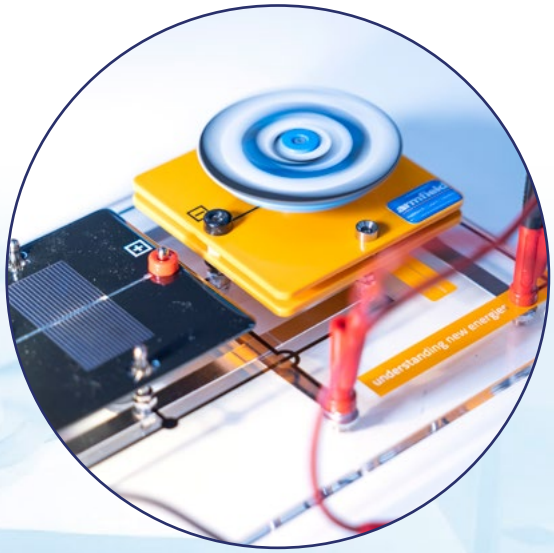
EF SERIES

RENEWABLE ENERGY Photovoltaic Energy – EF-6.1

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.

INTRODUCES STUDENTS TO THE FUNDAMENTALS OF PHOTOVOLTAIC ENERGY



"EF-6.1 Photovoltiac Energy kit covers the principles of Photovoltaics (PV) and the direct conversion of light into electrical energy through solar cells.

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."

1 tray supplied with **EF-6.1**

Features / benefits

- Tray based solution that can be easily stored in the EF-WS workstation
- Simple plug and play operation
- Specifically designed to bridge theoretical physics with practical experimentation in photovoltaic cells
- Includes qualitative and quantitative experiments
- Includes fundaments of basic electronic circuits
- Supplied with comprehensive teachers and students manual
- Supplied with highly efficient solar cells with excellent low light behaviour

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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

- Power dependence on the area of the solar cell
- Power dependence on the angle of incidence
- Power dependence on the level of illumination
- Power dependence on the frequency of the incident light
- Dependence of the solar cell power on temperature
- Determination of efficiency ratio of energy conversion
- Internal resistance of solar cells
- Dark characteristic curve of solar cell
- Inhibiting and conducting direction in illumination and darkness
- IV characteristic and fill factor of the solar cell
- IV characteristic of the solar cell in dependence on the level of illumination
- Shading of solar cells in series connection
- Shading effect of solar cells in parallel connection
- The solar cell as a transmission measure

Requirements

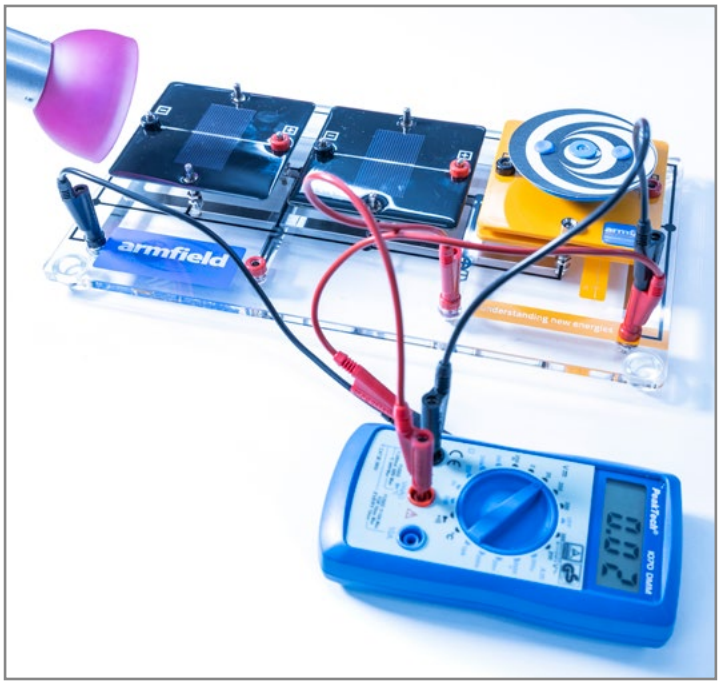
1Ph

Scale

Experiment tray scale

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

- Level and stable work surface



Overall dimensions

Tray	
Length	0.435m
Width	0.315m
Height	0.15m
Packed and crated shipping specifications	
Volume	0.021m³
Gross weight	2.5Kg

Related curriculums

- Physics
- Electrical Engineering
- Renewable Energies

Essential accessories / equipment

- **EF-6.8** Accessories Kit

Recommended accessories / equipment:

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

Ordering specification

- 3 x Solar module 0.5V, 420 mA
- 1 x Solar module 0.5V, 840 mA
- 1 x Solar module 1.5V, 280 mA
- 1 x Base unit large
- 1 x Lighting module
- 1 x Diode module
- 1 x Resistor module
- 1 x Potentiometer module
- 1 x Gear motor module
- 1 x Buzzer module
- 1 x Motor module without gear
- 1 x Colour discs - Set 1
- 1 x Solar cell cover set (4 pieces)
- 1 x Colour filters
- 1 x Box 1103
- 1 x Capacitor module 220 mF, 2.5V
- 1 x Layout diagram
- 1 x Info sheet initial start-up
- 1 x Manual

Related products

- **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-6.7:** Engineering Fundamentals - Renewable Energy
- **EF-6.8:** Accessories Kit

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-6.1** Engineering Fundamentals - Photovoltaic Energy
- **EF-6.8** Accessories Kit
- **EF-WS** Engineering Fundamentals Work Station

Armfield standard warranty applies with this product