rexroth
A Bosch Company

Float switch

with switching contacts and temperature contact, with resistance measuring chain / resistance thermometer, with display and control unit

Type ABZMS-41

RE 50223/2022-06 1/24
Replaces: 50222

IO-Link


HAD 7708/09

Component series 2X

Table of contents

Information on available spare parts:
www.boschrexroth.com/spc

Features

Float switches are switching devices operated by a float moved by fluid. These are used to control fluid levels in power unit tanks.

Three series are available:

Float switch type ABZMS…M with a maximum of four adjustable switching contacts normally closed contact/ normally open contact or a maximum of three switching contacts and optionally fixedly set temperature contact as normally closed contact for 60 °C *[140 °F]*, 70 °C *[158 °F]* or 80 °C *[176 °F]*.

Float switch type ABZMS…RTA with resistance measuring chain (level) and resistance thermometer (temperature) with analog output from 4 to 20mA.

Float switch type ABZMS…D with resistance measuring chain and resistance thermometer as with type ABZMS...RTA and additional display and control unit for level and temperature setting.

Float switch type ABZMS...LTD with IO-Link output and a programmable switching output

Float switch type ABZMS...D3 as type LTD, but with additional display and control unit

Ordering code

ABZM | S – 41 – 2X / / / –

Power unit accessories

Measuring device **= ABZM**

Float switch **= S**

Version **= 41**

Component series 20 to 29 (20 to 29: unchanged installation and connection dimensions) **= 2X**

Ordering length in mm *[inch]*

L = 280 mm *[11.02]*	**= 0280**
L = 370 mm *[14.57]*	**= 0370**
L = 500 mm *[19.69]*	**= 0500**
L = 800 mm *[31.50]*	**= 0800**
L = 1000 mm *[39.37]*	**= 1000**
L = 1200 mm *[47.24]*	**= 1200**

Level and temperature measurement [4]

Number of level contacts normally closed contact/normally open contact [2]

1 x	**= M1**
2 x	**= M2**
3 x	**= M3**
4 x	**= M4**

Number of level contacts normally closed contact/normally open contact and temperature contact 70 °C [158 °F] normally closed contact [3]

1 x	**= M1-T70F**
2 x	**= M2-T70F**
3 x	**= M3-T70F**

Number of level contacts normally closed contact/normally open contact and temperature sensor PT100, output resistance signal Ω

1 x	**= M1-TS**
2 x	**= M2-TS**
3 x	**= M3-TS**

Number of level contacts normally closed contact/normally open contact and resistance thermometer, output 4...20 mA

1 x	**= M1-TA**
2 x	**= M2-TA**
3 x	**= M3-TA**

Resistance measuring chain (level) and resistance thermometer Analog output 4...20 mA **= RTA**

IO-Link output and an additional programmable switching output **= LTD**

Display and control unit with resistance measuring chain and resistance thermometer with four programmable PNP switching outputs **= D1**

Display and control unit with resistance measuring chain and resistance thermometer with two programmable PNP switching outputs and two analog outputs 4…20 mA **= D2**

Display and control unit with IO-Link output and an additional programmable switching output **= D3**

Order example:

– Float switch with flange connection, ordering length 370 mm *[14.57 inch]*
– two pre-set level contacts and temperature contact normally closed contact at 70 °C *[158 °F]*
– Device connector K24

ABZMS-S-41-2X/0370/M2-T70/DC-K24

Electrical connection [1]

K24 =	Device connector, 4-pole M12x1 (standard)
K14 =	Device connector, 4-pole (3+PE) DIN EN 175301-803
K6 =	Device connector, 7-pole (6+PE) DIN EN 175201-804

Voltage

DC =	VDC 10...36 (IO-Link: V 18…30)
AC =	VAC 10…230

[1] Mating connectors, separate order, see page 6

[2] Pinout, see page 7

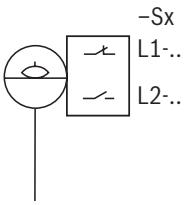
[3] Option:
Temperature contact 60 °C *[140 °F]* = T60F
Temperature contact 80 °C *[176 °F]* = T80F

[4] Possible combinations
Function / Electrical connection

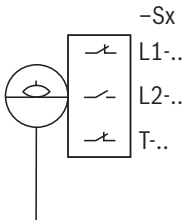
Function	Voltage					
	VDC10-36 (IO-Link: V 18…30)				VAC10-230	
	K24	2K24	K14	K6	K14	K6
M1	x	-	x	x	x	x
M2	x	-	x	x	x	x
M3	-	-	-	x	-	-
M4	-	-	-	x	-	-
M1-T70F	x	-	x	x	x	x
M2-T70F	-	x	-	x	-	x
M3-T70F	-	-	-	x	-	-
M1-TS	-	x	-	x	-	-
M2-TS	-	x	-	x	-	-
M3-TS	-	-	-	x	-	-
M1-TA	-	x	-	x	-	-
M2-TA	-	x	-	x	-	-
M3-TA	-	-	-	x	-	-
RTA	x	-	-	-	-	-
D1	-	x	-	-	-	-
D2	-	x	-	-	-	-
LTD	x	-	-	-	-	-
D3	x	-	-	-	-	-

Preferred types, see page 3!

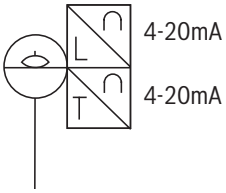
Symbols



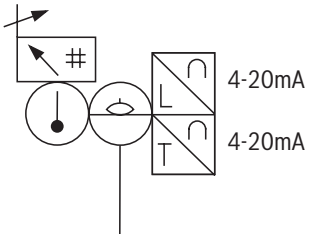
with two switching contacts



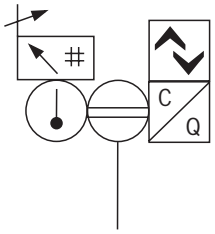
with two switching contacts and one temperature contact



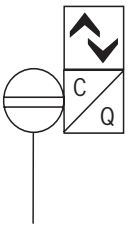
with resistance measuring chain / resistance thermometer



with display and control unit, resistance measuring chain / resistance thermometer



with display and control unit with IO-Link output and one switching output



IO-Link output and one switching output

Preferred types

Float switch with two switching contacts, type ...M2...

Ordering length L in mm *[inch]*	Type	Material number
0370 *[14.57]*	ABZMS-41-2X/0370/M2/DC-K24	R901212588
0500 *[19.69]*	ABZMS-41-2X/0500/M2/DC-K24	R901212589

Float switch with two switching contacts and temperature contact, type ...M2-TF70F...

Ordering length L in mm *[inch]*	Type	Material number
0370 *[14.57]*	ABZMS-41-2X/0370/M2-T70F/DC-K24	R901212590
0500 *[19.69]*	ABZMS-41-2X/0500/M2-T70F/DC-K24	R901212591

Float switch with resistance measuring chain and resistance thermometer, type ...RTA...

Ordering length L in mm *[inch]*	Type	Material number
0370 *[14.57]*	ABZMS-41-2X/0370/RTA/DC-K24	R901212592
0500 *[19.69]*	ABZMS-41-2X/0500/RTA/DC-K24	R901212593

Float switch with display and control unit, resistance measuring chain and resistance thermometer, type ...D2...

Ordering length L in mm *[inch]*	Type	Material number
0370 *[14.57]*	ABZMS-41-2X/0370/D2/DC-K24	R901530663
0500 *[19.69]*	ABZMS-41-2X/0500/D2/DC-K24	R901530664

Technical data (For applications outside these parameters, please consult us!)

General

Installation position			Vertical ±10°					
Medium temperature range		°C *[F]*	–20 to +80 *[–4 to +176]*					
Ambient temperature range								
	– M… and RTA	°C *[F]*	–20 to +85 *[–4 to +185]*					
	– D1, D2, D3 and LTD	°C *[F]*	–20 to +70 *[–4 to +158]*					
Material	– Sliding tube Ø 20 mm *[0.79 inch]*		Cu alloy					
	– Float		1.4571					
	– Flange		PA12+25GF (25% glass fiber)					
	– Protective pipe Ø 60.3 mm *[2.37 inch]*		Stainless steel 1.4301					
Seal material			Klinger C-4400					
Maximum switching point L1		mm *[inch]*	1140 *[44.88]*					
Maximum weight with ordering length		mm *[inch]*	0280 *[11.02]*	0370 *[14.57]*	0500 *[19.69]*	0800 *[31.50]*	1000 *[39.37]*	1200 *[47.24]*
		kg *[lbs]*	0.2 *[0.44]*	0.5 *[1.10]*	1.3 *[2.87]*	1.8 *[3.97]*	2.0 *[4.41]*	2.2 *[4.85]*

Hydraulic

Maximum operating pressure	bar *[psi]*	1 *[14.5]*		
Hydraulic fluid				
– Density	g/cm³	> 0.8		
– Resistance				resistant
• Mineral oils		Mineral oil	HLP	according to DIN 51524
• Flame-resistant hydraulic fluids		Emulsions	HFA-E	according to DIN 24320
		Water solutions	HFC	according to VDMA 24317
		Phosphoric acid esters	HFD-R	
		Organic esters	HFD-U	
• Fast bio-degradable hydraulic fluids		Triglycerides (rape seed oil)	HETG	according to VDMA 24568
		Synthetic esters	HEES	
		Polyglycols	HEPG	

Electrical

Protection class according to DIN EN 60529	IP 65
Plug-in connection	4-pole, M12x1 (material: metal) (K24) 4-pole (3+PE) DIN EN175301-803 (K14) 7-pole (6+PE) DIN EN175201-804 (K6)

Float switch reed contacts with connection K24, K14, K6/**DC**

Switching voltage range	VDC	10 to 36
Max. switching current	A	0.5
Max. contact load	VA	10

Technical data (For applications outside these parameters, please consult us!)

Float switch temperature contacts with connection K24, K14, K6/DC

Switching voltage range	VDC	10 to 50
Max. switching current	A	0.5
Max. contact load	VA	10
Max. switching cycles		100,000
Response tolerance	K	±3 at max. 1k/min.
Hysteresis	K	Up to 10 at max. 1k/min.
Max. temperature change velocity	K/min.	1

Float switch reed contacts with connection K14 according to DIN EN 175301-803 / K6 according to DIN EN 175201-804/AC

Switching voltage range	VDC/VAC	10 to 230
Max. switching current	A	0.5
Max. contact load	VA	10

Float switch temperature contacts with connection K14 according to DIN EN 175301-803 / K6 according to DIN EN 175201-804/AC

Switching voltage range	VDC/VAC	10 to 230
Max. switching current	A	2.5
Max. contact load	VA	100
Max. switching cycles		100,000
Response tolerance	K	±3 at max. 1k/min.
Hysteresis	K	Up to 10 at max. 1k/min.
Max. temperature change velocity	K/min.	1

PT100

Sensor element		PT100 class B, DIN EN 60751
Temperature measuring range	°C*[°F]* °C*[°F]*	0 to 100 *[32 to 212]* *0 [32] = 4 mA; 100 [212] = 20 mA*
Accuracy	K	± 0.8

Resistance measuring chain and resistance thermometer with connection K24 for mating connector M12x1; 4-pole

Operating voltage	VDC V	10 to 36 18 to 30 (IO-Link)
Signal output	mA	4 to 20 (alternatively 0 to 10, 2 to 10 or 0 to 5 V adjustable)
Resolution of resistance measuring chain	mm	5
Max. load	Ω	(U – 9.0 V) / 0.02 A
Temperature measurement range	°C *[°F]*	0 to 100 *[32 to 212]*

Display and control unit version D1, D2 and D3

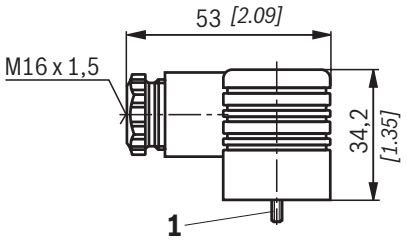
Supply voltage		VDC	10 to 32; IO-Link 18 to 30
Display range		°C *[°F]*	–20 to +120 *[–4 to +248]*
Alarm adjustment range	- Temperature	°C *[°F]*	0 to 100 *[32 to 212]*
	- Level	% / liter *[US gal]*	0 to 100 / 0 to 999 *[263.91]*
Housing design			PA, IP65 (antistatic)
Display			4-digit, seven-segment LED display
Current consumption upon switch-on			Approx. 100 mA over 100 ms
Current consumption during operation			Approx. 50 mA at UB 24 V
Switching output			PNP, max. 0.5 A switching power IO-Link 0.2 A, total 1 A Switching point 1, 0.2 A Other switching points 0.5 A, max. 1 A total
Max. ambient temperature		°C *[°F]*	–20 to +70 *[–4 to +158]*
Accuracy			1% of the final measurement range end value
Operation			3 keys

Display and control unit version LTD

Supply voltage	VDC	18 to 30
Ambient temperature	°C *[°F]*	–20 to +70 *[–4 to +158]*
Measuring principle		Reed chain Pt100 cl. B, DIN EN 60751
Resolution	*mm*	5
Tolerance	°C *[°F]*	± 0.8 *[± 33.44]*
Accuracy of evaluation electronics		±1% of final value
Switching output	A	0.2 per switching output

Mating connectors (dimensions in mm *[inch]*) – For detailed information see RE 08006

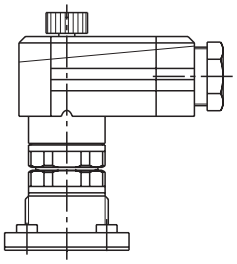
Mating connector for device connector K14 according to DIN EN 175301-803



1 M3 mounting screw, tightening torque M_A = 0.5 Nm

Denomination	Material no.
MATING CONNECTOR 4P Z14 M SW SPEZ	R901017012

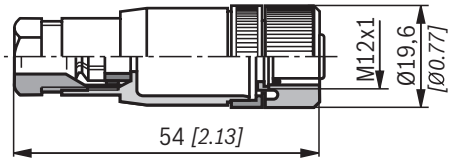
Mating connector for device connector K6 according to DIN EN 175201-804



Denomination	Material no.
MATING CONNECTOR 7P Z6 N6RFFK	R900002803

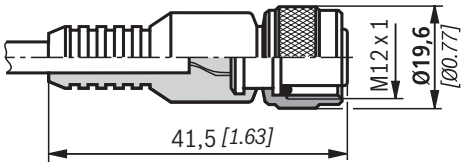
Mating connectors (dimensions in mm *[inch]*) – For detailed information see RE 08006

Mating connector for device connector K24



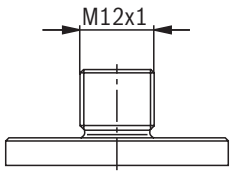
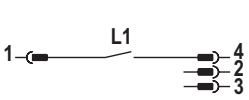
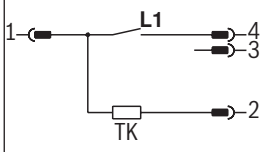
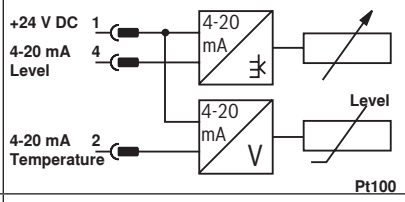
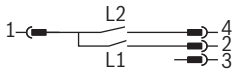
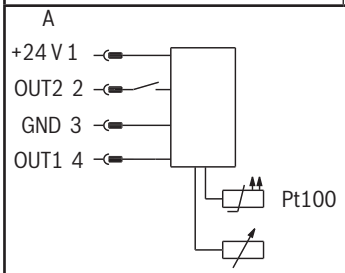
Denomination	Material no.
MATING CONNECTOR 4P Z24 SPEZ	R900031155

Mating connector for device connector K24 with potted-in PVC cable, 3 m long

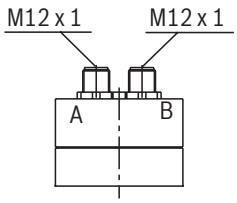
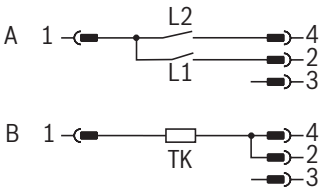
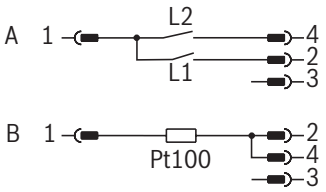


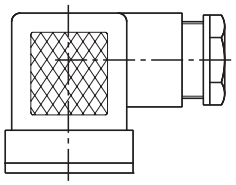
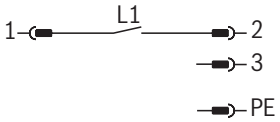
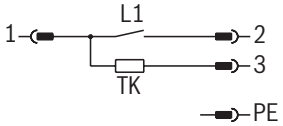
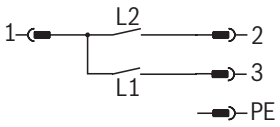
Denomination	Material no.
MATING CONNECTOR 4P Z24M12X1 + 3MSPEZ	R900064381

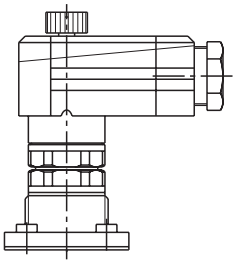
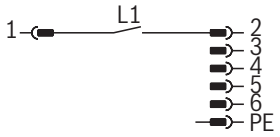
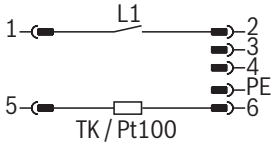
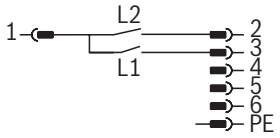
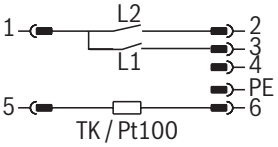
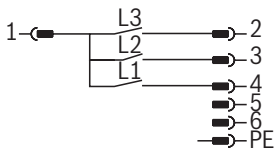
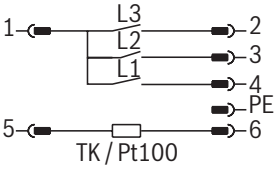
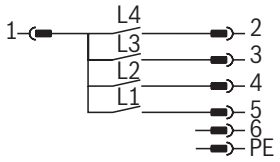
Connection versions and pin assignment

Connector type K24	Version M with 1 or 2 level contacts	Version M with 1 x level contact + temperature contact	Version RTA with level output 4-20 mA + temperature output 4-20 mA
			
			
	Version IO-Link		
		1: +24 V DC 2: S2 (PNP) 3: GND 4: C/Q (IO-Link)	

Connection versions and pin assignment

Connector type 2K24	Version M with 2 level contacts + temperature contact	Version M with 2 level contacts + temperature sensor PT100
		

Connector type K14	Version M with 1 or 2 level contacts	Version M with 1 x level contact + temperature contact
		
		

Connector type K6	Version M with up to 4 level contacts	Version M with up to 3 level contacts + temperature contact or temperature sensor PT100
		
		
		
		

By default, the switching point L1 is set as normally closed contact and switching points L2 to L4 as normally open contact. The switching points can be adjusted in the device (instructions, see page 12).

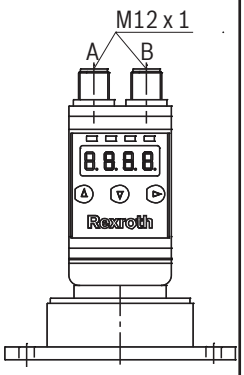
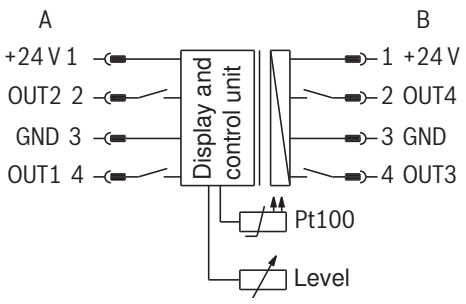
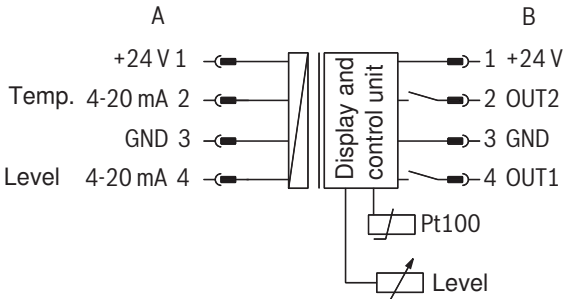
Rotating the contacts by 180° changes the switching function; the normally closed contact type becomes a normally open contact or vice versa.

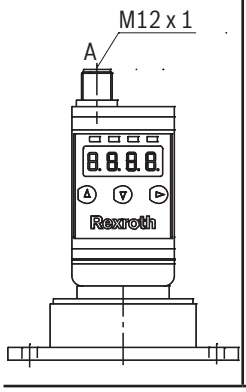
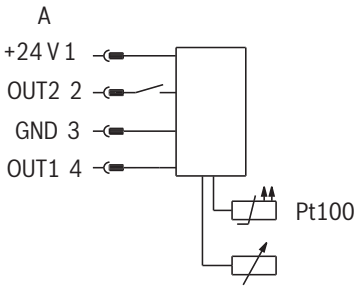
For the version with temperature contact (TK), the switching point is set as the normally closed contact.

A temperature sensor (Pt100) is installed in the version with a constant temperature signal TS or TA. In the version TS, it supplies an ohmic output signal. In the version TA, it supplies a current signal (4 ... 20 mA).

Connection: PIN 5 +24 V, PIN 6 output signal 4 ... 20 mA

Connection versions and pin assignment

Display and control unit with 2 x K24	Version D1 4 freely programmable PNP switching outputs	Version D2 2 freely programmable PNP switching outputs and 2 analog outputs 4-20 mA
		

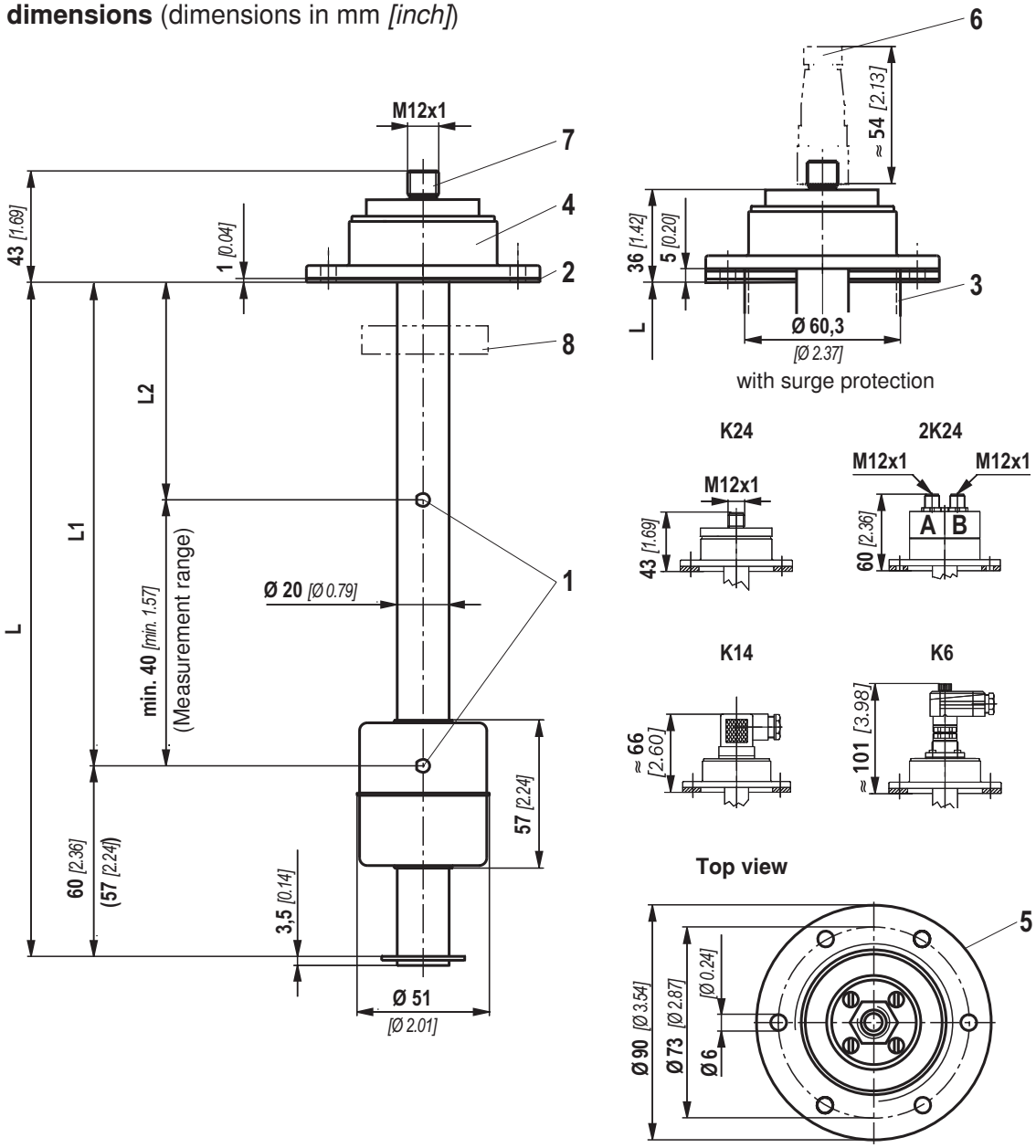
Display and control unit with 1 x K24	Version D3 IO-Link and an electronic switching contact
	 1: +24 V DC 2: S2 (PNP) 3: GND 4: C/Q (IO-Link)

Pre-set switching points type M

Float switch Ordering length "L" in mm *[inch]*	**Number of switching points**				
	Pre-set switching points, dimensions in mm *[inch]*				
		1	**2**	**3**	**4**
0280 *[11.02]*	L1	220 *[8.66]*	220 *[8.66]*	220 *[8.66]*	220 *[8.66]*
	L2		140 *[5.51]*	140 *[5.51]*	180 *[7.09]*
	L3			60 *[2.36]*	140 *[5.51]*
	L4				60 *[3.36]*
0370 *[14.57]*	L1	220 *[8.66]*	220 *[8.66]*	220 *[8.66]*	280 *[11.02]*
	L2		140 *[5.51]*	140 *[5.51]*	220 *[8.66]*
	L3			60 *[2.36]*	140 *[5.51]*
	L4				60 *[3.36]*
0500 *[19.69]*	L1	280 *[11.02]*	280 *[11.02]*	280 *[11.02]*	340 *[13.38]*
	L2		160 *[6.29]*	160 *[6.29]*	280 *[11.02]*
	L3			60 *[2.36]*	160 *[6.29]*
	L4				60 *[2.36]*
0800 *[31.50]*	L1	600 *[23.6]*	600 *[23.6]*	600 *[23.6]*	700 *[27.55]*
	L2		400 *[15.74]*	400 *[15.74]*	600 *[23.6]*
	L3			200 *[7.87]*	400 *[15.74]*
	L4				200 *[7.87]*
1000 *[39.37]*	L1	700 *[27.55]*	700 *[27.55]*	700 *[27.55]*	800 *[31.49]*
	L2		500 *[19.68]*	500 *[19.68]*	700 *[27.55]*
	L3			200 *[7.87]*	500 *[19.68]*
	L4				200 *[7.87]*
1200 *[47.24]*	L1	800 *[31.49]*	800 *[31.49]*	800 *[31.49]*	1000 *[39.36]*
	L2		600 *[23.62]*	600 *[23.62]*	800 *[31.49]*
	L3			300 *[11.81]*	600 *[23.62]*
	L4				300 *[11.81]*

Float switch with level and temperature contacts (version M - T..F)
Float switch with resistance measuring chain and resistance thermometer (version RTA)

Unit dimensions (dimensions in mm *[inch]*)



1 Switching points

2 Flat seal

3 Surge protection from L = 500 mm *[19.69]*
(below 500 mm, surge protectionavailable on request)

4 Name plate

5 Installation opening of the tank, see page 14

6 Mating connector for plug-in connections K24 (M12x1), see page 6

7 Device connector "K24" 04-pole. M12x1

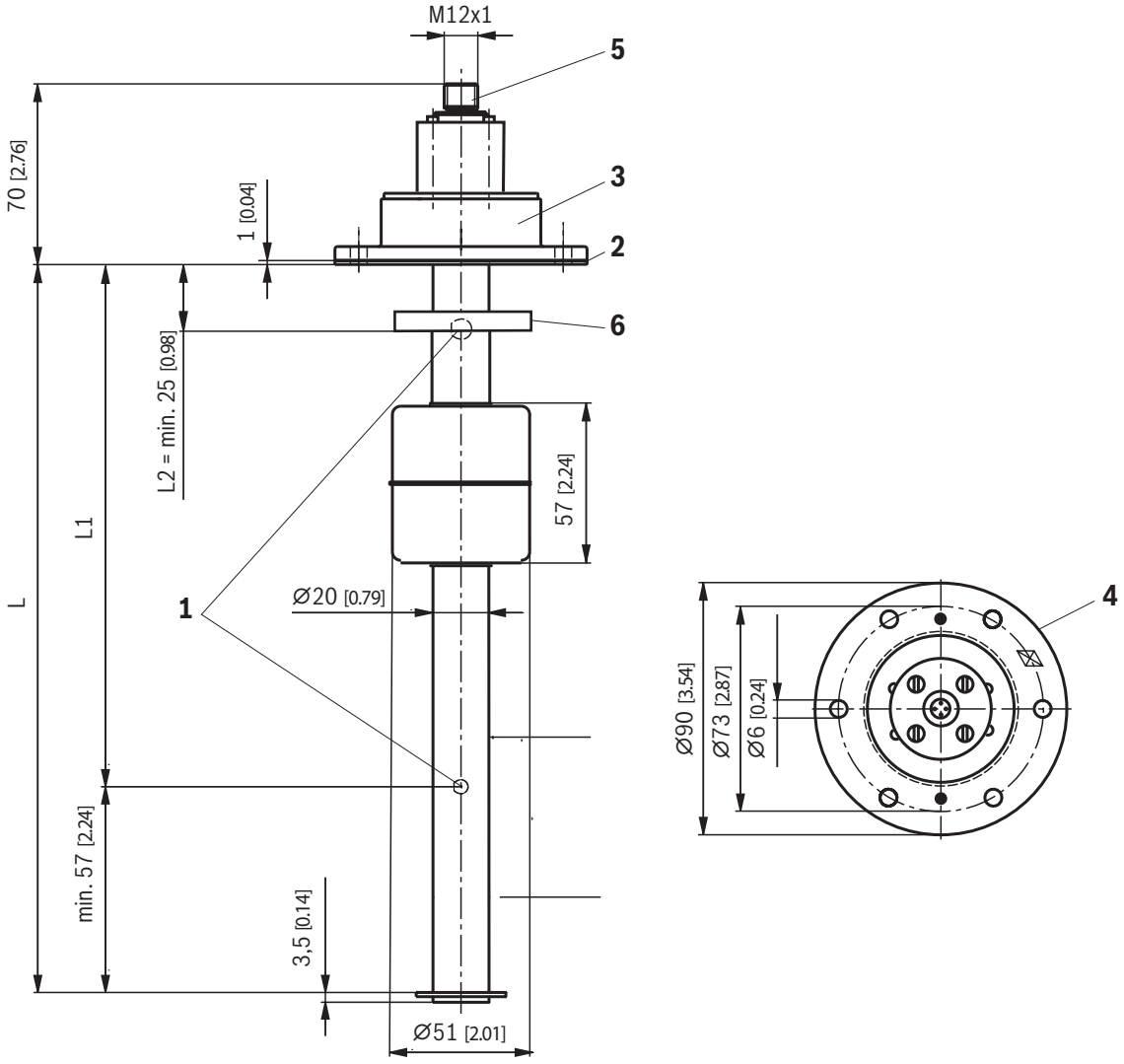
8 Stroke limitation ring set to 20 mA (type RTA)

Version M: L1 = min. 70 *[min 2.76]*

Version RTA: L1 = L - min. 57 *[min 2.24]*

Float switch with IO-Link output (without display) version LTD

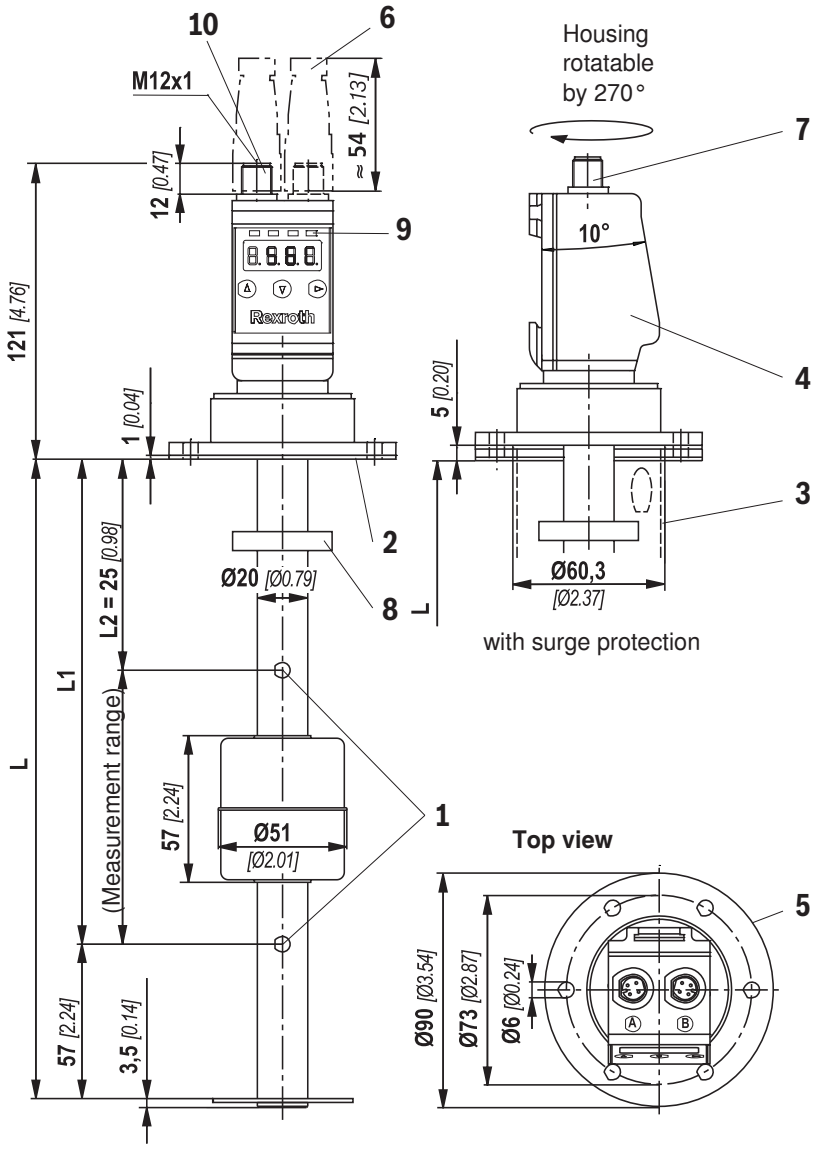
Unit dimensions (dimensions in mm *[inch]*)



1 Switching points
2 Flat seal
3 Name plate
4 Installation opening of the tank, see page 14
5 Device connector "K24" 04-pole. M12x1
6 Stroke limitation ring set to 20 mA (type RTA)

Float switch with display and control unit, optionally with IO-Link (version D..)

Unit dimensions (dimensions in mm *[inch]*)



1 Measurement range 4 – 20 mA

2 Flat seal

3 Surge protection from L = 500 mm *[19.69]*
(below 500 mm surge protection available on request)

4 Name plate

5 Installation opening of the tank, see page 14

6 Mating connector for plug-in connections K24 (M12x1),
see page 6

7 Device connector "K24" 04-pole. M12x1

8 Stroke limitation ring set to 20 mA

9 LEDs for displaying alarm switching points

10 For IO-Link, only one M12 port

Level function

Level contacts:

The sliding tubes contain the adjustable reed contacts (normally closed contact and normally open contact) that are switched by the permanent magnets installed in the float.

If with decreasing oil level, the float reaches the switching points, the contacts are magnetically operated. The spool positions of the contacts are maintained until the float passes the switching points once again due to the increasing oil level.

The switching points can be adjusted in the device.

Rotating the contacts by 180° changes the switching function; the normally closed contact type becomes a normally open contact or vice versa.

Resistance measuring chain:

The sliding tube contains the resistance measuring chain (contact distance 5 mm / resolution) for the continuous recording of the filling level height. If the individual reed contact is switched (closed) by the permanent magnet located in the float, a resistance will in each case be activated. The added resistance value is converted by a transformer into 4-20 mA.

Temperature function

Temperature contact:

At the lowest point within the sliding tube, the bi-metal temperature contacts are attached to the circuit board and secured by means of a shrinkable tubing (the same procedure is used with the versions with PT 100 temperature sensor and resistance thermometer with analog output 4-20 mA). If the desired temperature switching point is reached, the bi-metal contact is opened or closed.

Temperature sensor PT100:

The PT100 consists of a temperature sensor guaranteeing continuous temperature recording. In this connection, the max. cable length of 6m *[236.22]* is to be observed.

Resistance thermometer with pressure transducer, output 4-20 mA:

The PT100 resistance thermometer with pressure transducer is also attached to the circuit board in the sliding tube. The temperature-dependent signal is converted into a linear current change of 4-20 mA.

Display and control unit function (version D)

The micro-processor controlled display and control unit processes the analog input signals for the analysis of the level and temperature control. Level and temperature can be set at the control unit in an easy menu navigation by means of pushbuttons and the settings can be read off at the LED display.

The display and control unit has a four-digit, red seven-segment LED indicator and 3 pushbuttons for the operation as well as up to 4 LEDs integrated in the front plate for the display of alarm conditions.

Apart from that, the device has four freely adjustable PNP switching outputs plus the adjustable switch-back points (version D1) and alternatively (version D2) two freely programmable PNP switching outputs and 2 x 4-20 mA output for the continuous measurement of oil level and temperature. The switching conditions are shown in the display.

The 4-20 mA output can optionally be switched to 0-10 V, 2-10 V or 0-5 V.

Depending on the setting, the display shows the measured temperature or filling level value in the desired unit (°C, °F, L, cm, %, inch or mm). By default, the temperature display is set to °C.

During the setting and/or programming of the corresponding process parameters, the parameter values and/or the related menu items are shown in the display.

In case of energy supply failure, all input values will be stored, the max/min values can be called from a permanent memory, if necessary.

Parameterization

The menu navigation is based on the VDMA standard sheet for fluid sensors 24574-1 (2010-11).

The operating menu is designed hierarchically as tree structure.

That means that frequently used functions and adjustment points are quickly accessible and rarely used menu items can be found in a submenu.

Using the ▲ and ▼ keys, the corresponding parameters are set and/or the next menu item is displayed.

Using the ► key, the selected menu item is selected and/or the set parameter is accepted and stored.

The parameter may be a numerical value and a selection of functions (e.g. NO [output as normally open contact], NC [output as normally closed contact] or i1 [analog output 4-20 mA]).

After confirmation of a parameter or function selection by means of the ► key, the display will switch back to the current menu item. Then, you can use ▲ and ▼ to display the next menu item and ► to select it.

IO-Link (version LTD and D3)

The IO-Link interface can be used to query all the information of the float switch, e.g. via a master.

The current level and temperature values can be output, switching points and hysteresis can be set and min/max values can be read out.

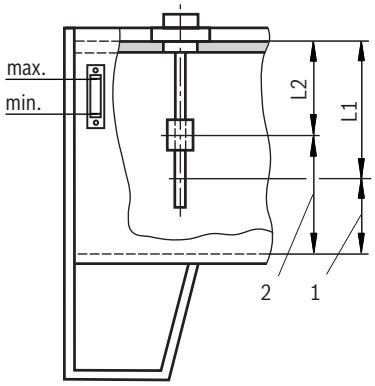
Furthermore, general information such as type codes, material numbers and pin assignments can also be read out.

The IODD of the float switches is provided at:

www.boschrexroth.com/de/de/produkte/

Oil volume specification for float switch (dimensions in mm *[inch]*)

Type M with two switching contacts



1 Residual amount at switching point L1 [1)]

2 Residual amount at switching point L2 [1)]

Float switch **Ordering length "L" in mm** *[inch]*	**Switching point pre-set** **Dimensions in mm** *[inch]*		**Residual amount of hydraulic fluid at switching point** AB 40-40, AB 40-43, AB 40-44		
	L1	**L2**	**NG**	**L1 [1)] in liters** *[US gal]*	**L2 [1)] in liters** *[US gal]*
370 *[14.57]*	220 *[8.66]*	140 *[5.51]*	63	28 *[7.40]*	42 *[11.10]*
			100	45 *[11.89]*	67 *[17.70]*
			160	74 *[19.55]*	100 *[26.42]*
			250	120 *[31.70]*	174 *[45.97]*
			400	190 *[50.19]*	277 *[73.18]*
			630	365 *[96.42]*	475 *[125.48]*
			800	460 *[121.52]*	600 *[158.50]*
			ABPAC TANK		
			100	*46 [12.15]*	*68 [17.96]*
			160	*75 [19.81]*	*112 [29.59]*
			250	*127 [33.55]*	*181 [47.82]*
			400	*219 [57.85]*	*293 [77.40]*
			630	*395 [104.35]*	*491 [129.71]*
500 *[19.69]*	280 *[11.02]*	160 *[6.30]*	AB 40-40, AB 40-43, AB 40-44		
			1000	490 *[129.44]*	740 *[195.49]*
			1250	780 *[206.05]*	1030 *[272.10]*
			1600	990 *[261.53]*	1310 *[346.07]*
			2000	1380 *[364.56]*	1730 *[457.02]*

Attention!
Before the commissioning, the switching contacts are to be set according to the necessary operating conditions.

Adjustment of the switching height

The contacts installed in the float switch are screwed to a contact strip within the sliding tube. They are set to the switching points according to the preceding table and can be adjusted to higher or lower values retroactively (observe minimum distances!).
For adjusting the contacts, proceed as follows:

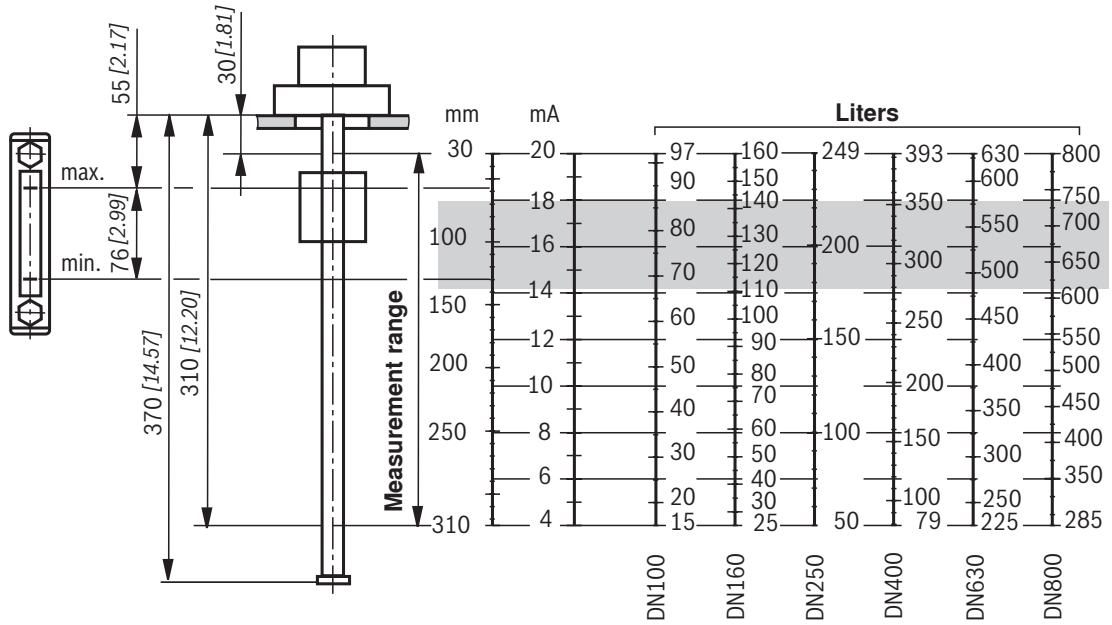
– Interrupt the voltage supply
– Loosen the plug-in connection
– Loosen the screws of the connector base and pull out the connector base with the contact strip
– Loosen the contact from the strip and fasten it at the desired position (it can be adjusted in steps of 10 mm)
– Carefully insert the contact strip
– Fasten the connector base by means of the screws
– Re-establish the plug-in connection and the power connection

Oil volume specification for float switch (dimensions in mm *[inch]*)

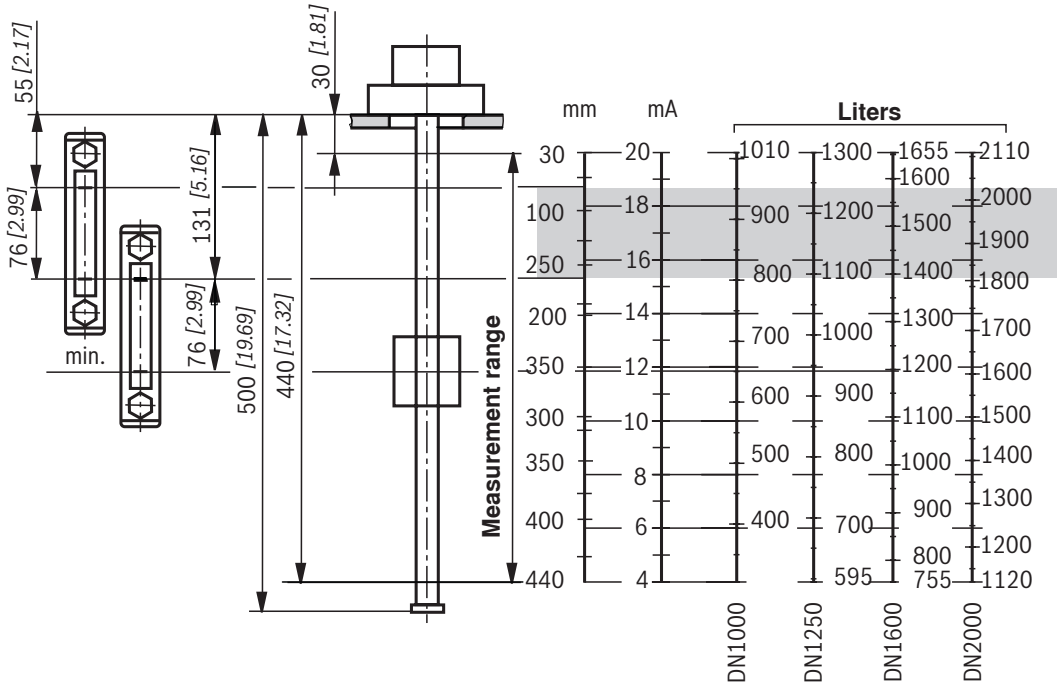
Type RTA, LTD, D1, D2 and D3

in tanks according to AB 40-40, AB 40-43 and AB 40-44

Tank size from DN100 to 800

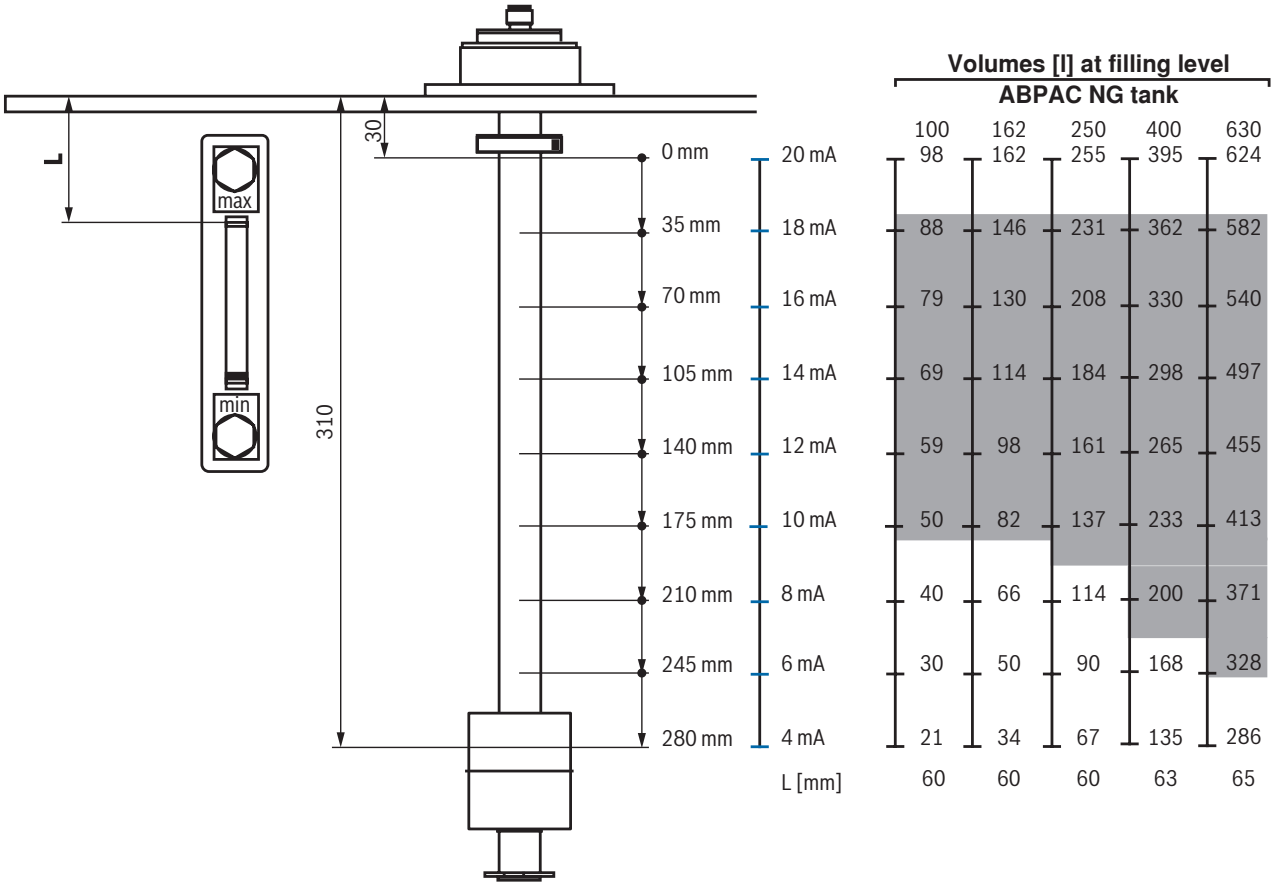


Tank size from DN1000 to 2000

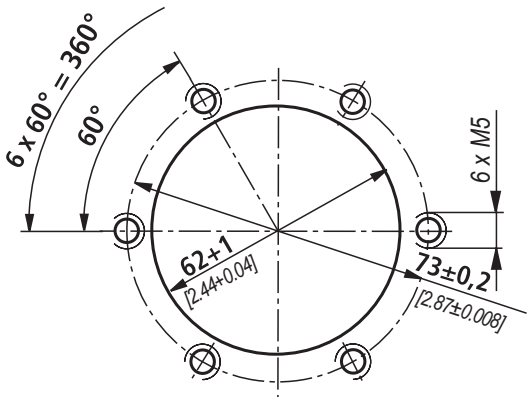


Oil volume specification for float switch (dimensions in mm *[inch]*)

ABPAC tank



Installation opening of the tank cover (dimensions in mm *[inch]*)

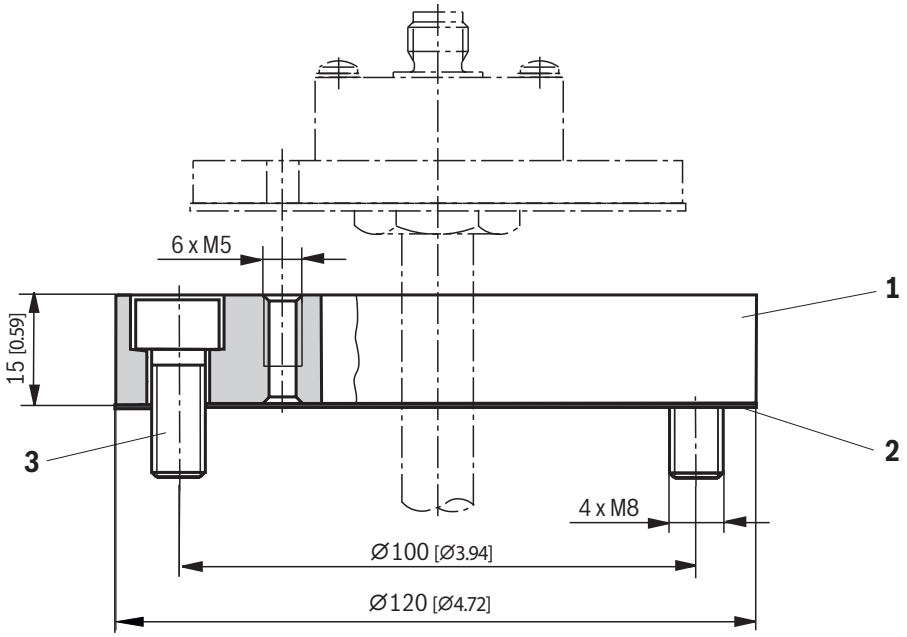


Standard breakthrough AB 03-39.73 similar to DIN 24557 part 2

Mounting screws:

6 X **HEXAGON SOCKET HEAD CAP SCREW ISO4762-M5X18-8.8-A2P** Material no. **R900202612**

Adapter for float switch AB 31-04 (nominal dimensions in mm *[inch]*)



1 Adapter

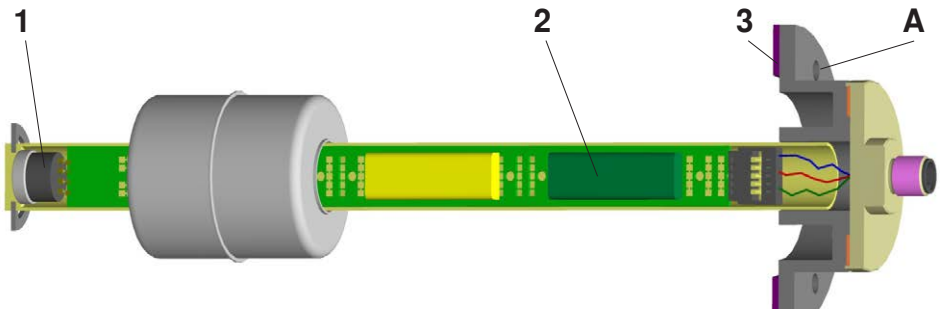
2 Flat seal

3 Hexagon socket head cap screw M8x16

If float switches according to RE 50222 are installed as replacement for float switches according to AB 31-04, an adapter - consisting of item 1 to 3 - is necessary.

ADAPTER AB31-04/ABZMS-41 BG* Material no. **R901078947**

Spare parts (only for version K24: electrical connection **VDC 10-36**)

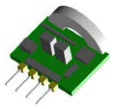


1 Temperature monitoring

R901217053 TEMPERATURE SENSOR T60F-DC ABZMS-41
R901217052 TEMPERATURE SENSOR T70F-DC ABZMS-41
R901217054 TEMPERATURE SENSOR T80F-DC ABZMS-41

R901217050 TEMPERATURE SENSOR TS-PT100 ABZMS-41

R901217051 TEMPERATURE SENSOR TA-4-20MA ABZMS-41



2 Level contacts

R901217055 REED CONTACT K101-DC ABZMS-41 [1)]

R901217056 REED CONTACT K102-DC ABZMS-41 [1)]

R901217057 REED CONTACT K103-DC ABZMS-41 [1)]

R901217058 REED CONTACT K104-DC ABZMS-41 [1)]

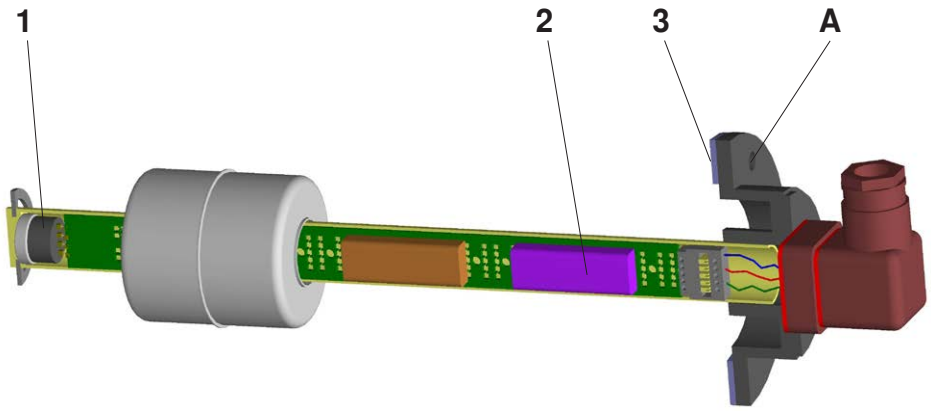
3 R901217059 SEAL 1.0X90X60 ABZMS-41

[1)] Scope of delivery: contacts including mounting screws

When changing the level contacts, the correct order must be observed.
The contact ..K101.. (green) is the first to be assembled after the mounting flange (A).
Then, depending on type, .. K102 (yellow), ..K103.. (red) and ..K104.. (blue) follow.

Changing the order can lead to malfunctions!

Spare parts (only for versions K14 and K6: electrical connection **VAC 10-230**)



1 Temperature monitoring

R901270930 TEMPERATURE SENSOR T60F-AC ABZMS-41 [1)]
R901270931 TEMPERATURE SENSOR T70F-AC ABZMS-41 [1)]
R901270932 TEMPERATURE SENSOR T80F-AC ABZMS-41 [1)]

2 Level contacts

R901270933 REED CONTACT K231-AC ABZMS-41

R901270934 REED CONTACT K232-AC ABZMS-41

3 R901217059 SEAL 1.0X90X60 ABZMS-41

[1)] Scope of delivery: contacts including mounting screws

When changing the level contacts, the correct order must be observed. The contact ..K231.. (purple) is the first and ..K232.. (brown) is the second to be assembled after the mounting flange (A).

Changing the order can lead to malfunctions!

Installation information

- Vertical installation according to technical data, page 4
- Avoid flows
- Do not expose the switch to heavy impacts and bends
- Avoid external magnetic fields. Thus, the function of the reed contacts may be impaired.

Electrical connections:

- Electrical connections may only be established by specialists
- Before works at electric parts, the voltage supply is to be interrupted
- Tighten round connector M12x1 or mating connector after connection
- Plug round connector M12x1 or mating connectors only in the voltage-free state
- Do not overload the contacts (see technical data)
- **In case of inductive load provide a protection circuit!**

Use in potentially explosive areas according to directive 2014/34/EU (ATEX)

The float switches ABZMS-41 are not suitable for use in potentially explosive areas.

Normative reference

AB 40-40
Tank made of steel, form AN, cover form C, oil pan according to WHG

AB 40-43
Tank made of steel, cover form C

AB 40-44
Tank made of steel, with frame

RE 08006
Mating connectors for controlling electric valves and sensors

DIN 24320
Flame-resistant fluids - Hydraulic fluids of categories HFAE and HFAS - Properties and requirements

DIN 51524
Hydraulic fluids; hydraulic oils

DIN EN 175201-804: Detail specification - round connectors - round contacts, size diameter 1.6 mm, threaded coupling; German version EN 175201-804:1999

DIN EN 175301-803: Detail specification: Rectangular plug-in connectors - Flat contacts, 0.8 mm thickness, locking screw not detachable; German version EN 175301-803:1999

DIN EN 60751
Industrial platinum resistance thermometers and platinum temperature sensors (IEC 60751:2008)

DIN EN 60529
Protection classes by housing

VDMA 24317
Fluid technology – Flame-resistant fluids – Technical minimum requirements

VDMA 24568
Fluid technology – Fast bio-degradable fluids – Technical minimum requirements

VDMA 24574-1
Fluid technology – Terms, menu navigation and electrical connection for fluid sensors

IEC 61131-9
Programmable logic controls - interface for communication with small sensors and actuators via a point-to-point connection.

Notes

Notes

Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52 / 18-0
Fax +49 (0) 93 52 / 18-23 58
documentation@boschrexroth.de
www.boschrexroth.de