

Oil Monitoring in High Voltage Transformers



Transformer oil performs several functions

- Insulates against voltage surges
- Prevents corrosion
- Dissipates heat
- Protects insulation
- Reduces noise

Monitoring for hydrogen in transformer oil as a safe indication of a problem

The operating temperature of the transformer oil should not exceed 105°C. Internal losses and increased transition resistances caused by failure, aging or overvoltage result in a local increase in temperature above 150°C. Then hydrogen will start to be released from the hydrocarbon chain of the transformer oil. Hydrogen is therefore an indicator of a problem in the transformer.

Unlike other instruments for monitoring hydrogen in transformer oil, H2SCAN sensors provide continuous maintenance-free hydrogen analysis in the range from 5 ppm to 100% in the temperature range from -40°C to 105°C.

The unique design of the palladium nickel sensor ensures selective measurement of hydrogen without the need for any calibration. The device is guaranteed for up to 10 years. The sensor can be placed both in the oil and in the space above the surface and is equipped with a wide range of communication interfaces.



Continuous measurement of transformer oil quality

The course of the transformer oil degradation process can only be measured with available instruments in an advanced state of aging.

The OilSens® device enables reliable measurement of changes in the properties of transformer oil during the entire period of its use. The measurement is provided by three circular electrodes that are immersed in oil. Electrodes are used to measure electrical conductivity, relative permittivity and temperature. Conductivity characterizes the breakdown voltage and, together with permittivity, enables the calculation of water content and oil condition.



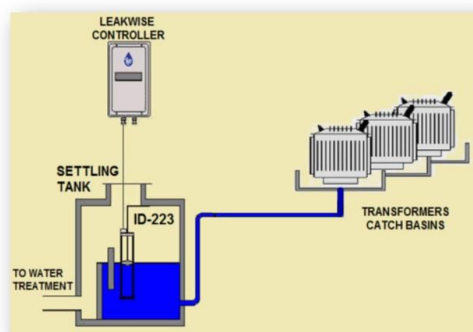
Transformer oil is usually regenerated at intervals of several years using a special device for filtering particles and separating moisture. The OilSens sensor will allow you to accurately determine the time of perfect oil regeneration.

The Smart Sentry assembly is a combination of a filter / absorption device and an OilSens sensor. The system automatically permanently maintains the transformer oil in optimal condition, eliminating the need for external regeneration.



Monitoring oil leakage from transformer stations

Leakwise sensors are designed to identify the layer of oil on the water surface and also to determine its thickness. Leakage detection warns of a leak and also determination of the thickness of the layer accumulated in front of the bore wall allows the oil to be pumped out in accordance with the parameters of the separation device.



For detailed information on any solutions of your interest we are gladly available on our below contact.

ECM ECO Monitoring, a.s.
Nevädzová 5, 821 01 Bratislava
Slovak Republic

Tel.: +421 2 4342 9417
E-mail: ecm@ecm.sk
www.ecmonitoring.com