

TIMB-5R

Transformer Intelligent Maintenance-Free Breather



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Maintenance-Free Breather

Description

TIMB-5R transformer intelligent maintenance-free breather is a critical auxiliary device installed on the conservator tank of oil-immersed transformers. It is designed to adsorb moisture and impurities from the air entering the transformer tank during the breathing process, thereby safeguarding the performance of the insulating oil. The device incorporates a built-in intelligent monitoring system and a heating unit. When the desiccant reaches moisture saturation, the heating unit is automatically activated to dry and regenerate the desiccant, enabling repeated cyclic use. The system continuously monitors the internal humidity level and the inhalation/exhalation states, intelligently determining the optimal timing to initiate heating, preventing moisture backflow that could occur if heating were activated during the inhalation phase. This product effectively eliminates the risk of transformer moisture ingress, and significantly reduces both operation and maintenance costs as well as field service hazards.

Features

- The product features power, fault, and drying indicator functions with corresponding labels;
- The LCD screen operates normally at ambient temperatures as low as -40°C , displaying in real time the three transformer states— exhalation, inhalation, and standstill— as well as key parameters such as the temperature and humidity of the desiccant (silica gel) and the pipeline of the conservator tank;
- Supports configuration of heating activation conditions (e.g., humidity level) and activation frequency, with local manual start capability;
- The product’s operating process is interlocked with the transformer’s breathing cycle, preventing moisture released by the breather device from entering the transformer;
- The product Offers multiple communication options, including 4-20 mA, RS-485, and a local USB port;
- The protective wiring is fully concealed with no exposed sections, structurally eliminating the risk of accidental contact;
- The product automatically keeps the drain vents clear in sub-zero ($^{\circ}\text{C}$) environments, effectively preventing ice blockage;
- The control box has an ingress protection rating of IP67.

Application

- Main oil tank for oil-filled transformers
- Oil tank for on-load tap changers (OLTC)

Options

- C5 or above corrosion resistance grade

Technical parameters

Electromagnetic Compatibility Performance

Standard of Detection	Level
GB/T 17626.2 Electrostatic Discharge (ESD)	Level 3
GB/T 17626.3 Radio frequency electromagnetic field radiation	Level 3
GB/T 17626.8 Power frequency magnetic field	Level 5
GB/T 17626.9 Pulsed magnetic field	Level 5
GB/T 17626.10 Damped oscillating magnetic field	Level 5
GB/T 17626.11 Voltage sag	Level 3
GB/T 17626.4 Electrical Fast Transient/Bursts	Level 3
GB/T 17626.5 Surge (spike)	Level 3
GB/T 17626.6 Conducted disturbances induced by radio frequency fields	Level 3

Technical Index

Product Features	Description
Ambient temperature	$-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
Relative humidity	$> 90\%\text{RH}$
Humidity Range	$0\sim 100\%\text{RH}$
Power Supply	$220\pm 10\%\text{ VAC } 50/60\text{HZ}$
Status Display	3 LED indicator lights, LCD status display
Alarm Contacts	3 sets
Regeneration Frequency	User-configurable, 30 days (default value)
Signal Output	4-20mA
Serial Communication	RS485
Control Box Protection Rating	IP67

Dimensions

