



DEFENCE SYSTEMS

BY SPECIALISTS IN UNDERWATER ACOUSTICS AND ELECTRONICS

The most advanced technology, adapted to clients requirements.





Solutions for submarine and anti-submarine warfare.

We develop sonar systems, naval mines and ASW systems for aerial and surface platforms. Furthermore, we are at the forefront of the market in Signature Intelligence area, covering the acoustic, electric and magnetic signatures of ships. SAES provides the knowledge and equipment necessary for measurement, analysis and intelligence collection.

International Presence.

The SAES technology is in service for a number of Navies and Naval Forces around the world. We provide high-tech systems for all kind of platforms involved in naval warfare such as minehunters, frigates, submarines, ASW helos and MPAs.







Response to any scenario.





DDS-03

Diver detection sonar for underwater protection of ships and critical infrastructures.

360° coverage. **A**utomatic threat detection and alarms. **H**igh performance in unfavourable conditions like warm waters. **R**emote monitoring using wireless devices. **U**nderwater warnings to dissuade the diver from continuing his approach.

“ Our ASW systems, both onboard and ground-based, enable for the most efficient mission planning, reliable execution and acoustic intelligence collection. ”



ROASW

Sonobuoy acoustic processor that provides interoperability among ASW platforms.



Advanced techniques and algorithms for signal processing and acoustic classification.

Automatic contact detection and threat location. Including multistatic tools for a most effective tracking of the contact.

Remote management of ASW mission from the combat ship. Acoustic operator not needed onboard the helicopter.

Common operational tactical picture sensor (both acoustic and non-acoustic) and intelligence information to be exchanged between the platforms deployed.

The most suitable sonobuoy processor for vessels, MPAs, ASW helicopters and RPAs.



Smart naval mines. A design for each scenario.

Cylindrical multipurpose bottom mines. Wide range of depths.

Moored mines for deep waters.

Conical shape mines for shallow waters.

Safety on board.

It is safe to use on board as no pyrotechnic or pressure elements are needed to operate it. No special procedures are required for its use.

The mine includes signal and events recording capability, an auto-recovery system and a remote control function via acoustic link to control the mine once deployed.



MINEA

The most advanced smart naval mines for training.

Main features

Precision sensors: magnetic triaxial, electric triaxial UEP and ELFE, acoustic, seismic triaxial and pressure sensors.

Easily deployed from any type of vessel.

Cylindrical unit designed for submarine launching.

Automatic recovering system that does not require divers.

Signal recording and analysis tools.

Exercise and combat units.



Special Operations.

High efficiency to neutralize threats. Excellent results in detonation tests against up to 36 mm thick steel marine targets.

Faster activation and programming.

It incorporates a computer-controlled detonation system.

Lighter and greater distances.

Its dimensions and light weight give the mine low hydrodynamic resistance enable easy transport and deployment.

These features allow a single diver to carry two units, being the mine specially appropriate for the most demanding operations.

Attaching to all types of surface.

High-density magnets for quickly installation in magnetic surfaces. An additional device is available for fixing underwater to different types of surfaces.



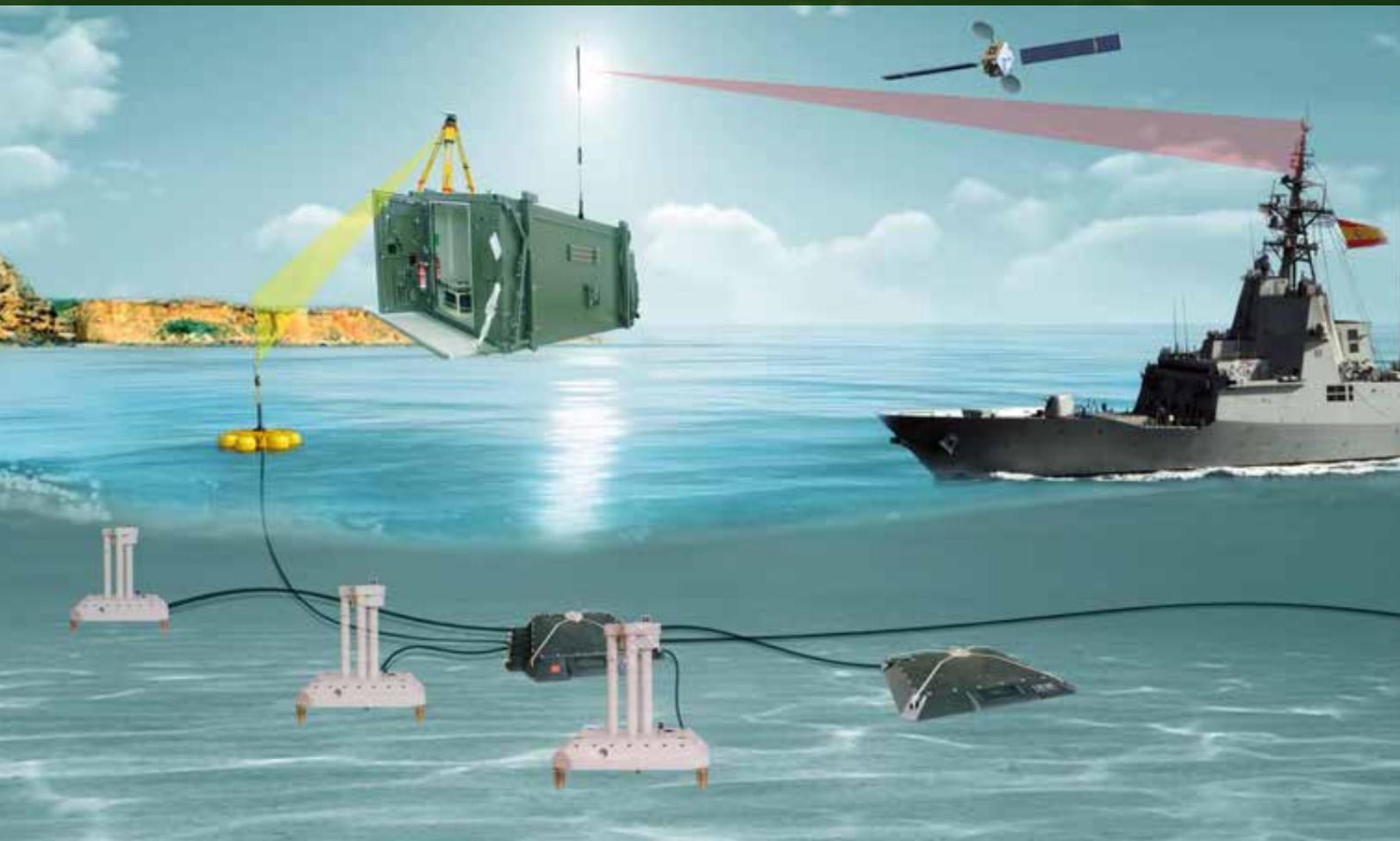
MILA

Underwater demolition charge for special operation forces.



SIGNATURE MEASUREMENT & CONTROL FOR SHIPS AND SUBMARINES

Simultaneous measurement of acoustic, magnetic, electric, seismic and pressure underwater signatures.



MIRS



Multi-influence range station for accurate measurement of ship signature.

Fixed or portable station.

Modular system. Its light weight and low consumption features allow MIRS to be easily deployed by two people from a rubber pneumatic boat.

Robust system in underwater conditions.

Minimal maintenance requirements, offering very good performance when submerged for long periods of time. It can be used as a inconspicuous way for intelligence data collecting or as a fixed measurement station.

Signature data base.

The system enables to store, analyse and manage the ship signatures in order to have an historic signature of ships.

Real-time monitoring.

Tools for monitoring, graphical display and recording of different measured influences. Transmission of the data to the analysis center in real time.

Digital towed sonar for submarines with automatic deployment and recovery system.
SEAPROF for acoustic propagation prediction and sonar performance calculation.
SICLA for acoustic classification of contacts and acoustic intelligence database generation.

ONMS system for own noise and vibration monitoring for submarine and surface ships.

DEWARS, for measurement of acoustic signature of submarines.

Underwater electric field sensor **SET 200/P** for electric signature measurement.

Service of analysis and modelling of underwater signatures.



More solutions

ONBOARD SYSTEMS

| Solutions for submarines and minehunters.

SPAS system for sonobuoy acoustic processing.
Fast time analyser **FTAS** for ASW mission support.
TAT tactical acoustic trainer for surface ships.

More solutions

ASW SYSTEMS

| Solutions for aerial and surface platforms.
| Ground support systems for post-mission analysis.



SIMULATION AND TRAINING



Expertise and efficacy.

Our clients value our strong commitment to deliver on time and scope together with an effective equipment maintenance and specialised after-sales support.

Reducing development times and minimizing risks.

By means of simulators and stimulators of sonars, equipment simulators, interface simulators and other ad-hoc solutions for validation and test.

Tailored solutions for acoustic training of submarine crew and acoustic operators on ASW platforms.

Flexible and adaptable training programmes.

TTraining in underwater acoustics. Theory and principles.

Sonar detection and classification.

Sonar operation.

Theory of ship signatures. Measurement and analysis.

ASW acoustic operation.





We adapt to our clients needs and the requirements of the programme.

Engineering, in-house technology and our vast experience in large naval programmes are at your service in order to provide you with flexible solutions, designed for adapting to your requirements, platform and scenarios. All developments and processes are subjected to strict standards and controls of quality both internal and external ones.



At the forefront of the market in underwater signal processing.

Our commitment is, from the scientific vocation and our experience, to provide you with the most advanced technology tailored to your needs and specialised advice during all phases of your project.



Expert engineers
In-house technical knowledge
Specialists in Underwater Acoustics and Electronics

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