



h-tec

Our products



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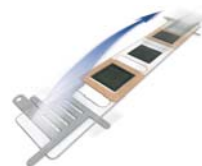
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Hydrogen Model Cars

2050 HyRunner



Specifications

Electrolyzer mode: 1 W
 Fuel cell mode: 500 mW
 Gas storage: 15 cm³ H₂; 15 cm³ O₂
 H x W x D: 75 x 90 x 200 mm
 (3" x 3 1/2" x 7 7/8")
 Weight: 260 g



This model of a hydrogen car is equipped with a reversible fuel cell with which the car can produce its own hydrogen when an external voltage is applied. Textbook included.

2050-4 HyRunner ePack



Specifications

Electrolyzer mode: 1 W
 Fuel cell mode: 500 mW
 Gas storage: 15 cm³ H₂; 15 cm³ O₂
 Solar module: 2.0 V / 350 mA
 Power supply: 1.2 A
 H x W x D: 75 x 90 x 200 mm
 (3" x 3 1/2" x 7 7/8")
 Weight: 375 g



This model of a hydrogen car is equipped with a reversible fuel cell with which the car can produce its own hydrogen when an external voltage is applied. Charging time: approx. 2 min. with **PowerSupply Junior** and approx. 9 min. with **Solar Module Basic** under sunlight. Running time approx. 8 min. **PowerSupply Junior**, **Solar Module Basic** and textbook included.

2081 HyRunner GT



Specifications

Electrolyzer mode: 2 W
 Fuel cell mode: 1 W
 Gas storage: 16 cm³ H₂; 8 cm³ O₂
 H x W x D: 82 x 112 x 212 mm
 (3 1/4" x 4 3/8" x 8 3/8")
 Weight: 340 g



Powerful Fuel Cell Model Car with an innovative design. Equipped with a reversible fuel cell stack with which the car can produce its own hydrogen when an external voltage is applied. Textbook included.

2081-4 HyRunner GT ePack



Specifications

Electrolyzer mode: 2 W
 Fuel cell mode: 1 W
 Gas storage: 16 cm³ H₂; 8 cm³ O₂
 Power supply: 1.2 A
 Solar module: 4.0 V / 350 mA
 H x W x D: 82 x 112 x 212 mm
 (3 1/4" x 4 3/8" x 8 3/8")
 Weight: 572 g



Powerful Fuel Cell Model Car with an innovative design. Equipped with a reversible fuel cell stack with which the car can produce its own hydrogen when an external voltage is applied. Charging time: approx. 1 min. with **PowerSupply Junior** and approx. 3 min. with **Solar Module HyRunner GT** under sunlight. Running time approx. 4 min. **PowerSupply Junior**, **Solar Module HyRunner GT** and textbook included.

2081-5 HyRunner GT/RC



Specifications

Electrolyzer mode: 2 W
 Fuel cell mode: 1 W
 Gas storage: 16 cm³ H₂; 8 cm³ O₂
 Power supply: 1.2 A
 Solar module: 4.0 V / 350 mA
 Remote control: Digital proportional FM system
 H x W x D: 82 x 112 x 212 mm
 (3 1/4" x 4 3/8" x 8 3/8")
 Weight: 1.2 kg



Powerful, remote-controlled Fuel Cell Model Car with innovative design. Equipped with a reversible fuel cell stack with which the car can produce its own hydrogen when an external voltage is applied. Charging time: approx. 1 min. with **PowerSupply Junior** and approx. 3 min. with **Solar Module HyRunner GT** under sunlight. Running time approx. 4 min. **PowerSupply Junior**, **Solar Module HyRunner GT**, remote control and textbook included.

2053 Fuel Cell Concept Car



Specifications

Power: 300 mW
 H x W x D: 45 x 240 x 100 mm
 (1 3/4" x 9 1/2" x 4")
 Weight: 260 g



Our most realistic model of a hydrogen car, equipped with a fuel cell stack H₂/air (two cells). Approx. 30 sec. charging time and 7 min. running time. Textbook included.

2057 Hydrogen Gas Station 2



Specifications

Electrolyzer: 1 W
 Gas storage: 20 cm³ H₂
 Hydrogen production: 4.3 cm³/min
 Solar module: 2.0 V / 1.0 A
 H x W x D: 230 x 360 x 150 mm
 (9 1/16" x 14 3/16" x 6")
 Weight: 1.2 kg

Hydrogen gas station designed for use with **Fuel Cell Concept Car**. Consists of electrolyzer, hydrogen storage tank and 3-panel solar module.

Accessories Hydrogen Model Cars

2086 Solar Module Basic



Specifications

Power: 2.0 V / 260 mA
 H x W x D: 63 x 83 x 3 mm
 (2 1/2" x 3 1/4" x 1/8")
 Weight: 25 g

Solar module for **HyRunner** and **Junior** electrolyzers.

2021 Solar Module Junior



Specifications

Power: 2.0 V / 350 mA
 H x W x D: 65 x 150 x 60 mm
 (2 1/2" x 6" x 2 3/8")
 Weight: 125 g

Single solar module on base plate, to be used as electrical supply for **HyRunner** and **Junior** electrolyzers.

2087 Solar Module HyRunner GT



Specifications

Power: 4.0 V / 350 mA
 H x W x D: 30 x 112 x 290 mm
 (1 3/16" x 4 3/8" x 1 17/16")
 Weight: 142 g

Solar module for **HyRunner GT**.

2030 Spotlight



Specifications

Power: 75 W
 H x W x D: 490 x 260 x 260 mm
 (19 3/8" x 10 1/4" x 10 1/4")
 Weight: 3.4 kg

Halogen lamp for operation with **Solar Module Basic**, **Solar Module Junior**, **Solar Module Eco**, **Junior Basic**, **Eco Hz/Air** and **Eco Hz/O₂**.

1931 Videolight



Specifications

Power: 300 W
 H x W x D: 380 x 260 x 260 mm
 (15" x 10 1/4" x 10 1/4")
 Weight: 1.0 kg

Halogen lamp on a tripod, for operation with **Solar Module HyRunner GT**, **Hydrogen Gas Station 2** und **Solar Module Premium**.

2033 PowerSupply Junior



Specifications

Input: 100 - 240 V, 50 - 60 Hz
 Output: 5.0 VDC / 1.2 A
 Weight: 90 g

Power supply for **HyRunner**, **HyRunner GT** and **Junior** electrolyzers.

2024 Cable red Junior



Specifications

Plug: 2 mm
 Length: 50 cm (20")

Red connector cable for **HyRunner**, **HyRunner GT** and **Junior** products.

2025 Cable black Junior



Specifications

Plug: 2 mm
 Length: 50 cm (20")

Black connector cable for **HyRunner**, **HyRunner GT** and **Junior** products.

2023 Decade Resistor Junior



Specifications

Max. capacity: 1 W
 Ports: 2 mm
 H x W x D: 40 x 160 x 130 mm
 (1 9/16" x 6 5/16" x 5 1/8")
 Weight: 190 g

Decade resistor for **HyRunner**, **HyRunner GT** and **Junior** products.

2027 Multimeter Junior



Specifications

Ports: 2 mm
 H x W x D: 125 x 70 x 30 mm
 (5" x 2 3/4" x 1 3/16")
 Weight: 140 g

Digital multimeter for **HyRunner**, **HyRunner GT** and **Junior** products.

2085 Experimentation Kit Junior



Specifications

Decade Resistor:

Max. capacity: 1 W
 Ports: 2 mm
 H x W x D: 40 x 160 x 130 mm
 (1 9/16" x 6 5/16" x 5 1/8")

Weight: 190 g

Multimeter Junior:

Ports: 2 mm
 H x W x D: 125 x 70 x 30 mm
 (5" x 2 3/4" x 1 3/16")
 Weight: 140 g

Experimentation kit consisting of **Decade Resistor Junior**, two **Multimeter Junior**, stopwatch and cables. Suitable for fuel cell cars **HyRunner** and **HyRunner GT**, as well as **Junior** products.

1950 Fuel Cell Monitor



Specifications

Power: U = 0 - 10 VDC
 I = 0 - 5 A

P_{max} = 5 W

Ports: 2 and 4 mm

USB Cable: 180 cm A/B (70")

H x W x D: 40 x 160 x 100 mm
 (1 9/16" x 6 5/16" x 4")

Weight: 235 g

External measuring transformer card for measuring and recording the characteristics of h-tec fuel cell models. Connects to a PC via USB cable. Supplied software allows you to plot voltage-current, power-voltage, power-current, and power-time characteristics. Recording can be done manually, automatically, at certain voltage or current points or at MPP. Data recording as Excel file. Minimum system requirements: PC with Windows operating system Win98, ME, 2000, NT or XP, 100 MB free space on HD, Pentium 1, 100MHz, or faster, USB port. Recommended: MS Excel (for individualized data plotting). **Package includes:** measuring transformer card, USB cable, software, set of cables.

Junior Product Range

2010 JuniorBasic



Specifications

Electrolyzer: 1 W
Fuel cell: 500 mW
Gas storage: 20 cm³ H₂; 20 cm³ O₂
Solar module: 2.0 V / 350 mA
Fan: 10 mW
H x W x D: 200 x 300 x 150 mm
 (77/8" x 117/8" x 6")
Weight: 600 g



Solar hydrogen experimentation system consisting of solar module, PEM electrolyzer, hydrogen and oxygen storage tanks, PEM fuel cell, and electric load; mounted on a black base plate. Textbook included.

2011 JuniorSet



Specifications

Electrolyzer: 1 W
Fuel cell: 500 mW
Gas storage: 20 cm³ H₂; 20 cm³ O₂
Solar module: 2.0 V / 350 mA
Fan: 10 mW
Cable: 50 cm
H x W x D: 140 x 450 x 380 mm
 (51/2" x 173/4" x 15")
Weight: 2.8 kg

Complete hydrogen system in a carrying case, consisting of solar hydrogen system **JuniorBasic**, **Decade Resistor Junior**, 2 digital **Multimeter Junior**, 3 red and 3 black **Cable Junior**, 1 stop-watch, 250 ml distilled water. Textbook included.



2070 JuniorLab



Specifications

Electrolyzer: 1 W
Fuel cell: 500 mW
Gas storage: 20 cm³ H₂; 20 cm³ O₂
Solar module: 2.0 V / 350 mA
Fan: 10 mW
Cable: 50 cm
H x W x D: 140 x 450 x 380 mm
 (51/2" x 173/4" x 15")
Weight: 2.8 kg

Complete hydrogen system in a carrying case, consisting of PEM electrolyzer **Electrolyzer Junior**, PEM fuel cell **Fuel Cell Junior H₂/O₂ Plate**, **Fan Junior**, **Decade Resistor Junior**, 2 digital **Multimeter Junior**, 3 red and 3 black connector **cables**, 1 stopwatch and 250 ml distilled water. Textbook included.



2090-X Junior Stack



Specifications

Power per cell: 200 mW
Power (10 cells): 2 W
H x W x D (10 cells): 60 x 175 x 70 mm
 (23/8" x 67/8" x 23/4")
Weight (10 cells): 430 g

Fuel cell stack, number of cells subject to customer specifications (max. 10). Easy mounting and unmounting of cells. The stack will be delivered fully assembled. Recommended hydrogen supply: **Electrolyzer StaXX 2**. When ordering, please replace the "X" with the desired number of cells (max. 10).

Example:

Stack with 10 cells 2090-10 Power: 2 W

2091 Single Cell for Junior Stack



Specifications

Power: 200 mW
H x W x D: 50 x 60 x 13 mm
 (2" x 23/8" x 1/2")
Weight: 31 g

Single cell, extension for **Junior Stack**.

2034 PEMRFC Junior



Specifications

Electrolyzer mode: 1 W
Fuel cell mode: 500 mW
Gas storage: 20 cm³ H₂; 20 cm³ O₂
H x W x D: 126 x 92 x 70 mm
 (5" x 35/8" x 23/4")
Weight: 172 g



Hydrogen system with reversible fuel cell and 2 gas storage tanks, mounted on a black base plate; for production, storage and utilization of hydrogen and oxygen. Textbook included.

2034-1 PEMRFC Junior Set



Specifications

Electrolyzer mode: 1 W
Fuel cell mode: 500 mW
Gas storage: 20 cm³ H₂; 20 cm³ O₂
Solar module: 2.0 V / 260 mA
H x W x D: 126 x 92 x 70 mm
 (5" x 35/8" x 23/4")
Weight: 230 g



Complete solar hydrogen system with reversible fuel cell and 2 gas storage tanks, mounted on a black base plate, for production, storage and utilization of hydrogen and oxygen. **Demomotor**, **Solar Module Basic** and textbook included.

2014 Electrolyzer Junior



Specifications

Power: 1 W
Gas storage: 20 cm³ H₂; 20 cm³ O₂
Hydrogen production: 4.3 cm³/min
Oxygen production: 2.2 cm³/min
H x W x D: 200 x 120 x 90 mm
 (77/8" x 43/4" x 31/2")
Weight: 260 g

PEM electrolyzer for hydrogen and oxygen production, with water tanks and gas storage tanks, mounted on a black base plate.

2029 Electrolyzer Basic



Specifications
 Power: 1 W
 H x W x D: 70 x 90 x 70 mm
 (23/4" x 3 1/2" x 23/4")
 Weight: 108 g

Compact electrolyzer for hydrogen production for **Fuel Cell Mini**, **Fuel Cell Car Junior** and **Fuel Cell Junior H₂/Air**.

2112 Fuel Cell Junior H₂/Air



Specifications
 Power: 150 mW
 H x W x D: 50 x 50 x 40 mm
 (2" x 2" x 1 9/16")
 Weight: 60 g

PEM fuel cell for hydrogen/air operation.

2012 Fuel Cell Junior H₂/Air Plate



Specifications
 Power: 150 mW
 H x W x D: 60 x 120 x 90 mm
 (23/8" x 4 3/4" x 3 1/2")
 Weight: 100 g

PEM fuel cell for hydrogen/air operation, mounted on a black base plate.

2113 Fuel Cell Junior H₂/O₂



Specifications
 Power: 500 mW
 H x W x D: 50 x 50 x 40 mm
 (2" x 2" x 1 9/16")
 Weight: 60 g

PEM fuel cell for hydrogen/oxygen operation.

2013 Fuel Cell Junior H₂/O₂ Plate



Specifications
 Power: 500 mW
 H x W x D: 60 x 120 x 90 mm
 (23/8" x 4 3/4" x 3 1/2")
 Weight: 100 g

PEM fuel cell for hydrogen/oxygen operation, mounted on a black base plate.

2115 Methanol Fuel Cell Junior



Specifications
 Power: 10 mW
 H x W x D: 50 x 50 x 40 mm
 (2" x 2" x 1 9/16")
 Weight: 60 g

Direct methanol fuel cell, with built-in methanol tank. Operated with 3 % of methanol in distilled water solution. Methanol solution not included.

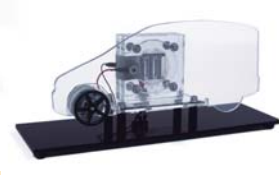
2015 Methanol Fuel Cell Junior Plate



Specifications
 Power: 10 mW
 H x W x D: 60 x 120 x 90 mm
 (23/8" x 4 3/4" x 3 1/2")
 Weight: 100 g

Direct methanol fuel cell, with methanol tank, mounted on a black base plate. Operated with 3 % of methanol in distilled water solution. Methanol solution not included.

2117 FC Car Junior



Specifications
 Power: 150 mW
 H x W x D: 90 x 200 x 64 mm
 (3 1/2" x 7 7/8" x 2 1/2")
 Weight: 190 g

Desktop model with **Fuel Cell Junior H₂/Air**.

Accessories Junior Product Range

2086 Solar Module Basic



Specifications
 Power: 2.0 V / 260 mA
 H x W x D: 63 x 83 x 3 mm
 (2 1/2" x 3 1/4" x 1/8")
 Weight: 25 g

Solar module for **HyRunner** and **Junior** electrolyzers.

2021 Solar Module Junior



Specifications
 Power: 2.0 V / 350 mA
 H x W x D: 65 x 150 x 60 mm
 (2 1/2" x 6" x 2 3/8")
 Weight: 125 g

Single solar module on base plate, to be used as electrical supply for **HyRunner** and **Junior** electrolyzers.

2030 Spotlight



Specifications
 Power: 75 W
 H x W x D: 490 x 260 x 260 mm
 (19 3/8" x 10 1/4" x 10 1/4")
 Weight: 3.4 kg

Halogen lamp for operation with **Solar Module Basic**, **Solar Module Junior**, **Solar Module Eco**, **Junior Basic**, **Eco H₂/Air** and **Eco H₂/O₂**.

2033 PowerSupply Junior



Specifications
 Input: 100 - 240 V, 50 - 60 Hz
 Output: 5.0 VDC / 1.2 A
 Weight: 90 g

Power supply for **HyRunner**, **HyRunner GT** and **Junior** electrolyzers.

2022 Fan Junior**Specifications**

Power: 10 mW
 H x W x D: 140 x 60 x 40 mm
 (51/2" x 23/8" x 19/16")
 Weight: 45 g

Electric fan, to be used as load for **Junior** fuel cells.

2024 Cable red Junior**Specifications**

Plug: 2 mm
 Length: 50 cm (20")

Red connector cable for **HyRunner**, **HyRunner GT** and **Junior** products.

2025 Cable black Junior**Specifications**

Plug: 2 mm
 Length: 50 cm (20")

Black connector cable for **HyRunner**, **HyRunner GT** and **Junior** products.

2023 Decade Resistor Junior**Specifications**

Max. capacity: 1 W
 Ports: 2 mm
 H x W x D: 40 x 160 x 130 mm
 (19/16" x 65/16" x 51/8")
 Weight: 190 g

Decade resistor for **HyRunner**, **HyRunner GT** and **Junior** products.

2027 Multimeter Junior**Specifications**

Ports: 2 mm
 H x W x D: 125 x 70 x 30 mm
 (5" x 23/4" x 13/16")
 Weight: 140 g

Digital multimeter for **HyRunner**, **HyRunner GT** and **Junior** products.

2085 Experimentation Kit Junior**Specifications****Decade Resistor:**

Max. capacity: 1 W
 Ports: 2 mm
 H x W x D: 40 x 160 x 130 mm
 (19/16" x 65/16" x 51/8")
 Weight: 190 g

Multimeter Junior:

Ports: 2 mm
 H x W x D: 125 x 70 x 30 mm
 (5" x 23/4" x 13/16")
 Weight: 140 g

Experimentation kit consisting of **Decade Resistor Junior**, two **Multimeter Junior**, stopwatch and cables. Suitable for fuel cell cars **HyRunner** and **HyRunner GT**, as well as **Junior** products.

1950 Fuel Cell Monitor**Specifications**

Power: $U = 0 - 10$ VDC
 $I = 0 - 5$ A
 $P_{max} = 5$ W
 Ports: 2 and 4 mm
 USB Cable: 180 cm A/B (70")
 H x W x D: 40 x 160 x 100 mm
 (19/16" x 65/16" x 4")
 Weight: 235 g

External measuring transformer card for measuring and recording the characteristics of h-tec fuel cell models. Connects to a PC via USB cable. Supplied software allows you to plot voltage-current, power-voltage, power-current, and power-time characteristics. Recording can be done manually, automatically, at certain voltage or current points or at MPP. Data recording as Excel file. Minimum system requirements: PC with Windows operating system Win98, ME, 2000, NT or XP, 100 MB free space on HD, Pentium 1, 100MHz, or faster, USB port. Recommended: MS Excel (for individualized data plotting). **Package includes:** measuring transformer card, USB cable, software, set of cables.

Eco Product Range

1935 Eco H₂/Air



Specifications

Electrolyzer: 2 W
Fuel cell: 300 mW
Gas storage: 40 cm³ H₂
Solar module: 2.0 V / 350 mA
Fan: 10 mW
H x W x D: 140 x 470 x 150 mm
 (5 1/2" x 18 1/2" x 6")
Weight: 1.0 kg



Model of a solar hydrogen system, consisting of solar module, PEM electrolyzer, gas storage tank, PEM fuel cell for air operation and electric load, mounted on a black base plate. Textbook included.

1936 Eco H₂/O₂



Specifications

Electrolyzer: 2 W
Fuel cell: 600 mW
Gas storage: 40 cm³ H₂; 40 cm³ O₂
Solar module: 2.0 V / 350 mA
Fan: 10 mW
H x W x D: 175 x 470 x 150 mm
 (6 7/8" x 18 1/2" x 6")
Weight: 1.1 kg



Model of a solar hydrogen system, consisting of solar module, PEM electrolyzer, gas storage tank, PEM fuel cell for oxygen operation and electric load, mounted on a black base plate. Textbook included.

1961 Eco Exhibition Set



Specifications

Electrolyzer: 2 W
Fuel cell: 600 mW
Gas storage: 40 cm³
Solar module: 2.0 V / 350 mA
Fan: 10 mW
Spotlight: 300 W
H x W x D: 200 x 510 x 420 mm
 (77 7/8" x 20" x 16 1/2")
Weight: 6.6 kg

Model of a solar hydrogen system, consisting of solar module, PEM electrolyzer, gas storage tanks, PEM fuel cell for oxygen operation and electric load, mounted on a black base plate. The unit and included accessories (lamp **Video-light**, **PowerSupply** and 250 ml distilled water) come in a robust aluminium frame case that has additional space for your information material. Designed for extended, unsupervised operation. Textbook included.



1934 PEMRFC Eco



Specifications

Electrolyzer: 2 W
Fuel cell: 600 mW
Gas storage: 40 cm³ H₂; 40 cm³ O₂
H x W x D: 200 x 180 x 120 mm
 (77 7/8" x 7 1/16" x 4 3/4")
Weight: 500 g



Hydrogen system with reversible fuel cell and 2 gas storage tanks, mounted on a black base plate; for production, storage and utilization of hydrogen and oxygen. Textbook included.

1939 Electrolyzer Eco



Specifications

Power: 2 W
Gas storage: 40 cm³ H₂; 40 cm³ O₂
Hydrogen production: 8.6 cm³/min
Oxygen production: 4.3 cm³/min
H x W x D: 200 x 180 x 120 mm
 (77 7/8" x 7 1/16" x 4 3/4")
Weight: 500 g

PEM electrolyzer for hydrogen and oxygen production. Includes water tanks as well as hydrogen and oxygen storage tanks; mounted on a black base plate.

1951 Fuel Cell Eco H₂/Air



Specifications

Power: 300 mW
H x W x D: 80 x 80 x 48 mm
 (3 1/8" x 3 1/8" x 1 3/4")
Weight: 180 g

PEM fuel cell for hydrogen/air operation.

1953 Fuel Cell Eco H₂/O₂



Specifications

Power: 600 mW
H x W x D: 80 x 80 x 48 mm
 (3 1/8" x 3 1/8" x 1 3/4")
Weight: 190 g

PEM fuel cell for hydrogen/oxygen operation.

1920 PEMEL Pro



Specifications

Power: 2 W
Hydrogen production: 8.6 cm³/min
Oxygen production: 4.3 cm³/min
H x W x D: 80 x 80 x 52 mm
 (3 1/8" x 3 1/8" x 2")
Weight: 190 g

PEM electrolyzer, for hydrogen and oxygen production from distilled water.

1919 PEMFC Kit**Specifications**

Power: 600 mW (oxygen)
200 mW (air)
H x W x D: 98 x 80 x 78 mm
(37/8" x 31/8" x 3")
Weight: 258 g

PEM fuel cell that can be completely disassembled. Hydrogen/oxygen or hydrogen/air operation. Tools needed for assembly are included.

Accessories Eco Product Range**1912 Solar Module Eco****Specifications**

Power: 2.0 V / 350 mA
H x W x D: 80 x 150 x 70 mm
(31/8" x 6" x 23/4")
Weight: 130 g

Single solar module on base plate, to be used as power supply for **Eco** electrolyzers.

2030 Spotlight**Specifications**

Power: 75 W
H x W x D: 490 x 260 x 260 mm
(193/8" x 101/4" x 101/4")
Weight: 3.4 kg

Halogen lamp for operation with **Solar Module Basic**, **Solar Module Junior**, **Solar Module Eco**, **Junior Basic**, **Eco Hz/Air** and **Eco Hz/O₂**.

1933 PowerSupply**Specifications**

In: 100 - 240 V, 50 - 60 Hz
Out: 5.0 VDC / 1.2 A
Weight: 110 g

Power supply for **Premium** and **Eco** electrolyzers.

1922 Storage 80**Specifications**

Volume: 80 cm³
H x W x D: 265 x 100 x 100 mm
(101/2" x 4" x 4")
Weight: 190 g

Gas storage tank for 80 cm³ hydrogen or oxygen gas.

1914 Fan**Specifications**

Power: 10 mW
H x W x D: 130 x 60 x 95 mm
(51/8" x 23/8" x 33/4")
Weight: 65 g

Electric fan, to be used as load for **Premium** and **Eco** fuel cells.

1965 Cable red**Specifications**

Plug: 4 mm
Length: 50 cm (20")

Red connector cable.

1966 Cable black**Specifications**

Plug: 4 mm
Length: 50 cm (20")

Black connector cable.

1949 Decade Resistor**Specifications**

Max. capacity: 1 W
Ports: 4 mm
H x W x D: 40 x 160 x 130 mm
(19/16" x 65/16" x 51/8")
Weight: 210 g

Decade resistor for **Premium** and **Eco** products.

1948 Multimeter**Specifications**

Ports: 4 mm
H x W x D: 125 x 70 x 30 mm
(5" x 23/4" x 13/16")
Weight: 140 g

Digital multimeter for **Premium**, **Eco** and **StaXX** products.

1950 Fuel Cell Monitor**Specifications**

Power: U = 0 - 10 VDC
I = 0 - 5 A
P_{max} = 5 W
Ports: 2 and 4 mm
USB Cable: 180 cm A/B (70")
H x W x D: 40 x 160 x 100 mm
(19/16" x 65/16" x 4")
Weight: 235 g

External measuring transformer card for measuring and recording the characteristics of h-tec fuel cell models. Connects to a PC via USB cable. Supplied software allows you to plot voltage-current, power-voltage, power-current, and power-time characteristics. Recording can be done manually, automatically, at certain voltage or current points or at MPP. Data recording as Excel file. Minimum system requirements: PC with Windows operating system Win98, ME, 2000, NT or XP, 100 MB free space on HD, Pentium 1, 100MHz, or faster, USB port. Recommended: MS Excel (for individualized data plotting). **Package includes:** measuring transformer card, USB cable, software, set of cables.

StaXX Product Range

3011 Electrolyzer StaXX 2


Specifications

Power:	15 W
Hydrogen production:	65 cm ³ /min
H x W x D:	140 x 180 x 120 mm (5 1/2" x 7 1/16" x 4 3/4")
Weight:	460 g

Double-cell PEM electrolyzer stack, for production of hydrogen from distilled water.

3017 Electrolyzer StaXX 7


Specifications

Power:	50 W
Hydrogen production:	230 cm ³ /min
H x W x D:	190 x 264 x 200 mm (7 1/2" x 10 3/8" x 7 7/8")
Weight:	1.5 kg

Seven-cell PEM electrolyzer stack, for production of hydrogen from distilled water.

3001 Fuel Cell StaXX


Specifications

Power:	1 W
H x W x D:	90 x 100 x 65 mm (3 1/2" x 4" x 2 1/2")
Weight:	260 g

Double-cell PEM fuel cell stack for hydrogen/air operation. Can be expanded with **Connection Set StaXX** and additional **Fuel Cell StaXX**.

3002 Fuel Cell StaXX 2


Specifications

Power:	2 W
H x W x D:	100 x 200 x 250 mm (4" x 7 7/8" x 9 7/8")
Weight:	1.1 kg

Two double-cell PEM fuel cell stacks for hydrogen/air operation, mounted on a black base plate.

2400 Fuel Cell Box


Specifications

Electrolyzer:	15 W
Fuel Cell:	3 x 1 W = 3 W
Solar module:	4.0 V / 3.3 A
Gas storage:	80 cm ³
Power supply:	5.0 VDC / 3.0 A
H x W x D:	180 x 470 x 365 mm (7 1/16" x 18 1/2" x 14 3/8")
Weight:	7.0 kg

Fuel cell experimentation system, specifically developed for student contests, consisting of three PEM fuel cells **Fuel Cell StaXX**, PEM electrolyzer **Electrolyzer StaXX 2**, **Solar Module StaXX 2**, **PowerSupply StaXX 2**, **DC/DC Converter StaXX 3**, two **Multimeter**, hydrogen storage tank **Storage 80**, two **ConnectionSet StaXX**, red and black connection cables, and **Poster Innovation Fuel Cell**. In addition the following accessories are included: water bottle (with distilled water), stopwatch, silicon tube, acrylic glass tube, three protective goggles, reflective foil, masking tape, handwarmer, thermometer, filament bulb.

Accessories StaXX Product Range

3031 Solar Module StaXX 2


Specifications

Power:	4.0 V / 3.3 A
H x W x D:	25 x 330 x 330 mm (1" x 13" x 13")
Weight:	1.5 kg

13 W solar module, to be used as power supply for **Electrolyzer StaXX 2**.

3021 PowerSupply StaXX 2


Specifications

Input:	100 - 240 V, 50 - 60 Hz
Output:	5.0 VDC / 3.0 A
Weight:	190 g

Power supply for **Electrolyzer StaXX 2**.

3027 PowerSupply StaXX 7


Specifications

Input:	100 - 240 V, 50 - 60 Hz
Output:	13.8 VDC / 5.0 A
Weight:	620 g

Power supply for **Electrolyzer StaXX 7**.

1922 Storage 80


Specifications

Volume:	80 cm ³
H x W x D:	265 x 100 x 100 mm (10 1/2" x 4" x 4")
Weight:	190 g

Gas storage tank for 80 cm³ hydrogen or oxygen gas.

3020 ConnectionSet StaXX


Specifications

Weight:	7 g
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Electrical and gas supply connections for use with two **Fuel Cell StaXX**.

3042 DC/DC Converter StaXX 2


Specifications

Output:	4.5; 6; 7.5; 9; 12; 14 VDC
H x W x D:	45 x 100 x 80 mm (1 3/4" x 4" x 3 1/8")
Weight:	100 g

Voltage transformer; specially designed for two **Fuel Cell StaXX** that are connected in series, can be switched to DC output voltages 4.5; 6; 7.5; 9; 12; 14 VDC.

3043 DC/DC Converter StaXX 3


Specifications

Output:	4.5; 6; 7.5; 9; 12; 14 VDC
H x W x D:	45 x 100 x 80 mm (1 3/4" x 4" x 3 1/8")
Weight:	100 g

Voltage transformer; specially designed for three **Fuel Cell StaXX** that are connected in series, can be switched to DC output voltages 4.5; 6; 7.5; 9; 12; 14 VDC.

1965 Cable red


Specifications

Plug:	4 mm
Length:	50 cm (20")

Red connector cable.

1966 Cable black**Specifications**

Plug: 4 mm
Length: 50 cm (20")

Black connector cable.

1950 Fuel Cell Monitor**Specifications**

Power: $U = 0 - 10$ VDC
 $I = 0 - 5$ A
 $P_{max} = 5$ W
Ports: 2 and 4 mm
USB Cable: 180 cm A/B (70")
H x W x D: 40 x 160 x 100 mm
(1 9/16" x 6 5/16" x 4")
Weight: 235 g

External measuring transformer card for measuring and recording the characteristics of h-tec fuel cell models. Connects to a PC via USB cable. Supplied software allows you to plot voltage-current, power-voltage, power-current, and power-time characteristics. Recording can be done manually, automatically, at certain voltage or current points or at MPP. Data recording as Excel file. Minimum system requirements: PC with Windows operating system Win98, ME, 2000, NT or XP, 100 MB free space on HD, Pentium 1, 100MHz, or faster, USB port. Recommended: MS Excel (for individualized data plotting).

Package includes: measuring transformer card, USB cable, software, set of cables.

Premium Product Range**1908** Exhibition**Specifications**

Electrolyzer: 10 W
Fuel cell: 1.2 W
H x W x D: 650 x 800 x 300 mm
(26" x 32" x 11 7/8")
Weight: 4.8 kg



Hydrogen technology demonstration system, designed for extended, unsupervised operation, consisting of PEM electrolyzer, water tanks and PEM fuel cell. Textbook included.

1908-1 Exhibition Set**Specifications**

Electrolyzer: 10 W
Fuel cell: 1.2 W
Solar module: 2.0 V / 1.0 A
Fan: 10 mW
H x W x D: 650 x 800 x 300 mm
(26" x 32" x 11 7/8")
Weight: 5.5 kg



Solar hydrogen technology demonstration system, designed for extended, unsupervised operation, consisting of PEM electrolyzer, water tanks and PEM fuel cell. Accessories such as **Solar Module Premium**, electric load **Fan**, **Cable** and textbook included.

1908-3 Exhibition Drive**Specifications**

Electrolyzer: 10 W
Fuel cell: 1.2 W
Solar module: 2.0 V / 1.0 A
Load: 20 mW
H x W x D: 650 x 800 x 300 mm
(26" x 32" x 11 7/8")
Weight: 6.2 kg



Solar hydrogen technology demonstration system, designed for extended, unsupervised operation, consisting of PEM electrolyzer, water tanks and PEM fuel cell. Accessories such as **Solar Module Premium**, electric load **Premium Drive**, **Cable** and textbook included.

1908-4 Exhibition Complete**Specifications**

Electrolyzer: 10 W
Fuel cell: 1.2 W
Solar module: 2.0 V / 1.0 A
Power supply: 5.0 VDC / 1.2 A
Spotlight: 300 W
Load: 20 mW
H x W x D: 650 x 800 x 300 mm
(26" x 32" x 11 7/8")
Weight: 7.3 kg

Solar hydrogen technology demonstration system, designed for extended, unsupervised operation, consisting of PEM electrolyzer, water tanks and PEM fuel cell. Accessories such as **Videolight**, **Solar Module Premium**, electric load **Premium Drive**, **PowerSupply**, **Cable** and textbook included.



1909 Solar Hydrogen Set



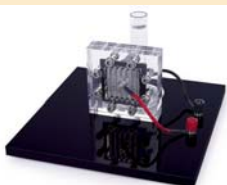
Specifications

Electrolyzer: 4 W
Fuel cell: 1.2 W
Gas storage: 80 cm³ H₂; 80 cm³ O₂
Solar module: 2.0 V / 1.0 A
Fan: 10 mW
Power supply: 1.2 A
Cable: 50 cm
Videolight: 300 W
H x W x D: 425 x 530 x 210 mm
 (17" x 21" x 8 1/4")
Weight: 7.6 kg

Portable solar hydrogen system, consisting of **Electrolyzer, Fuel Cell, Solar Module Premium**, electric load **Fan, Cable**, lamp **Videolight** and **PowerSupply** in a carrying case. Textbook included.



1926 DMFC



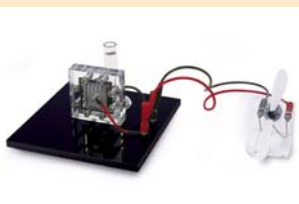
Specifications

Power: 50 mW
H x W x D: 115 x 200 x 200 mm
 (4 1/2" x 7 7/8" x 7 7/8")
Weight: 720 g



Direct methanol fuel cell, with methanol tank, mounted on a black base plate. Operated with 3 % of methanol in distilled water solution. Methanol solution not included. Textbook included.

1926-1 DMFC Set



Specifications

Power: 50 mW
Fan: 10 mW
H x W x D: 115 x 200 x 200 mm
 (4 1/2" x 7 7/8" x 7 7/8")
Weight: 835 g



Direct methanol fuel cell, with methanol tank, mounted on a black base plate. Operated with 3 % of methanol in distilled water solution. Methanol solution not included. Accessories such as electric load **Fan, Cable** and textbook included.

1926-2 DMFC Drive



Specifications

Power: 50 mW
Load: 20 mW
H x W x D: 115 x 200 x 200 mm
 (4 1/2" x 7 7/8" x 7 7/8")
Weight: 1.5 kg

Direct methanol fuel cell, with methanol tank, mounted on a black base plate. Accessories such as electric load **Premium Drive, Cable** and textbook included.



1910 Electrolyzer



Specifications

Power: 4 W
Gas storage: 80 cm³ H₂; 80 cm³ O₂
Hydrogen production: 17.2 cm³/min
Oxygen production: 8.6 cm³/min
H x W x D: 390 x 200 x 130 mm
 (15 3/8" x 7 7/8" x 5 1/8")
Weight: 850 g

PEM electrolyzer for hydrogen and oxygen production. Includes water tanks as well as oxygen and hydrogen storage tanks. Mounted on a black base plate.

1911 Fuel Cell



Specifications

Power: 1.2 W
H x W x D: 105 x 200 x 130 mm
 (4" x 7 7/8" x 5 1/8")
Weight: 550 g

PEM fuel cell for hydrogen/oxygen operation, mounted on a black base plate.

Accessories Premium Product Range

1913 Solar Module Premium



Specifications

Power: 2.0 V / 1.0 A
H x W x D: 70 x 150 x 270 mm
 (2 3/4" x 6" x 10 5/8")
Weight: 550 g

3-panel solar module, to be used as power supply for **Premium** and **Eco** electrolyzers.

1931 Videolight



Specifications

Power: 300 W
H x W x D: 380 x 260 x 260 mm
 (15" x 10 1/4" x 10 1/4")
Weight: 1.0 kg

Halogen lamp on a tripod, for operation with **Solar Module HyRunner GT, Hydrogen Gas Station 2** und **Solar Module Premium**.

1933 PowerSupply



Specifications

Input: 100 - 240 V, 50 - 60 Hz
Output: 5.0 VDC / 1.2 A
Weight: 110 g

Power supply for **Premium** and **Eco** electrolyzers.

1914 Fan



Specifications

Power: 10 mW
H x W x D: 130 x 60 x 95 mm
 (5 1/8" x 2 3/8" x 3 3/4")
Weight: 65 g

Electric fan, to be used as load for **Premium** and **Eco** fuel cells.

1915 Premium Drive**Specifications**

Power: 20 mW
 H x W x D: 110 x 225 x 225 mm
 (43/8" x 87/8" x 87/8")
 Weight: 750 g

Model of an electric motor drive for vehicles. This wheel hub motor can be used as a load for **Premium** fuel cells.

1965 Cable red**Specifications**

Plug: 4 mm
 Length: 50 cm (20")

Red connector cable.

1966 Cable black**Specifications**

Plug: 4 mm
 Length: 50 cm (20")

Black connector cable.

1949 Decade Resistor**Specifications**

Max. capacity: 1 W
 Ports: 4 mm
 H x W x D: 40 x 160 x 130 mm
 (19/16" x 65/16" x 51/8")
 Weight: 210 g

Decade resistor for **Premium** and **Eco** products.

1948 Multimeter**Specifications**

Ports: 4 mm
 H x W x D: 125 x 70 x 30 mm
 (5" x 23/4" x 13/16")
 Weight: 140 g

Digital multimeter for **Premium**, **Eco** and **StaXX** products.

1950 Fuel Cell Monitor**Specifications**

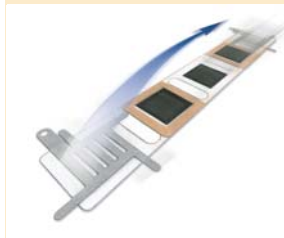
Power: $U = 0 - 10$ VDC
 $I = 0 - 5$ A
 $P_{max} = 5$ W
 Ports: 2 and 4 mm
 USB Cable: 180 cm A/B (70")
 H x W x D: 40 x 160 x 100 mm
 (19/16" x 65/16" x 4")
 Weight: 235 g

External measuring transformer card for measuring and recording the characteristics of h-tec fuel cell models. Connects to a PC via USB cable. Supplied software allows you to plot voltage-current, power-voltage, power-current, and power-time characteristics. Recording can be done manually, automatically, at certain voltage or current points or at MPP. Data recording as Excel file. Minimum system requirements: PC with Windows operating system Win98, ME, 2000, NT or XP, 100 MB free space on HD, Pentium 1, 100MHz, or faster, USB port. Recommended: MS Excel (for individualized data plotting). **Package includes:** measuring transformer card, USB cable, software, set of cables.

Fuel Cell Mini Product Range**1001** Fuel Cell Mini**Specifications**

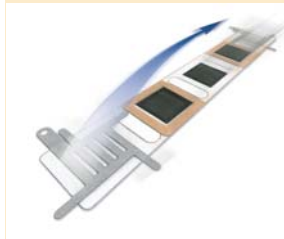
Power: 20 mW
 H x W x D: 30 x 20 x 2 mm
 (13/16" x 3/4" x 1/8")
 Weight: 9 g

PEM fuel cell, can easily be assembled by folding, for hydrogen/air operation.

1001-10 Fuel Cell Mini 10 or more**Specifications**

Power: 20 mW
 H x W x D: 30 x 20 x 2 mm
 (13/16" x 3/4" x 1/8")
 Weight: 9 g

PEM fuel cell, can easily be assembled by folding, for hydrogen/air operation.

1001-20 Fuel Cell Mini 20 or more**Specifications**

Power: 20 mW
 H x W x D: 30 x 20 x 2 mm
 (13/16" x 3/4" x 1/8")
 Weight: 9 g

PEM fuel cell, can easily be assembled by folding, for hydrogen/air operation.

Accessories Fuel Cell Mini Product Range**2029** Electrolyzer Basic**Specifications**

Power: 1 W
 H x W x D: 70 x 90 x 70 mm
 (23/4" x 31/2" x 23/4")
 Weight: 108 g

Compact electrolyzer for hydrogen production for **Fuel Cell Mini** and **Fuel Cell Junior H₂/Air**.

2086 Solar Module Basic**Specifications**

Power: 2.0 V / 260 mA
 H x W x D: 63 x 83 x 3 mm
 (21/2" x 31/4" x 1/8")
 Weight: 25 g

Solar module for **HyRunner** and **Junior** electrolyzers.

2030 Spotlight



Specifications

Power: 75 W
 H x W x D: 490 x 260 x 260 mm
 (19 3/8" x 10 1/4" x 10 1/4")
 Weight: 3.4 kg

Halogen lamp for operation with **Solar Module Basic**, **Solar Module Junior**, **Solar Module Eco**, **Junior Basic**, **Eco Hz/Air** and **Eco Hz/O₂**.

2033 PowerSupply Junior



Specifications

Input: 100 - 240 V, 50 - 60 Hz
 Output: 5.0 VDC / 1.2 A
 Weight: 90 g

Power supply for **HyRunner**, **HyRunner GT** and **Junior** electrolyzers.

1002 Demomotor



Specifications

Power: 10 mW
 H x ø: 26 x 30 mm
 (1" x 1 3/16")
 Weight: 40 g

Motor, cables with alligator clamps, demo disc; suitable for **Fuel Cell Mini**.

Desktop Models

2016 DT Rotating

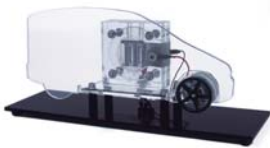


Specifications

Power: 10 mW
 H x W x D: 100 x 100 x 100 mm
 (4" x 4" x 4")
 Weight: 190 g

Desktop model with direct methanol fuel cell, operated with 3 % of methanol in distilled water solution. Methanol solution not included.

2017 DT Car



Specifications

Power: 10 mW
 H x W x D: 90 x 200 x 64 mm
 (3 1/2" x 7 7/8" x 2 1/2")
 Weight: 190 g

Desktop model with direct methanol fuel cell, operated with 3 % of methanol in distilled water solution. Methanol solution not included.

2018 DT Fan



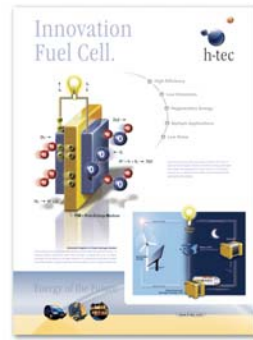
Specifications

Power: 10 mW
 H x W x D: 140 x 100 x 40 mm
 (5 1/2" x 4" x 1 9/16")
 Weight: 110 g

Desktop model with direct methanol fuel cell, operated with 3 % of methanol in distilled water solution. Methanol solution not included.

Media

2063 Poster Innovation Fuel Cell



Specifications

H x W: 594 x 420 mm (DIN A2)
 (23 3/8" x 16 1/2")

This poster explains how a PEM fuel cell works and describes the role of hydrogen as energy carrier in a solar hydrogen energy system.

2065 MediaPack



Specifications

Poster:

H x W: 594 x 420 mm (DIN A2)
 (23 3/8" x 16 1/2")

Transparencies:

H x W: 297 x 210 mm (DIN A4)
 (11 3/4" x 8 1/4")

12 Transparencies Fuel Cell, 1 **Poster Innovation Fuel Cell** and CD-ROM. The transparencies Fuel Cell and the CD-ROM cover the topics fuel cell, hydrogen technology and renewable energy.

2066 FC Book



Available as of
 Dezember 2004.

Comprehensive introduction to solar hydrogen and fuel cell technology. Lab manual for student experiments on solar cells, electrolysis and fuel cells. Work sheets for students and teachers.



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