H2Hybrid Fuel Cell Automotive Trainer

DATASHEET

Horizon Educational

FCAT-30 SET

30W FUEL CELL STACK

Type of Fuel Cell	PEM
Number of Cells	14
Rated power	30W
Rated performance	8.4V@3.6A
Purging valve voltage	6V
Blower voltage	5V
Reactants	Hydrogen and Air
Ambient temperature	50-30°C (41-86°F)
Max stack temperature	55°C (131°F)
Hydrogen pressure	0.45-0.55 Bar
Humidification	Self-humidified
Cooling	Air (integrated cooling fan)
Stack weight (with fan&casing)	280g (±30g)
Stack size	80x47x75mm
Flow rate at max output	0.42L/min
Hydrogen purity	⩾99.995% dry H2
Start up time	⩽30s (ambient temp.)
Efficiency of system	40% at full power

CONTROLLER BOARD

Controller weight 90g(±10g)

HYDROGEN STORAGE
HYDROSTIK PRO

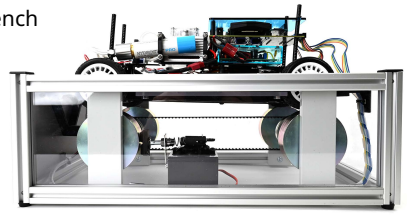
Capacity	10L hydrogen
Hydrogen purity	⩾99.995%
Cartridge size	Ø22x88mm
Weight	Approx. 105g
Storage material	AB5 metal hydride
Rated charging pressure	3.0 MPa
Working temperature	0-55°C (0-131°F)
Service life	10 years

HYDROFILL PRO

Stack type	PEM electrolysis cell
Dimensions (WxDxH)	145x153x208 mm (5.7x6x8.2in)
Weight	1.8kg ±5% (3.97Lbs ±5%)
Rated power	⩽23W
Input voltage	DC: 10V-19V
Water input	De-ionised or destilled water
Water temperature	10-40°C (50-104°F)
Water consumption	Approx. 20ml/hr (1.2in3 /hr)
H2 output pressure	0-3.0 MPaG (0-435.11 PSI)
H2 generation capacity	Up to 3L/hr (0-183in /hr)
Purity	99.995%
Compatible cartridge	HYDROSTIK & HYDROSTIK PRO
Refilling time for one	Around 4 hours

OTHER COMPONENTS

Hybrid power management module
HTML WEB server dashboard
SD Card
Roller test bench



HORIZON ENERGY CURRICULUM

STUDENT'S & TEACHER'S MATERIALS

EASY TO DOWNLOAD

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Complete resources for advanced experiments

FCAT-30 SET

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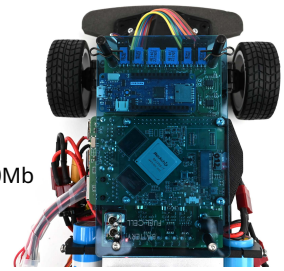
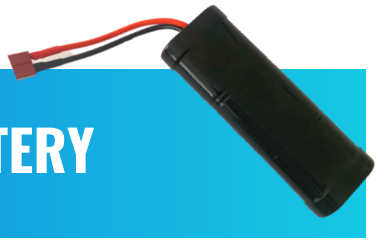
MONITORING BOARD WITH ARDUINO ZERO

3 inputs Current measurement 0-20A
3 inputs Voltage measurement 0-13V
1 input PWM
1 input Incremental encodeur
2 outputs PWM
Connection WIfi, MicroUSB and Ethernet 100Mb



NIMH BATTERY



Output voltage	7.2V
Capacity	3300mAh
Weight	0.31kg

ONE STEP PRESSURE REGULATOR 2X

Weight	27.6g
Screw type	M6
Size	Φ22*38mm
Max. input pressure	30Bar
Output pressure	0.4-0.55Bar
Hydrogen flow rate	0-8L/min
Materials	plastic/copper/aluminum
Sealing material	Propionitrile rubber

BATTERY CHARGER

Input	AC 100-240V, 50/60Hz
Output	max. 16W, 2A
Weight	0.13kg

The H2Hybrid Fuel Cell Automotive Trainer is the ultimate tool for exploring science and engineering concepts through hands-on activities with a working fuel cell car.
An impressive array of hardware, software, and digital curricular materials allow for hours of activities for students of everything from high school vocational-technical up through college-level engineering.

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