

8YE WIND

NEW CHALLENGES IN WIND POWER GENERATION

During the latest years, wind power have had an extremely important development, assuming a growing importance in the global energy scenario.

The challenges that wind energy producers are facing essentially consist in the possibility of further generated kWh cost reduction and in being able to meet higher and higher quality standards of the power to be supplied.

At the same time we are witnesses of a continuous growth in size of wind generators and a growing focus on innovative technological solution.

EEI offers a wide range of tailored solutions for the connection to the grid of wind turbines with output power up to 3 MW

MAIN CHARACTERISTICS OF EEI CONVERTERS ARE:

- Efficiency: IGBT PWM inverter and Active Front End,
- Reliability: only thin film DC link capacitors and modular design for easier maintenance operations

- Safety: self-protection functions, IGBT trigger by Optical Fiber
- Quality in energy production: low THD(I), adjustable power factor, LVRT capability.
- Flexibility: state-of-the-art solution, developed and designed according to customer needing

THREE LEVEL INVERTER

EEI has developed a new series of inverters for grid connection of wind generators based on a modulation technology at three levels. In this way, it is possible to obtain a conversion with a better reconstruction of the sinusoid and a reduction in current harmonics.

Other advantages related to this solution are:

- Fewer losses related to igtb switching
- Lower current ripple
- Better heat rejection
- Higher efficiency.

EEI three-levels inverters for wind application are especially designed for systems with Permanent Magnet Synchronous Generators and Asynchronous Generators.



MODULAR

Easy configuration for all kind of project from small to multi MW



ADVANCED

Flexible software configuration allows wide functionalities



RELIABLE

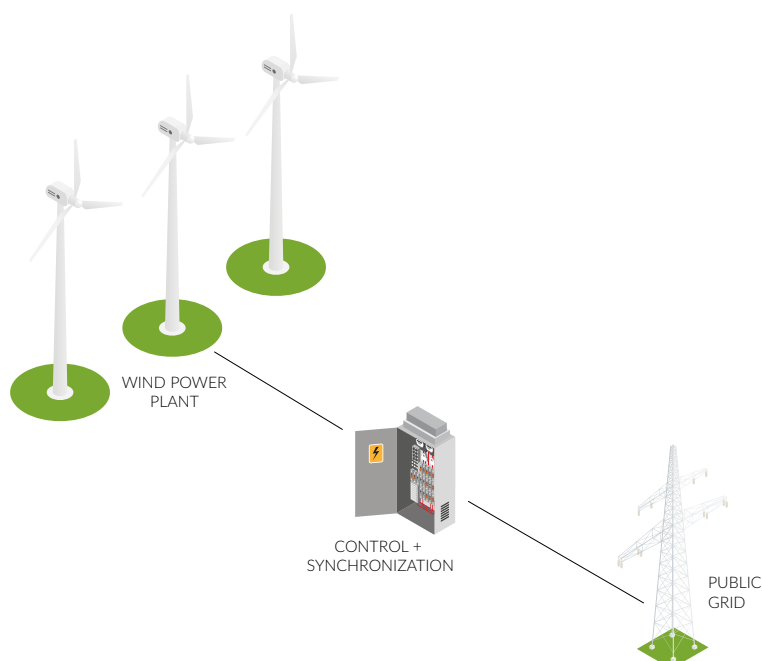
Equipped with latest power technology and design with more than 40 years of experience



FLEXIBLE

Suitable for different kind of generators



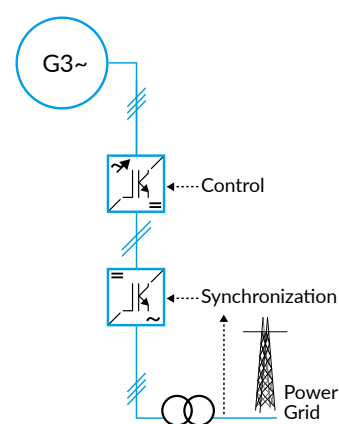


A SOLUTION FOR EVERY APPLICATION

EEL manufactures its converters for wind application in close cooperation with the generator manufacturer in order to optimize the performance, increasing efficiency and profitability system. The modular architecture allows to connect in parallel several units on the same transformer. Our inverter is customizable and suitable also for refurbishment and update of different wind turbine technologies. EEL inverter permits WTG to follow a total variable speed, improving original power curve.

EEL CONVERTER FOR DIRECT DRIVE PM GENERATOR

In the field of wind generating systems, a very performing solution is based on variable speed turbines equipped with a Direct Drive Permanent Magnet Synchronous Generator (PMSG) without installation of the gearbox. The system is based on a PWM inverter and an AFE (Active Front End) interfacing to the power grid.



MAIN TECHNICAL PARAMETERS FOR EEL CONVERSION SYSTEM ARE

Matched generator rated power	500kW - 3000kW
Altitude	0 ÷ 3000m (above 1000m the current is derated)
Operation ambient temperature	0 ÷ +40 °C
Storage ambient temperature	-15 ÷ +55 °C
Cooling	Forced air or water cooling
Efficiency	> 97%
Noise	< 82 dB
Protection degree	IP23
Protection functions	Grid-dip, Grid-side lightning, Communication port, User port lightning, Overspeed, Underspeed, Overfrequency, Underfrequency, AC overvoltage, AC undervoltage, DC overvoltage, DC undervoltage, Short circuit, Earth fault, Stator overcurrent, Overtemperature, Overhumidity, Communication fault
Voltage range	690Vac (3 phase) +-10%
Power Factor	Adjustable – Typical Power Factor = 1
Frequency range	50/60 Hz ±5%
Rated current	500A - 3000A
Overload capability	110% for 1' every 10'
Dimensions (W x H x D) mm	1960 x 2200 x 750 2880 x 2200 x 750
Certification	CEI 0-16

EEL - Equipaggiamenti Elettronici Industriali S.p.A.

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