

Solutions presentation

Supplier: Etneo Italia

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Project name: WIND OFF-GRID



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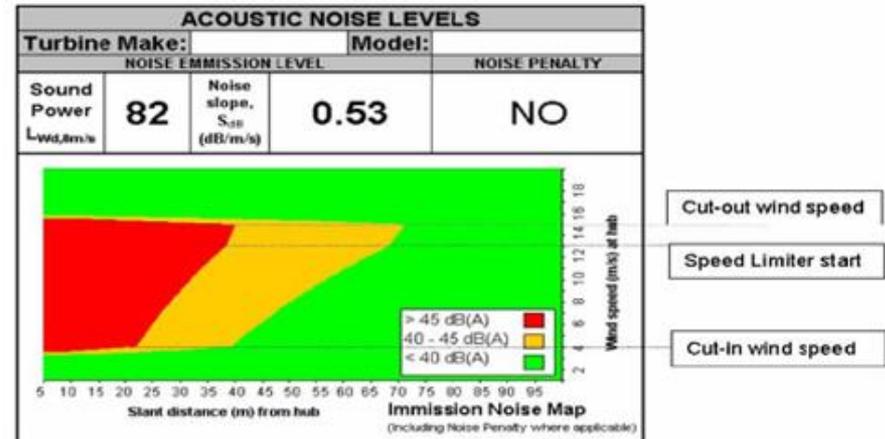
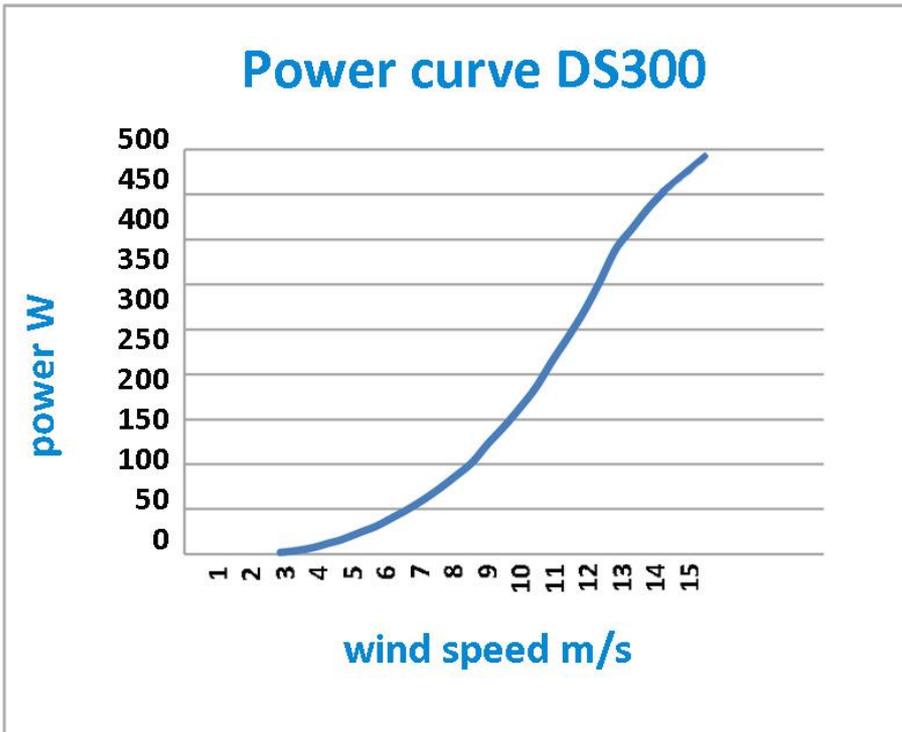


PORTION OF WIND PLANT

MICRO WIND 300W/0,5kW

The DS300 turbine is a **vertical axis micro wind generator**, with a nominal power of 300W and a maximum power of 0.5kW, which combines in its structure a dual system consisting of Darrieus blades that guarantee high efficiency and Savonius blades that allow activation of the system with very light winds. This mix of technologies makes the Hi-VAWT product highly innovative: equipped with a controller capable of managing maximum battery power and a **direct drive generator with permanent magnets**.

These turbines are built according to the IEC 61400-2 certification, a very important factor for small power generators. Very small size, weight of only 23Kg, noiselessness, are the features that make this wind turbine the perfect solution for integration with residential photovoltaic systems with storage technology in 24V batteries.

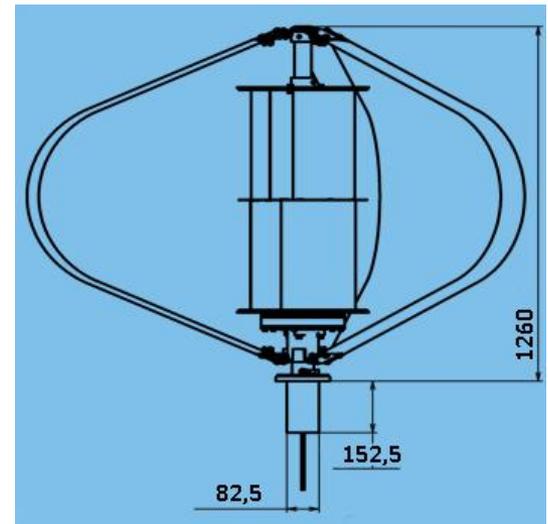
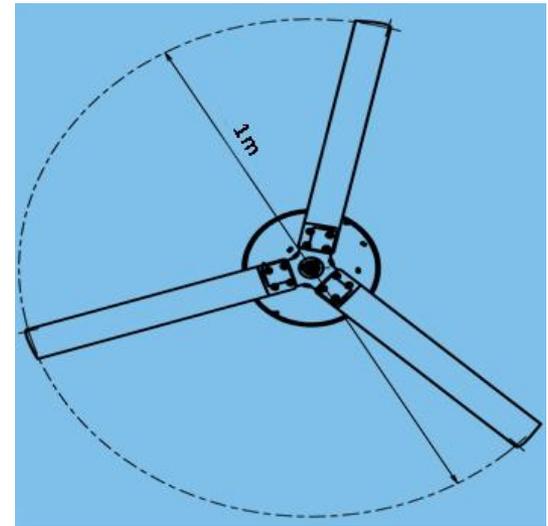
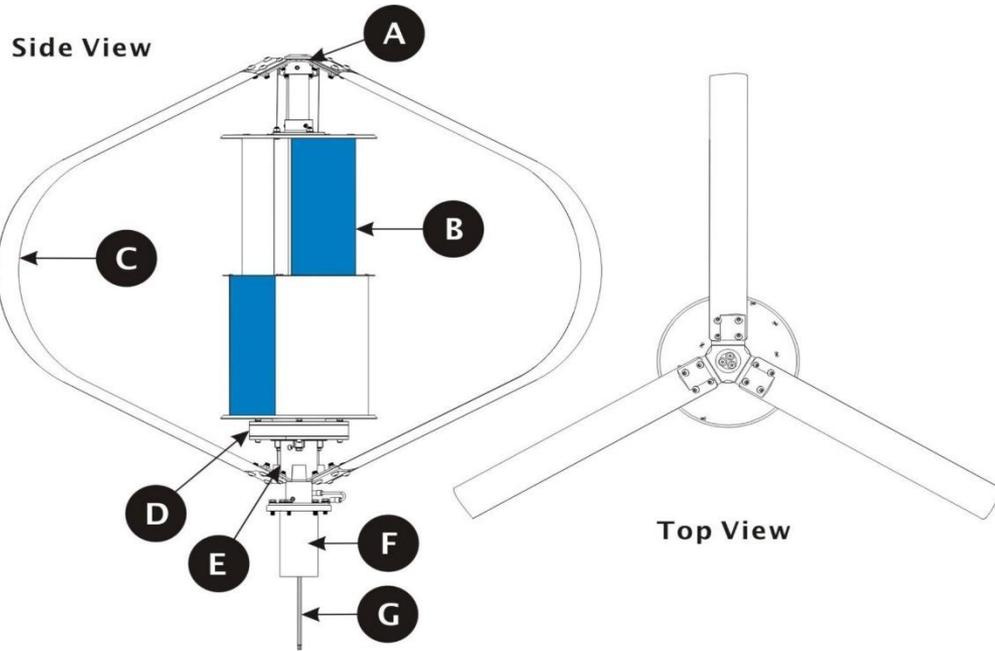


Components



Vertical wind turbine

MICRO WIND 300W/0,5kW



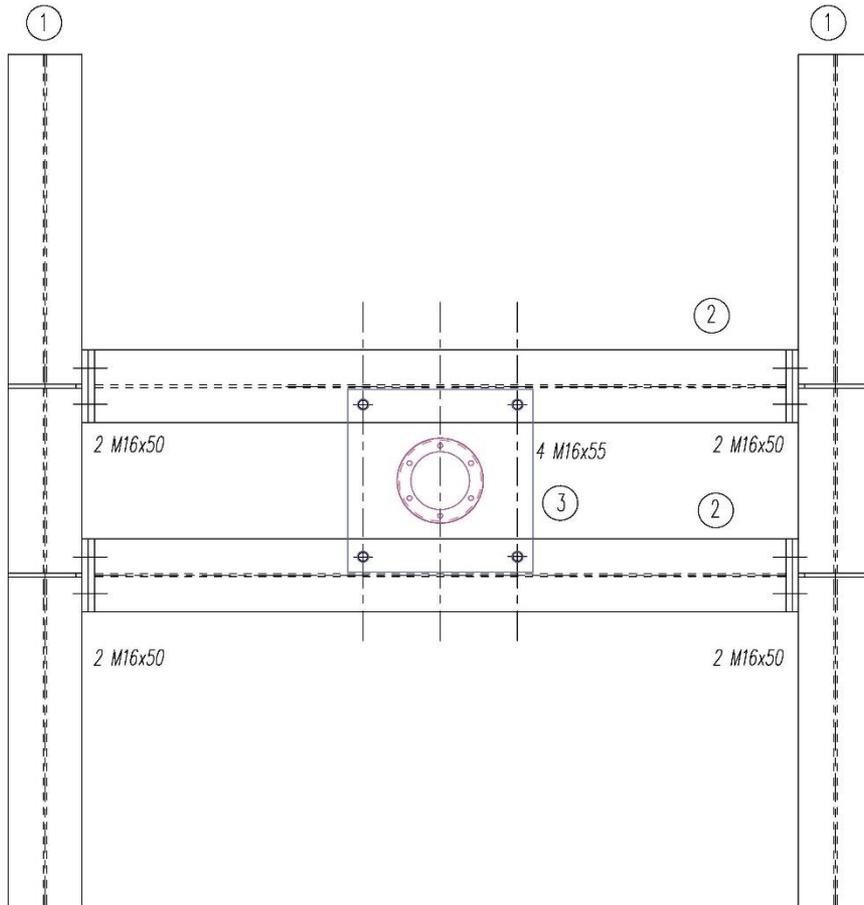
Parts	Description
A	Upper Darrieus Blades Connector.
B	S-Type Savonius.
C	3 Darrieus blades with built-in airfoil.
D	3-Phase, Direct Drive, Weather Sealed, Mechanically Integrated Permanent Magnet Generator.
E	Lower Darrieus Blades Connector.
F	Damper.
G	3-Phase R-S-T Generator Wires.

Components



Vertical wind turbine

MICRO WIND 300W/0,5kW



The pole of the vertical axis wind generator must respect the design of the connection flange of the generator itself, it is possible to make self-supporting poles with iron structures to avoid drilling the roof.

Components



Self-supporting pole

MICRO WIND 300W/0,5kW

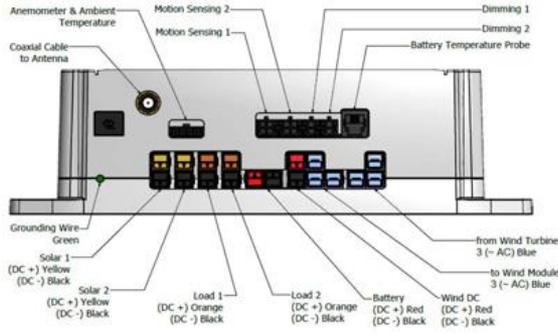
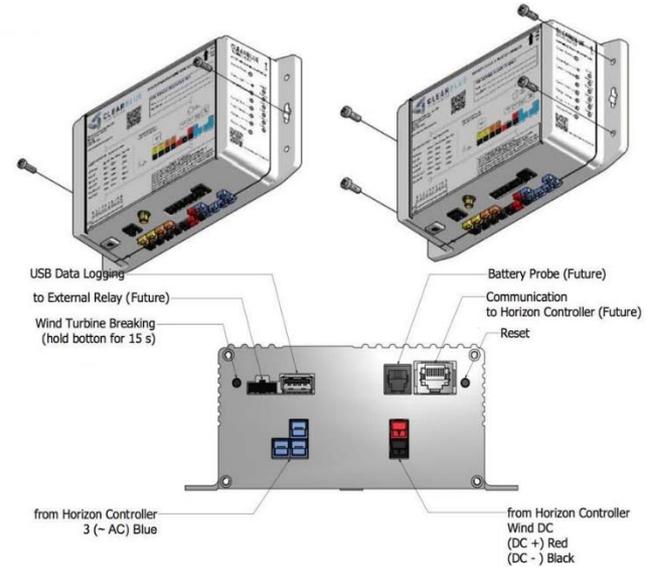
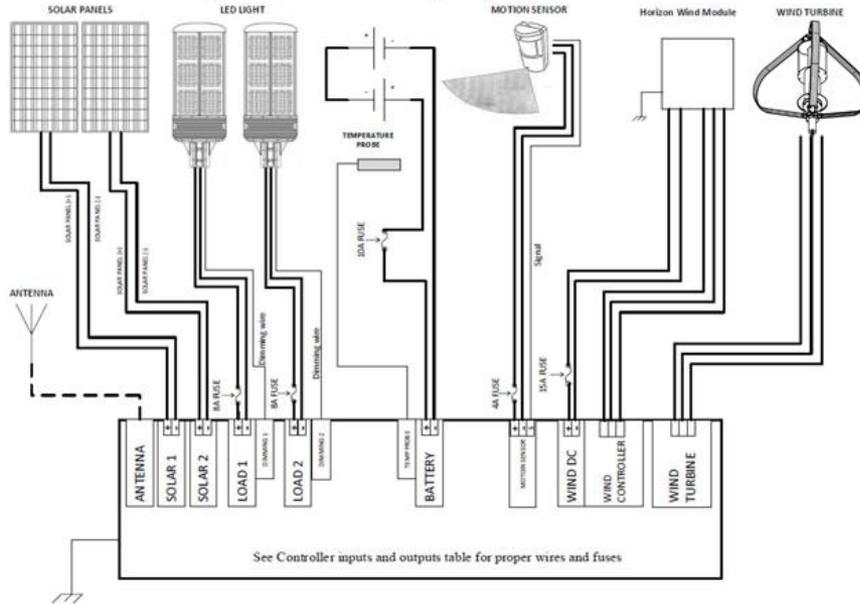


Diagram (2): a schematic diagram of a generic installation



Components



Smart controller

Nominal Voltage	25,6V
Nominal Capacity	50Ah
Internal Resistance	≤ 50mΩ
Cycles	>2000 cycles
Self Discharge	<3% per month
Energy Efficiency	>96%
Charge Voltage	28,8 ±0,4V
Charge Mode	CC/CV: Costant Current/Constant Voltage
Contiunuous Charge Current /Maximum Charge Current	25A/50°
BMS Charge Cut-off Voltage	29,4±0,2V
Contunuous Discharge Current	75A (1,92kW)
Maximum Discharge Current (<30s)	115A (3,0kW)
BMS Discharge Cut-off Voltage	20V
Charge Temperature Range	0~45C° at 60±25% relative humidity
Discharge Temperature Range	-20~60C° at 60±25% relative humidity
Storage Temperature	0~40C° at 60±25% relative humidity
IP Protection Level / Casing Material	IP66 / ABS
Dimensions	L 260* W 168* H 212mm
Weight	13,6Kg
Terminal	M8
Certification	CE, RoHS, UN 38.3, UL and CB



The use of **LiFePO4** batteries offers significant advantages over lead technology: small size, higher energy density, possibility of deep discharge up to 100%, higher resistance to high temperatures, longer life. Integrated BMS with automatic cells balancing.

Components



LiFePO4 24V50Ah (*2)

MICRO WIND 300W/0,5kW



Demonstration installation at the Etneo
Italia headquarters in Novara

Components



Installation



XTM



XTS

INVERTER 1-8kVA – 24-48V

The **Xtender kit** includes the use of 220V-24-48V inverters with variable power between 1.2-1.4-2.4-2.6-3.5-4-5-6-8kVA 16-55A on-board transfer relay.

The Xtender monitoring kit allows, both via physical display and via LAN connection to an existing internet network, to activate monitoring via the web portal in order to always have the management of active loads and wind production under control.

The temperature sensor combined with the BSP-500 battery device allows you to have a control on the battery for optimized charge management based on temperature variations and a display of the residual percentage.



BSP-500



DISPLAY RCC-02

Xcom-LAN



Components



Kit Xtender inverter

Alternatively, it is possible to have a pre-wired cabinet containing inverters, a battery control system for direct communication between energy generation and charge / discharge management, a dedicated remote monitoring system.



Components



Single-phase cabinet kit

The screenshot displays two main sections of the web portal. The left section, titled "Quick overview - Daily energy", provides a summary of energy production and consumption. It includes data for "Today" and "Yesterday" for both "Production" and "Consumption" in kWh, and "Charge" and "Discharge" in Ah. The right section, titled "Aedificare", shows a "Location" map of a building complex, with a red pin indicating a specific location. The map includes street names like "Piazza Giuseppe Garibaldi" and "Via San".

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Real-time (and historical) monitoring of the installed components via web portal. Ability to view production data, consumption, battery charge / discharge, remote interventions for assistance or maintenance.

Components



Remote monitoring via web

THANKS FOR THE ATTENTION



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