

TOMAHAWK KINESIS

TOMAHAWK

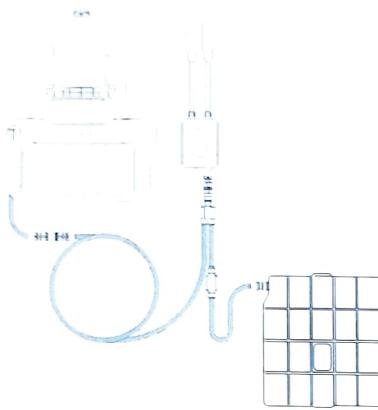


Kinesis empowers operators to control over 20 uncrewed systems from more than a dozen manufacturers, all through a single, unified interface. Displayed on a single 'pane of glass', these systems can be enhanced with new AI capabilities and fully integrated into the tactical network. Kinesis represents the next evolution in body-worn common control for uncrewed systems, whether airborne or ground-based. Designed with MOSA to seamlessly integrate with existing equipment, Kinesis unifies your uncrewed systems into a common operating picture, networked for team collaboration and augmented by advanced AI.

Unrivaled Capabilities Delivered

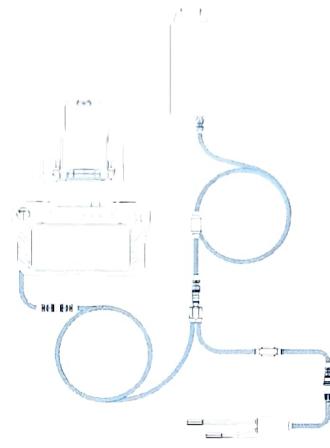
TOMAHAWK KINESIS

TOMAHAWK ULTRALIGHT GCS



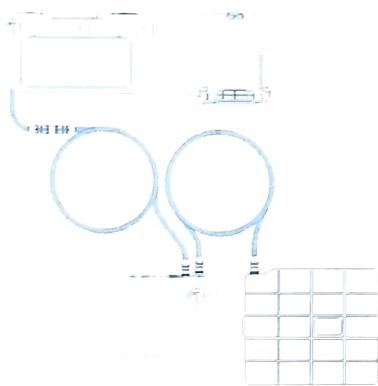
	PORTABILITY Wearable
	LINK RANGE 5 km
	SETUP TIME 5 min
	WEIGHT System: 3.3 lb (1.5 kg)

TOMAHAWK TACTICAL GCS



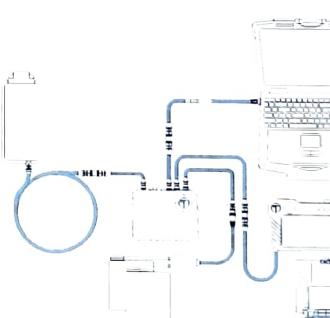
	PORTABILITY Wearable
	LINK RANGE 5 km
	SETUP TIME 5 min
	WEIGHT System: 4.7 lb (2.1 kg)

TOMAHAWK COMMON CONTROL GCS



	PORTABILITY Backpackable
	LINK RANGE 20 km
	SETUP TIME 10 min
	WEIGHT System: 8.6 lb (3.9 kg)

TOMAHAWK COMMAND GCS



	PORTABILITY Man-packable
	LINK RANGE 20 km
	SETUP TIME 10 min
	WEIGHT System: 14.3 lb (6.49 kg)

KEY FEATURES

- » **Mission Planner:** Kinesis has a fully featured Mission Planner that allows for both pre-flight mission creation and/or real-time mission planning.
- » **Group Formations:** Enables the user to control quad copter type UxVs as a single vehicle.
- » **Vehicle Pairing Process:** A guided pairing process provides a user-friendly vehicle radio pairing feature unique to Kinesis.
- » **TAK/ATAK:** Kinesis natively supports TAK/ATAK with easy loading of TAK-based maps, bidirectional syncing of users, vehicles, Points of Interest (POIs), and video rebroadcast.
- » **Modular Configurations:** Common Control allows the user to create a Tomahawk GCS system to fit the needs of their specific mission.
- » **Designed with Open System Architecture:** To enable third-party capabilities

Edge 130 Blue

The Edge 130 Blue is a military-grade tricopter providing medium-range mapping, inspection, intelligence, surveillance, and reconnaissance. With its innovative vertical take-off and landing capabilities, hover and forward flight modes, and tool-free payload swapping, the Edge 130 can operate in the most challenging environments.



Certified Blue UAS

FEATURES



Forward Flight and Hover

Independent tilt-pod technology enables smooth transitions between forward flight and hover.



Cyber Hardened

Encrypted AES 128/256 radios provide tighter security between operator and aircraft when it matters.



Vertical Take-off and Landing

Take-off and land anywhere without the need for cumbersome ground equipment.



Navigation Beacons

User controlled visual and infrared navigation beacons enable safe recovery of aircraft.



Blue Approved Payloads

Swapped in seconds with no tools or special equipment - no need to buy an aircraft for every camera or sensor.



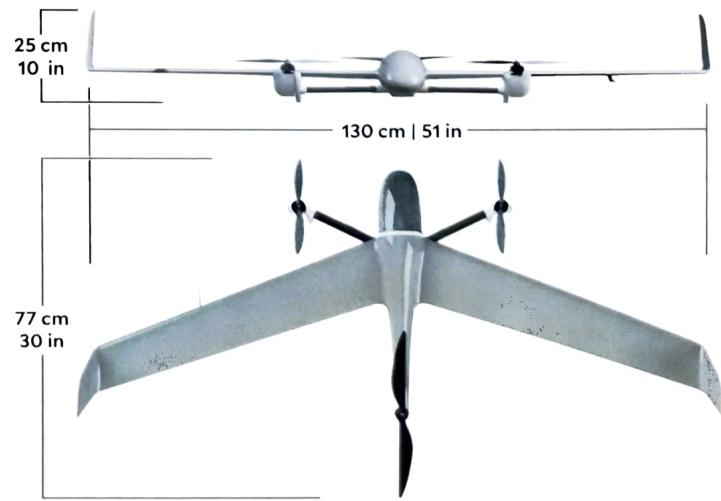
Non-ISM Frequencies

Regulated radio frequencies operating beyond public ISM bands are available on demand.

SPECIFICATIONS

Vehicle Mass	1,200 g 2.65 lbs
Energy Storage	Lithium-ion
Comm Frequencies	900 MHz Telemetry 2.4 GHz Data
Encryption	128 256 AES
Range	10-20 km 6.2-12.4 mi
Nominal Cruise Speed	15 m/s 33 mph 55 kph
Max. Cruise Speed	27 m/s 65 mph 100 kph
Min. Cruise Speed	11 m/s 24 mph 40 kph
Max. Altitude	3,650 m 12,000 ft
Max. Payload Mass	345 g 0.76 lb
Cruise Endurance	60+ minutes*
Hover Only Endurance	30 minutes*
Battery Nominal Capacity	86.4 wh, 6.0 ah, 14.8 v
Max. Wind Speed	17 m/s 40 mph 64 kph
Max. Wind Gust	6 m/s 13 mph 21 kph

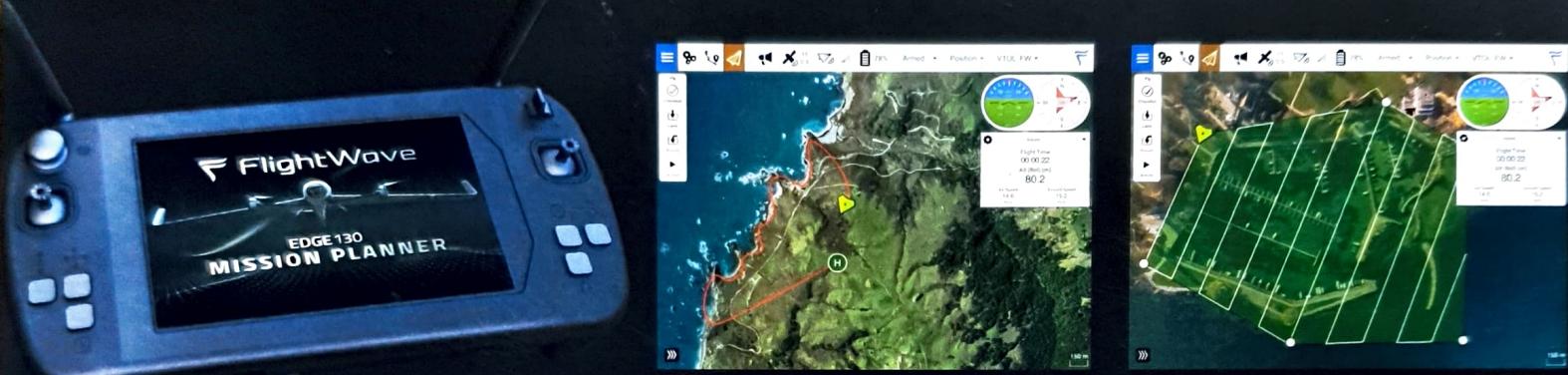
*standard atmospheric pressure



EDGE 130

GCS & MISSION PLANNER

Plan and execute entire missions using enhanced autopilot technology. Experience seamless autonomy as The Edge effortlessly transitions between multi-rotor and fixed-wing flight using exclusive thrust-vector control—no pilot input needed. Leverage numerous pre-programmed mapping and other missions or design your own in seconds. Seamlessly swap modes, point cameras, and manage sensors using native controls while sharing real-time flight info and live video footage with your team through the USB-C interface.



BLUE UAS APPROVED PAYLOADS



Overwatch Gimbal

The Overwatch EOIR Gimbal offers electro-optical infrared (EOIR) capabilities on a 3 axis gimbal-stabilized platform. Two cameras collect video in color and infrared, each writing full resolution to an on-board SD-card while streaming live compressed video to the ground station for real-time insight. The FlightWave Glo-12K Electronic Global Shutter color camera records detailed 4k-30fps video that can be digitally zoomed 10x. Thermal video is recorded with a long-wave infrared imager that record at 640x512 with 2x digital zoom, allowing you to gather valuable insight at a distance.



Mapping Array

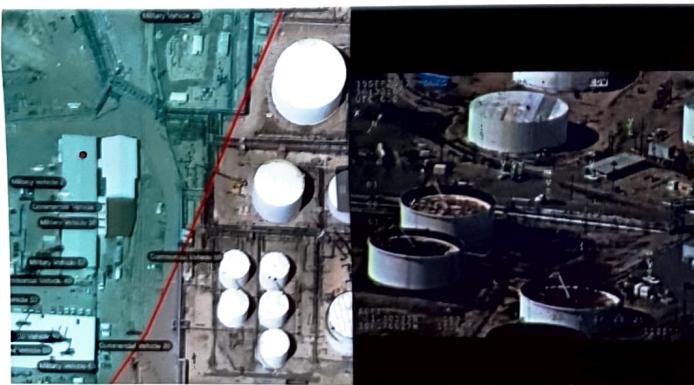
Our Mapping Array features three simultaneously triggered 13MP CMOS cameras, which together collect 39MP of image data at up to 5 frames per second. These images are saved to an innovative onboard removable storage card that can write up to 1TB of data at over 1400MB per second. The cameras are configured to most optimally sample a 100 meter wide image at 1cm per pixel, when flying 100 meters above the ground. When flying at Edge's nominal cruise speed of 15m/s with industry-standard overlap setting, this means you will be able to cover over 1600acres of land in one flight of 90 minutes.



SPECIFICATIONS

SYSTEM INPUTS	
SUPPORTED HARDWARE	Nvidia Jetson (Orin, Xavier) Intel processors running Linux (Ubuntu >=20.04) AMD processors running Linux (Ubuntu >=20.04)
REQUIRED SOFTWARE	Athena-VMS (>=0.3.0) Athena-CVIP (> 0.3.0) Docker
SYSTEM OUTPUTS	
OUTPUT RATE	>= 1Hz
WWW DATA	Cursor-On-Target (CoT) XML
TAK SERVER	TAK Server Official (>=4.8) Taky (>=0.5)
CoT PORT SUPPORT	Data packages, Streaming, TLS/SSL, TCP, UDP, Multicast
SYSTEM INFORMATION	
MENSURATION CAPABILITY	~ CAT 2 Low

CAPABILITIES

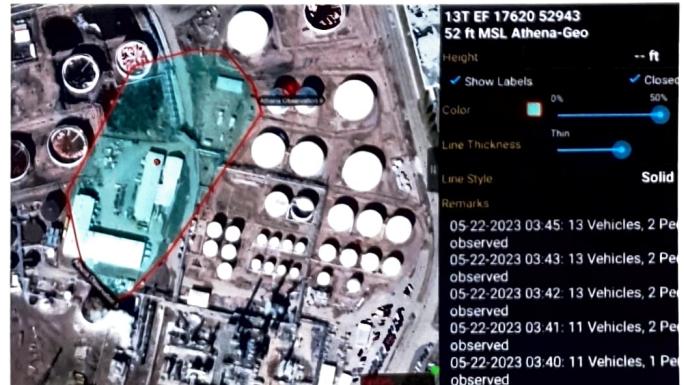


DISTINCTIONS

- Soldier ready real-time situational awareness, generated by AI
- Hands-off world-space tracking of detected and recognized entities
- Situational awareness with human-readable descriptions of WWW data
- Designed to run tactical edge, on soldier worn AI infrastructure

KEY FEATURES

- ❖ AI observations distilled into information-rich tactical insights
- ❖ Generation of human-readable WWW data presented within the TAK ecosystem
- ❖ Geo-tagged sign of life alerts
- ❖ Pattern of life and spatiotemporal data visualisation capabilities
- ❖ SITREP generation at the press of a button
- ❖ Easy configuration using the Athena Vision Management Web Service (VMS)



Related Products

- ❖ Athena Vision Management Service (Included with any purchase of the Athena CVIP)
- ❖ Athena Computer Vision Inference Pipeline

- ❖ Athena Decision Support Service
- ❖ Athena AI Bespoke Model Consultation

❖ Athena Geospatial



BTS
BATTLE TRACKING SERVICE

SPECIFICATIONS

SYSTEM INPUTS	
SUPPORTED RESOLUTIONS	3840 x 2160 (4K UHD)
	1920 x 1080 (FHD)
	1280 x 720 (HD)
	640 x 512
HARDWARE ACCELERATED DECODE	H264, H265 JPEG, MJPEG
IP VIDEO PROTOCOLS	UDP Unicast/Multicast (RTP) RTSP, HTTP
IMAGERY FORMATS/CONTAINERS	MPEG/MPEG-TS / MPEG-2 (MISB0601.1/STANAG4609 enabled), MPEG-4 AVC, MJPEG, JPEG, Matroska, MKV
DRIVER SUPPORT	Video4Linux2, CSI over Nvidia's Libargus, Basler Pylon Gig-E Vision, USB-3 Vision
FRAME RATE	0 < f ≤ 120
SYSTEM OUTPUTS	
SUPPORTED RESOLUTIONS	3840 x 2160 (4K UHD)
	1920 x 1080 (FHD)
	1280 x 720 (HD)
	640 x 512
VIDEO OVERLAYS	Configurable markers can be overlaid on detected entities or configured objects of interest
HARDWARE ACCELERATED ENCODE	H264, H265 JPEG, MJPEG
IP VIDEO PROTOCOLS	UDP Unicast/Multicast (RTP) RTSP
IMAGERY FORMATS/CONTAINERS	MPEG-TS JPEG
FRAME RATE	0 < f ≤ 30
SITUATIONAL AWARENESS DATA PAYLOADS	JSON Payloads written to disk and/or published to MQTT Broker

CAPABILITIES



Information of Military Significance



Events of Interest



Patterns of Life Analysis



Unusual Activity



Related Products

- ❖ Athena Vision Management Service (Included with any purchase of the Athena CVIP)
- ❖ Athena Battle Tracking Service

DISTINCTIONS



State-of-the-art detection and recognition performance on low-pixel-on-target EO and IR imagery



Designed to run tactical edge on soldier worn AI infrastructure



Scene-aware at run-time AI optimisation



MISB ST 0601.8 In-Band KLV Telemetry Exploitation

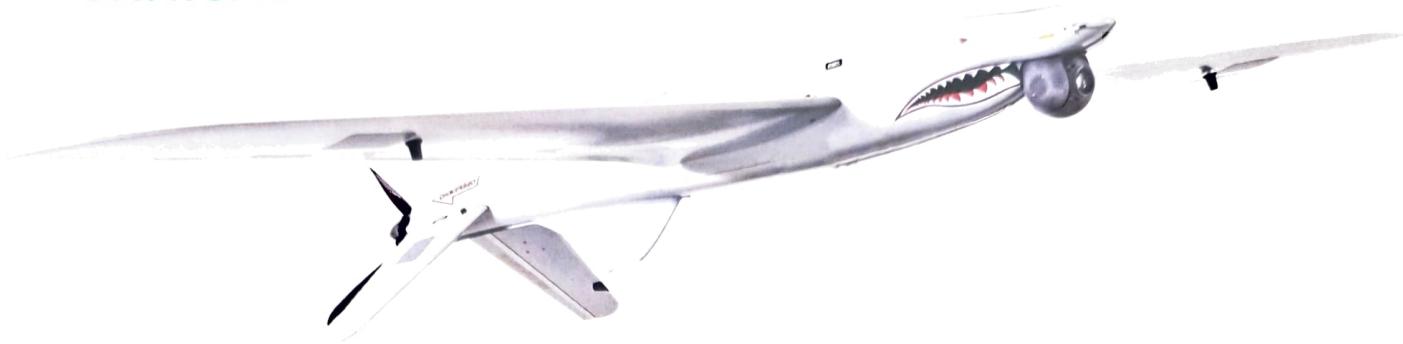
KEY FEATURES

- ❖ Web-based configuration tools enabling users to quickly and effectively augment AI detection and recognition behaviours during-mission
- ❖ Support for processing of high-resolution video data at the tactical edge/in embedded use cases
- ❖ Easily integrated with EO and IR sensors, supporting a variety of input imagery
 - ❖ Plug-and-Play functionality for:
 - ❖ MPEG-TS (STANAG-4609 Supported)
 - ❖ H.264 | H.265
 - ❖ JPEG stills | MJPEG video
 - ❖ Model improvement telemetry (opt-in)
 - ❖ Software solution enabling users to store system telemetry, which can be analysed by users, and optionally sent to Athena AI for model improvement on new or challenging scenes

AI MODELS

DOMAINS	
SENSOR TYPES	ENVIRONMENTS
EO MWIR (White Hot) LWIR (White Hot)	Urban (Sparse or Dense) Rural (Forest, Tundra or Desert)

TECHNICAL CHARACTERISTICS:



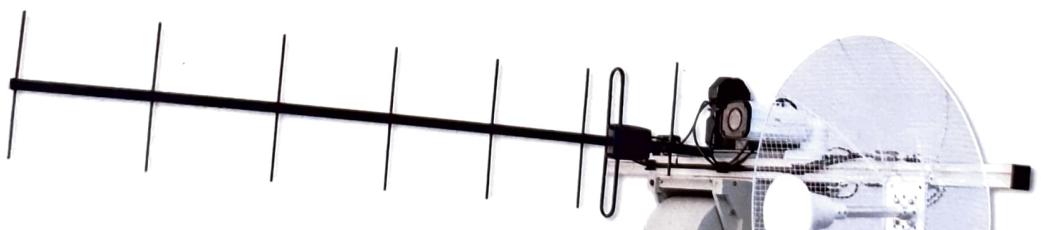
Communication range up to 80 km
Max. ceiling 3000 m
Operational altitude 1000 m
Flight time 210 min
Cruising speed 75 km/h
Max. speed 130 km/h
Wingspan 3.4 m
Catapult launch yes

Camera:

Optical zoom 30x
Total zoom 90x
Max. tracking distance up to 5000 m
Digital stabilization yes
Anti-fog feature yes

SHARK UAS provides a wide range of autonomous intelligence, surveillance and reconnaissance operations in all-environment conditions, such as:

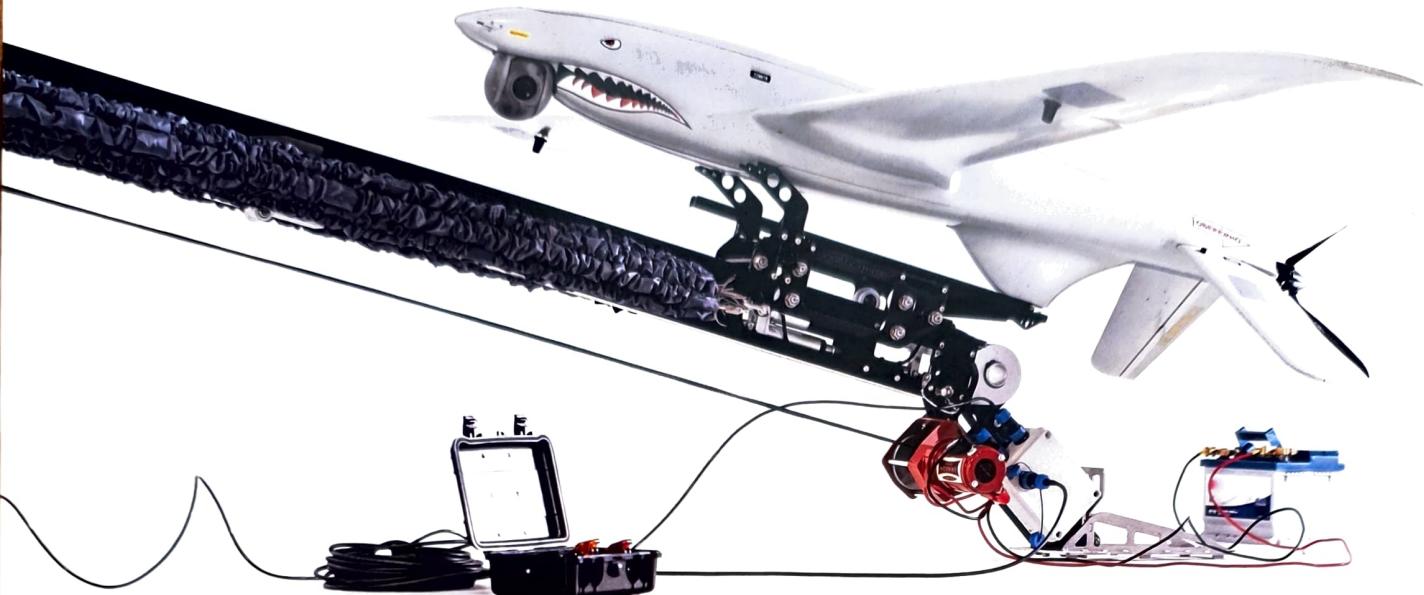
- Aerial reconnaissance
- Police operations
- Border security
- Aerial mapping



UAS CONFIGURATION:

- Shark UAV
- Advanced camera system
- Catapult launcher
- Ground control station
- Software
- Tracking antenna



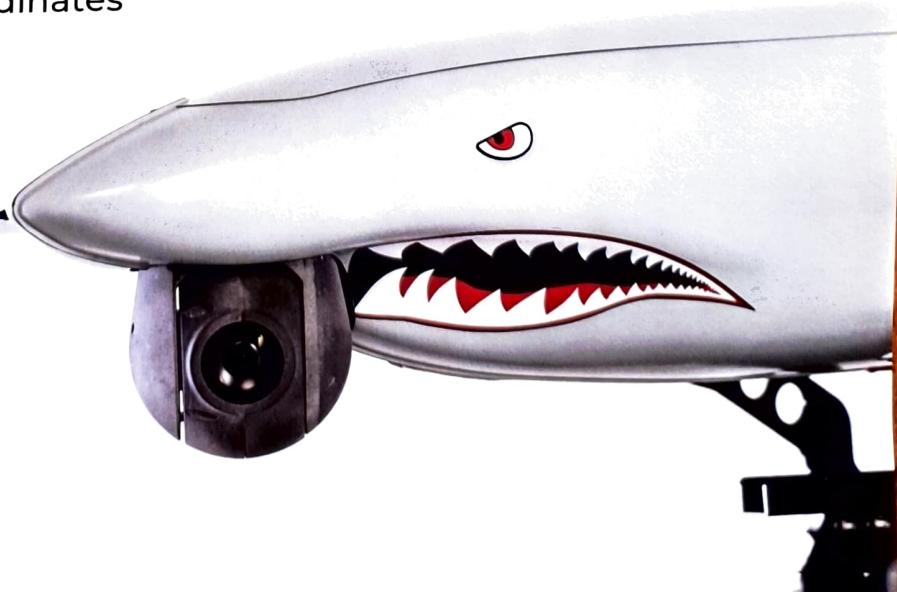


SHARK UAS

SHARK UAS — is a perfect multifunctional unmanned aerial system that combines advanced technologies and the world's richest experience in UAV applications.

KEY FEATURES

- Determination of target coordinates
- Encrypted datalink
- Real time reconnaissance
- Low noise visibility



Boresight UAT Platforms

BQ400 Raider Quadcopter

The BQ400 is a sub 2 kg quadcopter UAT designed to mimic the size and flight characteristics of popular commercially available quadcopters. The BQ400 is designed to be highly manoeuvrable in both automatic and Pilot-in-Command control modes, allowing the design and execution of complex flight profiles. The BQ400 can reach straight-line ground speeds of up to 17.5 m/s in mild to moderate wind conditions.



BQ400 Raider

Parameter	Units	Value
Mass	kg	1.0
Dimensions	mm	325 x 325 x 160
Range	M	up to 2,500+
Max Endurance	min	20+
Max Speed	m/s	20
Payload	g	~300
Frequency	MHz	902-928 or 868-869

BF210 Merlin Fixed-Wing

The BF210 is a hand launched Fixed-Wing UAT designed to mimic the size and flight characteristics of Group 1 Fixed-Wing threats. Like the BQ400 Raider, the BF210 Merlin is able to operate in both automatic and Pilot-in-Command control modes, allowing the design and execution of complex flight profiles through a common GCS.



BF210 Merlin

Parameter	Units	Value
Variants	kg	3
Wingspan	mm	2100
Body Length	mm	600
Range	M	up to 2,500+
Max Endurance	min	20+
Max Speed	m/s	20
Frequency	MHz	902-928 or 868-869

Boresight Swarming Capability

Boresight has developed a unique and dedicated swarming capability to facilitate C-sUAS Training and Red Teaming requirements. Our swarming capability can be field deployable for scenario-based Red Teaming operations or used at fixed sites for C-sUAS Training. The number of concurrent UAT's is currently up to 10x Raider UATs operating from a single GCS. The capability is continually evolving with the number of UAT within the swarm increasing on a regular basis.

- Multiple UAT platforms and types operated from a common GCS.
- Complete autonomous flight operations allowing for repeatable flight plans and standardised training programs for military training.
- Flexible 'ad-hoc' flight operations.
- Customisable flight plans, safety parameters and UAT behaviour.



BQ400 Raider Swarm

Boresight C-sUAS Training & UAT's

Company Overview

Boresight provides threat emulation for Counter small-Unmanned Aerial Systems (C-sUAS) Training and Red-Teaming through the use of its low-cost Unmanned Aerial Target (UAT) platforms and swarming capable Ground Control Station (GCS).

Boresight Differentiators

Boresight fills a vital gap in the C-sUAS market via purpose built and designed aerial targets and training systems. Boresight UAT's offer the following advantages over using commercially available drones as targets:

- Swarming capability.
- Repeatable flight operations from multiple UAT platforms utilising a common GCS.
- Purpose built C-sUAS targets with lower unit costs.
- Reliable Supply Chain.
- Reusable targets that are cost-effective enough to be destroyed when required.

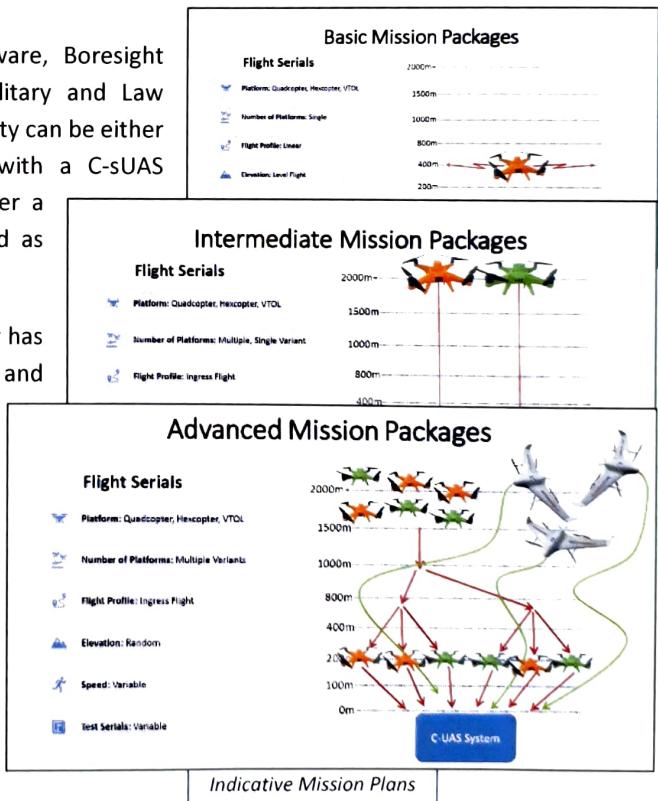
Boresight C-sUAS Training and Red Teaming

Through its unique swarming capable GCS software, Boresight provides market leading C-sUAS training for Military and Law Enforcement customers. Boresight's C-sUAS capability can be either provided directly to a customer or combined with a C-sUAS manufacturer's system to then provide a customer a complete C-sUAS and Training capability packaged as one product.

Every weapon system in the Military the world over has a dedicated and purposely designed training target and training course. C-sUAS should be no different.

Tailored operator training for a weapons system is crucial to any system becoming and remaining operational. Boresight provides this to the C-sUAS market its cost-effective UAT and GCS software, enabling customers to conduct basic through to advanced C-sUAS training with any detection or effector system. The Boresight GCS software allows for the development of tailored C-sUAS operator training for use in any location. This allows dispersed units of the same organisation to conduct a standardised C-sUAS operator training courses with consistent certification standards.

Boresight's Red-Teaming capability offers customers a scenario-based C-sUAS threat which can be as simple or as complex as required. From a single quadcopter UAT, through to a mixed swarm of fixed-wing and quadcopter UAT's, Boresight can provide 'next-gen' suAS threat emulation for any customer in any location., that will continue to evolve as the threat evolves.



Indicative Mission Plans



SPECTRE B-1

GX-2 WARHEADS

Parameter	High Explosive GO-2 HE	High Explosive Anti-Tank GK-2 HEAT	Thermobaric GTB-2 FAE	Training warhead GO-2 HE-TR
Mass	4 800 g	4 800 g	4 800 g	4 800 g
Explosive	Comp-B	Oktogen	TBX	INERT
Efectivness range / penetration	50 m	700-800 mm RHA	50 m	-
Photo				

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SPECTRE
SOLUTIONS



SPECTRE B-1

DESIGN

The Spectre B-1 is a loitering munition UAV developed by Spectre Solutions as a platform for carrying Belma's GX-2 warheads. The UAV fulfills military standards and is created according to the aircraft design process.

Low costs of production, ease of use and reliability on the battlefield.

DATA & SPECS*

- Dimensions (LWH): 2 m x 2.2 m x 0.5 m
- MTOW: 18 kg
- Propulsion System: Electric Engine
- Endurance: up to 45 min
- Range: up to 60 km
- Operating Speed: 120 km/h
- Maximum Speed: up to 200 km/h
- Take-Off Method: Pneumatic Launcher

*Calculated



LOW COSTS
OF PRODUCTION



EASE OF USE



RELIABILITY
ON THE BATTLEFIELD



TECHNICAL DATA

WEAPON STATION

Platform

Mounting type: 2-axis gyro-stabilized.

Weapon: Standard configuration with 12.7mm (M2) and grenade launcher (MK19). Option to mount other calibers: 5.56mm (MG4), 7.62mm (MG3), 14.5 (KPVT), Gatling DILLON M134D, smoke launchers (40, 76, 80mm).

Elevation: -20° to +60°.

Azimuth: Nx360°.

Stabilization level: <0,5 mrad.

Weight*: <180 kg.

*Without weapons and munition

Other features

- Configurable inhibition of fire zones for operational safety.
- GPS system included.
- Data exchangeability with external C4I.
- Ballistic calculator for high firing accuracy.
- Embedded simulator for training.
- Easy to integrate with any external sensor.



ELECTRO-OPTICAL SYSTEMS

Uncooled IR Camera (Optional):

- Micro-bolometer LWIR.
- 640 x 480 pixels 17µm.
- Discrete Zoom: 3x.
- WFOV: 12°(H) x 9°(V).
- NFOV: 4°(H) x 3°(V).

RANGES	UNCOOLED IR	COOLED IR	DSC
Detection	≥11,4km	≥19,1km	≥15km
Recognition	≥5,9km	≥11,8km	≥15,1km
Identification	≥3,6km	≥3,6km	≥13,7km

NATO Target 2,3m x 2,3m

Cooled IR Camera:

- 640 x 512 15 µm.
- 3rd Gen MWIR detector.
- Continuous Zoom: 20x.
- WFOV: 36.83°(H) x 29.42°(V).
- NFOV: 1.83°(H) x 1.47°(V).

Day Sight Camera (DSC):

- HD CMOS sensor.
- 1920 x 1080 pixels 3.45µm.
- Continuous Zoom 20x.
- WFOV: 38.13°(H) x 21.38°(V).
- NFOV: 1.90°(H) x 1.07°(V).

Laser Range Finder (LRF):

- Accuracy: ± 1m.
- Max. Range: 15.5 km.
- Programmable frequency 1, 3, 5, 10Hz.



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EM&E
ESCRIBANO MECHANICAL & ENGINEERING



GUARDIAN 2.0

GUARDIAN 2.0 is a two-axis gyro-stabilized remote weapon station that can be operated at day or night in adverse weather conditions. The system can be installed on different types of platforms and vehicles.

The system can mount various weapon calibers: 5,56mm, 7,62mm, 12,70mm, and 40mm MKII grenade launcher, as well as smoke launchers.

GUARDIAN 2.0 includes an electro-optical system with an independent Pan & Tilt subsystem, integrating a thermal camera, a day sight camera and a laser range finder. A laser pointer can also be included.

Its light and modular design provides high operability against asymmetrical threats. It is a highly cost-effective defense solution.



ADAPTABILITY



AUTOMATIC TRACKING



CUSTOMIZABLE



LOW MAINTENANCE



MODULARITY



PROTECTION



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Dbamy o bezpieczeństwo w powietrzu

Wykrywanie i neutralizacja dronów

Sprawdzony w boju system antydronowy

Trójwymiarowe wykrywanie, śledzenie, klasyfikacja i neutralizacja obiektów LSS (Low-Slow-Small).

Minimalny zasięg wykrywania:	1 m
Maksymalny zasięg wykrywania:	2 - 10 km
Dokładność zasięgu:	10 - 1 m
Rozdzielcość zasięgu:	6 - 3 m
Minimalna wysokość docelowa:	1 m
Maksymalna wysokość docelowa:	10 km
Azymut/elewacja:	90° - 360° / 60° - 20°
Częstotliwość:	X-Band
Technologie:	AESA/MIMO
Moc wyjściowa nadajnika (szczyt):	80W

- Bardzo precyzyjny radar śledzący wiele celów 3D za pomocą algorytmu MHT (multiple hypothesis tracking)
- Automatyczna klasyfikacja; rozróżnienie pomiędzy BSP a innymi obiektami latającymi
- Wykrywanie i śledzenie dronów klas 1 - 3
- Zautomatyzowana zagłuszarka z antenami kierunkowymi pokrywającymi pasma komunikacji i nawigacji dronów
- Dedykowane i łatwe w użytkowaniu oprogramowanie C2; narzędzie PDQ ułatwiające instalację systemu
- Wyjątkowo szybki czas instalacji - poniżej 5 minut
- Certyfikat Wojskowego Instytutu Higieny i Epidemiologii
- Dedykowane API umożliwiające transfer danych z radaru do dowolnego systemu; możliwość integracji z systemem hard-kill
- Automatyczne pozycjonowanie i wektorowanie

Sprawdzony w boju system antydronowy

SKY ctrl



Stosowany na Ukrainie

Precyzyjne wykrywanie



Dokładne namierzanie



Natychmiastowa
klasyfikacja



Skuteczna neutralizacja

radary 3D MIMO,
narzędzie predykcyjne PDQ, system
zarządzania i dowodzenia CyView C2

wiele obiektów naraz; raport
w czasie rzeczywistym
o dokładnej pozycji 3D celu

sztuczna inteligencja, algorytmy uczenia
głębokiego i maszynowego umożliwiające automatyczne rozróżnienie
pomiędzy dronami
a ptakami

automatyczny zagłuszacz z antenami
kierunkowymi, wycelowanymi w obiekt
dzięki radarowi; możliwość integracji
z systemem hard-kill



MINI SHARK

unmanned aerial system

Mini Shark UAS is intended for civilian use and can be used in various sectors of the national economy to monitor the sown areas of crops, observe the state and dynamics of changes in forests and water bodies, search and track livestock (wild animals), shoals of fish, ensuring control along power lines, oil, and gas pipelines, etc.

UAS is designed for:

- carrying by two people in backpacks
- taking off by starting from the hands of the operator
- fuselage landing

TECHNICAL CHARACTERISTICS:

Take-off weight	5 kg
Wing span	2600 mm
Length	1250 mm
Height	260 mm
Flight duration	2h
Communicational range ..	up to 35 km
Operational altitude	1000 m
Stall speed	42 km/h
Cruising speed	55 km/h
Maximum flight speed ..	120km/h
Sensor type	EO camera
Zoom	10x (optical)
The operational temperature range of the UAS is from -15 °C to +45 °C.	
The maximum wind speed near the earth's surface during the operation of UAS is no more than 10 m/s.	

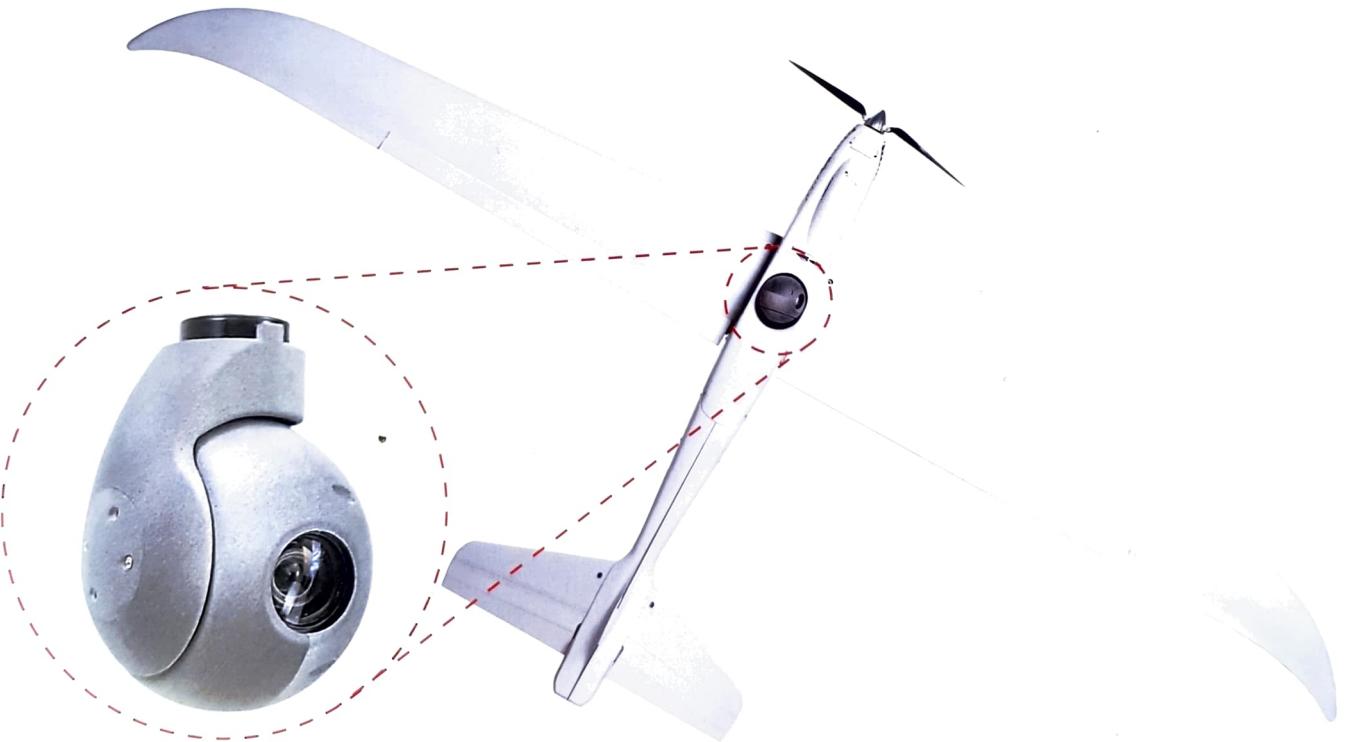
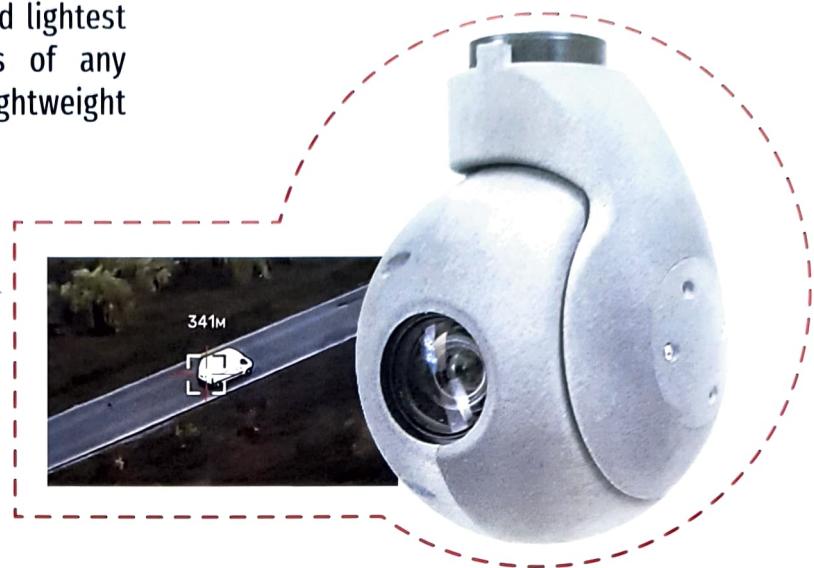
USG-261

USG-camera system

The USG-261 Gimbal is our smallest and lightest solution, specifically for small UAVs of any configurations. It is equipped with a lightweight FullHD high-quality camera.



- Day-view camera Full HD
- 10x optical zoom
- Anti-fog
- Target tracking



**USG-261 weighs only 400 grams but has all the advantages
of a full-size gimbal.**



NAUDI

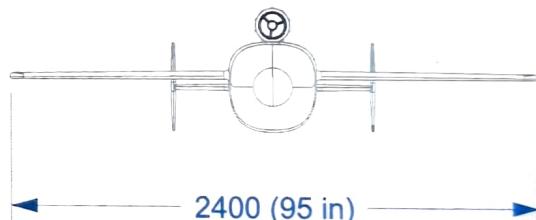
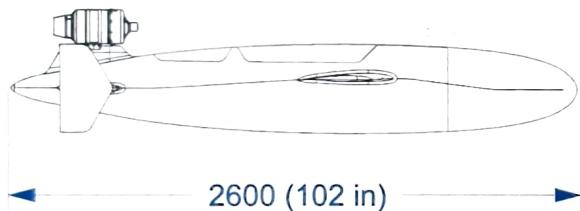


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**UKRSPEC
SYSTEMS**

30/32, Zhilyanska str., Kyiv, 01033, Ukraine
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E-mail: info@ukrspecsystems.com
www.ukrspecsystems.com

BEZZAŁOGOWY SYSTEM
UDERZENIOWY (BSU)



WYMIARY

Rozpiętość: 2400 mm (95 in)
Długość: 2600 mm (102 in)

MASA

Samolot: 22 kg (48.5 lb)
Do lotu: 125 kg (275.5 lb)
(zawiera głowicę uderzeniową i 80L paliwa)

→ ZASIEG
700+ km

→ PRĘDKOŚĆ
Przelotowa: 355 km/h (220 mph)

→ MASA GŁOWICY BOJOWEJ
22+ kg (48.5+ lb)

→ CEP
<10m

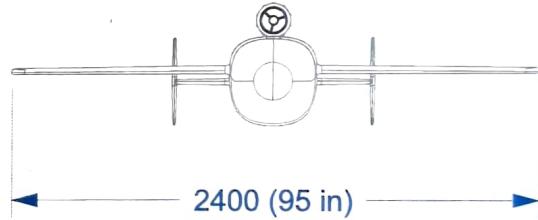
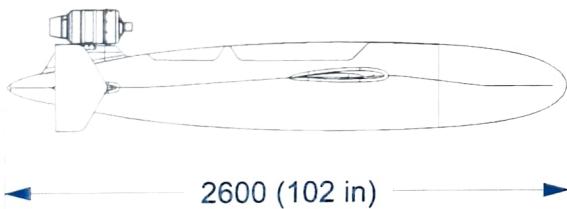
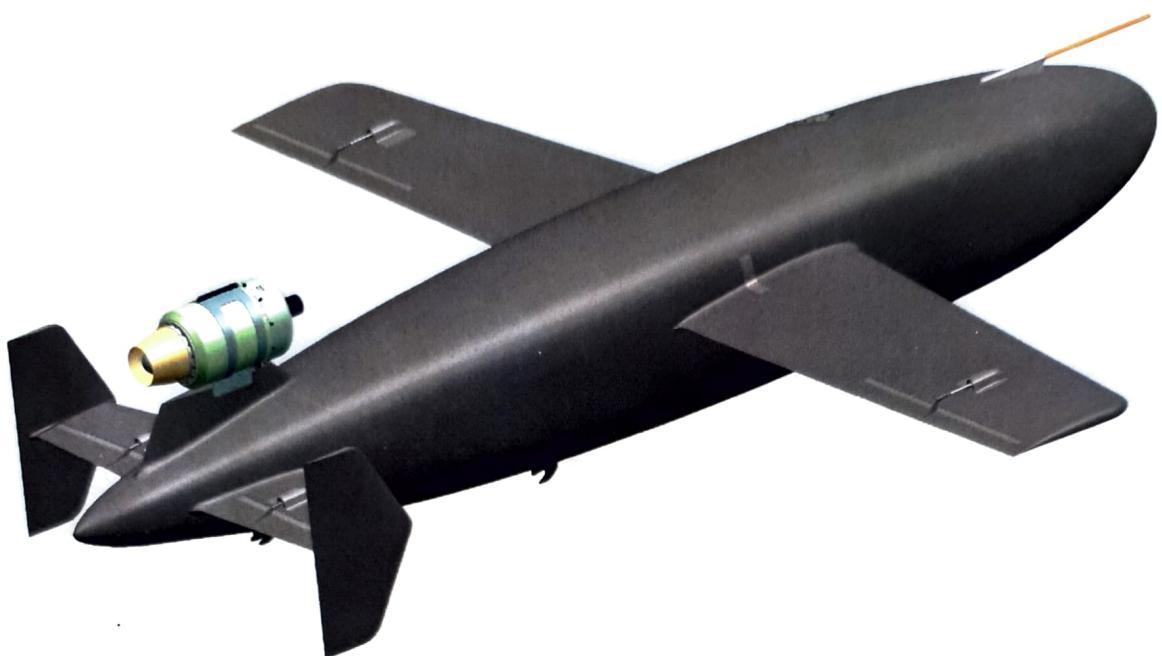
SYSTEM KONTROLI MISJI Programowanie misji oraz celu ataku przed lotem.

WYSOKOŚĆ OPERACYJNA Powyżej 100-5000 m (16404 ft) n.p.m.

METODA STARTU JATO, start rakietowy.



UNMANNED SELF-PROPELLED ATTACK MISSILE (USAM)



DIMENSIONS

Wing span: 2400 mm (95 in)
Length: 2600 mm (102 in)

WEIGHT

Munition: 22 kg (48.5 lb)
AUR: 125 kg (275.5 lb)
(includes warhead, filled up to 80 liters)

→ RANGE
700+ km

→ SPEED
Cruise: 355 km/h (220 mph)

→ WARHEAD
22+ kg (48.5+ lb) capable

→ CEP
<10m

MISSION Pre-flight path
CONTROL and target planning
SYSTEM

OPERATING above 100-5000 m
ALTITUDE (16404 ft) ASL

LAUNCH JATO booster, rocket
METHOD assisted take-off



SYSTEM COMPONENTS



UAV "FURIA"

- Made using composite materials (fiberglass, carbon fiber, Kevlar)
- Aerodynamic design – flying wing
- Equipment: automatic control system, inertial navigation system, satellite navigation system, air pressure receiver, parachute system, electric power plant, hardware for command-telemetry communication line, backup control channel hardware, onboard visual information system, onboard navigation lights
- Standard configuration includes optical reconnaissance payload – daytime/nighttime modules, camera.



GROUND CONTROL STATION (GCS-3)

- Designed for operation by 1 or 2 operators, depending on the mission complexity
- Shockproof and waterproof
- Explorer Cases® housing with locks and ventilation valve
- Power supply – from combined removable 12V batteries or 220V external power source
- Quick switching between power sources or battery replacement
- Two Full HD 22' monitors with high brightness
- PC based on i7, running on Linux OS System
- SSD volume 250 GB and data storage 1 TB
- Hall effect controllers for UAV and payload control
- Waterproof keyboard with adjustable backlight
- Built-in charger for UAV batteries (two at a time)
- 2 USB 3.0 ports for connecting external data carriers and devices
- Ethernet and AV outputs for transmitting analog or digital data
- Specialized software for piloting and analytical tasks
- Use of carbon sheet for panel manufacturing

DAYTIME OPTICAL MODULE

- Effective working height – up to 1200 m, depending on the mission
- Daytime optical system Sony FCB-H11
- Two-axis gyrostabilization
- 10x optical zoom
- Horizontal field of view – from 50° to 5.4°
- Line of sight angle range: azimuth – 360°
- Enhanced contrast mode
- Built-in video data recording in Full HD format (1080p)
- Easily replaceable, connection takes no more than 30 seconds

NIGHTTIME OPTICAL MODULE

- Provides reconnaissance at any time of day, regardless of light conditions
- Effective working height – 450-550 m
- IR core based on thermal camera 35 mm athermal lens
- Two-axis gyrostabilization
- 2.4x digital zoom
- Field of view – 18° x 14°
- Color and black-and-white modes
- Video data recording resolution 640 x 480
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CAMERA

- Effective working height – unlimited, depending on the mission
- Camera with 12x optical zoom, 24x digital zoom, digital stabilization
- Georeferencing images using GPS/GLONASS, etc.
- Autonomous continuous shooting during the mission (with a specified frequency, depending on the distance covered by GPS and set limit)
- Manual shooting with video data transmission to the ground station monitor and manual zoom control

GROUND ANTENNA COMPLEX

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- Automatic tracking of the unmanned engine
- Range – up to 60 km
- Bilateral mount
- Adjustable height up to 6.5 m
- Can be mounted on a moving vehicle
- Quick setup



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We protect the airspace

Drone detection and neutralization

SKY ctrl

Container-based anti-drone system



The SKYctrl container-based system from Advanced Protection Systems (APS) was designed to detect and counter unmanned aerial vehicles (UAVs). With it, the Polish company takes drone detection, tracking, identification and neutralisation to a new, previously unknown level of combat effectiveness.

SKYctrl's priority task is to protect the military and, in particular, to take care of broadly defined military infrastructure:

- **military bases,**
- **material bases,**
- **depots,**
- **command posts.**

SKYctrl's comprehensive counter-drone system is integrated with a mobile container and designed to be easy to operate using a plug and play approach. The radar, optoelectronic and jamming systems are automatically moved out depending on operational needs. For the duration of transport, they retract into a dedicated space inside the container.

SKYctrl is fully adapted for transport by vehicles with high passability. The full functionality of the system is possible both from the vehicle and when positioned in the chosen location.

The SKYctrl container system from APS is a true revolution in terms of effective, fast and easy-to-use countermeasures against one of the greatest threats of the modern battlefield – drones.

3D MIMO radar technology
for improved performance

Umbrella airspace protection
without any blind spots

Automatic drones and birds
differentiation

Dedicated Command and Control

Modular and fully-configurable
radar sensors

Hovering drones and entire
swarms detection

Powerful UAV neutralization
with a highly effective jammer

Complete integrity
with the hard-kill systems



Perimeter 8 and 8+ UAS



MODEL / COMMUNICATION RANGE			
Model	Range	Control	Frequency
Base Model	4 km		900 MHz C2 with 2.4 GHz RC
Medium Range System (MRS)	8 km		900 MHz to 3.5 GHz
Longe Range System (LRS)	50 km		400 MHz to 6 GHz
Extra Long Range System (XLRS)	100 km		400 MHz to 6 GHz

KEY FEATURES

PERFORMANCE

- ✓ **Cold Temperature Operation**
Perimeter 8's hybrid power system can operate in freezing conditions as low as 15°F (-10°C) standard.
- ✓ **High-Altitude Operation**
Perimeter 8+ and Perimeter 8 can operate up to 13,000 ft and 9,000 ft density altitude, respectively.
- ✓ **High-Payload Capacity**
Market leading payload capacity of 10 kg and 7.5 kg for Perimeter 8+ and 8, respectively.
- ✓ **Highly Efficient Power Conversion**
95% shaft-to-electric conversion efficiency.
- ✓ **Wide Altitude Range**
Electronic fuel injection eliminates the burden of tuning the UAV for different altitudes.
- ✓ **Engine Vibration Dampening**
Vibrations from engine are dampened to preserve sensor data quality.
- ✓ **Fully Integrated Payload Solutions**
- ✓ **Command and Control Hand-off**
Available on select models.

USABILITY

- ✓ **Integrated Maintenance Schedule**
GCS alerts user to upcoming maintenance items.
- ✓ **Engine Autostart**
Engine has automatic start and stop. No pull starts or cumbersome drill starter motors.
- ✓ **Quick Deployment**
Perimeter 8 can be unboxed, assembled and flown in less than 5 minutes by one operator.
- ✓ **Modular Payload Bay**
Perimeter 8 accommodates payloads including EO-IR Surveillance, Radar, LiDAR, Magnetometry payloads, etc.
- ✓ **Seamless Engine Integration**
Engine operation is fully automated, from start to finish. Just refuel and fly.
- ✓ **Full Engine Telemetry and Control**
Engine health information is made available on the ground station. The engine can be started and stopped through the ground station.
- ✓ **Digital Fuel Level Indicator**
Accurate fuel levels are visible on the ground station.

SAFETY & SECURITY

- ✓ **Power Redundancy**
Fully redundant power system. Can operate on battery power in case of engine failure.
- ✓ **Propeller Redundancy**
Can operate on seven propellers in case one fails.
- ✓ **Long Battery Reserve Flight Time**
2X Longer battery-only reserve flight time than other competing hybrid UAVs.
- ✓ **Battery Protection**
Power system algorithms protect battery from charging malfunctions.
- ✓ **Electronic Fuel Injection**
Fuel injected engine ensures reliable operation in austere environments.
- ✓ **Made in the United States**
All software/firmware is compiled in-house. Hardware is NDAA compliant. Made in USA.
- ✓ **Encryption**
AES128 and AES256 encryption for datalink available as options.
- ✓ **Anti-Jamming Options**
GNSS and radio interference avoidance available as options.

TECHNICAL CHARACTERISTICS:

Communication range	80 km
Max. ceiling	3000 m
Operational altitude	1000 m
Flight time	240 min
Cruising speed	80 km/h
Max. speed	150 km/h
Wingspan	3.4 m
Catapult launch	yes

CAMERA:

Optical zoom	30x
Total zoom	90x
Max. tracking distance	up to 5000 m
Digital stabilization	yes
Anti-fog feature	yes



SHARK UAS provides wide range of autonomous intelligence, surveillance and reconnaissance operations in all-environment conditions, such as:

- Aerial reconnaissance
- Police operations
- Border security
- Aerial mapping



UAS CONFIGURATION:

- Shark UAV
- Advanced camera system
- Catapult launcher
- Ground control station
- Software
- Tracking antenna



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