

Wind Turbine Test and Evaluation

There are not many industrial applications where mechanical and electrical engineering are as intermeshed as in the field of wind energy engineering. The complexity of evaluating, measuring and testing a modern wind turbine system poses a great challenge. The elements involved include power quality and power performance measurements as well as structural analyses, load measurements or acoustic evaluations, to mention just a few.

Many of the leading companies in the wind power business, among them the world market leader Vestas and the test and evaluation company DEWI, use imc technology to develop, test and evaluate the latest generation of wind power equipment.

Especially for those applications, imc offers a wide range of centralized and decentralized measurement systems. CANSAS and CRONOS PL are well adapted to be used in any kind of onshore and offshore wind technology application.

Mechanical and environmental data can be acquired as well as electrical and power information.

The integrated and comprehensive measurement systems offer PC-based or stand-alone variations, connected to Ethernet networks or modem communications.

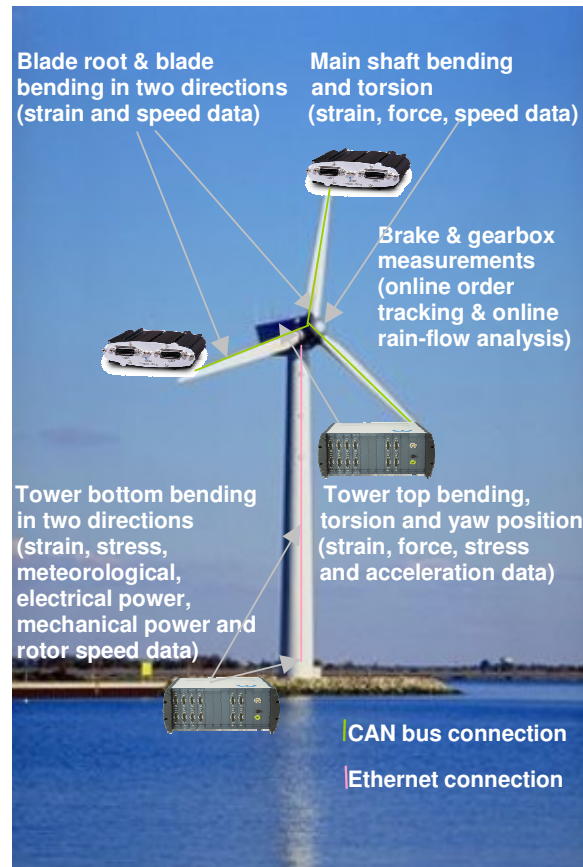
A ready-to-go software package covers the complete path from setup to the report, and in order to create a turnkey solution, a COM library offers the software and hardware integration in every modern programming language

Online FAMOS – an online data evaluation and online calculation tool – is the key to one of the systems most powerful features. With over 100 online functions, many of them designed to perform special mathematical and statistics calculations, Online FAMOS provides users with 'results on demand'. Online functions include data reduction, frequency analysis, digital filters, class-counting functions (LDC), order tracking and an 'Event Log-book' among others.

In addition to on-site measurement operation, remote control capabilities via Ethernet or modem connection offer a new dimension. Especially for un-manned wind farms, remote system checks, new configuration uploads and data downloads are vital and cost effective.

The measurements and tests handled by imc equipment include not only all sorts of mechanical and electrical measurements. Online and offline evaluations benefit a wide variety of wind power applications:

- Performance measurements (based on IEC17025 2000)
- Power quality measurements and evaluations
- Structural and load measurements (based on ICE 61400-13)
- Wind turbine analysis
- Load Spectra evaluations



Example for structural & load measurements with CANSAS used for blade and main shaft measurements and CRONOS PL used for tower and nacelle measurements

