

ADVANCED ELECTRONICS AND SYSTEMS



TARGET DETECTION SYSTEM

for naval mines

DA
GROUP

Target Detection System

Intelligence for underwater target detection

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.

DA-Group's target detection system is the perfect solution for new sea mines or to support the modernizing old mine system with intelligence and upgraded performance.

Target detection has an innovated, user programmable system that enables operators to develop algorithms for variable operational situations. 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.

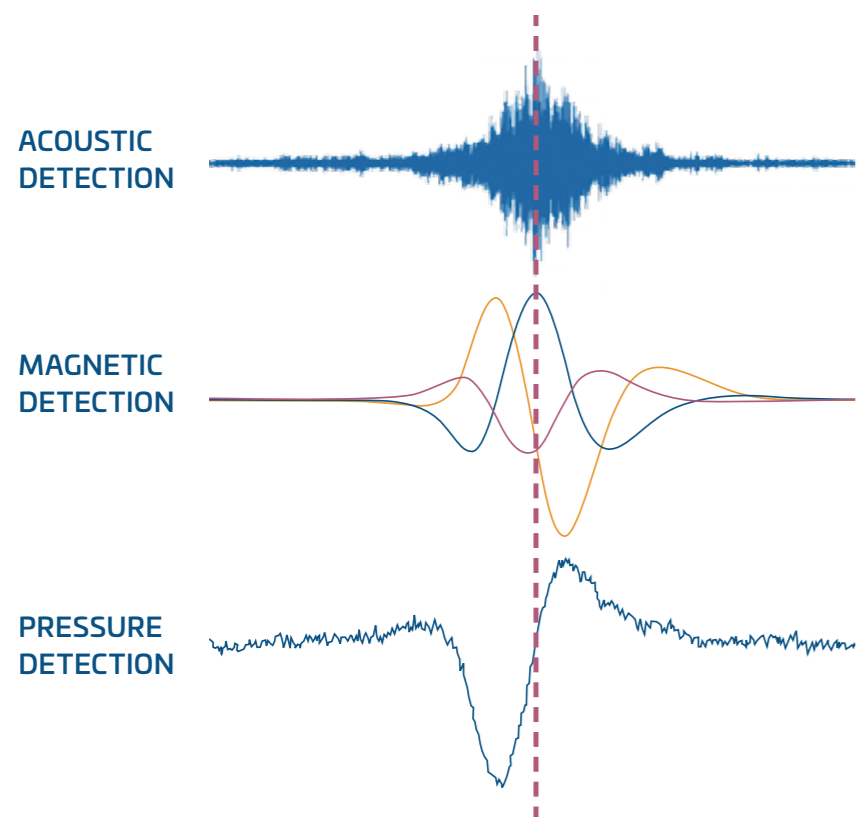
The following sensors are available for the target detection device:

- 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

TARGET DETECTION SYSTEM- FIRING LOGIC PRINCIPLE



THE COMPLETE SYSTEM INCLUDES THE FOLLOWING COMPONENTS:

- TARGET DETECTION DEVICE
- PROGRAMMING DEVICE
- DATA LOGGER
- ALGORITHM DEVELOPMENT AND SIMULATION ENVIRONMENT
- TESTING AND MAINTENANCE SYSTEM
- LEAK TESTER
- LIFE CYCLE SERVICES
- TRAINING

PROGRAMMING DEVICE

The programming device is a hand-held device for setting final parameters on-site 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.



PROGRAMMING DEVICE

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 signatures 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.



TARGET DETECTION DEVICES

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.

The remote connection is established either via a data cable or via a RF link. The ADSE also enables the user to record and monitor target signals in real time as well as to monitor algorithm functionalities and sensor data. Loading algorithms and firmware into the target detection device is also made easy; just by pressing of a button, the user is able to load new firmware or an algorithm to a TDD, via a datalink over several kilometers.



ALGORITHM DEVELOPMENT TOOLS

TRAINING

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
 - EOL services
- A turnkey service package can be provided for modernisation of old sea mines.

QUALITY

- AQAP 2110 Ed. D, ISO 9001:2015
- ISO 14001:2015 and ISO 17025
- Facility Security Clearance (FSC), EU SECRET
- Personnel Security Clearances
- ESA PSS and ECSS standards
- Safety Integrity Level (SIL) and ATEX compliance
- Accredited full-compliance testing laboratory

The logo for DA Group features the letters 'DA' in a large, white, stylized font. The 'D' is a simple block letter, while the 'A' is more complex, with a sharp point and a thin, curved line extending from its right side. Below 'DA', the word 'GROUP' is written in a smaller, white, all-caps, sans-serif font with wide letter spacing.

DA GROUP

DA-Group is a provider of advanced electronics and high technology solutions and products. We serve industrial, defence and space sector customers on a global scale.

We are experts in embedded software solutions, FPGA designs, electronics, mechanics and RF, microwave and millimeter wave engineering. Our service portfolio covers the turnkey solutions: from R&T, product development and engineering, testing and validation, manufacturing to product lifecycle management.

DA-Group excels in quality and security, having the required certificates for industrial, defence and space qualified projects. The company has the Facility Security Clearance (FSC).

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