

MAGNETIC
LEVEL INDICATORS

70°



OIL LEVEL INDICATOR FOR INSTALLATION
IN THE CONSERVATOR OF TRANSFORMERS
[MTO] SERIES

[MTO] SERIES

MTO-ST160 AND MTO-FK160

Product description

MTO-FK160 and MTO-ST160 level indicators are measuring devices with and without switching contacts. They are ideally suited to measuring the oil levels in the conservators of transformers.

The level indicator consists of a sensor and a display unit, which are linked separately. The sensor unit consists of a sealed flange plate and is installed directly in the wall of the conservator. The float arm transfers the rise and fall of the float to the spindle. This spindle is connected via a magnetic clutch to a pointer spindle in the display unit.

The movement of the float is normally radial to the casing. The „G“ version is recommended for installation in narrow or flat conservators in which only limited movement is possible; in this case the float movement is axial to the casing and the display can be scaled at a ratio of 1:1 or 1:2.

These level indicators can be supplied with either one or two micro-switches.

Materials: MTO-ST160 and MTO-FK160

Housing	sheet steel, galvanized, paint RAL 7033, acrylic coated
Flange	Aluminium AlCuMgPb F38
View glass	laminated safety glass
Cable gland connection	brass, galvanized, passivated
Dial	anodized, aluminium, mat Type MTO-ST 160 is also available with a DIN scale = Dial black, inscription and pointer yellow
Float arm	Aluminium Al 99.5
Float	Rohacell 110, oil resistant, temperature resistant up to 160 °C

Specifications: MTO-ST160 and MTO-FK160

Dial inscription	MIN +20 °C MAX (other inscription on request)
Ambient temperature	-40 – +80 °C
Protection mode	IP55 to DIN VDE 0470-1. These instruments are ventilated and remain mist free up to 80 % RH.
Location	Indoors and out of doors, tropicalized

Microswitch MTO-ST160

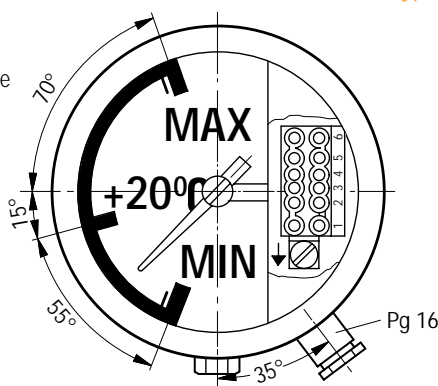
Adjustable switches:
AC : 250 V/5 A/cos $\varphi=1$
DC: 250 V/0.4 A, induction-free
Contact material Silver Cadmium Oxide AgCdO10
1 or 2 switches, fully adjustable
Options: 1 or 2 switches, fixed setting
(Contact rating see MTO-FK 160)

Microswitch MTO-FK160

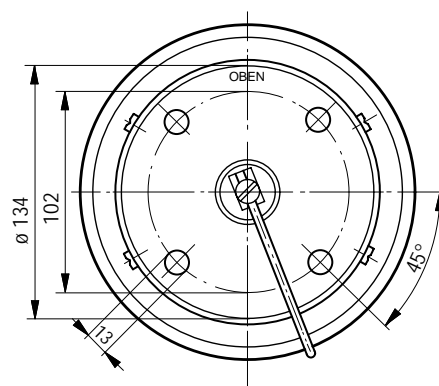
Fixed setting switches:
AC : 250 V/15 A/cos $\varphi=1$
DC: 12 V/5 A, induction-free
DC: 220 V/0.25 A, induction-free
Contact material Silver Cadmium Oxide AgCdO10
1 or 2 switches, fixed setting

1. Oil level indicators with adjustable microswitches

The MTO-ST160 oil level indicator has a removable front ring. The MTO-ST160 can be supplied without switches, or with either one or two adjustable microswitches. Electrical connection is by terminals inside the casing.



Type MTO-ST160

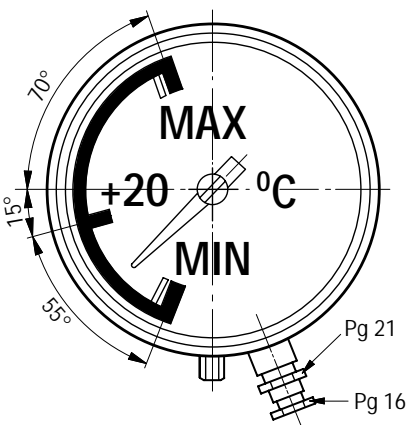


Ordering details MTO-ST160

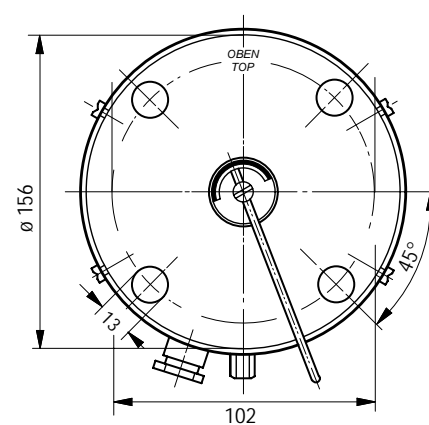
Type	Version	Order no.	Drawing no.	Available ex stock
MTO-ST160	special*	643010	30042-02	no
MTO-ST160	MIN +20 °C MAX, without microswitch	643011	30042-02	no
MTO-ST160	MIN +20 °C MAX, 1 microswitch	643012	30042-02	no
MTO-ST160	MIN +20 °C MAX, 2 microswitches	643013	30042-02	no
MTO-ST160D	DIN scale, special*	643020	30042-02	no
MTO-ST160G	angle drive, special*	643030	30054-00	no

2. Oil level indicators with fixed setting microswitches

The MTO-FK160 oil level indicator has a sealed display unit. The MTO-FK160 can be supplied without switches, or with either one or two fixed setting microswitches. Electrical connection is in the form of a plug-in connector on screw terminals.



Type MTO-FK160



Ordering details for MTO-FK160

Type	Version	Order no.	Drawing no.	Available ex stock
MTO-FK160	switchless, special*	643040	30000-01	no
MTO-FK160	MIN +20 °C MAX, without microswitch	643041	30000-01	no
MTO-FK160	1 microswitch, special*	643050	30000-01	no
MTO-FK160	MIN +20 °C MAX, 1 microswitch	643051	30000-01	no
MTO-FK160	2 microswitches, special*	643060	30000-01	no
MTO-FK160	MIN +20 °C MAX, 2 microswitches	643061	30000-01	yes
MTO-FK160G	angle drive, special*	643090	30043-00	no

* On request.

We reserve the right to make alterations without notice.

Ordering scheme

Type	Description						
MTO	Magnetic oil level indicator						
	Model						
	FK	Type FK					
	ST	Type ST					
	160						
	Casing diameter 160 mm						
	Float version						
	S	Standard: Float radial to casing					
	G	Float axial to casing (additional details required)					
	R	Schwimmer radial, Anzeige und Schwimmer seitenverkehrt					
	Microswitches						
	0	no microswitches					
	1	1 microswitch					
	2	2 microswitches					
	Lettering on scale						
	S	Standard: MIN +20 °C MAX					
	Z	Special inscription, please inclose drawing					
	E	DIN-lettering, only ST model					
	Float arm length						
	S	Standard: 680 mm					
	B	Float arm length in mm					
		Additional details for version "G"					
		please tick:					
		<input type="checkbox"/> Ratio 1:1					
		<input type="checkbox"/> Ratio 1:2					
		_____ Distance tube length, mm					
		<input type="checkbox"/> 1 float roller					
		<input type="checkbox"/> 2 float rollers					
		(only if float arm ≤1,000 mm)					
		<input type="checkbox"/> 4 float rollers (above 1,000 mm)					
MTO	FK	160	S	1	S	S	Ordering example
<p>Ex stock</p> <p>MTO-FK160/S/0/S/S MTO-FK oil level indicator, MIN +20 °C MAX, switchless, float arm 680 mm, Order no. 643041</p> <p>MTO-FK160/S/2/S/S MTO-FK, oil level indicator, MIN +20 °C MAX, 2 switches, Sfloat arm 680 mm, Order no. 643061</p>							



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