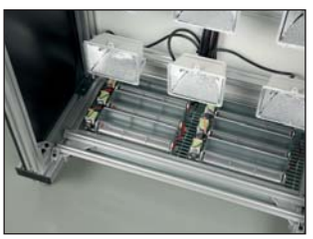
ARTIFICIAL SOLAR SOURCE




REF	Photovoltaic panel delivered installed	Side protection against the direct access to the lamps	Forced ventilation to simulate the wind	Poles and chains for zone boundary
SOL-ARTI2	Yes	Yes	Yes	No
SOL-ARTI2-N	No	Yes	Yes	No
SOL-ECO2	Yes	No	No	Yes
SOL-ECO2-N	No	No	No	Yes

The versions without "installed photovoltaic panels" are compatible with the reference SOL-200 of page 146.



Ventilation system with protection grid.

This source for getting around the loss of sunlight by illuminating the solar panel with artificial light whose spectrum is close to sunlight. While not having as much luminosity as unclouded sunlight, it illuminates with sufficient intensity for the panel to generate 1/3 of its peak power Wc (corresponding to sunlight at 1kW/m²).
The solar panel can be removed easily in order to replace a spotlight quickly if necessary.
The unit located on the back of the spotlights panel includes

- a key-operated emergency stop button for cutting the electricity supply to the spotlights
- a digital thermometer shows the temperature at the surface of the solar panel. Accuracy 1°C.
- a potentiometer for lighting adjustment, by dimmer built into the unit
- a flow control for the forced ventilation
- automatic power supply cut-off to the spotlights in the event of abnormal temperature rise of the solar panel

ELECTRICAL FEATURES OF THE SOLAR PANEL AT 25°C

LIGHTING	SOLAR	ARTIFICIAL
Maximum power	220Wc	70Wc
Open circuit voltage	43V	43V
Short-circuit current	6.2A	2.3A

- Sealed connections IP65 – 1000V
- Power supply: 230VAC.
- Dimensions/Weight: 1228 x 665mm height 1926mm.
- 4 casters including 2 with brake

PRACTICAL WORK
Adjustment of the light intensity demonstrates the correlation between the light flow and the current delivered by the photovoltaic panel, at constant voltage.
A temperature probe linked to the unit thermometer is located on the solar panel. This shows its instantaneous temperature. Any reduction of the ventilation flow causes the panel temperature to rise, and lowers the photovoltaic current in constant lighting.

Special characteristics for SOL-ARTI2 et SOL-ARTI2-N
Two opaque side panels prevent the accidental blinding of a student. With the solar panel and spotlight support they also make a closed duct for evacuating heat by an air current going from bottom to top. Centrifugal fans, located in the bottom part, inject fresh air that runs up the panel.
Grids in the bottom and top parts let the air flow pass evacuating the heat, and prevent accidental contact by hand with a burning spotlight or with the fan blades.

The versions SOL-ECO2 and SOL-ECO2-N have no lateral protection, no forced ventilation. Versions delivered with 4 poles and 2 chains for the delimitation of a safety zone around the system.

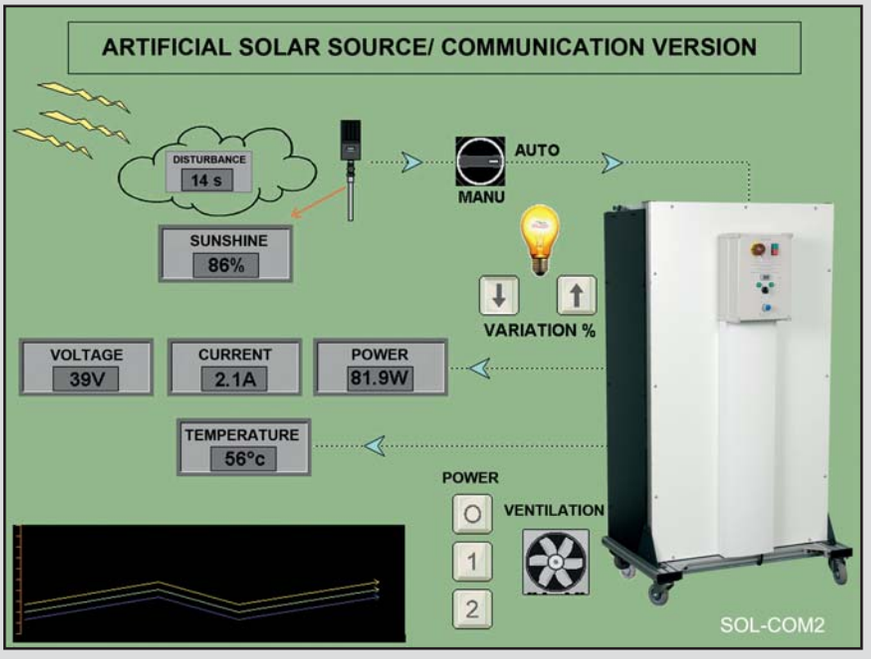
SOL-ECO2, protection by bounded safety zone

ARTIFICIAL SOLAR SOURCE : COMMUNICATING VERSION

ref. SOL-COM2

ref. SOL-COM2-N
Supplied without panel.
Compatible with our panel SOL-200 and all panels sold with our solar systems

Version identical to SOL-ARTI but with these additional features:
- 1 Schneider programmable PLC with its Ethernet interface
- 2 analog card I/O for PLC
- 1 electronic interface to retrieve the voltage/current parameters of the photovoltaic panel.
- 1 RJ45 connector for the connection to a PC.



SUPERVISION SOFTWARE SUPPLIED
Vijeo designer of Schneider®.

Allows:
- the acquisition and the display of PLC variables
- the supervision and the process control
- the programming of your own supervision
- the creation of your own Ethernet computer network

Displays:
- The values of U(V) / I(A) / P(W) supplied by the solar panel
- The temperature (°C) of the solar panel
- The level of sunshine (solar radiation)
- The level of ventilation

Controls:
- The level of the artificial light intensity
- The disturbance which simulate the passing of a cloud (you can select the duration if the effect).
- The level of ventilation

PRACTICAL WORKS

- Theoretical study on the solar panel functioning
- Theoretical study on the solar panel positioning
- The Ethernet networking of the system
- The influence of the panel temperature on the intensity supplied
- The programming of the PLC
- The setting of the analog cards
- The creation of a supervision programming