

ADI converters help ensure remarkable 99.96% availability for Bachmann's wind turbine control systems

bachmann.

Over the past ten years, global wind power capacity has continued to grow at an average cumulative rate of over 30% annually, owing to growing global demand for emissions-free power generation infrastructure that can be installed quickly, virtually everywhere in the world. With the market for wind turbine installations estimated to be worth more than \$53 billion (2008), wind energy is an increasingly significant industrial sector.



Designers and manufacturers of wind turbine systems are challenged to develop wind turbines that can ensure highly reliable power generation over a lifetime of up to 25 years, maximizing system availability to ensure the highest possible energy yield and return on investment. Bachmann Electronic's wind turbine control systems are specifically designed to meet these daunting lifecycle and reliability requirements and are currently in use in more than 30,000 wind power plants around the world. Using ADI analog-to-digital converters (ADCs) and other ADI precision components, Bachmann's electronic control systems deliver unprecedented availability of more than 99.96%, working reliably and flawlessly even in extreme conditions.

ADI's ADCs play an integral role in wind turbine systems, facilitating highly-granular data acquisition for functions spanning generator and power converter control to system integrity monitoring—all of which serve to maximize operational efficiency and safety. In its condition monitoring systems for wind turbines, Bachmann uses ADI ADCs to digitize signals from piezoelectric sensors. Mechanically coupled to system surfaces, these piezoelectric sensors are used to sense movement and vibrations that might indicate pressure changes and/or subsystem displacement, which signals the potential for mechanical failure.

Bachmann also utilizes ADI operational amplifiers (op amps) within its wind turbine condition monitoring systems and uses a wide range of ADI components—including multiplexers (Muxes), *iCoupler*[®] digital isolators, and amplifiers—within its broader portfolio of industrial control systems.



Bachmann's electric wind turbine control system is housed adjacent to the main turbine, pictured here during installation.

“Analog Devices is able to provide us with a broad range of high-performance converters and complementary products and, in my opinion, stands alone in its competence in supplying such devices to the industrial market.”

**Gunnar Vogel, product manager control systems,
Bachmann Electronic**