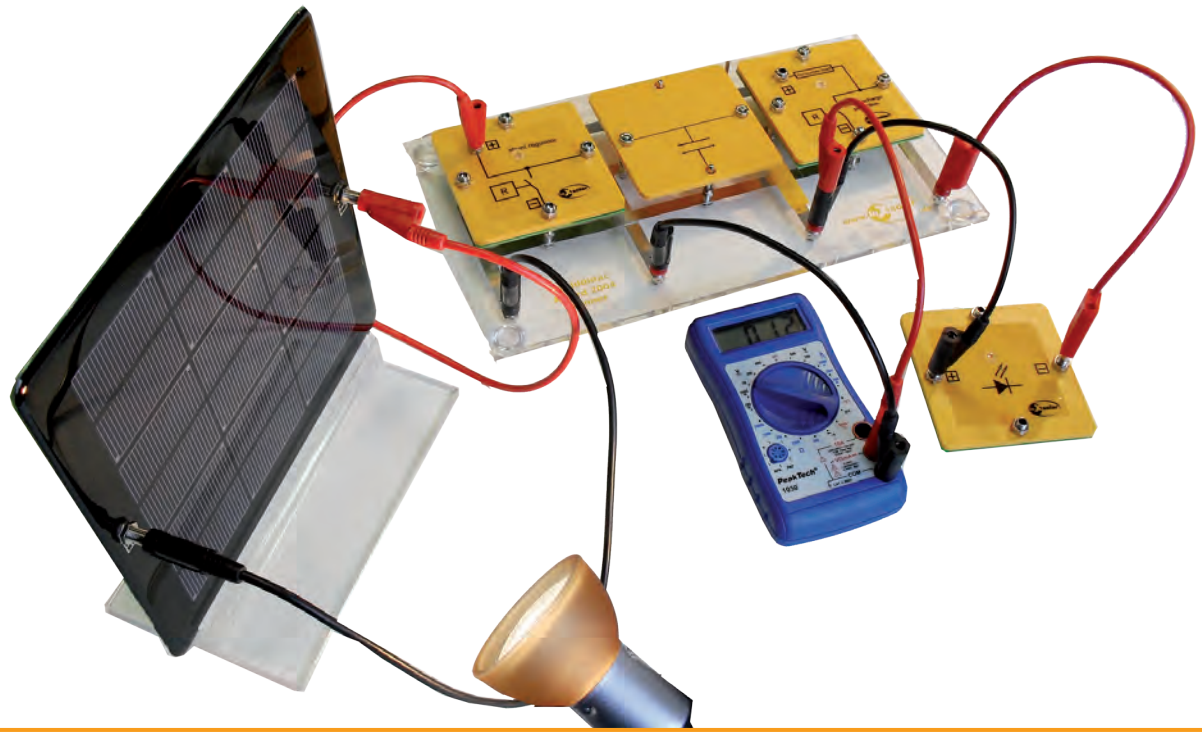


Set-up of a complete off-grid photovoltaic system with leXsolar-Experiment off-grid.
The diverse modules can be plugged onto the leXsolar main board which allow a high flexibility in experimenting.

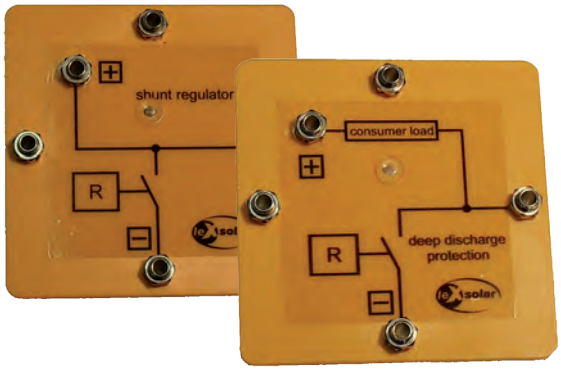
leXsolar-Experimmnet off-grid is the first comprehensive experiment kit dealing with so called off-grid PV-applications. Such applications become more and more important especially for rural electrification in developing countries.

With leXsolar-Experiment off-grid the user can set up such systems for training purposes. Therefore, the product provides the full range of necessary modules: From the solar module, different charge regulators, energy storages, a deep discharge protection up to different electrical loads. Because of the modular approach the specific characteristics of each component can be investigated in detail; e.g. the switching thresholds of a seris or shunt regulator.

The product can be used for a overview training of salesmen, for training sessions of technicians and installers of off-grid PV-systems as well as for vocational training.

Area of application:

- Training of technicians and installers of off-grid PV-systems
- Training of salesmen
- Vocational training
- Schools



The leXsolar shunt regulator module and the leXsolar deep discharge protection module.
All modules can be connected by plugging them onto he leXsolar mainboard or by connecting them directly via measuring leads.

leXsolar-Experiment off-grid is delivered in a robust case with foam inserts. Hence, it is mobile for experiments outside a training classroom.

Scope of delivery

- Robust case with foam inserts
- Solar module 4.5V, 3.5W_p
- Mount for the solar module
- leXsolar main board (for plugging on the modules)
- Plug-in modules:
  - Shunt regulator
  - Series regulator
  - Capacitor module
  - Battery module (NiMH)
  - Deep discharge protection module
  - 3 solar modules (each 0.5V, 0.2W_p)
  - LED-module (high brightness)
  - Filament bulb module
  - Motor module
  - Potentiometer module
  - Diode module (bypass diode)
- 2 digital multimeters
- Measuring leads
- Halogen lamp with table clamp

Experiments

- Set-up of typical off-grid systems:
  - Components and their interconnection
  - Comparison of systems with and without deep discharge protection
  - Investigation of systems with different consumer loads (e.g. comparison of LED and Bulb)
- Experiments with single components:
  - Characteristics and mode of operation of shunt regulator and series regulator
  - Mode of operation of a deep discharge protection
  - Comparison of different consumer loads and their efficiency
- Storage of solar energy:
  - Charge and discharge characteristics of capacitor and battery
  - Storage efficiency and comparison of capacitor and battery
- PV basic experiments
  - Series and parallel connection of solar cells
  - IV-characteristics and MPP
  - Shading of solar cells in series connection and bypass diode
  - Dependence on angle of incidence
- Analysing the op-amp based elctrical circuits that are disclosed in the documentation.

leXsolar GmbH
c/o Technische
Universitaet Dresden
D-01062 Dresden

Telefon: + 49 351 41 38 99 60
Fax: + 49 351 41 38 99 63
E-Mail: info@lexsolar.de
Internet: www.leXsolar.de

Local court Dresden, HRB 22097