HES Energy Systems

HYCOPTER

LONG ENDURANCE HYDROGEN ELECTRIC DRONE

Full-electric

Up to 3.5 hours flight endurance

Multiple payload options

Multiple Video analytics options

HES Energy Systems

HYCOPTER SPECIFICATIONS

Dimensions	1,450 mm motor diameter x 500 mm height
MTOW	16.5 kg
Fuel Cell Nominal Power	1500 W
LiPo Peak Power	4000 W for less than 10s
Flight Time	Approx. 3h (no payload, 12L cylinder)
Maximum Speed	48 kph (30 mph), payload dependent
Maximum Ascendent Speed	3.2 m/s (10.4 ft/s)
Maximum Descendent Speed	2.2 m/s (7.1 ft/s)
Yaw-Pitch-Roll	Pitch: 150°°/s Yaw: 80°°/s
Max Tilt Angle	32°
Wind Survivability	32 km/h
Deployment Time	Approximately 10 minutes with 2 people
Field Serviceability	Adapted to customer's requirement
Operating Temperature	-5° to 45° (fuel cell limited)
Storage Temperature	5° to 45° (fuel cell limited)
Control Hardware	Joystick radio
Remote control	up to 2.7km (line of sight) – RF Pixhawk Compliant
Flight Controller	Pixhawk 2
Software	Compatible with Pixhawk (other options available)
Navigation Assistance	Telemetry, Flight planning software, optional FPV
GPS Accuracy	Vertical: 0.5m (1.64 feet) Horizontal: 2.5m (8.2 feet)
10 km Range Extension	Possible on Request

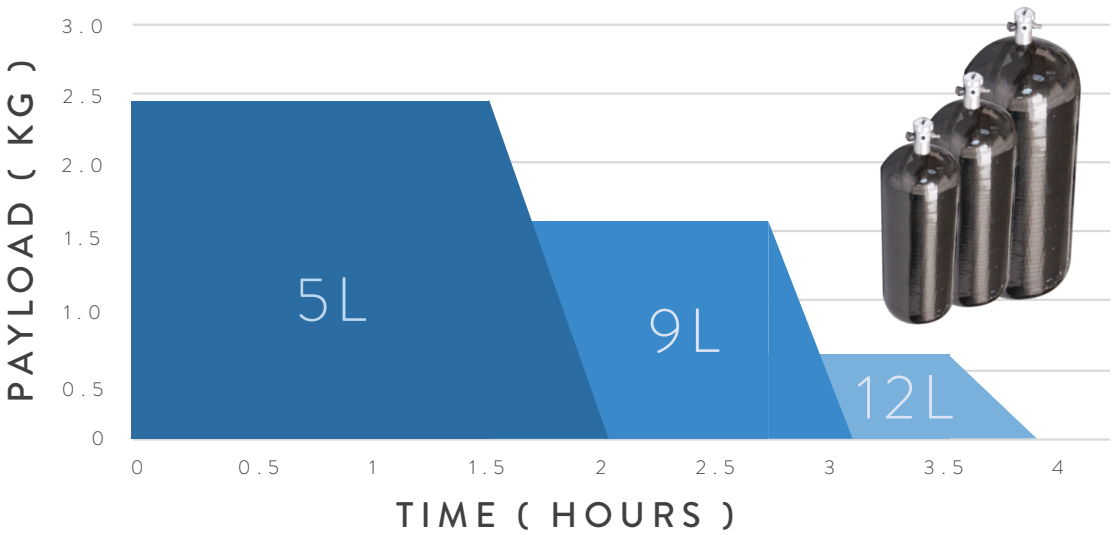
HYCOPTER OPERATIONS

PAYLOAD POWER	**Payload Volume**	(L) 260 mm x (W) 330 mm x (H) 200 mm
	Max. Weight	2.5 kg
	Voltage	5V - 32V
	Payload Max Power Supply	180W optional
	Payloads	Open payload bay for a variety of cameras and sensors
HYDROGEN FUEL	**Fuel Carriage**	Compressed gas. Hydrogen cylinders
	Capacity	Three options : 5L - 9L - 12L
	Pressure	350bar
	Refilling Duration	Approximately 30 min, depending on cylinder size and H_2 supply pressure
	Refilling Equipment	Electric or pneumatic booster pump
SAFETY	**Safety**	Avoid open flames, high heat, smoke, and chemical gases
	Compliance	Depending on local regulations
	Parachute	Option available. Approximately 550g.
PURCHASING	**Complete Package**	UAV platform, 1 cylinder, 1 remote radio controller, 1 rugged shipping case *Battery and charger not included for international shipments
	Add-Ons	Accessories: cylinder, compressor, extra-fuel cell, payload integration services Training: 1 day local training (fuel cell hydrogen operations, drone operations)

HYDROGEN STORAGE SYSTEM

CYLINDERS

Cyl Weight	Volume	Hydrogen	Dimensions	Energy
1.85 kg	5 L	126 g	Ø: 152mm L: 395 mm	1900 Wh
3.20 kg	9 L	227 g	Ø: 173mm L: 528 mm	3500 Wh
3. 85 kg	12 L	303 g	Ø: 196mm L: 532 mm	4700 Wh



PRESSURE REGULATOR

Weight	270 g
Dimensions	approx. 110 mm x 70 mm x 35 mm
Output Pressure	0.55 bar to 0.7 bar
Input Pressure	350 bar max input pressure
Mechanism	2-stage regulating valve
Inlet connector	M18
Safety	Overpressure gauge
Option	Pressure Transducer

FUEL CELL

Power	1500W
Weight	3100g
Battery compatibility	10S Lithium Polymer
Voltage	38V – 50V
Current	0A – 45A

HYDROGEN REFUELING

ELECTRIC BOOST COMPRESSOR

34 - 100 bar pressure

up to 350 bar pressure

Compresses industrial hydrogen gas to up to 350 bar (5,075 PSI)

Dimensions	(L) 940mm x (H) 292mm x (D) 559 mm (L) 37″ x (H) 11.5″ x (D) 22″
Weight	65.9 kg (145 lbs)
Voltage	120 or 240VAC single phase (other voltages available as well as 3 phases)
Motor Frequency	60/50-Hz
Operational Speed	70 cycles/min (variable speed option)
Cooling	Air cooled
Noise	Low < 63 dB
Maximum Inlet and Outlet Pressure	414 bar
Minimum Input Pressure	34 bar
Maximum Flow Rate	617 SLPM (dependent on input pressure)
Automatic stop & restart high limit switch factory set at 300 bar (adjustable)	
Automatic stop & restart low limit switch factory set at 35 bar (adjustable)	
Manual start/stop switch	
Safety relief valve set at 317 bar (adjustable)	
Inlet/outlet gauges dual scale, inlet & outlet filters (5-Micron), outlet shutoff valve (needle type), bleed valve (needle type)	
Hour meter with 6-digits	
NPT or 37° Flare 1/4" - Male inlet/outlet ports	
All items are mounted on a tubular frame and control panel with gauges and valves panel mounted.	

HES Energy Systems Pte. Ltd.

67 Ayer Rajah Crescent
#03-23/24
Singapore 139950

Tel : +65 6259 2033
Fax : +65 6635 7931

Contact: sales@hes.sg

A subsidiary of

H3Dynamics