

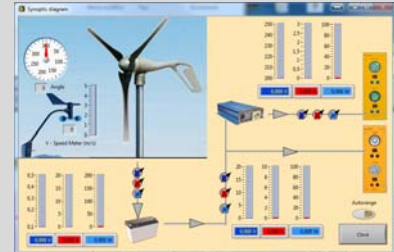


SOLAR/WIND ENERGY TRAINER WITH CONNECTION TO MAINS



DL SUN-WIND-G

Modular trainer for the theoretical-practical study of the electrical installations with photovoltaic solar energy and wind energy with connection to mains.



Complete with connecting cables, experiment manual and **software for data acquisition and processing**.

TRAINING OBJECTIVES

- To generate power into the grid with both systems
- To measure the power generated by the two systems
- To connect a load and see how the generated power is distributed in the system
- To find the power balance
- To analyse the power flows
- To simulate the behaviour of the system in day and night
- To simulate a failure, a alarm status, a brake mode or overload of one system and see how the other behaves
- To calculate the efficiency of the whole system at min. power and max. power

Wind grid system:

- Power generation
- Simulation of the island mode
- Load and power balance
- Power flows
- Grid fault

Solar grid system:

- Power generation
- Simulation of the island mode
- Load and power balance
- Power flows

Solar-wind grid system:

- Operation of the complete system

TECHNICAL SPECIFICATIONS

- A photovoltaic inclinable module, 90W, 12V, complete with a cell for measuring the solar irradiation and with a temperature sensor.
- A wind turbine
 - Wind turbine 12 Vdc, 160 W.
 - Supporting frame 1.5 m.
 - Anemometer and wind direction sensor.
- A set of modules with a supporting frame:
 - A load module with two mains voltage lamps, dichroic 35W and LED 3W, with independent switches.
 - DC to AC converter for the solar section.
 - Braking resistance for the wind turbine.
 - A rheostat.
 - A module for the measurement of: solar irradiation (W/m^2), solar panel temperature ($^{\circ}C$), current, voltage and power.
 - A module for measuring wind speed and direction.
 - Module for energy measurement.
 - Differential magneto-thermal switch.
 - Network distributor.
 - A motor kit for indoor use of the wind turbine.
 - A dc to ac converter module, with sinusoidal output at mains voltage. Average power: 300 W.

Approx. packing dimensions: 2.12 x 1.12 x 1.13 m.

Net weight: 104 kg.

OPTION:

DL SIMSUN – Module with lamps to provide suitable lighting for the solar panel when used indoor.

ALTERNATIVE:

DL SUN-WIND-GT – With solar tracking panel instead of the standard solar panel.