

# Signature Monitoring Systems

Drumgrange can provide a range of Signature Monitoring Systems (SMS) for organically monitoring the radiated acoustic emissions of Warships and Submarines.



Our SMS has been developed as a stand-alone system comprising transducer arrays, data acquisition and data distribution sub-systems and PC based operator work-stations. Alternatively, we can offer the transducers with network based telemetry and embed the software application within the platform's existing Sonar or Combat system.

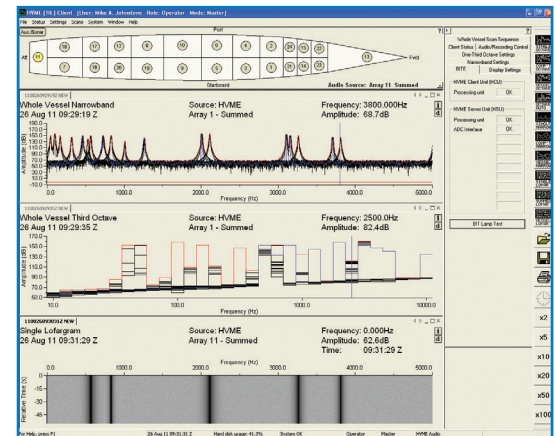
The transducers comprise arrays of hull internally mounted accelerometers and external hydrophones which can be populated throughout the platform or localised in particular compartments to provide real-time radiated noise estimates and to aid the localisation of noise sources.

The software provides a modular acoustic analysis toolkit and an equipment database which allows the operators to customise the system to suit the platform configuration.

## Key features of the software include:

- Windows based application operated independently or within a networked combat system
- Single transducer, compartment or whole platform acoustic measurements
- Narrowband or third octave analysis
- Single or summed Lofargram displays
- Frequency coverage depending on transducers
- Raw data capture for post-processing

Drumgrange can also provide fully customised solutions to suit bespoke requirements.



Versatile Software Toolkit



Bulkhead Mountable Control Panel

## Drumgrange's Signature Monitoring System Key Features

Monitoring and Analysis Displays	<p>Channel Analysis;</p> <ul style="list-style-type: none"> <li>• 3rd Octave</li> <li>• Lofargram</li> <li>• Wideband</li> </ul> <p>Compartment Scan          Whole Vessel Scan          User populated machinery database          User populated calibration factors          Narrowband zoom.          Peak find function          Saved and restore scan results data.          Comparison function to overlay current scan results with previous scans          User annotation of scan results.</p>
User Tools	<p>Line cursor identifying a single frequency and its associated amplitude.          Sideband cursor identifying a frequency and selected sidebands.          Harmonic cursor identifying a frequency and its harmonics.          Crosshair cursor identifying a frequency, amplitude and time on a lofargram display.          Machinery cursor identifying machinery frequencies from an operator entered database of known frequencies</p>
Aural Facilities	<p>Baseband operation          Wideband and narrowband modes          Can be slaved to analysis or scan channels</p>
Alarms	<p>Operator controlled alarms on exceeding configured noise level limits</p>
Data Logging	<p>Operator controlled signal, signature and screen data logged to encrypted removable media          Readout of disk space used</p>
BITE Reporting	<p>BITE reporting to LRU          BITE reports logged to removable media          Serial PMS status reporting</p>

## SMS Hardware

<p>Compact bulkhead mountable console          Rack mounted processing enclosure          COTS processing hardware          Low noise signal conditioning and acquisition electronics</p>	<p>EMC: DEF STAN 59-41 I I for below decks          Environmental: DEF STAN 00-35          CE Marking: LVD 2006/95/EC, EMC 2004/108/EC</p>
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**Drumgrange Limited**  
 Unit A, The Forum, Hanworth Lane,  
 Chertsey, Surrey, KT16 9JX  
 +44 (0)1932 581100  
 Email: [info@drumgrange.com](mailto:info@drumgrange.com)  
[www.drumgrange.com](http://www.drumgrange.com)



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