Condition Monitoring

Maximize turbine energy output and revenue generation
MiCMS Condition Monitoring

Our MiCMS Condition Monitoring System allows you to plan onsite maintenance visits most optimally, making predictive maintenance easier than ever before.

| Known Issues |
Production downtime, due to unexpected faults and unplanned maintenance, has a significant negative impact to the overall profitability of operating a wind turbine. With wind turbines often being placed in remote locations, and exposed to highly variable and harsh weather condition, it is crucial to be able to monitor and detect faulty equipment in time to plan service and maintenance most optimally.

| The Solution |
Vibration analysis is the cornerstone of the Condition Monitoring System.

MiCMS consists of the remotely operated WP4200 controller and our SCADA system, MiScout. With 8-16 external accelerometers strategically placed on the drivetrain, MiCMS monitors the tower and drivetrain components, such as the gearbox, generator and main bearings.

One of the advantages of using vibration monitoring is that you are able to exactly pinpoint the defected component within e.g. the gearbox. MiCMS provides visual indication of the wind turbine’s current condition through MiScout SCADA.

| The Benefits of CMS |
By applying an updated predictive maintenance strategy, using state-of-the-art sensors and algorithms, you are able to minimize unplanned outages and maximize the energy output and revenue generation.

The MiCMS Condition Monitoring System from Mita-Teknik effectively reduce equipment run-to-failure situations and allows you to perform predictive maintenance - effectively optimizing the overall performance of the wind turbine.

Key Benefits:

› Powerful and robust hardware.
› Integration with MiScout SCADA System.
› High level of signal quality.
› GL Certified.
› Sophisticated Algorithms for Monitoring.
› Possible to integrate with third-party control systems.
› Flexible setup and extension with auxiliary sensors.
MiCMS Setups

The MiCMS solution comes in various hardware configurations, and supports different solutions for installation; either as integrated, standalone or portable, making MiCMS extremely versatile and flexible.

- Integrated - for the complete Mita-Teknik experience
- Standalone - add MiCMS to any existing setup, Mita-Teknik or third-party control system
- Portable - everything you need in a small and cost-effective service package

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MiScout SCADA is the natural extension of MiCMS, and lets the user oversee the health of the unit 24/7. The MiScout interface is very intuitive and users can easily monitor the turbine state, as well as production, availability, alarms, weather conditions and more, and react instantly to alarms and shifts in weather conditions – ensuring increased availability, reduced OPEX and ultimately, higher profits. MiScout is available for all platforms and devices.
MiCMS Surveillance Centre

The MiCMS Surveillance Centre offers Mita-Teknik customers 24/7 surveillance of wind turbines and wind parks. Mita-Teknik’s CMS experts ensure professional monitoring, analysis and counselling services through three different service level packages.

As standard, all MiCMS customers receive:
› On-site commissioning of the MiCMS system (HW/SW)
› Kinematic data preparation
› Initial configuration of system, remote/controller and server/application
› CMS data collection and processing during learning phase (typically 3 months)
› Training (optional)

1  › 24/7 surveillance of X turbines
    › CMS data collection and analysis, vibration monitoring and faults detection
    › Immediate fault reporting. Timely forwarding of alarms with recommendation for further actions
    › Storage of all CMS-related data in a secured database

2  › Periodical reporting with trend analysis (short report)
    › Yearly status report (extended diagnostic report)

3  › Consulting and cooperation with company partners to do on-site inspections if it is required after reporting
    › Extended status reports (optional)
    › Extended analysis (optional)

GL Certified

Mita-Teknik MiCMS System is in complete compliance with the GL Guideline for CMS System Development (2013). The certificate includes both standalone and integrated MiCMS solutions.

Certification of the MiCMS System according to the GL Guidelines for CMS System Development by DNV-GL demonstrates Mita-Teknik’s commitment to quality, consistency and continuous improvement.

Mita-Teknik also hold a certificate for our Quality Management System according to ISO 9001, TÜV Nord Cert GmbH.
The Value of Predictive Maintenance

Converting mechanical vibrations into electric signals, accelerometers provide measurements from the tower, main bearing, gearbox and generator to the MiCMS unit where vibration signals undergo real-time processing.

Live Data Storage and Visualization

MiCMS is used for vibration analysis. It surveys predetermined critical vibration levels. The frequency range is 0.1-10000 Hz and the vibration range is 0.001 - 25G.

The measurement of vibrations is performed by 8-16 external accelerometers. The real-time measurement of vibrations is controlled by a flexible measurement task scheduler, which can be individually configured with analysis in time and frequency domain.

MiCMS can utilize operational turbine data from the main controller for supersensitive analysis of vibrations in regards to situational components loadings and performance.

Get Started with MiCMS

The MiCMS is designed to be equally suitable for both experts and users without knowledge of vibration analysis. Users with no prior experience can use proven baseline values from appropriate ISO and VDI standards to monitor changes in turbine conditions and compare key parameters against thresholds. Experienced users can apply the settings with sophisticated algorithms for spectral analysis in different bands to identify the faults by results of advanced diagnostics automatically.

It enables optimum planning of maintenance schedules, personnel and materials forecasting the expected costs.