Partial Discharge Monitoring (PDM) Integration in ETOS®

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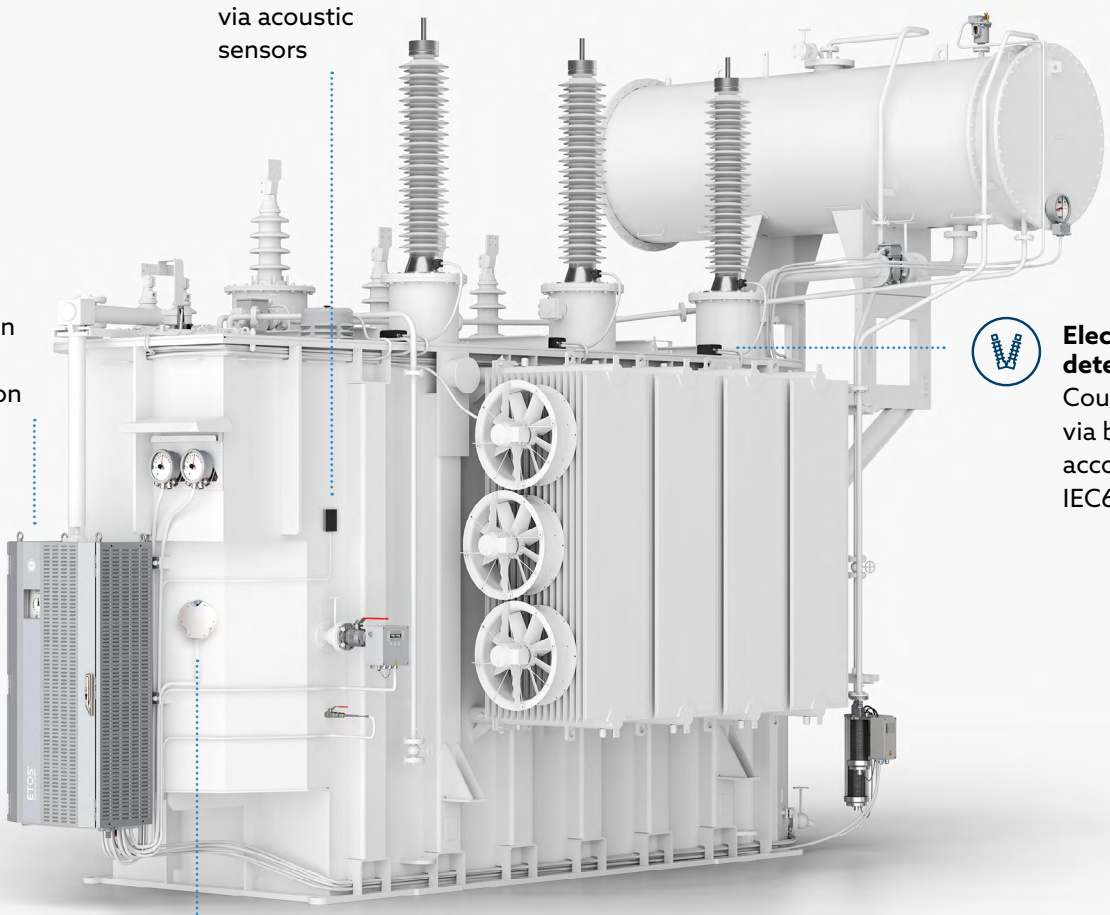

Integration in ETOS® for maximum flexibility and holistic transformer assessment.

Why online PDM?

A Partial discharge is the electrical breakdown of a part of an insulation system. In power transformers, this is a symptom of the deterioration of the insulation.

Online monitoring of these discharges is essential for providing an early warning of a potential insulation failure, helping to prevent unplanned outages and costly repairs.

How does online PD work?

Depending on the application and setting, multiple detection methods are possible.

- **Electrical PD detection – High Frequency (HF, also referred to as IEC):** Detection via coupling at the bushing test tap via the Partial Discharge Coupling Unit (PDCU). It can be installed independently from Bushing Monitoring, though the combination is recommended
- **UHF PD detection:** Detection either installed directly via dielectric window sensor on the transformer tank or as retrofit solution via drain valve sensor
- **Acoustic PD detection:** Detection via acoustic sensors on the transformer tank

With the help of continuous online monitoring, partial discharges can be detected early and a detailed diagnostic inspection can be scheduled in advance.

Advantages

An individually configurable PDM-Evaluation Unit is integrated into the ETOS® cabinet. This allows fulfillment of specific needs and ensures a maximum of flexibility when planning online monitoring. The measurements and alarms can be viewed via SCADA as well as directly via the ETOS® GUI for easy access.

MR Solution

BASIC: Consists of 3 x HF couplings. Recommended for easy retrofit as well as for existing transformer designs

ADVANCED: consist of 3 x HF couplings as well as an additional UHF antenna. Adds an additional frequency range to the detection system

PRO: 4 x UHF antennas recommended for new transformer designs

EXPERT: 3 x HF couplings as well as 3 additional UHF antennas. Recommended for valuable assets in critical applications

Additional configurations are possible to fulfill customer specific requirements.

Integration in ETOS®:

The integration into the ETOS® cabinet enables safe operation according to cyber security standards. Using ETOS® Asset Intelligence, PD Alarms can be better classified together with the information from other functions such as Dissolved Gas Analysis (DGA), Bushing Monitoring or Break Down Voltage (BDV). This enables an improved holistic assessment of the transformer.

UHF-ready:

To install UHF antennas on the transformer tank, a dielectric window is required. Cigré Working Group WG A2-27 recommends the installation of dielectric windows on all new transformers to enable the retrofit of UHF antennas.

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