



Feed-in Converter *aeocon*



Top Technology made in Germany

SIEB & MEYER was founded in 1962 and has been an internationally successful company in the field of industrial electronics since then. With 250 employees we develop and manufacture control and drive technology. Our product range includes controllers for the machine construction and automation technology, servo amplifiers for various drives, frequency converters for high-speed applications and feed-in technology for renewable energy. Concentration on our core competence results in a worldwide leading position for controllers in the field of PCB drilling and routing machines. Close cooperation with our customers from the development up to the troublefree operation of our products is the basis of our quality philosophy. Highly qualified engineering teams and a modern manufacturing process lead to a maximum amount of innovations and flexibility in serving our customers. Worldwide service and customer-oriented trainings are guaranteed with our headquarters in Lueneburg and our subsidiaries.



aeocon – The Smart All-rounder

The feed-in converter **aeocon** for small wind turbines has been developed based on a concept SIEB & MEYER has applied a patent for. **aeocon** combines the rectifier, the inverter and the ballast circuit in one compact housing. This concept allows triggering the external ballast resistor directly.

The „brain“ of **aeocon** is the control especially adapted to the requirements of small wind turbines. This allows excellent control of the different operating modes under consideration of the characteristic curve of the turbine. The control ensures smooth start-up of the wind turbine at every time and selection of the optimum operating point during different wind conditions. Thanks to the Maximum Power Point Tracking (MPPT) the best possible efficiency is reached particularly during partial-load conditions. The rated electric power of the device to be connected to a single-phase 230 V mains is specified with 4 respectively 5 kW. Besides the control tasks the maintenance-free device fulfills various protective functions during operation – for example the controlled load of the rotor in the event of an AC power failure by means of an external ballast resistor.

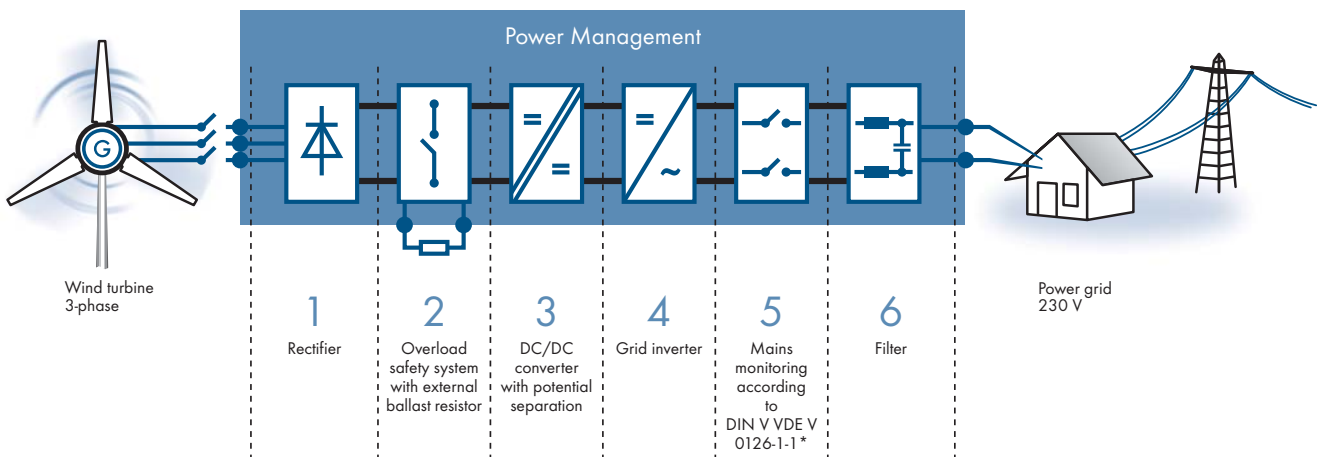


Why aeocon?

aeocon extracts the maximum of the small wind turbine. The converter is a real expert for the operation of wind turbines. The control speed meets the high demands of small wind turbines. **aeocon** monitors the rotor speed by using the generator frequency. Together with the 8 interpolation points used for precise adjustment of the control curve **aeocon** reaches excellent control performances. Furthermore, the control curve automatically adapts to the current wind conditions and thus compensates mechanical construction tolerances of the wind turbine. The wide input voltage range allows effective operation also at low wind speeds. When the small wind turbine not generate power **aeocon** shuts down and does not use power from the grid.

As soon as the small wind turbine supplies **aeocon** with power, **aeocon** switches on and controls the turbine. Since small wind turbines often operate under partial-load, **aeocon** is optimized to reach high efficiency also in this range. This in turn has positive effects on the energy yield. But what happens, if the wind turbine generates more power than can be fed into the electric mains or if mains power fails? **aeocon** activates the load resistor and safely discharges surplus power up to 5 kW. This energy – converted into heat – can for example be used to support the heating system. The integrated galvanic separation allows parallel connection of the devices ensuring an optimal field of application also in three-phase feed-in small wind turbines at powers up to 12 respectively 15 kW.

Block Diagram for aeocon



The Interfaces of **aeocon**



Monitor the Wind!

aeocon comes with a data logger including a real-time clock which continuously records the performance of the wind turbine. The memory is equipped with a battery, ensuring that no data will be lost during windless conditions. The graphic display integrated in the device front provides all relevant information on the operating state of the system. The following values can be displayed:

Mains power	P_{Mains}
Mains energy	E_{Mains}
Power of the heating resistor	P_{Heat}
Energy of the heating resistor	E_{Heat}
Speed of the wind turbine	n_{WT}
Generator voltage	U_{WT}
Converter temperature	T_{aeocon}
Mains voltage	U_{Mains}
Mains current	I_{Mains}
Mains frequency	f_{Mains}

Via the terminal parameters in the data logger are shown and the real time clock can be set. Switching between English, German or French is possible.



Input (3-phase)	
Generator type	Permanently excited synchronous generator
Operating voltage range	40 V _{AC} to 340 V _{AC}
Maximum voltage	400 V _{AC}
Optimum generator voltage at rated power	300 V _{AC}

Ballast circuit	
Switching threshold	480 V _{DC} (correspond to 340 V _{AC} generator voltage)
External ballast resistor	22 - 46 ohms, 5 kW

Output (1-phase)	
Rated voltage	230 V _{AC}
Rated power aeocon 3600/4600	4 kW / 5 kW
Rated current aeocon 3600/4600	17 A / 22A
Mains frequency	50 Hz / 60 Hz
Mains monitoring	DIN V VDE V 0126-1-1 *

General data	
Weight	25 kg
Dimensions (h x w x d)	537 x 306 x 203 mm
Protective system	IP40
Type of cooling	Natural convection
Admissible ambient temperature	-20°C to +40°C

The stated current and voltage values are rms values.

* EN 50438 and G83/1 in preparation



- **CNC Controllers**
- **Drive Electronics**
- **Feed-in Technology**

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