



# Comprehensive Integrated Torpedo Defence System

Multi-Layered System for Defence of Surface Ships against Torpedoes

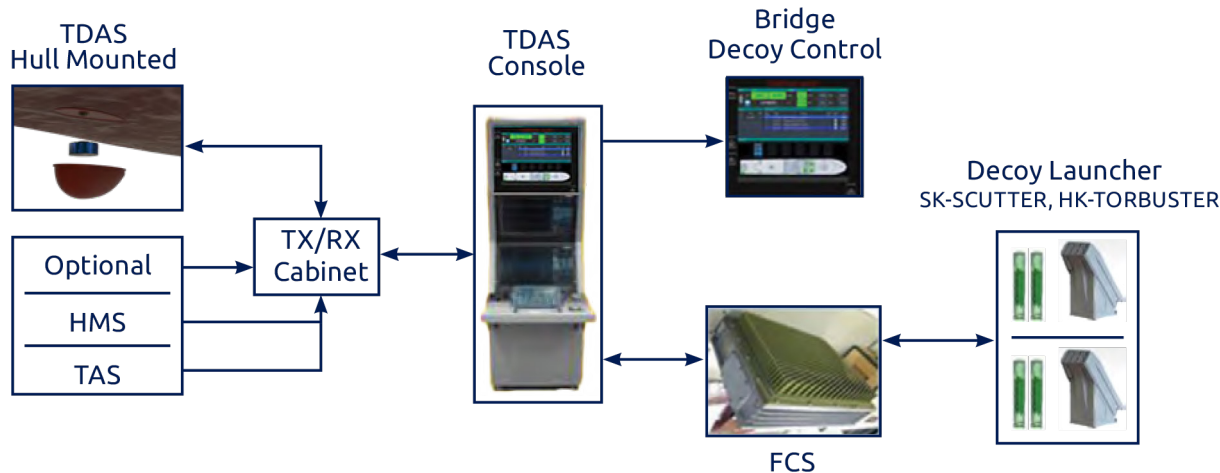
## Defeating Modern Torpedoes with Cutting-Edge Innovations

Implementing an array of proven technologies, DSIT Solutions and RAFAEL Advanced Defense Systems offer a multi-layered, cost-effective system which provides complete, integrated, and efficient defence of surface ships against today's fastest and most sophisticated torpedo systems. The system's layered defence concept consists of DSIT's Hull Mounted Sonar Systems (BlackFish™/MonkFish™ HMS Systems), providing detection, tracking, classification, and alerts – as well as RAFAEL's Advanced Torpedo Defence System (ATDS) that eliminates torpedoes using evasive manoeuvres and expendable hard-kill (TORBUSTER™ SP) and soft-kill (SCUTTER™ Mk 3) decoys.

This complete multi-layered system integrates a number of advanced, highly-effective capabilities to deliver 24/7/360° defence of surface ships against both passive and active acoustic homing torpedoes in all sea and weather conditions.

Advanced signal processing and algorithms provide exceptionally accurate detection with negligible false alarms, as well as simultaneous tracking and processing of multiple targets. The easy-to-operate system delivers ultra-fast torpedo classification in all system operational modes – fully automatic, semi-automatic, and fully manned.

Overcoming the limitations of current passive sonar solutions, the system operates in active, passive, and intercept modes – delivering continuous, 24/7/360° automatic detection, classification, and alert capabilities for any approaching torpedo – in all weather and sea conditions, while the ship is underway. The modular design enables the use of a range of sea-proven sensors, while state-of-the-art HMI and GUI features allow full integration with any Combat Management System (CMS) or Torpedo Defence System (TDS).



## Benefits

- A comprehensive, end-to-end, advanced Torpedo Defence System (TDS)
- Hull-mounted sonar operates in active, passive, and intercept modes
- Counters active and combined active/passive homing torpedoes
- High probability of detection with negligible false alarms
- Early warning of incoming torpedoes with significant response time for countermeasure deployment
- No need for trained operator
- Allows full and free manoeuvring of vessel before and during torpedo avoidance activity
- Enables continuous operation in all weather and sea conditions, while ship is underway
- Easily integrated with any new or existing vessel

## Main Capabilities

- Simultaneous detection, classification, tracking, alerts and processing of multiple targets
- Ultra-fast torpedo classification
- Active, passive, and intercept modes of operation
- Generates acoustic noise emulating ship's signature
- Selects generic or tailored response, based on torpedo characteristics
- Responds to and defeats all types of passive and active torpedoes

## Major Components:

**BlackFish/MonkFish HMS:** A compact, hull-mounted torpedo warning system – with active, passive, and intercept modes – provides torpedo detection, classification, tracking, and alerts based on advanced signal processing.

**SCUTTER Mk3:** A 3<sup>rd</sup> generation reactive torpedo decoy – launched from the vessel – hovers at a pre-programmed depth and remains active for up to 10 minutes, transmitting a tailored or generic response that imitates various ship parameters.

**TORBUSTER SP:** A 4<sup>th</sup> generation soft- and hard-kill decoy – propelled to a safe distance from the vessel – transmits a generic or tailored response to deceive the torpedo, senses the proximity of the torpedo, detonates its warhead at CPA, and neutralises it.

**RAFAEL** 

LAND & NAVAL SYSTEMS DIVISION

Tel: +(972)73-335-2002

Fax: +(972)73-335-4093

Email: lnd-mkt@rafael.co.il

HQ Tel: +(972)73-335-4714

Fax: +(972)73-335-4657

Email: Intl-mkt@rafael.co.il

[www.rafael.co.il](http://www.rafael.co.il)

COMPREHENSIVE INTEGRATED TORPEDO DEFENCE SYSTEM is a Trademark of RAFAEL Advanced Defense Systems Ltd.

UNC. T30NewV1-ENG/Graphic Design Dep/411