

RPAS Aerospace: DISCOVERY Coax-H Helicopter RWUAV [VTOL]



Images of production specification prototype in development

General Specification

Weight:	20kg MTOM sUAV (including Payload)
Payload:	8kg (varies on flight specification and duration/range)
Dimensions:	Rotor diameter (specification variants) – 1.8m to 2.3m Length (front tip of body to end of tail boom yaw control) - 900mm Ground to: Under Base - 130mm. Top of Upper Rotor - 710mm.
Flight Duration:	25min (std) 40-60min (option) [subject to payload and conditions]
Flight Speed – max:	30m/s [~105kph ~65mph]
Flight Speed – Average:	15m/s
Climb Rate:	7m/s
	<i>[flight speed and climb parameters are adjustable]</i>
Weather:	Dry/Light Rain Temp: -15 to +45 C
Wind Speed:	14m/s [varies subject to constant or gusting wind]

Enclosed lightweight fuselage providing protection and a high degree of aerodynamic efficiency. Protection to IP54.

Control (flight comms) System Frequency: 2.4Ghz (option of 433Mhz, also ideal for long range operation)
Single Joystick for main control with standard option of 8 channels. (6 channels for flight modes)

Video Downlink Frequency: 5.8Ghz (other options available)

Data link and flight logging, and/or Telemetry two-way link, for flight data and position. Various parameters. (specification/system subject to operational requirements)

Data Display: Includes Aircraft position and direction in relation to Base (Home) via GPS and Barometric Altitude, also Compass, Climb/Descent, Flight Battery Condition, etc.

Telemetry: Provides flight data with possible two-way communication, and linked to GCS for flight planning using Waypoint and Auto Flight. Mission/Waypoint change in flight. GCS software is available to work in conjunction with Telemetry, which also allows control from the GCS screen as part of the Two-Way Telemetry system.

NOTE: *Various options and configurations are available and vary subject to Client Requirement*

FLIGHT MODE: allows for various modes of operation and control, and including an Auto (Autonomous) option. The main Flight Modes are detailed as below, and comparable with most professional autopilot stability systems.

Manual: Standard flight control with stability and operational for the usual flight control actions of:
Throttle/Pitch (Climb-Descend), Yaw/Rudder, Roll/Aileron, Pitch/Elevator.
This allows for Full Manual Flight but in stabilised mode.

Alt-Hold: Maintain Altitude, but with direction change manually for Yaw, Roll, Pitch.

Loiter-SPH: GPS Hold. Pilot can fly in all directions and climb or descend as in Manual but when controls are released to neutral input the platform maintains position with GPS and Barometric Altitude control – SPH, Synchronised Position Hold.

Home-RTB: Return to Base. A switchable option which will return platform to Base (Launch). Navigate back to 'Base' at current or 'safe altitude' and Loiter-SPH above launch point, followed by controlled Auto-Land. NOTE: Altitude in general flight is by Barometric Altitude, but due to wind and weather change the 'Pressure Altitude' can change and therefore the Final Descent on 'Auto-Land' is controlled more accurately for the final 8 metre by Sonar detection of the ground or launch base from where the platform first Launched. Manual Landing can also be engaged.

FAILSAFE: This can be set as Automatic for 'Loss of Comms' (Control Signal) and will invoke the basic 'Home-RTB' flight mode, but will activate for loss of Comms for a given period of time. The platform will Loiter (default is 10sec) and then if still loss of Comms it will navigate automatically RTB, Loiter above Base and then commence controlled Auto-Land.

NOTE: *The Autopilot Flight Control (AFC) unit is supplied fully configured and all sensors calibrated for use. 'Auto-Land' option varies subject to weather and wind state.*

Specifications and Variations

Detail as applied above give an overview of the DISCOVERY Coax-H helicopter platform and flight system. There are various options and configurations outside of the 'standard specification' which allow for a setup and configuration to the specific requirements of Client and Operator.

The aircraft platform system as supplied in basic format is ready to fly with Autopilot installed and configured with control comms, and a number of standard flight control features ready configured. The system also includes the data download capability either as Telemetry Tx and Receiver, or with Video downlink VTx and Receiver. Data and/or Video downlink require connection to suitable laptop or device for viewing data at GCS.

An additional option which is configured as part of the platform installation is a 2-Axis Stabilised Gimbal for camera mounting, offering 'roll' and 'tilt' stabilisation. The weight of this camera mount system is included within payload capability (standard option payload).

Extended Flight Duration with an additional or upgraded flight battery pack is available to increase flight duration. Various options available subject to Client requirement and related also to 'payload' and operational needs.

Systems are priced to Client/Operator requirement and include a robust protective case (flight case). Guide price as standard, the package includes all required systems and hardware for operation 'out of the box' but the ground base station items such as laptop and viewing screens are not supplied within the package.

Price Options: By separate communication or tender document.