Solutions presentation

Supplier: Etneo Italia
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Project name: WIND OFF-GRID

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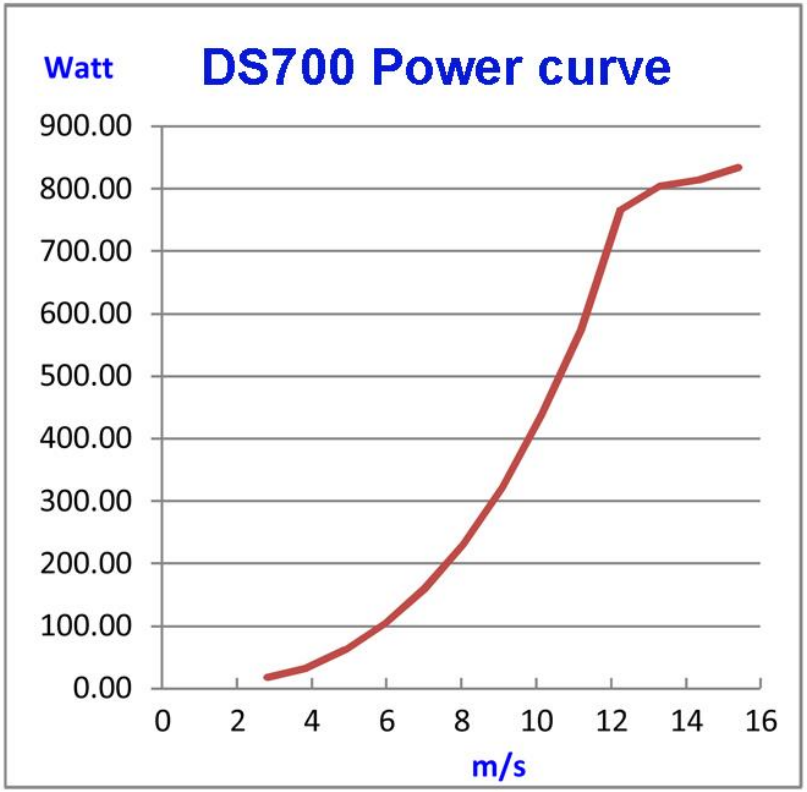
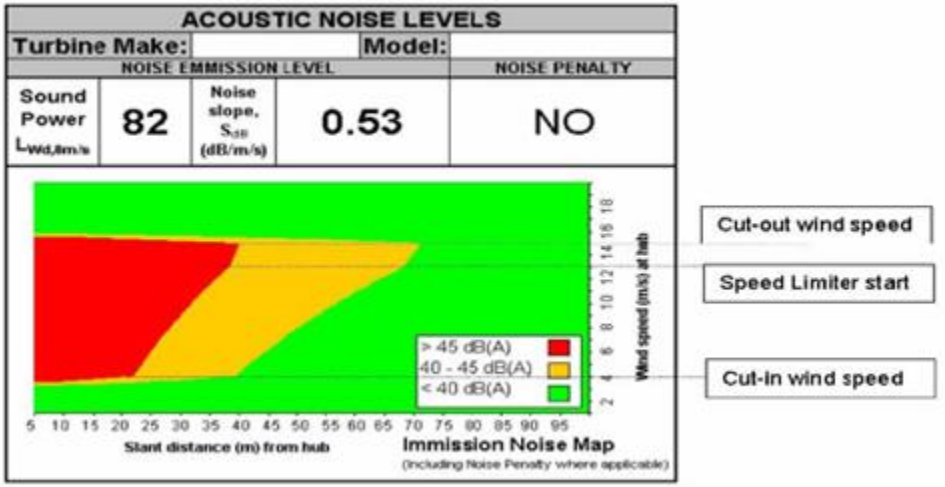
PORTION OF WIND PLANT

MICRO WIND 700W/1kW

The DS300 turbine is a **vertical axis micro wind generator**, with a nominal power of 700W and a maximum power of 1kW, 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.

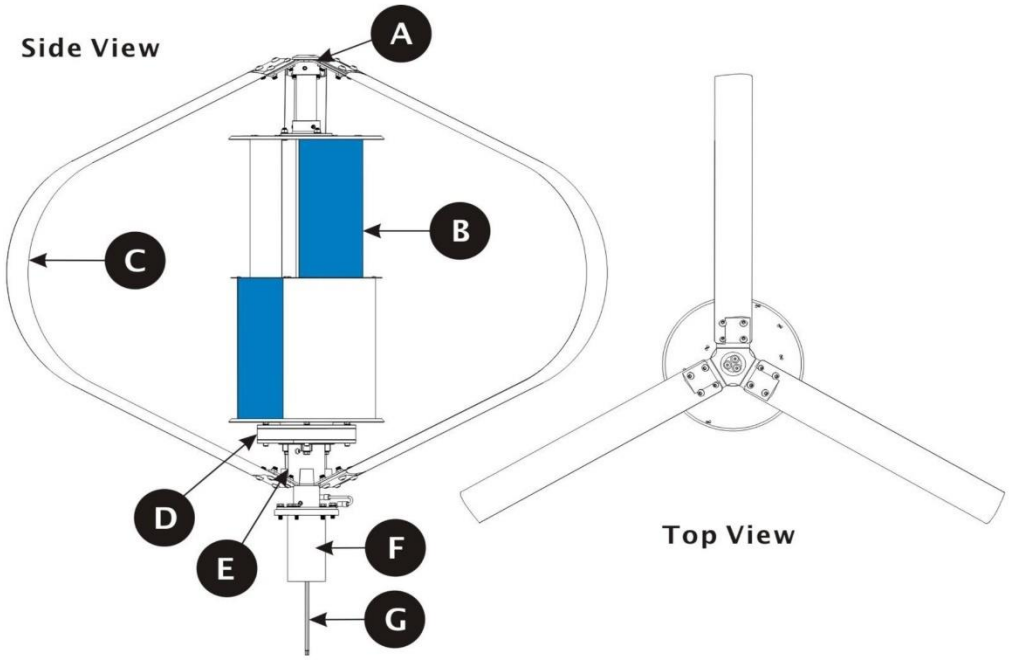


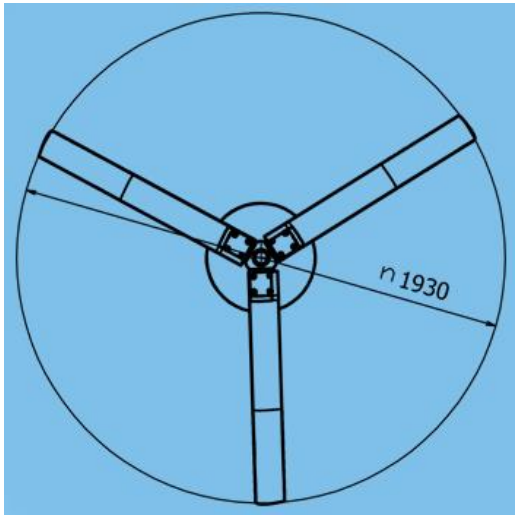


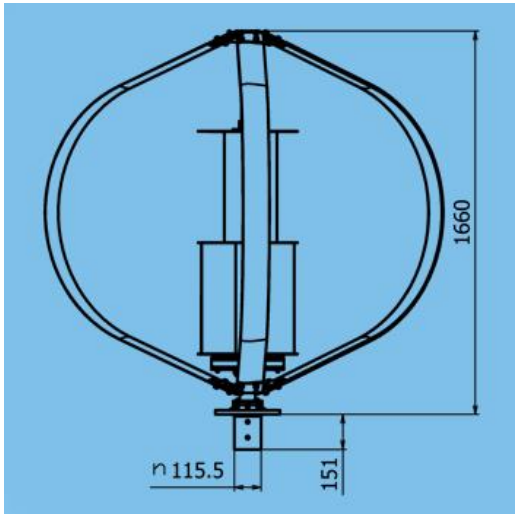
Components

Vertical wind turbine

MICRO WIND 700W/1kW







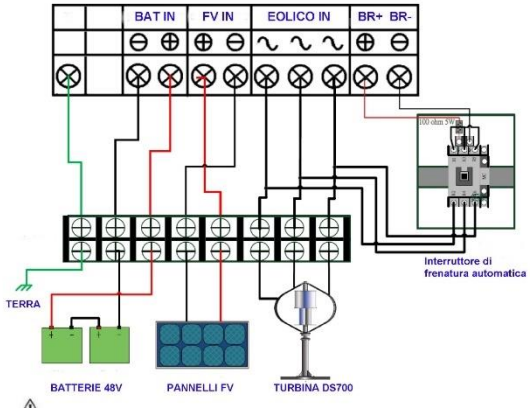
Parts	Description
A	Upper Darrieus Blades Connector.
B	S-Type Savonius.
C	3 Darrieus blades with built-in airfoil.
D	3-Phase, Direct Drive, Weather Sealed, Mechanically Integrated Permanent Magnet Generator.
E	Lower Darrieus Blades Connector.
F	Damper.
G	3-Phase R-S-T Generator Wires.

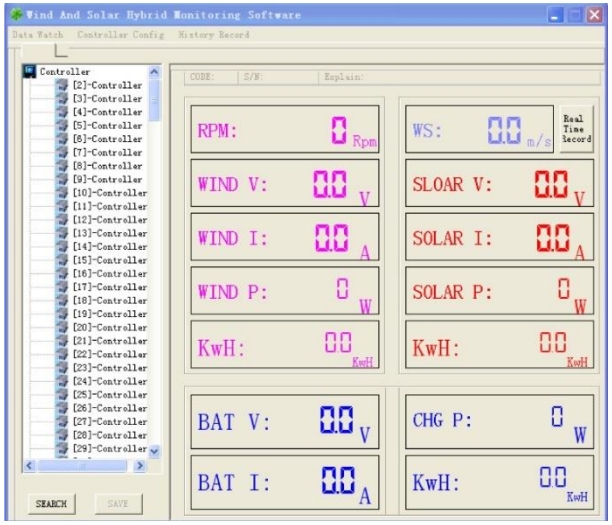
Components

Vertical wind turbine

700W/1kW Vertical wind turbine

MAX1500 WIND CONTROLLER





The hybrid controller can manage the wind source in complete autonomy through the MPPT curve management function of the turbine.

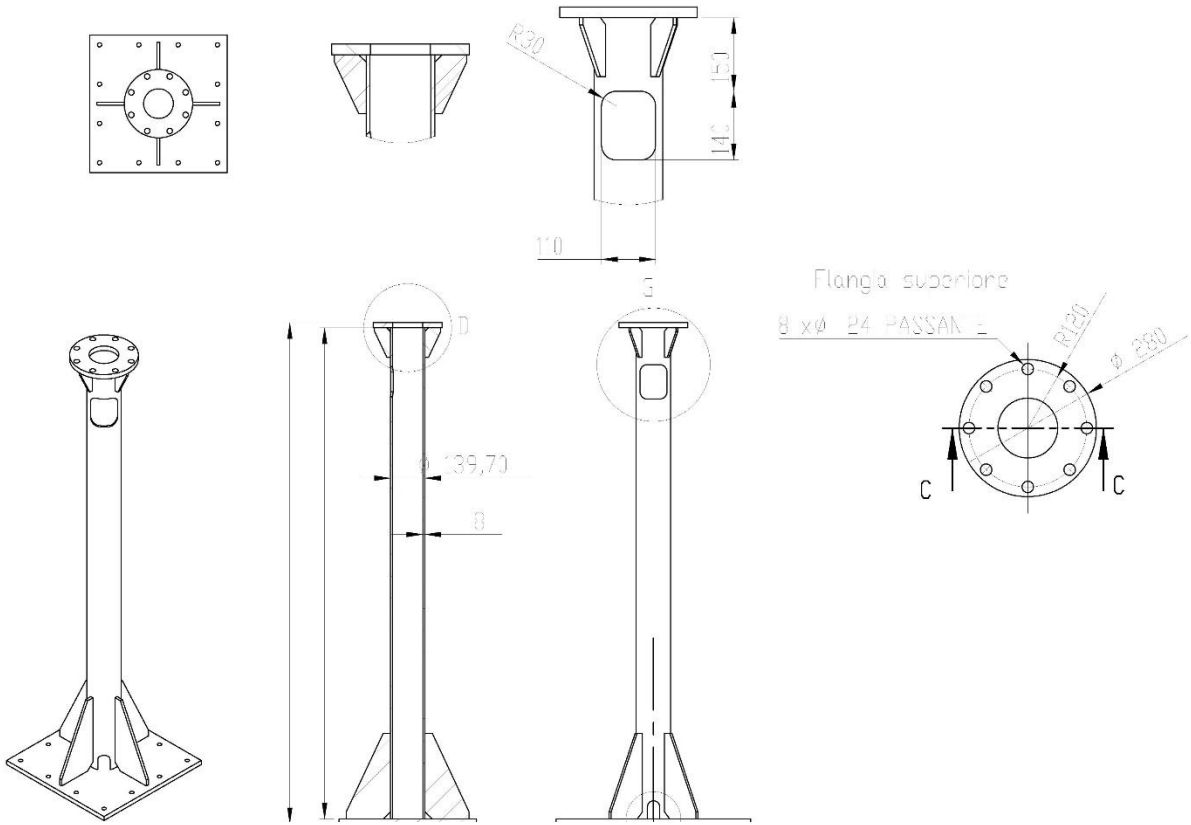
Advanced technology allows precise control over all generated values, turbine speed, output power, stored energy capacity.

The product is also equipped with all short-circuit, over-current or voltage protections, which can be managed by proprietary software on a computer via RS485-USB.

Components

Controller MAX1500

MICRO WIND 700W/1kW



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 poles for ground installation or design poles after evaluation.

Components

2m flat roof pole sample

MICRO WIND 700W/1kW

Installation at the Energy Center of the Polytechnic of Turin

Components

Installation

MICRO WIND 700W/1kW

Installation at the Energy Center of the Polytechnic of Turin

Components

Installation

Nominal Voltage	51,2V
Nominal Capacity	72Ah / 3,69kWh
Internal Resistance	≤ 50mΩ
Cycles	>3000
Self Discharge	<3% al mese
Energy Efficiency	>96%
Charge Voltage	56 ± 0,2V
Charge Mode	CC/CV: Constant current/ Constant voltage
Contiunuous Charge Current /Maximum Charge Current	35A (MAX 70)
BMS Charge Cut-off Voltage	57 ± 0,8V
Contunuous Discharge Current	90A (4,61kW)
Maximum Discharge Current (<30s)	130A (6,57kW)
BMS Discharge Cut-off Voltage	40V
Charge Temperature Range	0°~50C° a 60±25% relative humidity
Discharge Temperature Range	-20~60C° at 60±25% relative humidity
Storage Temperature	0°~50C° at 60±25% relative humidity
IP Protection Level / Casing Material	IP66/ABS
Dimensions	L 500* P 280* H 217mm
Weight	31,2Kg
Terminal	M8
Certification	CE, RoHS, UN 38.3, UL e 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

etneo

LiFePO4 48V72Ah (*x)

XTM

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.

DISPLAY RCC-02

XTS

BSP-500

Xcom-LAN

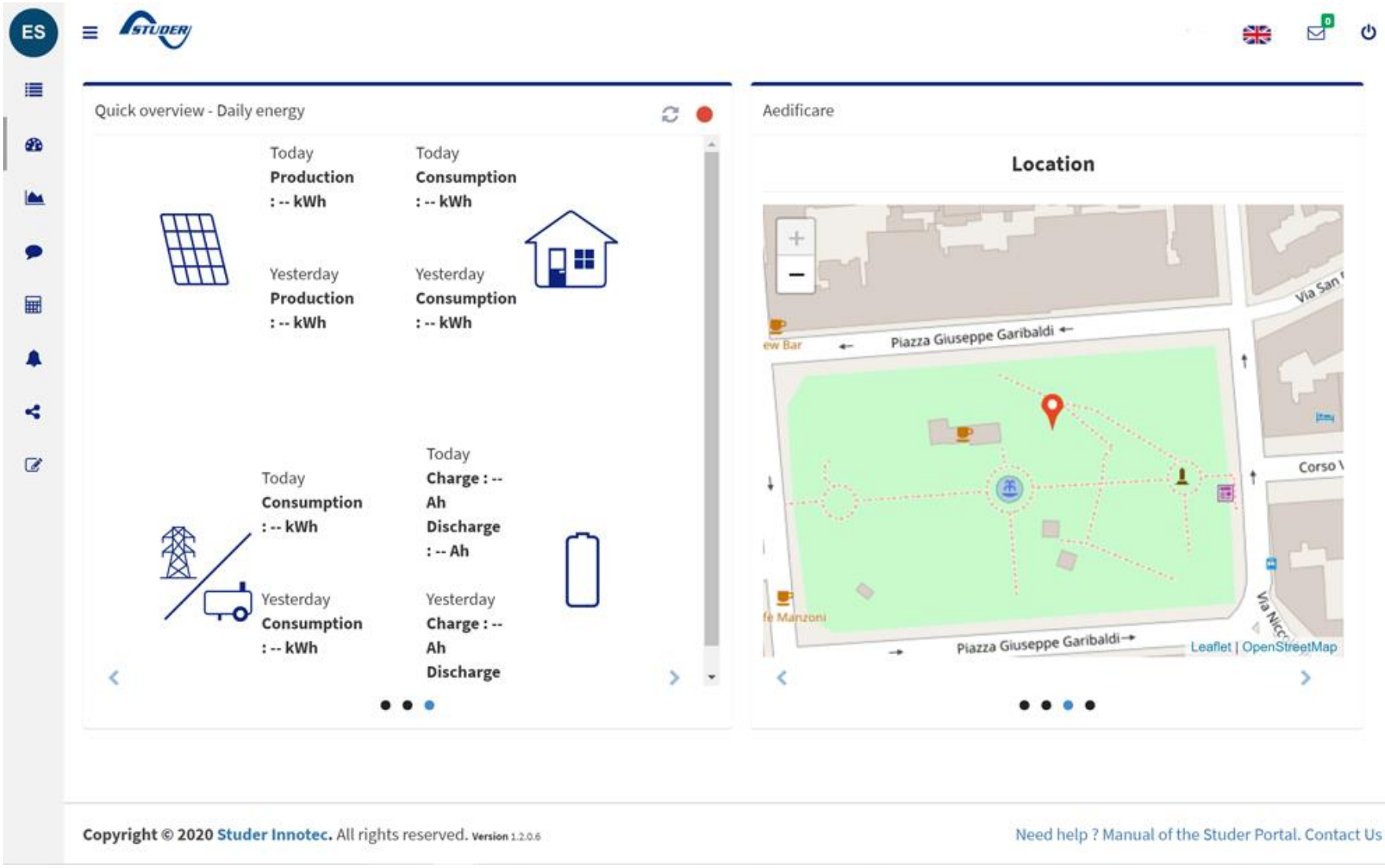
Components

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



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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