



- Penguin B platform ready for payload and autopilot integration
- 20+ hour endurance²
- Fuel injected engine option
- Up to 10 kg payload capacity
- 80 W power from onboard generator system
- Free Piccolo[®] autopilot configuration files
- Catapult, car-top or runway takeoff
- Wide range of standard subsystems and options
- Extensive documentation set
- Short lead time for standard configurations

PENGUIN B UAV PLATFORM



Penguin's philosophy:

Designed as a high performance unmanned aircraft, Penguin B is capable of up to 26.5 hour endurance with the 4 kg payload. With a small footprint of 3.3 meter wingspan, Penguin B can handle up to **11.5 kg** of combined fuel and payload weight. Modular composite structure, fast assembly, large access hatches, removable payload bay, are the key features of the **Penguin B** innovative design.

Available as an airframe ready for the autopilot and payload integration.

Specifications:

Parameter	Value
MTOW	21.5 kg
Empty Weight (excl fuel and payload) ¹	10 kg
Wing Span	3.3 m
Length	2.27 m
Wing Area	0.79 m ²
Powerplant	2.5 hp
Max Payload	10 kg
Takeoff method	Catapult, Runway or car top launch
Environmental protection	Sealed against rain, snow

¹ Penguin B with engine and servo package.

Performance:

Parameter	Value
Endurance ²	20+ hours
Cruise Speed	22 m/s
Stall Speed (with high lift system) ³	13 m/s
Max Level Speed	36 m/s
Takeoff run ⁴	30 m
CL max (45° flap deflection)	1.7
CL max (clean wing)	1.3

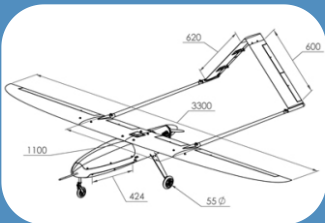
² Penguin B with fuel injected engine and 7500cc fuel tank.

³ Sea level altitude, 15 kg aircraft weight, 15 C°.

⁴ Sea level altitude, 15 kg aircraft weight, 15 C°, concrete runway.



UAV Factory recommends using Piccolo[®] autopilot systems from Cloud Cap Technology. Penguin B autopilot configuration files are available at no cost to all Penguin B and Piccolo users.



CAD model of Penguin B available to simplify the payload and autopilot integration for the clients.



Extensive Documentation for Penguin B aircraft and subsystems.



Advanced fuel injected engine option from Currawong Engineering[®].

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Performance:

Sleek and efficient design gives best in class performance. Optimized for endurance, Penguin has enough internal volume to lift 7.5 liters of fuel which will provide 20+ hours endurance with the fuel injected engine. The optimized high lift flap system provides stall speeds of <13 m/s, while giving excellent flight handling qualities due to a well designed V-tail geometry.

Meeting your mission requirements:

STEP 1

Configure Penguin B

- Select your engine type and onboard generator
- Select takeoff method
- Select landing gear type
- Select fuel tank volume and fuel level sensors
- Select Pitot type
- Select transportation packaging type
- Add additional accessories, spare parts and options

STEP 2

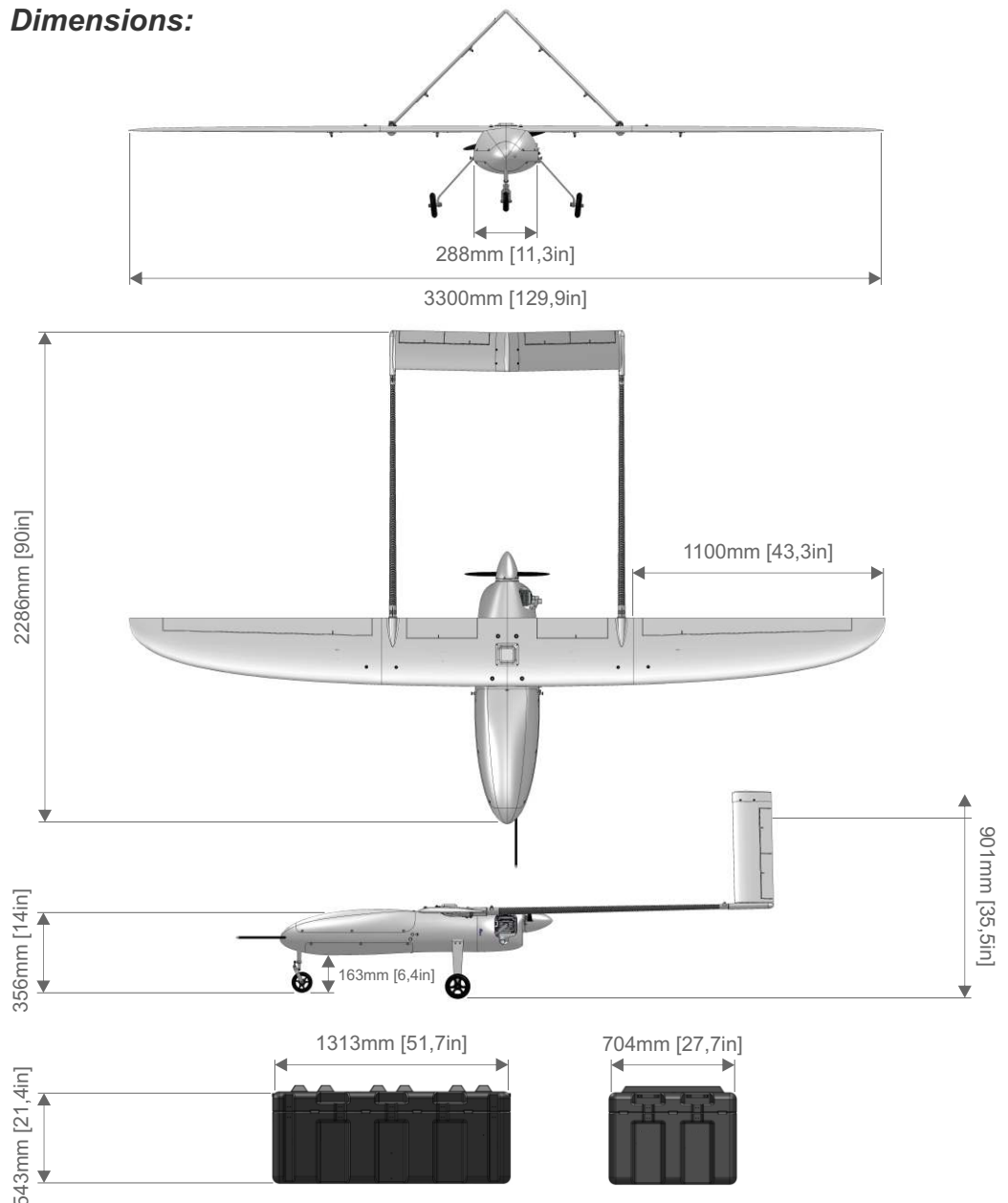
Getting autonomous

- Integrate the autopilot and data-link system of your choice
- Install payload of your choice

STEP 3

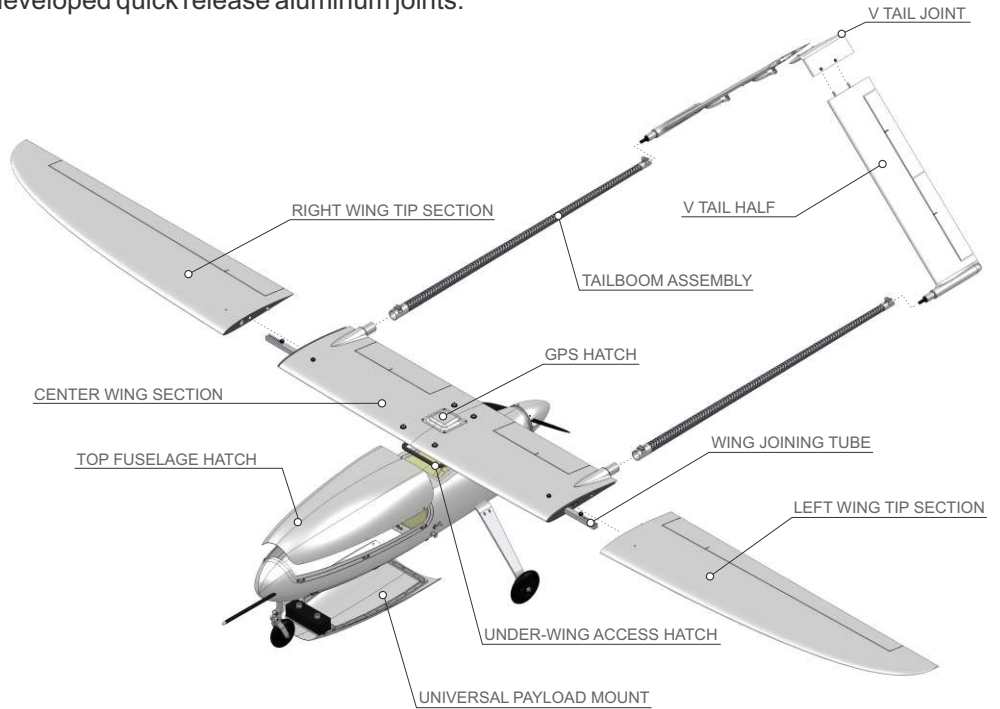
Start performing your mission

Dimensions:



Modular design:

All components of the **Penguin B** are easily removable and completely interchangeable. Wing splits in three 1.1 meter sections and the V-tail splits in two parts. High-end industrial grade push-pull connectors are installed in tail-boom joints as standard. The quick release fastening is used extensively in the **Penguin B** airframe. Oversize access covers are equipped with DZUS type 1/4 turn quick fasteners, tail-booms are equipped with a purpose developed quick release aluminum joints.

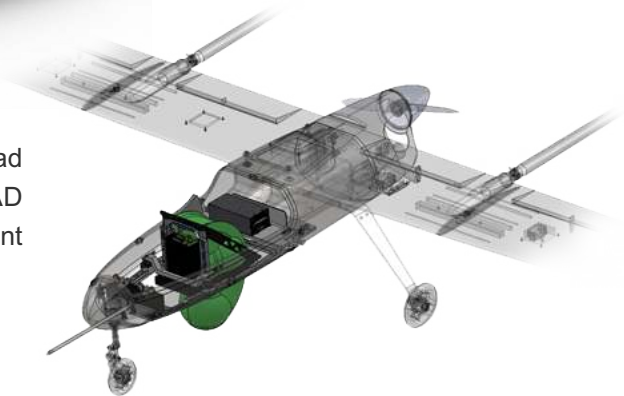


Universal Payload Mount:

Penguin B has a swappable universal payload mount that can be removed in seconds and used for various payloads. The most sophisticated payloads such as retractable gimbals can be installed by integrators into the fuselage and utilize the available space efficiently. The universal payload mount has predetermined mounting points that are precisely machined in aluminum frame as well as removable ballast slugs that will simplify the payload integration process considerably.



Integrators can design custom payload mounts for their payload in CAD software. Fuselage and payload mount CAD models are available to clients.



Payload specifications:

Parameter	Value
Fuselage volume available for payload	20 liters
Maximum payload weight	10 kg



Efficient gas engine with electronic fuel injection and 80 W power generator.



Takeoff from anywhere using portable pneumatic catapult.



Optional heavy duty landing gear allows landing on rough terrain.



Heated pitot probe for preventing ice formation.

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List of options:

Penguin B Preconfigured Package:



Penguin B with servos, and engine package.

- Penguin B composite airframe
- Swappable universal payload mount
- Preinstalled main landing gear
- Steerable suspension nose leg with servo
- Spinner
- Wing GPS compartment
- Installed push-pull connector between the wing and the tail-boom
- Preinstalled 28 cc pusher gas 2 stroke engine
- Cable choke assembly
- Vibration damping engine mount
- Digital servos
- Aluminum servo mounts for wing and tail plane
- Propeller
- 3000 cc fuel tank with fuel tubing
- Refueling dots
- Servo wiring.

Maximum endurance of the system is 6+ hours.

Does not include: autopilot, antennas, payload, batteries, onboard generator.

Launch Systems:



Portable Pneumatic Catapult. Takeoff from unprepared area in broad wind conditions. Powerful and reliable pneumatic launcher with advanced safety features. Training available at company's facilities as well as at client's facilities.



Car Top Launcher. Takeoff from car. Simple, small and low-cost solution for reliable automatic takeoff from unprepared area. Integrated and safe engine starter.

Landing Gear Upgrade:

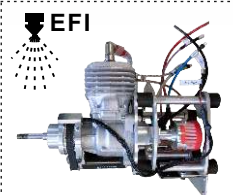


Heavy Duty Landing Gear. Land on unprepared fields. High shock absorbing capacity, large inflatable wheels.

Engine Options:



3W 28 CS engine upgrade. Upgrade to a more powerful 3W 28 CS engine. Shorter takeoff run from runway, ability to takeoff from unprepared runway, improved climb rate.



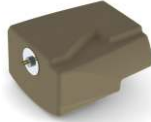
Electronic Fuel Injection (EFI) upgrade for 28i. Advanced fuel injection system from Currawong Engineering. High engine reliability under broad atmospheric conditions. No adjustment needed. Improved fuel efficiency, highest power output, operation in wide range of temperatures and altitudes.

Engine Options:



80 W Generator system upgrade. Onboard generator system, factory installed on 28i/CS engine. High efficiency and reliability. Includes 6V and 12V outputs, short circuit protection, integrated Li-Polymer charger, integrated current sensors and RS-232 connection for monitoring power parameters in real time.

Fuel System Upgrades:



7500 cc fuel tank. Large glass fiber fuel tank for maximum endurance. With carbureted engines, 12-15 hours endurance can be achieved. With EFI engine 20+ hours can be achieved.

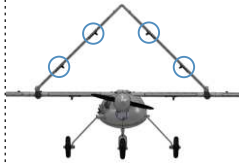


Fuel level sensor for 7500 cc fuel tank. Precise fuel level sensor integrated inside the 7500cc fuel tank. Essential for long endurance missions.



Header Tank Fuel Sensor. The point level sensor in the header tank is a safety feature that detects the low fuel condition. Increases system reliability and indicates condition when the aircraft need to land immediately.

Various Accessories and Upgrades:



4-servo V tail upgrade. Each tail plane control surface is split in two equal sides, each having own servo - total of 4 servos for the tail plane. This option increases reliability of the system in case of a tail plane servo failure.



Pitot-Static tube. Combined Pitot-Static tube provides both dynamic and static pressure measurements in a single package. Can be mounted and removed using two screws for simple UAV transportation.



Heated Pitot-Static tube. Heated Pitot-Static tube for operations at low temperatures. Low-power design with smart fault detection signal output. Swappable with standard Pitot-Static tube.



Push-pull connectors for wing. Preinstalled Fischer 102 Series push-pull industrial connectors between the center and the tip wing sections.



Rugged Transportation Case. Rugged and watertight transportation case for maximum protection of the Penguin B UAV. Supplied with additional internal case for small components, spare bolts, screwdrivers and tools.

Autopilot Configuration files:



Cloud Cap Technology Piccolo Autopilot configuration File. Available at no cost. Validated for autonomous flight, autonomous catapult takeoff and autonomous runway landing using laser altimeter.

Autopilot Configuration files:



Procerus Technologies Kestrel Autopilot configuration file.

Validated for autonomous flight, autonomous catapult takeoff and autonomous runway landing.

Spare parts:



Penguin B bare airframe

Penguin B composite airframe

- Swappable universal payload mount
- Preinstalled main landing gear
- Steerable suspension nose leg
- Spinner
- Wing GPS compartment
- Installed push-pull connector between the wing and the tail-boom

Does not include: engine, propeller, servos, servo mounts, servo linkages, engine mounts, fuel system, autopilot, antennas, payload, batteries, onboard generator.

Other replacement parts. Most replacement parts for Penguin B are in stock and available at short lead times

Ground Control Station:



Portable Ground Control Station. Universal portable ground control station for Penguin B and other UAVs. Dual display functionality, advanced safety features and hot-swappable lithium battery cartridges.

User-configurable for any autopilot system. Data-links, software and Panasonic Toughbook need to be purchased separately.

See separate datasheet for details.