MULTI INFLUENCE SENSOR SYSTEM

SYSTEM OVERVIEW

The Multi Influence Sensor (MIS) system detects, measures and records a vessel's signature data. It measures 3-axis of magnetic, 3-axis of electric, omnidirectional acoustic, and pressure signatures. Monitoring this data allows vessel designers and operators to implement signature reducing strategies to mitigate the risk of the vessel being detected and damaged by sea mines, submarines or other underwater devices.

The system can be deployed by 2-3 people from a small surface vessel in depths to 50 metres and be fully operational within a couple of hours.

The system comprises three main modules:

1. Sensor Frame. This is a tetrahedral fibreglass shape containing the sensors and processing computer.

2. Surface Buoy. This is a floating buoy containing the system power supply, surface/sub-surface interface and communication system. The Sensor Frame and Surface Buoy are connected by a 200-metre cable that transfers power, sensor data and control information.

3. Surface Vessel Components. This comprises the system display, monitoring and control computer and the communication wireless telemetry system.

SYSTEM OPERATION

The vessel's signature data is collected by the Sensor Frame sensors and stored on the computer housed in the frame. An Ethernet based client/server connection is used for remote operational control and to transfer recorded sensor data. A Very-high-data-rate Digital Subscriber Line (VDSL) link is used from the Sensor Frame to the surface buoy and then an encrypted wireless telemetry system is used for communications to the surface vessel.

The position of the Sensor Frame on the seabed is accurately determined using an acoustic transducer which is remotely activated from the deployment vessel.

Ship positioning data is obtained using the ship's fitted systems and the Sensor Frame position is entered into the ship's navigational system. Ranging is then conducted by the vessel passing over the Sensor Frame at predetermined speeds and on pre-determined tracks. The control laptop will display the real-time sensor data which is also recorded for post ranging analysis.

The system on-board battery capacity allows it to operate for a minimum of 8 hours and fresh battery pods can be swapped over without having to recover the system.

SYSTEM SOFTWARE

System control, monitoring and recording is all managed by the software installed on a Toughbook laptop. The system software provides:

- Real-time display of sensor data on individual charts or in numerical format with their static/background levels.

- Connection status between the Toughbook and Sensor Frame computer.

- Controls to record data.

- System status information on the Sensor Frame computer temperature and approximate depth together with the battery voltage remaining.

- Sensor Frame attitude information (pitch and roll) and the voltage and current being drawn by the computer.

- Control of the transfer of recorded data.
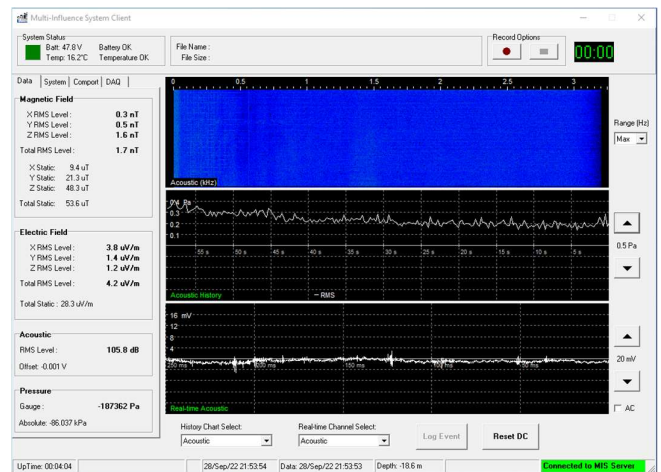
SYSTEM FEATURES

- Easily deployed and recovered
- Provides ranging in theatre
- Simple to operate
- Accurate measurement of acoustic, electric, pressure and magnetic signatures
- 50m depth rating
- Real time display and recording of data

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