

MESSKO® MTO Series

Transformer Oil Level Indicators





MESSKO® MTO Series

Product Description

Type MTO- ST(F) 160 (G) oil level indicators are measuring devices that are supplied with or without switching contacts. They are an ideal choice for monitoring the oil level in transformer conservators.

The oil level indicator consists of a sensor assembly (Figure 1 a + b) and an indicator assembly (Figure 1 c) which are joined by a separable connection. The sensor assembly has an oil-proof flange plate and is mounted directly on the wall of the tank. A float rod transfers the lift motion of the float to a shaft. The shaft is connected via a magnetic coupling with the pointer shaft in the indicator assembly.

The floats are available in two different drive variations to suit the particular type of oil conservator (refer to Figure 2):

- a) radial motion float
- b) axial motion float

The version with axial float motion (version »G«) is suitable for use in narrow or shallow conservators, where there is minimal room for the float to move, and in conservators with rubber bag. Float motion can be displayed in ratios of 1: 1, 1: 2, 1: 3 or 1: 4.

Terminals for making the electrical connections are inside the housing. They are located underneath a cover panel which has a wiring diagram printed on it. The view glass is made of laminated safety glass with a UV filter, so that the display can be read even after years of use. The view glass with a gasket is integrated in a metal ring. The bayonet-type fitting ensures that the unit closes securely and that the interior parts in the housing are well protected.

Figure 1

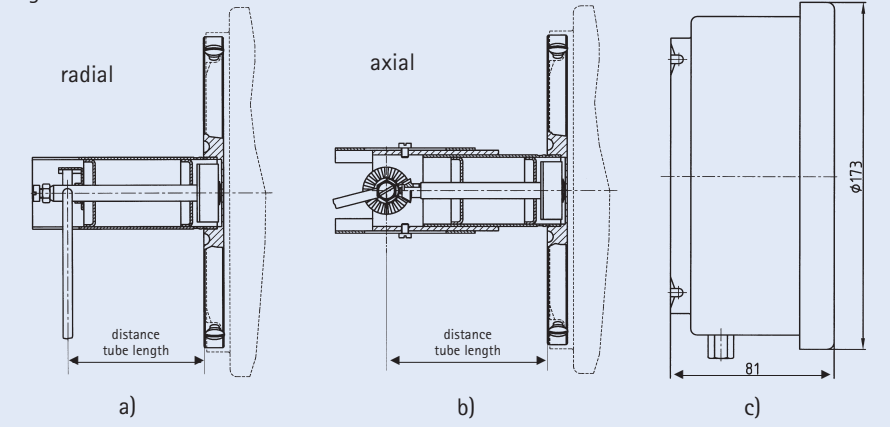
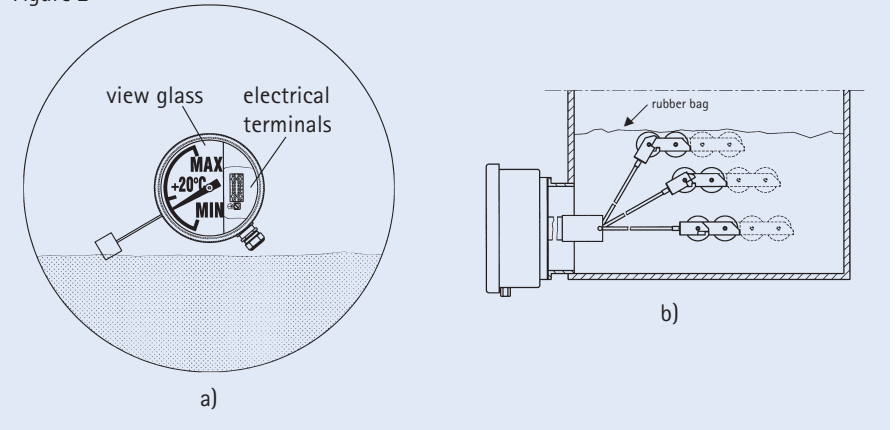
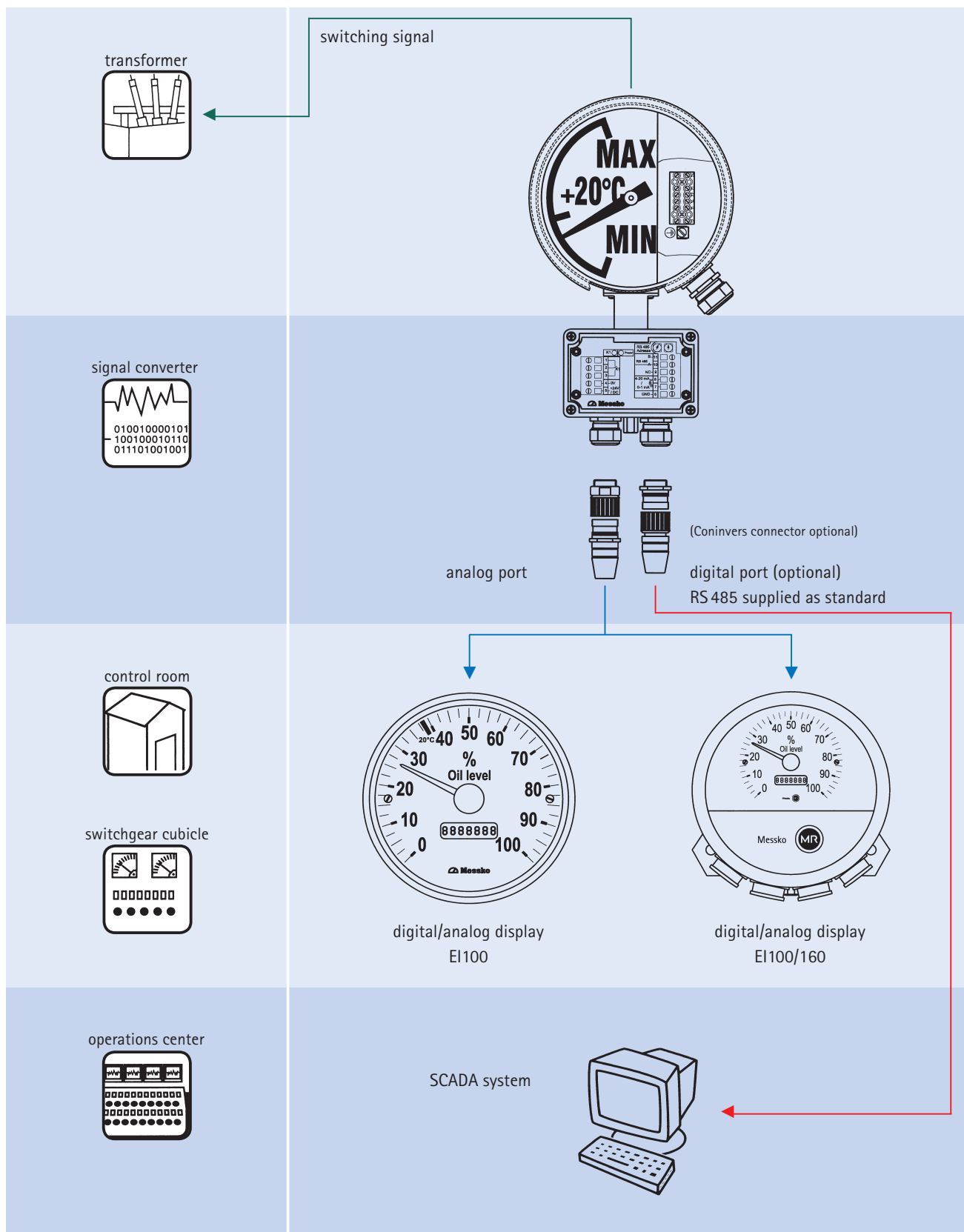


Figure 2







Micro switches (changeover contacts)

There are two versions:

MESSKO® MTO-ST160 (G)

1. Adjustable limit switch
(max. 2 changeover contacts)

You can recognize adjustable limit switches by the colored triangular switching levers on the dial. The switching levers can be adjusted over the entire dial range.
Color of the switching levers MAX = blue,
MIN = red

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2. Fixed limit switch
(max. 3 changeover contacts)

Limit switches with a fixed setting are identified by a line (switch marking) 5° near the MAX/MIN lettering. They are set at the factory and **not** adjustable in the field.

Indicator dials

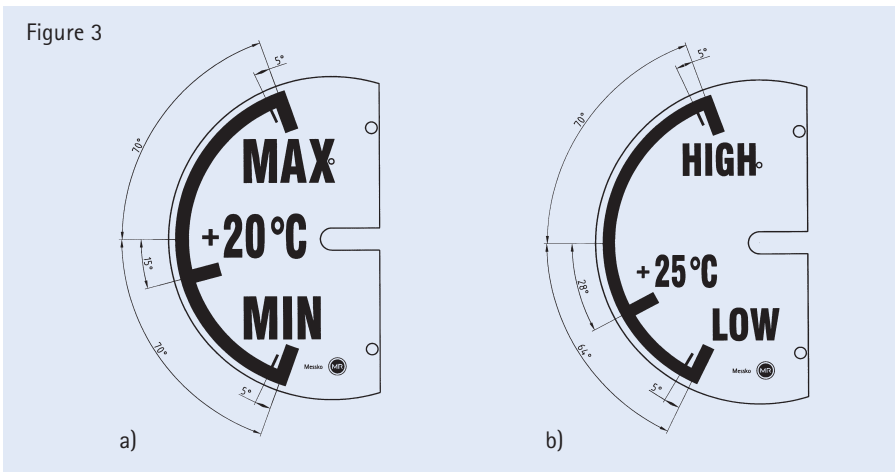
1.

contact load:
250 V AC / 5 A / $\cos\varphi = 1$
110 V DC / 0.6 A (non-inductive)
250 V DC / 0.4 A (non-inductive)

2.

contact load:
250 V AC / 15 A / $\cos\varphi = 1$
12 V DC / 5 A (non-inductive)
250 V DC / 0.25 A (non-inductive)

In addition to the standard indicator dial, (Min, 20° C, Max; Figure 3 a), other versions can be supplied on request (Figure 3b shows one example).



Optional: Oil level indicator with remote indication MESSKO® MTO-STF160(G)/TT (Figure 4)

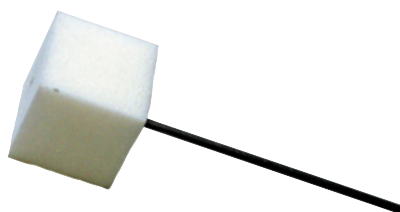
In tight spaces (installation inside a building), on very large transformers, to display the oil level in a remote control station or for connection to a monitoring system, all versions of oil level indicators with fixed contacts can be equipped with an analog or digital output signal.

- analog outputs
(optional factory setting)
 - 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 RS485 (optional)
- micro switch K1
(please quote switching point on order)

The EI100 or EI100/160 electrical display can be used for visualization of the 4...20 mA signal.
(Please refer to illustration on the adjacent page).

Figure 4





MESSKO® MTO-ST(F)160(G)	Technical data
Housing	Galvanized sheet metal, color RAL 7033, powder coated
Flange	Aluminium AlCuMgPb F38
View glass	Laminated safety glass with UV filter
Cable gland	Brass, nickel plated
Dial	Anodised aluminium
Lettering	Black, pointer daylight luminous red
Terminals	Min. 0.25 mm ² / max. 2.5 mm ²
Float rod	Aluminium Al 99.5
Float	Rohacell 110, oil resistant, withstands temperatures up to 160 °C
Dial lettering	MIN +20 °C MAX (other lettering possible)
Ambient temperature	-50 ... +80 °C
Degree of protection	IP55 according to DIN VDE 0470-1.
Ventilation	To avoid formation of condensation water
Installation	Indoor and outdoor, tropicalized
Adjustable micro switch: MTO-ST160 (G) Contact material silver cadmium oxide AgCdO10 1 or 2 switches, user adjustable	Fixed micro switch: MTO-STF160 (G) Contact material silver cadmium oxide AgCdO10 1, 2 or 3 switches factory set, not field adjustable
Contact load: 250 V AC / 15 A / cosφ = 1 110 V DC / 0.6 A (non-inductive) 250 V DC / 0.4 A (non-inductive)	Contact load: 250 V AC / 15 A / cosφ = 1 12 V DC / 5 A (non-inductive) 250 V DC / 0.25 A (non-inductive)
MESSKO® MTO-STF160(G)/TT	Technical data (remote display option)
Housing	AlSi diecast
Dimensions	120 (L) x 80 (W) x 60 (H) mm
Color	RAL 7033, powder coated
Cable gland	2 x M20 x 1.5, brass, nickel plated
Connectors	Optional 9-pole
Place of installation	Indoor and outdoor, tropicalized
Ambient temperature	-20 °C ... +80 °C electronics (compensated), -40 °C ... +80 °C storage
Degree of protection	IP 55 compliant with DIN VDE 0470-1
Ventilation	To avoid formation of condensation water
Supply voltage	24 V DC +/- 15 % unregulated, polarized
Current consumption	About 80 mA
Status display	Power ON (LED green), contact K1 (LED red)
Limit contact	1 x changeover switch
Contact load	250 V AC / 5 A / cosφ = 1 250 V DC / 0.3 A (non-inductive)
Analog output signals	0 ... 1 mA, 0 ... 20 mA, 4 ... 20 mA (optional factory setting)
Digital output signal	1 x RS 485 on terminals (optional)

