

Delphi Application Note: Sensor Life & Replacement

Role of On-Line DGA Monitoring

On-line DGA monitors provide confidence in the condition of power apparatus between regular laboratory DGA samples. The application of such sensors has been common for over twenty years. Unfortunately, it is not well known that the sensors themselves age and require replacement.

Sensor Ageing

Many of the older on-line monitoring devices, developed before the Delphi, are reaching the end of their useful life. In many instances the devices are no longer functioning as the sensor membrane has become 'poisoned' over time, but there is no way to tell from the display or from the device itself. These older units have no self-test or diagnostic capability and may be providing highly misleading data. This is a dangerous situation – a developing problem may be missed.

Old Technology

Older technology has also proven more susceptible to vacuum – whether through maintenance activity or through negative pressure at the sensor head through oil surges. Sensors may be in service but, again, may be providing no value to the transformer owners/operators.

New Technology: the Doble Delphi

Delphi sensors have been developed to address the need for more robust and reliable on-line monitoring devices.

Self-test capability

The Delphi monitor provides capability to regularly test the sensor itself. Field and laboratory history indicate that typical sensor life is in excess of ten years. Allowing for collection of regular sensor test data supports the ongoing application of the device and both the validity and reliability of the data generated.

Vacuum tolerance

Patented developments in sensor design have led to the Delphi device which provides an integrated support for the sensor membrane.

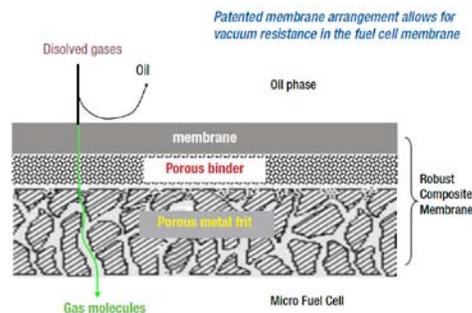


Figure 1 Delphi Sensor Integrated Structure

Sensor Replacement

Doble recommends that owners of on-line monitoring DGA devices review the status of such devices to ensure they are performing as expected. Upgrading monitors as they reach end-of-life to Doble Delphi devices, which carry the application support of Doble engineers around the world, would help ensure reliable power transformers in practice.

Doble Expertise

More than any other company in the world, Doble experts have been dealing with issues in transformers and insulating fluids for over 80 years. Doble is always willing to help our customers with the equipment that we provide and interpretation of data from the Delphi sensors.

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