

Concept of the Solar Power Case Basic Equipment

The instruction system for the application-orientated teaching and learning of the basic principles of photovoltaic energy technology

The success and widespread use of photovoltaic energy technology make it a source of diverse and attractive future career opportunities for young people. In addition to the necessity of exploiting new, environmentally compatible energy sources, climate-protection activities will also significantly increase the demand for solar technology specialists.

Educational research has shown that learning is most successful when students can fully investigate both the theory and the practice of the object of their studies. This was the underlying philosophy in the development of the solar power case. The knowledge presented in the experiment manual can be directly tested in practical experiments. The experiments were designed and selected on the basis of the knowledge requirements and practical experience of solar specialists.

The solar power case experiments have been structured in such a way that the students can enjoy learning from their successes. The construction and storage system has been designed for use in training institutions and every component has its own space in the case. This simplifies the training in use for both instructors and students and ensures that this system for teaching and learning has a long service life.

The way the solar power case has been designed as a modular system is a straightforward and entertaining introduction to electrical and solar engineering. Topping up a battery using the charging regulator, the installation of a motion sensor as well as the initial measurements of voltage and current provide the initial successes to be enjoyed besides building simple electrical circuits.

The solar power case can be used by the teacher to present the theoretical and practical sides of the technology and also by students, individually and in groups, to learn the basics of photovoltaic applications independently. The experiments teach the students through practical experience.

A school can plan its own projects using the solar power case and present these as models for the decision-making processes, for example as illumination for a solar-powered display case or for lighting for the equipment room which is independent of the mains, etc. Besides direct use in the classroom, the solar power case can also be used to inform parents, other pupils and visitors at open days and project weeks of the possibilities for using photovoltaics.