

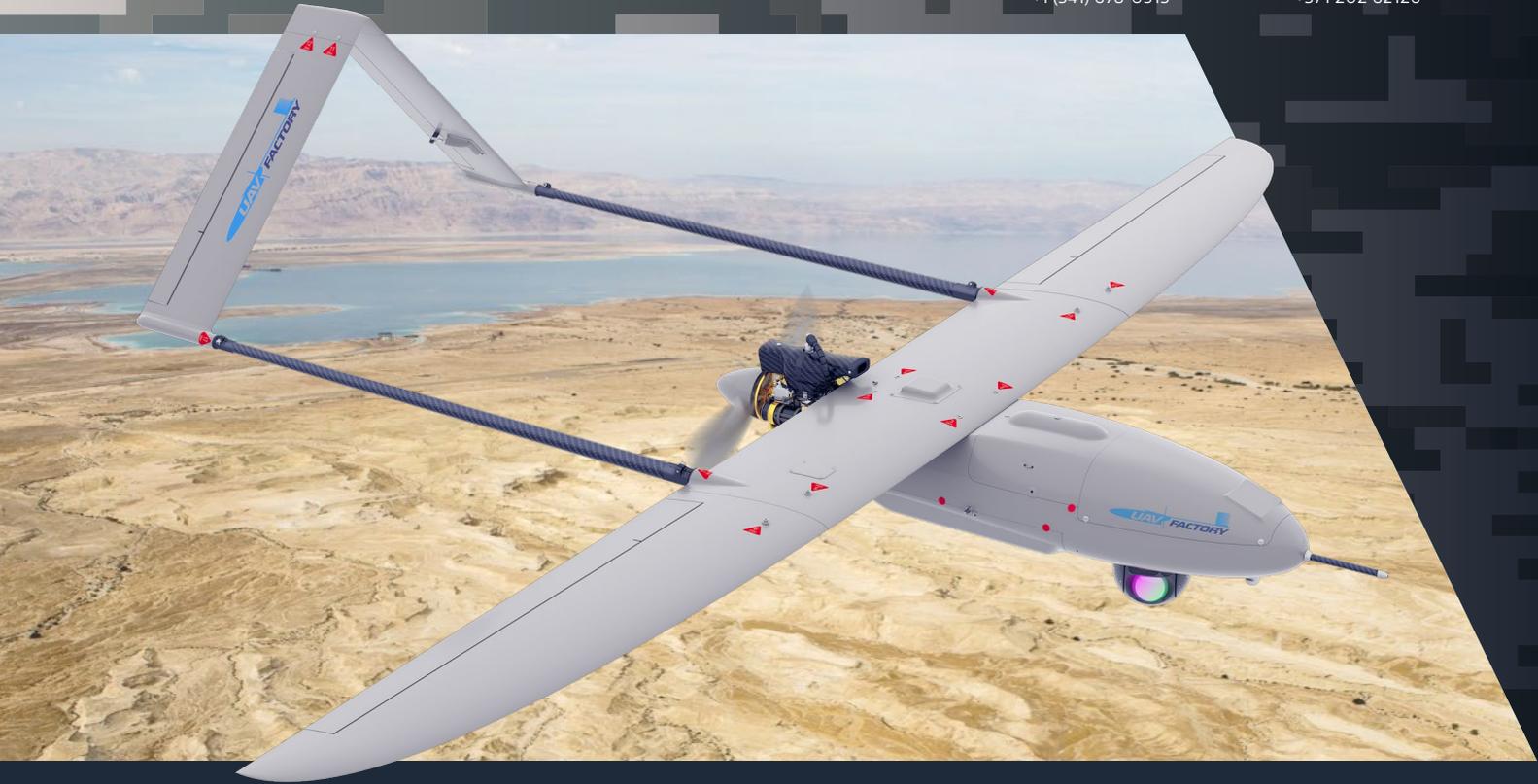
PENGUIN C-MIL UAS

LONG-ENDURANCE, LONG-RANGE
UNMANNED AIRCRAFT SYSTEM
DESIGNED FOR ISR MISSIONS



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**Group 2 UAS unmatched in: Endurance, Mobility,
Modularity, and Operating parameters with
the lowest logistics and manpower requirements**

Key Features

- ▶ **20 hours flight endurance with payload for critical mission success**
- ▶ **100 km / 62 miles range by advanced encrypted digital datalink systems**
- ▶ **Crew of two**
- ▶ **ITAR-free, giving our global customers easy access to its capabilities**
- ▶ **Runway independent (catapult launch and parachute recovery)**
- ▶ **Integrated software for high precision artillery fire adjustment**
- ▶ **Highest system reliability**
- ▶ **Operational in GPS-denied environment**
- ▶ **MISB compliant video stream**
- ▶ **Over 7000 hours of test flights**
- ▶ **Operational and maintenance training**



UAV Factory – your reliable partner

Founded in 2009
ISO9001:2015 certified
US Department of State Registration M38082
US TAA and DSP-06 Licensed
DLA/TLS Approved
AIRBUS Defence & Space Supplier

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Technical specification

AIRCRAFT SPECIFICATIONS

Wingspan	3.3 m / 10.8 ft
MTOW	23 kg / 50.7 lb
Endurance	< 20 hours depending on payload
Range	100 km / 62 miles
Cruise speed	19-22 m/s / 37-43 knots
Max level speed	32 m/s / 62.2 knots
Ceiling	5000 m / 16 400 ft AMSL
Takeoff	Pneumatic catapult, fully autonomous
Max takeoff altitude	3000 m / 10 000 ft AMSL
Recovery	Parachute recovery, airbag
Operational t°	-40°C to +50°C depending on the configuration
Anti-icing measures	Heated Pitot-static tube. Continuous flight operations in icing conditions are not approved
Environmental protection	< 5 mm/h rain. Pitot with drain.

PROPULSION SYSTEM

Engine type	Fuel-injected, single-cylinder, two-stroke internal combustion engine
Temperature control	Automatically controlled via mechanical flap
Fuel type	Unleaded 98 octane (RON) gasoline, oil mix
Generator system	100 W or 150 W onboard generator system depending on configuration

PAYLOAD SPECIFICATIONS

Payload type	Day/night gyro-stabilized Epsilon range of payloads
Advanced features	Target tracking, electronic stabilization, moving target indicator
Mounting	Motorized retract with anti-vibration damping

DATA LINK SPECIFICATIONS

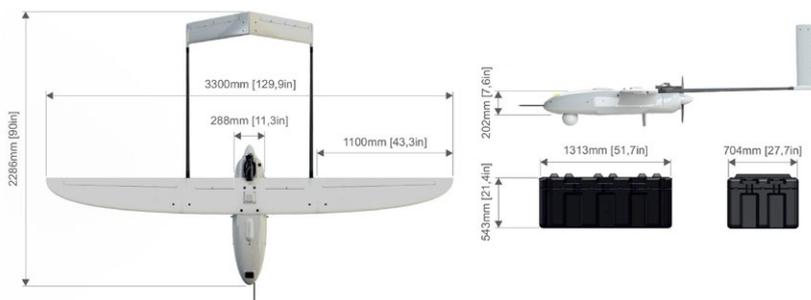
Frequency	2.304-2.390 GHz, 2.402-2.482 GHz, 2.500-2.570 GHz, 5.000-5.900 GHz
Link rate	Up to 12 Mbps
Encryption	AES 128, AES 256

SYSTEM SPECIFICATIONS

Flight control system	Piccolo, Cloud Cap Technology
Ground control station	Portable, dual touchscreen displays
Ground data terminal	Tracking high gain directional antenna
Catapult system	Portable pneumatic, 6 kJ launch energy

GIMBAL COMPARISON

	E135	E140Z
EO HD sensor with 45x optical zoom ratio, 4x digital zoom	✓	✓
LWIR sensor with 3.3x optical zoom ratio		✓
Laser Rangefinder > 5 km / 3.1 mi		✓
Payload weight	1.22 kg / 2.68 lb	1.77 kg / 3.88 lb



"The movement tracking ability of the Penguin C far surpasses the current payload abilities of the Shadow. The picture quality is clear and the stability option is very helpful in keeping a steady picture. It's very easy to identify individuals and equipment using the Penguin C payload."

AEWE 2019 Evaluator (Shadow Operator)

"Persistent Brigade quality ISR feeds at the Battalion and Company level enables integrated reconnaissance and security increasing the units ability to shape the AO using precision fires and maneuver to positions of advantage"

Army Expeditionary Warrior Experiment 2020 Insights Day briefing by Maneuver Battle Lab



OCTOPUS
I S R S Y S T E M S

EPSILON Series Sensors



E135

E140Z

GIMBAL OPTIONS

- Onboard processing and recording (32 Gb)
- Automatic target tracking
- Moving target indicator (up to 100 targets)
- Artillery fire adjustment
- FMV out; digital H.264 encoded
- Moving map software
- High precision geo-location
- Electronic stabilization
- Unicast and Multicast video stream
- Field upgradable firmware

System Footprint

- 3 Aircraft
- 1 Launcher
- 1 Tracking antenna
- 1 Ground control station



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UNRIVALED PERFORMANCE

The Penguin C MIL UAS is a long-endurance, long-range unmanned aircraft system designed for ISR missions. Its endurance of 16 to 20 hours (payload dependent) and a line-of-sight range of over 100 km or 62 miles makes it an extremely capable unmanned platform that meets a variety of mission needs.



TOP OF THE LINE SURVEILLANCE

If equipped with advanced Epsilon EO/IR payloads, Penguin C MIL UAS is one of the most capable surveillance UAS available on the market.

CLASS LEADING MOBILITY

A crew of two can operate the Penguin C MIL UAS and all the necessary equipment, including the pneumatic launcher. The whole system, packed in several ruggedized containers, weighs up to 265 kg (585 lb), can be transported in a single minivan, pickup, or helicopter and assembled in under an hour.



23 KG

MAXIMUM TAKE-OFF WEIGHT OF 23 KG

The Penguin C MIL UAS falls under the 55-pound FAA regulatory requirements for small UAVs. The aircraft is non-ITAR restricted, giving our global customers easy access to its capabilities.

OVER 7000 HOURS OF FLIGHT TESTS

UAV Factory's flight operations team has flight-tested the Penguin C MIL UAS for over 7 000 hours to ensure its reliability and robustness in normal to severe weather conditions.

7000 HOURS



HIGHLY EFFICIENT EFI ENGINE

Thanks to the UAV Factory's own state-of-the-art electronic fuel injected (EFI) engine, Penguin C MIL UAS flight endurance is up to 20 hours. The cooling system provides the ability to operate from below freezing point to extremely hot conditions. Before delivery, each engine is tested extensively in UAV Factory's engine testing cell to maximize its reliability and efficiency. The EFI engine comes built into a swappable propulsion module than can be changed in minutes, allowing for uninterrupted operation of the aircraft system while maintenance could be performed on a second module.

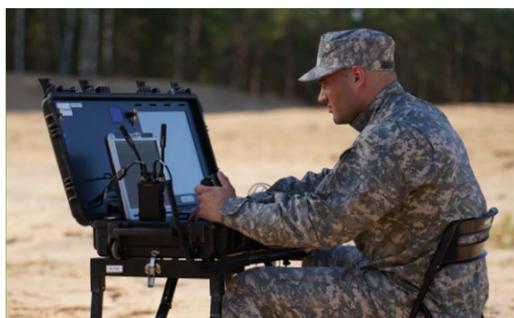
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OPERATIONAL TRAINING

Full-feature operational training is included with the Penguin C system. This 15-day training program covers all aspects of operation and maintenance, site surveys, launch procedures, parachute packing, pre- and post-flight procedures, and numerous other topics. All customers are supplied with comprehensive user manuals, and we are available for after-training customer support at the customer's location.



COMMUNICATION EQUIPMENT

The Penguin C system is equipped with a state-of-the-art portable tracking antenna system that enables encrypted data transmission to a range exceeding 100 km or 62 miles. Highlights of the system include a bit rate up to 12 Mbps, integrated pointing algorithm and automatic switching between directional- and omnidirectional-antenna modes. The tracking antenna system and ground control station has a military-grade ruggedized design, and it can be operated under any weather condition.

COMPATIBLE GYRO-STABILIZED PAYLOADS

Penguin C MIL UAS is available with the Epsilon series of advanced micro-gimbals developed by Octopus ISR Systems, a division of UAV Factory. Epsilon gimbals provide advanced observation, inspection, and surveillance capabilities, such as day and nighttime object tracking and small moving target indication.



THIRD-PARTY PAYLOAD INTEGRATIONS

Penguin C MIL UAS is also available for purchase with an empty payload bay, and it comes with all documentation necessary to perform payload integration. This provides an option to integrate third-party payloads using standard connections based on specific project needs. For powering the payload, customers can use the onboard 6V, 12V and 24V power supply. For payload control and real-time video, customers can use an integrated data link Ethernet and serial pass-through with a rate of up to 12 Mbps.

TAILORED SUPPORT SERVICES

UAV Factory offers a wide range of tailored support services. Support services include extensive training programs, onsite support, operations start up services, and flight services. Our flight operations department works closely with our customers to achieve optimal customer operational capability and meet the project goals.

