

VERTICAL WIND TURBINE INTRODUCTION

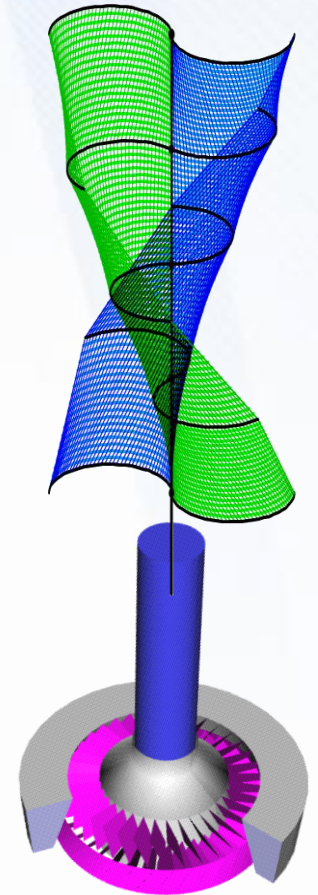
- ◆ Free energy with wind turbine
- ◆ Vertical compact design
- ◆ 40W-500W Power
- ◆ Easy installation
- ◆ Low Noisy
- ◆ Long Life

PWR-SAWT Spiral Axis Wind Turbine







VERTICAL WIND TURBINE PROPERTIES

- ◆ The **PWR-SAWT** Spiral Style Vertical Wind Power Turbine Generator is a device that converts the wind's kinetic energy into electrical energy.
- ◆ Vertical-axis wind turbines have the main rotor shaft arranged vertically. One advantage of this arrangement is that the turbine does not need to be pointed into the wind to be effective, which is an advantage on a site where the wind direction is highly variable.
- ◆ It is also an advantage when the turbine is integrated into a building because it is inherently less steerable.
- ◆ Also, the generator and gearbox can be placed near the ground, using a direct drive from the rotor assembly to the ground-based gearbox, improving accessibility for maintenance.



VERTICAL WIND TURBINE COMPARISON

PWR-SAWT Spiral Wind Turbine

Comparison	Typical Lights	Solar Lights	Horizontal Hybrit Lights	Vertical Hybrit Lights
				
Power Source	Electricity	Sunlight	Wing+Sunlight	Wing+Sunlight
Sudden Change of Wind Direction	NA	NA	Bad Performance	Very Good Performance
Available Charging Time a day	NA	3-5 Hr	All Day but not efficient	All Day long
Electric Shock	Yes	No	No	No
Noisy	NA	NA	70 dB	<15dB
Environmental Pollution	Yes	No	No	No
Disconnection	Yes	Yes	Sometimes	Rarely

VERTICAL WIND TURBINE CONTROLLER

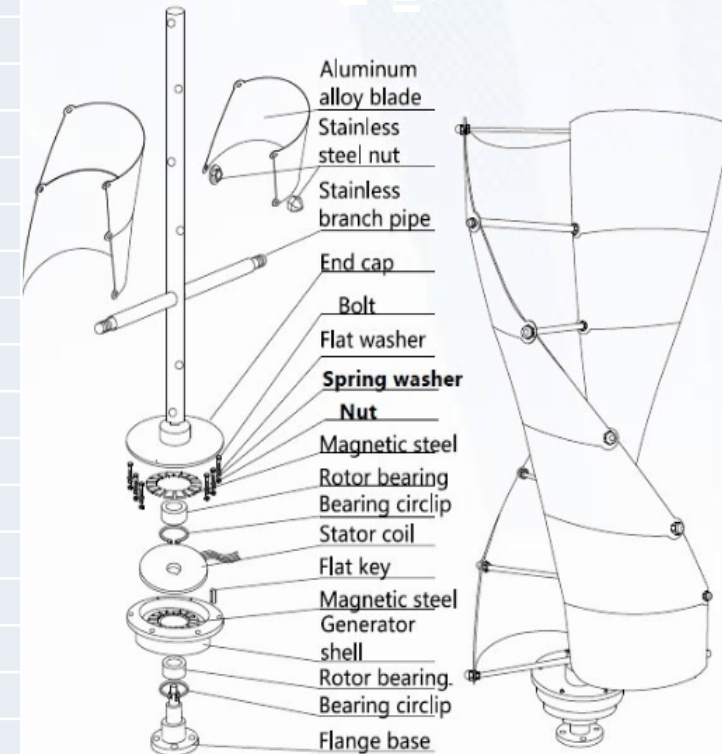
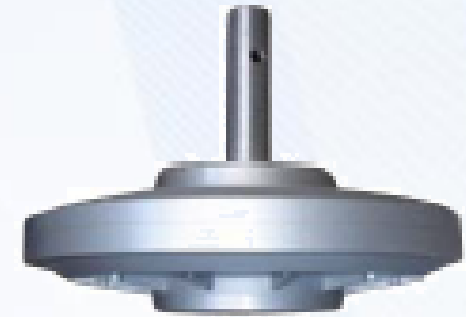


The wind/solar hybrid controller is specially designed for high-end small-scale wind/solar hybrid system and especially suitable for wind/solar hybrid street light system and wind/solar hybrid monitoring system. The controller can control wind turbine and solar panel at the same time and transform the wind and solar energy into electricity for DC load use, with excess energy stored into batteries.

- ◆ Superior military-grade components to ensure the product stability.
- ◆ Perfect protection function, thus the system has higher reliability.
- ◆ Check and set all operation parameters as requirement from LCD display.
- ◆ Voltage limiting and current limiting charge mode ensures battery in the best charging status.
- ◆ Two DC Load output, light control, time control, constant output, and multiple output control mode selections.
- ◆ PWM stepless dumpload mode, which release the excess power into dump load, making the battery charging in best status
- ◆ Design of high quality aluminum alloy appearance, with small size and good cooling effect.

VERTICAL WIND TURBINE MOTOR

No	Parameter	Symbol	Units	Data
1	Rectified DC Voltage	E	V	14V/28v
2	Gen. Output Voltage			AC (3 Pole)
3	Rotor			Permanent magnet type (outer rotor)
4	Stator			Coreless type
5	Output Power	Po	W	40/100/200/500 W
6	Rated speed	ω	rpm	180
7	Speed Constant	KE	V/Krpm	
8	Resistance (Line-Line)	RT	Ω	-
9	Maximum Winding Temp	CMax	$^{\circ}\text{C}$	140
10	efficiency	η		>80%
11	Winding type			Y
12	Insulation Resistance			100Mohm Min(500V DC)
13	Dielectric Strength			1500V AC 1minute
14	Rate Current	IR	A	5.2/2.6
15	Start torque	M	Nm	<0.1
16	Gen. weight	WM	Kg	85
17	Gen. Diameter	MD	mm	220
18	Gen. length	ML	mm	212
19	Shaft. Diameter	MD	mm	30
20	Housing Material			Aluminum (Alloy)
21	Shaft Material			Carbon steel
22	Shaft Bearing			Ball

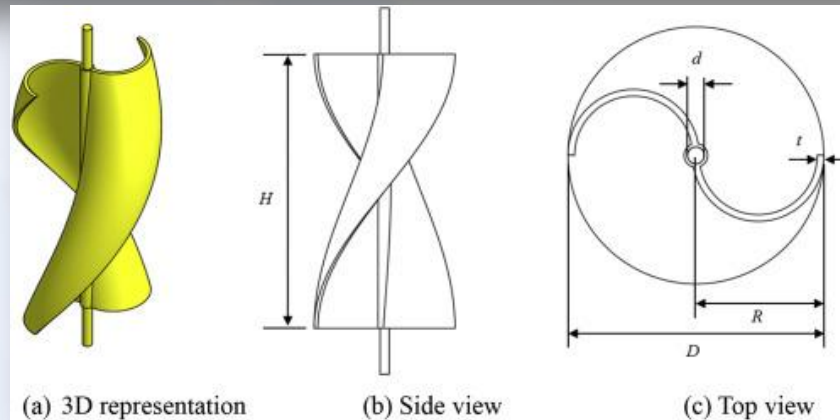
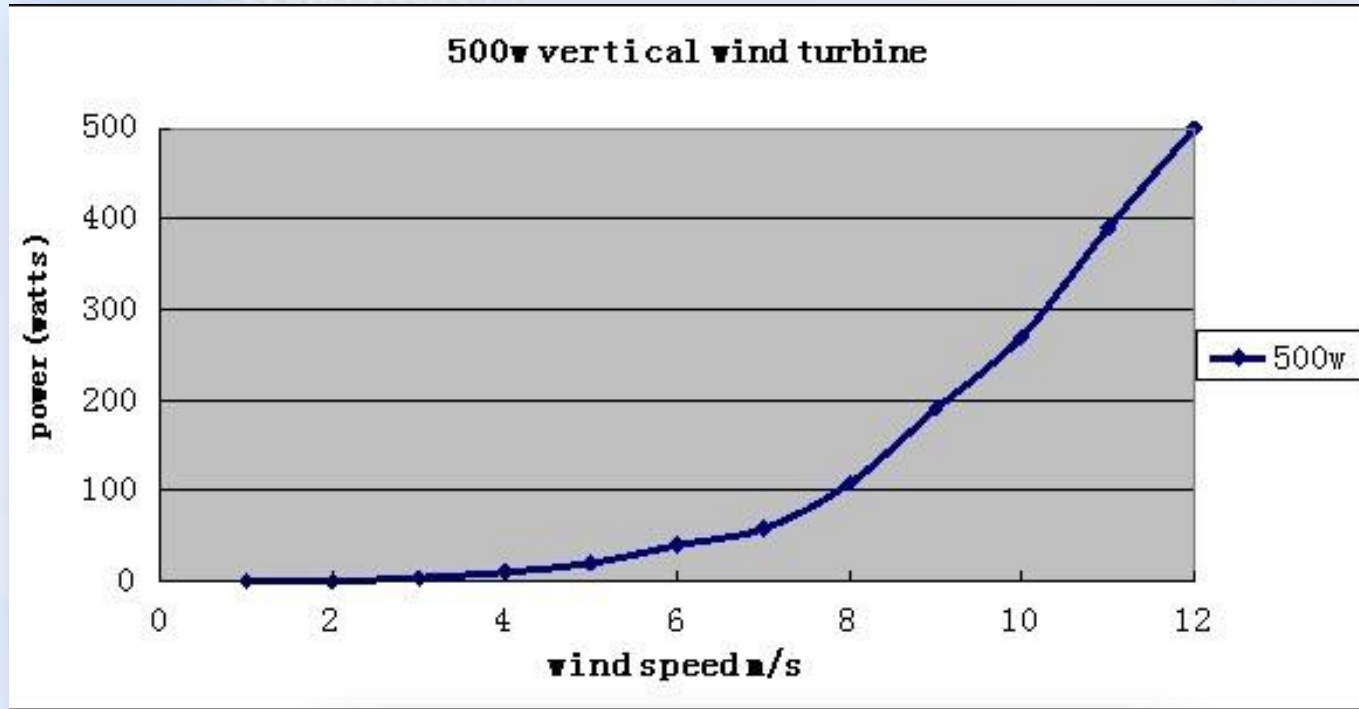


VERTICAL WIND TURBINE SPECS



MODEL	PWR-SAWT40	PWR-SAWT100	PWR-SAWT500
Rated power	40W	100W	500W
Maximum power	50W	150W	550W
Nominal voltage	12V/24V	12V/24V	24V/48V
Start wind speed	1.5m/s	1.5 m/s	1.5 m/s
Cut in wind speed	2 m/s	2 m/s	2 m/s
Rated wind speed	10 m/s	10m/s	10m/s
Survival wind speed	45 m/s	45m/s	45m/s
Rated revolution	160 r/m	160 r/m	160 r/m
Whole Weight	16 kg	26 kg	36 kg
Diameter	500 mm	520mm	650mm
Blades Height (Not included generator)	1 m	1.3m	1.5m
Blades number	2	2	2
Blade material	CBF	CBF	CBF
Generator	Maglev	Maglev	Maglev
Controller	MPPT	MPPT	MPPT
Speed way	Automatically adjust the windward angle.	Automatically adjust the windward angle.	Automatically adjust the windward angle.
Mount Height (m)	7~12m (9m)		
Environment temperature	SAWT -25~+45°C controller -10~+45°C		
Environment humidity	SAWT ≤90% Controller and inverter≤80%		
Altitude	≤4500m		
Overspeed protection	Electromagnetic brake		
Overload protection	Electromagnetic brake and unloading unit		

VERTICAL WIND TURBINE PERFORMANCE



END OF INTRODUCTION

Thank you for your attention.

We would like to cooperate and support your energy project.

POWER ELEKTRONİK SAN. VE TİC. A.Ş.

POWER SOLAR ENERJİ ELEKTRONİK ÜRETİM A.Ş.

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