

PHOTOVOLTAIC / WIND POWER SYSTEM

Mod. F-SFE/EV

DESCRIPTION

This system includes a wind generator of horizontal axis being able to convert the kinetic energy of wind directly into mechanical energy.

Through the solar panels supplied, it is possible to detect the characteristic curve of the photovoltaic panels, charge a battery through a charge controller and an inverter to convert direct current into alternating current.

TRAINING PROGRAM:

- Solar energy - electric energy transformation via photoelectric effect
- Electrical characteristics and efficiency of a photovoltaic cell
- Photovoltaic cell efficiency as function of the solar radiation
- Theoretical efficiency of a wind power system
- Experimental efficiency of a photovoltaic panel (optional datalogger and sensors required)
- Experimental efficiency of a wind power system (optional datalogger and sensors required)
- Noise of a wind power system (Phonometer required - not included, supplied upon request)
- Electromagnetic Compatibility of a wind power system (EMF meter required - not included, supplied upon request)

TECHNICAL SPECIFICATIONS:

- 4 photovoltaic panels, 15 W each (60 W total)
- Wind generator of horizontal axis with base
- Measuring panel with a set of resistors that enables to study the efficiency curve of photovoltaic system
- Battery charge control
- Inverter of 300 W (mounted on the panel) for transforming the output voltage of the battery into current at 220 V - 50 Hz
- Various leads for connections
- Lamp of 220 V that will be used when connected with inverter output
- Lead battery (voltage rating: 12 Vcc; capacitance: 100 Ah)



Optional sensors and EVLAB datalogger allow to gather and visualize wind speed, radiation, temperature, load current of wind turbine, load current of solar panel, level and load current of battery.

Data gathered with the software, can be viewed in graphics and tabular form, and they can also be exported in Excel file for further analysis.

SUPPLIED WITH

THEORETICAL - EXPERIMENTAL
HANDBOOK



OPTIONAL

- EVLAB DATALOGGER mod. EVS-EXP/EV including SOFTWARE EVLAB WORKSPACE mod. SW-F-SFE/EV for a total control of interactive experiments
- Temperature sensor mod. EVS-15/EV
- High current sensor mod. EVS-20/EV
- Anemometer sensor mod. EVS-25/EV
- Voltage sensor mod. EVS-27/EV
- Solar radiation sensor mod. EVS-29/EV
- PERSONAL COMPUTER

