



# FLYOX I

## HEAVY RPAS PLATFORM

Confidential — For Potential Investors & Technology Partners

# 01 EXECUTIVE SUMMARY

**Singular Aircraft** is a Spanish aerospace company that has designed, built, and flight-proven the **FLYOX I** — a heavy-class Remotely Piloted Aircraft System (RPAS) with over 250 hours of accumulated flight time. Originally conceived for unmanned firefighting operations, the **FLYOX I** has evolved into a versatile multi-mission platform capable of cargo delivery, maritime surveillance (ISR), anti-submarine warfare (ASW) support, and environmental monitoring. Singular Aircraft SL operates under ISO 9001 and AS/EN 9100 quality standards, with the platform designed to STANAG 4671 / CS-23 airworthiness criteria.

## Why FLYOX I Stands Out

- **4,000 kg MTOW** with up to 1,500 kg payload compartment capacity — heavy RPAS category at a fraction of the cost of comparable systems.
- **Dual V8 engines**, 570 CV each (700 CV combined on propeller shaft) — proven automotive-derived powerplant with worldwide parts availability.
- **24+ hours endurance** and 3,600+ km range in surveillance configuration — persistent, wide-area coverage.
- **Amphibious water-scoop capability** — 1,500-litre tank filled directly from lake or sea, a feature virtually unmatched in the unmanned sector.
- **Operating cost below €500/flight hour** — dramatically lower than manned alternatives and competing heavy RPAS.
- **BLOS via SATCOM** (200 km LOS) with fully autonomous takeoff & landing, 105+ flight parameters recorded at 150ms intervals.

## KEY FIGURES AT A GLANCE

**4,000 kg**

MTOW

**+24 h**

ENDURANCE

**3,600 km**

RANGE

**200 km**

LOS

**250+**

FLIGHT HOURS

**< 500 €/h**

OPERATING COST

**5**

COUNTRIES DEPLOYED

This document is a condensed technical and commercial overview of the **FLYOX I**, prepared for potential investors and technology partners interested in IP acquisition, bulk purchase, or royalty-based licensing arrangements.

## 02 TECHNICAL SPECIFICATIONS



Figure 1. Flyox I in flight — side profile showing high-wing cantilever design and retractable landing gear.

### General Airframe Data

| PARAMETER               | SPECIFICATION       |
|-------------------------|---------------------|
| MTOW                    | 4,000 kg            |
| Max Landing Weight      | 3,800 kg            |
| Basic Empty Weight      | 2,500 kg            |
| Max Payload Compartment | 1,500 kg            |
| Wingspan                | 17 m                |
| Length                  | 11.7 m              |
| Height                  | 3.6 m               |
| Service Ceiling         | 18,000 ft AMSL      |
| Operating Temperature   | -5°C to +45°C       |
| Landing Gear            | Retractable / Fixed |

### Performance & Propulsion

| PARAMETER                  | SPECIFICATION              |
|----------------------------|----------------------------|
| Avg Cruise Speed           | 80–125 kts                 |
| Max Structural Speed       | 140 KIAS                   |
| Endurance                  | Up to 24 h                 |
| Range                      | 3,600 km                   |
| Fuel Capacity              | 2,040 L (2×1,020L)         |
| Takeoff / Landing Distance | 1,100 m / 650 m            |
| Climb Rate                 | 700 ft/min                 |
| Engine                     | 2× V8, 570 CV each         |
| Remote Crew                | 2 (pilot + payload op.)    |
| Mission Suite              | Firefighting·ISR·ASW·Cargo |

## 03 MISSION CAPABILITIES & SENSORS

The **FLYOX I** is designed to serve multiple operational roles through modular payload reconfiguration, leveraging the platform's core strengths: long endurance, heavy-lift capacity, and amphibious capability.

### Cargo Delivery

Configurable fuel-tank / cargo-bay trade-off tailored to customer needs. Operating cost slightly below €500/flight hour. Typical uses: humanitarian aid drops and military logistics resupply under SAIL I/II, without heavy certification overhead.

### Maritime Surveillance & ISR

24+ hours endurance at 85+ kts, covering ~3,600 km per day mission. Military-grade EO/IR gimbal and maritime radar (200+ NM detection) for persistent maritime patrol, border surveillance, and environmental monitoring.

### Anti-Submarine Warfare (ASW)

Up to 24 sonobuoys with real-time acoustic monitoring and processing.

### Firefighting

Dual-compartment 1,500L water tank (750L/side) filled by amphibious scoop; 400 L/s combined full discharge; 5-second automatic safety retract on both hatches.

### Additional Mission Profiles

Border & coastal patrol · tactical connectivity relay · disaster response · environmental & marine-pollution monitoring · military training support · agricultural applications.



**Figure 2.** Flyox I on maritime patrol over the Atlantic — camera pod visible on centreline.

### EO/IR Gimbal

<9 kg, 4-axis gyro-stabilised (<20µrad), cooled MWIR camera, laser range finder to 20 km, IP66.

**10.7 km**

HUMAN – DETECT

**2.0 km**

HUMAN – IDENTIFY

**15.5 km**

VEHICLE – DETECT

**4.1 km**

VEHICLE – IDENTIFY

### Maritime Surveillance Radar

360° coverage, HRR + ISAR target classification, GMTI and pollution-SAR modes, ASTERIX/NMEA 0183 output, no export restrictions. Max detection range up to 200 NM.

# 04 SYSTEMS, AUTONOMY & GROUND CONTROL

The **FLYOX I** is built around a CAN-bus networked systems architecture with dual-battery electrical power, hydraulic actuation (130 bar) for control surfaces and retractable oleo-pneumatic landing gear, and a distributed, redundant flight-control system.

## Data Link & Communications

| PARAMETER     | SPECIFICATION              |
|---------------|----------------------------|
| C2 Data Link  | 2.3GHz MIMO, 25 Mbps       |
| LOS Range     | 200 km                     |
| Video Link    | 200–800MHz, H.264          |
| SATCOM (BLOS) | Unlimited — L & Ku band    |
| Encryption    | 128-bit AES (256 optional) |
| Telemetry     | 105+ params @ 150ms        |

## Flight Control & Autonomy Suite

Distributed FCS (Boxes A–F + Propeller Control Unit, 500Kbps CAN bus). OEM autopilot core — 40g, MTBF 49,915 hrs, 100% non-ITAR, deployed with 1,500+ clients globally. Autonomous takeoff and landing as standard. **Singular OS** mission-management software is autopilot- and drone-agnostic, with a quarterly release roadmap running through 2026 (V0.0 MVP → V1.0 full mission execution).

## Ground Control Station (GCS)

Three operator positions (pilot, payload operator, spectator); 115/230V AC power with 8-hour UPS backup.

### PILOT INTERFACE

Force-feedback joystick with PTT, differential-braking rudder pedals, dual-axis throttle, 5-position flap selector, manual/auto landing gear, fine propeller RPM adjustment.

### DISPLAYS & RECORDING

3-monitor situational-awareness suite (PFD, video/HUD, navigation & engine display) with traffic and terrain alerting (GPWS at 500ft AGL). Three onboard computers record 105+ parameters at 150ms, 50GB each — over 2,600 flight-hours of capacity.

### GCS-SIM

Full mission simulation environment for crew training, mission rehearsal, and regression testing.



Figure 4. Ground Control Station — 3D render (isometric view).



# 05 CERTIFICATIONS, PLATFORM FAMILY & COMMERCIAL MODELS

## Certifications & Flight Permits

Flight permits obtained in **Iceland, Norway, Spain, the Dominican Republic, and São Tomé and Príncipe** (5+ more in process). **ISO 9001** and **AS/EN 9100** certified; designed under STANAG 4671 / CS-23 / FAR-23. Certification strategy combines a civil pathway (SORA 2.5, SAIL II→III) with a military pathway (STANAG 4671).

## Operational Deployments

Over **250 flight hours across 5 countries and 3 continents**: sub-Arctic validation in Iceland, equatorial validation in São Tomé, extended-range testing in Norway and the Dominican Republic, and Spain as the primary development and firefighting-demonstration base.

## Broader Platform Family

| PLATFORM      | MTOW     | ROLE                    | STATUS         |
|---------------|----------|-------------------------|----------------|
| FLYOX I       | 4,000 kg | Heavy multi-mission     | Flight-proven  |
| SA-750 Ranger | 750 kg   | Tactical ISR            | In development |
| SA-1500 Argos | 1,500 kg | Maritime patrol         | Year 3 target  |
| SA-300 Shade  | 300 kg   | Attributable/GPS-denied | Partnership    |

## Commercial Models

### IP ACQUISITION (FULL TRANSFER)

Outright purchase of the complete FLYOX I package — platform design, autonomy suite, GCS, and operational documentation — for sovereign RPAS programmes.

### BULK PURCHASE

Direct acquisition of manufactured units, standard or customised, including training, GCS delivery, and initial operational support.

### ROYALTY-BASED LICENSING

Partners manufacture FLYOX I (or derivatives) under licence, paying royalties per unit or flight hour; Singular provides the technical data package and manufacturing support.

### TECHNOLOGY COMPONENT LICENSING

Individual licensing of components — autopilot, MMS, GCS software, drone-conversion kits — for integration into partners’ own platforms.

### MISSION-AS-A-SERVICE

Singular operates the Flyox fleet directly, providing ISR, cargo, or surveillance on a per-mission or contracted-hours basis.



**Figure 3.** Singular Aircraft manufacturing facility — Flyox I under assembly.