



SX1-ISR

A SOLAR-POWERED ELECTRIC UAV
SYSTEM FOR INTELLIGENCE, SURVEILLANCE,
AND RECONNAISSANCE PURPOSES

The SX1-ISR is a revolutionary full-electric UAV for ISR missions developed following years of development and testing. With its silent operation and long endurance capability, the SX1-ISR is the ideal ISR UAV. Featuring a full electric design, the SX1-ISR is easy to operate and does not require extensive maintenance. Three different gimbal solutions are available for the SX1-ISR, providing a high degree of detection, recognition and identification accuracy. The XSun package includes a ground station, long range tracking antenna, spares kit, documentation, and training. A two-man team, including a pilot, can operate the SX1-ISR. It takes less than 30 minutes to set up, including 15 minutes for mounting the strong and lightweight catapult. Transporting the items

can be done easily with the help of lightweight and strong cases that can be easily accommodated within a van. Having flown more than 500 flights, the SX1-ISR is a mature and easy-to-use solution for both maritime and harsh environmental conditions (up to 45°C with dust). By combining data from RADAR and Kalman-filtering, all phases of the landing are fully automated, resulting in a precise landing. Its high level of safety (DAL B autopilot), with its redundant critical components (including the motors), make the SX1-ISR a safe and reliable aircraft.

The unique and patented dual wing design of the SX1-ISR makes it naturally stable and capable of landing safely on short areas automatically. During sunny conditions, the four solar wings provide up to six hours of additional flight time, with the redundant Li-ion batteries providing a minimum of three hours of flight time.



Low maintenance
Electrical propulsion



30 mins
Ready to fly



Silent: Less than
42dB@200m



5kg/21L
Payload



Long endurance
Up to 9h



100% composite
TeXtrem® Carbon

SX1-ISR KEY SPECIFICATIONS

UAV

Type: Patented dual fixed-wing aircraft

Wingspan: 4.7m

MTOW: 29kg

Construction: High grade carbon and glass fiber composite

Propulsion: 2 redundant electrical motors

Battery: 2 redundant Li-ion batteries (1640 Wh) with highly advanced iBMS Giving 3 hours of night flight

OPERATING CONDITIONS

Launching and landing system:

Catapult / Autonomous belly landing

Runway size: 100m x 30m

Ceiling: Up to 3,500m AMSL

Maritime conditions: rain up to 5mm/h ; no pitot – IP67 air speed sensor

Temperature: -10 to +45°C

Speed range: 50-70 km/h

Maximum speed: 110 km/h

Maximum take-off wind: 45 km/h

Maximum cruise wind: 55 km/h

Deployment: 30min to launch

Noise emission: <42dB at 200m



KEY FEATURES

- Patented stall-free aerodynamic design
- Strong high grade carbon, full composite design
- Special encapsulated solar wings
- Fully electric, easy operation
- Fully autonomous, from take-off to landing
- Silent, very low noise signature
- No Maintenance
- Long Range
- BVLOS
- Secure Datalink (AES-256) with spectrum analysis
- Multi-Payload Capability
- Up to 9 hours (Silicium in 2022) 12 hours (Ga-As cells in 2023) endurance
- Flight Safety with advanced secure automatic FTS (Flight Termination System)

ISR SENSORS

Compatible models:

Octopus Epsilon 140z G2

NextVision Raptor

Merio XL16z

Other sensors:

Mass<5kg; volume<21L;
integration upon request



Payload example :

NextVision RAPTOR

	VISIBLE		THERMAL	
	Man	Vehicle	Man	Vehicle
DETECTION	10 km	40 km	3 km	4 km
RECOGNITION	6 km	10 km	1 km	1,7 km
IDENTIFICATION	3 km	6 km	500 m	850 m

Note :

Geometrical DRI according to Johnson's criteria

GROUND STATION & DATALINK

Primary link frequency: 2.4GHz but can be customised

Range: RLOS, live video up to 100km

Encryption: Proprietary waveform in addition to AES 128/256

Ground antenna: Tracking

Secondary link: optional SATCOM (INMAR-SAT)

Command and control system :

Fully autonomous flight
Real time telemetry
ASTM-F3002 compliant user interface
Real time FPV video
Post-flight data analysis

SAFETY

Ground risk management:

FTS (parachute) with redundant triggering
Geocaging/Geofencing (EUROCAE ED-269 & 270)

Redundancy:

Dual motors, dual power, dual control surfaces,
GNSS redundancy

Autopilot:

DO254 & DO178 compliant, DAL B

Air risk management:

ADS-B (IN, OUT as an option)

Flight Operation category:

EASA SAIL II, ongoing SAIL IV Design Verification

ENDURANCE

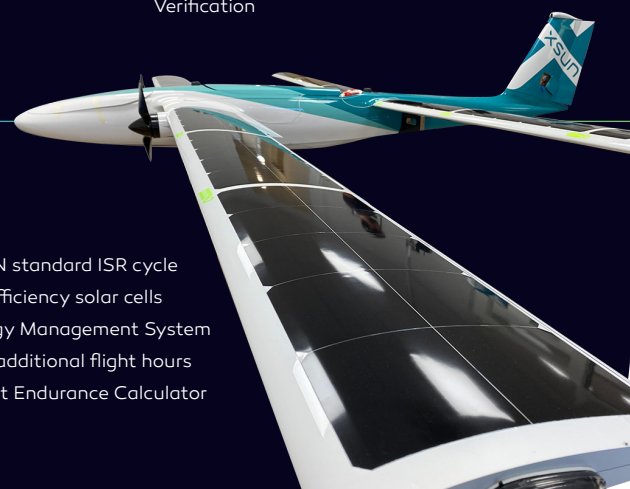
ISR mission: 4 - 9 h according to XSUN standard ISR cycle

Solar panels: 450 Wc (1.8m²) of high efficiency solar cells

Energy management: Intelligent Energy Management System

Max solar power: Up to 2,900Wh = 6 additional flight hours

Mission management: Intelligent Flight Endurance Calculator



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European
Innovation
Council

