



# H2Hybrid Fuel Cell Automotive Trainer

## DATASHEET



### 30W FUEL CELL STACK



### FCAT-30 SET

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

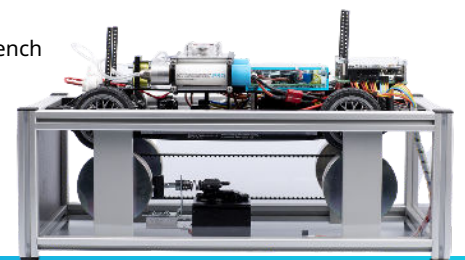
### HYDROFILL PRO



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 distilled 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
- LabVIEW software dashboard
- HTML WEB server dashboard
- SD Card
- Roller test bench





# Complete resources for advanced experiments

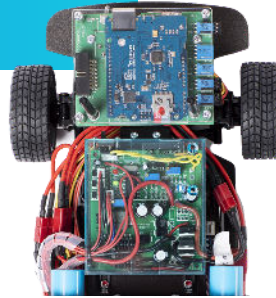
# FCAT-30 SET

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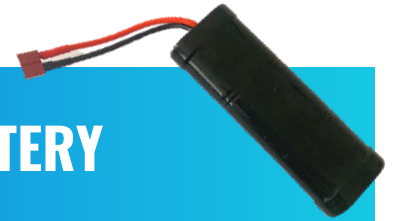


### MONITORING BOARD WITH ARDUINO YUN

- 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  $\Phi 22 \times 38\text{mm}$
- 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.



**HORIZON ENERGY CURRICULUM**

**STUDENT'S & TEACHER'S MATERIALS**

**EASY TO DOWNLOAD**

