

F1Mag® & Airboxer®

by UMag Solutions ApS

by High Eye BV

Drone-based magnetic detection for anti-submarine warfare and mine countermeasures

Situation

- Subsurface threats are hard to detect early
- Existing methods are slow, expensive, asset-heavy

System

- Airboxer UAV + F1Mag payload + mission software
- Deployable from small vessels, no runway
- Real-time magnetic detection and analysis

Outcome

- Early detection beyond horizon
- Large-area coverage at lower cost
- Reduced reliance on helicopters / manned patrols



Technical Capabilities

- Cm-level positioning, GNSS-denied capable
- Secure, redundant & EMI-resilient comms (MIL-STD-461G aligned)
- Quantum magnetic sensing (picoFiRe®)
- Modular payload & compute architecture
- Optimized for ship-based operations
- GNSS denied capable (jam/spoof resilient)

Key Performance - F1Mag® & Airboxer® Integrated ISR System

Detection & Coverage		Platform & Payload		Operational	
Mine countermeasures	30-60 ha/hr	Endurance (Standard)	> 4 hrs	Deployment	Ship & land
ASW coverage	350-500 ha/hr	Endurance (ERF)	> 5 hrs	Fuel (Standard)	8.86 L
Detection depth	~250 m	BVLOS tested	up to 100 km	Fuel (Optional ERF)	11.86 L
Survey speed	10-35 m/s	Max take-off weight	34.2 kg	Wind tolerance	15 m/s (18 gust)
		Max payload weight	7 kg	Temperature range	-10°C to +40°C
		Dimensions	1839×632×575 mm	ISA, AMSL conditions	3.0 kg payload

Why F1Mag® & Airboxer®

Maritime-optimized

Purpose-built for maritime, not adapted from land systems

VTOL, no runway

Vertical take-off & landing from confined ship decks

Payload Effectiveness

Magnetic sensing with low-noise, real-time subsea detection and long-range encrypted link

Persistent coverage

Endurance enables extended area surveillance missions

Native integration

Payload, comms & compute designed as one system

System Overview

End-to-End Workflow

- 01 Plan mission (area, pattern)
- 02 Deploy UAV from vessel
- 03 Collect magnetic data in-flight
- 04 Process and visualize in real-time
- 05 Identify anomalies / targets

Use Cases - Defence

- ASW support (wide-area screening)
- Mine detection in open sea
- Forward ISR layer for naval ops

Use Cases - Security / Infrastructure

- Port and offshore asset monitoring
- Pipeline / cable surveillance

What's in the System

- UAV Platform (Airboxer)
- Magnetic Payload (F1Mag)
- Ground Control Station
- Mission Software
- EO/IR
- Training

F1Mag-MIL

High-speed ASW and open-sea naval mine detection



Airboxer

Maritime UAV platform for persistent ISR and payload deployment



Maturity & Validation

- ✓ Military-grade & rugged (STANAG, IP67, EMI corrosion-proof)
- ✓ Plug-and-play integration (ship, ISR, C2)
- ✓ Built to scale (series production, repeat orders)
- ✓ Secure & redundant (AES-256, resilient ops)
- ✓ EMC proven (200 V/m tested)

Contact

System & Payload Inquiries

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Airboxer Platform & Integration

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