VERITAS Engineering

Catalog

Of

Photovoltaic and Wind Energy Training Device

Photovoltaic and Wind energy training device
Brand: FRAN
Model: SWT-01

Technical Specification

Power supply
Three phase AC380V±10 %, 50HZ
Temperature -10 Degree C to 40 Degree C
Dimensions (l × w × h) work bench 1500 ×700×1800mm
Solar and wind generator frame 2500 ×1500×1900mm
Weight About 350kg

Product description
This device adopts 4 set 100W mono crystalline silicon solar cell panel (54cm×100cm) and 220V, 1000W solar simulation light to simulate light source, and 2.2kw blower and 400w wind power generator for the training basis. It Adopts dual system charge and discharge controller with multiple working modes and perfect protection functions, which is ideal training device for solar and wind power generating training.

Picture: Photovoltaic and Wind energy training device

System:

1. Main Panel Board with Working Table – 1 Set
2. Solar Panel with 1000 Watt Light – 1 Set
3. Wind Generator with Blower – 1 Set
4. All Frame are made of Metal Sheet and Angle with Powder Coated Paint (Siemens Gray Color).
5. Necessary cables & fittings will provide for Installation, Commissioning & Experiment.

Product composition
Training bench 1500 ×700 ×1800mm

Parts & Equipment:

1. **Delta PLC** with Analog Input & Output.
2. **Delta HMI** for Observation the Output of Solar & Wind Energy Graphically and Input Command.
3. **Load**
    a) 12V DC Bulb 3 Pcs as Load
    b) 12V DC Fan or Motor 1 Pcs as Load
    c) 220V, 9W to 18W AC Bulb – 3 Pcs as Load
    d) 220V AC Fan – 1 Pcs as Load
4. **Cable**:
    a) 1 Set Banana Safety Cable for Connection Wind Generator with the Trainer Panel
    b) 1 Set Banana Safety Cable for Connection Solar Panel with the Trainer Panel
    c) 1 Set Banana Safety Cable for Connection Blower with the Trainer Panel
    d) 1 Set Banana Safety Cable for Connection Simulated Light of Solar Panel with the Trainer Panel
    e) 1 Set Banana Safety Cable for Connection Solar Battery with the Trainer Panel
5. **Inverter**: 12V DC to 220V AC, 1000 Watt for Operating AC Load
6. **Inverter**: 380VAC 4kw (**Delta**) for Blower
7. **Solar panel** 6 sets: DC18V, Power: 100w, Size: 670 ×820mm
8. **Light source**: Power: 1000w 220VAC (for Solar Panel)
9. **Controller** 02 Sets: 12V 10A
10. **Blower**: 380VAC 2.2kw
11. **Wind power generator**: 400w 12VDC
12. **Battery** 03 sets: 12V/65AH
13. **Measuring device**:
    Ammeter, Voltmeter & Wattmeter Digital
14. **MCB** – 4P, 32A
15. **Indicator Lamp**
16. **Regulator** for Controlling the Luminous of 1000W Light
17. Equipped with USB interface and PC data processing software.

Training courses:

Part 1: Solar energy

1) Energy conversion experiment of solar photovoltaic panels

2) The influence of environment on PV transformation

3) Direct load characteristic test of solar cell photovoltaic system

4) Working principle experiment and protection measures of solar controller

5. Experiment on overcharging protection of solar cells

6) Experiment on battery discharge protection of solar controller

Part 2: Wind energy

1) The principle of wind power generator

2) The influence of environment on wind power generator

3) Simulation experiment of wind power generation

4) Wind power related measurement technology Experiment

5) Wind power generation control technology experiment

6) Direct load test of wind power generation system

7) Wind speed change influence experiment of wind power generation system

Part 3: Comprehensive experiment

1) Operation principle experiment and protection measures of off net Inverters

2) The application of AC load and DC load

3) Single chip computer programming experiment

Training:

1. Minimum 2 Days Training at Our Workshop (Maximum 5 Participants are allowed)
2. 2 Days Training at BSPI (Any amount of Participants are allowed)

Accessories:

- 1 Training Manual
- 4mm safety banana socket