

SMART EAGLE



SMART EAGLE Modular UAV

Advanced Surveillance / Sensor / Cargo UAV

- Intelligent System
- Modular Tandem Wing Platform
- Multiple Propulsion Methods
- Extreme ISR
- High Endurance

CANNONDYNAMICS.CO.UK



SMART EAGLE RANGE

Advanced Surveillance / Sensor / Cargo UAV

What is the CANNON SMART EAGLE?

SMART EAGLE is a smart-thinking, intelligent, multi role, modular flying system, designed for challenging missions, designed to meet the challenges of military missions and civil operations around the world.

Easily deployed and operated with automated flights and deliveries. Massive payload sensor / gimbal capability and rapid 'swap or drop' of load containers.

Tandem Wing design removes the need for a tail, which traditionally pushes down to balance the forward Centre of Gravity (CoG). This negative force can reduce lift by up to 20% and is a constant inefficiency, reducing payload capacity, increasing drag and fuel consumption and challenging stability.

Two wings relocate the CoG balance point between the front and rear wings. This more central balance point greatly improves stability. Control surfaces provide double corrective force and redundancy. Safety is thus greatly enhanced!

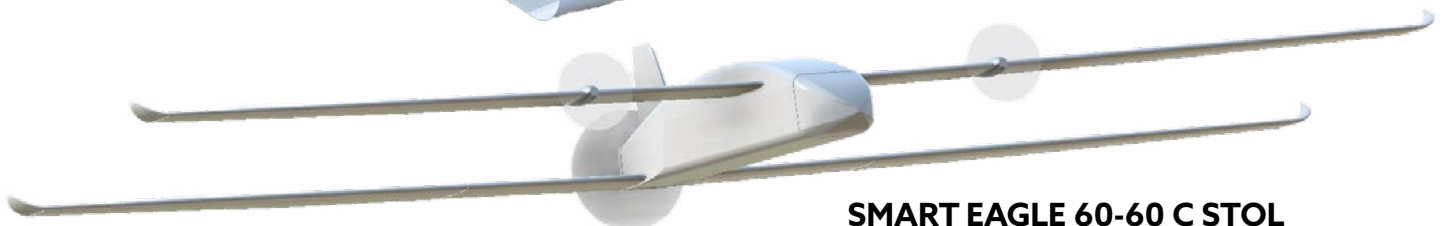
Tandem wings are shorter, like for like, for safer manoeuvring and reduced wing stress. Shorter wings reduce the tipping moment of wind gusts providing improved stability and further reduction of stress to the airframe. Fatigue of the structure is reduced, improving safety and extending operational life.



SMART EAGLE 30-30 B



SMART EAGLE 60-60 B



SMART EAGLE 60-60 C STOL

KEY FEATURES

Features and Benefits

- Portable, easily handled equipment
- Multiple fuselages with range of capacities, for ultra-long missions or large payloads
- Very low magnetic signature for magnetic surveys / mapping or stealthy surveillance
- Dual redundant control surfaces for extreme reliability
- Electric pusher or EFI IC Petrol Twin cylinder pusher engine
- Efficient tandem wing design promoting more lift as wing loading is halved giving long flight duration
- STOL available
- Long flight duration - Exceeding 24hrs for some versions
- Modular

4 Types
Fuselage

3.0m - 9.0m
Wingspan

24hrs +
Flight Duration

165kmh (103mph)
Max Flight Speed

3000km
Max Range

Up to 100kg
Payload capacity

35kg - 220kg
Max MTOW

*Approximate values, dependent on operating environments and parameters



MODULAR FUSelage

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Modular Fuselages

The Smart Eagle platform is available with a range of fuselages for differing payload capacities and mission roles.

Needle-nose Fuselage

An aerodynamic fuselage for dynamic operations from ISR, to Rebro, to smaller payload delivery. Small cross-section profile for low drag for economic flight and stability, this fuselage is ideal for running variable missions.



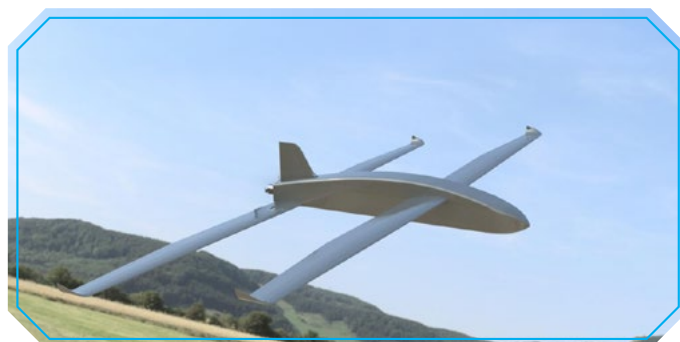
Bulb-nose Fuselage

An aerodynamic fuselage for dynamic operations from ISR, to Rebro, to smaller payload delivery. A balance of external payload capacity, economic flight and stability, this fuselage is ideal for running variable missions.



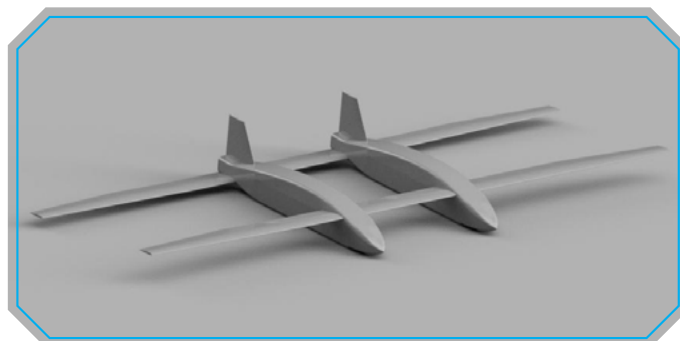
Cargo Fuselage

The large cargo fuselage is designed with larger internal or external payloads in mind. With a large internal space and hinged nose for internal access this body can deliver up to 50 kg payloads.



Cargo Duo Fuselage

Our dual fuselage consists of a pair of large fuselages with connecting centre wings. With double the internal space of our large fuselage, this body can accommodate loads of 2x 50 kg balanced payloads.



MODULAR WINGS

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Modular Wings

Wings are available in a range of spans to suit customer requirements.

Made in sections for easy storage and shipping, wings can be supplied in spans ranging from 3.0 to 9.0m and easy assembled on site.



3m to 6m Wings

Our Bulb-nose fuselage suits wingspans of 3.0m to 6.0m

Ideal for an agile craft with a small to medium payload capacity.

For larger payloads by weight or volume our cargo fuselage is a better option.

4.5m to 9m Wings

Our Cargo fuselage suits 4.5m to 6.0m wingspan for an increased MTOW and payload capacity.

For extreme MTOW and payload, our Cargo Duo fuselage can support wingspans of up to 9.0m, a 220kg MTOW and a generous amount of cargo volume.

Wing Span	Chord		Wing Area	MTOW	Fuselage			
	Root	Average			Needle Nose	Bulb Nose	Cargo	Cargo Duo
3000mm	250mm	233mm	1.4m ²	35kg	✓	✓		
4300mm	310mm	244mm	2.1m ²	45kg		✓		
4500mm	350mm	333mm	3.0m ²	60kg		✓	✓	
6000mm	350mm	325mm	3.9m ²	110kg		✓	✓	
7500mm	450mm	450mm	6.75m ²	170kg			✓	
9000mm	450mm	444mm	8.0m ²	220kg				✓

MODULAR PROPULSION

Advanced Surveillance / Sensor / Cargo UAV

Electric

With plenty of space onboard for batteries, an electric pusher provides reliable propulsion. Weight remains constant, the aircraft remains stable and manoeuvrable throughout.



Internal Combustion Engines

Single and twin cylinder EFI ICE engines available with power from 35cc to 250cc. For extended duration missions, fuel efficient petrol engines allow for a long flight-time.



Alternative Fuels

Electric motor options have the opportunity to be fueled by alternative energy sources. Hydrogen fuel, and other alternatives can be used to supplement or replace batteries.



STOL Options

Twin booster motors on the front wing for additional thrust during take off, or during a climb, benefiting object clearance. Booster modules are electric motors powered with booster batteries.



Propulsion	Power	Mass	Fuselage			
			Needle Nose	Bulb Nose	Cargo	Cargo Duo
Electric	180/200kV	1kg	✓	✓		
	35cc	3kg ⁺	✓	✓		
Internal Combustion Engine	55cc	4kg ⁺	✓	✓		
	70cc	5kg ⁺	✓	✓	✓	
	125cc	6kg ⁺			✓	✓
	250cc	10kg ⁺			✓	✓

MODULAR PAYLOADS

Advanced Surveillance / Sensor / Cargo UAV

Definable Payload

As a modular platform, payloads are definable.

The platform payload is broken into modules and the remaining payload can be used for mission specific equipment and cargo.

The platform is dynamic and configurable to suit your needs.

* Definable payload is not free cargo capacity as engine and fuel choices determine remaining free payload

Typical Approximate Mass of Definable Options

Propulsion	Mass
Electric	1kg
35cc to 55cc	3-4kg ⁺
70cc	5kg ⁺
125cc	6kg ⁺

Battery	Mass
10000mAh	1.4kg
20000mAh	2.8kg
36000mAh	5.1kg
72000mAh	10.2kg

Gimbal Camera	Mass
Small	0.5kg
Med	1kg
Large	2kg

STOL Boosters	Mass
For small wings	2kg
For med wings	4kg
For large wings	6kg
For duo wings	8kg

Petrol for ICE	Mass
1.5L	1kg
8L	6kg
20L	15kg
40L	30kg

⁺ Approximate propulsion weight dependent on starter, exhaust choice etc.

Definable Payload Capacity

Wing Span	MTOW	Base Weight (Frame + Wings + Electronics)				Definable Payload (Propulsion + Useful Load)			
		Needle Nose	Bulb Nose	Cargo	Cargo Duo	Needle Nose	Bulb Nose	Cargo	Cargo Duo
3000mm	35kg	16kg	16kg			19kg	19kg		
4300mm	45kg		17kg				29kg		
4500mm	60kg		21kg	31kg			39kg	29kg	
6000mm	110kg		23.5kg	35kg			86.5kg	75kg	
7500mm	170kg			48kg				122kg	
9000mm	220kg				71kg				149kg

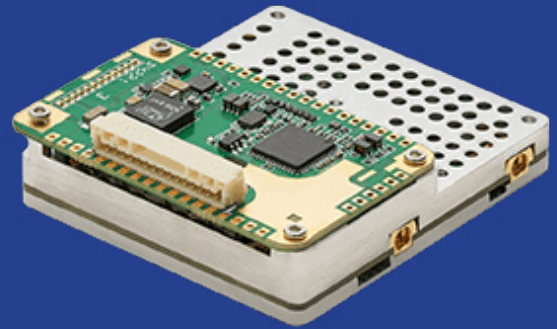
TYPICAL MISSION PACKAGES

Radio / Communications

Radio

High quality radio communications ensure a responsive and stable flight

Secure and reliable radio communications



A wide range of multi-band and single-band radios

Low Latency

Low latency, designed for reliable, long-range applications with real-time, immediate information from nodes.

Resilient Network

Built-in spectrum scanner that monitors in-band interference and provides automatic band and channel switching capabilities.

Fine-tuned filtration and frequency-band shifting techniques are designed to minimize noise and block out-of-band signals.

With an advanced interference-avoidance feature-set, can even automatically switch to cleaner channels and bands of operation.

Multi-Cast Video

In a point to multipoint configuration, provides the ability to stream high quality video to multiple receiving nodes, from drones to numerous stakeholders on the ground.



TYPICAL MISSION PACKAGES

Cameras and Optics

Cannon SmartEye

UAVs can be fitted with a range of Cannon SmartEye cameras featuring single or multiple sensors, low-light vision, IR and thermal vision, tracking and more.



AI Onboard Tracking
Identifies objects of interest using onboard AI tracking abilities



Powerful Zoom
10x to 80x Optical Zoom
Up to 32x Digital Zoom



Low-Light Operation
In low light conditions the EO camera goes into night mode with vision better than the human eye



Infra-Red / Thermal
Selected models feature full infra-red and thermal vision capabilities

TYPICAL MISSION PACKAGES

Autopilot

Autopilot

With this mission package the UAV can operate in autopilot mode

Pre-programmed flight paths or responsive flight instructions

Multiple autopilot systems are available

Options vary between full 'remote pilot in control' through fully autonomous autopilot options. A choice of various Autopilots and Flight Controllers are offered to suit customers' needs; from low-cost commercial to full military specification GNSS, denied mission capable systems.

Typical Features

Three Inertial Measurement Units (IMU) within the UAV autopilot system.

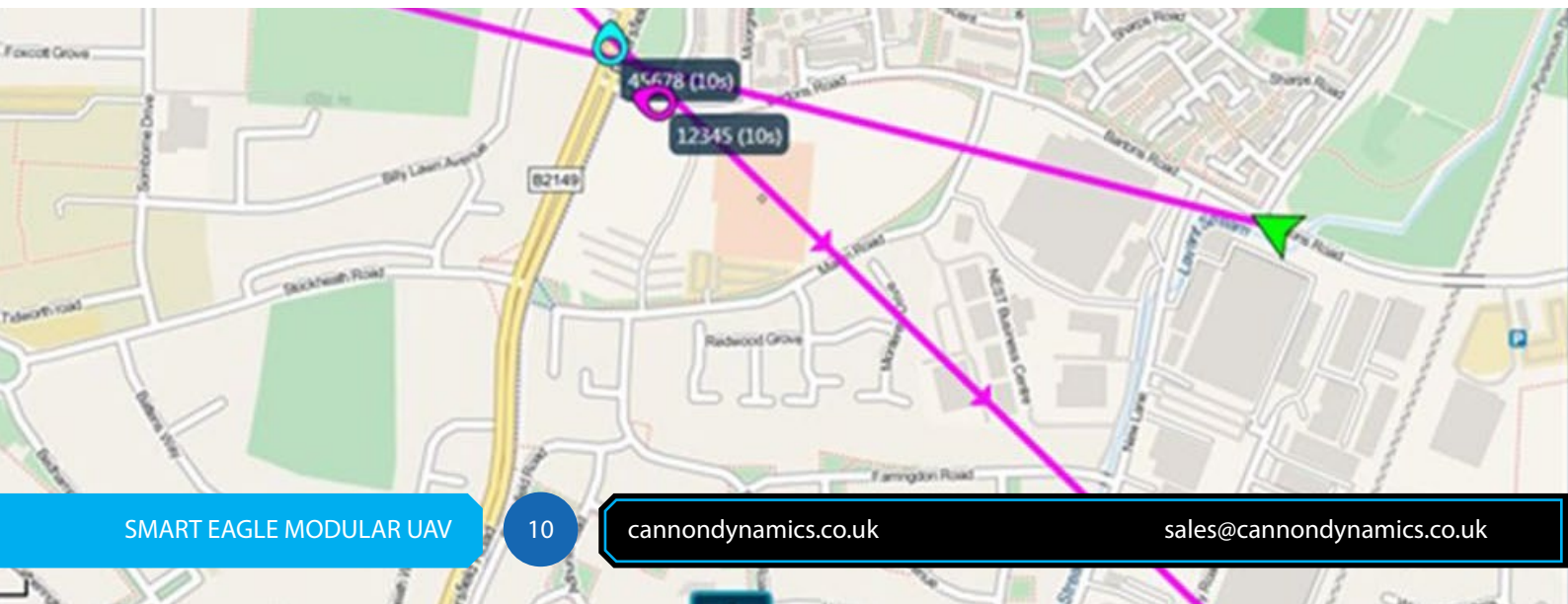
IMUs comprise a suite of sensors used in the Inertial Navigation System (INS).

Measuring orientation, velocity, and gravitational forces to aid navigation and control using the raw IMU measurements and sensors for extra redundancy.

The entire Flight Management Unit (FMU) and Inertial Management Unit (IMU) are housed in a small form factor housing.

Possibility to integrate alternate and multiple Global Navigation Satellite Systems (GNSS) from GPS (USA) and Galileo (EU) are available.

Clients preferring GLONASS (Russia) or BeiDou (China) can be accommodated.



TYPICAL MISSION PACKAGES

GROUND CONTROL STATIONS

Ground Control Station

For control of your UAVs

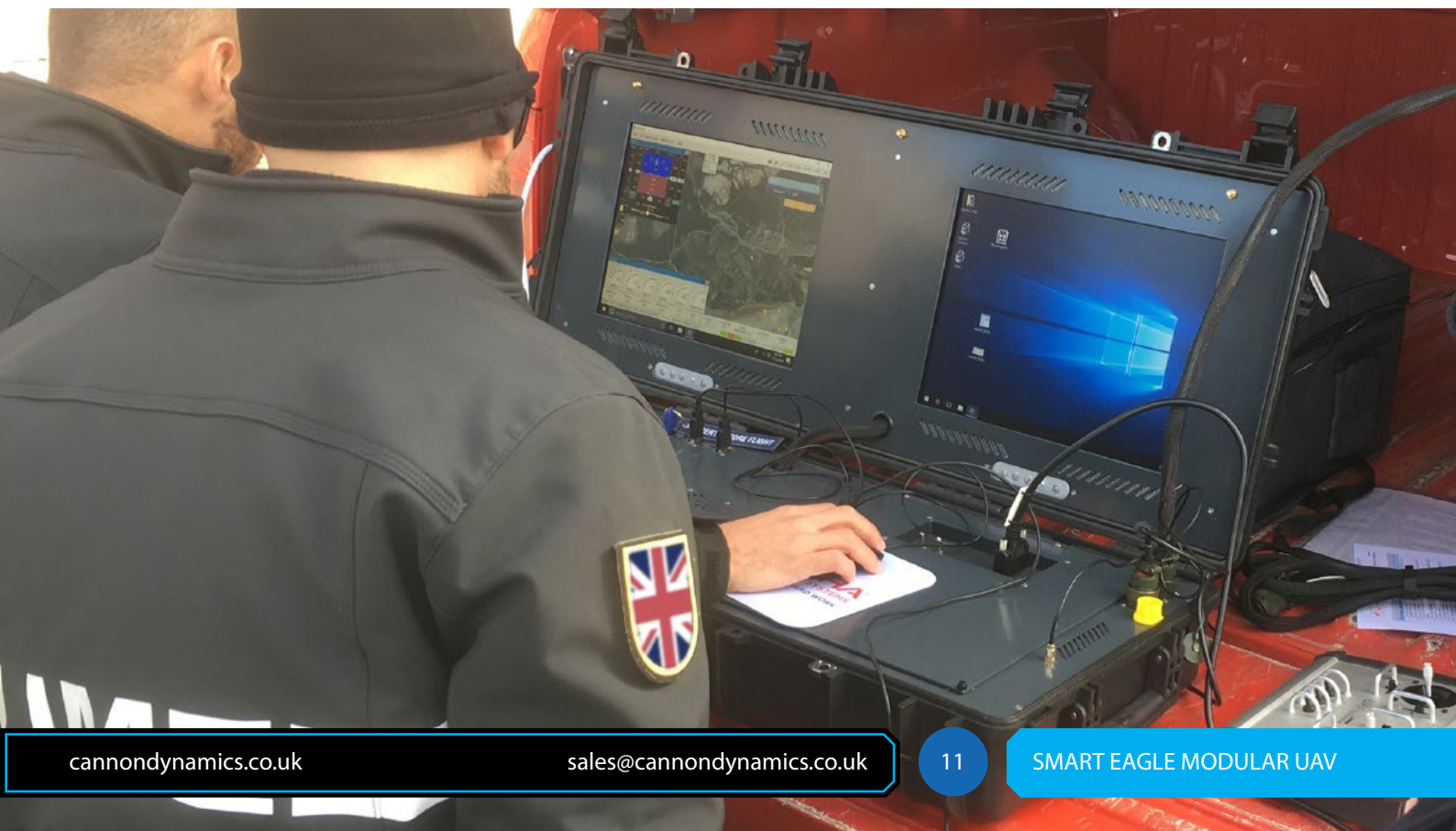
Multiple models available

From a simple laptop or android handset to a full 40-foot container based mobile command and control center - Cannon Dynamics can provide a system that suits your needs

The Cannon Technologies Group has been making Command and Control rooms for 40 years and has a wealth of experience in providing cutting edge data platforms in the most extreme of environments.

A Basic Configuration includes the components necessary for mission planning, control battery replacement and charging facilities, field level configuration changes, level maintenance and repair solutions including the necessary tools and spares.

Further configurations include anything from generators to operator basic accommodation to airconditioning if required and is completely scalable to the desired deployments.





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