

WORKSITE TRAFFIC LIGHTS - LED TECHNOLOGY - SELF-CONTAINED

Simulator of worksite traffic lights powered with solar energy. Two artificial and variable light sources simulate sunlight and enable the batteries to be recharged.

Fully self-contained, operation of the FEU-LED is managed with a Schneider® PLC.

One solution for manually recharging the batteries is included in the electrical unit for better organization of the explanations and practical work.

ref. FEU-LED

communicating version - Bluetooth®



Requires download in Play Store or Apple Store the free application "Victron Energy".

Display on tablet or Smartphone:

- Voltage - Current of the panel / Power (W)
- Voltage - Current of the battery / Charge current
- On-Off state charge



Smartphone not supplied

OBJECTIFS PÉDAGOGIQUES

- Study and putting into service of solar energy worksite traffic lights.
- Reminder on the different solar panel technologies.
- Wiring of the components of a photovoltaic installation at an isolated site.
- Reading the different electrical values of the production system of solar energy.
- Calculation of the efficiency of the installation.
- Programming a controller (PLC).
- Setting up a Bluetooth® connection

Practical works

- Lessons on the different technologies of solar panels (Monocrystalline, Polycrystalline, 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 of a solar energy system at 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.
- Creation of a controller program in contact language.
- Downloading and setting up the Bluetooth® application

Comprises

- 2 traffic lights with Red / Orange / Green LEDs.
- 2 photovoltaic panels 30W/12V Monocrystalline.
- 2 artificial sources. with light controller.
- 1 electrical cabinet with :
 - 1 Voltmeter measures the voltage of the photovoltaic panels.
 - 1 Voltmeter measures the voltage of the 2 batteries.
 - 1 Set of pushbuttons, switches and indicator lights.
 - 1 front synoptic gives the overall diagram of the system. 4mm connection terminals enable reading of U/I panels, U/I batteries, U/I charge and I charger.
 - 1 SCHNEIDER® programmable logic controller (PLC).
 - 1 solar load regulator 24VDC/15A Bluetooth®.
 - 1 battery charger 12V.
 - 2 batteries 12V-8Ah.
 - 1 set of electrical protection with gPV cartridge fuses.

Features

- 3-metre mains lead included, for the charger and artificial source.
- Dimensions: 1100 x 600 x (H) 1600mm. Weight: 68kg.
- The pole and the panels are easy to remove for going through doorways.

