Measuring system for acoustic noise emission of wind turbines conforming to IEC 61400-11 and FGW TR1
Measurement of acoustic noise emission of wind turbines with RoBin

Wind turbines are built at more and more locations – which makes their noise emission an important subject. The international standard IEC 61400-11 and the german “Technische Richtlinie für Windenergieanlagen, Teil 1” of the FGW were set up in order to unify the evaluation of noise emission.

Measurement of noise emission according to these standards is linked to formidable challenges, especially for the installation of testing equipment and evaluation of data. Our measuring system RoBin provides a complete and coherent hardware and software package, which implements the measurement conforming to standards comfortably and efficiently.

Measurement on-site: Hardware

The main component of RoBin is a weatherproof sound level meter/monitoring station (DUO smart noise monitor) which detects noise by means of a double shielded outside microphone. A flexibly applicable data logger with 6 freely configurable analog inputs, a USB- and a fieldbus access undertakes the task of detecting the operation data of the wind turbine. Meteorological data are detected by sensors of meteorology which are consistent with the demanded class of accuracy. Transmission of data and electrical power supply are carried out via WiFi- or the Lithiumaccu-technology, respectively. A radio remote control tags the measurement status (operating and background noise) and marks disturbing noise. Wind bin administration is done automatically in real time.

You can comfortably monitor the measurement via tablet PC – where required this is possible for several wind turbines at the same time.

Evaluation of data in the office: Software

Our established noise emission software Noisy with its option RoBin evaluates the measured data. In a clearly arranged evaluation mask you can select the appropriate options and start the evaluation at the push of a button. Our automatic report generator makes the process extremely efficient.

Advantages of RoBin

- No measurement cables: Wireless transfer of meteorology data, operation data of wind turbine and microphone data over a self-sustaining WiFi-network;
- Handy: Standard accessory comes in feasible and handy portable tool boxes;
- Flexible: Digital, analog and software interfaces to detect operating data of turbines from different OEMs;
- Clearly arranged: Online evaluation together with a display of the current progress of measurement;
- Calibratable: Sound recording by a class 1 sound-level meter;
- Exact: Remote control to tag disturbing noise;

RoBin – Wireless measurement system for noise emission
Who needs RoBin?

- Producers of wind turbines who want to optimize and document the acoustic noise emission of their wind turbines;
- Designers and operators of wind farms who have to prove their compliance with official requirements;
- Consultants who offer measurement of noise emission conforming to standards;

Your benefits

- Efficient application: Only one person needed;
- Easy and fast: Evaluation of data and generation of report at the simple push of a button;
- Ready to use: All components are complete and are ideally coordinated;

Scope of delivery:

- Weather-resistant data acquisition system for data of meteorology, turbine operation, equipment and microphone, including sound-level meter, DUO smart noise monitor (class 1)
- Sound-reflecting plate with microphone together with adapter, including a primary and secondary windscreen (optional)
- Data logger to record operation data with analog, digital and software interfaces
- Sensor system of meteorology (wind direction, wind speed, temperature, air pressure) with the demanded class of accuracy
- Stand (max. height: 11 m) with pneumatic erection aid (optional)
- Radio remote control to transfer the status: operating/background/disturbing noise
- Lithium-battery for power supply of measuring facilities
- WiFi antennas for wireless data transfer, including stands
- Portable toolboxes for the complete equipment and accessory
- Software option RoBin for Noisy: Software extension for data recording conforming to standards and evaluation of acoustic noise emission of wind turbines (IEC 61400-11/FGW Technische Richtlinie für Windenergieanlagen)

Measurement positions conforming to IEC61400-11
The company...

Vibrations, structural mechanics and acoustics – this is the world we live in and focus on. Be that the numerical analysis and design of a production facility against earthquake, the measurement of acoustic emissions of a wind turbine, multi-purpose measurement systems for noise and vibrations or noise mapping software for immission control – our scope of services and systems always focuses on dynamics and acoustics.

...its experience...

Founded in 1971 by Professor Dr.-Ing. Horst Peter Wölfel today we look back to 4 decades of experience in the services and systems business. At the very heart of our activities lie people: our more than 70 highly qualified employees - civil, mechanical and electrical engineers, complemented by information technology experts, mathematicians and research scientists. Benefit from our healthy mix of experienced engineers with their capability to assess and analyze your problem at first glance, and talented young professionals, who are efficient and effective at innovative areas as e. g. active vibration control!

...and its orientation...

For all of us, the motivation for our daily work is the satisfaction and success of our customers. Our success in doing this is demonstrated by our stable and personal relations to our customers, well-established partly over decades, with our clientele being medium- as well as large-sized companies not only coming from Germany and Europe, but also from America and Asia. The quality of our services and their constant improvement are guaranteed primarily by this focusing on the customers’ success, but also by our ISO 9001-compliant quality management system, complemented by specific certifications and accreditations.

Headquarters in Hoechberg near Wuerzburg

Engineering Services  Products + Systems

Hoechberg  Berlin  Bremen  Vienna

Today, standing still means taking a step backward – for this reason we strive to maintain and continually expand our leading position in technology by strategically getting involved in research and development projects.

Your personal contact

Dieter Müller
Phone: +49 931 49708 0
Fax: +49 931 49708 150
mueller@woelfel.de
www.woelfel.de

www.woelfel.de/robin