

AKM OTI/WTI

Remote mount thermometers



The next generation thermometer from the global leader

- Accomplish the most demanding control and alarm configurations
- Reduce failure costs with reliable AKM bellows operation
- Minimize installation complexity with all-in-one design
- Simplify operations by using one family of thermometers for all environmental conditions

Product Summary

Description Capillary based, mechanical, remote indicating thermometer. Configurations for oil temperature measurement and winding temperature simulation. Features up to 6 adjustable switches for alarm, trip, and cooling system functions and can be equipped with various electronic outputs for SCADA and remote monitoring applications.

Application For oil (liquid) or simulated winding temperature indication with integrated features for control or alarm functions. Designed for use where the point of measurement (the well or pocket) is not easily viewed by personnel and requires separate or remote indication.



QUALITROL[®]
Defining Reliability

AKM OTI/WTI remote mount thermometers

The next generation thermometer from the global leader

- Over 75 years of experience designing mechanical temperature measurement devices for transformers
- Over 250,000 capillary type thermometers in service worldwide in all environmental conditions
- Improved connection ease with a greater number of cable glands; 3xM25 style and 2xM20 style
- Improved switching flexibility with up to 6 fully configurable switches
- New and improved swing out case design allows for easy cable connection, switch configuration and testing without removal of the cover

Accomplish the most demanding control and alarm configurations

- Up to 6 fully independent switches flexible enough for most control and alarm schemes
- Each switch can be specified by switch type, hysteresis range, and set point, without limitation of sequential set points
- Standard switch rated for up to 15 Amps AC and up to 10 Amp DC, switches also available for higher VDC (magnetic blow out, M.B.O.), and switches for milliamp loads-- see technical specifications for more information
- Various analog outputs also available (mA, Pt 100, and Cu 10) -- see technical specifications for more information
- Each switch can be specified with adjustable hysteresis (5 to 25°C)

Reduce failure costs with reliable AKM bellows operation

- Non-pressurized bellows system avoids problems due to leakage
- Integrated heating element in bellows for winding temperature indication eliminates extra cost and complexity of accessories to simulate the winding
- AKM bellows system provides a 260° dial deflection (angle the pointer travels from minimum to maximum) making it easier to interpret temperature reading from a distance

Minimize installation complexity with all-in-one design

- Single enclosure design minimizes need for additional accessories such as matching units and heated wells commonly used by other mechanical temperature solutions
- New hinged cover enables easy access to switch settings and connections during installation while shielding device from elements. Features all captive screws and can be completely removed, if necessary
- Same installation footprint and mounting options as the previous generation AKM 345
- Improved wiring installation with addition of 2 cable glands (for a total of 5) and an increase in size to 3xM25 and 2xM20 versus the previous generation

Simplify operations by using one family of thermometer for all environmental conditions

- Wide range of options allow for standard use of one thermometer series across a wide array of applications and operating conditions
- Extreme temperature survivability with polar executions for use down to -60°C
- Enclosures with IP55 or IP65 rating with numerous mounting configurations available
- The most flexible switching capabilities available for implementation of any control and alarm configuration



Don't see what you need?

QUALITROL regularly creates models with special customer requirements. Contact your local sales representative or QUALITROL Application Engineer to review your special requirements.

QUALITROL
Defining Reliability

The next generation thermometer from the global leader in rugged temperature measurement

ONE FAMILY OF THERMOMETER FOR ALL ENVIRONMENTAL CONDITIONS

Enclosures with IP55 or IP65 rating with numerous mounting configurations available including polar executions for use down to -60°C

MAXIMUM READABILITY

System provides a 260° dial deflection (angle the pointer travels from minimum to maximum) making it easier to interpret temperature reading from a distance

AKM BELLOWS TECHNOLOGY

Low-pressure bellows system avoids problems due to leakage for life long accuracy

INTEGRATED WINDING SIMULATION

Integrated heating element in AKM bellows for winding temperature indication eliminates extra cost and complexity of accessories to simulate winding temperature

NEW CASE DESIGN

Swing out case design allows for easy terminal block connection, switch configuration and testing without removal of the cover

NEW ELECTRONIC OUTPUT KITS

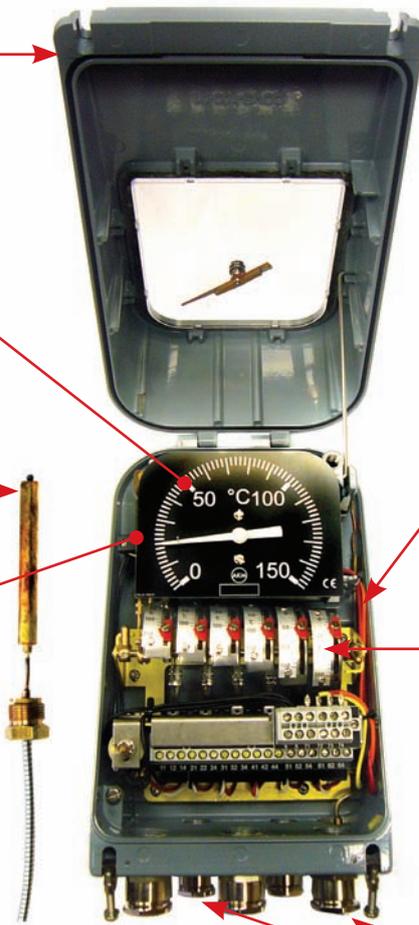
Various analog outputs available (mA, Pt 100, and Cu 10) - user upgrade possible via rear access panel

NEW 6 SWITCH CAPABILITY

Up to 6 fully independent switches flexible enough for the most demanding control and alarm schemes

IMPROVED WIRING ACCESS

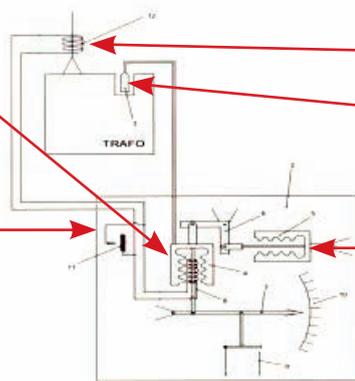
Improved wiring installation case with addition of 2 cable glands (for a total of 5) and an increase in size to 3xM25 and 2xM20 versus the previous generation



AKM bellows technology

Integrated heating element in AKM measurement bellows simplifies winding temperature indication by eliminating the complexity of accessories to simulate the winding

Single enclosure design minimizes need for additional accessories such as matching units and heated wells commonly used by other mechanical temperature solutions



CT

Probe

Compensation bellows automatically compensates for ambient temperature

Inside AKM OTI/WTI



Options and accessories

Pockets/wells



- Pockets and wells available to fit all probe types including IEC and ANSI standards

Remote indicators



- Digital and analog indicators available for remote display of temperature measurement
- For use with 4-20 mA output option

Power supply



- For use with remote indicators and remote electronic outputs when 24 VDC is not available
- Universal power supply
- DIN rail mounting

Pass through capillary gland



- For environmental isolation when capillary needs to pass through an enclosure such as the control cabinet

Electronic output user upgrade kit



- Add electronic output capability to units previously purchased without output
- Upgrade possible through back access panel
- Boards capable of mA, Pt100, Cu10, and voltage outputs for remote indication and integration with SCADA systems

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TECHNICAL SPECIFICATIONS

Materials	Housing	Die-cast aluminum, polyester powder coat finish
	Capillary	Copper or copper/nickel with stainless steel jacket
	Lens	UV stabilized polycarbonate (standard), glass optional
Mechanical	Indication accuracy	±1.5% full-scale
	Standard measurement range	0 to 150°C (32°F to 302°F)
	Probe types	Standard: 14mm diameter x 156mm length Available: for wells per DIN 42554, ASA C57.12.00
	Winding thermal image	Internal winding simulation: TD50 (up to 2.2A CT max) or TD76 (up to 2.65A CT max) External winding simulation: (AKM 44678) up to 2A CT or (AKM 44674) up to 1,2A CT max, matching unit (AKM 44677) for up to 5A CT max
	Mounting styles	Stainless steel anti-vibration mount (standard), elastomeric seismic mount optional
	Cover	Swing up cover design, fully detachable, with all captive hardware
	Cable glands	3 x M25, 2 x M20
	Electrical	Number of switches
Switch types		VAC, VDC, M.B.O. (magnetic blow out for high DC)
Switching differential (hysteresis)		10° to 14°C for most dial ranges, optional adjustable differential from 5° to 25°C
Switching accuracy		± 3% full-scale
Optional remote outputs		Current loops: 0 to 1 or 4 to 20mA
		Voltage: 1-5V and other ranges
	Resistive: Pt 100 or Cu 10 ohm	
Environmental	Enclosure	IP55 (standard), IP65 optional
	Dielectric isolation (hi pot)	2500 VAC at 50Hz, 60 seconds, all terminals to ground
	Surge withstand capability	IEEE C37.90.1 (TD111 output board only)
	Ambient operating temperature	-40°C to 70°C (-40°F to 158°F), polar execution available for -60°C to 70°C (-76°F to 158°F)
	Storage temperature	-50°C to 80°C (-58°F to 176°F)
	Humidity	95% non-condensing relative humidity @ 95°C (203°F)
	Vibration	50Hz/60Hz @ 0.1mm inch displacement, 3-axes
	Shock	10 G's half-sine, in three orthogonal planes

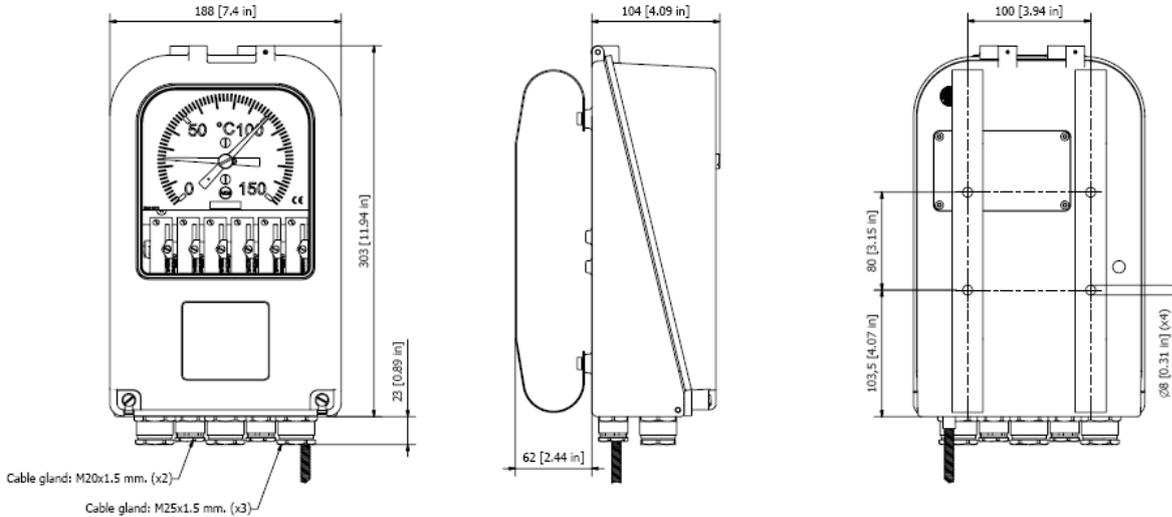


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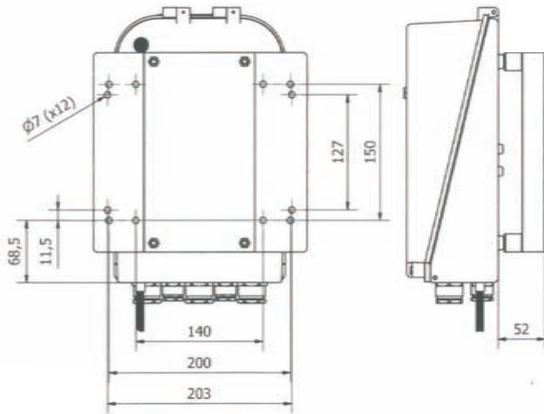
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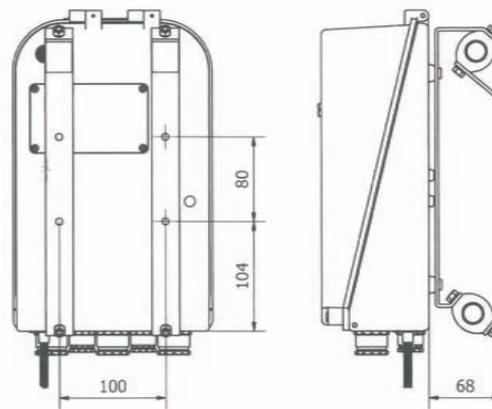
Standard mounting



Universal mounting



Siesmic mounting



QUALITROL® Field Services

To further improve reliability, QUALITROL provides comprehensive education and on-site commissioning services, maintenance contracts and technical support to all customers worldwide. Emergency response is available on all products and services.

About QUALITROL®

QUALITROL Company LLC manufactures substation and transformer monitoring and protection devices used by electric utilities and manufacturing companies. It is the global leader in sales and installations of transformer asset protection equipment, fault recorders and fault locators. Established in 1945, QUALITROL Company produces thousands of different types of products on demand, each customized to customers' unique requirements.

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