

Advanced Solar Module Measurements Trainer

RE
01004



Hardware

- The PV stand is designed to provide practical experience in basics of electricity generation from solar energy using photovoltaic (PV) panel, as known as solar panel. The unit represents a simple generation system that includes a tiltable solar panel, battery, Battery-Charge-Controller (BCC) and set of halogen lamps to simulate the solar irradiance.
- Unit minimum dimensions are 1500x800 (LxW) including an adjustable PC holder/support.
- Unit in the form of a vertical training bench of strong construction and 4 wheels to ease relocation.
- Monocrystalline solar modules: 2x 85 Watt
- The PV panel can be tilted about 2 axes by electric actuators controllable via knobs on the control panel.
- The light source in the form of a set of halogen lamps: 8x1000 watt
- The light source can be tilted with respect to the PV panel by an electric actuator controllable via knob on the control panel.
- The height of the light source with respect to the PV panel can be adjusted by an electric actuator controllable via a knob on the control panel.

- Digital Measuring Unit with Measuring ranges:
 - Temperature: 0...110°C
 - Voltage: 0...200V
 - Current: 0...20A
 - Illuminance: 0...3kW/m
- All Necessary Accessories Required for Full Operation
- Unit minimum dimensions are 1500x800 (LxW) including an adjustable PC holder/support.

Courseware

- Series & Parallel connection
- Effect of Illuminance on Solar Module
- Effect of Shading on Solar Module
- Effect of Temperature on Solar Module
- Short-circuit current
- Current & Voltage at maximum output
- Relationship between module tilt, illuminance, short-circuit current and electrical output
- Recording a module's current-voltage curve
- Open-circuit voltage
- Determining the efficiency
- Shadow Effect