



WIND MILL



CONTROL UNIT

SALIENT FEATURES:

- Table top wind tunnel with transparent acrylic & protection cage to identification of components of windmill.
- Axial fan with continuously variable speed to simulate wind.
- Renewable energy basics, energy conservation, charge controller, storage system, alternating current & inverter (optional).
- Converting kinetic wind energy into electrical energy in laboratory.
- Accumulator for storing the electrical energy.
- Pitching and yawing provision provided.
- Set of instructor Guide & Student Workbook.

TECHNICAL SPECIFICATIONS:

- A) **Wind mill setup** Consist of table top wind tunnel with transparent acrylic structure,
- Size: 650(H) x 800(W) x 550(D) holding various parts & Net Wt.:-
- Generator-1 No.

Max O/P wattage-100W

Max O/P voltage-24V

Max O/P current-4A

- Blades-6 No.

Diameter:-740mm

Spring return arrangement with screw for pitching

Yawing arrangement similarly spring return.

- Axial fan-1 No.

To generate air flow,

- Digital anemometer-1 No.

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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To measure wind velocity.

- **B) Main rack/Control unit**

- Consists of table top aluminium profile rack (45x45) in 4x2 matrix holding various panels
- Charge controller Panel (WT1) -1 No.

Rated voltage-24Vdc, Max current-6A

Max generator voltage-25V

Min generator voltage-20V

- **Stand alone battery bank - 1 No.**

- Rated voltage-12V, Capacity-7Ah Orationally
- Rated voltage-12V, Capacity-100Ah
- Battery type-Lead acid

- **◆Stand-alone Inverter-1 No.**

I/P DC voltage-10-15Vdc, O/P AC voltage-230Vac

- O/P power rating-600VA/1KVA

- **◆ DC voltmeter & DC ammeter panel (EMT68) -1 No.**

- DC voltmeter (0-100V)

DC ammeter (0-5A) with polarity protection diode.

- **Dimmer panel (HIT5)-1 No.**

Dimmer 1 No, to vary the speed of axial fan.

- **◆ Lamp load panel (EMT7) -1 No.**

- 230V/15/40/60/100W x 3 bulbs with individual ON/OFF using 6A toggle switches.

List of experiments

- 1) Identification of the components.
- 2) To evaluate performance of horizontal axis wind turbine,
- 3) To analyze effect of pitching (blade angles) on performance of wind turbine.
- 4) To analyze effect of yawing on performance of wind turbine.
- 5) To study charging & discharging of battery.

Mechanical Dimensions (mm):-545(H) x 960(W) x 300(D)

Weight (Kg):- Net Wt.:-35Kg. Gross Wt.: 45Kg

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