Transformer Gas Monitor - TGM

Real-State Gas-Monitoring Systems

Application

TGM is an online gas monitor for selected transformer gases which are dissolved in oil and which accumulate as Buchholz gas. Additionally, there is a possibility for a take-off of gas samples for external analyses to complete the failure gas pattern with the hydrocarbons. The data transfer can be realised by dialling or direct communication. TGM can be extended to form a diagnosis unit. The device is suitable for all transformer types as well as all operating conditions.

Features

Gases dissolved in oil:
- degree of gas saturation
- contents of hydrogen, oxygen, nitrogen, carbon dioxide, carbon monoxide as well as the monitoring sum of hydrocarbons
- sampling for complete external analysis
- quality control with natural internal standard (NIS)

Undissolved gases
- daily accumulation rate of Buchholz gases
- quick analysis of Buchholz gases, esp. in case of Buchholz alarm
- securing for complete external analysis
- automatic bleeding of Buchholz relay

automatic calibration
modular equipment concept
options of extension: -additional measuring points
-up to 3 transformers
signal inputs (e.g. gas alarm, load current, oil temperature)
measuring of oil moisture

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Technical specification

Protective degree acc. to EN 529:	IP 55
Dimensions:	600 mm x 800 mm x 1200 mm
Requires space at installation location:	1200 mm x 1700 mm x 1800 mm
Weight:	150 kg
Ambient temperature:	-30 ºC … +55 ºC
Oil temperature:	operating temperature of transformer oil
Power supply:	230 V AC, 50/60 Hz (optional 100/115/200 VAC, 50/60 Hz)
Conditions for operating with Residual Current Device (RCD):	a type B RCD is used the trip limit of the RCD is 300 mA the neutral of the supply is earthed only one TGM is supplied from each RCD
Power consumption:	1.8 kW
Fuse:	8 A
Recommended back-up fuse:	16 A
Display:	4 lines x 20 characters
Data communication:	internal analog modem (optional other dialling or direct communication)
Alarm value input	
Alarm recall	
Connections with transformer:	vessel (inflow), conservator (return flow) Buchholz relay (optional)
Sampling ports:	for Buchholz gas (optional) for equilibrium gas for vessel oil (optional)
Measuring range (Accuracy)	
Degree of gas saturation:	5 - 120 % (± 0.5%) (according to the construction of the connected transformer)
Gases dissolved in oil :	H_2 10 - 10,000 ppm (v/v) (5% of reading ± 15 ppm O_2 500 - 50,000 ppm (v/v) (5% of reading ± 150 ppm) CH_4+ 50 - 50,000 ppm (v/v) (5 % of reading ± 20 ppm) CO_2 10 - 20,000 ppm (v/v) (5% of reading ± 20 ppm) CO 100 - 3,000 ppm (v/v) (5% of reading ± 25 ppm) N_2 5,000 - 100,000 ppm (v/v) (5 % ± 200 ppm) H_2O 0.1 - 99.5% moisture saturation (± 3%)
Gases from Buchholz relay:	H_2 500 - 500,000 ppm (v/v) (optional) (with an accumulation minimum volume of 10 ml)
Accumulation rate:	5 ml per cycle (optional)

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