

Keeping Machines Up and Running

New MONGEMO PD monitoring system for motors and generators

With the increasing age of motors and generators, on-line partial discharge (PD) monitoring has become an essential asset management tool. Compared with routine off-line diagnostic tests, on-line PD monitoring provides you with a continuous insulation condition status while rotating machines are in operation. It indicates whenever operational stress and aging could be damaging electrical insulation and putting machines at risk.

Meet MONGEMO for rotating machines

Our new MONGEMO on-line PD monitoring system continuously assesses the dielectric condition of stator winding insulation in rotating machines under load, such as turbo generators, hydro generators and electrical motors. The permanently-installed system collects and analyzes PD data over time and identifies insulation defects that could lead to dielectric failure and machine outages.

“Based on continuous, on-line PD measurements, operators of motors and generators can assess the risk of failure and take timely condition-based maintenance actions to minimize the risk of machine outages,” says Felix Nadolni, Product Manager at OMICRON. “The actionable data not only enables maintenance strategies to be optimized, it also helps to ensure reliable operation.” ▶

Automatic Cluster Separation – Single PD sources are shown in the corresponding PRPDs that enable even non PD experts to perform an initial assessment of PD activity and potential risk.





MONGEMO

- > Customized system approach for matching specific monitoring requirements
- > Synchronous, four-channel PD data acquisition for complete assessment
- > Advanced noise suppression and fully automated PD cluster separation for convenient evaluation
- > Records raw PD data at selected intervals for in-depth post analysis
- > Seamless integration with third-party monitoring devices and SCADA systems

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MONGEMO can be customized to match the exact requirements of various rotating machines. It consists of coupling capacitors for PD detection, a 4-channel PD acquisition unit, and a central computer with monitoring and PD analysis software. "With the convenient web interface, operators can configure the monitoring system remotely, view data, and analyze historical data that has been collected," Felix adds.

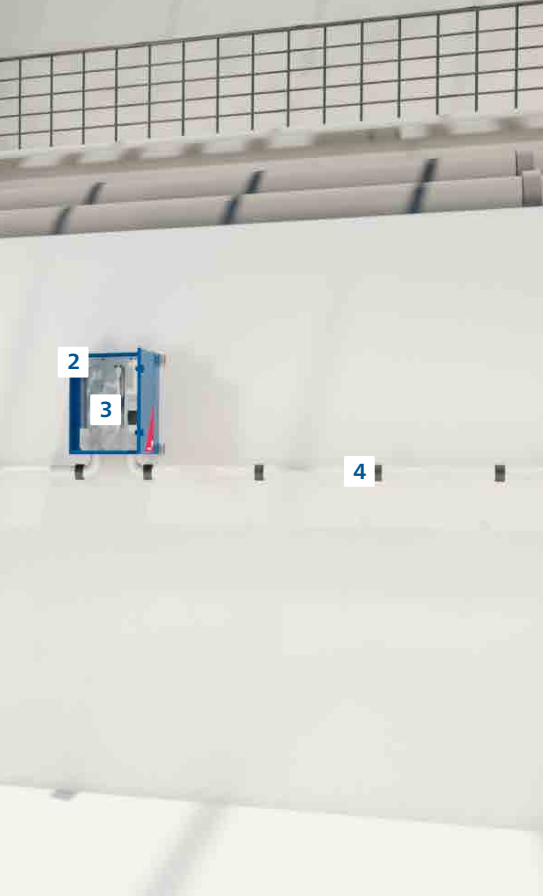
Modular, expandable design

MONGEMO can be implemented at any point in time during the service life of rotating machines. Its modular design allows the system to be easily customized and expanded to match specific monitoring requirements for single or multiple machines.

Actionable data for assessing failure risk

The MONGEMO monitoring software automatically displays real-time data as well as historical trend diagrams of PD parameters for each monitored machine, such as PD magnitude and PD pulse frequency. The high measurement sensitivity of MONGEMO is based on our advanced PD measurement technology for noise suppression and source separation.

"The insulation materials typically used in rotating machines are resistant to a certain level of PD," Felix explains. "However, an increase in PD activity over time can indicate insulation



MONGEMO – One system for complete on-line PD monitoring:

- 1 Coupling capacitors
- 2 Protective enclosure
- 3 PD data acquisition unit
- 4 Fiber optic connectivity
- 5 Central computer with monitoring and analysis software

defects that could lead to serious damage and failure in rotating machines,” he warns. To indicate increased PD activity, the monitoring software also provides operators with an event log that displays warnings and alarms when PD activity reaches or exceeds pre-defined threshold values.

Unique technology for convenient data evaluation

Advanced features in the MONGEMO monitoring software enable operators to record raw PD data for in-depth post analysis. The software’s unique automated cluster separation allows effective noise elimination to help classify the source of PD more conveniently than ever before.

“Multiple PD sources are distinguished from external noise through synchronous multi-channel measurements combined with advanced methods like 3PARD (3-Phase Amplitude Relation Diagram) and automatic cluster separation for convenient visual evaluation,” Felix clarifies.

Seamless integration with third-party systems

MONGEMO supports multiple industrial communications standards. “This enables PD monitoring data from MONGEMO to be exported to SCADA systems easily,” says Felix. “The system also displays monitoring data from other third-party devices, such as temperature sensors.”



«An increase in PD activity over time can indicate insulation defects that could lead to serious damage and failure in rotating machines.»

Felix Nadolni
Product Manager, OMICRON