PROCERUS ®
T E C H N O L O G I E S

EPP foam Unicorn wing

In support of customers' needs to have an inexpensive and durable test platform, Procerus provides the Unicorn air vehicle with the Kestrel Autopilot System. This rugged plane allows users to get in the air quickly. It is a platform that enables us to effectively test new autopilot features, video equipment, sensors, and multiple aircraft in the air at the same time and provides a vehicle customers can rely on for their R&D / testing /training needs. This is an EPP foam platform that can be built at 48" to 72" wingspan. We use brushless electric motors, lipo batteries. The smallest versions weigh 36 oz (autopilot, GPS, modem, motor, prop, speed control, servos, 2 cameras, 2 lipos). We provide an easy-to-use game pad controller. For development and tuning, use a 5 channel radio but it is recommended you use the gamepad for normal operation. The platforms come pre-tuned and flight tested so users can concentrate on flying rather than autopilot integration.

Each plane is custom built – the autopilot is installed in the center of the plane with the modem, batteries, and GPS units positioned to ensure proper center of gravity. Dual fixed camera (forward facing and side look) and gimbal camera options are available as desired. See pricing for each item.

We utilize Maxstream, Microhard, Freewave modems (international).

A di-pole antenna (directional in a planar region) is used on the airplane for communications as well as an onboard dipole for video transmission. For video receiving on the ground, we use a 14dbi patch high gain antenna that is linearly directional. It is typical that the higher gain (which relates to increased range) the more directional the antennas become.

These UAVs are powered by brushless motors using lithium polymer batteries due to their power & light weight. For safe use of li-poly batteries, please see;
www.procerus.com/documents/LithiumPolymerUsage.pdf

Application

The Unicorn air vehicle provides a robust platform for training, practice integration and tuning, software algorithm development, and integration of various payloads and sensors. Many customers use these vehicles to get airtime on UAV related products they are developing. The user configurable hardware i/o support on the autopilot and TCP/IP development interface (available under NDA) in the Virtual Cockpit allow users to monitor and control their payload in flight. An additional CPU can be placed on the UAV and interfaced to the autopilot via the modem mirror port. The users can program this processor to control the autopilot via the open communication protocol provided by Procerus. Using the Virtual Cockpit ground station software or TCP/IP development interface, users can create flight plans (250 waypoints supported) in advance, (also save flight plans for later use) and can modify and re-task the UAV while in flight. These small planes fly between 25 and 45 mph and can carry 12 - 16oz. Endurance is generally 30 to 120min depending on batteries included. Auto launch and landing supported with the Kestrel autopilot and Virtual Cockpit ground control station.

See our web site for pricing information.

UAV Test Platforms

## Various Platform Sizes Available:

60 inch

Endurance:	60 min (4 batteries)
Speed:	30 to 60mph
Weight:	~4 lbs
Extra Payload:	1 lb hand launch,
	1.5 lbs bungee launch.

Available in 72" version. 2hr endurance

48 inch

Endurance:	40 min (2 batteries)
	1 hr (3 batteries)
Speed:	25 to 45mph
Weight:	~4 lbs
Extra Payload:	.5 to .66 lbs

40 inch

Endurance:	30 min (2 batteries)
	40min (3 batteries)
Speed:	25 to 45mph
Weight:	~2.5 - 3 lbs
Extra Payload:	.33 lbs
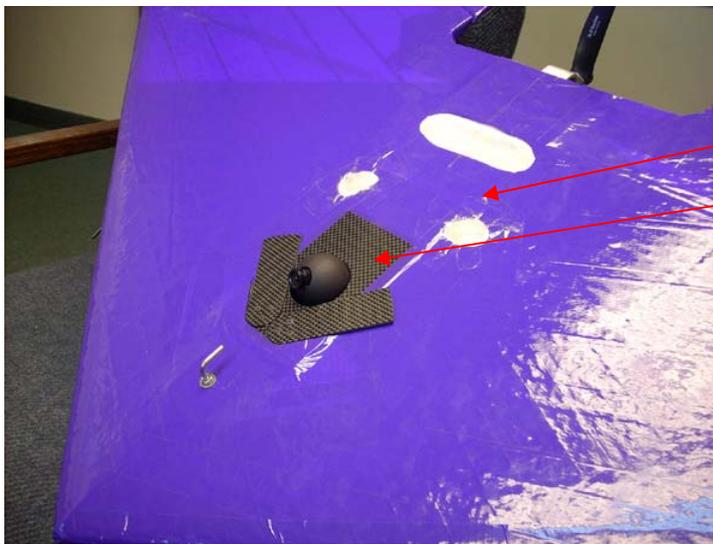
Throw holes for easy hand launch.

Gimbal – retractable, beetle wing doors. 40mm. (360° pan, 90° tilt, 97 grams)

2.75" high x 1.5" Wide x 3.5" Long.

88mm Gimbal available with Sony 10x zoom camera.

Cloudcap TASE gimbal supported.

NOTE: Use of these test platforms may require special licenses and approvals which are customer responsibility.

Gimbal Data Sheets:
www.procerus**uav**.com/developer.php

2 fixed camera option – forward & side look.

Throw holes for easy hand launch.