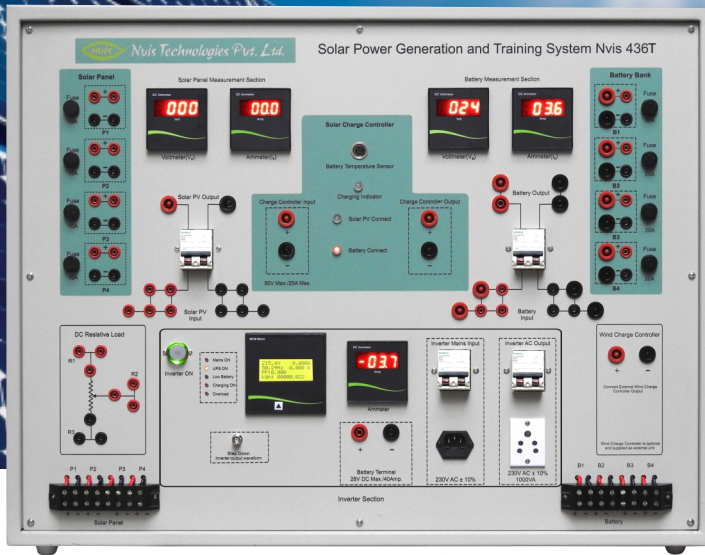




Solar Power Generation and Training System

Nvis 436T



Nvis 436T Solar Power Generation and Training System has been designed considering the Solar technology applications in harnessing electricity from Sun. It is a eco friendly way to generate the energy from the Sun. This system will enable students to learn the basic as well as advanced concepts of Solar Photovoltaic energy generation. Being aligned with National Solar Mission of India, we have designed this product to provide opportunity for skill upgradation in solar PV Technology.

It also includes a training system to study the fundamentals of solar tracking in both single and dual axis modes which involves tracking of motion of the Sun, thus ensuring that the maximum amount of Sunlight strikes the panels throughout the day.

Features

- A unique Solar system for electricity generation.
- Provided with meters for analysis of parameters
- Provided with all safety protections
- Connector Sheathed Shock proof type
- DC Voltmeter & DC Ammeter
- Multi Function Meter

Fundamentals of Solar Tracking which includes-

- Microcontroller based Tracking System
- Single-axis and Dual-axis Tracking
- Manual, Time and Auto Modes of operation in Single axis Solar Tracking
- Manual mode of operation in Dual-axis Solar Tracking
- Master Reset Switch for recovery of System
- Emergency Motor Stop Switches
- Tilt Sensors for sensing angle of panel with respect to horizontal plane
- Facility for charging battery using Solar energy as well as DC supply



Scope of Learning

Learning details with Solar Power Generation and Training System

The Geography behind Solar PV installation

- Site assessment and planning before Solar PV installation
- Understanding the Sun position and installation of PV panel
- Analysis of voltage, current and power generation
- Effect of shadow on Solar PV system

Measurement and Analysis of Different parameters of Solar PV Module

- Open circuit voltage (V_{oc}) of Solar PV module
- Short circuit current (I_{sc}) of Solar PV module
- Parameters measurement with parallel Solar PV modules
- Parameters measurement with series Solar PV modules
- I-V characteristics of PV Module

Estimating Solar PV system

- Load Estimation and calculation

Charge controller

- Basics of MPPT

Inverter & Batteries

- Testing of Inverter

Analysis of the effect of dust on Solar PV module

Safety and Precaution for installation of Solar PV System



Note Shown image is just for illustration original may differ

Learning details with Solar Tracking System

- Study of V-I characteristics of fixed Solar Panel i.e. without tracking the Sun
- Study of V-I characteristics of Solar Panel using Single-axis Solar Tracking in Manual Mode
- Study of V-I characteristics of Solar Panel according to incident angle of light keeping Light source at fixed position and moving solar panel in Manual Mode
- Study and observation of Single-axis Solar Tracking in Time Mode
- Study and observation of Single-axis Solar Tracking in Auto Mode
- Study the operation of Dual-axis Solar Tracking System in Manual mode



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Technical Specifications

Technical details for Solar Power Generation and Training System

Solar panel

Power Rating	:	1KW
Cell type	:	Polycrystalline

Solar panel structure

Material	:	GI
Assembly	:	Detachable and easy to install

Solar inverter

Capacity	:	1000VA
Input voltage	:	190 - 260V AC
Output voltage on mains mode	:	same as input
Output voltage on UPS mode	:	210 - 245V
Output frequency on UPS mode	:	50Hz \pm 0.1Hz
Output waveform on mains mode	:	same as input
Output waveform on UPS mode	:	Modified Sine wave
Efficiency at full load	:	>80%
UPS overload/UPS Short circuit	:	Yes
Technology	:	Microcontroller based
LED Indication	:	Mains ON, UPS ON, Low Battery, Charging & Over load

Terminals

	:	BS10 type for safety purpose
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MCB

	:	C type -4nos
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Solar Battery (4nos)

	:	12V/100Ah (C10 type)
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Charge controller

Solar PV module	:	35-70V
Current	:	40A
Battery voltage	:	24V
Technology	:	PWM based MPPT

Meters

DC voltmeter	:	0-300V (2nos)
DC ammeter	:	0-40A (3nos)
Multi function meter	:	Voltage-10-230V, Current-100mA-5A Watt-10-1200W Energy meter display resolution- 0.001kWh Frequency-50Hz

Optional accessories

	:	Nvis 726 AC/DC load, Rheostat:50 Ω 15A x 1 no.
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Technical details for Solar Tracking System

Supply Voltage

	:	12V DC
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Solar Panel

Maximum Output	:	18W
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DC Motor

	:	12V
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Rechargeable Battery

	:	12V, 7Ah
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Display

	:	20 x 4 LCD
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Light Sensor

	:	Phototransistor
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Acceleration/Vibration/Tilt Sensor

	:	3 Axis
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DC Adaptor

	:	12V @ 1Amp
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