UAV FACTORY

Unmanned Platforms
And Subsystems

# PENGUIN C UNMANNED AIRCRAFT SYSTEM

Datasheet V.2.0






## PENGUIN C PHILOSOPHY

The Penguin C UAS is a truly breakthrough feat of engineering in terms of performance, reliability and cost efficiency.  The aircraft fits under the 55lbs. regulation requirements, it is equipped with a parachute recovery system, state of the art avionics, powerplant and software. The plane is capable of operating from unimproved terrain, day and night, with an incredible 20+ hours of continuous flight. The Penguin C is also **Non-ITAR** restricted, giving our customers easy access to its amazing capabilities.

UAV Factory's Flight Operations Team has flight tested the Penguin C for thousands of hours, to ensure its reliability and robustness from normal to very hospitable weather conditions.

The design is based on a proven Penguin B platform, which has been sold to customers in over **35 countries** and has demonstrated a **54.5 hour word record flight** in 2012.

### Penguin C unmanned aircraft

Over 20 hours endurance with the advanced fuel injected engine. Gyro-stabilized day/night payloads. Fully autonomous catapult takeoff, flight and parachute recovery.



### Pneumatic Launcher

Autonomous launching from an unimproved terrain. Man portable design. Launcher is capable of operating at 10,000 ft altitude.



### Ground Data Terminal

Up to 100 km range digital link for video and command/ control. AES encrypted option available.



### Ground Control Station

Portable control station. User friendly software interface. Operational at extreme conditions.

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## PAYLOAD OPTIONS

Penguin C is available with high performance Epsilon gyro stabilized gimbals.



| Epsilon 135 Day | Epsilon 135 Night | Epsilon 140 duo | Features |
|---|---|---|---|
| • | | | EO sensor SONY EV7500, HD 720p, 63.7°-2.3° FOV |
| • | | | EO sensor SONY EV7300, HD 720p, 59.5°-3.3° FOV |
| | • | • | IR sensor 640x480, 10.5° FOV |
| | | • | EO sensor SONY H11, 50-5.4° FOV |
| • | • | • | Software video stabilization |
| • | • | • | Target tracking |
| • | • | • | Onboard Video Recording/ Snapshots |
| • | • | • | Moving Target Indicator |
| • | • | • | Video Enhancement |

## PENGUIN C NO PAYLOAD OPTION

The Penguin C is also available for purchase with an empty payload bay. This will give the customer the option of integrating their own payload based on their specific project needs. For powering the payload, customers can use an onboard 6V, 12V and 24V power supply. For payload control and real-time video, customers can utilize an integrated datalink's Ethernet and Serial pass-through with up to 12 Mbps rate.

| Aircraft Specifications | |
|---|---|
| Wingspan | 3.3 m/ 10.8 ft |
| MTOW | 22.5 kg / 49.6 lbs. |
| Endurance | 20 hours |
| Range | 100 km/ 60 miles |
| Cruise speed | 19-22 m/s / 37-43 knots |
| Max level speed | 32 m/s / 62.2 knots |
| Ceiling | 4500 m / 15 000 ft MSL |
| Takeoff Method | Pneumatic Catapult, fully autonomous |
| Maximum takeoff altitude | 3000m /10 000 ft AMSL |
| Recovery | Parachute recovery, airbag |
| Operational temperature | -25° C to +40° C |
| Anti- icing measures | Heated Pitot tube. Flight in icing conditions is not approved. |
| Environmental protection | < 5 millimeters/hour rain. Pitot with drain. |
| **Propulsion System** | |
| Engine type | 28 cc EFI |
| Temperature control system | Automatically controlled via mechanical flap |
| Fuel type | 98 Octane, oil mix |
| Generator system | 100W onboard generator system |
| **Payload Specifications** | |
| Payload type | Gyro stabilized gimbal |
| Advanced features | Target Tracking, Electronic Stabilization, Moving Target Indicator |
| Mounting | Motorized retract with anti-vibration damping |
| **Data Link Specifications** | |
| Frequency | 2.304-2.364 GHz, 2.405-2.470 GHz, 5.00-5.800 GHz |
| Link Rate | Up to 12 Mbps |
| Encryption | 128 bit AES / 256 bit AES |
| **Flight Control System** | |
| Autopilot type | Piccolo, Cloud Cap Technology |
| **Ground Control Station** | |
| Type | Portable, Dual touchscreen displays |
| **Ground Data Terminal** | |
| Type | Tracking high gain directional antenna |
| **Catapult System** | |
| Type | Portable pneumatic, 6000 J launch energy |
| Packed Size | 1313 x 704 x 543 mm |

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## COMPETITIVE EDGE

### EFI Engine with silent muffler.

This state of art fuel injected gasoline engine was designed for maximum reliability and performance. Its Silent muffler system is equipped as a standard option for the lowest acoustic signature of any engine of its size in the world. The cooling system will give customers the ability to operate in subzero to extremely hot conditions. The engine is continuously tested on UAV Factory's engine testing cell to maximize its reliability and efficiency.

### Swappable propulsion modules.

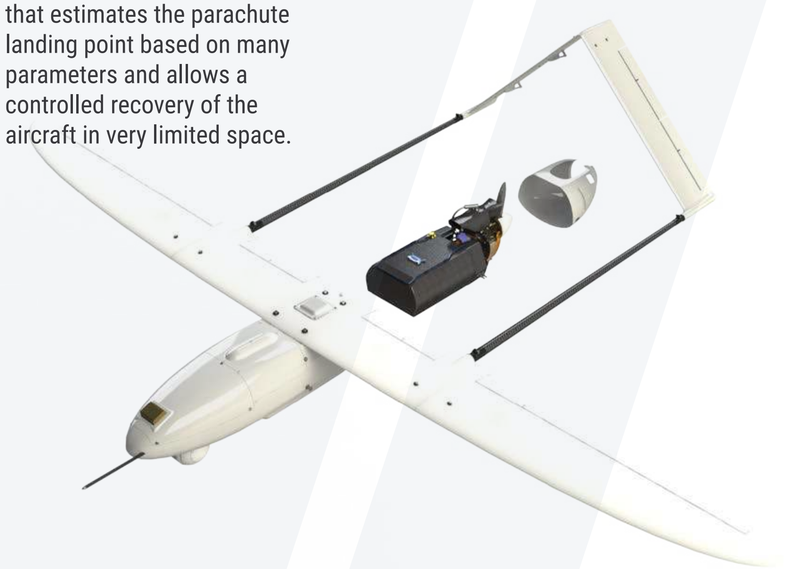
The propulsion module can be changed in minutes, allowing operation of the aircraft system while the maintenance is performed on a second module. This extremely cost efficient option, will keep your project operational at all times.

### Parachute system.

Allows recovery in both challenging and unprepared sites. The parachute is packed in the deployment bag and replacement of the parachute in the field takes less than 5 minutes. The parachute will automatically disconnect from the aircraft once the aircraft touches the ground, preventing wind-dragging.

### The Recovery Estimator Software.

Has a proprietary algorithm that estimates the parachute landing point based on many parameters and allows a controlled recovery of the aircraft in very limited space.



### Reduced Logistical Footprint.

The Penguin C system has the lowest logistical footprint in class. The catapult is man-portable and the parachute system eliminates the need for the net recovery system. Penguin C system can be transported in a minivan, while being runway independent.

## OPERATIONAL TRAINING

The full featured operational training is a part of the Penguin C system. The 10 Day Training Program covers all aspects of operation and maintenance, site survey, launch procedures, parachute packing, pre-post flight procedures, amongst numerous other areas. And all customers are supplied with extensive user manuals. Supporting our customers after the training, at their location, is also an option.



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