

Product datasheet (en)

Version: 2031\_18.02.2016

Photo:

Name:

leXsolar-Kit Basic

Item number:

2031

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:

Necessary accessory for experimenting with the leXsolar-Basics  
Adapted to the requirements of Junior High School  
Mainly quantitative experiments

List of components:

1 x 1100-19 leXsolar-Base unit Large  
1 x 1100-23 Potentiometer module

1 x 9100-03 AV-Modul  
1 x 9100-05 PowerModul  
1 x 2031-01 Carton 2031  
1 x L2-06-012 Test lead black 25 cm  
1 x L2-06-013 Test lead red 25 cm  
1 x L2-06-014 Test lead black 50 cm  
1 x L2-06-015 Test lead red 50 cm  
1 x L3-01-181 Insert Kit Basic 2031  
1 x L3-03-212 Layout diagram Kit Basic 2031  
1 x L3-03-258 Info sheet initial startup

#### Extras needed:

No extras needed, all included.

#### Extras available:

1130 leXsolar-PV Basic  
1230 leXsolar-H2 Basic  
1430 leXsolar-Wind Basic  
1830 leXsolar-EMobility Basic  
1930 leXsolar-Hydropower Basic

#### Description:

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

#### Experiments:

Mainly quantitative experiments with the leXsolar-Basics

#### Specifications of components:

1100-19 leXsolar-Base unit Large:  
Main board for the leXsolar plug-in system with 3 slots  
Grid-dimension of the plugs: 70 mm  
Enables series and parallel connection of the modules  
Changing between series and parallel connection by turning the modules  
Equipped with 4 additional 4 mm jacks for connecting measuring lines

1100-23 Potentiometer module:  
Plug-in module with adjustable resistance  
Resistance continuously adjustable: 0 - 1.1 kOhm

Maximum current: 1A  
Module contains two potentiometers connected in series (1 x 100 Ohm and 1 x 1 kOhm)  
Allows an exact adjustment of the resistance while having a large resistance range  
Layout: plug-in module with 4mm jacks  
Grid-dimension of the jacks: 70mm  
Module size: 85mmx85mm

#### 9100-03 AV-Modul:

The IV-Module is able to measure current and voltage and therefore replaces conventional multimeters completely. With touch buttons three measurement modes can be selected: current, voltage and combined current-/voltage-measurement.

lexsolar AV-Module is intuitive and easy to use but yet allows precise and professional measurements. A high resolution graphics display shows the measurement values as well as visualizes the measurement modes.

#### Technical specifications:

##### Voltage measurement:

- Range: 0...12 V
- Accuracy: 1mV
- Overvoltage protection >12V

##### Current measurement

- Range: 0...2 A
- Accuracy: 0.1mA (0...199mA) and 1mA (200mA...1A)
- Automatic fuse protection >2A (reactivation with touch button)
- Internal resistance <0.5 Ohm (0...200mA); <0.2 Ohm (200mA...2A)

##### Electrical connection:

- compatible to lexsolar-basic unit
- 4mm-banana plugs

Display: Graphics display resolution 192x192

Power supply: 2 x AA battery or rechargeable

##### Interfaces:

- Display to read the measurement values
- lexsolar USB-Connect\* for direct PC-connection
- lexsolar Wireless-Connect\* for wireless data acquisition

\*available 2015

#### 9100-05 PowerModul:

The PowerModule is a compact, robust and easy-to-use power supply for experiments. The voltage can be varied incrementally in 0.5V steps from 0 to 12V. It supplies up to 24W output power!

With the acoustic feedback during operation and the voltage indicator by LEDs it is simple and intuitive for the user. With only 70g it is the most lightweight power supply of its power class. Due to the design as lexsolar plug-in module it is fully compatible with all lexsolar experiments. However, it can also be used in other setups with standard 4mm-connectors.

With software control\* continuous variable voltages - even time-dependent - can be realized.

Technical data:

Output voltage 0-12V DC  
Maximum current 2A  
Maximum output power 24W  
Automatic overcurrent detection  
Voltage variation in 0.5V steps (manually) or continuous (with software\* via USB-Connect\* or Wireless-Connect\*\*)  
Accuracy: +-0.15V  
Contacts: 4mm standard connectors and compatible to leXsolar main board  
Input voltage 110-230V AC 50-60Hz  
Adaptors for all common sockets included  
Weight: 70g (+180g included wall power supply)

\*available from October 2015

\*\* available from 2016

2031-01 Carton 2031:

L2-06-012 Test lead black 25 cm:

The black test lead is used for the electrical connection of the modules. The cable is directly plugged into the base plate or alternatively directly into the plug connection of the modules. The cables have two different colors to distinguish between the positive and the negative pole. The black cables are plugged into the negative pole.

L2-06-013 Test lead red 25 cm:

The red test lead is used for the electrical connection of the modules. The cable is directly plugged into the base plate or alternatively directly into the plug connection of the modules. The cables have two different colors to distinguish between the positive and the negative pole. The red cables are plugged into the positive pole.

L2-06-014 Test lead black 50 cm:

The black test lead is used for the electrical connection of the modules. The cable is directly plugged into the base plate or alternatively directly into the plug connection of the modules. The cables have two different colors to distinguish between the positive and the negative pole. The black cables are plugged into the negative pole.

L2-06-015 Test lead red 50 cm:

The red test lead is used for the electrical connection of the modules. The cable is directly plugged into the base plate or alternatively directly into the plug connection of the modules. The cables have two different colors to distinguish between the positive and the negative pole. The red cables are plugged into the positive pole.

L3-01-181 Insert Kit Basic 2031:

L3-03-212 Layout diagram Kit Basic 2031:

L3-03-258 Info sheet initial startup:

#### Specifications extras needed:

No extras needed, all inclusive.

#### Specifications extras available:

##### 1130 leXsolar-PV Basic:

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.

##### 1230 leXsolar-H2 Basic:

What is a fuel cell and what does it do? What is an electrolyzer and, using this device, how can water be broken down to its component elements? What can be powered with a fuel cell? These questions and many others can be answered doing the experiments with the leXsolar-H2 Basic. All experiments are designed in a qualitative way for young students from Elementary and Junior High School. The product is equipped with a reversible PEM-fuel cell combining electrolyzer mode and PEM fuel cell mode in one handy and robust unit.

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.

##### 1430 leXsolar-Wind Basic:

leXsolar-Wind Basic is the optimal beginner package for the topic of wind energy. Even for a small price it allows the most important basic experiments regarding wind energy. Thus, various parameters such as number or shape of rotor blades and rotor blade pitch can be studied with the help of the innovative leXsolar-wind rotors. Therefore, the product playfully provides an understanding of the operation of wind turbines.

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.

##### 1830 leXsolar-EMobility Basic:

With leXsolar-EMobility Basic the students experience electric mobility close to the action. The electric model car can rush through the classroom with the supercapacitor or can be powered by the solar module directly from the sun. Thus, leXsolar-EMobility Basic combines storage technologies and an electric vehicle in one experimental kit. Based on illustrative experiments the kit imparts the basic knowledge about those topics. Combined with leXsolar-H2 Basic a fuel cell car can be built.

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.

##### 1930 leXsolar-Hydropower Basic:

leXsolar-Hydropower Basic is the optimal beginner package for the topic of hydroelectric power. By playful experiments, students learn the basic characteristics of a hydropower plant. With the Pelton turbine and the attached hose qualitative and quantitative experiments can be carried out in the classroom but also outdoors.

For using this product you additionally need the leXsolar-Minikit Basic in primary school and the



understanding  
new energies

leXsolar-Kit Basic in Junior High School, each of which contains all necessary accessories.