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**Product Name :**

Solar Photovoltaic Professional

**Product Code :**

SLE/PHY/220



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## Description :

Nowadays, a comprehensive understanding of photovoltaics is necessary for a variety of professions in the fields of renewable energies.

For the relevant studies and courses of education, Solar-PV Professional offers the optimal tools for practical courses.

The spectrum of experiments reaches from the physical fundamentals of photovoltaics, to the analysis of the components of PV-Systems, up to the design of complex PV-Systems on a laboratory scale.

The experiments are designed to be equally employed for training of sales representatives, for apprenticeship, in-service training of technicians and PV-installers, as well as form basic education of engineers.

Solar-PV Professional offers experiments for both electrical engineering and photovoltaics.

But the main focus is on laboratory experiments on photovoltaic systems.

Due to the modular setup, the very detailed specific characteristics of single components can be analyzed, such as the switching threshold of series or shunt regulators.

Because of the integrated manual mode, the included MPP tracker enables a descriptive understanding of the really important principle of the MPP tracking.

With the help of the PWM regulator the principle of pulse width modulated charging can be demonstrated.

A radio, which can be powered to the solar panel, helps to increase the attentiveness of students.

In addition, an inverter displays the generation of alternating current out of a solar panel current.

The product is completed through a variety of different electrical consumers such as a superbright LED or a light bulb, which can be used to compare their efficiency.

### Electrical engineering basic experiments :

Measurement of voltage current, and power Ohm's law

Parallel connection of resistors (current divider)

Series connection of resistors (voltage divider)

### Photovoltaic basic experiments :

Characteristic curve of solar modules

Dark characteristic curve of solar cells

Dependence of the I-V-characteristics of solar cells on level of illumination

Dependence of the I-V-characteristics of solar cells on temperature

Series and parallel connection of solar cells

Power dependence on the surface area of the solar cell

Power dependence on the angle of incidence

Power dependence on level of illumination

Power dependence on level of illumination under load

Internal resistance dependence on level of illumination

Shading effect on solar cells

I-V-characteristics, MPP and fill factor of solar cells

I-V-characteristics of partly shaded solar modules

Temperature coefficient of solar cells

### Photovoltaic

Components

Possible op

Comparison

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