TARGET DETECTION SYSTEM
for naval mines
The Target Detection System is the most modern sea mine system for moored and bottom mines. The system consists of target detection device, programming device, data logger, algorithm development tools as well as research and maintenance systems.

The versatile system has a modular structure and is easily customized to support customer requirements. It is a reliable system with long lifetime and low maintenance costs.

The system includes a complete software tool set for algorithm development, testing and signal collection. The system’s technical readiness level is nine (TRL9).

### Target Detection Device

The target detection device (TDD) is a compact, modular device having sensors and control electronics for target detection and detonator ignition. Different kinds of safety arming devices can be integrated. This powerful control unit runs user programmable algorithms to detect desired targets. After activation, the TDD is 24/7 operational without any sensor stabilization delays and can be immediately ready to detect targets.

The following sensors are available for the target detection device:

- Acoustic
- Magnetic
- Pressure (static, dynamic, differential)
- Inertial
- UEP
- Photonic

The target detection device can be programmed with wake-up criteria, based on an elapsed time or an algorithm as well as many programmable deactivation options. The TDD can be activated/deactivated after any specific time in the water.

- Operational depth 10 - 200 m as a standard;
- Extended depths optional
- Lifetime in water up to several years
- 25-year lifetime with economical maintenance costs
- Easy to install, safe to use and store

### Programming Device

The programming device is a handheld device for setting final parameters onsite to select and adjust algorithms and functionalities. With the programming device, the user can also perform built-in testing (BIT) of a target detection device. Many different versions are available and all are designed for use in rough environments.

### Data Logger

The data logger is an additional module for the target detection device, designed to be used for independent signature detection. It captures acoustic, magnetic and pressure sensor data and also detects mine movements. The logger add-on is installed inside the TDD. The data logger can be programmed to capture desired signals at a required timeframe or the logging recording can be triggered based on algorithm states.

The data recorded with the data logger can also be imported into the algorithm development environment and the signals can be used in algorithm development in an office environment.

### Algorithm Development and Simulation Environment

Algorithm development is easy with the development environment. The algorithm development and simulation environment (ADSE) includes software tools needed to create, test and simulate mine algorithms, in the field or in the office. With a remote connection to a target detection device, the user is able to develop algorithms even in a field environment, using real target detection devices on the seabed.

### Testing and Maintenance System

The testing and maintenance system is used for testing the performance of a target detection device during its lifecycle and/or after servicing at a depot. This functional tester verifies the electrical performance of the sensor interfaces and firing impulses and monitors component ageing using the test history database.

The testing and maintenance system generates known signals for each sensor and compares a target detection device’s measurements against the approved levels.

Optional simulation software is available to playback target signals from data logger recordings and these can also be used in TDD testing.

### Leak Tester

The leak tester verifies a target detection device’s sealing using high pressure helium. The system gives a leak value that is then compared against an approved limit. The TDD specific leak value is also stored with the system database for future comparison of TDD seal ageing.

### Algorithm Development Tools

Many different training and exercise equipment are available. These include a training version of a target detection device and a training system for clearance divers.

### Lifecycle Services

- Product support
- Repair
- Spare part service
- Testing system calibration
- MLU services
- EDL services
- A turnkey service package can be provided for modernisation of old sea mines.

### Quality

- ISO 14001:2015 and ISO 17025
- Facility Security Clearance (FSC), EU SECRET
- Personal Security Clearances
- ESA PSS and ECSS standards
- Safety Integrity Level (SIL) and ATEX compliance
- Accredited full-compliance testing laboratory
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