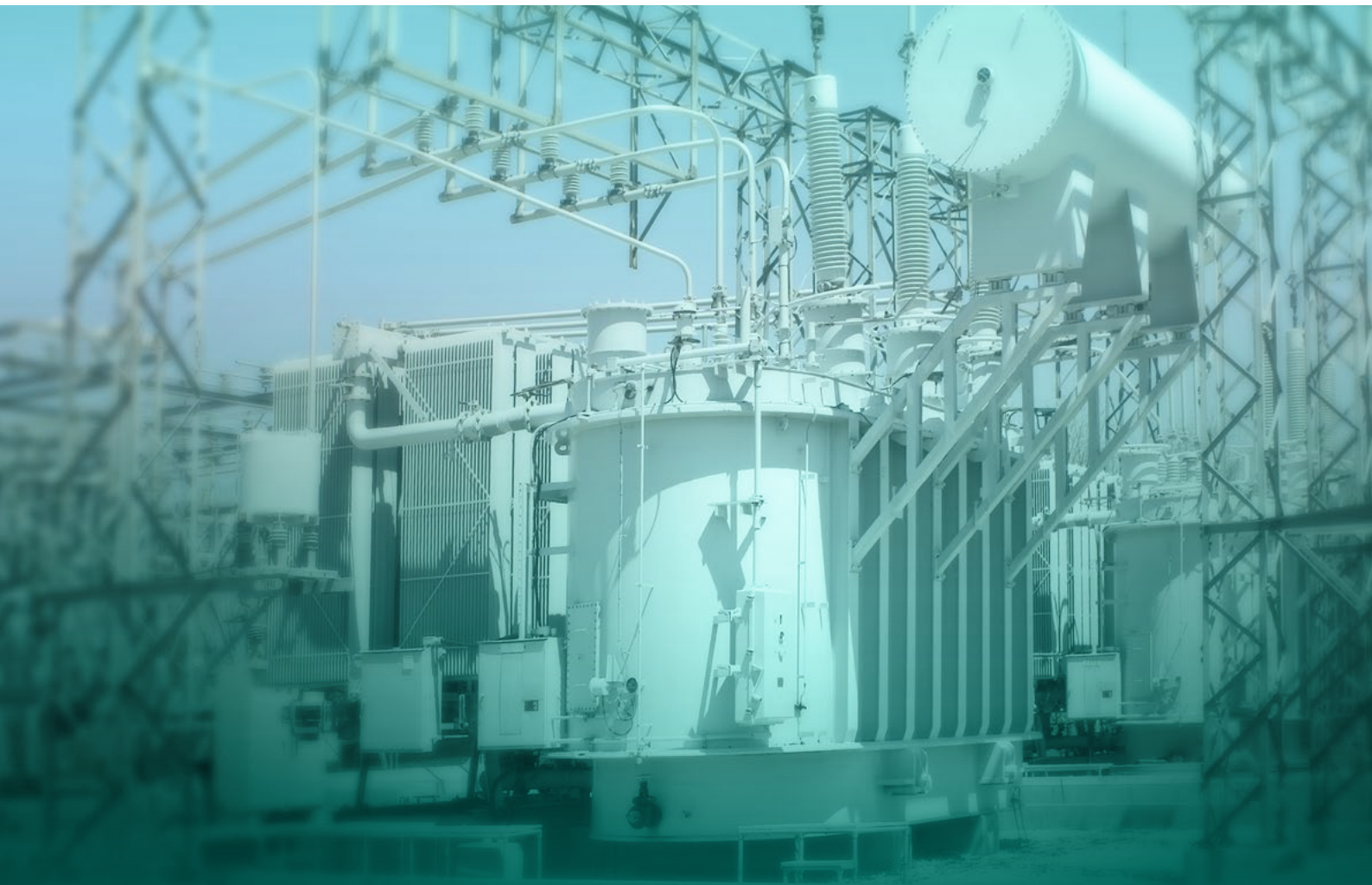
LANSO



# TRANSFORMER ACCESSORIES SERIES

## LANSO KONLY (SHANGHAI) INSTRUMENTS CO.,LTD.

Lanso Konly (Shanghai) Instruments Co., Ltd. is an innovation-driven and high-tech enterprise. The company is committed to creating globally leading $SF_6$ and other alternative insulating gas monitoring solutions and digital transformer accessories series products.

Backed by cutting-edge technology, the company has established a full-fledged industrial ecosystem spanning R&D, production, marketing, and technical services, continuously safeguarding the operation of power equipment worldwide.

In technology and market development, Lanso Instruments relies on its independent R&D innovation platform and holds multiple technical invention patents. With technological breakthroughs in segmented fields, the company has been awarded a number of authoritative qualifications, including the Little Giant Enterprise, National Key "Little Giant" Enterprise, 2024 Shanghai Manufacturing Single Champion and Shanghai Green Factory. Our products have been exported to more than 20 countries worldwide, covering France, Germany, Italy, Spain, India and other regions.

In globalization strategy, the company has established deep strategic partnerships with international electrical giants like ABB, HITACHI, Schneider, and Siemens, while maintaining long-term collaborations with leading domestic switch-gear companies such as Taikai Group (TK), Sieyuan Electric, Pinggao Electric (PG), and China XD Group etc.

The company always puts quality management at the core of its development. Through scientific and standardized management systems as well as rigorous and comprehensive management measures, it fully ensures stable product quality and reliable performance. The company has obtained authoritative certifications from Swiss SGS, including ISO 9001 Quality Management System, ISO 14001 Environmental Management System, ISO 45001 Occupational Health and Safety Management System, ISO 56005 Innovation and Intellectual Property Management System, as well as ISO 50001, ISO 14064 and ISO 14067 etc. Meanwhile, the enterprise has established a full-chain quality traceability system covering raw material procurement, production and manufacturing to finished product delivery, enabling whole-process quality control and full traceability.

The company's product portfolio includes three major series. The insulation gas monitoring series includes various digital density monitors (density meters), density switches, density transmitters, and valves. The transformer accessories series mainly includes intelligent buchholz relays, oil temperature indicators, and oil level indicators. The equipment and instruments series mainly includes gas density relay calibrators.

With outstanding technological strength, strict quality management, and a global strategy, Lanso Instruments is innovation-driven and quality-backed, continuously leading industry development and contributing to the intelligent and green transformation of the global power industry.

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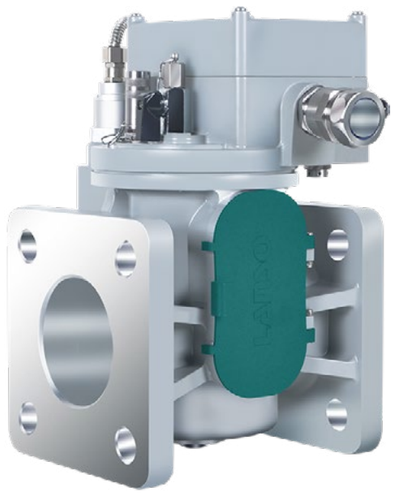
# TR-80-R
# Intelligent Buchholz Relay



TR-80-R
Intelligent gas relay

## Description

TR-80-R Intelligent gas relay is a basic device applied to oil immersed transformer. It can monitor the accumulation of gas generated by leakage current, arc, flashover and other faults in the transformer in real time, and send out alarm signals when the gas reaches a certain amount; In case of serious internal fault of transformer (such as interturn short circuit, etc.), use the oil flow surge phenomenon generated at this time to trigger contact connection, and quickly lock the main circuit of transformer to protect the transformer.

## Product features

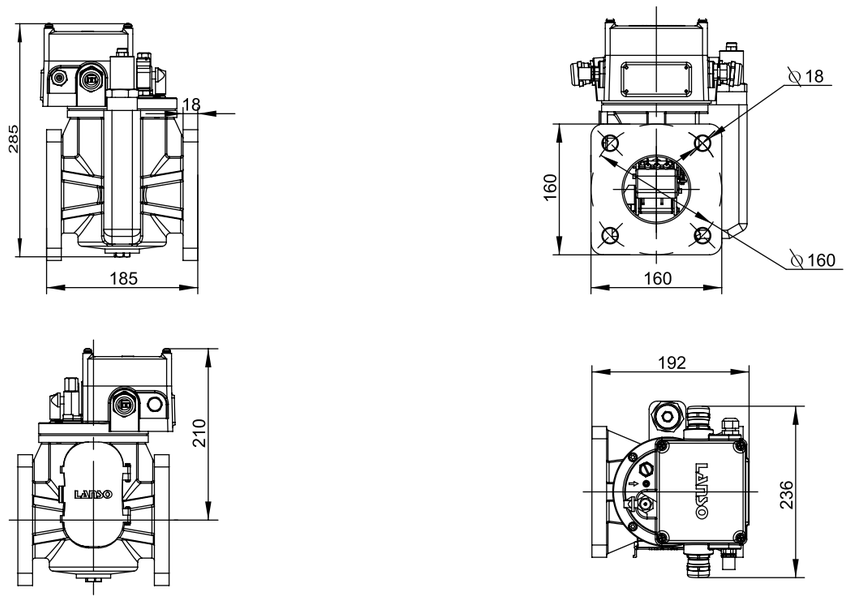
- Up to three alarms, three locks, triple redundancy design, improve product reliability.
- It can monitor the volume of gas gas online in real time and transmit it to the background through RS485 digital signal (compatible with 4-20mA analog signal); The external independent gas volume monitoring chamber isolates the interference on the volume monitoring caused by the operation of other components.
- The all-metal high-strength movement framework is used to stabilize the flow rate setting value of up to 2.5 m/s.
- The float main shaft is equipped with imported precision bearings to increase bearing support and eliminate the hidden danger of wear due to float shaft bore.
- The streamlined float ensures stance stability at high oil speeds.
- Protection grade reaches IP67, strong salt spray resistance environment (360 hours NSS salt spray test).

| Technical parameters | | |
|---|---|---|
| Material of main components | Case | aluminum alloy |
| | Observation glass | UV resistant protective glass |
| Working environment | Oil temperature | - 40 °C ~+100 °C |
| | Ambient temperature | - 40 °C ~+70 °C |



| Technical parameters | | | | |
|---|---|---|---|---|
| Action point properties | Setting range of oil speed alarm | 0.7~2.5m/s, accuracy ± 10% ;<br>Three pairs of dry spring contacts for light and heavy gas alarm (three alarms and three locks) | | |
| | Electronic auxiliary action point | 1 pair | | |
| Installation environment | protective cover is required for outdoor use，Suitable for high altitude environment | | | |
| Cable connector | M25X1.5 (for action point), one on both sides of the junction box;4X0.5 Shielded cable (for remote signal) | | | |
| Electrical characteristics | Main action point | Maximum switching power of: 50W (5A)，<br>Maximum switching current: 3A | | |
| | Auxiliary action point | Maximum switching power 150W (5A) | | |
| | Mainboard power supply | 18~36 VDC | | |
| | Power frequency withstand voltage | between reed tube contact groups, to ground: 2.5KV DC/AC 1min; Dry contact normally open, auxiliary contact normally open: 1.0KV DC/AC 1min | | |
| | Analog output | 4~20mA | | |
| | Digital signal output | ModBus RTU RS485 | | |
| Number of contacts | up to seven pairs, six pairs of dry spring contacts, and one pair of auxiliary changeover contacts | | | |
| Suitable for high altitude environment | | | | |
| Degree of protection: IP67 | | | | |
| EMC Classes | IEC 61000-4-2 Class IV<br>IEC 61000-4-3 Class III<br>IEC 61000-4-4 Class IV<br>IEC 61000-4-5 Class IV | IEC 61000-4-6 Class III<br>IEC 61000-4-8 Class V<br>IEC 61000-4-9 Class V<br>IEC 61000-4-10 Class IV | IEC 61000-4-12 Class III<br>IEC 61000-4-17 Class III | |

## Dimensions




Design drawing of remote transmission type

# TR-25
# Buchholz Relay

## Description

A Buchholz relay is a safety device mounted on oil-filled power transformers, which can monitor the accumulation of explosive gases caused by dielectric failures such as leaking currents, arcs, flashovers etc. When a serious internal fault occurs in the transformer (such as turn-to-turn fault, TTF), the oil flow surge generated at this time is used to trigger the contact connection and quickly lock the main circuit of the transformer, thus protecting the transformer.

TR-25 Buchholz Relay

## Features

- Excellent UV shielding using anti-UV laminated glass with over 99% UV protection. This ensures even if the observation window cover is left open for prolonged period, the transformer oil will not be affected. Laminated glass panel also ensures safety and protection.
- Probe equipped for partial trigger function for testing and calibration. When half-pressed the probe will trigger warning signal, while fully-pressed the probe will trigger warning and locking signal.
- High-strength full-metal movement structure ensuring stability at flow rate as high as 3.8 m/s.
- Main shaft of the bearing supported by imported precision bearing, eliminating wear and tear in float shaft.
- The oil flow baffle can automatically reset by gravity, eliminating the potential loss of the spring elasticity. IP67 protection class, no dew condensation inside.
- High performance magnets maintaining magnetism
- even at 200°C .

| Technical Parameters | | |
|---|---|---|
| Main Components Material | Casing | Aluminum Alloy |
| | Window Panel | Anti-UV Laminated Glass |
| Working Conditions | Oil Temperature | -40°C～ +100°C |
| | Ambient Temperature | -40°C～ +70°C |
| Trigger Characteristics | Flow Rate Locking Signal Setting Range | 0.7-3.8 m/s, precision ±10% |
| | Two Pairs of Magnetic Switch Contact Reads for Each Signal | Slight Fault – Floater - Warning |
| | | Severe Fault - Flap- Locking |
| Installation Environment | If installed outdoor, need protective casing | |
| | Adopted for High Altitude Environments | |
| Cable Connection | M20x1.5, One at each side of the connector box | |
| Electrical Characteristics | 220V AC 3A: Power Factor < 0.6<br>220V DC 3A: Time Coefficient τ ⩽ 0.005 s | |
| Withstanding Voltage | Between Reed Contacts, and Contacts to Earth: 2.5kV DC/AC 1min<br>Normally Open Reed Contacts: 2.0kV DC/AC 1min | |
| Number of Contacts | Maximum 4 pairs | |
| Protection Class | IP67 | |

## Dimensions

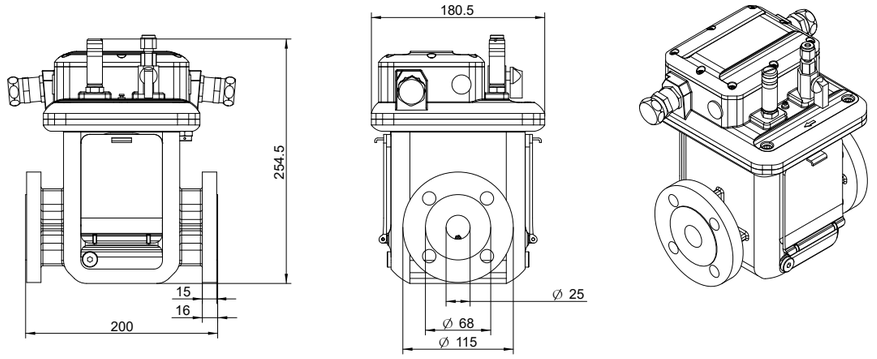



Fig 1. Overall Dimensions

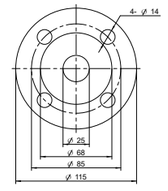



Fig 2. Flange Dimensions

# TOL-250R
# Digital Transformer Oil Level Gauge

## Description

The transformer oil level gauge is a device specifically designed for measuring the oil level in transformers. It typically consists of floating elements, transmission components, indicating elements, alarm components, sensors, etc., and is used for real-time monitoring of the oil level in the oil storage tank. As the oil level rises or falls, the oil level can be displayed on the instrument panel or monitoring system, helping operators monitor the oil level. When the oil level is too high or too low, an alarm signal will be sent, ensuring the normal operation of the transformer. As an important transformer monitoring device, the transformer oil level gauge plays a crucial role in the power system. At the same time, the product has advantages such as high-precision measurement, safety and reliability, easy installation, and maintenance.

TOL-250R Transformer Digital Oil Level Gauge

## Features

- High protection level suitable for different installation needs indoors and outdoors.
- Both high oil level and low oil level have two pairs of alarm contacts.
- High precision angular displacement sensor, transmitting digital signals (compatible with 4-20mA analog signals) via RS485 to the background.
- Equipped with self-diagnostic functions, and indicated through local indicator lights.
- Self-tilting angle installation for easy observation.
- Integrated structural design, high strength, high reliability.

## Application

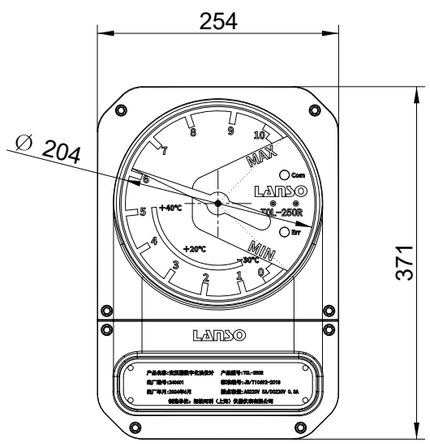
- Main oil tank for oil-filled transformers
- Oil tank for on-load tap changers (OLTC)

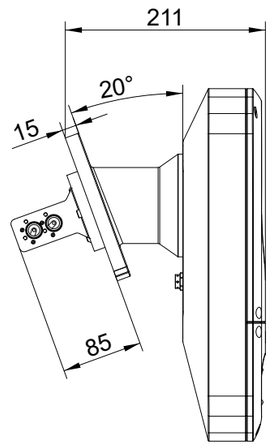
## Options

- 24V power supply
- Additional rainproof cover shell
- C5 or above corrosion resistance grade

| Technical parameters | |
|---|---|
| Housing diamete | 250mm |
| Pointer rotation angle | 120° /270° selectable |
| Float rod swing angle | 45° (horizontally upward or downward) |
| Repeatability | ±2.5% FS |
| Protection Class | IP67 |
| Operating temperature | -40°C ~ +70°C , relative humidity ⩽ 95%RH |
| Electrical interface size | M25×1.5 (customizable) |
| Installation method | radial or axial |
| Power supply | AC 220V |
| Electrical connection | M25×1.5 waterproof cable connector<br>Cable size: recommended 1.5mm$^2$, Upper limit 2.5mm$^2$ |
| Contact insulation performance | insulation resistance: >300 MΩ<br>Power frequency withstand voltage: 2kV, 50/60 Hz 1min |
| Contact capacity | AC 220V /5A or DC220V 0.3A |
| Shock level | three directions 15g |
| Dial glass | anti-ultraviolet coating polycarbonate |
| Signal acquisition component | linear accuracy 0.1% angle potentiometer |

## Dimensions



# TOL-140R
# Digital Transformer Oil Level Gauge

TOL-140R Transformer Digital Oil Level Gauge

## Description

The transformer oil level gauge is a device specifically designed for measuring the oil level in transformers. It typically consists of floating elements, transmission components, indicating elements, alarm components, sensors, etc., and is used for real-time monitoring of the oil level in the oil storage tank. As the oil level rises or falls, the oil level can be displayed on the instrument panel or monitoring system, helping operators monitor the oil level. When the oil level is too high or too low, an alarm signal will be sent, ensuring the normal operation of the transformer. As an important transformer monitoring device, the transformer oil level gauge plays a crucial role in the power system. At the same time, the product has advantages such as high-precision measurement, safety and reliability, easy installation, and maintenance.

## Features

- High protection level suitable for different installation needs indoors and outdoors.
- Both high oil level and low oil level have two pairs of alarm contacts.
- High precision angular displacement sensor, transmitting digital signals (compatible with 4-20mA analog signals) via RS485 to the background.
- Equipped with self-diagnostic functions, and indicated through local indicator lights.
- Integrated structural design, high strength, high reliability.

## Application

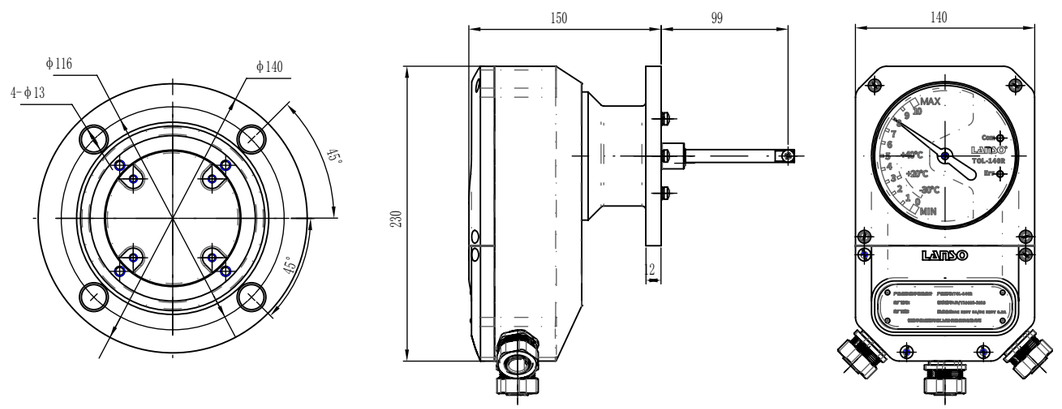
- Main oil tank for oil-filled transformers
- Oil tank for on-load tap changers (OLTC)
- Oil tank for New energy transformer

## Options

- 24V power supply
- Additional rainproof cover shell
- C5 or above corrosion resistance grade

| Technical parameters | |
|---|---|
| Housing diamete | 140mm |
| Pointer rotation angle | 120° /270° selectable |
| Float rod swing angle | 45° (horizontally upward or downward) /120° (-60° ~+60°) |
| Repeatability | ±2.5% FS |
| Protection Class | IP67 |
| Operating temperature | -40°C ~ +70°C , relative humidity ⩽ 95%RH |
| Electrical interface size | M25×1.5 (customizable) |
| Installation method | radial or axial |
| Power supply | AC 220V |
| Electrical connection | M25×1.5 waterproof cable connector<br>Cable size: recommended 1.5mm$^2$, Upper limit 2.5mm$^2$ |
| Contact insulation performance | insulation resistance: >300 MΩ<br>Power frequency withstand voltage: 2kV, 50/60 Hz 1min |
| Contact capacity | AC 220V /5A or DC220V 0.3A |
| Shock level | three directions 15g |
| Dial glass | anti-ultraviolet coating polycarbonate |
| Signal acquisition component | linear accuracy 0.1% angle potentiometer |

## Dimensions



# TOT
# Digital Transformer Top-oil Temperature Controller

TOT Digital Transformer Oil Temperature Controller

## Application

- Oil immersed transformer

## Options

Transformer digital top-oil temperature controller has multiple parameters to choose from, which can meet the needs of various oil immersed transformers at home and abroad, including output signal, range, switch contacts, installation size, installation thread, instrument rain cover and temperature bulb rain cover, etc.

## Description

The Transformer digital top-oil temperature controller mainly consists of a mechanical part and a digital sensing unit. The sealed system composed of elastic elements, sensing conduits, and temperature sensing components is filled with a temperature sensing medium. When the measured temperature changes, the volume of the temperature sensing medium inside the temperature sensing component changes accordingly. This volume increment is transmitted to the elastic element inside the instrument through the sensing conduit, causing it to produce a corresponding displacement. After amplification by the mechanism, this displacement can indicate the measured temperature and drive the micro switch to output a switch control signal to drive the cooling system, achieving the purpose of controlling the transformer temperature. Transformer digital top-oil temperature controller adopts composite sensing technology, which converts the Pt100 platinum resistance signal installed in the temperature pack into RS485 digital signal and transmits it to the control room terminal. It can store 10000 monitoring data and operating status information and can be exported. It has data remote transmission function, output alarm or control signal, and local indication functions such as communication abnormality and self checking fault. It can synchronously display and control the top oil temperature or winding temperature of the transformer. It has the advantages of communication electrical isolation, easy installation, strong anti-interference ability, and remote configuration, realizing the remote online monitoring function of power transformer oil temperature.

## Features

- The product utilizes dual diaphragm box compensation technology, achieving all-weather 1.5% FS, meeting the standard of State Grid DL/T1400.3-2023;
- The product meets the standards of State Grid Digital Meter Q/GDW 12355.4-2023;
- The product process adopts high-frequency welding and self flowing filling technology, and the temperature pack is reliable and does not leak liquid;
- Multiple output signal modes are available for the product (Pt100, 4-20mA, RS485);
- The product is equipped with six sets of temperature control switches, with graded cooling capacity. The switch points can be set freely within the full range;
- The product shell is designed with an integrated structure of alloy die-casting, which is easy to disassemble and has higher strength;
- Protection level IP67.



## Technical parameters

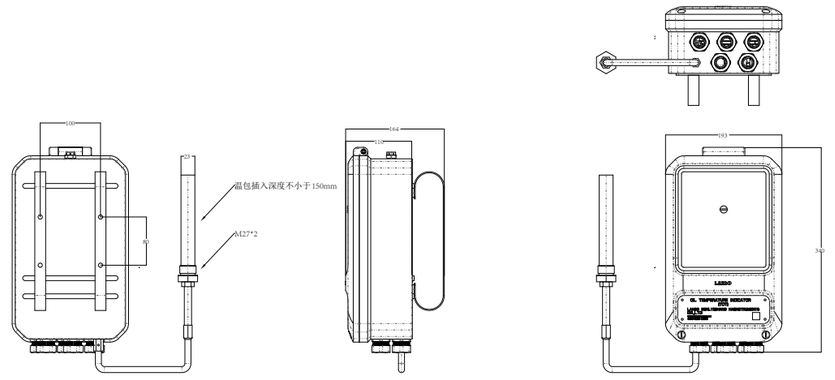
### Technical Index

| Product Features | Describe |
|---|---|
| Ambient temperature | -40℃ ~+70℃ |
| Measurement range | 0℃ ~+150℃ (Customizable according to user needs.) |
| Relative humidity | ⩽ 95% (No dew formation) |
| Number of switches | Up to 6 adjustable switches. |
| Switching capacity | AC 220V/5A、DC110V/3A |
| Output signal | Pt100、4-20mA、RS485 |
| Accuracy level | 1.5%FS |
| Motion error | ±2.0℃ |
| Capillary tube length | Standard with 6 meters (other lengths can be customized) |
| All-weather temperature error | ±2.0℃ |
| Protection class | IP67 |

### Electromagnetic Compatibility Performance

| Standard of Detection | Level |
|---|---|
| GB/T 17626.2 Electrostatic Discharge (ESD) | Level 4 |
| 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 4 |
| GB/T 17626.5 Surge (spike) | Level 4 |
| GB/T 17626.6 Conducted disturbances induced by radio frequency fields | Level 3 |

## Dimensions



# TWT
# Digital Transformer Winding Temperature Controller

TWT Digital Transformer Winding Temperature Controller

## Application

- Oil immersed transformer

## Options

Transformer digital top-oil temperature controller has multiple parameters to choose from, which can meet the needs of various oil immersed transformers at home and abroad, including output signal, range, switch contacts, installation size, installation thread, instrument rain cover and temperature bulb rain cover, etc.

## Description

The Transformer digital winding temperature controller mainly consists of a mechanical part and a digital sensing unit. The sealed system composed of elastic elements, sensing conduits, and temperature sensing components is filled with a temperature sensing medium. When the measured temperature changes, the volume of the temperature sensing medium inside the temperature sensing component changes accordingly. This volume increment is transmitted to the elastic element inside the instrument through the sensing conduit, causing a corresponding displacement. This displacement is further realized through the secondary rated current (TC) heating actuator, achieving a secondary temperature rise displacement. The superposition of this displacement, after being amplified by the mechanism, can indicate the measured winding temperature. Transformer digital winding temperature controller adopts composite sensing technology, which converts the Pt100 platinum resistance signal installed in the temperature pack into RS485 digital signal and transmits it to the control room terminal. It can store 10000 monitoring data and operating status information and can be exported. It has data remote transmission function, output alarm or control signal, and local indication functions such as communication abnormality and self checking fault. It can synchronously display and control the top oil temperature or winding temperature of the transformer. It has the advantages of communication electrical isolation, easy installation, strong anti-interference ability, and remote configuration, realizing the remote online monitoring function of power transformer winding temperature.

## Features

- The product utilizes dual diaphragm box compensation technology, achieving all-weather 1.5% FS, meeting the standard of State Grid DL/T1400.3-2023;
- The product meets the standards of State Grid Digital Meter Q/GDW 12355.4-2023;
- The product process adopts high-frequency welding and self flowing filling technology, and the temperature pack is reliable and does not leak liquid;
- Multiple output signal modes are available for the product (Pt100, 4-20mA, RS485);
- The product is equipped with six sets of temperature control switches, with graded cooling capacity. The switch points can be set freely within the full range;
- The product shell is designed with an integrated structure of alloy die-casting, which is easy to disassemble and has higher strength;
- Convenient winding selection and debugging interface, which allows direct CT corresponding parameter selection and adjustment on the dial;
- Protection level IP67.



## Technical parameters

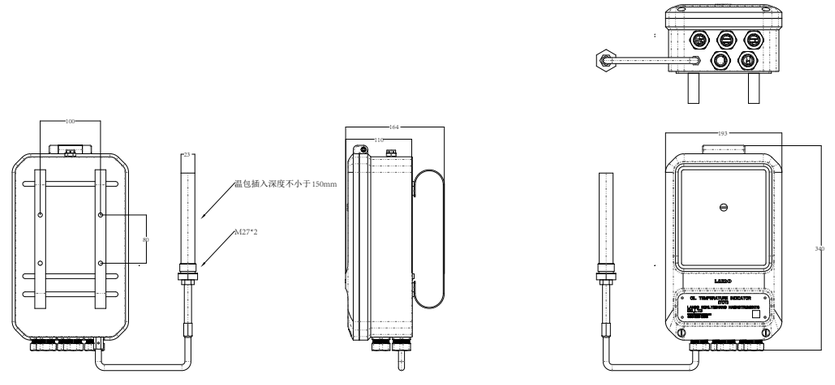
### Technical Index

| Product Features | Describe |
|---|---|
| Ambient temperature | -40°C ~+70°C |
| Measurement range | 0°C ~+150°C (Customizable according to user needs.) |
| Relative humidity | ⩽ 95% (No dew formation) |
| Number of switches | Up to 6 adjustable switches. |
| Switching capacity | AC 220V/5A、DC110V/3A |
| Output signal | Pt100、4-20mA、RS485 |
| Accuracy level | 1.5%FS |
| Motion error | ±2.0°C |
| Capillary tube length | Standard with 6 meters (other lengths can be customized) |
| All-weather temperature error | ±2.0°C |
| Protection class | IP67 |

### Electromagnetic Compatibility Performance

| Standard of Detection | Level |
|---|---|
| GB/T 17626.2 Electrostatic Discharge (ESD) | Level 4 |
| 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 4 |
| GB/T 17626.5 Surge (spike) | Level 4 |
| GB/T 17626.6 Conducted disturbances induced by radio frequency fields | Level 3 |

## Dimensions



# TIMB
# Transformer Intelligent Maintenance-Free Breather

TIMB
Transformer Intelligent
Maintenance-Free Breather

## Description

The 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 (° C) environments, effectively preventing ice blo ckage.
- 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

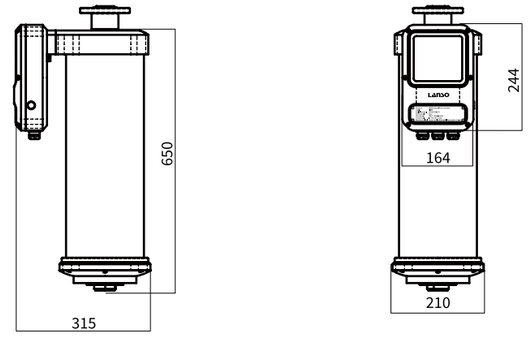
Electromagnetic Compatibility Performance

| 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°C ~+70°C |
| Relative humidity | ＞ 90%RH |
| Humidity Range | 0~100%RH |
| Power Supply | 220±10% VAC 50/60HZ |
| 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



# TPRV-80R
# Digital Transformer Pressure Relief Valve

TPRV-80R
Digital Transformer Pressure Relief Valve

## Description

The transformer pressure relief valve is a device specifically designed to protect the internal pressure safety of the transformer tank. It typically consists of a valve body, spring, valve disc, sealing ring, mechanical indicator, and micro-switch. It is used to monitor the internal pressure of the transformer tank in real time. When the internal pressure rises to a preset value, the pressure relief valve automatically opens to rapidly release the excess pressure and transmit the operation signal via the local mechanical indicator or to the monitoring system. This allows operators to confirm the pressure relief status, and an alarm signal is issued upon valve actuation, thereby ensuring the safe operation of the transformer. As a critical protective device for transformers, the pressure relief valve plays a vital role in power systems. Furthermore, the product features precise actuation, high reliability, safety, and ease of installation and maintenance.

## Features

- High protection level suitable for different installation needs indoors and outdoors;
- Max.3 pairs of oil-discharge alarm contacts;
- High precision pressure sensor, transmitting digital signals (compatible with 4-20mA analog signals) via RS485 to the background;
- Equipped with a mechanical indicator for clear visual confirmation of valve actuation status;
- Directional oil discharge outlet designed to prevent splashing of hot oil and ensure personnel safety;
- Integrated structural design, high strength, high reliability.

## Application

- Main oil tank for oil-filled transformers

## Options

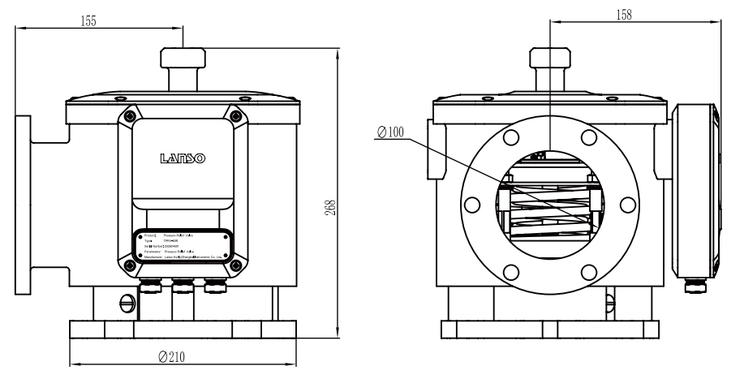
- 24V power supply
- Additional rainproof cover shell
- C5 or above corrosion resistance grade



## Technical parameters

| Product Features | Description |
|---|---|
| Orifice diameter | ∅ 80mm |
| Operating pressure | 85±5kPa |
| Reseat pressure | ⩾ 45.5kPa |
| Sealing pressure | ⩾ 51kPa |
| Opening time | ⩽ 2ms |
| Operating temperature | -30°C ~ +115°C , relative humidity ⩽ 95%RH |
| Electrical interface size | M12×1.5 |
| Degree of Protection | IP66 |
| Power supply | 220V /AC |
| Electrical connection | M12×1.5 waterproof cable connector<br>Cable size: recommended 1.5 mm², upper limit 2.5 mm² |
| Contact insulation performance | insulation resistance: >300 MΩ<br>Power frequency withstand voltage: 2kV, 50/60 Hz, 1min |
| Contact capacity | AC 220V /5A or DC220V /0.3A |
| Shock level | three directions 15g |
| Installation dimensions | ∅ 170mm, 6× ∅ 14mm lugs |
| Signal acquisition component | accuracy 0.5% pressure sensor |

## Dimensions



# TSOP-50R
# Sudden oil-pressure relays

TSOP-50R
Sudden oil-pressure relays

## Description

This quick-acting 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

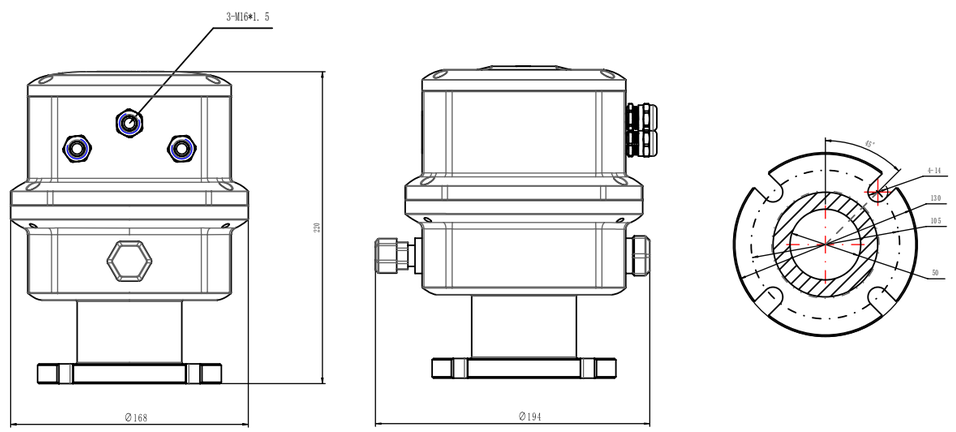
## Features

- 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



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