

# Sonar Systems



Drumgrange has long been associated with the design, development and implementation of sonar systems and offers a complete design and through-life support capability. Drumgrange's sonar solutions are in-service with the UK's Royal Navy either as stand-alone systems or as integrated sub-systems using the latest open systems architecture software and COTS hardware.

## Active Intercept Sonar

Drumgrange has particular expertise in Intercept Sonar, having developed a series of high performance wideband Intercept Sonar Processors. We can provide complete hardware and/or software solutions using single arrays or multi-site architectures covering low to very high frequencies. Drumgrange's solutions are fully digital allowing easy integration within an integrated sonar suite by a third party.

## High Frequency Passive Sonar - LEOPARD

A high sensitivity, high frequency passive sonar which can be interfaced with existing sonar arrays or new array configurations. The sonar uses a narrow-band technique that responds to the spatial structure of received sonar wavefronts. The signal processing algorithm gives full 360 degree azimuth cover, and practically eliminates the side-lobe 'spokes' that are traditionally associated with this class of sonar.

## S2054(IR)

Drumgrange has supplied various sonar processing sub-systems for the new open architecture Sonar 2054 Inboard Replacement (IR) programme being fitted to the Vanguard Class submarines by Lockheed Martin.

## Hull Vibration Monitoring Equipment (HVME)

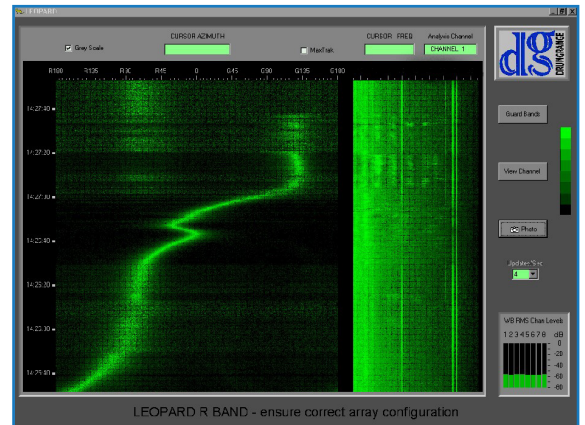
Drumgrange has been contracted to manufacture and install a Technical Refresh (TR) to the HVME systems on the Royal Navy's existing Type 23 Frigates, submarines and mine counter measures vessels. HVME (TR) provides a comprehensive vibration monitoring and investigation capability using COTS hardware and arrays of transducers mounted on the hull throughout the platform.

## Sonar Research and Development

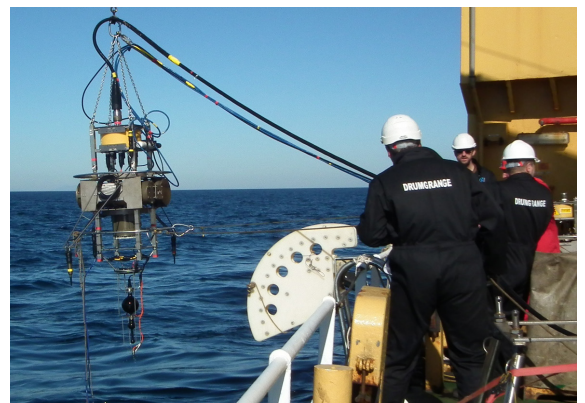
Drumgrange has a highly capable sonar modelling and simulation capability to support algorithm development and system performance modelling using simulated or recorded data.

## In Service Support

Drumgrange has extensive experience of providing in-service support including platform installation and setting to work, service and repair, contractor logistics support (CLS), post-design services, documentation and safety management coupled with specialist facilities to support sonar trials, static/underway calibration and sonar recording for data analysis.



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



## Technical Specification

### Generic Intercept Sonar Key Features

#### Surveillance Display

- Vertically scrolling history presentation
- Bearing, frequency and amplitude displays vs. time
- Fast and slow update areas (operator configurable)
- Optional frequency filters (display in different colours)
- Cursor readout of all parameters
- Tote presentation of contact parameters

#### Classification Display

- A-scan presentation
- Amplitude and frequency vs. time
- Operator selectable update rates
- Cursor, pause and zoom controls
- Comb cursor for repetition rate readout

#### Replay Facility

- Real-time random access and fast replay

#### Aural Facilities

- Baseband and heterodyned operation
- Wideband and narrowband modes
- Can be slaved to classification display

#### Warner Alarms

- Alarms on selected frequency filters
- Operator controlled

#### Data Logging

- All contacts can be logged to magnetic media
- Operator controlled
- Readout of disk space used

#### BITE Reporting

- BITE reporting to LRU
- BITE reports logged to magnetic media

### HF Passive Sonar Key Features

- Interfaces to existing sonar arrays
- Processing suitable for various arrays including towed, hull and intercept
- Responds to short duration events
- High sidelobe suppression
- Provided with Graphic User Interface
- Working in bands above normal passive sonar

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