

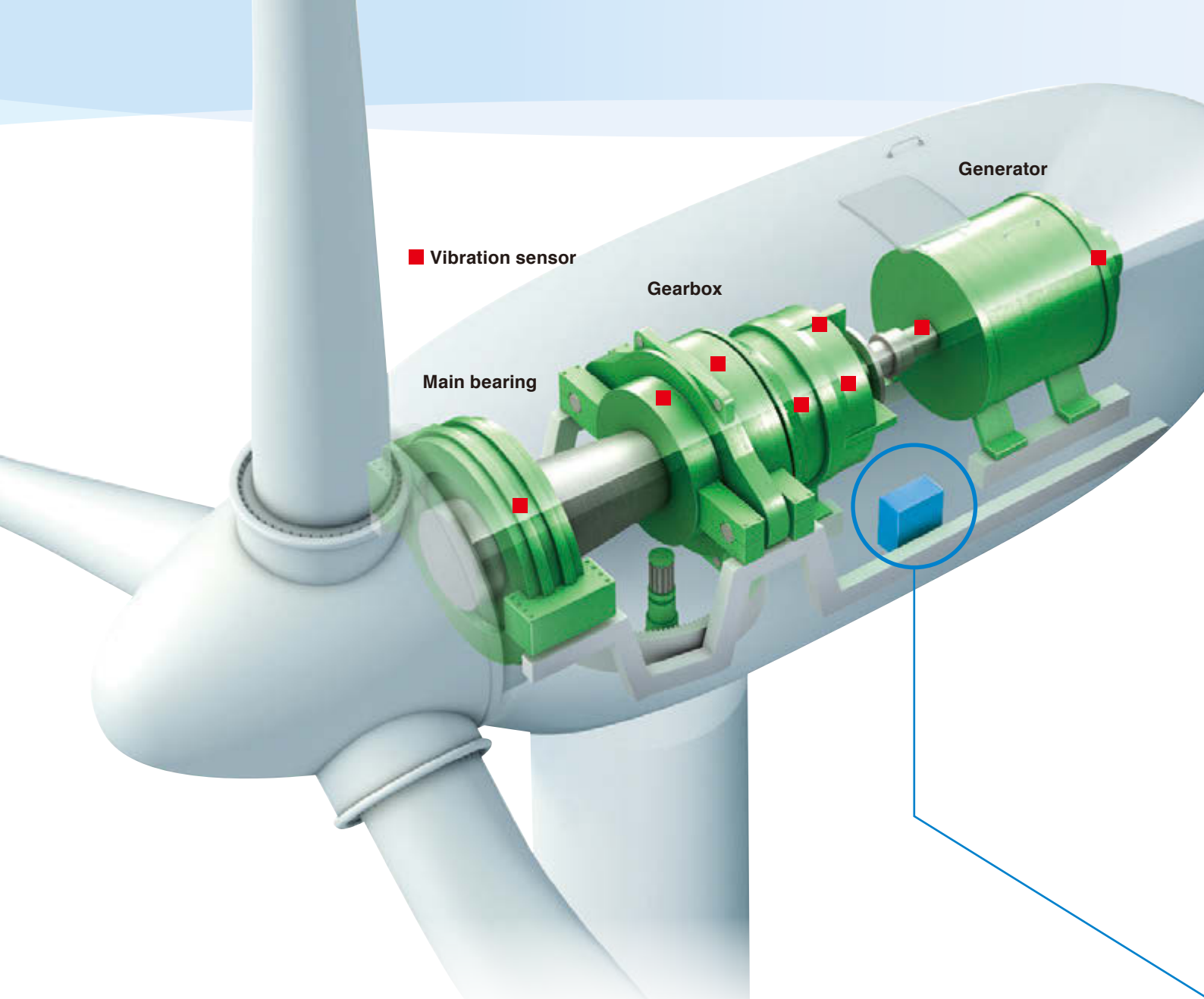
NTN®

Condition Monitoring System
for Wind Turbines

CAT.No.8406-III/E

Wind Doctor™





Improvements to down time with condition monitoring

If failures in bearings, gears or other components occur but are discovered too late, problems may spread throughout the entire wind turbine. This may increase maintenance and labor costs, and can also result in extended downtime.

NTN's Condition Monitoring System for Wind Turbines (CMS) is able to detect failure conditions in components early on, helping to prevent damage from worsening. This insight enables advanced preparations to be made for replacement components and repairs to be conducted systematically. This not only helps to reduce maintenance costs, but also leads to decreased downtime of the wind turbine.



Certificate no.
TC-DNVGL-SE-0439-03959-0

Wind Doctor™

a proposal for next-generation wind turbines



Data Acquisition Module

Specifications

Item	Specifications
Measurement Signal	Vibration (acceleration sensor built into amplifier) Max.16ch
	Voltage (AC, DC, current sensor)
	Rotation speed (proximity sensor) 1ch
Power	AC100V to 240V (50/60Hz)
Case dimensions	250×320×103mm
Weight	Approx 6kg
Operating temperature range	-20°C to +60°C
Case protection	Electrical machinery and apparatus protection code JIS C 0920 IP65
Electromagnetic compatibility	Complies with EN standards EN61000-6-2,EN61000-6-4
System certification	GL Renewables Certification TC-DNVGL-SE-0439-03959-0

Features

Among the world's smallest data acquisition module (250 × 320 × 103 mm)

- Enables easy installation in nacelles of wind turbines already in operation

Can be used in a variety of different environments, including offshore locations

- A wide temperature range(-20~+60°C)
- High water-and dust-proof performance

Highly reliable diagnosis of accurate measurement data

- Automatic limiting value generation for primary diagnosis during learning mode
- Automatic primary diagnosis and alarm transmission (caution and warning) by email
- Accurate diagnosis by measurement at the identified operating condition (Rotational speed and electricity generation)

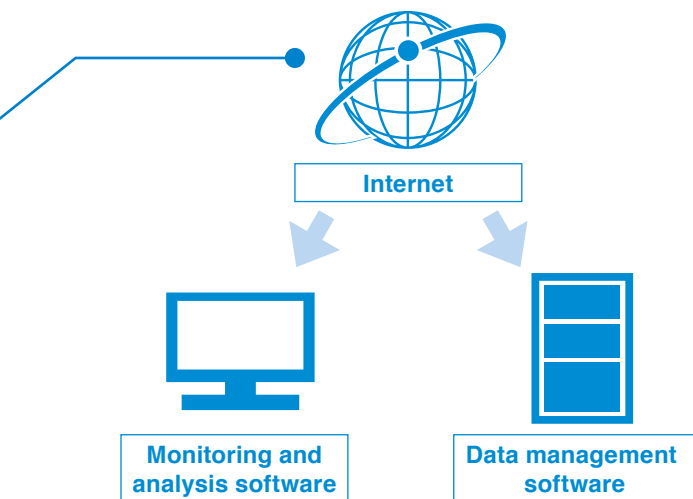
Easy data diagnosis by remote monitoring

- Monitoring and diagnosis can be done in the office, without climbing towers

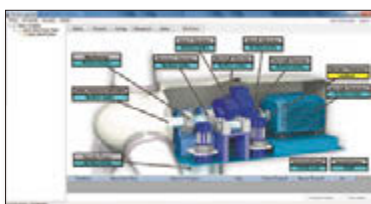
Comprehensive support system, from installation to diagnosis

- Support is available for installing the CMS module on wind turbines.
- Conditions are monitored remotely, with quick notification if failures are identified.
- Precision diagnoses by vibration diagnostics experts are also available if required.

Monitoring Service



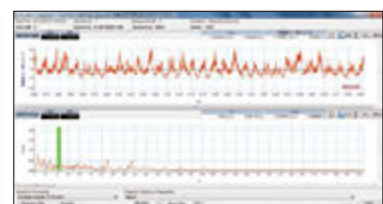
- Data acquisition module measures vibration, etc., with the sensors installed on the wind turbine and sends the data to the server through the Internet for storage.
- Data management software performs a primary diagnosis of the data and issues an alarm if the data exceeds the threshold.
- Monitoring and analysis software is installed on a PC connected to the Internet, alarms and data can be monitored at a remote location from the wind turbine. This software also has an analysis function, enabling detailed diagnostics.



Main screen



Trend graphs



Waveform graph

