

Press release

On-line partial discharge monitoring system for high-voltage cables

OMICRON's MONCABLO is a customizable, permanently-installed system for the continuous on-line monitoring of partial discharge (PD) activity in the electrical insulation of high-voltage (HV) cable systems, including cable terminations and joints. The monitoring system reliably detects and locates PD-related defects along the entire length of HV cables. Advanced diagnostic techniques enable the reliable evaluation of insulation condition to prevent costly in-service failures at an early stage.

Customizable system design

MONCABLO has a modular and expandable architecture that can be easily customized to match customer requirements based on the number of cable accessories to be monitored. It can be used for the simultaneous PD monitoring of short or long cable links, including buried or tunnel cable systems.

The PD data is synchronously gathered by high-frequency current transformers (HFCTs) installed at the grounding or cross bonding links of each monitored cable accessory, and is transmitted to a data acquisition unit for pre-processing. Multiple data acquisition units are connected to a central computer with fiber optic cable. This ensures the galvanic isolation between the high-voltage area and the control room where the central computer is located.

Software with intuitive web interface

The MONCABLO software's intuitive web interface allows users to remotely configure the monitoring system, to view real-time PD data and historical trends, as well as to analyze the collected raw data. Automated features for PD data evaluation are available via the same web interface. The system can be set up to automatically notify users by email anytime PD activity exceeds pre-set warning or alarm thresholds, so that users can investigate the situation and take timely action. The MONCABLO software also allows the correlation of PD data with the data from third-party sensors (e.g. temperature, oil pressure, etc.) also installed on the cable system for complete condition assessment.

IEC 60270 compliant PD measurements

The MONCABLO software allows users to simultaneously view the PD status of all cable accessories in one overview screen. Using a unique patented technology, PD defects are reliably located along the entire cable length. These features enable users to make PD measurements for after-installation testing of HV cables.

Advanced technology for convenient PD data evaluation

The high PD measurement sensitivity of the MONCABLO monitoring system is based on advanced OMICRON technology for noise and PD source separation. Multiple PD sources are automatically separated from each other and from external noise through synchronous multi-channel measurements and methods such as the 3-Phase Amplitude Relation Diagram (3PARD) and the 3-Center Frequency Relation Diagram (3CFRD).

Complete monitoring project support

OMICRON's dedicated team of service engineers provides users with complete guidance and support during the design, installation, commissioning, set-up and use of the MONCABLO PD monitoring system. Additionally, support with data evaluation and reporting can be provided.

Preventing in-service failure of HV cables

HV power cables, terminations and joints are generally factory-tested before installation to ensure their quality and reliability. However, mechanical forces during cable laying, hidden imperfections, and flaws caused during the on-site installation of cable accessories, can create PD when left undetected. If allowed to continue, PD will erode the insulation and eventually result in the complete breakdown and in-service failure of the entire cable system. Such failures cause unplanned power outages, loss of plant production, adjacent equipment damage, and in the worst case personal injury.

By continuously detecting and trending PD activity with a PD monitoring system, it is possible to observe its development over time. This information helps asset managers in making strategic decisions regarding the repair and replacement of HV cables or accessories before an unexpected outage occurs.

OMICRON has several years of experience in the field of on-line PD monitoring on high-voltage cables with a long list of monitoring projects implemented all over the world.

www.omicronenergy.com/moncablo

Image



The MONCABLO on-line partial discharge (PD) monitoring system reliably detects and locates PD-related defects along HV cables.

Company profile

OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

Customers in more than 150 countries rely on the company's ability to supply leading edge technology of excellent quality. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

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