Generator wind temperature and vibration

How accurate are vibration signals in wind turbine generators?
Evaluation of the bearing in horizontal, axial, and vertical, with an accuracy of 91%. Non-stationary vibration signal in the absence of an external hardware sensor. Acoustic and vibration signals for different fault cases for gearbox in Wind turbine generators, with hybrid ensemble is developed by stacking the RF, DT, KNN.

Why do generator end windings vibrate?
The vibration of generator end windings has been a topic of concern since the beginning of power generation. Current flowing in the rotor and stator give rise to magnetic fields. The resulting forces lead to vibration within the stator core,but more seriously at the stator end windings and their support structures.

Can resonant vibration cause a generator end winding failure?
resonant vibration condition can lead to movement and forces that can compromise the stator bar insulation and possibly cause a complete failure of the generator. Currently, there is not a set of established industry standards or acceptance criterion for generator end winding vibration.

Is there a standard for generator end winding vibration?
Currently,there is not a set of established industry standardsor acceptance criterion for generator end winding vibration. There are many differing points of view within the power industry concerning the sources of vibration,methods of analysis,and solutions.

Can a vibration sensor detect a wind turbine fault?
Currently,the state of the art in wind turbine fault detection is limited to vibration as the sole variable. However,vibration sensors can only detect 5-20%of torsional vibration in the drivetrain,caused by the dynamic and natural frequency of the system .

How do we classify a wind turbine generator?
During feature extraction,vibration comparison was used to evaluate the behavior of the wind turbine generator (WTG) and classify it into three categories: 0 for normal operation,1 for gearbox failure,and 2 for bearing failure. The evolutionary information consisted of a matrix of "n" events with three classifications.

Specifically, in two-pole generators, bearing vibration can indicate the presence of shorted turns in the rotor winding caused by thermal or thermomechanical problems, copper dusting and/or ...

Wind turbine generator output cables are subjected to alternating torsional loads during long-term operation, combined with electrothermal stress, which may lea ... Research ...

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In this paper, we propose to use a novel feature, the vibration index, derived from the vibration data, to understand the power loss in wind turbines. The methodology adopted in ...

Jun W proposes a new simple and effective vibration order tracking method with the aid of a generator stator current signal for generator bearing fault diagnosis of variable-speed direct-drive wind turbines. First, the ...

High rotational speed, electromagnetic vibration, misalignment with the gearbox and shaft current corrosion etc. may damage stator winding, rotor winding or the bearing in the ...

When people think of wind power, most imagine rows of giant turbines stretching across wide expanses of land. David Yáñez envisions something else entirely. Yáñez is co-founder of Vortex Bladeless, a Spanish ...

This paper overviews the establishment of a numerical benchmark for vibration-based monitoring of a small-scale Windspot 3.5-kW WT blade. The numerical benchmark serves as a digital twin to its experimental ...

When people think of wind power, most imagine rows of giant turbines stretching across wide expanses of land. David Yáñez envisions something else entirely. Yáñez is co ...

This wind generator comprises a high-quality aluminum alloy body and nylon fiber blade, features low start-up speed, high wind energy utilization, and low vibration. The turbine adopts a three-phase magnet motor, built-in controller, and hoop ...

the generator/base combination"s interface with the rest of the structure. Minimizing generator set vibration can both reduce the transfer of energy to building structures--that is, the dynamic ...

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