

System description

The AMBS System

Kongsberg Maritime have designed and developed the Acoustic Monitoring Buoy System (AMBS) to effectively measure underwater construction and operational noise levels in “real time”.

Offshore activities, including renewable energy development projects, introduce levels of noise that impact on marine life to some degree. Offshore developers & contractors are under increasing regulatory pressure to measure, monitor, understand and reduce the risk to the environment from a wide range of activities that have the potential to generate harmful levels of sound.

The AMBS system will record and display “real time” underwater noise levels during site development, operation or decommissioning activities and can be used in support of Environmental Impact Assessment (EIA) and Marine Mammal Observers/Passive Acoustic Monitoring (MMO/PAM) operations.

Rapid deployment and easy operation

AMBS is an autonomous recording unit which can be easily configured and deployed inside the customer supplied buoy, to monitor underwater acoustic levels during operations. The modular design also enables the system to be easily transported and assembled.

The system supports the onboard MMO, or construction manager, by providing real time data of impact noise levels so that decisions can be made when construction, operational or vessel noise are about to breach the regulatory requirements. This will help to reduce delays, costs and increase operational efficiency. The data acquired provides the basis for clearer interpretation & analysis, and upon which important operational decisions can be made.

Typical applications

AMBS can be deployed to monitor real time acoustic activity during many offshore operations including:

- Offshore wind farm installation
- Seabed piling operations
- Drilling and platform decommissioning
- IRM of offshore structures



- Acoustic baseline surveys
- Seismic exploration activities
- Cable and pipeline trenching
- Decommissioning operations
- Environmental monitoring



Topside Unit

Remote (Buoy) Unit

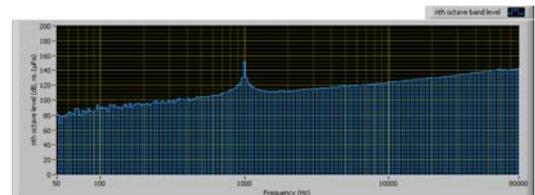
Recording

Powered by rechargeable batteries, AMBS can operate for 30 hrs, passively recording acoustic activity while deployed from a suitable buoy. Real-time data is transmitted to the Topside unit. The AMBS can be switched on and off remotely to conserve battery life. The buoy batteries can be recharged or replaced to allow for rapid re-deployment.

Defined frequency range, quality data

The AMBS system has a broadband frequency range of 50Hz to 80 kHz for noise measurement. Any unwanted background noise sources are minimised to produce high quality, accurate data.

Recordings are stored, processed and transmitted to the Topside unit on board the vessel. On completion, the data stored on the Remote unit can be recovered for post-processing, if required.



AMBS rental

AMBS is also available on a rental basis to support customers’ underwater acoustic studies. Additional technical support for the system can be included if required.

AMBS

Acoustic Monitoring Buoy System

Technical Specifications

Remote (Buoy) Unit Equipment

Frequency range	50Hz to 80kHz
Maximum deployment period	Duty cycle dependant
Operating temperature	-2°C to +35°C
Operation	Remote Switch On/Off
Sampling rate	250 kS/s
Data resolution	16 Bit stored in packed binary form (on the Remote (buoy) unit)
Data storage	256 Gbytes - solid state drive on the Remote (buoy) unit Capacity dependant upon receiving computer
Amplitude range	50 dB to 180 dB re 1µPa
Buoy Location	GPS coordinates transmitted to monitoring vessel
Data link	UHF RF transmission
Power	Lithium battery with solar charging.

Topside Unit Hardware

Laptop computer
Data link using UHF RF Transmission
UHF Antennae

On vessel User Interface

Continuous sampling with remote switch On and Off	
Displays predicted battery duration and data storage use	
Data resolution	1/20 Octave data on topside system SEL & Pk-Pk
Location	GPS position shown on display

Typical Buoy Mechanical Requirements

<p>Physical Dimensions.</p> <p>The equipment, provided in a IP66 rated PeliCase, is designed to be fitted inside the customer's buoy.</p>	<ul style="list-style-type: none"> Diameter 1.2m OSIL Tern Buoy Focal plane 2.7m Weight 240kg 4 off 24W solar panels Up to 85Ah battery 	
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