



Product datasheet (en)

Version: 1130_10.11.2015

Photo:

Name:

leXsolar-PV Basic

Item number:

1130

Youtube link:

Area of application:

Dimensions (cm x cm x cm):

Physics
Chemistry
Technology Training

Weight (kg):

User group:

Middle School / Junior High School

Key facts:

Understanding how a solar cell works by playing and interacting with it
Qualitative and quantitative experiments with solar cells
Specially designed for primary and Junior High School
High quality and durable components

List of components:

- 1 x 1100-02 Solar module 0.5 V, 840 mA
- 1 x 1100-07 Solar module 1.5 V, 280 mA
- 1 x 1100-20 Lighting module
- 1 x 1100-25 Buzzer module
- 1 x 1100-27 Motor module without gear
- 1 x 1100-28 Color discs - Set 1
- 1 x 1100-29 Solar cell cover set (4 pieces)
- 1 x 1130-01 Carton 1130
- 1 x L3-01-176 Insert PV Basic 1130
- 1 x L3-03-202 Layout diagram PV Basic 1130
- 1 x L3-03-258 Info sheet initial startup

Extras needed:

- 1 x 2030 leXsolar-Minikit Basic
- 1 x 2031 leXsolar-Kit Basic

Extras available:

No extras available.

Description:

What is a solar cell and what is a solar panel? What can be powered with a solar cell? How should you align the solar cell to the sun? These questions and many more can be answered using leXsolar-PV Basic. All experiments are designed in a qualitative way and are specifically adapted for young students in Elementary School as well as Junior High School. For using this product you additionally need the leXsolar-Minikit Basic in primary school and the leXsolar-Kit Basic in Junior High School, each of which contains all necessary accessories.

Experiments:

- The solar cell as energy source
- The solar cell powers the motor
- The solar cell powers the buzzer
- Difference between solar cells and solar panels
- The larger the solar cell, the....?
- Orientation of the solar cell
- How much light does a solar cell need?
- Shading effect of solar panels
- Color mixtures and optical illusions
- Series and parallel connection with solar cells
- Power dependence on the area of the solar cell

Power dependence on the angle of incidence
Power dependence on the level of illumination
Internal resistance of solar cells
IV characteristic and fill factor of the solar cell
Power dependence on temperature

Specifications of components:

1100-02 Solar module 0.5 V, 840 mA:
solar module with high efficiency polycrystalline solar cell
0.5 V open circuit voltage
840 mA short circuit current
0.4 Wp peak power
Optimized low light behaviour
Solar cell size 52 mm x 52 mm
Layout: plug-in module with 4 mm jacks
Grid-dimension of the jacks: 70 mm
Module size: 85 mm x 85 mm

1100-07 Solar module 1.5 V, 280 mA:
Solar module with 3 high efficiency polycrystalline solar cells
1.5 V open circuit voltage
280 mA short circuit current
0.13 Wp peak power
Optimized low light behaviour
Solar cell size 3 pcs. 17 mm x 52 mm
Layout: plug-in module with 4 mm jacks
Grid-dimension of the jacks: 70 mm
Module size: 85 mm x 85 mm

1100-20 Lighting module:
Light source for illuminating leXsolar solar modules with defined intensity
Operating voltage: 0 - 12 V
Maximum power 4 W
Maximum illumination intensity on the solar cell: 200 W/m²
Aperture of the light source: 60 mm x 60 mm
Can be used to heat the solar cell to measure its temperature dependence
Connection: 4 mm-jacks
Includes 4 pcs. E5.5 bulbs

1100-25 Buzzer module:
Plug-in Module with piezo buzzer
Pulse tone buzzer
Initial voltage: 0.7 V
Initial current: 0.2 mA
Layout: plug-in module with 4 mm jacks
Grid-dimension of the jacks: 70 mm
Module size: 85 mm x 85 mm

1100-27 Motor module without gear:
Plug-in module with DC-motor
Initial current: 20 mA

Initial voltage: 0.35 V
Equipped with automatic fuse protecting from overvoltage
Layout: plug-in module with 4 mm jacks
Grid-dimension of the jacks: 70 mm
Module size: 85 mm x 85 mm

1100-28 Color discs - Set 1:
Color discs for demonstration of color mixture and optical illusions
Contains a mount with 2 clips for attaching the discs
Mount fits axles of 2mm diameter
Included color discs:
Red-green-blue
Red-blue
Red-green
blue-green
Hue disc
Optical illusion: relief
Optical illusion: color formation
Stroboscope disc

1100-29 Solar cell cover set (4 pieces):
4 black plastic plates
Opaque
30 mm x 30 mm
For shadowing solar cells

1130-01 Carton 1130:

L3-01-176 Insert PV Basic 1130:

L3-03-202 Layout diagram PV Basic 1130:

L3-03-258 Info sheet initial startup:

Specifications extras needed:

2030 leXsolar-Minikit Basic:
For experimenting with the leXsolar basics in elementary school you need the leXsolar-Minikit Basic. It contains a small base unit, cables and short circuit plugs to connect the modules. With a hand crank generator the students produce electrical energy for the experiments themselves. Thus, no extra electrical connection or voltage source is needed.

2031 leXsolar-Kit Basic:
For quantitative experiments with the leXsolar-Basics in Junior High School you need the leXsolar-Kit Basic. With the enclosed Smart Control components, an innovative measuring and control system is available: The power module is the most compact power supply for experiments on the market and the AV module makes voltage and current measurements as



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simple as possible. A potentiometer, the basic unit and cables complete the product.

Specifications extras available:

No extras available.