Solar energy
www.langlois-france.com

ECO-DISTRICT: PEDESTRIAN SIGNAL, VIDEO SURVEILLANCE AND SOLAR STREET LIGHTING

This didactic solution makes it possible to understand, in a context of sustainable development, road signs, video surveillance autonomous and urban lighting in an eco-district.

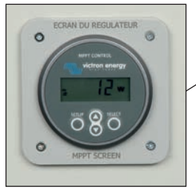
Autonomous and fully low voltage 12Vdc, all run on solar energy.

Indoor (halogen fixed to the frame) or outdoor use.

ref. SOL-EQ5
FREE TELEPHONE ASSISTANCE ON 05 56 89 91 07

DELIVERED WIRED AND CONFIGURED | TEACHING RESSOURCES STUDENTS / TEACHER | AUTONOMOUS WIFI NETWORK

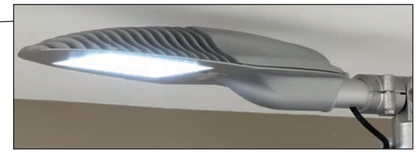
LED panel



Controller screen attached to the side of the cabinet

Monocrystalline panel 90Wp swivel for indoor use with the 3 projectors supplied, outdoor with a source natural solar.

Dimensions : 710 x 800 x 2100mm. Weight 70kg.



Ultra powerful LEDs with high light output

Battery box + charge regulator.

EDUCATIONAL OBJECTIVES

- **Study a flashing solar-powered LED sign.**
- **Study street lighting with solar-powered LEDS lamppost**
- **Study video surveillance in urban areas powered by solar energy**
- **Commission a solar system.**
- **Demonstrate the ecological functioning of LED technology.**
- **Discover the different solar panel technologies.**
- **Wiring photovoltaic components**
- **Perform electrical and mechanical maintenance on the mast.**
- **Identify the different electrical quantities of a solar energy production chain.**
- **Calculate the efficiency of the installation.**
- **Configure communication on Bluetooth (MPPT) and wifi (camera) networks.**
- **Configure a photovoltaic installation using a tablet or smartphone.**
- **Configure an Ethernet IP network between the camera and the Wifi Switch.**
- **Study the energy savings generated by the different sensors**

PROPOSED PRACTICAL WORK

- Course on different solar panel technologies (Monocrystalline, Polycrystalline, Amorphous)
- Study on the positioning of solar panels for maximum efficiency.
- Mechanical fixing of the mast, the panel and the lamppost on the frame.
- Study of solar irradiation.
- Reminder on Direct, Diffused and Reflected solar radiation.
- Study and realization of the cabling of the solar energy chain on an isolated site.
- Read the currents and voltages at different points of the wiring.
- Interpret the measurements and then calculate the yield.
- Calculation of the battery discharge time as a function of the load.
- Configuration of the application from a touchscreen tablet.
- Mechanical and electrical maintenance.
- Configuration of the application from a touchscreen tablet.
- Mechanical and electrical maintenance.

Bluetooth®

Requires download from Play store or Apple store of the free Victron Energy app.
Allows reading on tablet or smartphone:
- Voltage - Panel current / Power (W)
- Voltage - Battery current / Load current
- State On-Off charge

COMPOSITION

- 1 wheeled frame with brakes, very stable. Sized for doorways.
- 1 pedestrian sign fitted with latest generation LEDs. Thanks to a time delay relay, the panel can blink, thus showing the energy benefit of blinking compared to a steady light.
- A 40W lantern equipped with latest generation ultra powerful LEDs with high light output.
- 1 swiveling color camera connected to RJ45, IP protocol communication.
- 1 monocrystalline photovoltaic panel of 90Wp fixed on an aluminum mast.
  The panel is adjustable for outdoor use.
- 3 halogens to be connected to a 2P + T mains socket make it possible to simulate solar radiation for use of the model indoors.
- 1 MPPT (Maximum Power Point Tracking) load regulation system and electronic control of the device with twilight detection and programming by voltage level directly modifiable from a smartphone or touchscreen tablet. A recording of the voltages, currents and powers of the solar panel, battery and LEDS, in the form of data, can be retrieved by an application via a Bluetooth link (display in the form of a bar graph).
- 1 screen connected to the regulator to retrieve information from the MPPT locally.
- 1 solar battery 12V / 14Ah
- 1 set of photovoltaic fuse holders and 1 surge arrester.
- 1 wifi switch
- 1 RJ45 Ethernet cable of 3m

Component connection made on industrial terminals to prevent component wear.

info@langlois-france.com CE PRODUCTS 2 YEARS GUARANTEE