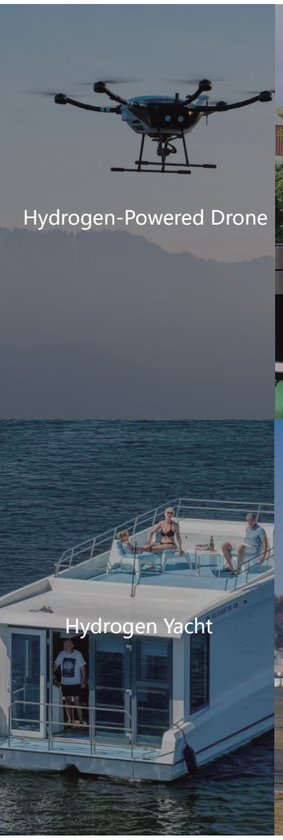
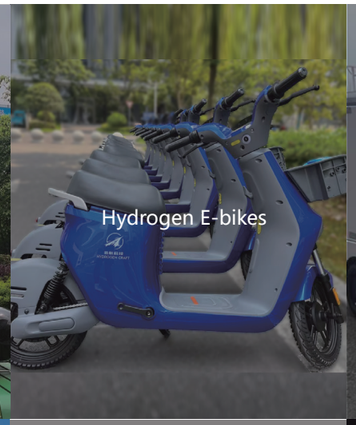
Power a Better World with Hydrogen


Hydrogen-Powered Drone


Hydrogen Power Supply

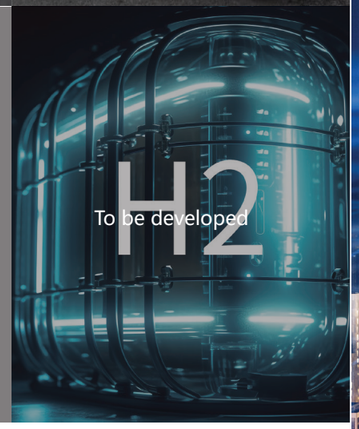

Hydrogen E-bikes


Hydrogen Logistics Vehicle

Hydrogen Yacht


Hydrogen Aviation


Energy storage



Hydrogen Craft Corporation
Huzhou , Zhejiang, China.
Shenzhen Hydrogen Craft Corporation
Shenzhen, Guangdong, China.
Proton Thrust Corporation
Hangzhou, Zhejiang, China.
Shanghai Fuel Cell Technology Co., Ltd.
Shanghai， China.
Hydrogen Craft Proton Thrust Corporation
Chengdu, Sichuan, China.
Qingdao Hydrogen Craft Corporation
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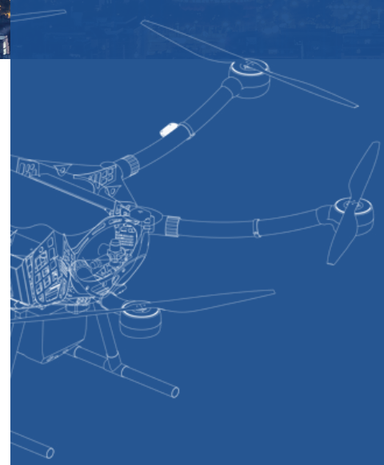
Jingdezhen Hydrogen Craft Corporation
Jingdezhen, Shandong, China.

Website WeChat Douyin Taobao

HYDROGEN POWER SYSTEM

HYDROGEN POWER SYSTEM

SOLUTION PROVIDER



HYDROGEN CRAFT
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Who we are

Hydrogen Craft Corporation, founded on November 2, 2017. It's a high-tech enterprise specializing in the development of lightweight, highly adaptable fuel cells and related application research.

The company was co-founded by Liu Haili, a talent introduced through the national "Qiming Plan" from overseas, and a fuel cell expert from the team of Academician Yi Baolian at the Dalian Institute of Chemical Physics (DICP), Chinese Academy of Sciences. With R&D professionals accounting for 60% of its workforce, the company brings together top talent from renowned institutions such as DICP, Beihang University (BUAA) and Northwestern Polytechnical University (NPU), boasting nearly 20 years of experience in fuel cell technology and applications.

The company independently researches and produces CCM, MEA, BPP and fuel cells, mastering multiple proprietary core manufacturing technologies including slurry formulation, ordered coating, carbon nano-microporous layer stacking and GDL reconstruction. Up to now, the company has a total of 62 types of patents, including 20 invention patents.

The lightweight fuel cell produced by the company has the characteristics of small size, high energy density, low hydrogen consumption rate, and the technology is at the world's leading level. It has now covered many innovative application directions such as hydrogen powered aviation, energy storage power generation, hydrogen Electric Bike, yachts and small-scale vehicles, and a number of product performance has created the world's first good results. Customers are State Grid, Southern Power Grid, COMAC, AVIC, DJI, Yadea, Diamond Aircraft, Pengfei Group, Qingbei Ride and other first-line enterprises.

The company adheres to the philosophy of "value-driven scientific innovation," persistently pursuing innovative applications and providing fuel cell & hydrogen-powered solutions across four key domains: hydrogen-electric aviation, portable power systems, small-scale vehicles, and marine applications.With the mission of "Power A Better World with Hydrogen slogo" the company aims to deploy 1 million hydrogen-electric products within 5 years and become the global market leader in hydrogen-electric product sales within 8 years.

What We Do

Hydrogen Fuel Cell System
(H_2 Power Supplier)

Drone Application

- Design and manufacture hydrogen drones
- Provide hydrogen fuel cell system to drone companies

Hydrogen Vehicle Application

- Provide R&D and production services of hydrogen power systems for electric vehicles and power-assisted vehicles
- Promoting the demonstration application with head enterprises

Small Vehicles Application

- Provide fuel cell system
- Provide fuel cell system to mini cargo vans and other small vehicle
- Co-manufacture and Co-sell small vehicles with partners

Energy Storage Application

- Design and manufacture portable hydrogen power generators
- Develop household hydrogen production and storage system

Boat Application

- Provide boat fuel cell systems to boat manufacturers.
- Co-design, co-manufacture and co-sell hydrogen powered boats

Hydrogen Fuel Cell System

Hydrogen Fuel Cell System

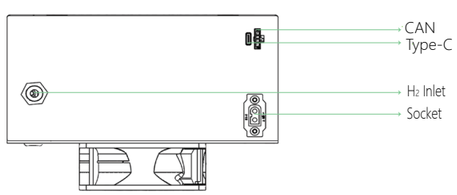
World's first TÜV Rheinland IEC safety certification

·Start-up speed 1.8S
·Lifespan 4000h
·Array layout, hundred-kilowatt aviation power, free power expansion
·Maximum bare stack power density: 1200W/kg

Specification

Hydrogen purity	≥99.99%(CO<1PPM)
Hydrogen pressure	0.07MPa±0.02
Operating ambient temperature	-5℃~42℃(below -5℃ or above 42℃ can be extended to -40℃~55℃ by adding customized thermal management modules)
Working environment humidity	10%~95%RH
Noise	≤50dB@3m(Noise varies slightly according to actual operating conditions)
External voltage	Type C 5V or CAN 12V (for startup only)
Power to weight ratio	800W/kg
Volume power density	500W/L

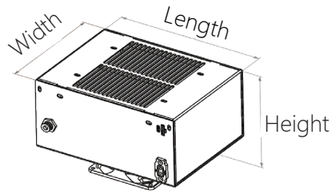
Interface and Connector



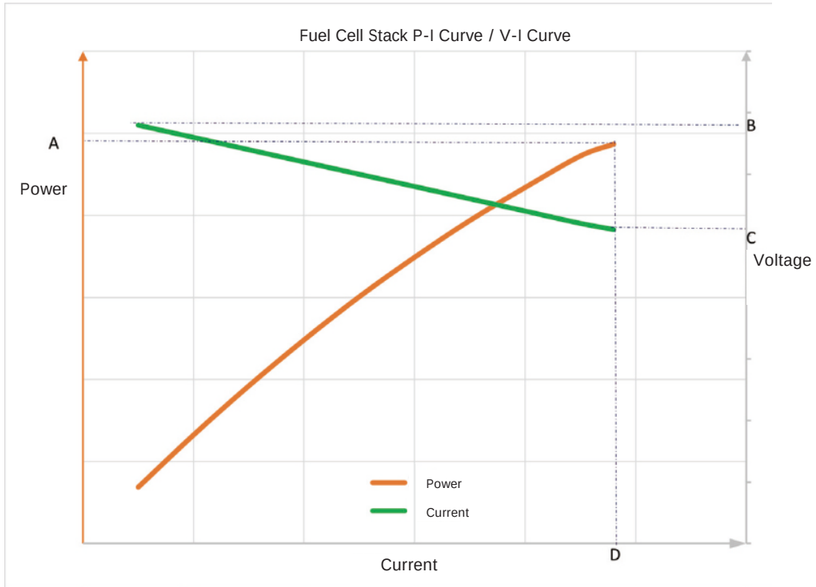
H_2 Tube	PU6mm
Communication	CAN
Power Supply	12V/Type C 5V

Technical Data

Rated Power (W)	Pieces	Weight in kg (approx.)	L*W*H in mm (approx.)	Open Circuit (V)	Minimum Voltage (V)	Rated Voltage (V)	Rated Current (A)	H2 Consunption Rate (NL/min)	Power Connector
590W Full Cell Stack	55	1.44	177.2*148*49.6	55	30	33	17.9	7.3	-
500W Full Cell System	55	2.7	250*152*140	55	30	33	15.2	7.3	XT60
1130W Full Cell Stack	52	1.37	164.4*148*69	52	29	31	36.2	14	-
1000W Full Cell System	52	2.83	238*152*141	52	29	31	32.1	14	XT90
1630W Full Cell Stack	75	1.85	222.2*148*69	75	41	45	36.2	20.2	-
1500W Full Cell System	75	3.35	295*152*160	75	41	45	33.3	20.2	XT90
2300W Full Cell Stack	60	2.6	184.5*235*70	60	33	36	63.9	28.5	-
2000W Full Cell System	60	4.3	270*240*160	60	33	36	55.6	28.5	XT90
3390W Full Cell Stack	88	3.24	254.8*235*70	88	48	53	64.2	42	-
3000W Full Cell System	88	5.1	340*240*160	88	48	53	56.8	42	QS8P-S
4500W Full Cell Stack	88	4.39	254.4*290.5*74.2	88	48	53	85.2	55.8	
4000W Full Cell System	88	6.84	340*295*144.5	88	48	53	75.8	55.8	QS8P-S



3D dimension



Hydrogen Fuel Cell System

Hydrogen Fuel Cell System-UAVs

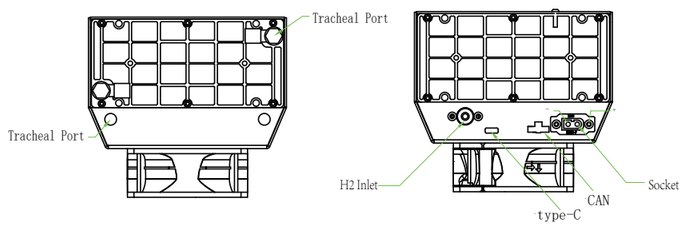
1700W-HydroCopter 4

√ The world's first to receive Rheinland Fuel Cell IEC safety certification

√ Certified by Shanghai Testing Center for Strong Inspection

·Start-up speed 1.8S ·Lifespan 2000h

Interface and Connector



H_2 Tube	PU6
Communication	USB-C
CAN	X3025WRS-04D-LPSW
Power Output	Amass XT60E-F

Technical Data

Standard Parameters				
Output Performance	Nominal Rating	1700W（System）		Bare stack power rating 1900W
	Rated Voltage	51V		
	Rated Current	33.3A		
	DC Voltage Range	50~85V		
	Average Efficiency	≥50%		
Fuels	Hydrogen Purity	≥99.99%（CO＜1PPM）		
	Hydrogen Pressure	0.05~0.09MPa		Recommended Standard Pressure 0.07MPa
	Hydrogen Consumption	23.1L/min（STP）		
Environmental Characterization	Operating Ambient Temperature	-5℃~42℃		The management module can be extended to operate within the temperature range of -30℃ to 50℃.
	Operation Ambient Humidity	10%~95%		
	Storage Ambient Temperature	-50℃~70℃		Optimal Storage Environment: 20°C/50%RH
	Noises	≤50dB@3m		
Physical Parameters	Bare Stack Size（mm）	248*148*68	Bare Stack Weight（KG）	2.1
	System size（mm）	248*154*132	System weight（KG）	2.9
	Bare stack volume power density	760W/L	Bare stack weight power density	960W/kg
The fuel cell system includes the stack, cooling fan, intake and exhaust solenoid valves, FCCU module, DC/DC converter for component power supply, cables, and housing. The system layout can be centralized or distributed according to the customer's installation space.				

Hydrogen Fuel Cell System

Hydrogen Fuel Cell System-UAVs

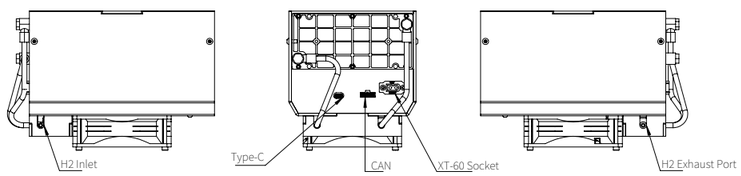
1650W-M350

√ The world's first to receive Rheinland Fuel Cell IEC safety certification

√ Certified by Shanghai Testing Center for Strong Inspection

·Start-up speed 1.8S ·Lifespan 2000h

Interface and Connector

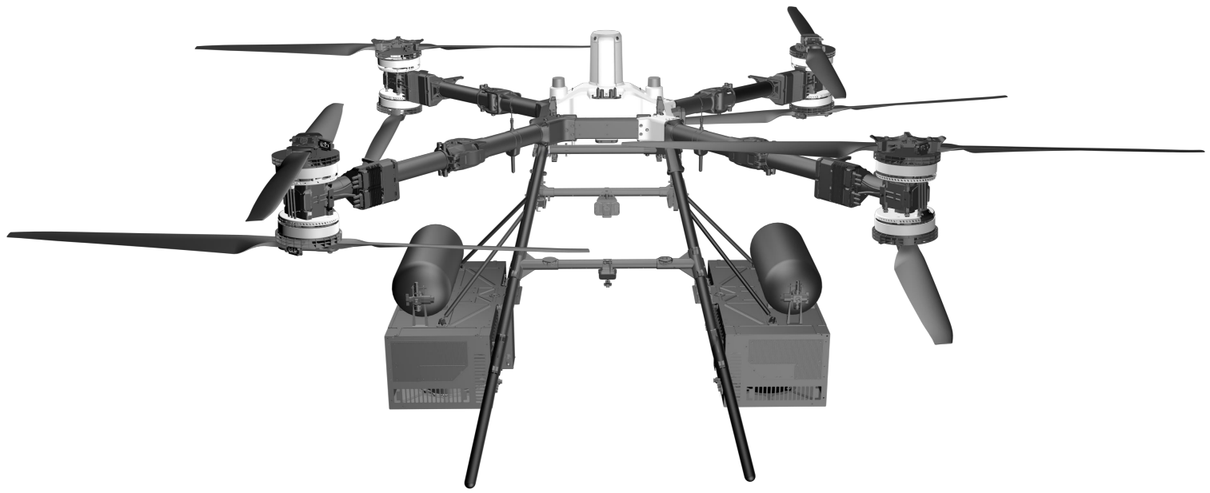


H2 Tube	PU6
Communication	USB-C
CAN	X3025WRS-04D-LPSW
Power Output	Amass XT60E-F

Technical Data

Standard Parameters				
Output Performance	Nominal Rating	1650W (System)		Bare stack power rating 1750W
	Rated Voltage	48V		
	Rated Current	34.5A		
	DC Voltage Range	44~80V		
	Average Efficiency	≥50%		
Fuels	Hydrogen Purity	≥99.99%（CO＜1PPM）		
	Hydrogen Pressure	0.05~0.09MPa		Recommended Standard Pressure 0.07MPa
	Hydrogen Consumption	23.5L/min（STP）		
Environmental Characterization	Operating Ambient Temperature	-5℃~42℃		The management module can be extended to operate within the temperature range of -30℃ to 50℃.
	Operation Ambient Humidity	10%~95%		
	Storage Ambient Temperature	-50℃~70℃		Optimal Storage Environment: 20°C/50%RH
	Noises	≤50dB@3m		
Physical Parameters	Bare Stack Size（mm）	226*148*68	Bare Stack Weight（KG）	1.98
	System size（mm）	242*160*166	System weight（KG）	2.82
	Bare stack volume power density	761W/L	Bare stack weight power density	884W/kg
The fuel cell system includes the stack, cooling fan, intake and exhaust solenoid valves, FCCU module, DC/DC converter for component power supply, cables, and housing. The system layout can be centralized or distributed according to the customer's installation space.				

FC100 H2 Powered Drone



FC100 H_2 Powered Drone

40kg
Max. Load

50min
Max. Endurance

-20℃
Steady Flight

Introduction

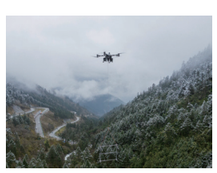
The FC100 H2 Powered Drone is a heavy-lift, long-endurance transport platform that supports dual power supply modes, redefining professional aerial logistics and extending operational boundaries across a wide range of scenarios. In lithium-battery mode, the drone delivers a maximum payload of 80 kg with an endurance of 7 minutes. In hydrogen-electric mode, it supports a maximum payload of 40 kg and achieves an endurance of up to 40 minutes. The two power modes can be freely switched, enabling reliable performance in complex transport missions. With the capability to traverse mountains and waterways with extended flight time, the FC100 establishes a new generation of aerial cargo corridors for mountain lifting operations, power-grid material transport, emergency firefighting, and maritime logistics.

Specification

Dimensions	L3220*W3224*H975mm（Arms deployed, Propellers deployed） L1820*W1840*H975mm（Arms deployed, Propellers folded） L1105*W1265*H975mm（Arms folded, Propellers folded）
Max. wheelbase	2330mm（Diagonal）
Power system	4.2kW Hydrogen Fuel Cell System*4，16.8kW
H2 fuel cell system lifespan	2000h
Max. takeoff weight	149.9kg
Max. payload	40kg
Max. flight time	No load: 50min，Full load: 40min, 2*12L@45MPa Gas Tank
Protection level	IP55
Operating temperature range	-20~50℃
Hovering accuracy	With RTK enabled： Horizontal accuracy ± 100mm，vertical accuracy ± 100mm Without RTK enabled： Horizontal accuracy ± 600mm，vertical accuracy ± 300mm

Applications


Power Grid Material Transportation


Plateau/Mountain Material Delivery


Mountain Logistics Distribution


Emergency Firefighting Supply Deployment


Waterway Material Delivery

FC200 H2 Powered Drone

FC200 H_2 Powered Drone

80kg
Max. Load

60min
Max. Endurance

-20℃
Steady Flight

Introduction

The FC200 Hydrogen-Powered Drone is a heavy-lift, long-endurance transport UAV designed for cargo transportation scenarios. It supports both hydrogen fuel cell and lithium battery dual-power modes, further enhancing transportation capability and endurance performance in complex environments.
In lithium battery mode, the maximum payload can reach 200 kg. In hydrogen power mode, the maximum payload is 80 kg, with a maximum endurance of up to 60 minutes while carrying a 50 kg load.
The drone features excellent stability and environmental adaptability, making it suitable for various professional applications such as ground transportation, power material lifting, emergency firefighting, water-area material delivery, and port logistics transportation, providing a new solution for medium- and long-distance heavy-load low-altitude logistics.

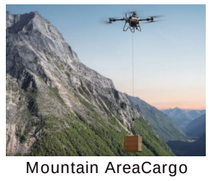
Specification

Dimensions	L3334*W3055*H1500mm（Arms deployed, Propellers deployed） L1786*W1852*H1500mm（Arms deployed, Propellers folded） L1272*W984*H1500mm（Arms folded, Propellers folded）
Max. wheelbase	2699mm（Diagonal）
Power system	36 KW Hydrogen Fuel Cell，2 × 40L @ 45MPa Gas Tank
H2 fuel cell system lifespan	2000h
Max. takeoff weight	367.3kg
Max. payload	80 kg in hydrogen mode; 200 kg in lithium battery mode
Max. flight time	60 min @ 50 kg; 30 min @ 80 kg (2 × 22L @ 45MPa Gas Tank)
Protection level	IP55
Operating temperature range	-20~40℃
Hovering accuracy	RTK enabled： Horizontal ±100 mm, Vertical ±100 mm RTK disabled: Horizontal ±600 mm, Vertical ±300 mm

Applications


Emergency Supply Transportation


Engineering / Power Material Transport


Mountain AreaCargo Transportation


Emergency Firefighting Supply Transport


Water-Area Material Delivery

FC30 H2 Powered Drone

FC30 H_2 Powered Drone

15kg
Max. Load

75min
Max. Endurance

-20℃
Steady Flight

Introduction

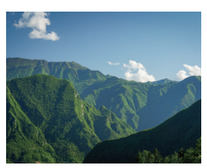
The FC30 hydrogen-powered drone carries up to 15 kg for 75min. With a 12.6 kW fuel cell, it excels in cold endurance and long-range missions, ideal for remote deliveries and emergency rescues in islands, mountains, and high-altitude areas.

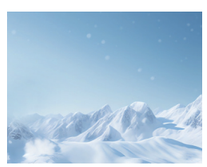
Specification

Dimensions	L2800*W3085*H947mm（Arms deployed, Propellers deployed) L1590*W1900*H947mm（Arms deployed, propellers folded) L1115*W760*H1027mm（Arms folded, propellers folded)
Max.wheelbase	2200mm
Power system	4.2kW Hydrogen Fuel Cell System*3，12.6kW
H2 fuel cell system lifespan	2000h
Max.takeoff weight	95kg
Max. payload	15kg
Max. flight time	No Load: 75 minutes,Full Load: 60 minutes, 2*12L@35MPa Gas Tank
Protection level	IP55
Operating temperature range	-20~50℃
Hovering accuracy	With RTK enabled: Horizontal accuracy ±100 mm, vertical accuracy ±100 mm Without RTK enabled: Horizontal accuracy ±600 mm, vertical accuracy ±300 mm

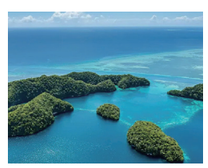
Application


High-altitude logistics

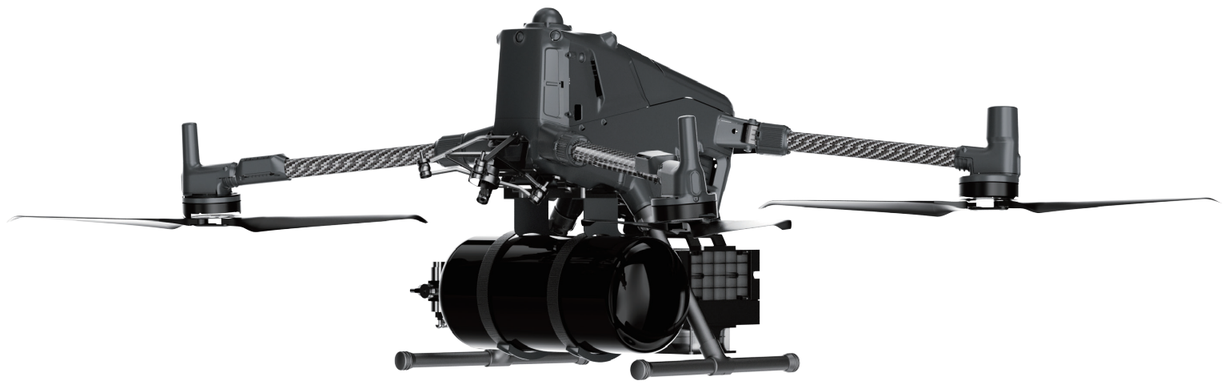

Mountainous logistics


Winter logistics


Emergency rescue


Island logistics

M400 H2 Powered Drone



M400 H_2 Powered Drone

2kg
Payload

90min
Max. Endurance

-20℃
Steady Flight

Introduction

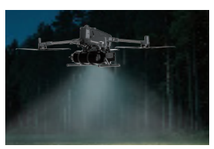
M400 H_2 Powered Drone is based on DJI's M400 model, incorporates lightweight hydrogen fuel cell technology. Equipped with a 1400W hydrogen fuel cell system. This extended endurance enables highly efficient operations in applications such as grid inspection, emergency rescue, and high-precision map ping.

Specification

Dimension	L980*W760*H480mm（Unfolded） L490*W490*H480mm（Folded）
Max. Wheelbase	1070mm
Power Type	1400W Hydrogen Fuel Cell System *1
Fuel Cell System Lifespan	2000h
Max. Takeoff Weight	15.8kg
Max. Payload	2kg
Max. Endurance	90min，5L@45MPa Gas Tank *1　80min，5L@35MPa Gas Tank *1
Overall Protection Rating	IP55
Operating Temperature	-20~50℃
Hovering Accuracy (No Wind or Light Breeze)	Vertical： ±0.1 m（with Visual Positioning） ±0.5 m（with Satellite Positioning） ±0.1 m（with RTK） Horizontal： ±0.3 m（with Visual Positioning） ±1.5 m（with Satellite Positioning） ±0.1 m（with RTK）
Compatible with DJI Gimbal	Zenmuse H30、Zenmuse H30T、Zenmuse L2、Zenmuse P1、Zenmuse S1、Zenmuse V1、Manifold 3

Application


Grid Inspection


Emergency Rescue


High-Precision Mapping


Maritime Applications

M350 H2 Powered Drone

M350 H_2 Powered drone

1kg
Payload

90min
Max. Endurance

-20℃
Steady Flight

Introduction

M350 hydrogen-powered drone is based on DJI's M350 model, equipped with a 1650W hydrogen fuel cell system, offering a flight time of up to 90 minutes. It is ideal for high-precision mapping, air -ground coordination, detailed inspections, and emergency rescue missions.

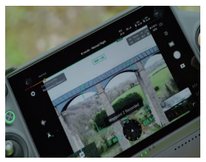
Specification

Dimension	L810*W670*H430mm (Unfolded (without propellers) L430*W420*H430mm (Folded (with propellers)	
Max Wheelbase	895mm	
Power Type	1650W Hydrogen Fuel Cell System*1	
Fuel Cell System Lifespan	2000h	
Max Takeoff Weight	10kg	
Max Payload	1kg	
Max Endurance	No Load: 90 minutes,Full Load: 75 minutes, 1*5L@35MPa Gas Tank	
Overall Protection Rating	IP55	
Operating Temperature	-20~50℃	
Hovering Accuracy (No Wind or Light Breeze)	Vertical: ±0.1m (With Visual Positioning) ±0.5m (With GNSS) ±0.1m (With RTK)	Horizontal: ±0.3m (With Visual Positioning) ±1.5m (With GNSS) ±0.1m (With RTK)
Compatible with DJI Gimbal	Zenmuse H30, Zenmuse H30T, Zenmuse H20, Zenmuse H20T, Zenmuse H20N, Zenmuse L2, Zenmuse L1, Zenmuse P1	

Application

High-Precision Mapping

Grid Inspection



Detailed Inspection

Emergency Rescue

Hydrogen Electric Bike

Hydrogen Electric Bike

Compliant with《GB 17761-2024 Safety technical specification for electric bicycle》

Zero Carbon Emissions / Ultra-Long Range up to 120 km
/ Optional Hydrogen Cylinder Configuration

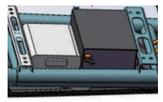
- Utilizes a high–energy-density fuel cell stack, capable of independently supporting all vehicle operating conditions.
- Features high fuel cell conversion efficiency, requiring only 1 g of hydrogen per kilometer.
- Employs a low-pressure hydrogen storage cylinder that secures hydrogen within an internal powder lattice structure, ensuring a high level of safety and reliability.
- Enables rapid energy replenishment through quick cylinder replacement, delivering efficient and convenient refueling.
- Equipped with hydrogen concentration monitoring for real-time detection of anomalies.
- Demonstrates excellent environmental adaptability across diverse operating conditions.

Technical Data

Dimensions	L1560*W640*H1080mm	
Rated Voltage	48V	
Motor Power	350W	
Fuel Cell Stack Power	450W	
Hydrogen Storage Method	68g / 110g Solid H2 Storage Tank	Optional configuration supported, up to 110g
Max. Speed	25km/h	
Max. Driving Range	90km (68g)，120km (110g)	Matched to the specifications of the selected H2 Tank
Operating Ambient Temperature	5~42℃	Optional Configuration: −10 to 42 °C

Pack Data

H_2 -Electric Pack
(under-seat)



Lithium Battery
(under footboard)

Pack Dimensions	203*152*380mm (68gTank) / 226*155*370mm(110g Tank)
Hydrogen Fuel Cell Stack Specifications	450W Open-Cathode Air-Cooled Fuel Cell Stack
Lithium Battery Specifications	6Ah $LiFePO_4$ Battery (optional)
Operating Ambient Humidity (RH)	10%-95%
Operating Ambient Temperature (°C)	5~42℃ (Optional Configuration -10~42℃)
Storage Temperature (°C)	-50℃~70℃ (Optimal storage conditions: 20℃/50%RH)
Tank Dimensions (D × L)	81*340 (68g) / 111*380 (110g)
Hydrogen Outlet Flow Rate (NL/min)	>10 (68g) / >20 (110g)
Tank Capacity (L)	1.2L (68g) / 2L (110)

Frame Configuration

Controller	48V/15A Intelligent controllable	Tires	Front / Rear 16*2.5 solid tires
Braking system	Front / Rear 110 ceramic hub brakes	Frame	High-carbon steel (material)
Shock absorption system	Front / Rear hydraulic suspension	Helmet lock	48V 485 communication
Wheel hub	Front / Rear 16" aluminum alloy wheels	Other	Phone holder / Smart helmet / Front basket

Smart Function

Mini Program Unlock	Bluetooth Unlock	App Unlock
Anomaly Alert	Riding Statistics	Smart App
Dedicated SaaS Platform for Hydrogen Fuel Cell Shared Two-Wheelers, Precisely Measuring Remaining Hydrogen		

Hydrogen Electric Bike

Hydrogen Electric Bike - A11

Zero Carbon Emissions / Ultra-Long Range up to 80 km

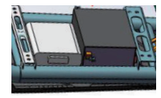
- Utilizes a high–energy-density fuel cell stack, capable of independently supporting all vehicle operating conditions.
- Features high fuel cell conversion efficiency, requiring only 1 g of hydrogen per kilometer.
- Employs a low-pressure hydrogen storage cylinder that secures hydrogen within an internal powder lattice structure, ensuring a high level of safety and reliability.
- Enables rapid energy replenishment through quick cylinder replacement, delivering efficient and convenient refueling.
- Equipped with hydrogen concentration monitoring for real-time detection of anomalies.
- Demonstrates excellent environmental adaptability across diverse operating conditions.

Technical Data

Dimension	L1600*W640*H1040mm
Weight	<55kg
Rated Voltage	48V
Motor Power	350W
Fuel Cell System Power	450W
Max. Speed	25km/h
Max. Driving Range	80km
Hydrogen Storage Method	68g Solid H_2 Storage Tank
Operating Ambient Temperature	-5°C~40°C
Operating Ambient Humidity	10%~95%RH

Pack Data

H_2 -Electric Pack
(under-seat)



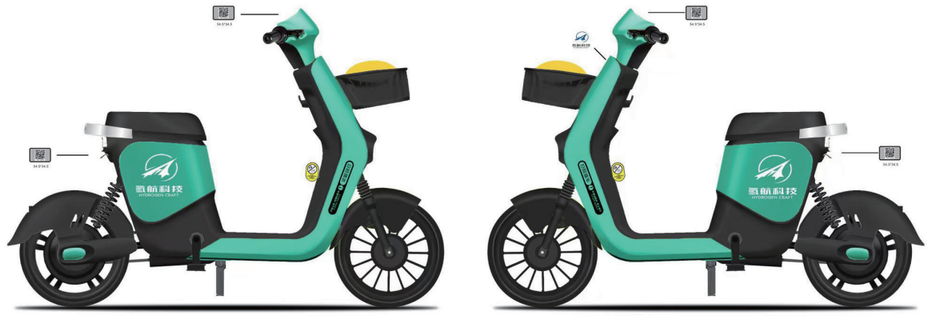
Lithium Battery
(under footboard)

Hydrogen Fuel Cell Stack Specifications	450W Open-Cathode Air-Cooled Fuel Cell Stack
Pack Dimension	203*152*312mm，203*152*380mm(With Tank)
Hydrogen Outlet Flow Rate	10NL/min
Tank Capacity (L)	1.2L

Smart Function

Mini Program Unlock	Bluetooth Unlock	App Unlock
Anomaly Alert	Riding Statistics	Smart App
Dedicated SaaS Platform for Hydrogen Fuel Cell Shared Two-Wheelers, Precisely Measuring Remaining Hydrogen		

Hydrogen Electric Bike



Hydrogen Electric Bike - Fan Hua

Zero Carbon Emissions / Ultra-Long Range up to 120 km

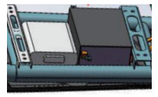
- Utilizes a high–energy-density fuel cell stack, capable of independently supporting all vehicle operating conditions.
- Features high fuel cell conversion efficiency, requiring only 1 g of hydrogen per kilometer.
- Employs a low-pressure hydrogen storage cylinder that secures hydrogen within an internal powder lattice structure, ensuring a high level of safety and reliability.
- Enables rapid energy replenishment through quick cylinder replacement, delivering efficient and convenient refueling.
- Equipped with hydrogen concentration monitoring for real-time detection of anomalies.
- Demonstrates excellent environmental adaptability across diverse operating conditions.

Technical Data

Dimension	L1620*W650*H1090mm
Weight	<55kg
Rated Voltage	48V
Motor Power	350W
Fuel Cell System Power	450W
Max. Speed	25km/h
Max. Driving Range	120km
Hydrogen Storage Method	110g Solid H_2 Storage Tank
Operating Ambient Temperature	-5~40°C（Optional Configuration -10~40°C）
Operating Ambient Humidity	10%~95%RH

Pack Data

H_2 -Electric Pack
(under-seat)



Lithium Battery
(under footboard)

Hydrogen Fuel Cell Stack Specifications	450W Open-Cathode Air-Cooled Fuel Cell Stack
Pack Dimension	203*152*312mm，203*152*380mm(With Tank)
Hydrogen Outlet Flow Rate	10NL/min
Tank Capacity (L)	1.2L

Smart Function

Mini Program Unlock	Bluetooth Unlock	App Unlock
Anomaly Alert	Riding Statistics	Smart App
Dedicated SaaS Platform for Hydrogen Fuel Cell Shared Two-Wheelers, Precisely Measuring Remaining Hydrogen		

Hypal

HYPAL

Hydrogen Power Generator

Clean

Safe and Harmless

Low Noise

Protect Your Ears

Tent Heating

Comfort Anywhere Outdoors

Light

Adding 1 kW·h only adds 1.9 kg

Introduction

This portable power source is compact, lightweight, and has high power density, making it ideal for outdoor tasks, geological exploration, travel photography, adventure, and other scenarios that require a portable emergency power supply. The power source emits only pure water vapor, operates quietly, and can be used indoors (with an upward ventilation hole).

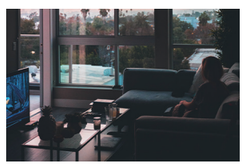
Specification

Max Power Output	1500W
Voltage Ouput	220V AC 50Hz/110V AC 60Hz
Conversion Rate	≥50%
H2 Input Pressure	0.07MPa±0.02MPa
Competible Tanks	Hydride/Type lll/Steelsdd, Type IV Tanks
Work Temperature	-20℃~40℃
Humidity	10%~95%RH
Storage	-30℃~70℃
Gross Weight	Approx. 7.5kg
Dimension	L310*W240*H288mm
Starting method	One-button Start/Stop

Application

Low-temperature Camping

Outdoor Travel



Family Emergency

Aerial Photography

AEM H2 Electrolyzer

Introduction

This AEM electrolyzer fully integrated is used for electrolyzing water to produce high purity hydrogen at atmospheric pressure up to 3MPa. It is suitable for fuel cells, hydride storage equipment and laboratories, etc. It's has the features of simple interface, user-friendly, safe and reliable, etc. It can operate with constant hydrogen flow and constant pressure, and provide stable pressure or flow of hydrogen, without hazardous waste products.

Specification

Product Name	AEM H_2 Electrolyzer
Rated Power	2.5 kW
Maximum Pressure-Nominal	0.1~3 MPa
H_2 Production Capacity	0~0.5 Nm^3/h
H_2 Purity	99.999%
Re-generate	Auto or Forced Regeneration
Work Model	Constant Hydrogen Flow, Constant Pressure
Operate Model	Single Refueling, Continuous Operation, Forced Regeneration
AC Input	220V，50HZ
Product Size	L570*W220*H460mm
Product Weight	<42kg

PEM H2 Electrolyzer

Introduction

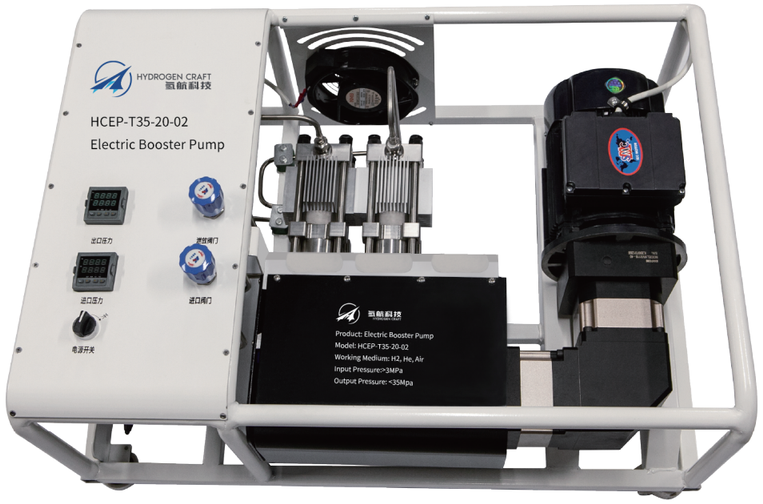
This 0.3 Nm^3/h PEM hydrogen generator uses renewable energy (solar/wind) and purified water (conductivity ≤0.1 mS/m @25°C) to produce clean, green hydrogen through electrochemical reaction. Compact, easy to move, and featuring smart control and high efficiency, it's ideal for home, lab, and outdoor hydrogen or power needs.

Specification

H_2 Production Capacity	0~0.3Nm^3/h
Maximum Pressure-Nominal	0.1~4MPa
Working Temperature	5~55℃
Cold Start Time	＜1 min
Hot Start Time	<5S
H_2 Purity	>99.995%
Dimension(L*W*H)	L650*W340*H600mm
Power Comsuption	＜4.3kWh/Nm^3
Weight	55kg
Rated Power	1.65kW

Electric Piston Booster Pump

Without Lubricant



Electric Piston Booster Pump

Maximum operating radius

Steel Cylinder

Electric Piston Booster Pump

Type lll Tanks

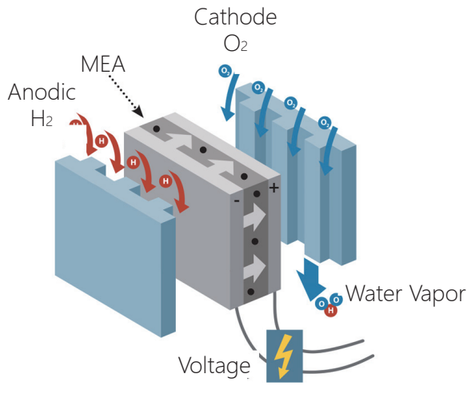
Specification

Specifications	
Gas Media	Hydrogen, Nitrogen, Air
Min Inlet Pressure	3MPa
Max Outlet Pressure	35MPa
Flowrate	120NL PM@Inlet 10MPa
Noise	<70dB@3m
Power Requirement	220VAC, 50Hz, 1.5kW
Dimension	L875*W625*H460 mm
Weight	80kg
Gas Inlet/Outlet/Relief Port Connection	M12 x 1.25
Cooling	Air cooled with integrated cooling fans
Smart Control	Configurable outlet pressure with automatic stop

What’ s in the box
Electric piston booster pump with control panel
Stainless steel gas inlet and outlet flexible hose
Storage/transportation flight case with caster wheels

Fuel Cells: A Bridge from Hydrogen to Electric Aviation

The relatively mature low-temperature PEM Hydrogen fuel cell is a clean electrochemical power generation device. The interior does not burn, and the core temperature is generally between 40 and 65 degrees. Few mechanical moving parts, low maintenance costs, and high reliability.
Hydrogen is transported to the inner part of the stack through the anode plate flow channel, and then evenly permeates through the diffusion layer to the catalytic layer and Proton-exchange membrane. Under the action of platinum catalyst, protons are brought to the other side of the Proton-exchange membrane to combine with oxygen atoms of the cathode to form water. The electrons pass through the circuit and return to the cathode through the load to form a current.
The area of the electrode plate determines the magnitude of the current. The number of stacked layers of the plates determines the voltage level. The open circuit voltage of a single cell battery is about 1V, and the working voltage is about 0.65V. In practice, the conversion efficiency has reached 55%, with 45% being released in the form of heat.



Hydrogen power system on unmanned aerial vehicles

The hydrogen power system of UAV consists of Hydrogen fuel cell, controller and hydrogen cylinder. The IV curve of hydrogen electricity is steeper than that of lithium battery. The open circuit voltage of Hydrogen fuel battery is 1V, and the rated working voltage is 0.65V. The Hydrogen fuel battery is stacked by multiple sections, so it is often called "stack".

Customized services for hydrogen power systems

The core business of Hydrogen Aviation Technology is the research and development of fuel cell systems, not a hydrogen powered drone company. We use the development of hydrogen powered UAVs to explore the application
of Hydrogen fuel cells in aviation. Hydrogen Airlines is willing to assist its industry partners in developing hydrogen powered drones and carriers together.
We provide free parameter design and project pre evaluation for our partners. We can also provide partners with comprehensive support such as fuel cell systems, hydrogen storage systems, power management systems, and electric drive systems.

Safety of hydrogen: Physical properties of hydrogen

1. The mixture ratio of hydrogen explosion is about 4-75%. As a comparison, gasoline is about 1.4%, and natural gas can explode with a mixture ratio above 4.7%.
2. The density of hydrogen is only 1/14 of air, and it spreads rapidly upwards, about 20m/s, making it difficult to accumulate and form explosive mixture conditions.
In combustible gases, although the specific mass calorific value is the highest, under the same conditions, the specific volume calorific value is the lowest, only 1/3 of natural gas Hydrogen combustion explosion is a scaling reaction, where two hydrogen molecules and one oxygen atom form two water molecules, so the explosion energy is much lower than that of natural gas and gasoline.
4. The ignition energy of hydrogen is low, but it also requires an open flame at 574 ℃ to ignite.
5. Power generation and energy storage are separated, and Thermal runaway like lithium battery will not occur, and the control logic will stop the response of the solenoid valve when it is cut off.
6. It is easy to detect, and currently, ppm level combustible gas alarms can detect it, which is very popular.

If gasoline and natural gas can be widely used, hydrogen will eventually become widely used.

Safety of hydrogen bottles

1. Type III and IV carbon fiber gas cylinders, aluminum alloy or high-density polymer inner liner, with carbon fiber wrapped around the periphery, and the main pressure bearing structure being the carbon fiber itself.
GB/T 35544-2017 provides detailed technical requirements and testing specifications for carbon fiber gas cylinders used in vehicles.
2. Gas cylinders must not explode after being shot, burned, or dropped.
3. During the shooting, the gas cylinder ruptured as a bird's nest, and high-purity hydrogen gas was quickly released without burning or exploding.
4. When the fire is burning, the overheating at around 110 ℃ quickly releases and does not spread or explode.
5.100 meter drop test, vehicle crushing, hydrogen cylinder not exploding, not breaking. The internal pressure is about 350 kilograms per square centimeter, and on the contact surface of dozens of square centimeters, the external impact force/pressure can be ignored compared to the internal pressure.
6. The valve stem breaks, high-purity hydrogen leaks, and the gas cylinder does not fly away or burn. The aperture of the breakpoint is only about 2 square millimeters, and the thrust is about 0.7 kilograms, which is not enough to launch a 4-kilogram gas cylinder into the sky. High purity hydrogen gas leaks instantly.
7.The hydrogen cylinder used on hydrogen powered drones is a type III carbon fiber cylinder produced by a state-owned enterprise, Sinoma Technology, that meets the national pressure vessel standard GB/T15385-2011. The enterprise has obtained a special equipment (pressure vessel) manufacturing license issued by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China. The safety of a three type carbon fiber gas cylinder for storing hydrogen gas has been verified through various experiments, with an aluminum alloy inner liner and high-strength carbon fiber wrapped around the outside.

Hydrogen Fuel Cell Technology Comparison: Air-Cooled Fuel Cells vs. Liquid-Cooled Fuel Cells

Hydrogen fuel cell systems require dedicated thermal management to meet heat dissipation demands. Based on the cooling method employed, hydrogen fuel cells are generally classified into liquid-cooled fuel cells and air-cooled fuel cells.

Air-Cooled Thermal Management

Air-cooled fuel cells utilize ambient air directly as the cooling medium. Depending on whether an open-cathode or closed-cathode architecture is adopted, the configuration of the cooling subsystem may vary. Compared with liquid-cooled fuel cell systems, air-cooled systems feature a simpler structure, smaller size, lighter weight, and higher inherent safety. At equivalent power levels, the overall system power density is typically higher than that of liquid-cooled systems, making air-cooled fuel cells particularly well suited for lightweight and mobile applications.

Liquid-Cooled Thermal Management

Liquid-cooled fuel cells employ a coolant—typically a mixture of water and ethylene glycol—as the heat transfer medium. Such systems generally require more complex balance-of-plant components to maintain stable stack operation and achieve higher stack power density, thereby supporting high-power and stable output requirements. Liquid-cooled fuel cells are therefore more suitable for high-power applications above several tens of kilowatts. However, compared with air-cooled fuel cells, they exhibit larger system volume, higher weight, greater structural complexity, increased maintenance difficulty, and higher overall cost.

Hydrogen Fuel Cell Technology Comparison: Open-Cathode vs. Closed-Cathode Architectures

Air-cooled hydrogen fuel cells can be classified into two primary categories based on their structural configuration: open-cathode and closed-cathode designs.

Open-Cathode Architecture

In an open-cathode fuel cell, the cathode is in direct contact with ambient air. Environmental air is drawn into the fuel cell stack by fans or similar devices, serving both as the oxidant supply for electrochemical reactions and as the cooling medium. This configuration features a simple structure, compact size, ease of maintenance, high level of integration, and high hydrogen-to-electricity conversion efficiency, enabling effective control of manufacturing costs, operating and maintenance costs, and hydrogen consumption.

Closed-Cathode Architecture

In a closed-cathode fuel cell, the cathode is isolated from the ambient environment. Air supply and thermal management are handled separately, requiring a dedicated air supply system—such as blowers or compressors—to deliver oxygen for the electrochemical reaction, along with an independent cooling system to dissipate heat generated during stack operation. Compared with open-cathode designs, closed-cathode architectures are less susceptible to environmental influences; however, this comes at the expense of greater structural complexity, higher overall system cost, larger volume, and increased maintenance complexity.

Hydrogen Fuel Cell Technology

Hydrogen Craft
Open-Cathode Air-Cooled Hydrogen Fuel Cell System

1. Through high-adaptability fuel cell stack design and innovative thermal management architecture, Hydrogen Craft effectively overcomes low-temperature performance challenges. UAVs powered by this air-cooled fuel cell stack as the core energy system have successfully completed long-duration flight tests under extreme cold conditions of −40 °C.
2. By leveraging multi-layer ordered coating technology and GDL (Gas Diffusion Layer) reconstruction technology, the system precisely controls basal-layer water retention and enables rapid capillary infiltration of reaction water, while limiting the maximum dehydration rate. This effectively resolves the issue of rapid activation and startup of air-cooled fuel cells after long-term storage.
3. Utilizing intelligent hydrogen fuel cell array technology, multiple small air-cooled stacks can be combined into high-power modular arrays, making the system adaptable to a wide range of power-level application scenarios.