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NORBIT
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ENHANCED DETECTION OF SMALL TARGETS

SeaTarget

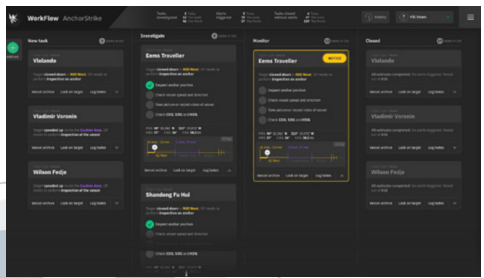
SeaCOP Application

The NORBIT Aptomar SeaTarget system, utilising high-resolution marine X-band radar, enhances maritime security and monitoring by automatically detecting, tracking, and monitoring small, fast-moving objects on the ocean surface. The system enables the early detection of security threats such as floating mines, unauthorised surface craft, and potential piracy activities.

With fast update rates and advanced tracking algorithms, SeaTarget ensures real-time situational awareness for critical maritime operations. NORBIT's SeaCOP display allows for customised guard zones, notifications, and the sharing of situational awareness with multiple stakeholders.

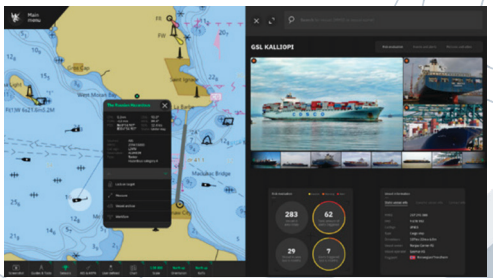
ENHANCED FEATURES FOR SECURITY & THREAT DETECTION

- **Advanced Small Target Detection** – Detects and tracks small objects in low visibility, rain, snow, and challenging sea states
- **Shore-based & Vessel Integration** - Deployable for both coastal security and onboard vessel operations
- **Fully automated** - Requires minimal user input, with an intelligent algorithm that reduces false alarms
- **Extended Detection Range** - Detects small fast-moving targets up to 4-5 nautical miles, depending on radar height and weather conditions
- **Comprehensive Sensor Integration** – Supports ENC maps, AIS, sonar and radar ARPA targets, providing comprehensive situational awareness
- **Historical playback** - Enables review and analysis of past detections for threat assessment and improved security and operational insights
- **Thermal Camera Integration** – Compatible with thermal imaging systems for enhanced target classification in low-visibility conditions
- **Process Management** - Built in workflows and documenting of operations
- **Enhanced Situational Awareness** - Sensor integration including AIS, daylight and infrared camera systems for target classification
- **Risk Assessment and management**- Specific vessel data cards for enhanced vessel classification and identification
- **Common Operating Picture** - Integrates multiple radars and cameras across a wide area for better maritime domain awareness using SeaCOP
- **Target Filtering** - Assist in identification of potential threats by filtering based on target size and speed, allowing users to quickly locate targets of interest.



Integrated Work process management

Camera integration



Vessel details and risk management

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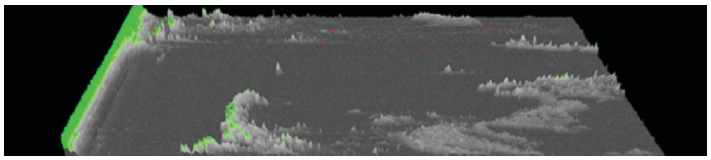
DETECT | TRACK | IDENTIFY | RESPOND

ADVANCED RADAR PROCESSING FOR ENHANCED DETECTION OF SMALL TARGETS



3D surface analyses, detecting small targets

The SeaTarget system enhances maritime security and situational awareness, ensuring rapid threat response. Detecting small radar targets in adverse weather is challenging as clutter filters often suppress them. Unlike conventional systems, NORBIT's SeaCOP SeaTarget processes raw X-band radar data in real time, using advanced algorithms to isolate small objects like swimmers, life rafts, and small vessels from background noise. NORBIT SeaTarget operates independently of the radar gain and clutter controls, ensuring consistent, reliable detection with overall performance dependent on the radar quality. Detected targets are displayed within the SeaCOP interface, minimising false alarms while maintaining accuracy.

KEY APPLICATIONS

- **Naval & Maritime Security** - Early warning system for detecting floating mines, rogue vessels, and potential threats in high-risk zones.
- **Anti-Piracy Prevention -** Detection of fast-moving surface craft potentially linked to piracy and illegal operations.
- **Vessel Anti-Collision** - Enhanced situational awareness in high-traffic maritime environments
- **Search and Rescue (SAR) Operations** - Rapid detection of survivors, life rafts, and objects lost at sea to enhance emergency response capabilities.
- **Port & Critical Infrastructure Protection** – Monitors unauthorised vessel approaches and ensures security for harbours, power plants, oil rigs, and other key assets.
- **Offshore Energy & Vessel Protection** – Provides security for ships operating in high-threat regions, including offshore oil & gas platforms and wind farms.
- **Counter-Terrorism & Maritime Law Enforcement** - Surveillance for Navy, Coast Guard, and security agencies, aiding in anti-piracy, smuggling, and counter-terrorism efforts.
- **Surface Craft Monitoring & Interdiction** – Tracks unidentified and suspicious vessels, supporting vessel boarding and interception operations.
- **Debris & Hazard Detection** – Identifies floating objects, including potential hazard debris.

TECHNICAL SPECIFICATIONS

Video input	-10 to +10 V analogue, selectable input source
Trigger input	0- 18 V
Azimuth input	0- 15 V / RS422 pulses, up to 4096 pulses/ revolution*
North reset input	0- 15 V / RS422 pulses, up to 4096 pulses/ revolution*
Data communications	RS422*; baud rates: 4800, 9600, 38400 bps, UDP network
NMEA interfaces for housing	GPS, Gyro, AIS, Meteo, Echo
Housing	19" rack mountable, height 2HE
Supported radar types	Sperry BridgeMaster E series Raytheon MK II Furuno FAR-2xx7 series Terma Scanter 2000 series GEM SU047 JRC selected Generic types
Power consumption	30 W
Dimensions	480x90x300mm (19" rack mountable 2HE)
Weight	3.42 kg

Unmanned Surface Vessel operations

Anti-intrusion - Critical infrastructure

Collision Avoidance

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