RENEWABLE ENERGIES

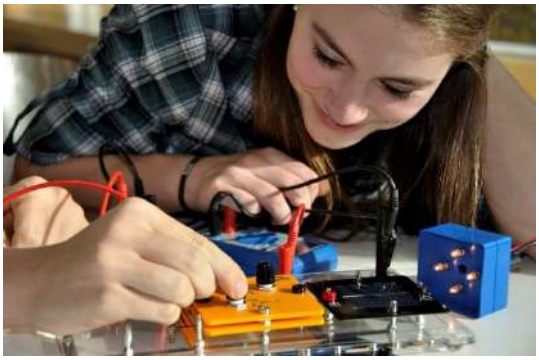
DL SOLAR-L

Solar photovoltaic energy

The kit DL SOLAR-L allows correlating school physics with practical usage of the photovoltaic cells. The system has been conceived in such a way that most experiments can be conducted in normal room lighting. An external current is not necessary for these experiments. The lighting module (included) is required only for a few experiments, which can be operated with a students' power supply.

COMPONENTS

- 3x Solar panel 0.5 V, 420 mA
- 1x Solar panel 0,5 V, 840 mA
- 1x Solar panel 1,5 V, 280 mA
- 1x Base unit
- 1x Lighting module
- 1x Diode module
- 1x Resistor module
- 1x Potentiometer module
- 1x Gear motor module
- 1x Buzzer module
- 1x Motor module without gear
- 1x Colour filter
- 1x Capacitor module
- 1x Solar cell cover set (4 pieces)
- 1x CD with manuals
- 1x Lid for tray
- 1x AV-module
- 1x Power module
- 1x Power supply
- 2x Test lead - black 25 cm
- 2x Test lead - red 25 cm
- 1x Thermometer



EXPERIMENTS

Series and parallel connection of solar cells
Dependence of the power of the solar cell on its area
Dependence of the solar cell power on the angle of incident of the light
Dependence of the solar cell power on the illumination intensity
Dependence of the on-load power on the illumination intensity
Efficiency of an energy conversion
Dependence of the internal resistance on the illumination intensity
Diodes character of the solar cell: I-V-characteristics under dark conditions, reverse and forward biasing in the dark and under illumination
I-V-characteristics, MPP and filling factor of the solar cell
Dependence of the I-V-characteristics on the illumination intensity and of the solar cell on the temperature
Dependence of the power of the solar cell on the temperature
Shading of series-connected and parallel-connected solar cells
Dependence of the solar cell power on the frequency of the incident light
Working with the plugging module
Comparing series and parallel connected solar cells with the buzzer module and light bulbe
Comparing series and parallel connected lamps
Direct comparison of series and parallel connection of the light bulbs
Direction of rotation and speed of the motor
Differences in brightness
Tilting of the solar cell
Diffuse,direct e albedo radiation
Basic structure: rotating disks
Color qualities
Mixing colors
Color-deception with the Benham-disk
Relief-disk
Centrifugal force