

Mine Counter Measures Support System

Drumgrange has implemented a suite of tactical support tools to assist Mine Counter Measure Vessels (MCMVs) efficiently and effectively deliver their mission objectives. This includes tactical planning tools, systems to precisely measure the ship's weapon datum for accurate target localisation and hull vibration monitoring equipment.

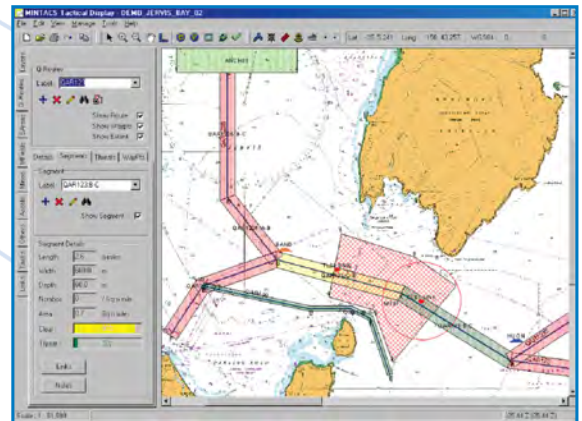


MINE WARFARE COMMAND SUPPORT SYSTEM

Drumgrange's is Prime Contractor for the Mine Warfare Tactical Support System Replacement (MTSS(R)) that provides Royal Navy Mine Warfare Forces with a comprehensive Mission Planning and Assessment Capability for route clearance operations.

MTSS(R) uses the MINTACS software developed by Sfs Pty Ltd with additional third party interfaces implemented by Drumgrange including the RN Route Survey Data Base. The software provides the user with threat assessments and planning tools to enable an MCM Force to efficiently conduct mine hunting, sweeping and clearance diving operations.

Drumgrange has an in-service support contract for MTSS(R) with the Royal Navy and undertakes periodic software upgrades based on emerging user requirements and feedback from the Command Teams in theatres of operation.



MTSS(R) provides the MCM Command Team with planning, mission progress monitoring and threat assessment tools

PRECISE FIXING

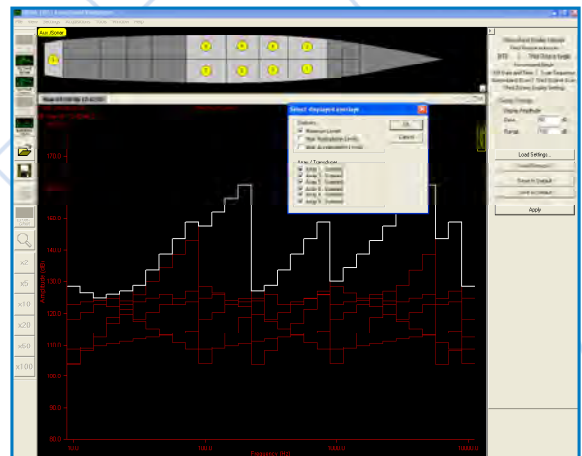
Drumgrange is Prime Contractor for the Royal Navy's MCMV Precise Fixing (PF) system which provides an accurate GPS based position. The PF system precisely measures the position the ship's weapon datum, with real-time corrections for platform motion, to enable detected mines to be precisely localised. The contract includes 15 year comprehensive Contractor Logistics Support (CLS).

The Precise Fixing (PF) System provides the following main functions:

- Utilise both Global Positioning System (GPS) and Differential GPS (DGPS), when available, to compute a precise position.
- Provide DNAV message output compatible with NAUTIS and NAVPAC command systems.
- Provide dynamic lever arm calculations utilising sensor information (roll, pitch and heading).
- Provide enhanced operation when in the presence of Jamming and Spoofing.

HVME(TR)

To manage platform acoustic signatures, mine warfare vessels are fitted with hull vibration monitoring equipment (HVME). Drumgrange has recently supplied a Technical Refresh (TR) to the HVME system fitted to the UK's fleet. HVME(TR) provides a comprehensive vibration monitoring and investigation capability using COTS hardware and arrays of transducers mounted on the hull throughout the platform.



Drumgrange's HVME(TR) provides a comprehensive vibration investigation and monitoring capability



Installed throughout the Royal Navy

Mine Warfare Command Support System

MTSS(R)

- Mine Warfare Data Exchange
- Raster and Vector chart display
- Standard GIS pan, zoom, scroll etc
- Selectable display layers (including AMLs)
- Mine Warfare Tactical feature set
- Mine Warfare Environmental data
- Side Scan Sonar overlay
- Mission Planning and Assessment
- Display of individual MCMV and force clearance and threat levels
- Office and Ruggedised Deployable Hardware
- Additional Tools
 - Data Acquisition (including sonar imagery)
 - Detection Probability
 - Classification Probability
 - Position Accuracy (both static and dynamic)

“We design, develop and manufacture innovative products and are also experts at integrating existing technology to create successful, cost effective solutions.”



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