STUDY OF PHOTOVOLTAIC ENERGY ON AN ISOLATED SITE

EDUCATIONAL OBJECTIVES

- **Apprehend a photovoltaic installation of isolated site type.**
- **Apprehend and understand the photovoltaic elements involved.**
- **Perform wiring of a photovoltaic system.**
- **Perform the electrical measurements of the different values.**
- **Study the efficiency and incidences of solar panels positioning.**
- **Study the energy system (production, storage, charge, discharge).**
- **Study the use of a solar charge controller for batteries.**

TEACHING RESOURCES STUDENT & TEACHER

ref. QUICK-NPLUS

ref. QUICK-N **without frame and console**

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

Proposed Practical Works

- Creation of the complete wiring diagram.
- Perform parameter setting of the battery charge controller.
- Perform the measurements of voltage, current and power of the solar panels.
- Perform 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.

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 of 30 meters.
- 1 set of safety leads for carrying out the different practical works.
- 1 frame with wheels (H x W x D): 1610 x 940 x 500mm equipped with rack for safety leads (30 fingers)
- 1 single-phase power console:

- 1 thermal magnetic circuit breaker (16A)
- 1 Emergency stop push button with key
- 1 ON push button + LED indicator
- 1 230V single-phase output on 4mm safety terminals
- 2 230Vac sockets (2P + E) + 12 230Vac sockets (2P + E), at the back

Mains power supply 230V - 50/60Hz. 3-meter lead with plug 2P+E.

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

Sockets on the back of the console for connecting the modules