

# ReAMIS

## RETIA Anti Mining Systems

Advanced magnetic anomaly detection and counter-mine solutions for autonomous detection, localization, tracking, and neutralization of metallic threats in land, underwater, and air domains, providing combat-proven technologies for maximum force protection.



## System Components

The ReAMIS system is composed of two main segments under a unified architecture: the ground segment for mission planning, analysis, and management, and the airborne segment for carrying the magnetic payload to scan suspected areas independently.

- **Ground Segment:** Handles planning and analyzing detections, managing the airborne segment's missions, and can be integrated as a command post on ships, ground stations, or existing systems. It supports semi or fully autonomous processing with real-time capabilities for area, border, detection, and tracking modes.
- **Airborne Segment:** Consists of the platform (RUAV, quadcopter, or other) and specialized payloads. Key components include:
  - **Mission Computer:** Processes data and controls operations.
  - **Magnetic Sensor:** Quantum-based sensor for measuring Earth's magnetic field variations.
  - **Magnetic Central Unit (DSP, GNSS, Logger):** Manages digital signal processing, sub-decimeter GNSS accuracy for positioning, and data logging.
  - **Communication Unit:** Enables BVLOS communication for day/night operations.

## Detection Principles

ReAMIS operates on magnetic anomaly detection principles to identify metallic threats:

- The quantum sensor measures variations in the Earth's magnetic field.
- A reference baseline is created to represent the normal magnetic signature.
- The system scans and detects disruptions versus this baseline.
- Any deviation is considered an anomaly.
- Data is compared to the baseline, and the system flags it as an anomaly.
- AI and machine learning classify anomalies based on severity and type, reducing false alarms and handling disturbances.



## System Variants

The AMIS family includes specialized solutions under the same architecture, optimized for different missions:

- **AMIS (S) – Airborne Magnetic System:** Optimized for submarine detection, localization, and tracking, focusing on underwater threats like vessels causing magnetic disruptions.
- **AMIS (M) – Airborne Magnetic System:** Optimized for mine detection and localization, targeting active, dual, and improved magnetic mines/IEDs with metallic masses.
- **AMIS (HLS) – Airborne Magnetic System:** Optimized for homeland security mission planning, such as border surveillance and infrastructure protection against intrusions.
- **AMIS (I) – Airborne Magnetic System:** Optimized for intrusion detection (e.g., divers, ROVs, UUVs) with optional localization and tracking; features autonomous random patrols, extended endurance, smart overlapping algorithms, hovering for 'zoom in' capabilities, and combined magnetic/VIS payloads for enhanced detection. It is weather-resistant and supports rapid deployment with swappable payloads.

All variants support scan/on-the-fly/change detection types and real-time mission modes.



## Breaching and Neutralization Systems

ReAMIS integrates with complementary breaching solutions for complete threat neutralization:

- **Anti Magnetic Mine Actuating Device (AMMAD):** Vehicle-mounted duplicator to actuate magnetically fused mines/IEDs; counters active/passive mines; projects up to 3.5 m ahead and 1 m sides; weight 350 kg; sweeping speed 10-15 km/h.
- **Route Clearance Light Roller (RCLR):** Vehicle-mounted mechanical roller to detonate mines/IEDs; clears 2.5-4.3 m path; weight 1.5 ton; sweeping speed 5-10 km/h.
- **Mine Trawl Breaching System (MTBS):** Tank/APC-mounted heavy roller, plough, and magnetic duplicator for minefield breaching and route clearance.
- **Surface Mine Clearing System (SMCS):** Lightweight system for clearing scattered/surface-laid mines on paved/unpaved roads and paths.
- **Tank Dozer Blade:** Tank-mounted blade for bulldozer capabilities and obstacle overcoming; width 3.2-3.8 m; weight 1.8-3 ton; adaptable to any tank; optional AMMAD integration against magnetic mines.

These provide end-to-end solutions from detection to neutralization, identifying fire sources and enabling customer-specific configurations.

## Conclusion

RETIA provides advanced solutions at the forefront of technology for handling minefields, starting from early detection of threats, and neutralizing threats while maximally protecting the forces operating in the dedicated area. The solutions also enable the identification of sources of fire. The customer can choose a comprehensive solution as a complex system, or a specific product as desired, depending on his threat environment.

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