SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Solar Energy Trainer with Connection to Mains | RVX-003

Category: Renewable Energy · **Order Code:** RVX-003 · **Country of Origin:** India

Product Overview

The Solar Energy Trainer with Connection to Mains RVX-003 is a modular, grid-tied solar power training system for technical schools, vocational training centres, and educational institutions. It supports thirteen experiments covering mains voltage measurement, solar panel positioning by inclination and azimuth, irradiation data acquisition, current-voltage and voltage-irradiation curve plotting, inner resistance calculation, and grid energy exchange measurement. The system includes a Grid ON Inverter Module, Solar Irradiance Measurement Module, Electric Energy Measurement Module, Lamp Load Module 2, Power Rheostat, Three Phase Earth Leakage Breaker Module, Artificial Light Source with intensity control, and Network Distributor Module. DAQ software designed in National Instruments LabVIEW is included and runs on any Windows system.

View this product online: https://scienticoindia.com/product/solar-energy-trainer-with-connection-to-mains-rvx-003/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Sr. No.	Module / Component	Qty
1	Dual Solar Panel Module	1
2	Lamp Load Module 2	1
3	Power Rheostat	1
4	Three Phase Earth Leakage Breaker Module	1
5	Solar Irradiance Measurement Module	1
6	Grid ON Inverter Module (Grid Tied)	1
7	Electric Energy Measurement Module	1
8	Artificial Light Source Module	1
9	Artificial Light Control Module	1
10	Network Distributor Module	1
11	Set of Leads	1
12	Frame	1

Key Features

Key Features

- **Solar Power Training System:** grid-tied, mains-connected solar energy trainer
- **Solar Panel Positioning:** inclination and azimuth adjustment supported
- **Panel Coverage Testing:** solar panel can be covered with different materials
- **Solar Irradiance Measurement:** dedicated Solar Irradiance Measurement Module included
- **Curve Plotting:** voltage-irradiation curve and current-voltage curve obtainable
- **Inner Resistance Calculation:** solar panel inner resistance calculable from measurements
- **Mains Voltage Measurement:** direct measurement of mains voltage
- **Load Measurement:** load current, voltage, power, and energy measurable
- **Grid Energy Measurement:** electricity delivered to and taken from mains grid measurable
- **Lamp Load Module:** Lamp Load Module 2 included for load testing
- **Power Rheostat:** variable resistive load included
- **Safety:** Three Phase Earth Leakage Breaker Module included
- **Artificial Light Source:** light source with intensity control for indoor operation
- **Network Distribution:** Network Distributor Module included
- **DAQ Software:** National Instruments LabVIEW based, Windows compatible, electronic sensors included

Experiments

- Measuring the mains voltage
- Measuring the load current, voltage, power, and energy
- Setting the solar panel to the most irradiated position
- Changing the inclination of the solar panel
- Changing the azimuth of the solar panel
- Covering the solar panel with different materials
- Obtaining the solar irradiation data
- Obtaining the solar panel voltage-irradiation curve
- Calculating the inner resistance of the solar panel
- Obtaining the solar panel current-voltage curve
- Measuring the electricity delivered to the mains grid
- Measuring the electricity produced by the solar panel and delivered to or taken from the mains grid
- Measuring the electricity produced by the solar panel, delivered to or taken from the mains grid, and the loading of lamps

Construction and Design

The Solar Energy Trainer with Connection to Mains RVX-003 is built on a modular frame accommodating twelve discrete plug-in modules. The solar power training system features a Dual Solar Panel Module with adjustable inclination and azimuth for optimal positioning. A Solar Irradiance Measurement Module captures irradiation data directly. The Grid ON Inverter Module enables grid-tied operation. The Electric Energy Measurement Module records energy exchanged with the mains grid. An Artificial Light Source Module and Artificial Light Control Module support indoor training. A Lamp Load Module 2 and Power Rheostat provide resistive and lamp-based load testing. A Three Phase Earth Leakage Breaker Module provides safety protection. A Network Distributor Module manages circuit distribution. All modules connect via the included set of leads.

Software

DAQ software specially designed in the National Instruments LabVIEW environment to measure and calculate experimental results. A set of electronic sensors is included for use with the software. Compatible with any Windows operating system.

Scope of Delivery

- Dual Solar Panel Module (x1)
- Lamp Load Module 2 (x1)
- Power Rheostat (x1)
- Three Phase Earth Leakage Breaker Module (x1)
- Solar Irradiance Measurement Module (x1)
- Grid ON Inverter Module, Grid Tied (x1)
- Electric Energy Measurement Module (x1)
- Artificial Light Source Module (x1)

- Artificial Light Control Module (x1)
- Network Distributor Module (x1)
- Set of Leads (x1)
- Frame (x1)
- DAQ Software (LabVIEW-based) with electronic sensors

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1. What is the Solar Energy Trainer with Connection to Mains RVX-003 designed for?

It is designed for technical schools, vocational training centres, and educational institutions to provide hands-on training in solar energy technology and grid-integrated solar power systems.

Q2. Does the RVX-003 support both indoor and outdoor solar training?

Yes. The system includes an Artificial Light Source Module and Artificial Light Control Module for controlled indoor training alongside a Dual Solar Panel Module for natural light operation.

Q3. What grid-related measurements can be performed on the RVX-003?

The system measures electricity delivered to the mains grid, electricity produced by the solar panel and exchanged with the mains grid, and simultaneous measurement of solar production, grid exchange, and lamp load.

Q4. Can the inclination and azimuth of the solar panel be adjusted?

Yes. Both the inclination and azimuth of the solar panel are adjustable, allowing the panel to be set to the most irradiated position for optimum output.

Q5. What safety provisions are built into the RVX-003?

The solar power training system includes a Three Phase Earth Leakage Breaker Module for protection during mains-connected operation.

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