DYNAMIC RATINGS

PQE POWER SYSTEM SDN BHD

SubSafe

Hydrogen Monitor

- Continuous Monitoring
- Maintenance Free
- Accurate Readings

RESPONSIVE

ASSET HEALTH SOLUTIONS

Early Detection of Abnormal Operating Conditions

Due to the tendency of hydrogen produced through a wide range of thermal conditions, online hydrogen monitoring is highly reliable as an early indicator of various internal transformer conditions ranging from partial discharge to the presence of active arcing. Historically measurements of hydrogen dissolved in oil has been the most common single gas method used for detecting these conditions, Dynamic Ratings' SubSafe monitor measures hydrogen collected in the headspace of nitrogen blanketed transformers, taking advantage of hydrogen's low solubility rates and higher in gas concentrations, to provide more consistent and reliable warnings as to the potential presence of incipient faults.

SubSafe Features

- Monitor is magnetic-mountable for easy retrofit applications.
- Ethernet, serial and analog outputs are available.
- Hydrogen sensor is calibrated to be representative of dissolved gas in oil readings for simplified interpretation.

- Optional magnetic-mount RTD is available for temperature monitoring.
- Four form C relays are available.
- Ease of installation

Continuous Monitoring

The SubSafe Hydrogen Monitor provides continuous monitoring of the transformers main tank with reliable consistency.

Maintenance Free

The SubSafe monitor is maintenance free and self-calibrating. The SubSafe monitors hydrogen gas and pressure the headspace of the transformer, providing a more reliable indication to the development of abnormal operating conditions and changes in pressure of the main tank.

Accurate Readings

The SubSafe provides a more accurate detection of hydrogen generation by utilizing headspace monitoring as compared to traditional drain valve installations, which places the sensor outside of bulk oil circulation. Hydrogen readings are calibrated with Ostwalds coefficient, enabling ppm values to be comparable to in oil readings for diagnostic purposes.

How does it work?

The utilization of online dissolved gas analysis monitoring has proven to be one of the most effective predictors of transformers health and condition. However, due to hydrogen's low solubility and slowed dispersion rates in oil, drain valve hydrogen monitoring can often result in delayed indication of incipient fault development and in cases where leaks are present on the transformer, these conditions may go undetected as often hydrogen will often escapes to atmosphere, restricting equilibrium between the gas and oil phase from being established.

The SubSafe hydrogen monitor is designed to pull samples through the transformers existing nitrogen lines via a 4 LPM internal pump, allowing for circulation of the transformer's headspace. Using this method, the SubSafe is able to quickly detect hydrogen resulting from abnormal thermal conditions regardless of where they occur within the transformer, providing the asset owner a reliable, early indication of changes in transformer condition.

Product Specifications

Power Requirement	24VDC, 48 VDC or 120 - 240 VAC (50 – 60 Hz)
Dimensions	187 mm Wide x 296 mm Tall x 129 mm Deep (13" x 11" x 8")
Temperature Range	-40°C to 70°C (-40°F to 158°F)
Communications Ports	Ethernet, RS232, RS485
Protocols	Modbus, DNP
Outputs	Four form C relays with NO, NC and Com terminals Three configurable analog outputs (current or voltage)
Hydrogen Gas Measurement Range	25-5000ppm
Accuracy	+/- 20%, or +/- 25 ppm
User Interface:	PC

or

DYNAMIC RATINGS

ISO 9001 Quality Management Systems CERTIFIED

ISO 14001 Environmental Management CERTIFIED

ISO 45001 Occupational Health and Safety Management CERTIFIED

Local Contact:

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