

RP-110 PHOTOVOLTAIC APPLICATION SYSTEM EXPERIMENT SET



Solar energy is renewable energy type which is an important subject in the world today. This is a modular type experiment set. The location of the modules can be changed. With safe electrical cables these modules are connected. The system is used for demonstrate of a photovoltaic system with grid connected operation with inverter by utilising electrical components from the real world usage of photovoltaics.

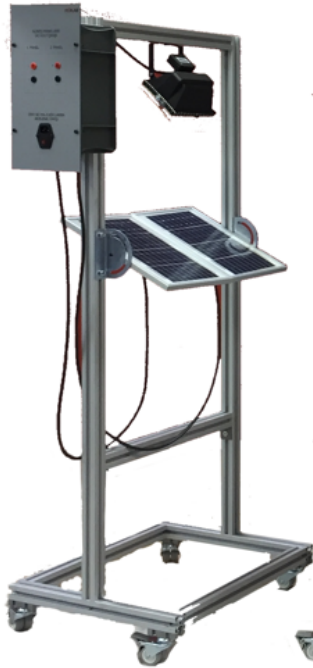
The conversion of energy from panels and their transfer to the grid, losses of the power grid inverter as well as behaviour of components with different illuminance are evaluated. The system have measurement instruments/sensors to observe the operation of the system components.

Sensor information and values are displayed with the PC software.

The system ensure that the user can control parameters involved in the process in real time and the management, processing, comparison and storage of data must be ensured.

The system provide a controllable power supply that enables simulation of power generation from photovoltaic modules.

PV Panel modüle and simulation module of power generation from photovoltaic modules with controllable power supply. (One of these two modules is provided with the set.)



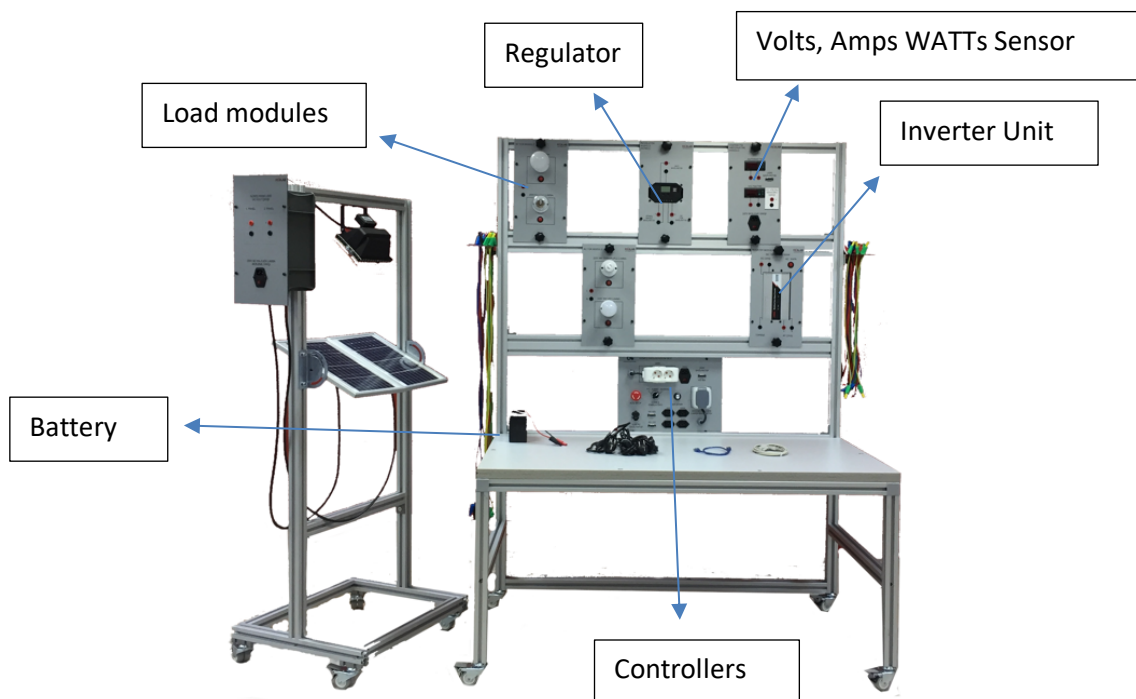
The system software enable network functionality as described in preface.

System Components:

- Mobile metallic carriage trolley table and racks for panels and modules.
- Halogen lamps for lighting and adjusting illumination if necessary and a PV simulation via software.
- PV Panel and simulator module.
- Grid Inverter
- Simulator panel
- Sensors
- Operation switches
- Set of cables for connections
- Software and PC
- Solar battery
- Charge controller

Other auxiliary connections, fuses or modules if needed for operation of the equipment.

The layout of the system showing connections, modules and sensors



This set includes the following modules:

- Industrial Main Power Supply.
- 3kW Grid Inverter.
- Network Analyzer Unit with Data Acquisition.
- Advanced Panel simulator power supply.
- Direct Starter Module.

The system is mounted on a metal frame wheeled carriage trolley unit including racks for holding the modules where necessary. The PV and halogen lamps, if externally used, are mounted on similar construction wheeled carriage trolley.

Photovoltaic panel and simulator output is 100W.

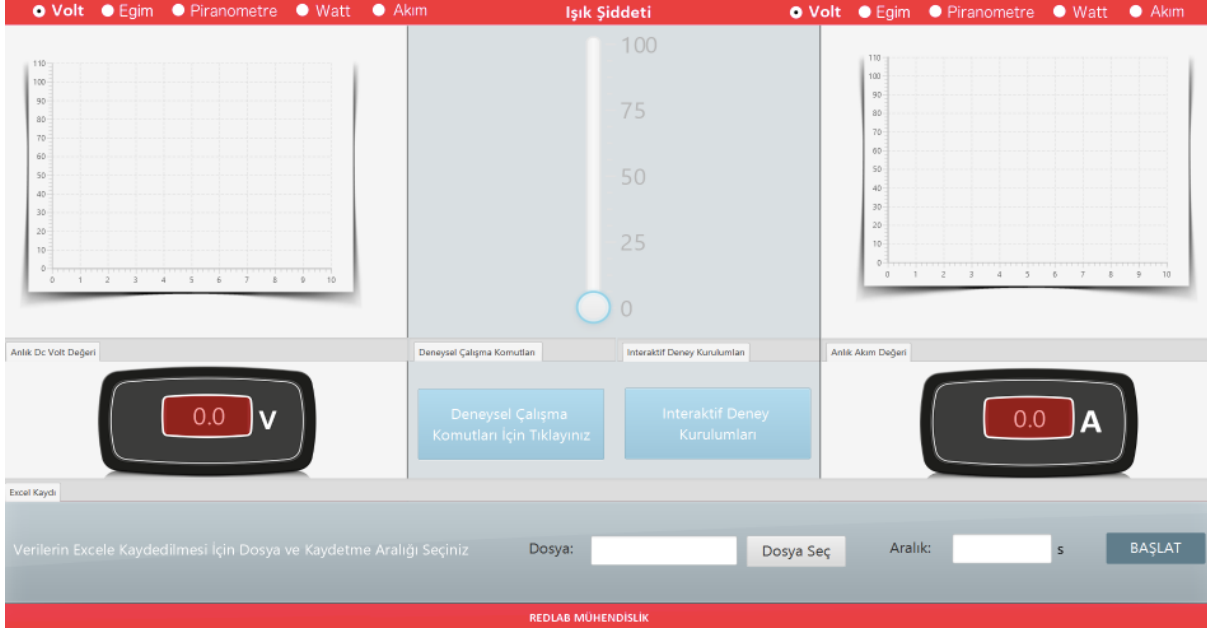
There is an inverter unit for grid-connected operation with efficiency of minimum 85%.

Following information is acquired from the system: currents and voltages at inputs and outputs of relevant system components, active power at grid connected inverter.

There are a DC circuit breaker and overload voltage protection for bus terminals.

The system have data acquisition system to display sensor values with the PC software. The system ensure that the user can control parameters involved in the process in real time.

Scada Software:



All cables, modules, data acquisition system, software and related accessories required for fully operation of the system are provided. The components are integrated to each other over the carriage trolley.

The system comply with CE Marking and conformity declarations are provided.

Symbols for the relevant equipment or circuit diagrams conforming to latest DIN/ISO standards are screen-printed on the front panel of the modules. If necessary, front panels are supplemented with colour graphics or photographs at applicable locations on the panels and modules.