

# Immersible Magnetic Probes

## T-20x.. / TK-30x..

### Mounting and Start-up Instructions

#### Safety Instructions

The precondition for flawless, safe operation of the probes is appropriate transport, storage, assembly, professional installation and start-up, proper use and maintenance.

These activities may only be performed by persons, who have the necessary expertise and qualifications. The relevant safety regulations for the construction and operation of electrical systems must be observed. If information contained in these instructions should prove to be inadequate in any way, please contact the manufacturer.

#### Function

A switching magnet is fitted in the float that slides along the guide tube whose magnetic field switches the Reed contacts installed in the guide tube.

#### Application

The probes can be used to record filling levels in containers/tanks containing liquid media.

For use as:

T-20x: level/limit indicator

TK-30x: continuous level monitoring

#### Mounting

The devices are suitable for vertical installation and are mounted and/or bolted to the inside or outside of the container/tank depending on the design. Screw the T-206 model into place on the side from the inside. Mount the TK-307 model on the side of the bypass tube (switching magnet in the float of the bypass tube).

#### Operating conditions

- Vibrations, oscillations and/or impacts can lead to malfunctions. If these kinds of stresses are to be expected under the given circumstances, appropriate measures must be taken (mounting brackets, protective tubes, place of installation etc.).
- Probes with a guide tube >2 metres should also be installed with a support at their lower end in addition to the upper mounting bracket.
- Immersible magnetic probes should not be exposed to strong currents or turbulences. These could bend the probes and trigger faulty switching functions.
- Media that are sticky, crystallising and/or contain solids when in use can impair the function of the immersible magnetic probes or lead to malfunctions.
- Media that contain magnetisable substances affect the function of the immersible magnetic probes. Only non-magnetisable parts/mounting brackets (austenitic/stainless steel) may be located in the direct vicinity of the probes to ensure their safe operation.
- The unrestricted functional path of the float must be guaranteed.

## Electrical Connections

The tank and/or the medium must be grounded at voltages >50 V.

### Connector housing / cable connection All electrical connections must be carried out in a de-energised state

T-20x..	Wechsler / Change-over contact			Schließer/Öffner NO/NC		
	Kontakt Nr.	Anschlussdose Klemmenbezeichnung	Kabelschwanz Kabelfarbe	Anschlussdose Klemmenbez.	Kabelschwanz Kabelfarbe	
	Contact No.	Connection box Clamp name	Unconnected cable end Cable colour	Connection box Clamp name	Unconnected cable end Cable colour	
T-20x..	K <sub>1</sub>	rot / red 1		weiß / white	1	weiß / white
		schwarz / black 2		braun / brown	2	braun / brown
		gelb / yellow 3		grün / green	3	grün / green
	K <sub>2</sub>	rot / red 4		gelb / yellow	3	grün / green
		schwarz / black 5		grau / grey	4	gelb / yellow
		gelb / yellow 6		rosa / pink	5	rosa / pink
	K <sub>3</sub>	rot / red 7		blau / blue	6	grau / grey
schwarz / black 8			rot / red	7	rosa / pink	
gelb / yellow 9			schwarz / black	8	blau / blue	
K <sub>4</sub>	10			7	blau / blue	
	11			8	rot / red	
	12			9	schwarz / black	
K <sub>5</sub>	13			10	violett / violet	
	14			11		
	15			12		
K <sub>6</sub>				13		
				14		

TK-30x		<p style="text-align: center;"><b>Connection via TK-101 measuring transducer, see separate operating instructions and data sheet 14-01-01 in section 14</b></p>
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## Contact protection

To ensure secure operation and to achieve a long life, one of the following protective circuit examples should be applied:

Protection circuit		Values AC			
For inductive load on DC	For inductive load on AC	Permissible values for RC elements			
		<b>Voltage</b>	<b>Capacity</b>	<b>Resistor</b>	<b>Art.No.:</b>
		24 VAC	0.1 µF	100 Ohm	ebe00450
		48 VAC	0.1 µF	220 Ohm	ebe00451
		115 VAC	0.1 µF	330 Ohm	ebe00452
		230 VAC	0.1 µF	470 Ohm	ebe00453

For capacitive load on DC (PLC Input)	Declaration
	<p><math>C_i</math> = internal capacitance of a PLC, etc.</p> <p><math>R_s</math> = protective resistor = 47 Ohm</p>

For capacitive load on AC (for electronic relays)	Declaration
	<p><math>C_i</math> = internal capacitance of an electronic relay, etc.</p> <p><math>R_s</math> = protective resistor: 220 Ohm for 230 V AC relay</p>

## Technical Data

See data sheet for the desired device ( [www.elb-bensheim.de](http://www.elb-bensheim.de) )

Type	Section	Data sheet
T-20x...	6	06-00-01 to 06-01-05
TK-30x...	11	11-00-01 to 11-01-04

## Handling / Maintenance / Servicing

The action of external forces such as knocks, impacts, bending, etc. should generally be avoided.

If there is a risk of the float becoming clogged/blocked by the medium, suitable maintenance/cleaning intervals must be scheduled.

Maintenance is otherwise restricted to a general inspection / functional check of the electrical system.