

**FEATURES :**

- Compact Design
- can be used indoors as well as outdoors
- Artificial Wind generator
- Actual fixed pitch wind turbine in controlled environment
- Provision to vary wind speed.
- Evaluation of the efficiency of charge controller.
- Cut-in speed of wind turbine can be calculated experimentally.
- Evaluation of the Tip Speed ratio (TSR) at different wind speeds.
- Evaluation of the coefficient of performance of wind turbine.
- User can draw the turbine Power versus wind speed curve.
- User can draw the curve between TSR and coefficient of power.
- User can draw the power curve of turbine with respect to the rotational speed of rotor at fix wind speeds.
- User can study the power analysis at turbine output.
- User can study the power analysis at different branches of wind turbine energy system with AC load only.
- User can study the power analysis at different branches of wind turbine energy system with DC load only.

Components

This system can be divided in following components

- Artificial wind generating unit
- Wind Turbine system
- Structure and tunnel
- Measuring unit with load

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



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Technical Specifications:**1. Artificial Wind Generating Unit:**

- Induction motor:
Power: 10HP
Type: 3 phase (2 pole)
Current rating: 14 A
Rotation speed: 2850 rpm
- VFD:
Power rating: 15KW
Frequency range: 0-60 Hz
Type: 3 phase
- Fan:
No. of blades: 7
Fan diameter: 86 cm

2. Wind turbine

- Rotor:
Hub type: fixed pitch
Rotor diameter: 1.26m
No. of blades: 3
Swept area: 1.246 m²
- Performance parameter:
Rated wind speed: 12.5m/s
Cut-in speed: 3.5m/s

3. Measuring unit with load

- Battery
Voltage: 12V
Capacity: 42Ah
- Inverter
Rated power: 600VA
Input voltage: 10-15V
- Charge controller
Rated power: 500W
Rated load voltage: 12V
- DC load (bulb)

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Nominal voltage: 12V

Rated power: 35W

- AC load (bulb)

Nominal voltage: 230V

Rated power: 100W

Different meters:

- DC voltmeter: 0-20V
- DC ammeter: 20 A
- Single phase Power analyzer: 1 KVA/230V
- Three phase power analyzer: 1 KVA/230V
- Tachometer: 0-2500 RPM
- Anemometer: 0-25 m/s

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