause a loss of navigation functionality. All critical components operate with dual redundancy so no single point of failure exists within the system design.

All data is collected and shared via a LAN, providing maximum flexibility to meet customer specific configurations and functions.

Under adverse conditions, such units are designed to continue to perform the core navigation functions assigned, resulting in a level of system dependability and robustness.

Kelvin Hughes offers military level availability for the commercial market.

Optionally Kelvin Hughes can integrate inertial navigation sensors into the INS, this removes the reliance on GNSS systems ensuring safe navigation can continue in the event of failure, such as GPS malfunction.

CUSTOMER SUPPORT

With over 70 years experience in bridge electronics, Kelvin Hughes can manage the whole system life cycle, including equipment, engineering, logistics, supervision of installation, commissioning, operator training and after sales service with a qualified and trained worldwide 24/7 service network.

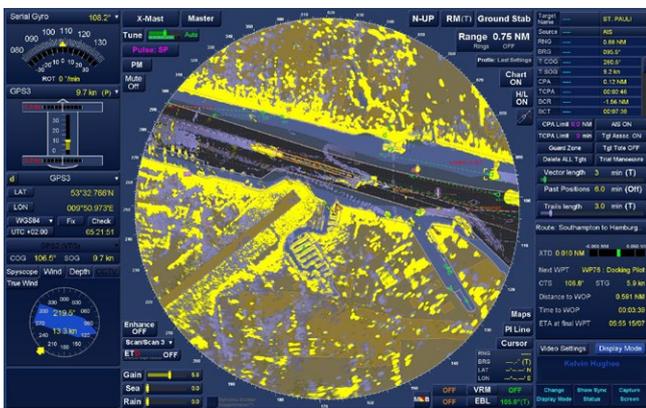
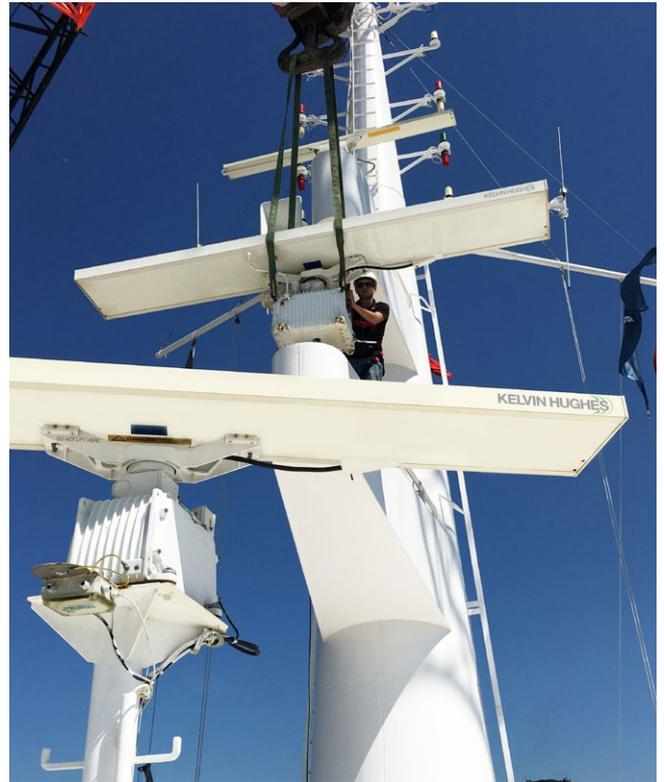
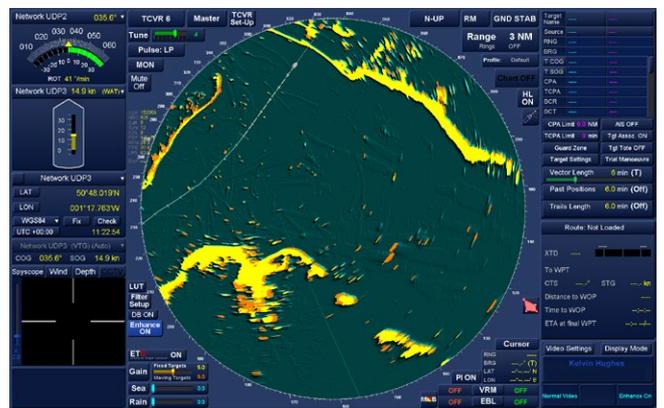


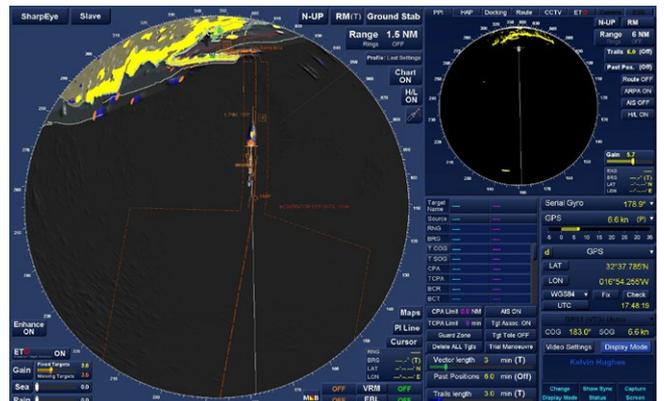
Chart Radar Allows the operator to visually confirm the position sensors are accurate with the radar data overlaid on the ENC navigation chart



Enhanced Target Detection (ETD) allows the operator to immediately distinguish moving targets from stationary targets at a glance



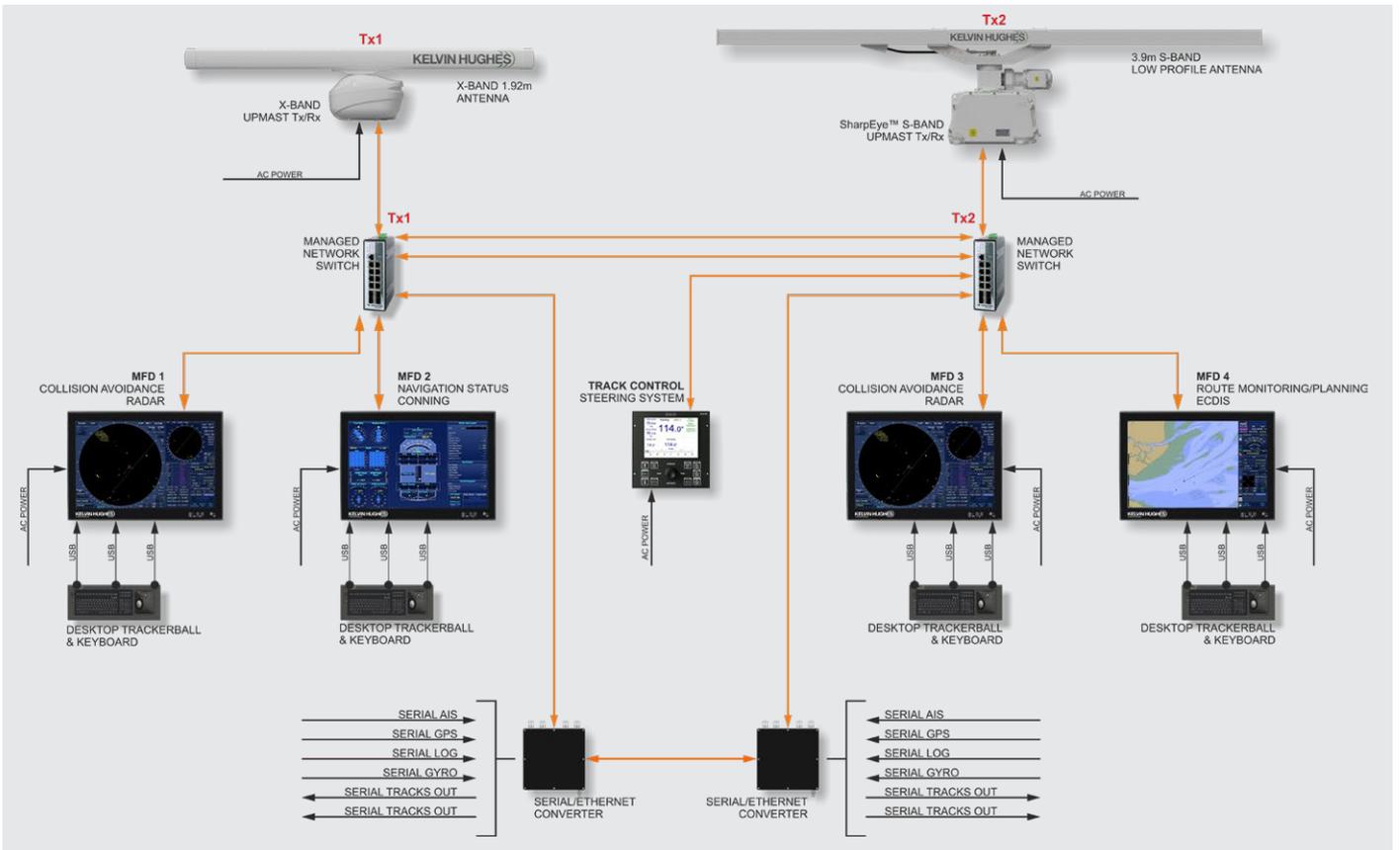
Harbour Approach Panel (HAP) mode - propulsion, depth and wind data for docking activities



Dual PPI mode - two fully independent radar PPI displays

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A TYPICAL KELVIN HUGHES INS



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