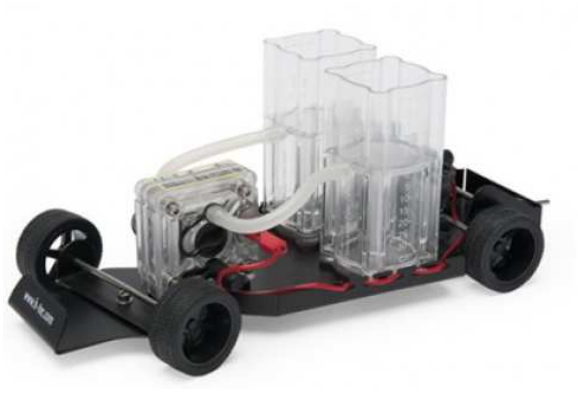
H-TEC EDUCATION

Tutorial HyRunner Kit T207



The Tutorial HyRunner Kit T207 helps you explore the innovative world of hydrogen powered car models. The kit is equipped with a Reversible PEM Fuel Cell to combine hydrogen and oxygen and produce electrical energy to power the motor. The hydrogen is supplied from a solar hydrogen gas station where the reversible fuel cell is run in electrolysis mode (in combination with the solar panel and de-ionized water) and splits water into hydrogen and oxygen. The gases are than stored for use in the storage cylinders where they are later transferred to the car and supplied back into the reversible fuel cell so it can be ran in fuel cell mode to power the car. The typical running time of the car is 8 minutes. The charging time depends on which method is used (with the Solar Module Tutorial under sunlight: 9 minutes).

About the Reversible Fuel Cell:

The reversible H_2/O_2/Air fuel cell included in the HyRunner Kit can be operated in three different modes:
(1) Electrolyzer Mode: uses external voltage to produce Hydrogen and Oxygen
(2) H_2/O_2 Fuel Cell Mode: uses pure Hydrogen and Oxygen to produce electricity
(3) H_2/Air Fuel Cell Mode: uses pure Hydrogen and Atmospheric Oxygen (also known as air) to produce electricity

Includes:

- Reversible Fuel Cell Hydrogen/Oxygen/Air
- Storage 30 (2x)
- Solar Module Tutorial
- Vehicle Plate and accessories
- Fuel Cell Technology Book

Experiments possible with the Tutorial HyRunner Kit T207:

- Building a model hydrogen car
- Producing and storing hydrogen and oxygen
- Determining characteristic curve of solar panel
- Hydrogen/oxygen or hydrogen/air operation
- Determining characteristic curve of electrolyzer
- Determining electrolyzer efficiency
- Learning about Faraday's laws
- Determining characteristic curves of fuel cell
- Determining fuel cell efficiency
- Determining decomposition voltage of water

For the blue experiments listed above you will also need the **Measurement Set.**