

## WIND GENERATOR KIT

*Complete Set Including All Accessories*  
**500 watts rated at 12,5 m/s (= 28 mph)**  
**6 meter tower (= 20 ft.)**

### ECOLOGICAL AND ECONOMICAL ADVANTAGES

Wind energy systems can help reduce high electricity costs and provide a cushion against increasing electricity prices. In addition, in remote locations, a small wind energy system is a practical, economical solution. Such systems reduce our dependence on fossil fuels and do not emit greenhouse gases. Small wind generator systems can ideally be used as follows -



#### Recommended usage for various areas:

- allotment garden houses, green houses
- hunting lodges
- weekend/vacation homes, cabins
- camping grounds and other outdoor activities
- mobile homes / caravans
- boats, yachts
- etc.

#### Applications where a self-sustaining source of power supply is needed:

- indoor and outdoor lighting
- water pumping systems
- telecommunication, satellite units
- televisions
- refrigerator
- ventilators
- etc.

### TECHNICAL ADVANTAGES

The OEM Wind Generator is a robust and cost-efficient unit that is produced with high-performance materials. It is provided as a COMPLETE KIT including all necessary assembly accessories. The generator can be used as follows:

- a) For generating AC via an inverter to ensure transmittance of current over long distances. This minimizes installation costs and energy loss since standard electrical installations and devices can be used.
- b) For charging 12 / 24 or 36 volt battery banks, via a controller that is being offered optionally.
- c) For direct connection of 110/230 volt devices in Island Operation via an inverter that is being offered optionally.
- d) For feeding the current into the home grid via a grid-tie inverter that is being offered optionally.

### WARRANTY

The OEM Wind Power Generator is guaranteed for 2 years of service life against defective workmanship or materials. If the unit fails within this 2 year period, it will be replaced or repaired at the manufacturer's option.

### WIND GENERATOR KIT COMPONENTS + OPTIONAL ACCESSORIES

Model "Basic Set"	Additional Optional Components for Powering 110/230 Volt Devices via Battery	Additional Optional Components for Feeding the Current into Home Grid
<ul style="list-style-type: none"> <li>▪ 500 watt wind generator</li> <li>▪ 3 rotor blades (aluminum / anodized)</li> <li>▪ tail</li> <li>▪ 6 m steel tower free-standing (monolithic) incl. steel base</li> <li>▪ bridge rectifier incl. heat sink</li> <li>▪ assembly accessories</li> </ul>	<ul style="list-style-type: none"> <li>▪ controller (with built-in bridge rectifier)</li> <li>▪ inverter</li> <li>▪ dump load</li> </ul>	<ul style="list-style-type: none"> <li>▪ grid-tie inverter (with built-in bridge rectifier)</li> <li>▪ dump load</li> </ul>

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### TECHNICAL DATA

#### ROTOR

- Number of blades / length 3 blades / 1 meter each
- Sweep area 2.4 meters
- Material aircraft-quality extruded aluminum / anodized
- Design upwind design
- Noise level +/- 45 dB at wind speed of 7 m/s

#### GENERATOR

- Type brushless 3-phase permanent magnet generator
- Power output 500 W (rated at 28 mph = 12.5 m/s)
- Voltage for use with 12 V or 24 V or 36 V battery banks as well feeding into home grid

#### ACCESSORIES INCLUDED

- 6 m steel tower (5 segments of 1,2 m each) free-standing (monolithic)
- Tower base tilting design for easy erection
- Tail
- Bridge rectifier with heat sink
- Assembly hardware

#### OPTIONAL ACCESSORIES

- Controller with built-in bridge rectifier only for battery charging
- Inverter 300 or 600 watts for operating 110/230 volt devices in combination with battery charging
- 250 watt grid-tie inverter with built-in bridge rectifier only for connecting to home grid
- Heat dump

#### WIND SPEEDS

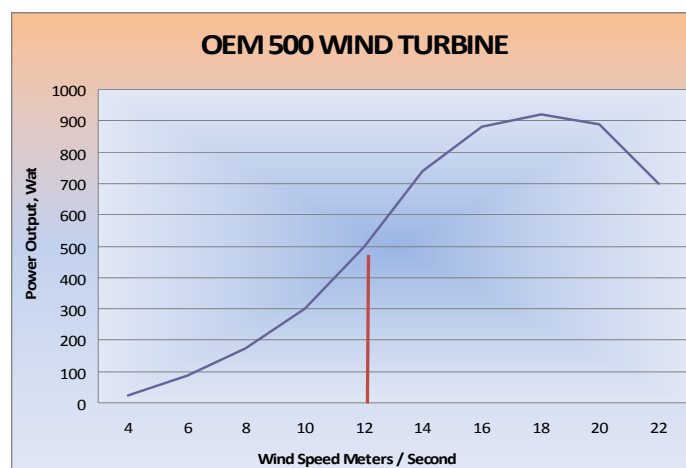
- Starting speed 0.9 m/s (= 2 mph)
- Cutting speed 2.2 m/s (= 4.5 mph)
- "Auto-Furl" speed control 13.4 m/s (= 30 mph)

#### WEIGHT (without packaging)

70 kg

#### WARANTY

2 years



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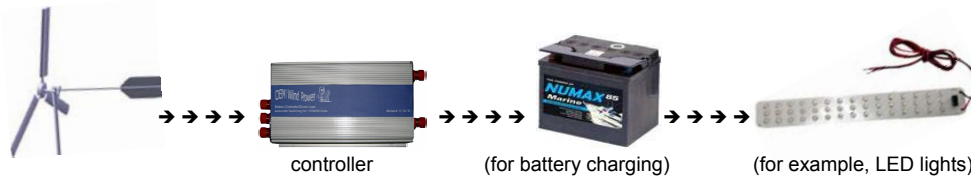
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### Optional accessory:

#### 250 WATT BATTERY CHARGE CONTROLLER (WITH BUILT-IN BRIDGE RECTIFIER) FOR USE WITH 12 / 24 / 36 V BATTERY BANKS

When the wind generator is employed for charging batteries, a controller should be used. This unit measures the level of the battery charge and recognizes when the battery is fully charged. The controller contains a bridge rectifier that transforms alternating current (AC) from the wind generator into direct current (DC) for charging the battery.

The controller does not prevent the battery from **over-discharging**.



There are 3 LED lights on the right side of the controller (in between the plugs for the output to the battery and dump load). Those 3 LED lights indicate the following:

#### First (left) light:

Indicates if the battery is being charged or not. If there is no light the charging current is too low or there is no charging current.

#### Second (middle) light:

This light shows if the wind generator is charging the battery. If the voltage from the wind generator is too high or the battery is full, the charge controller will automatic disconnect the wind generator to prevent the battery from being overcharged – in this case the LED light will not be on.

#### Third (right) light:

If the red light is on it indicates that the battery voltage is low. If the green light is on it indicates that the battery is full or the charging voltage is high. The color of the light will change from red to green according to the voltage of the battery.



Battery Voltage	12 V	24 V	36 V
Rated Charge Current	15 A	7.5 A	5 A
Maximum Charge Voltage	14.4 V	28.8 V	43.2 V
Dump Load Resistor	2 ohm / 200	8 ohm / 200 W	18 ohm / 200 W
High Wind Protection	Yes. (The controller will disconnect from the wind turbine in case the wind speed is too high. As soon as the wind speed slows down the controller will re-connect to the wind turbine).		
Battery Reverse Protection	Yes		
Overload Protection	Yes		
Operating Temperature	-5°C - 50°C		
Control Method	PWM (Pulse Width Modulation)		
Short Circuit Protection	Yes		

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Optional accessory:

**INVERTER FOR POWERING 110/230 VOLT DEVICES  
 VIA BATTERY CHARGE**

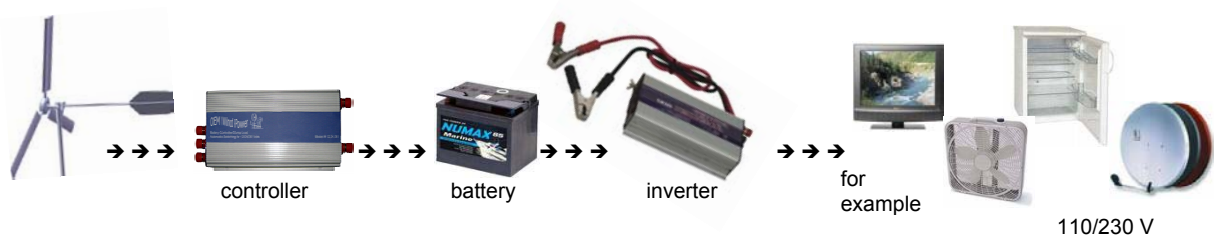


For operating 110/230 volt devices (i.e.: televisions, refrigerators, ventilators, pump-systems, satellite units) an inverter is needed, which is connected to the battery bank, as well as to the individual 110/230 volt device.

There are 2 optional models available with following outputs:

Model	Max. Continuous Output Power Max. Peak Output Power	DC Input Voltage	AC Output Voltage
SUN-300	300 W / 600 W	DC 12V, DC 24 V	AC 110 V / 60 Hz AC 120 V / 60 Hz AC 230 V / 50 Hz AC 240 V / 60 Hz
SUN-600	600 W / 1200 W	DC 12V, DC 24 V	AC 110 V / 60 Hz AC 120 V / 60 Hz AC 230 V / 50 Hz AC 240 V / 60 Hz

It is recommended to connect the model SUN-300 to battery banks with a minimum of 65 amps and model SUN-600 to battery banks with a minimum of 250 amps.



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Optional accessory:

### 250 WATT GRID-TIE INVERTER (with built-in bridge rectifier)



- "Plug and save" small grid-tie system
- Stackable system

### INTRODUCTION

The grid-tie power inverter can transfer wind energy from wind generators directly into the home grid using no extra equipment, just by plugging into any wall outlet.

As soon as the input falls below the minimum of 14 volts or exceeds the maximum of 32 volts, the unit automatically switches off and there is no power input into the grid through the grid-tie inverter. While the unit is off, the wind power generator will continue to turn freely until the furling mechanism activates automatically and the turning speed reduces the voltage to less than 32 volts.

The grid-tie inverter can be connected to any outlet (conventional network) in the home. It controls the phase and the frequency of the connected grid in order to switch itself off in case of a power failure. This feature is necessary to prevent the feeding of (dangerous) electrical output from the grid-tie inverter into the grid in case, i.e., the grid is shut down by taking a fuse out. The grid-tie inverter produces a pure sine-wave and matches that of the grid.

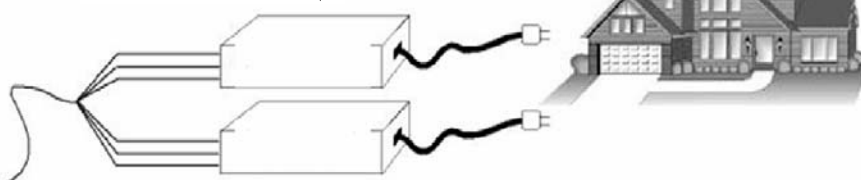


When the total power of electrical appliances used in a household is larger than the output power of the inverter(s), the power from the inverter(s) will be used first. If not, the difference of the output power of the inverter and the total power used in the household may cause the power meter to run backwards (alternatively a 2<sup>nd</sup> separate meter to be installed).

**Recommendation: The first connection of the unit to the grid should be done by a licensed electrician.**

Should there be need for feeding more than 250 watts into the grid, there is an option to install an additional grid-tie inverter parallel to the first unit. This allows feeding a maximum output of 500 watts into the grid.

2nd unit grid-tie inverter  
= 500 watts



1st unit grid-tie inverter  
= 250 watts

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### 250 WATT GRID-TIE INVERTER (with built-in bridge rectifier)

#### ADVANTAGES

Low cost and easy installation  
Inverter itself has low power consumption  
Additional units may be added for greater capacity

#### ELECTRIC SPECIFICATIONS

Model	OEM wpi 1933
Normal AC Output Power	200 W
Maximum AC Output Power	250 W
AC Output Voltage Range :	
Switch at 230 V Position	190 V ~ 250 V (in 230 volt position)
Switch at 115 V Position	90 V ~ 130 V (in 130 volt position)
AC Output Frequency Range	46 Hz ~ 65 Hz
Total Harmonic Distortion (THD)	< 5%
Power Factor	0.99
AC Input Voltage Range	14 V ~ 32 V
Peak Inverter Efficiency	92%
Standby Power Consumption	< 0.5 W
Output Current Waveform	pure sine-wave
Over Current Protection	yes
Overheat Protection	yes
Reverse Polarity Protection	yes
Anti-Islanding Protection	yes
Stackable	yes
High Voltage Protection	yes

#### MECHANICAL SPECIFICATION

Operating Temperature Range	- 10 ~ 45 degrees C
Weight	1.6 kg
Dimension	225 x 140 x 55 mm