



The Whisper 500 has been recognized as one of the most iconic Micro Wind Turbines globally. It is a popular bulk power supply small wind turbine, and was originally made for US markets.

A single Whisper 500 in a good windy area is enough to power a cluster of homes or a small sea side resort. A number of them coupled together can provide electricity for an island community.

The Whisper 500 has been type tested & certified as per IEC 61400 for power performance & for safety & functional test by NIWE (National Institute for Wind Energy) which was formerly known as CWET (Centre for Wind Energy Technology, India).

KEY FEATURES

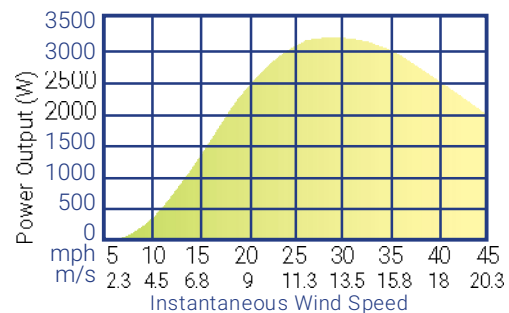
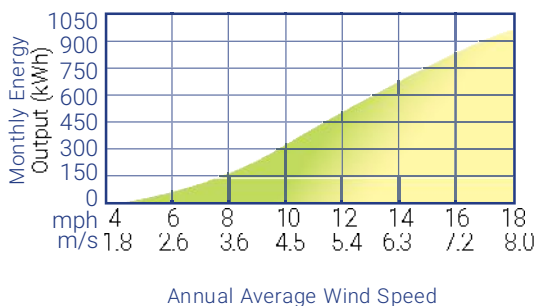
- Low cut in wind speeds
- Lightweight, rugged design
- Suitable for remote locations installations
- International recognition - IEC & CE certifications
- Suitable for standalone or multiple parallel module application to suit different power rating.
- Modular construction for easy installation and dismantling
- PWM based state of art architecture providing overcharge protection / load diversion (in auto mode).
- Status monitoring of battery low & battery high - LCD display on front panel.
- Automatic diversion of power to dump load at battery overcharge / very high turbine speed.
- Ambient operating temperature up to 52°C.

APPLICATIONS

- Telecom towers.
- Fuel stations & resorts.
- Rural electrification & farm power and water supply.
- 230V AC mains grid tie roof top installation on high rise buildings.
- Water pumping model is also available (Whisper 500 with WiSH Energy pump controller can be connected to any 3 phase submersible or surface water pump and can pump water from bore wells of 200/300 ft.)
- Military / Para Military camp power supply.
- 230 V AC mains grid tie (with interface controller & grid tie inverter).
- Farm power and water supply.
- Island and lighthouse continuous power supply.

TURBINE SPECIFICATIONS

GENERAL CONFIGURATION		PERFORMANCE	
Model	Whisper 500	Average power	2000W at 11 m/s (as per IEC 61400 standards)
Rotor diameter	4.5 m	Number of blades	2
Swept area	15.89 m ²	Material of blades	Carbon fiber composite, fiber glass & epoxy bonding
Weight	80 kg (including blades and tail boom)	Material of body	Powder coated MS with marination treatment
Mount	5 inch mounted	Survival wind speed	55 m/s
Start-up wind speed	3.1 m/s	Over-speed protection	Furling, dump load & manual brake switch
Rated wind speed	12.5 m/s	Controller	External regulator
Alternator	PM 3 phase alternator	Bearings self-lubricated	Low friction, totally enclosed
Alternator efficiency	85 %	Controller output	Voltage options : 24 V, 48V DC(LV) 96V,120V, 240VDC(HV) Rated power: 3200 watts
Magnets	Ceramic magnets	Max. lateral thrust	400 KGF
Insulation class	Class 'H'		
Voltage configuration (L.V. model)	24V/48 V nominal		
Voltage configuration (H.V. model)	96V/120V/240V nominal		



WIND CHARGE CONTROLLER

The Whisper 500 charge controller is an intelligent wind charge controller which provides safe, secure and productive wind generator operation. The PWM (Pulse Width Modulation) controller is capable of monitoring various parameters such as battery voltage, battery charging, load diversion and cumulative energy generation. The controller contains a 3 phase full wave bridge rectifier for converting AC power generated from the wind turbine, to DC power. PWM technique is used for diverting excess power to a dump load as required.

CONTROLLER SPECIFICATIONS

- Whisper 500 wind charge controller comes in 24V, 48V, 96V, 120V and 240V configurations.
- Clear alpha-numeric digital LCD screen with user selectable display options.
- Equipped with advanced micro-controller based technology to provide easy access for monitoring and operation for the user.
- Front panel LCD display with the following features
- Field adjustable battery voltage set points.
- Energy saving back-light operation.
- Controller diverts extra energy to dump load, when batteries are fully charged.
- Battery over voltage protection.

> Displays battery voltage
> battery charging current
> kW and kWh reading
> battery UV
> OV status

Instantaneous / monthly / average wind speed (in m/s) can also be displayed if anemometer is configured in the controller.

> Supervisory password provision.

• Dimensions -

> controller 250 mm (L) x 305 mm (W) x 135 mm (H)
> dump-load 200mm (L) x 250mm (W) x 120mm (H)




3.2 KW WIND INSTALLATION FOR TELECOM TOWER

CUSTOMER:
DIALOG AXIATA PLC,
SRI LANKA



BACKGROUND



Telecom is one of the fastest growing sectors, particularly in South and South East Asia. With more private players entering the fray and looking to penetrate the rural markets in these regions, the associated infrastructure costs in maintaining the telecom towers is crucial. Energy costs for the operation of these towers are as high as 37% of the revenue and are the single biggest cost for telcos. As these towers require uninterrupted power but often get poor or non-existent grid electricity (40% of telecom towers in the region have grid access of less than 12 hours per day),  diesel generators are used frequently as backup.



THE NEED FOR MORE

The extensive use of diesel directly contributes to high OPEX costs, both in the fuel cost as well as logistics. Aside from this, there are challenges with pilferage of upto 20% of the diesel supplied as well as the expensive and laborious maintenance of diesel generators. From a sustainability perspective, the use of diesel also contributes to high levels of carbon emissions (about 10 million tonnes annually just for South Asia), which adversely affect the telcos' reputation as well as raise concerns on compliance with stringent regulations in the future.



HOW WE DELIVERED MORE

Dialog Axiata, Sri Lanka's largest telecommunications provider, had previously explored the idea of using solar PV to power some selected telecom towers. However, the area available at the telecom tower Base Transceiver Stations (BTS) was not enough to install sufficient solar PV, which has a large footprint. To address this challenge, we studied the structural integrity of the telecom tower structure and the wind generation potential in the area and came up with a novel innovation of mounting our Whisper 500 turbines on the existing tower frame, to save on the cost of the additional tower as well as land required. To balance the structure, we mounted two of the turbines on opposite sides of the tower.



MORE POWER

The 6.4 kW solution was piloted at the telecom tower installation in 2008, generating approximately 1500 units a month, **1151010** resulting in monthly diesel savings of 600 litres or approximately Rs. 57,000. Additionally, the maintenance cost of the diesel generators has reduced by half due to lower running times which has helped reduce the OPEX spend. The carbon footprint is also reduced by 19 tonnes every year for a single tower.



OTHER APPLICATIONS



Mountain/Island
Resorts



Villas



Buildings



Colleges



Farms

WISH Energy Solutions Private Limited

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