Self-contained public lighting with LEDs

MAQ-LED demonstrates public lighting with LEDS which is increasingly found in new housing schemes. Completely self-contained, the assembly operates using solar energy (Polycristalline panel combined with a large capacity battery).
Two artificial solar sources, for connection to the mains 230VAC, enable the battery to be recharged for better organization of the explanations and practical assignments.

EDUCATIONAL OBJECTIVES

- ***Studying street lighting with LED lamp and solar energy.***
- ***Putting a solar system into service.***
- ***Demonstrating the ecological operation of LED technology.***
- ***Discovering the different technologies of solar panels.***
- ***Wiring the components of a lighting installation with presence sensor & light sensor.***
- ***Reading the different electrical values of a production system of solar energy.***
- ***Calculating the installation's efficiency.***

TEACHING RESOURCES STUDENT & TEACHER

Practical works

- Lessons on the different solar panel technologies (Monocristalline, Polycristalline, Amorphous)
- Study on the positioning of solar panels for maximum output.
- Study of solar radiation.
- Reminder on Direct, Diffused and Reflected solar radiation.
- Interpretations of the theoretical curves produced from the 3 solar sensors.
- Study and creation of the wiring for a solar energy system in an isolated site.
- Reading the currents and voltages at different points of the wiring.
- Interpreting the measurements then calculation of the efficiency.
- Calculation of the discharge time of the battery according to the load.

Comprises

- Easy-to-move wheeled frame with large heavy-duty wheels.
- 1 Battery 12VDC – 90Ah.
- 1 Solar load regulator 12VDC-20A.
- 1 Plastic unit that is easy to remove to directly access the wiring of the battery, solar panel and load regulator.
- 1 Solar panel 12V/80W pivoting and swivelling on an easy-to-remove pole.
- 1 Lamp with LEDS 12VDC-50W equipped with a presence and light sensor.
- 2 artificial solar sources 230VAC on removable pole.

ref. MAQ-LED

Battery + load regulator unit.

Dimensions : 600 x 800 x 1700mm. Weight : 92kg.