EF SERIES

RENEWABLE ENERGY Renewable Energy – EF-6.7

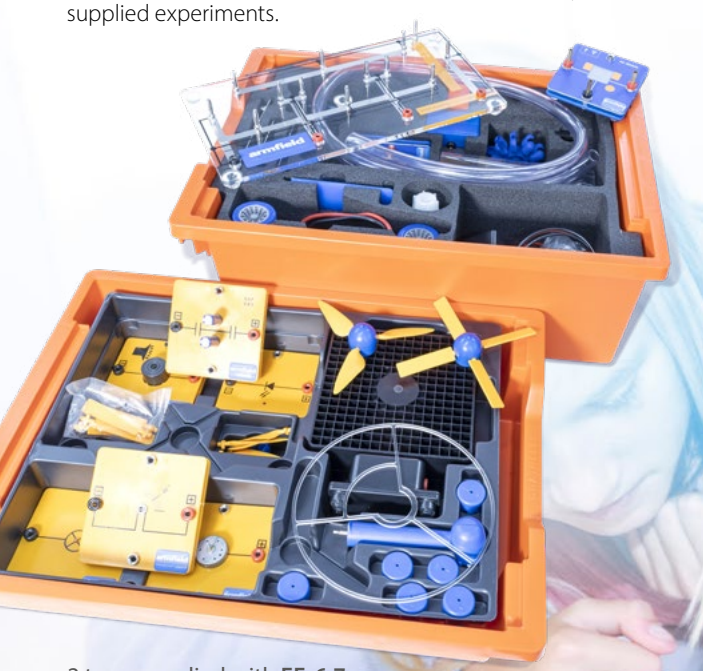
The Engineering Fundamentals renewable energy range is designed specifically for the High school and Technical college curriculums.

The equipment prepares students via practice-oriented experiments relating to the theory and practical implementation of renewable energies.

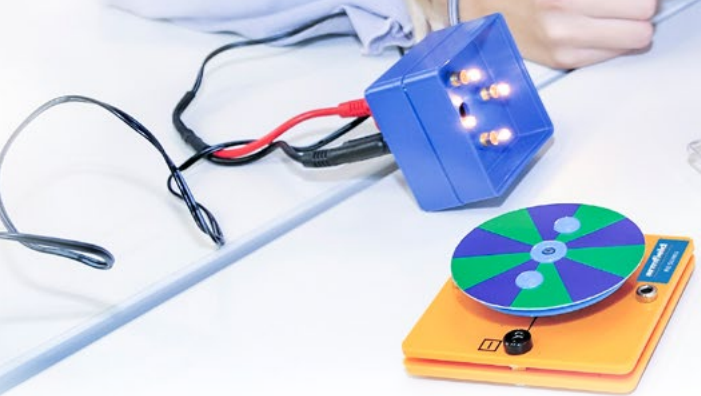
The modular tray based kit is supplied with a plug and play base unit which allows the students to create a variety of supplied experiments.

INTRODUCES STUDENTS TO THE FUNDAMENTALS OF RENEWABLE ENERGY TECHNOLOGY

"The EF-6.7 Renewable Energies kit has been specifically adapted for basic introduction to photovoltaic, wind power, hydro power, battery and fuel cells technology."



2 trays supplied with **EF-6.7**



Features / benefits

- Tray based solution that can be easily stored in the EF-WS workstation
- Simple plug and play operation
- Includes fundaments of basic electronic circuits
- Supplied with comprehensive teachers and students manual
- Basic experiments with solar, wind, water power, battery and fuel cell technology combined in one product

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USA office - email: info@armfield.inc tel: +1 (609) 208-2800 (USA only)

Issue: 1
URL: http://www.armfield.co.uk/ef
Applications: ME ChE CE IP

Experimental content

- Forms of energy and consumers
- Basic structure: rotation discs
- Colour qualities
- Mixing colours
- Colour-deception with the Benham-disk
- Relief-disk
- Dependence of power of a solar cell on its area
- Dependence of solar cell power on angle of incidence of light *(qualitative and quantitative)*
- Dependence of power of a solar cell on the illumination intensity
- Dependence of solar cell power on load
- The I-V-characteristics and filling factor of a solar cell
- Dependence of I-V-characteristics of a solar cell on illumination
- Influence of wind speed on the wind turbine
- Start-up wind speed at a wind turbine
- Changing the turbine voltage by connecting several consumers
- Characteristic curves of a wind turbine
- Influence of the number of rotor blades (qualitative and quantitative)
- Influence of the wind direction (qualitative and quantitative)
- Influence of the rotor blade pitch (qualitative and quantitative)
- Influence of the rotor blade pitch (quantitative)
- Influence of the rotor blade shape
- Water as an energy source (qualitative and quantitative)
- Influence of the water falling height (qualitative)
- Influence of the water falling height (qualitative and quantitative)
- Characteristic curve of the electrolyzer
- Characteristic curve of the fuel cell
- Operation of the electric car with the reversible fuel cell

Requirements

1Ph

Scale

Experiment tray scale

Electrical supply: 110-230V AC 50-60Hz

- Level and stable work surface

Related products

- **EF-6.1:** Engineering Fundamentals - Photovoltaic Energy
- **EF-6.2:** Engineering Fundamentals - Wind Energy
- **EF-6.3:** Engineering Fundamentals - Anemometer
- **EF-6.4:** Engineering Fundamentals - Hydrogen Fuel Cell Technology
- **EF-6.5:** Engineering Fundamentals - Biomass Fuel Technology
- **EF-6.6:** Engineering Fundamentals - Battery Technology
- **EF-6.8:** Accessories Kit

Overall dimensions

Tray	
Length	0.435m
Width	0.315m
Height	0.15m
Packed and crated shipping specifications	
Volume	0.021m^3
Gross weight	4.0Kg

Related curriculums

- Physics
- Chemistry
- Electrical Engineering
- Renewable Energies

Essential accessories / equipment

- **EF-6.8** Accessories Kit

Recommended accessories / equipment:

- **EF-WS** Engineering Fundamentals Work Station

Ordering specification

- 1 x Solar module 0.5V, 840mA
- 1 x Solar module 1.5V, 280mA
- 1 x Base unit large
- 1 x Lighting module
- 1 x Potentiometer module
- 1 x Buzzer module
- 1 x Light bulb module
- 1 x Motor module without gear
- 1 x Colour discs - Set 1
- 1 x Solar cell cover set (4 pieces)
- 1 x Solar module 2.5V, 420mA
- 1 x Capacitor module 5.0F/5.4V
- 1 x LED-module 2mA, red
- 1 x Wind rotor set
- 1 x Wind machine
- 1 x Wind rotor set (assembled)
- 1 x Wind turbine module
- 1 x Distilled water (100ml)
- 1 x Electric model car
- 1 x Water wheel module
- 1 x AV-Module
- 1 x Power module
- 1 x Silicone tube 12mm
- 1 x Test lead black 25cm
- 1 x Test lead red 25cm
- 2 x Test lead black 50cm
- 1 x Test lead red 50cm
- 1 x Reversible fuel cell

Operational conditions

- Storage Temperature: -10°C to +70°C
- Operating temperature range: +10°C to +50°C
- Operating relative humidity range: 0 to 95%, non-condensing

Ordering codes

- **EF-6.7** Engineering Fundamentals - Renewable Energy
- **EF-6.8** Accessories Kit
- **EF-WS** Engineering Fundamentals Work Station

Armfield standard warranty applies with this product