

HYCOPTER

L O N G E N D U R A N C E H Y D R O G E N E L E C T R I C D R O N E



Full-electric

Up to 3.5 hours flight endurance

Multiple payload options

Multiple Video analytics options

MULTIPLE PAYLOAD OPTIONS

Compatibility with multiple manufacturers



2MP PTZ Camera
40x Optical zoom
Video resolution 1920x1080



Thermal Hybrid PTZ
Thermal video resolution 640 x 512
Visible light: 2MP
30X Optical Zoom



3D Camera
Image sensor: 5x CMOS
Total image resolution: 100MP
3D modeling weight: 1.4kg



3D Camera
Resolution: 3840x2160 (4K)
Optical Zoom: 4.2x
Face recognition
Operating conditions: -20°C-60°C
IP54



4K PTZ Camera
30x Optical zoom
Video resolution 4000x3000



2M 30X PTZ Camera
30x Optical zoom
Video resolution 1920 x 1080 (2MP)



3 in 1 device
(Throwing, broadcasting, zoom)
12x Optical zoom
Video resolution: 1920 x 1080 (2MP)
Broadcast distance: 100m
Hanger hook unit: 2



Thermal Camera
Resolution: 640x512
Focus length: 60mm
Temperature measurement accuracy: +/- 2°C
Operating conditions: -20°C-60°C
IP54



Laser PTZ
Resolution: 1920x1080 (2MP)
Optical Zoom: 30x
Laser Compensation distance: 600m
Operating conditions: -20°C-60°C
IP54



Thermal camera
Thermal video resolution 640 x 512
16X Digital Zoom



6M 30X PTZ Camera
30x Optical zoom
Video resolution 2592 x 2592 (6MP)



Gas detection
6 sensors
Detection accuracy: 0.01-50ppm



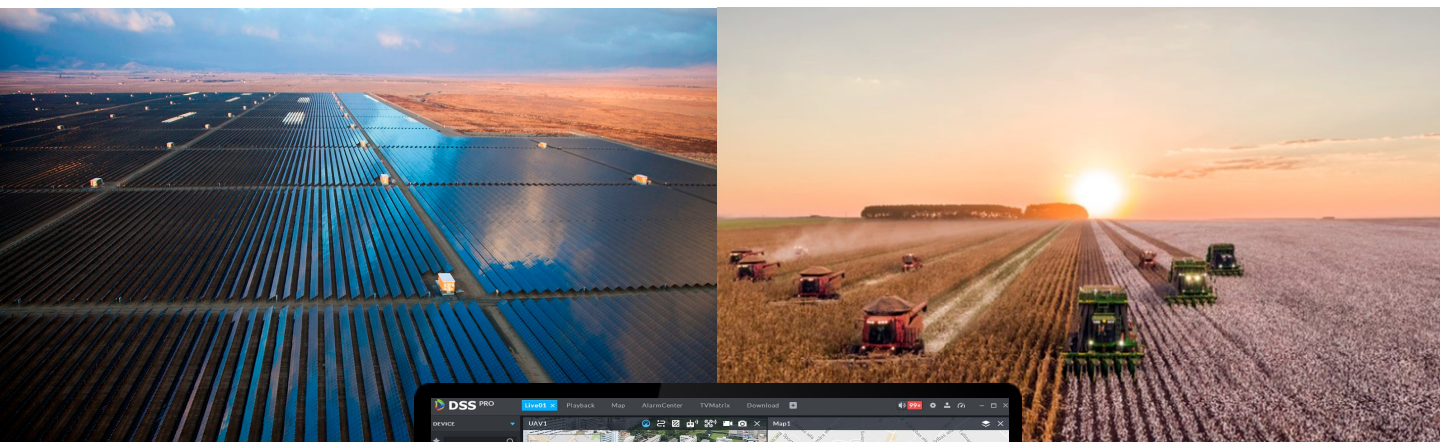
Live broadcasting
2MP 3-axis PTZ
Broadcast distance: 100m



Live Throwing
2MP 3-axis
Max. Payload Capacity 10kg

ANALYTICS & USE CASES

When the inspection sites are larger than what 25-minute battery drones can cover



- SOLAR PV FARMS
- HYDRO POWER DAMS
- SURVEYING / MAPPING
- POWER LINE INSPECTION



USER INTERFACE

- PRECISION AGRICULTURE
- MINING SITES
- COASTAL SURVEILLANCE
- SEARCH & RESCUE

OBJECT DETECTION



Human, motor vehicle, animal, extracting object attributes information

THERMAL

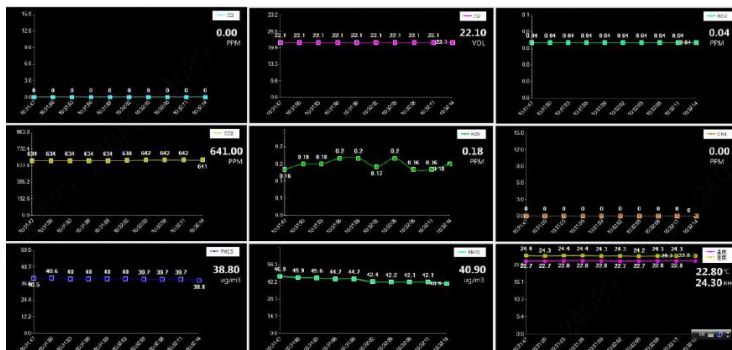


Supports real-time heatmap, point, line and pane temperature analysis and exporting

Quantity of Sensors	6
Type of gas detected	47
Sensibility	0.01-50ppm
Net weight	0.7kg
Protection Level	IP55
Working Environment Temperature	-20 to 60°C
Type of gas	EX, CO, O ₂ , H ₂ , CH ₄ , C ₃ H ₈ , CO ₂ , SiH ₄ , O ₃ , H ₂ S, SO ₂ , NH ₃ , CL ₂ , HCl, PH ₃ , HBr, HCN, AsH ₃ , HF, Br ₂ , NO, NO ₂ , ClO ₂ , CS ₂ , F ₂ , B ₂ H ₆



GAS DETECTION: METHANE, SO2, and more



HYCOPTER SPECIFICATIONS

Dimensions	1,450 mm motor diameter x 500 mm height
MTOW	15 kg
Fuel Cell Nominal Power	1500 W
LiPo Peak Power	4000 W for less than 10s
Flight Time	Up to 3.5h, depending on payload and H ₂ cylinder
Maximum Speed	56 kph (35 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: 250°/s Yaw: 100°/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	0° to 45° (fuel cell limited)
Control Hardware	Joystick radio
Remote control	3km (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	150W optional
	Payloads	Open payload bay for a variety of cameras and sensors
	Payload Volume	(L) 260 mm x (W) 330 mm x (H) 200 mm

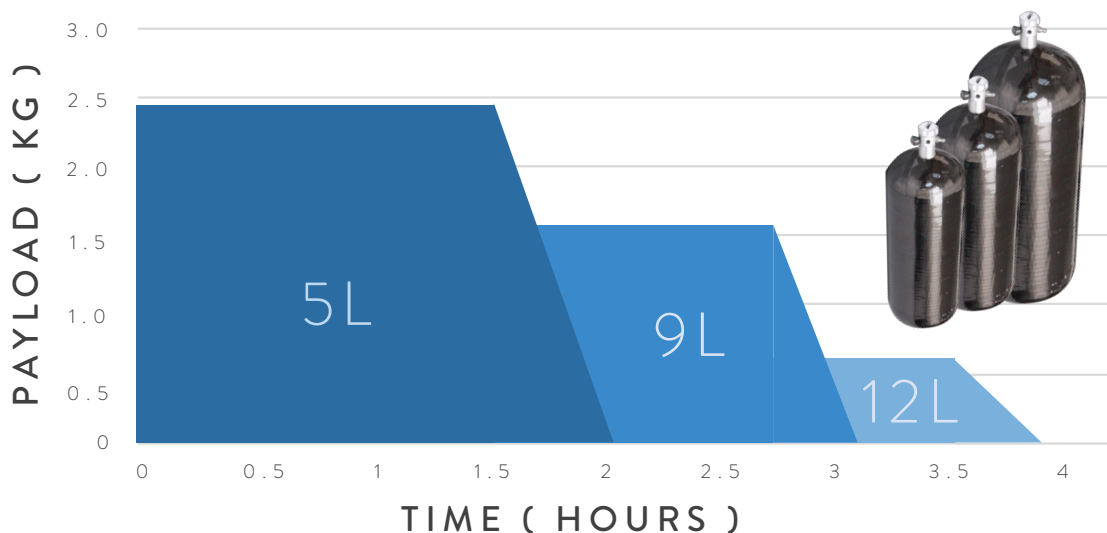
HYDROGEN FUEL	Fuel Carriage	Compressed gas. Hydrogen cylinders
	Capacity	Three options : 5L - 9L - 12L
	Pressure	350bar
	Refilling Duration	Approximately 30 min, depending on cylinder size and H ₂ supply pressure
	Refilling Equipment	Electric or pneumatic booster pump

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
	Add-Ons	Accessories: cylinder, compressor, extra-fuel cell, payload integration services
	Add-Ons	Training: 2 days local training (fuel cell hydrogen operations, drone operations)

HYDROGEN STORAGE SYSTEM

	Cyl Weight	Volume	Hydrogen	Dimensions	Energy
CYLINDERS	1.85 kg	5 L	126 g	Ø: 152mm L: 395 mm	2100 Wh
	2.85 kg	9 L	227 g	Ø: 173mm L: 528 mm	3780 Wh
	3.50 kg	12 L	303 g	Ø: 196mm L: 532 mm	5050 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	2800gm
Battery compatibility	10S Lithium Polymer
Voltage	32V - 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