



SUBSEA ACOUSTIC LONG RANGE MESSAGING

Ensuring operational capabilities.
Passing on information.



Subsea Acoustic Long Range Messaging Transponder and Gateway Solutions

Reconnaissance is one of the key capabilities of submarines. Successful reconnaissance is relying on updating mission parameters and forwarding of gathered information – preferably without exposure to counter intelligence.

Our long range messaging system (LRMS) enables low signature acoustic communication between subsea assets and – via our dedicated satellite gateways also between the assets and the operations centers.

The modular system is ad hoc networking capable and also allows multi-hop relaying of data between distant nodes.

We at GABLER and develogic took on the challenge and are now able to provide a complete family of long range messaging systems covering the entire requirement range regarding naval acoustic long range communication based on the proven HAM.UAP communication and RAFOS acoustic navigation systems.

Besides integration of current and upcoming protocol standards such as JANUS and FRSS, we also implemented dedicated modulation and coding schemes for ultra long range and concealed communication.

The LRMS product family consists of complete gateway solutions with surface satcom buoy, mooring and acoustic

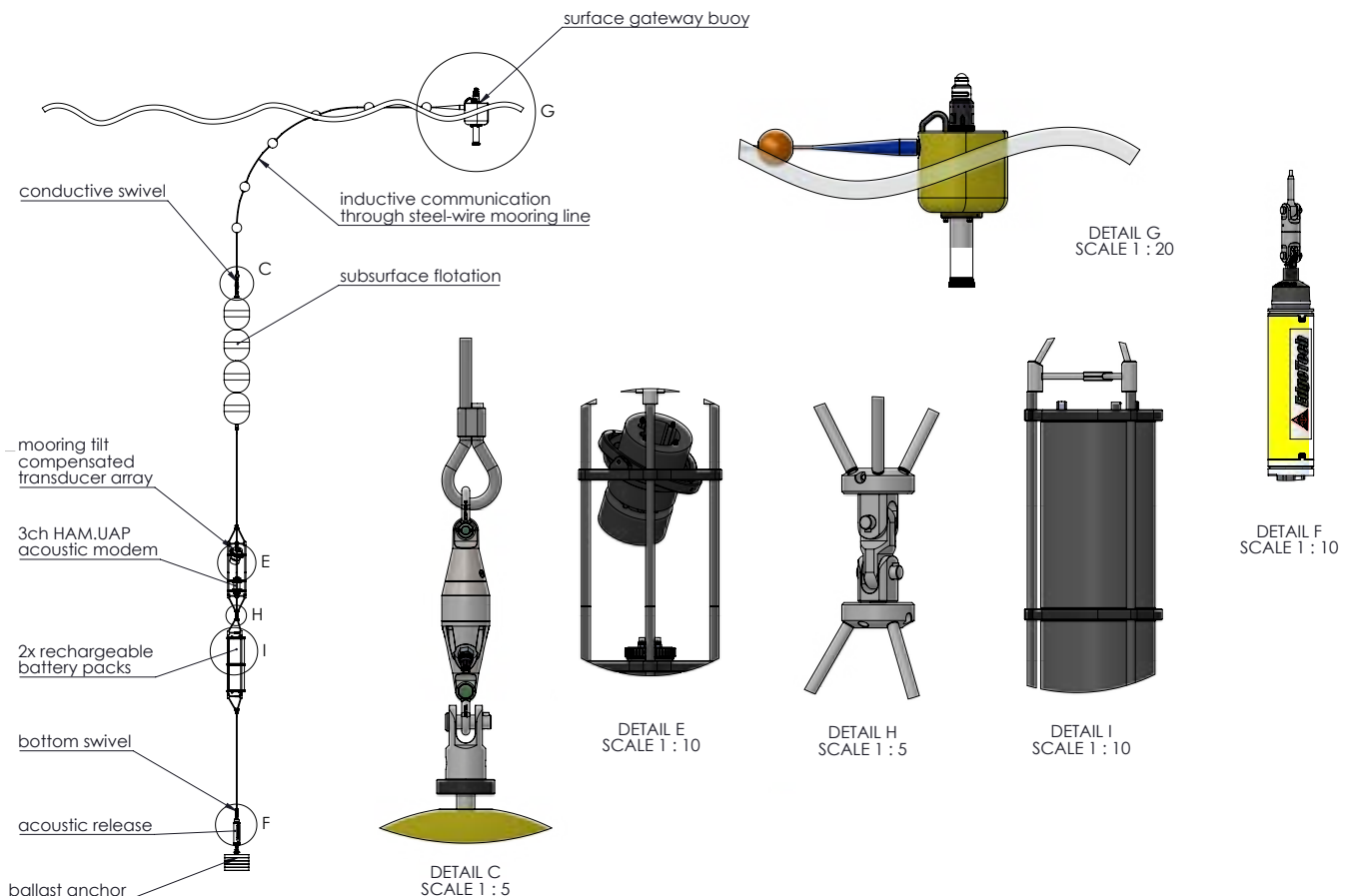
transponder array, compact modem solutions for midget submarines, navigation and communication solutions for naval divers and software/code modules for integration into existing submarine sonar systems.

Our gateway system is also available in a helicopter deployable variant where the entire system including surface satcom buoy, mooring, acoustic subsurface transponder and anchor is packaged in a dissolvable corn starch container dampening the impact on the sea surface and subsequently quickly dissolving, releasing the mooring system.

Depending on the nodes capabilities and selected carrier band, messages are exchangeable bidirectionally with single hop distances up to 250km.

Individual systems are available for short term use (such as acoustic gateway ECBs) or for longer and permanent installations (LRMS gateways and submarine integrated messaging).

Low maintenance requirements and long system shelf life ensure economic TCO and high availability.





1. Onshore Module SatCom.LRMS

The onshore software module for secure reception and transmission of data allows management of the communication network, remote system monitoring and data exchange. All data is AES256 encrypted. The system works with one or multiple of our offshore LRMS gateways.

2. Offshore Gateway Module Gateway.LRMS

The gateway system is available in multiple configurations with either a surface SatCom buoy or a submerged ECB launcher deploying expendable communication buoys on demand to enable temporary communications for low maintenance deployments in very harsh conditions or where surface buoys are not desirable in general. Communication between surface buoy and acoustic transducer array is accomplished either inductively through the mooring cable or via HF-acoustics from the deployed ECB. A tilt compensated high performance acoustic transducer arrays then relays and receives the data to/from the subsea assets. Mooring solutions for deployment in shallow waters or covering full ocean depth are available. Helicopter deployable moorings are possible up to 500m depth.

3. Compact Acoustic Transponder Compact.LRMS

For integration into smaller subsea units, a compact acoustic transducer solution with medium range is available (up to 30km) still supporting all communication options of the LRMS system.

4. Diver communication and navigation system Diver.LRMS

A compatible diver communication and navigation system will be available from 2023.

5. Onboard Module Onboard.LRMS

The onboard messaging module is either available as complete hardware solution with dedicated transducers or as software component for integration into existing sonar or communication solutions.



LRMSs by Gabler Naval – Unique Features



Deployable in depths up to 6000m



Uni- or bidirectional acoustic communication up to a range of 250km



Compact foldable and easily deployable from ship or helicopter



Long in service phase due to low maintenance

FROM THE OVERALL SYSTEM TO INDIVIDUAL COMPONENTS

Our mast systems and submarine components represent highest reliability and innovation – to the delight of shipyards and navies all over the world, for almost 60 years. Our products can be integrated into every conventional and nuclear submarine base and meet all common military standards.

165

submarines
equipped

130

GABLER
submarine
experts

60

years
of experience

900

masts
delivered