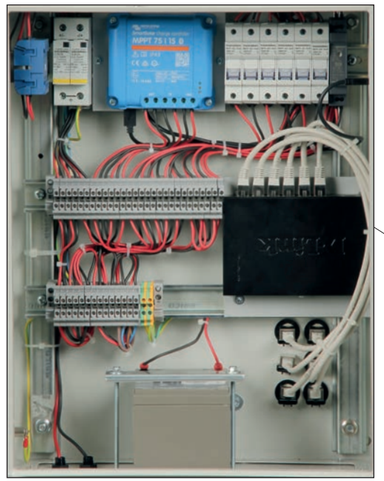
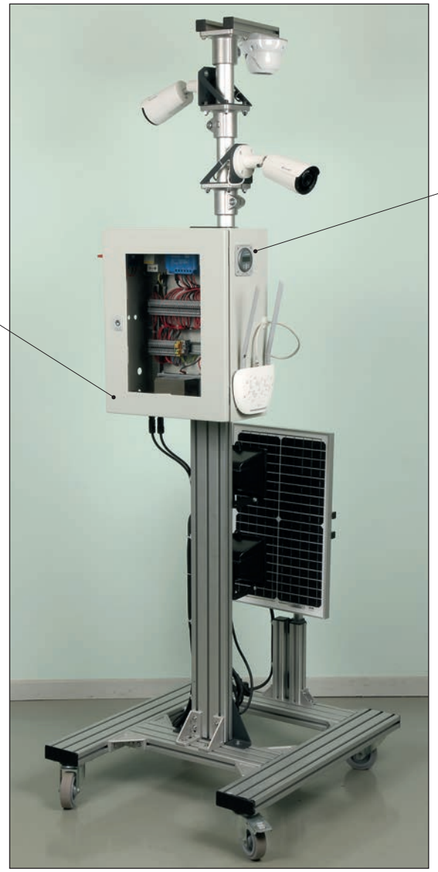
Solar energy www.langlois-france.com

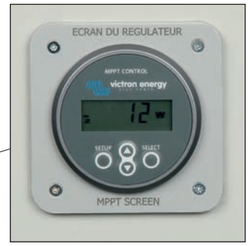
ECO-DISTRICT: AUTONOMOUS SOLAR VIDEO SURVEILLANCE WITH ASSISTED VIDEO PROTECTION



Interior view of the electrical cabinet



30Wp monocrystalline panel swivel and swivel for use interior with the 2 projectors supplied, outdoor with a natural solar source.



Controller screen attached to the side of the cabinet

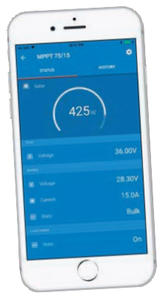
RJ45 connectors

Supplied with an 18 "HD LED recorder and monitor representing the security post.

Dimensions : 710 x 800 x 1900mm. Weight: 55kg.

ref. SOL-EQ8
FREE TELEPHONE ASSISTANCE ON 05 56 89 91 07

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



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

This didactic solution makes it possible to understand, in a context of sustainable development, a set of CCTV cameras (including one motorized) in an eco-district.
Video surveillance is accompanied by a recorder with screen simulating a security post.
Completely autonomous and entirely at low voltage 12Vdc, the assembly operates on solar energy thanks to a set of photovoltaic components.
Indoor use (halogens attached to the frame) or outdoor, under certain conditions.

EDUCATIONAL OBJECTIVES

- **Study video surveillance in urban areas powered by solar energy**
- **Carry out the configuration of the dome camera**
- **Carry out the recording settings**
- **Commission a solar system.**
- **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.**
- **Configure a photovoltaic installation from a tablet or smartphone.**
- **Calculate the efficiency of the installation.**
- **Configure communication on a Bluetooth and Wifi network.**
- **Configure an Ethernet IP network between the camera and the Wifi Switch**

PROPOSED PRACTICAL WORK

- Course with theoretical labs on different solar panel technologies (Monocrystalline, Polycrystalline, amorphous), on solar radiation (Direct, Diffused and Reflected), on solar irradiation.
- Configuration and control of the dome camera
- Viewing a recording made by surveillance cameras
- Study of the positioning of solar panels for maximum efficiency.
- Mechanical fixing of the mast to the frame.
- Study and realization of the cabling of the solar energy chain on an isolated site.
- Reading of currents and voltages at different points of the wiring.
- Interpretation of measurements and calculation of 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.

COMPOSITION

- 1 wheeled frame with brakes, very stable. Sized for doorways.
- 2 orientable color cameras connected in RJ45, IP protocol communication
- 1 All-in-one color Day / Night PTZ dome camera, 20x optical zoom, FULL-HD resolution (1080p) @ 30 fps, 4 "waterproof IP66 casing, infrared LEDs with operating distance up to 150 meters (Smart IR) Controlled by mouse, smartphone or tablet.
- 1 XVR AHD video recorder, 8 analog video inputs and 3 IP video inputs. HDD 1TB special video surveillance. Integrated web server for configuration and video playback. Simultaneous viewing of camera images on the monitor.
- 1 18 "LED monitor. HD resolution.
- 1 optical mouse
- 1 monocrystalline photovoltaic panel of 30Wp fixed on an aluminum mast. The panel is adjustable for outdoor use.
- 2 halogens to be connected to a 2P + E mains socket to simulate solar radiation for indoor use of the model.
- 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.
- 1 surge arrester.
- A wifi switch
- 1 RJ45 Ethernet cable of 3m

Component connection made on industrial terminals to prevent component wear.

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