Black Swift S2 UAS

A Purpose-Built Scientific Research Platform

The Black Swift S2™ UAS is a purpose-built aerial platform for flying scientific payloads in demanding atmospheric environments (high-altitude, corrosive particulates, and strong turbulence). The Black Swift S2 UAS offers the additional benefits of being hand-launchable and having a larger payload capacity than other vehicles while also having longer endurance, higher ceiling, and greater range than vector wing airframes. This rugged airframe is capable of autonomous launch, flight, and landing in difficult mountainous regions.

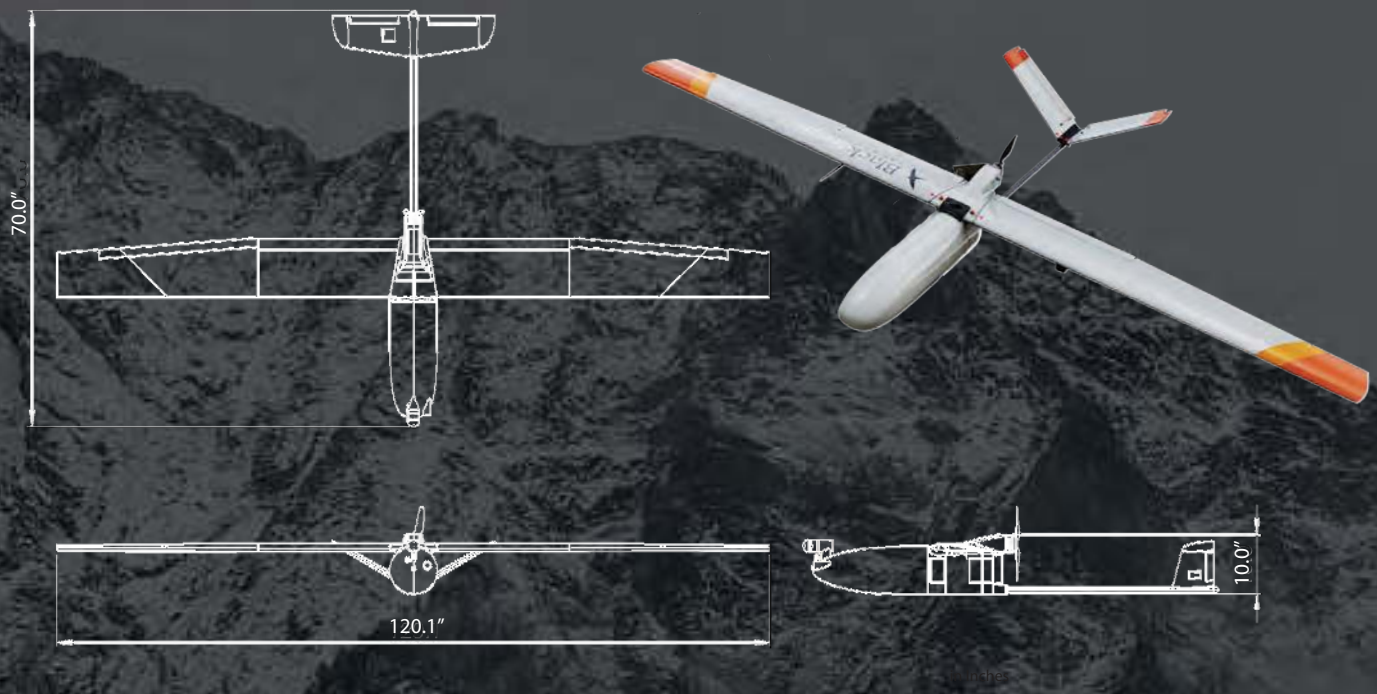
Engineered to achieve high altitude flights through strong winds and damaging particulates, the Black Swift S2 UAS is a durable, terrain-following UAS platform suitable for deployment in harsh environments typical of nomadic scientific field campaigns.

"The S2 has very good flight characteristics. It gives us the ability to fly at slower speeds which allow us to fly the airplane in much more confined spaces."

Ed Dumas
Licensed UAS Pilot NOAA/ATDD

Black Swift TECHNOLOGIES
3200 VALMONT ROAD, STE 7
BOULDER, COLORADO 80301
720 638 9656
info@BlackSwiftTech.com

BlackSwift S2



When Time is of the Essence

Leveraging BST's proprietary Flight Planning User Interface, scientists can program the Black Swift S2 UAS in minutes to calculate the area under review and then begin collecting data for immediate analysis and decision making. With its intuitive tab-driven interface, flight planning is simple and easy to accomplish. Mission monitoring and mapping is all done from a handheld Android™ Tablet loaded with BST's SwiftTab™ software. Gesture-based controls enable users to confidently deploy their Black Swift S2 UAS with minimal training while being able to collect data over geography that is topically diverse with confidence.

The Black Swift S2 UAS has successfully collected science data flying in full payload configuration in extreme environments (tropical volcanoes, arctic permafrost, high alpine ranges) for NASA and NOAA delployments.

Specifications

Mission Capabilities	
Ingress Protection (IP)	IP42
Payload Wieght vs Launch	1.4 kg (3 lbs) hand launch
	2.3 kg (5 lb) rail launch
Flight Ceiling	6000 m (20,000 ft)
Max. Winds Endured	15 m/s (30 kts)
Flight Characteristic (6,000 ft density alt)	
Flight Speed	12 m/s (24 kts) stall, 18 m/s (35 kts) cruise
Flight Time	110 min max, 90 min nominal
Range	110 km (60 nm) max, 92 km (50 nm) nominal
Vehicle Characteristic	
Weight	5.2 kg (11.5 lbs) nomoinal, 6.6 kg (14.5 lbs) max
Wingspan	3.0 m (10.0 ft)
Payload Capacities	
Nose Cone Dimensions	20.3 cm (8 in) diameter
	63.2 cm (24.9 in) length
Power available for payload	50 W total
Payload weight	2.3 kg (5 lbs) max w/ rail launch
Geotagging Position Accuracy	Typically < 4m in all directions
Telemetry Data Rate	Serial Stream, 9500 bps

Modular Field-Swappable Payload System

Indicative of its science-based missions and flight heritage, the S2 features a unique field-swappable payload system designed to:

- Ensure clean and uncontaminated measurements of the atmosphere by completely enclosing the sensor suite and associated hardware within the nose cone, and
- Enable rapid changes of the payload in the field using common power, data, and mechanical interface without any specialized tools.

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