TSPR-50R
Digital Transformer Sudden Oil Pressure Relay





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Description

TSPR-50R digital transformer sudden oil pressure relay inherits the core functions of conventional purely mechanical relays, enabling precise monitoring of the dynamic pressure rise rate in transformer oil tanks. In the event of an internal fault that triggers a sudden oil pressure surge, the relay will actuate mechanically and cut off the power supply once the pressure rise rate exceeds 3±1 kPa/s, thereby preventing oil tank rupture and fault escalation. Serving as backup protection for pressure relief valves, it ensures the safe operation of oil-immersed transformers and reactors.The product is additionally equipped with two sets of electronic relays. One set performs real-time data calculation and processing based on oil pressure signals collected by the pressure sensor, and triggers an electronic actuation rapidly when the pressure rise rate exceeds 3±1 kPa/s, providing an early warning prior to mechanical tripping. The other set monitors static oil pressure, with an alarm threshold configurable to user requirements; an alarm signal is issued when the static oil pressure reaches the preset value.The product integrates electronic signal transmission capabilities, featuring an RS485 communication interface and 4–20 mA analog output. It can remotely transmit real-time data—including pressure rise rate, oil pressure value, and actuation status—to the monitoring system. Combining the high reliability and strong anti-interference performance of traditional mechanical structures with the remote signal transmission capability absent in purely mechanical devices, it satisfies the requirements of smart grid construction and is suitable for safety protection applications in various medium and high voltage power equipment.

Configuration

- Main unit: 1 pc
- Standard accessories: 3 pcs waterproof cable glands, M16×1.5

Features

- Robust mechanical core structure for accurate monitoring of the dynamic pressure rise rate in transformer oil tanks, with dual alarm options available.
- Inherits the advantages of conventional mechanical designs, featuring strong electromagnetic interference immunity and wide temperature tolerance, delivering more reliable fundamental protection.
- Built in independent electronic relays provide advance warning when the pressure rise rate exceeds limits, issuing an alert prior to mechanical actuation.
- Equipped with high precision pressure sensors for real time oil pressure acquisition, enabling more precise static oil pressure alarms.
- Multi signal remote communication: integrated RS485 interface and 4–20 mA analog dual output, supporting real time remote transmission of oil pressure, pressure rise rate, and equipment actuation status.
- Dual redundant mechanical electronic protection; mechanical protection and electronic warning operate in parallel for higher protection level and greatly improved operational safety.
- Eliminates the lack of remote signal transmission in purely mechanical products; digital data upload fully meets the automated monitoring and O&M requirements of smart grids.

Technical parameters

Product Features	Description
Power Supply	220 V/AC
Ambient Temperature	-40 ℃ ~ 70 ℃ ; Operating Temperature: -40 ℃ ~ 115 ℃
Measuring Range	⩾ 3±1 kPa/s
Oil Pressure Sensor Accuracy	±0.25% FS
Protection Grade	IP67
Number of Switches	1 mechanical contact (2 groups optional) + 2 electrical contacts
Output Signals	RS485 and 4–20 mA
Mounting Direction	Vertical mounting

Dimensions

