Study of photovoltaic energy on an isolated site

QUICK-N is a set of photovoltaic modules (H-250mm) and solar panels for studying a solar installation on an isolated site.

ref. QUICK-N

EDUCATIONAL OBJECTIVES

- **Learn about a photovoltaic installation on an isolated site.**
- **Learn about and understand the photovoltaic elements present.**
- **Creating a Photovoltaic installation.**
- **Taking the electrical measurements of the different values.**
- **Study the efficiency and incidences related to the positioning of the panels.**
- **Study the energy system (production, storage, charge, discharge).**
- **Study the use of a solar charge regulator for batteries.**

TEACHING RESOURCES STUDENT & TEACHER

Comprises

- 1 Coupler module of photovoltaic terminals to 4mm terminals.
- 1 Surge arrester module.
- 1 Circuit switching module.
- 3 Double fuse holder modules 10x38 gPV.
- 1 Solar charge regulator module 24V DC - 20A
- 1 Voltage converter module 350VA - 24V DC - 230V AC on outlet 2P+E.
- 2 Voltmeter/ammeter analogue display modules.
- 1 Two batteries module 12V – 12Ah.
- 2 Solar panels 200Wc on frame that tilts from 5° to 70°.
- 1 Photovoltaic cable, 30 metres.
- 1 set of safety leads for carrying out the differentpractical works.

The set can be supplied without the two solar panels, please ask for details.

Proposed Practical Works

- Creation of the complete wiring diagram.
- Creation of the configuration of the charge regulator for batteries.
- Take the measurements of voltage, current and power of the solar panels.
- Take the measurements of voltage, current and power at output 24V DC.
- Calculation of the efficiency of the installation.
- Calculation of the charge/discharge time of the battery.

RECOMMENDED OPTION FOR INDOOR OPERATION

ARTIFICIAL SOLAR SOURCE
Qty 2

This source for getting around the loss of sunlight by illuminating the solar panel with ar tificial light whose spectrum is close to sunlight.
While not having as much luminosity as unclouded sunlight, it illuminates with sufficient intensity for the panel to generate 1/3 of its peak power Wc (corresponding to sunlight at 1kW/m²). Ask for details.