



Small Vertical axis wind turbine 3000W Model DS3000 on-grid connection

Etneo introduces the small wind turbines with vertical axis made with its partners in Taiwan, nicknamed the land of typhoons. Tests conducted in test fields, the wind tunnel laboratories such as TUV NEL (UK) NREL (USA), Windtest KAISER (Germany), MIRDC (TAIWAN institute for testing of micro wind turbines) the active installations for some years up to today provide excellent production capacity, solving all the problems of the horizontal ones, noise from vibration or all the power losses due to the need to orientate the rotor to the wind.

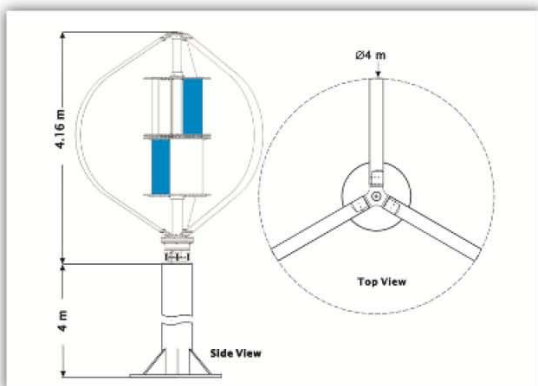
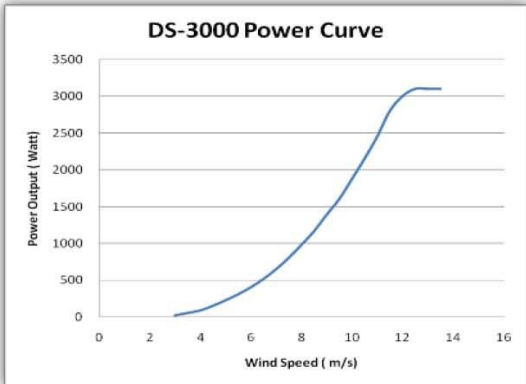
Our turbines are working on two principles: **Savonius** or inside blades with nozzles oriented on the 4 cardinal points, always ready to capture the wind, very useful at the start of rotation of the wind generator with low winds. **Darrieus** or outer blades that allows the turbine to work very well with turbulence or strong winds. Our products are ideal for grid connection with ABB inverter and energy storage systems with photovoltaic modules to ensure a larger capacity of the whole storage solution.





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PRODUCT SPECIFICATIONS

General Specifications					
Rated Power		3kW	Rated Wind Speed	12 m/s	
Rated Speed		230 rpm	Cut in Wind Speed	<3 m/s	
Cut out Wind Speed		15 m/s	Survival Wind Speed	60 m/s	
Dimensions/Weight					
Rotor Diameter		4m			
Rotor Height		4.2m			
Tower Height		4 m (minimum)			
Total Height		8.2m (minimum)			
Turbine Weight		680kg w/o tower			
Rotor Specifications					
External Darrieus		3 blades			
Internal Savonius		2 layers			
Blades Material		Anodized aluminum			
Axis Material		Galvanized steel SS400			
Generator Specifications					
Generator Type		AC, 3phase, Synchronism PMG			
Rated Output		3kW			
Braking System					
Automatic		Automatic dump-load and 3-phase short circuit braking system			
Manual		Mechanical drum brake			
Operation Conditions					
Ambient Temperature		-10~40℃			
Ambient Humidity		95% max.			

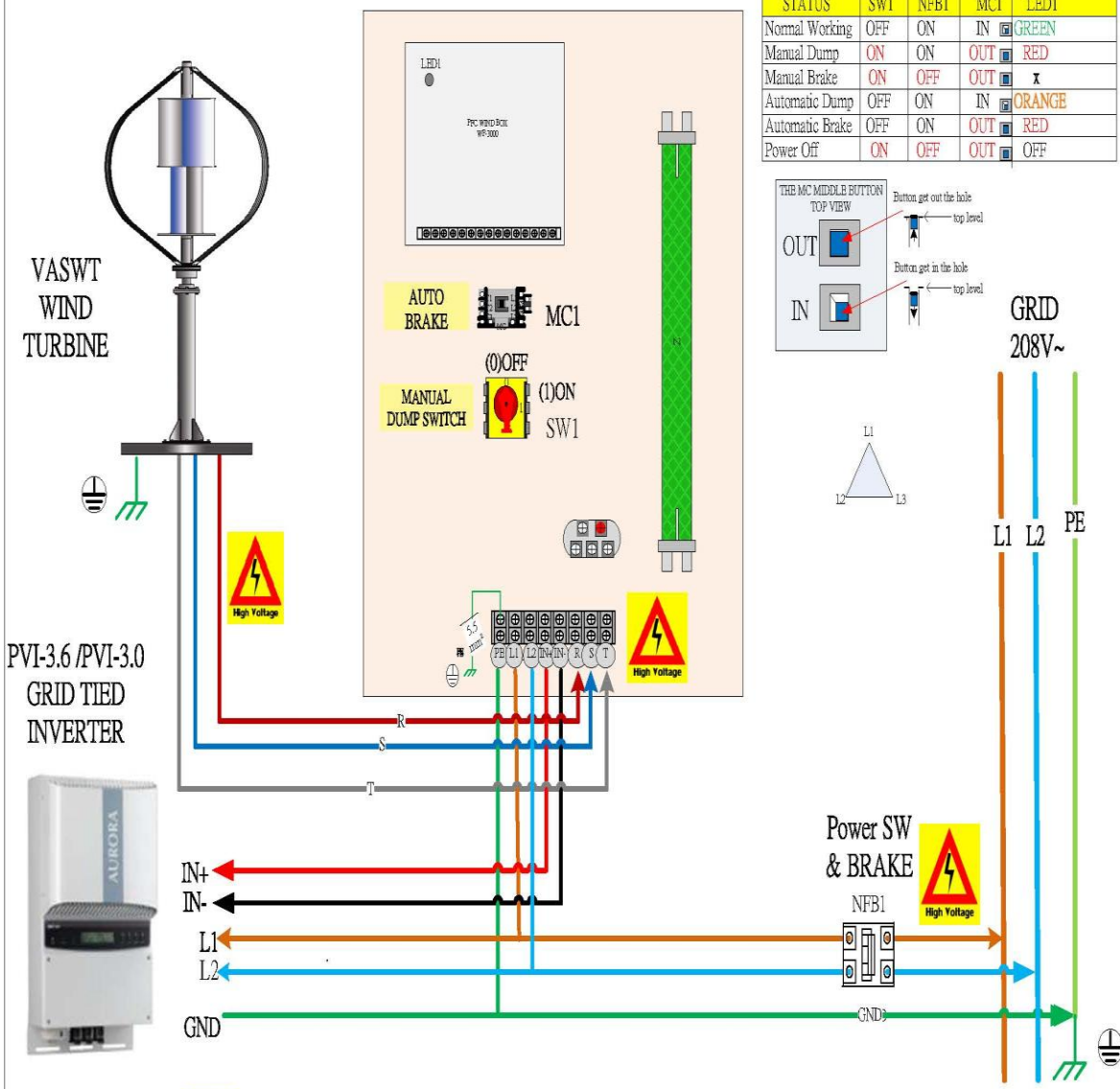
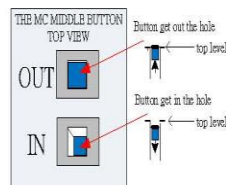


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GRID TIED SYSTEM WIRING

STATUS	SW1	NFB1	MC1	LED1
Normal Working	OFF	ON	IN	GREEN
Manual Dump	ON	ON	OUT	RED
Manual Brake	ON	OFF	OUT	X
Automatic Dump	OFF	ON	IN	ORANGE
Automatic Brake	OFF	ON	OUT	RED
Power Off	ON	OFF	OUT	OFF



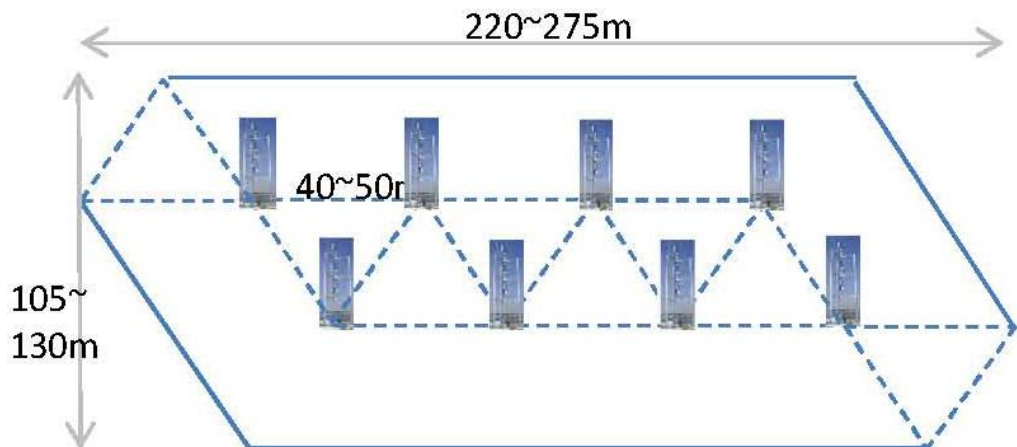


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The installation of 3kW small wind turbines towers using 3 or 4 generators presents an intelligent and innovative solution that allows all customers to maximize space without sacrificing the energy generation capacity of the system.

Compared to systems with large horizontal axis turbines the space used is really very small with good environment impact.

- The height of the poles is below 20mt.
- Foundations are smaller and allow customers to protect groundwater.
- Each wind turbine is equipped with its own inverter, better energy generation.
- A facility with 24 turbines (72kW peak power) in areas with average wind speed of 6m/s could put into the grid around 100MWh per year.



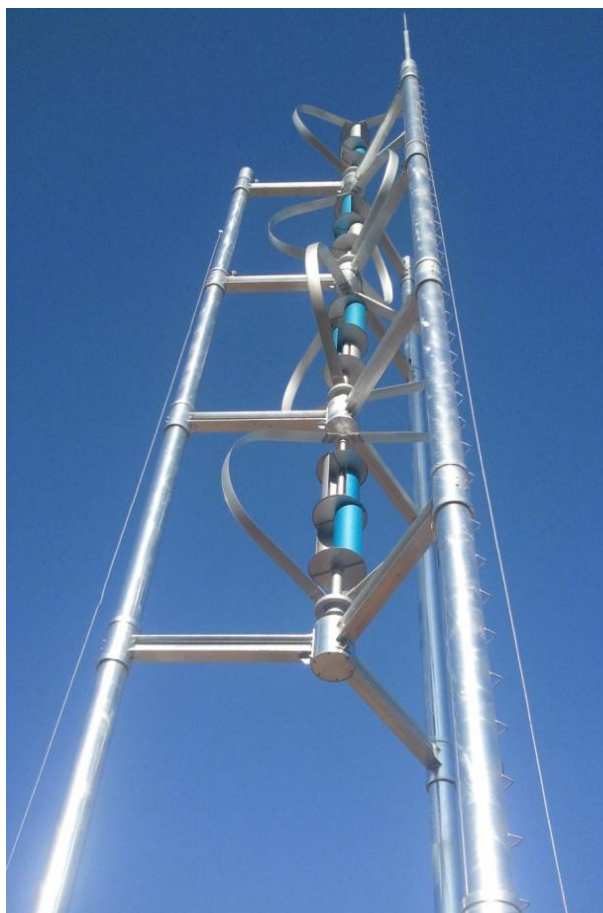


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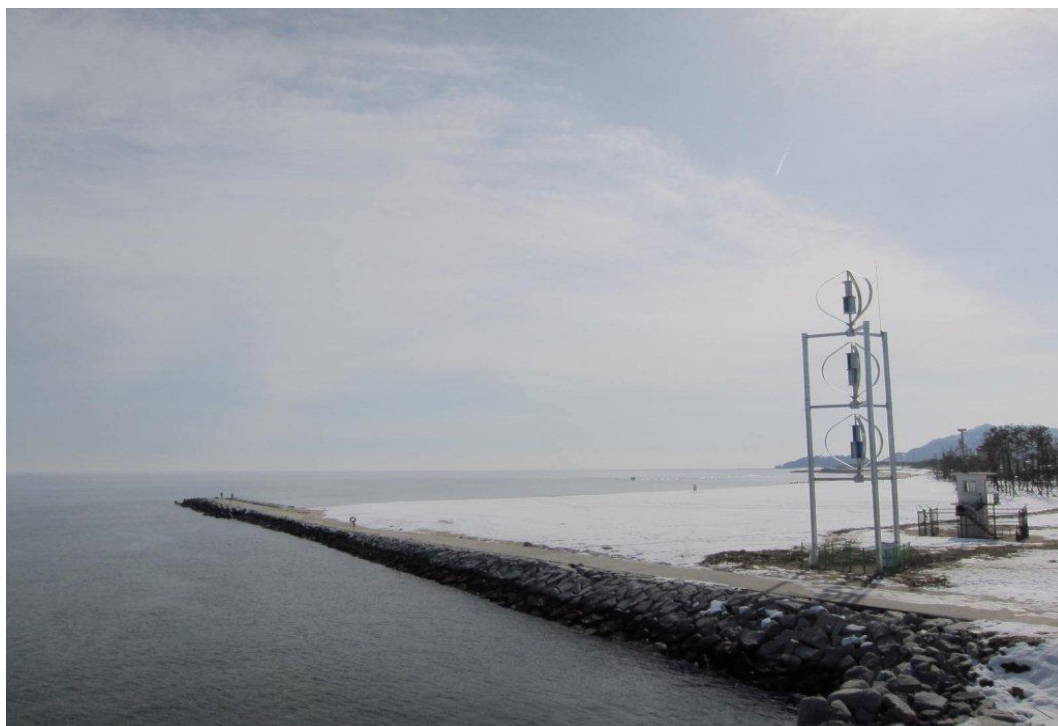


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