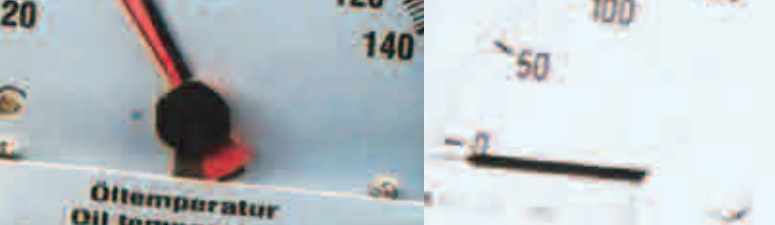


MESSKO® COMPACT Type Series

Temperature Measuring Systems for Transformers

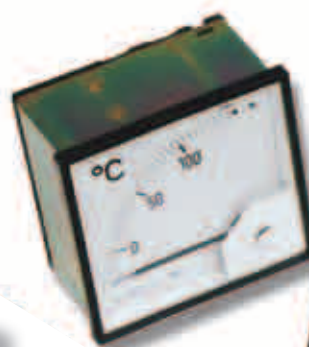




Compactness has a name – MESSKO® COMPACT

Highlights

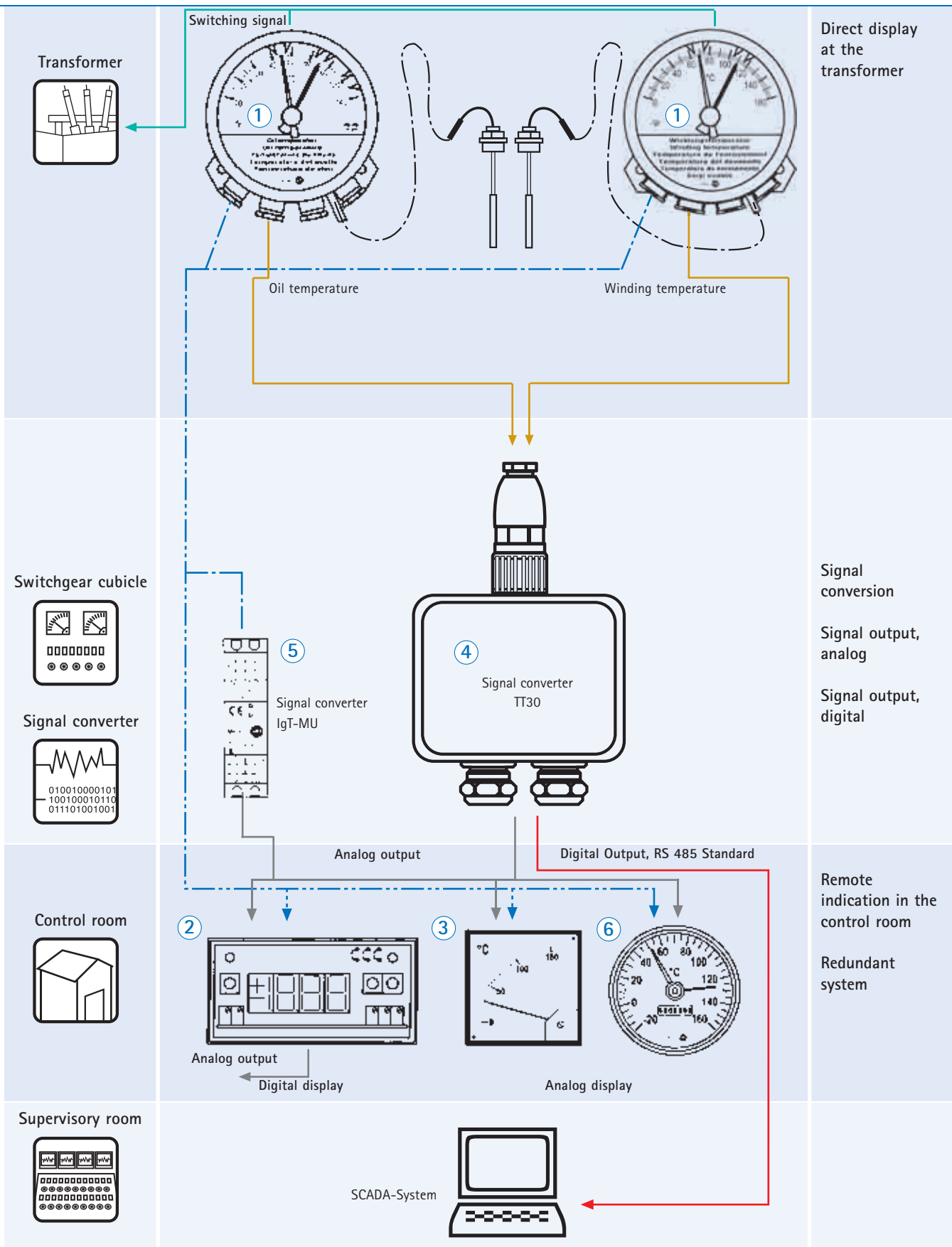
- extremely long-lived and functionally reliable
- Bourdon tube: precise and robust, without additional mechanical elements
- Oil & winding temperature remote indication without additional devices
- quick and easy gradient setting with fixed resistors (thermal image)
- ambient temperature compensation: no modification required – not even for extreme environments
- output signal: 4 ... 20 mA
- in combination with the signal converter:
analog signals: 0 ... 1 mA, 0 ... 20 mA, 4 ... 20 mA;
relay output; digital signals: RS 485
- no need of re-adjustments and/or re-calibration

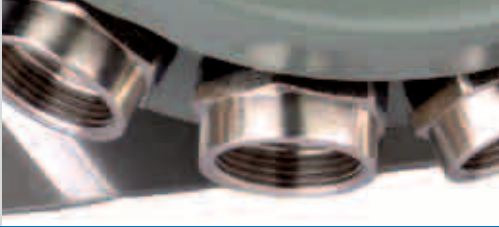


Self-sufficient and non-energy dependent pointer thermometer featuring the following requirement profile:

- robust and long-lived technology (Bourdon tube)
- functionally reliable and accurate
- vibration-proof and outdoor-proof
- easy to install and commission
- low-maintenance

MESSKO® COMPACT – the "simple" measurement





MESSKO® COMPACT – as flexible as the tasks it manages

① MT-ST160SK (TT) / MT-ST160W(R) (TT) (Ø 160 mm)

The main application of pointer thermometer types MT-ST160SK (TT) and MT-ST160W(R) (TT) is temperature monitoring (winding/oil) in power transformers or large-size distribution transformers. They are equipped with micro-switches for external switching processes (ventilation control, alarm, trip) and are quick and easy to install. These robust pointer thermometers have been designed specifically for use under even the most diverse and exacting environmental conditions (heat, cold, ambient humidity). The measuring system (Bourdon tube, capillary tube, sensor) guarantees high-precision temperature displays without any need for re-calibration or readjustments, not even after decades of use!

The detecting element

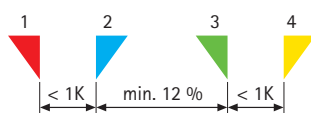
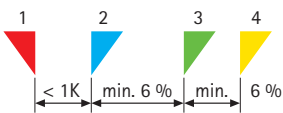
The detecting element is normally angled at 60°, with an installation length of 150 mm and doubled threaded union. The detecting element and the thread are made out of brass (G1B).

Other dimensions and materials are available on request.

Microswitch setting (switching distance)

1+2 Narrow setting, standard

1+2 / 3+4 Narrow setting



② Digital indicator D1272AT

The digital indicator types D1272AT are used in the digital remote display of the oil and/or winding temperatures, and are connected with the analog output (4 ... 20 mA). The optional selection of two freely adjustable limit value contacts and of various different output signals (4 ... 20 mA, 0 ... 5 V, 0 ... 10 V) for further signal processing is available as well.

③ Moving-coil instrument PQ96 / PQ144

The moving-coil instrument types PQ96 and PQ144 are used in the analog remote display of the oil and/or winding temperatures, and are connected with the analog output (4 ... 20 mA).

④ Signal converter TT30: maximum flexibility in adaptation and a maximum variety of signals

The TT30 signal converter's task is the conversion of sensor signals into analog and digital process signals. The TT30's user-friendly design allows quick and easy adaptation – both mechanical and electronic – to even the most diverse types of sensors. It's so easy to handle it can even be integrated into existing systems at a later date, without any need for modification work. That way, even older systems can be upgraded and made fit for remote measuring display tasks in the supervisory room. That's why we call our TT30 concept 'Retrofit'. The

TT30 understands even the most diverse types of sensor signals which makes TT30 an epitome of versatility for just about any monitoring task: be it temperature, position, pressure or flow monitoring – the TT30 can do it all.

Input signals
 PT100 (RTD) (3-conductor connection)
 4 ... 20 mA (2-conductor connection)
 0 ... 20 mA (3-conductor connection)
 0 ... 5 V (3-conductor connection)

Analog output signals
 0 ... 1 mA
 0 ... 20 mA (Error signal > 22 mA)
 4 ... 20 mA (Error signal < 3.6 mA)
 4 ... 20 mA (Error signal > 22 mA)
Digital output signals
 RS485
Relay output

⑤ Signal converter IgT-MU

The IgT-MU signal converter is used to shape and isolate a direct current to form an injected direct current and/or a DC voltage signal.

Galvanic isolation is performed by an optocoupler. Both outputs are stable at no load and short-circuiting.

Input signals
 4 ... 20 mA (2-wire connection)

Output signals
 1 ... 5 VDC; 4 ... 20 mA
 0 ... 10 mA; 0...10 VDC
 0 ... 5 VDC; 0 ... 20 mA

⑥ Electronic Indicator EI 100/160

The "electronic indicator EI 100/160" shows the temperature or a percentage output of any sensor. The information is indicated with an analog indicator instrument and a digital LCD display. The optional built-in max. memorized value can be reset by hand. The input signal is 4 ... 20 mA. The voltage supply is 24 VDC. The EI 100 can be mounted with a holder (figure 1) or with a support (figure 2) in the switchgear cubicle. The EI 160 (figure 3) can be mounted in the switchgear cubicle or directly on the transformer. The EI 100/160 is the ideal supplement for the thermometer with temperature transmitter (TT = 4 ... 20 mA) and can also be used in combination with "signal converter TT30". The measured value can be presented in % or °C depending on the application.



Fig. 1 EI with clamp

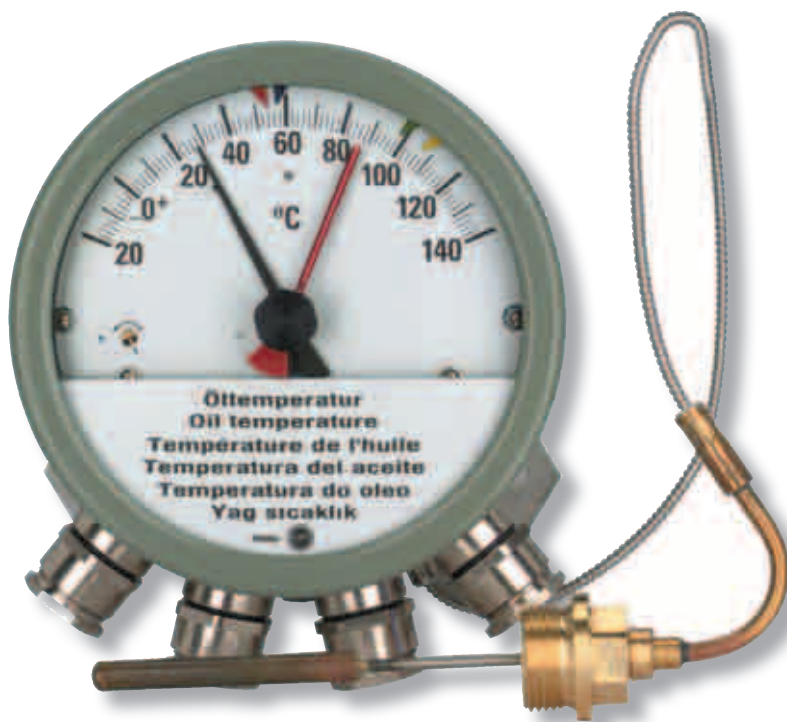


Fig. 2 EI with support



Fig. 3 EI 160

°C



MT-ST160SK (TT)/MT-ST160W(R) (TT)	Technical data
Housing (standard)	Steel plate, galvanized
Mounting ring and housing	Powder coated, Bayonet fixing ring with Silicone seal
Viewing glass	Laminated safety glass with UV filter
Temperature sensor	Brass, bright
Mounting plate	Stainless steel
Capillary tube	Copper capillary with insulating PVC tube; or additional flexible stainless-steel tube
Cable gland	4 x M25 x 1.5 brass, nickel-plated
Thread joint	double thread G1B, \cong BSP1"; brass bright
	Characteristic data
Measuring range	-20 ... 140° C or 0 ... 160° C
Tolerance	Category 1 as per DIN EN 13190
Place of installation	Indoors and outdoors, tropic-proof
Ambient temperature	-50 ... 80° C for the electronics (compensated)
Degree of protection	IP55 as per DIN VDE 0470-1
Ventilation	Thanks to the ventilation system included, the viewing glass will remain mist-free up to a level of 80 % of relative humidity
Maximum pointer	All thermometers are equipped with a resettable maximum pointer in red
Weight	approx. 2.5 kgs (6 metres of capillary line)
	Micro-switches
Quantity	1 ... 6 adjustable micro-switches (1 ... 4 change-over switches)
Contact load	AC: 250 V / 5 A / $\cos \varphi = 1$ DC: 250 V / 0.4 A (non-inductive) 110 V / 0.6 A; 60 V / 1 A; 24 V / 4 A (non-inductive)
Switching interval	6% of the measuring range
Contact material	Silver Cadmium Oxide (AgCdO10)
Rated insulation voltage	AC: 2.500 V / 1 min
Switching hysteresis	Approx. 5° C
Terminals	min. 0.25 mm ² / max. 2.5 mm ²

Important note: The information contained in all of our publications may differ in detail from the actual equipment delivered.

We reserve the right to make changes without notice.

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