

**FCJJ-37**



**FCJJ-24**

### HORIZON ENERGY MONITOR

This ideal accessory to FCJJ-34 feeds live experiment data to your PC to be displayed as graphical data.

## PRODUCT DESCRIPTION

The Renewable Energy Science Kit demonstrates the workings of a clean energy technology system on a miniature scale. Power an electrical circuit by solar panel or a wind turbine with profiled blades based on NASA aeronautics. Generate hydrogen through water electrolysis and convert it into electricity using a PEM fuel cell. Whichever combination of technologies you want to explore, this science kit is a comprehensive introduction to the principles behind renewable microgrids.

## FEATURES

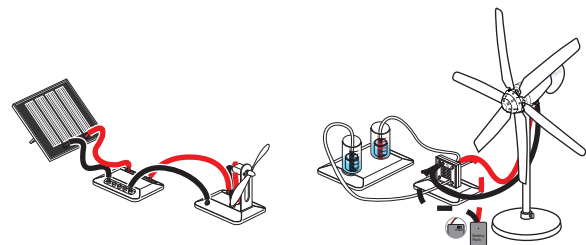


- ✓ Small-scale wind turbine, solar cell, fuel cell, electrolyzer and more.
- ✓ Enough hardware, software and curriculum content for groupwork - up to 4 or 5 students.
- ✓ Recommended age groups- K 6-12

## LANGUAGE PACK

- ✓ Assembly Guide :
- ✓ Technical Support Guide:

## EXPERIMENTS & ACTIVITIES



### ✓ Solar Energy Experiments

1. The Effect of Heat on Solar Panels
2. The Effect of Shade on Solar Panels
3. The Effect of Tilt Angle on Solar Panels
4. Finding the Solar Panel's Maximum Power Point

### ✓ Energy from Hydrogen Experiments

1. Electrolysis Mode Generating H<sub>2</sub> and O<sub>2</sub>
2. Fuel Cell Mode Generating Electricity from H<sub>2</sub> and O<sub>2</sub>
3. Determining the Minimum Water Decomposition Voltage
4. Polarization States for Hydrogen Fuel Cells

### ✓ Wind Energy Experiments

1. How Many Blades Are Best - 1, 2, 3 ... More?
2. Using Three Different Curved Blade Shapes
3. Using Blades You Make Yourself
4. Turbine Efficiencies
5. Measuring RPM
6. Tuning For Maximum Power
7. How Blade Angle or Pitch Affects Output Power
8. To Generate Hydrogen



## KIT CONTENT

- ✓ Wind turbine body
- ✓ Rotor head for profiled blades
- ✓ 9 profiled blades for turbine
- ✓ Rotor head adapter for sheet blades
- ✓ 3 polypropylene sheet blades for turbine
- ✓ Rotor unlocking tool
- ✓ Turbine Support base
- ✓ Aluminum wind turbine post
- ✓ PEM Electrolyzer
- ✓ PEM Electrolyzer base
- ✓ PEM Fuel cell
- ✓ PEM Fuel cell base
- ✓ Hydrogen tank
- ✓ Oxygen tank
- ✓ Inner Gas containers
- ✓ Circuit board module base
- ✓ 100 ohm Variable Resistor module
- ✓ 1 Watt Solar panel
- ✓ Adaptors, tubing clincher & purging valve
- ✓ Assembly instructions
- ✓ CD with curriculum manuals
- ✓ Water/gas tank module base
- ✓ Flexible 2mm banana connecting leads
- ✓ Transparent silicon tubing
- ✓ Plastic plug pins for electrolyzer
- ✓ Battery pack with connecting leads
- ✓ Syringe

## CERTIFICATION

CoC, EN71:PART1;PART2;PART3, ASTM,CA, CPSIA\_LEAD, CPSIA\_PHTH, EN62115, PHTH-EU, REACH, ROHS

## PACKING INFORMATION

<b>Case Pack Quantity</b> (units):	1
<b>Master Pack Quantity</b> (units):	6
<b>Packaging Type:</b>	cardboard
<b>20' Container</b> (units):	1380
<b>40' Container</b> (units):	3240
<b>Unit Box Length</b> (cm/in) :	44 / 17.32
<b>Unit Box Width</b> (cm/in):	33 / 12.99
<b>Unit Box Height</b> (cm/in):	11 / 4.33
<b>Unit Volume</b> (Cubic Meters/Litres):	0.016 / 15.97
<b>Unit Box Weight</b> (kg/lbs) :	2.056 / 4.52
<b>Case Pack Length</b> (cm/in):	62 / 24.41
<b>Case Pack Width</b> ( cm/in):	44 / 17.32
<b>Case Pack Height</b> (cm/in):	35 / 13.78
<b>Case Pack Volume</b> (Cubic Meters/Litres):	0.095 / 95.48
<b>Case Pack Weight</b> (kg/lbs):	13.93 / 30.65

\*The cartons' size may vary between ± 1-2 cm.

## LOGISTICS INFORMATION

<b>Item UPC-Code:</b>	6942503401004
<b>Item HS-Code:</b>	
<b>Manufactured in:</b>	Shanghai, China
<b>Local Warehouse:</b>	Prague, Czech Republic Los Angeles, USA
<b>First Ship Date:</b>	available now
<b>Minimum Order:</b>	1