

STUDENT EXPERIMENT KIT SYSTEM

SOLAR ENERGY



> CONTENTS:

- 1 Halogen Spotlight
- 2 Solar Modules
- 2 Digital Multimeters
- 1 Lux Meter
- 1 Digital Thermometer
- 1 Terminal Board with Resistor Cascade
- 1 Power Adjuster
- 1 Jumper
- 1 Set of Experiment Leads
- 1 Cross Piece
- 1 Support Brace
- 1 Set of Items for Covering Modules
- 1 Case

> CD-ROM CONTAINING ALL DIFFERENT SETS OF INSTRUCTIONS IS INCLUDED!

Large equipment set for carrying out 16 fundamental experiments on solar energy. The basic parameters and properties of solar modules and the aspects which affect their energy efficiency can all be demonstrated by experiment. Contained in a rugged metal case including foam inlay with recesses in the shape of the apparatus. The system allows you to assemble experiments easily and in a compact set-up on or in the lid of the kit's carry case. Includes CD with experiment instructions.

SEK Solar Energy (230 V, 50/60 Hz) 1017732
 SEK Solar Energy (115 V, 50/60 Hz) 1017731

INCLUDES INSTRUCTION FOR 16 EXPERIMENTS ON SOLAR ENERGY:

- Illuminance of various light sources
- Parameters affecting the power generated by a solar module
- Shading of solar modules connected in series
- Effect of shading on the terminal voltage of a solar module
- Effect of illuminance on the open-circuit voltage and short-circuit current for a solar module
- Effect of angle of incidence on the open-circuit voltage and short-circuit current for a solar module
- Open-circuit voltage and short-circuit current for solar modules connected in series and in parallel
- Current-voltage characteristic for a solar module
- Current-voltage characteristic for solar modules in series
- Current-voltage characteristic for solar modules in parallel
- Optimum load resistance when the angle of incidence changes
- How the open-circuit voltage and short-circuit current for a solar module depend on temperature
- How power output from solar modules depends on temperature
- Voltage-current characteristic for illuminated and non-illuminated solar modules *
- Setting up a stand-alone power supply network **
- Energy conversion ***

EQUIPMENT SOLAR ENERGY:

1017732 SEK Solar Energy (230 V, 50/60 Hz)
 or
 1017731 SEK Solar Energy (115 V, 50/60 Hz)

1003312 DC Power Supply 0-20 V (230 V, 50/60 Hz)
 or
 1003311 DC Power Supply 0-20 V (115 V, 50/60 Hz)
 (for experiments marked *)

1017734 Coulombmeter with Rechargeable Battery
 1002811 Digital Stopwatch (for experiments marked **)

1017735 Geared Motor with Pulley
 1018597 Set of Weights 1 g to 500 g, slotted with Holder
 1007112 Experiment Cord
 1002811 Digital Stopwatch (for experiments marked ***)

COULOMBMETER WITH RECHARGEABLE BATTERY

Coulombmeter for measuring the flow of current when storing energy in a rechargeable battery. Charge or consumption can be displayed by means of a voltmeter. Depending on the measuring range selected, 1 Vn the voltmeter corresponds to either 0.1, 1 or 10 ampere seconds (As).

Measuring ranges: 1/10/100 As (max. measurable charge ± 499 As)

Power supply: 9 V rechargeable battery via DC co-axial power socket

Load current: max. 500 mA

Charging current for battery: max. 50 mA

External power source: Solar panel or DC power supply (max. 12 V DC) with current limiting to 50 mA when there is no load on the coulombmeter

Connectors: 4-mm safety sockets

Dimensions: approx. 105x75x45 mm³

Weight: 200 g including rechargeable battery and housing

1017734

GEARED MOTOR WITH PULLEY

The geared motor with string pulley is used in conjunction with the Solar Energy Student Experiment Kit as a load for demonstrating conversion of energy. The motor is mounted on a base plate and has a pulley attached for a string. Power is supplied via 4-mm safety sockets. Weights of up to approximately 1 kg can be lifted.

Power supply: max. 12 V DC

Load current: max. 50 mA

Torque: 0.41 Nm

Speed: 76.1 rpm with no load

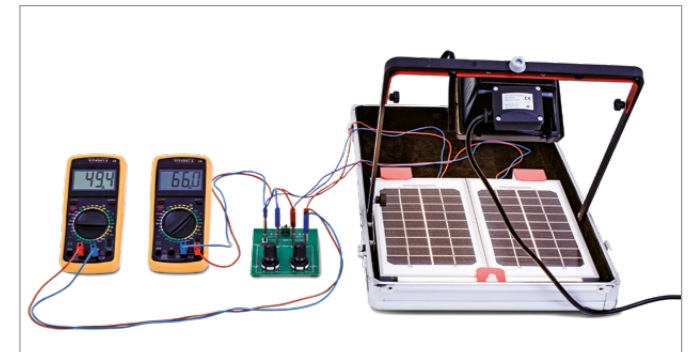
Connectors: 4-mm safety sockets

Dimensions: approx. 105x75x45 mm³

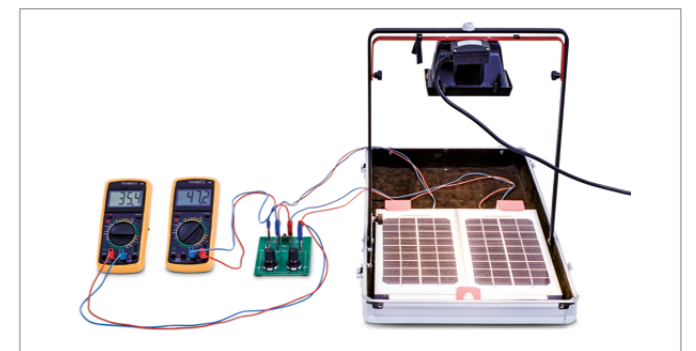
Weight: approx. 220 g

1017735

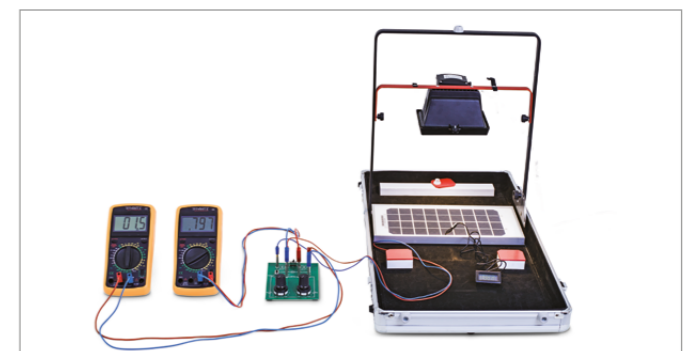
PLEASE ASK FOR QUANTITY DISCOUNTS ON CLASS SETS OF 8 PIECES OR MORE.



Optimum load resistance when the angle of incidence changes



Current-voltage characteristic for solar modules in series



How power output from solar modules depends on temperature