

DEFENCE OPERATIONAL PERFORMANCE PROFILE

Persistent airborne ISR without runway dependency

The Airboxer is a long-endurance unmanned helicopter developed for intelligence, surveillance and reconnaissance missions requiring persistent coverage, vertical deployment and a limited logistical footprint.

The platform combines vertical take-off and landing, stable hover, controlled low-speed flight and multi-hour endurance. It can be deployed from temporary operating locations, confined areas and configured vessels without runway, launcher or recovery infrastructure.

OPERATIONAL PERFORMANCE

POSITIONED BETWEEN SMALL UAS AND LARGER TACTICAL SYSTEMS

Small electric UAS are rapidly deployable but typically provide limited endurance, payload capacity and onboard power. Larger tactical unmanned systems offer greater reach and payload capacity but generally require more personnel, infrastructure and logistical support.

The Airboxer provides multi-hour rotary-wing ISR while retaining a compact operating footprint and the ability to deploy without dedicated aviation infrastructure.

OPERATIONAL FACTOR	SMALL ELECTRIC UAS	THE AIRBOXER	LARGER TACTICAL UAS
Vertical take-off and landing	Common	Standard capability	Configuration-dependent
Stable hover	Common	Standard capability	Platform-dependent
Endurance	Limited	More than 4 hours	Extended
Maximum payload capacity	Limited	Up to 7.0 kg	Higher
Continuous payload power	Limited	300 W	Higher
Launch and recovery infrastructure	Minimal	Minimal	Often required
Deployment footprint	Low	Compact	Higher
Personnel and support burden	Low	Moderate	Higher

The comparison is indicative. Actual characteristics depend on the selected aircraft and system configuration.

OPERATIONAL EFFECT

Persistent ISR

More than four hours of endurance in standard configuration enables extended observation, increased time on station and fewer aircraft rotations.

Extended Range Fuel Tanks increase endurance to more than five hours when permitted by the payload and mission profile.

Forward deployment

Vertical take-off and landing remove dependence on runways, launch rails, arresting systems and recovery nets. The Airboxer can be deployed closer to the area of interest from temporary operating locations with limited infrastructure.

Multi-sensor collection

Multiple payload positions, Ethernet connectivity and 300 W of continuous payload power support stabilized EO/IR systems and other mission-specific sensors.

Networked mission execution

Live payload video, aircraft telemetry and mission data can be distributed to the local operator, supported command element or remote operations centre.

Reduced logistical burden

The compact aircraft, portable Ground Control Station and configurable communication equipment reduce the transport and support requirements associated with larger tactical unmanned systems.

PRIMARY OPERATIONAL APPLICATIONS

- Tactical intelligence, surveillance and reconnaissance
- Border and coastal surveillance
- Force, base and critical-site protection
- Target detection, tracking and identification
- Counter-smuggling and law-enforcement support
- Search and incident-response operations
- Shipborne surveillance and reconnaissance

REFERENCE SYSTEM CONFIGURATIONS

CONFIGURATION	TYPICAL EQUIPMENT	PRIMARY PURPOSE
Persistent ISR	Stabilized EO/IR, standard fuel, MIMO data link	Day and night surveillance
Extended-Endurance ISR	Stabilized EO/IR, Extended Range Fuel Tanks	Increased time on station
Specialist Collection	Mission-specific sensor package	RF, acoustic, LiDAR, magnetometer or other sensing
Shipborne ISR	EO/IR, vessel communication system, ship-integrated GCS	Maritime and over-water surveillance

Final payload and communication configurations remain subject to technical integration, flight clearance and operational approval.

CORE PERFORMANCE

FLIGHT PERFORMANCE	VALUE
Maximum take-off weight	34.2 kg
Endurance, standard configuration	More than 4 hours
Endurance with Extended Range Fuel Tanks	More than 5 hours
Maximum flight range	More than 200 NM / 360 km
Endurance cruise speed	40 kts IAS
Range cruise speed	45 kts IAS
Maximum flight speed	75 kts IAS
Operational wind limit	25 kts, up to 40 kts including gusts
Operating temperature	-10°C to +45°C
PAYLOAD AND ELECTRICAL CAPABILITY	VALUE
Maximum payload capacity	7.0 kg
Payload capacity at full standard fuel	3.0 kg
Continuous payload power	300 W / 24 VDC
Payload data interface	IP Ethernet, IEEE 802.3
Onboard electrical generation	28 V / 700 W
Payload arrangement	Multiple payload positions

Maximum flight range is not equivalent to mission radius. Mission radius and time on station depend on payload, fuel, atmospheric conditions, communication coverage, flight profile and required recovery reserve.

SYSTEM ARCHITECTURE AND MATURITY

INTEGRATED UNMANNED AIRCRAFT SYSTEM

The Airboxer is supplied as an integrated unmanned aircraft system rather than as a standalone air vehicle.

A mission configuration can include:

- The Airboxer aircraft
 - Stabilized EO/IR or specialist mission payload
 - Airborne communication system
 - Tracking or fixed antenna
 - Portable, vehicle-integrated or ship-integrated Ground Control Station
 - Pilot and payload-control interfaces
 - Transport and support equipment
 - Mission-planning software
 - Technical and operational documentation
 - Training, maintenance and lifecycle support
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FLIGHT-CONTROL ARCHITECTURE

The flight-control system manages aircraft attitude, heading, trajectory, airspeed and mission execution throughout the flight.

Automated flight functions reduce operator workload while maintaining pilot authority over the aircraft and mission.

The system architecture incorporates:

- redundant flight-control elements;
- continuous system monitoring;
- defined degradation logic;
- controlled contingency responses;
- documented operational and environmental limitations.

Detailed failure thresholds, recovery logic and system vulnerabilities are excluded from public-release documentation.

COMMUNICATION AND DATA ARCHITECTURE

Communication systems are selected according to mission radius, terrain, spectrum availability, network topology and national requirements.

COMMUNICATION OPTION	PRIMARY APPLICATION
Encrypted 2x2 MIMO MANET	Mobile and distributed operations
Directional tracking link	Extended line-of-sight operation
LTE/5G	Network-supported BVLOS operation
SATCOM backhaul	Remote data distribution or BLOS support
Maritime C-band	Configured vessel-based operation

The available architectures support:

- aircraft command and control;
- aircraft and payload telemetry;
- payload control;
- live video transmission;
- mission-data distribution;
- connection to local or remote operational users.

Interfaces with external command-and-control systems can be developed as part of the system-integration process.

GROUND CONTROL STATION

The ruggedized Ground Control Station supports:

- mission planning;
- aircraft command and control;
- payload operation;
- live video and telemetry display;
- mission-data recording;
- contingency management;
- post-flight review.

The Ground Control Station can be configured for portable, vehicle-integrated, ship-integrated or fixed-site operation.

ENVIRONMENTAL DESIGN

PARAMETER	VALUE
Aircraft enclosure	IP56
Avionics protection	IP67
Relative humidity	95% non-condensing
Electromagnetic field tolerance	At least 200 V/m
Operating temperature	-10°C to +45°C
Operational wind limit	25 kts, up to 40 kts including gusts

Environmental limits remain dependent on the complete aircraft configuration, payload installation and approved operating procedures.

CAPABILITY MATURITY

The Airboxer is supported by structured configuration control, training, maintenance and technical documentation.

CAPABILITY	CURRENT STATUS
Core aircraft platform	Operationally demonstrated
Vertical take-off and landing	Operationally demonstrated
Multi-hour endurance	Validated
Stabilized EO/IR integration	Available
Portable Ground Control Station	Available
MIMO MANET communication	Available
Directional tracking communication	Available
LTE/5G-supported operation	Configuration-dependent
SATCOM-supported operation	Integration-dependent
Specialist payload integration	Integration-dependent
Shipborne operation	Demonstrated in configured conditions
Precision landing support	Available
Moving-vessel automatic landing	Validation and configuration-dependent

REGULATORY, TRAINING AND SUSTAINMENT FRAMEWORK

The Airboxer is developed for operation within professional and regulated aviation environments.

The system is supported by:

- High Eye's European LUC SAIL II operating experience;
- structured safety and risk-management processes;
- aviation-style operational and maintenance documentation;
- controlled system configurations;
- alignment with STANAG 4738 operational principles;
- pilot, mission-operator and maintenance training;
- simulator and recurrent training;
- operator-level and factory-level maintenance support;
- spare-parts and support packages;
- configuration and obsolescence management;
- ITAR-free platform architecture.

The Airboxer is classified as a dual-use system under European export-control regulations. Operational authorization remains dependent on the mission, airspace, national regulatory framework, operating organization and selected system configuration.

OPERATIONAL FIT

The Airboxer is suitable for further evaluation where the requirement calls for:

- multi-hour airborne ISR;
- vertical operation without runway infrastructure;
- stable hover and controlled low-speed observation;
- deployment from temporary or confined operating locations;
- modular payload and communication configurations;
- reduced logistical burden compared with larger tactical unmanned systems;
- integration into a regulated operating environment;
- structured training, maintenance and lifecycle support.

HIGH EYE

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Published performance values are configuration-dependent. Actual endurance, range, mission radius and payload capacity vary with fuel quantity, payload mass, atmospheric conditions, altitude, communication equipment, operating procedures and required recovery reserve. Final performance and system specifications are confirmed for the selected configuration and approved operational scenario. Export and operation remain subject to applicable national and international regulations.