

Float switch

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

RE 50222/05.10
Replaces: 50214

1/18

Type ABZMS-41

Component series 1X



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Features

Float switches are switching devices operated by a float moved by fluid. They serve the control of filling levels in power unit tanks.

Three series are available:

Float switch Type ABZMS...M with a maximum of four adjustable switching contacts normally closed / normally open 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 20 mA.

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.

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

Ordering code

ABZM	S	41	1X	/	/	/	/	-
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Power unit accessories

Measuring device = **ABZM**Float switch = **S**Version = **41**Component series 10 to 19
(10 to 19: unchanged installation and connection dimensions) = **1X**

Ordering length in mm [inch]

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 level contacts normally closed/normally open ²⁾1 x = **M1**2 x = **M2**3 x = **M3**4 x = **M4**Number level contacts normally closed/normally open and temperature contact 70 °C [158 °F] normally closed ³⁾1 x = **M1-T70F**2 x = **M2-T70F**3 x = **M3-T70F**

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

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

Number level contacts normally closed/normally open 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**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**

Electrical connection ¹⁾

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

Voltage

DC = VDC 10...36**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 °C] = T80F

4) Combination possibilities

Function / Electrical connection

Function	Voltage					
	VDC10-36				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	-	-	-	-

Order example:

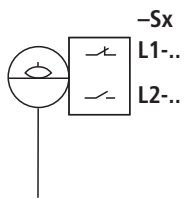
- Float switch with flange port, ordering length 370 mm [14.57 inch]
- Two pre-set level contacts and temperature contact normally closed at 70 °C [158 °F]
- Connector K24

ABZMS-S-41-1X/0370/M2-T70/DC-K24

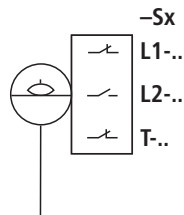
**Standard types,
see page 3!**

**Standard types and standard units
are contained in the EPS
(standard price list).**

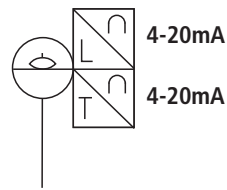
Symbols



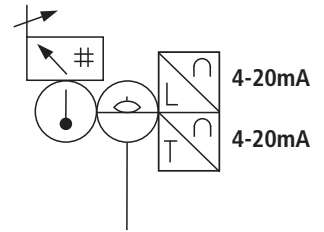
with two switching contacts



with two switching contacts and one temperature contact



with resistance measuring chain / resistance thermometer



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

Standard types

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

Ordering length L in mm [inch]	Type	Material number
0370 [14.57]	ABZMS-41-1X/0370/M2/DC-K24	R901212588
0500 [19.69]	ABZMS-41-1X/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-41-1X/0370/M2-T70F/DC-K24	R901212590
0500 [19.69]	ABZMS-41-1X/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-41-1X/0370/RTA/DC-K24	R901212592
0500 [19.69]	ABZMS-41-1X/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-41-1X/0370/D2/DC-K24	R901212594
0500 [19.69]	ABZMS-41-1X/0500/D2/DC-K24	R901212595

Standard types and standard units are contained in the EPS (standard price list).

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

general						
Installation position	Vertical $\pm 10^\circ$					
Medium temperature range	$^\circ\text{C}$ [F]	-20 to +80 [-4 to +176]				
Ambient temperature range	- M... and RTA	$^\circ\text{C}$ [F]	-20 to +85 [-4 to +185]			
	- D1 and D2	$^\circ\text{C}$ [F]	-20 to +70 [-4 to +158]			
Material	- Sliding tube \varnothing 20 mm [0.79 inch]	CU alloy				
	- Float	1.4571				
	- Flange	PA12 + 25GF (25 % of glass fiber)				
	- Protective tube \varnothing 60.3 mm [2.37 inch]	Stainless steel 1.4301				
Seal material	Klinger C-4400					
Maximum switching point L1	mm [inch]	1140 [44.88]				
Max. weight with ordering length	mm [inch]	0370 [14.57]	0500 [19.69]	0800 [31.50]	1000 [39.37]	1200 [47.24]
	kg [lbs]	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/cm^3	> 0.8				
- Resistance						
• Mineral oils	Mineral oil	HLP	according to DIN 51524			Resistant
• Flame-resistant hydraulic fluids	Emulsions	HFA-E	according to DIN 24320			
	Water solutions	HFC	according to VDMA 24317			
	Phosphoric acid ester	HFD-R				
	Organic esters	HFD-U				
• Fast biodegradable 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)					
Reed contacts of the float switches with connection K24, K14, K6/DC						
Switching voltage range	VDC	10 to 36				
Max. switching current	A	0.5				
Max. contact load	VA	10				
Temperature contacts of the float switches 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 with max. 1k/min.				
Hysteresis	K	up to 10 with max. 1k/min.				
Max. temperature change velocity	K/min.	1				

Technical data (For applications outside these parameters, please consult us!)**Reed contacts of the float switches**

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

Temperature contacts of the float switches

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 with max. 1k/min.
Hysteresis	K	up to 10 with max. 1k/min.
Max. temperature change velocity	K/min.	1

PT100

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

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

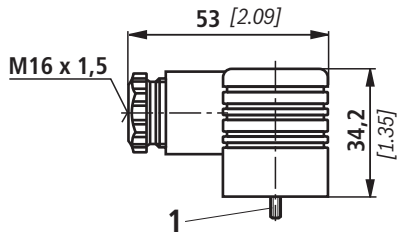
Operating voltage	VDC	10 to 36
Signal output	mA	4 to 20 (alternatively 0 to 10, 2 to 10 or 0 to 5 V can be set)
Resolution resistance measuring chain	mm	5
Max. load	Ω	(U – 9.0 V) / 0.02 A
Measuring range temperature	°C [°F]	0 to 100 [32 to 212]

Display and control unit

Supply voltage	VDC	10 to 32	
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]
Switching points		4 programmable switching outputs (2 level + 2 temperature)	
Housing design		PA, IP65 (antistatic)	
Display		4 digits, seven-segment LED display	
Current consumption upon switch-on		ca. 100 mA for 100 ms	
Current consumption in operation		ca. 50 mA with UB 24 V	
Switching output		PNP, max. 0.5 A switching power	
Max. ambient temperature	°C [°F]	–20 to +70 [–4 to +158]	
Accuracy		1 % of the measurement range end value	
Operation		3 buttons	

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

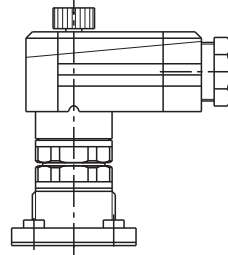
Mating connector for connector K14 according to DIN EN 175301-803



1 fastening screw M3, tightening torque $M_A = 0.5 \text{ Nm}$

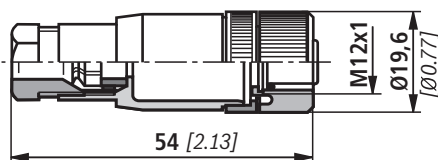
Description	Material no.
MATING CONNECTOR 4P Z14 M SW SPEZ	R901017012

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



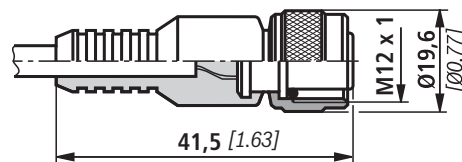
Description	Material no.
MATING CONNECTOR 7P Z6 N6RFFK	R900002803

Mating connector for connector K24



Description	Material no.
MATING CONNECTOR 4P Z24 SPEZ	R900031155

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

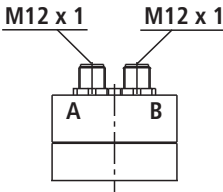
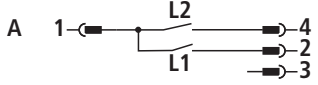
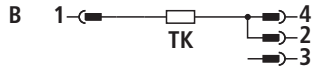
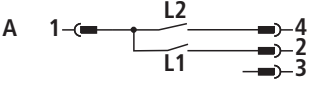
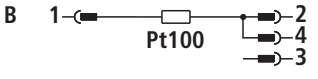
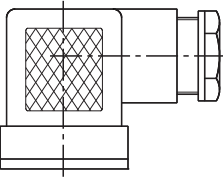
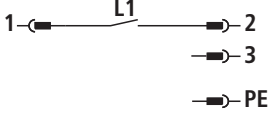
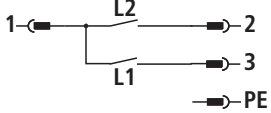
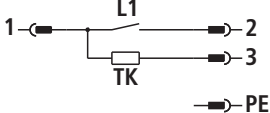
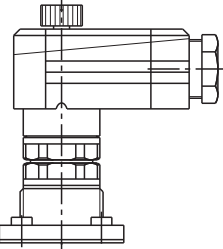
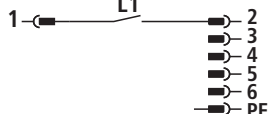
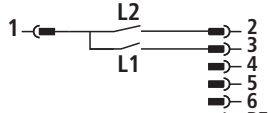
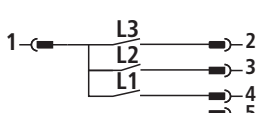
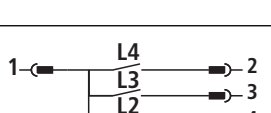
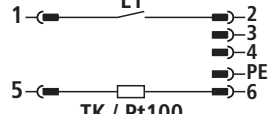
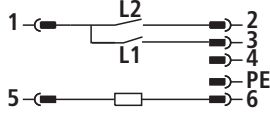
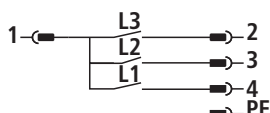



Description	Material no.
MATING CONNECTOR 4P Z24M12X1 +3MSPEZ	R900064381

Connection variants 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

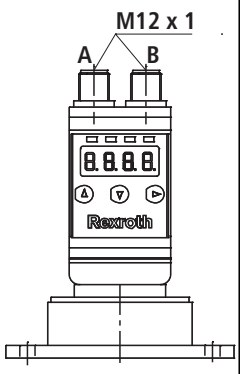
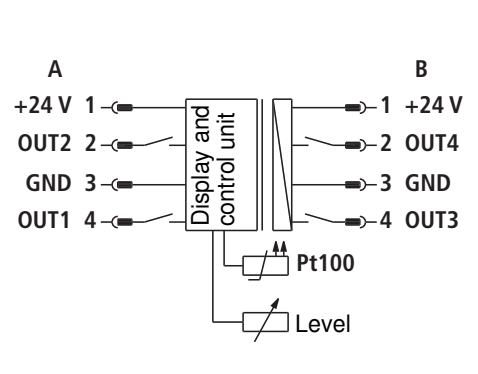
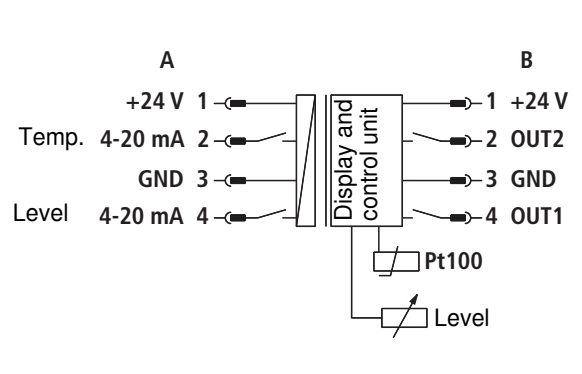
Connection variants and pin assignment

<p>Connector type 2K24</p> 	<p>Version M with 2 level contacts + temperature contact</p> <p>A </p> <p>B </p>	<p>Version M with 2 level contacts + temperature sensor PT100</p> <p>A </p> <p>B </p>
<p>Connector type K14</p> 	<p>Version M with 1 or 2 level contacts</p> <p></p> <p></p>	<p>Version M with 1 x level contact + temperature contact</p> <p></p>
<p>Connector type K6</p> 	<p>Version M with up to 4 level contacts</p> <p></p> <p></p> <p></p> <p></p>	<p>Version M with up to 3 level contacts + temperature contact or temperature sensor PT100</p> <p></p> <p></p> <p></p> <p></p>

Switching point L1 is by default 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).

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

Connection variants and pin assignment

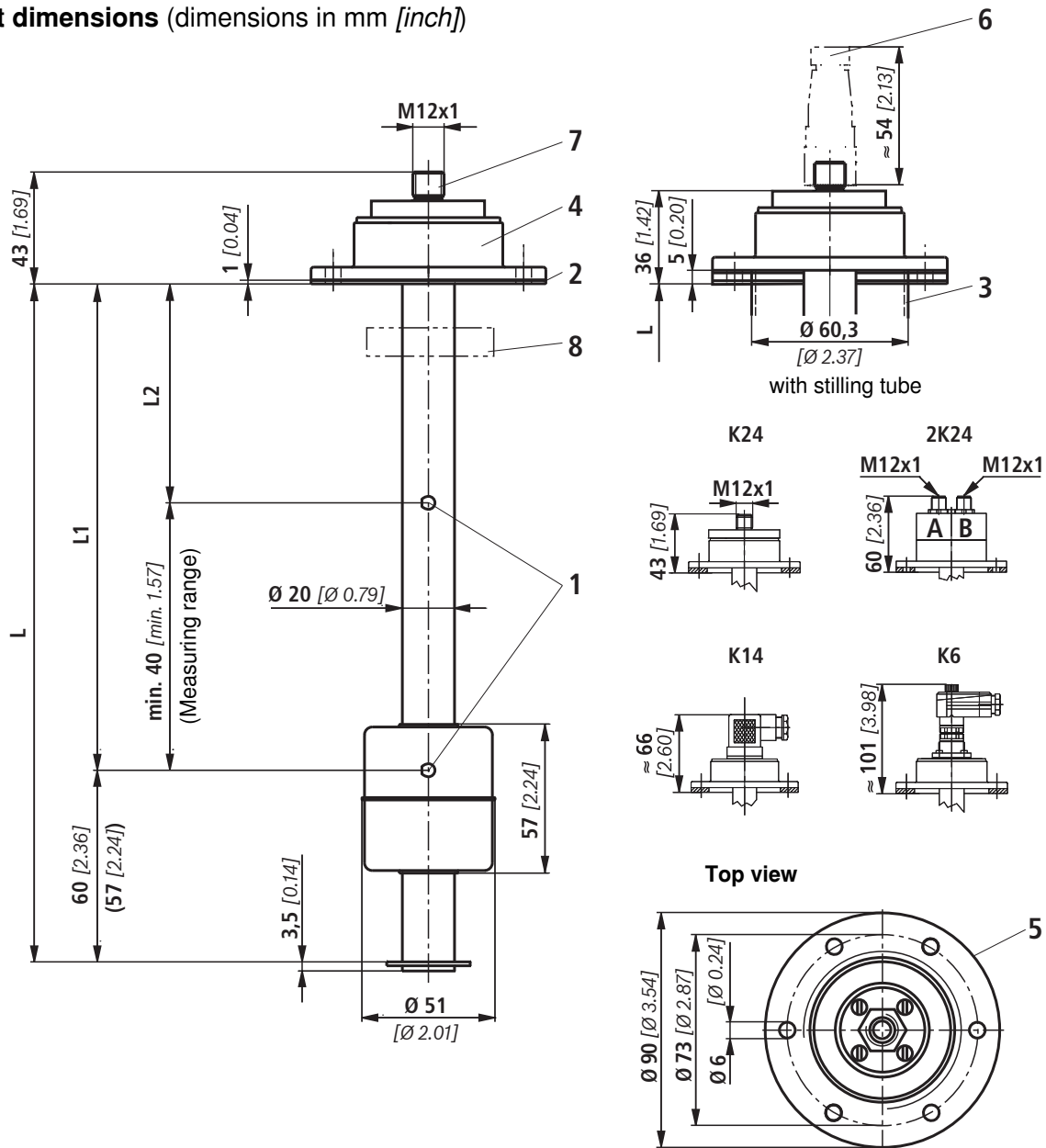
Display and control unit with 2 x K24	Version D1 4 freely programmable PNP switching outputs	Version D2 2 freely programmable PNP switching outputs and 2 analog outputs 4-20 mA
		

Pre-set switching points Type M

Float switch Ordering length "L" in mm [inch]	Number of switching points				
	Switching points pre-set, dimensions in mm [inch]				
		1	2	3	4
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])



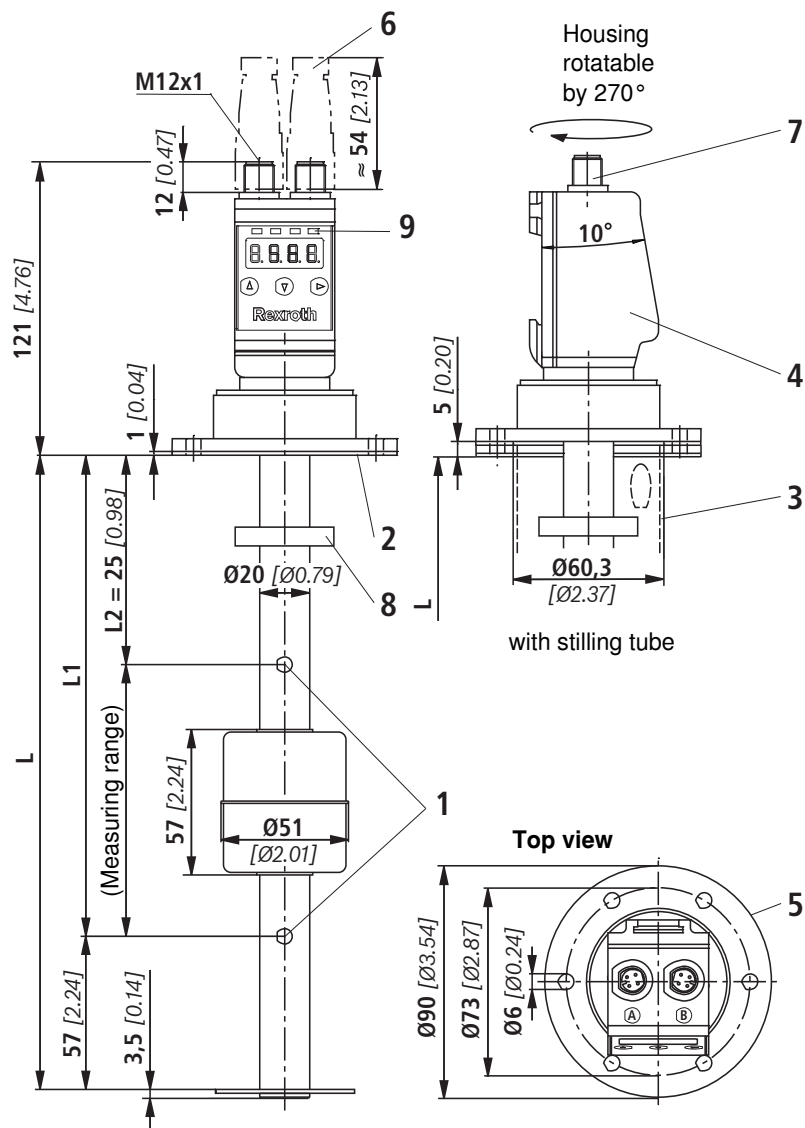
- 1 Switching points
- 2 Flat seal
- 3 Stilling tube from $L = 500$ mm [19.69]
- 4 Name plate
- 5 Installation opening of the tank see page 14
- 6 Mating connector for plug-in connection K24 (M12x1), see page 6
- 7 Connector "K24" 04-pole M12x1
- 8 Stroke limitation ring set to 20 mA (Type RTA)

Version M: $L_1 = \text{min. } 70$ [min 2.76]

Version RTA: $L_1 = L - \text{min. } 57$ [min 2.24]

Float switch with display and control unit (version D..)

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



- 1 Measuring range 4 – 20 mA
- 2 Flat seal
- 3 Stilling tube from L = 500 mm [19.69]
- 4 Name plate
- 5 Installation opening of the tank see page 14
- 6 Mating connector for plug-in connection K24 (M12x1), see page 6
- 7 Connector "K24" 04-pole M12x1
- 8 Stroke limitation ring set to 20 mA
- 9 LEDs for the display of alarm switching points

Function level

Level contacts:

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

If with falling oil level, the float reaches the switching points, the contacts are operated magnetically. The spool positions of the contacts are maintained until the float exceeds the switching points again as the oil level rises.

The switching points can be adjusted in the device.

By turning the contacts by 180°, the switching function changes; the contact type normally closed contact 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. If the individual reed contact is switched (closed) by the permanent magnet contained in the float, one resistance is in each case activated. The added resistance value is converted in 4-20 mA by a transformer.

Function temperature

Temperature contact:

At the lowest point within the sliding tube, the bi-metal temperature contacts are attached to the board and secured by means of a shrink tube (the same procedure is used for the versions with temperature sensor PT 100 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 6 m [236.22] is to be observed.

Resistance thermometer with measuring transducer, output 4–20 mA:

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

Function display and control unit (version D)

The microprocessor-controlled display and control unit processes the analog input signals for the analysis of the level and temperature control. The level and temperature settings can be made at the control unit in a simple menu tree by means of pushbuttons and read at the LED display.

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

The device has moreover 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 changed to 0-10 V, 2-10 V or 0-5 V.

In the display, the measured temperature or filling value will be shown in the desired unit (°C, °F, L, cm, %, inch or mm) according to the setting. 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 will be shown in the display.

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

Parameterization

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

The operating menu is designed hierarchically, as tree structure.

That means that frequently used functions and adjustment points can be accessed very quickly and rarely used menu items can be found in a sub-menu.

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

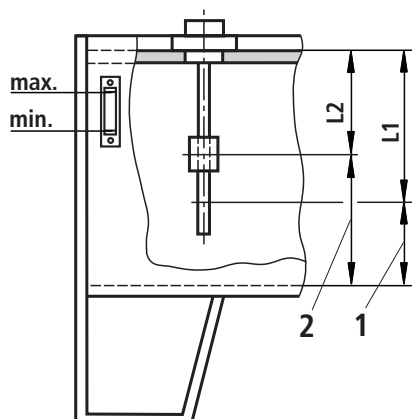
Using the ► key, the marked menu item is selected and/or the set parameter is accepted and saved.

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 selection of a function using the ► key, the display switches back to the current menu item. Then, you can display the next menu item using ▲ and ▼ and select it using ►.

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

Type M with two switching contacts



- 1 Residual quantity with switching point L1 ¹⁾
 2 Residual quantity with switching point L2 ¹⁾

Float switch Ordering length "L" in mm [inch]	Switching point pre-set		Residual hydraulic fluid volume at switching point		
	Dimensions in mm [inch]		AB 40-40, AB 40-43, AB 40-44		
	L1	L2	Size	L1 ¹⁾ in liter [US gal]	L2 ¹⁾ in liter [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]
500 [19.69]	280 [11.02]	160 [6.30]	800	460 [121.52]	600 [158.50]
			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 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 upwards or downwards retroactively (observe minimum distances!). Proceeds as follows in order to adjust the contacts:

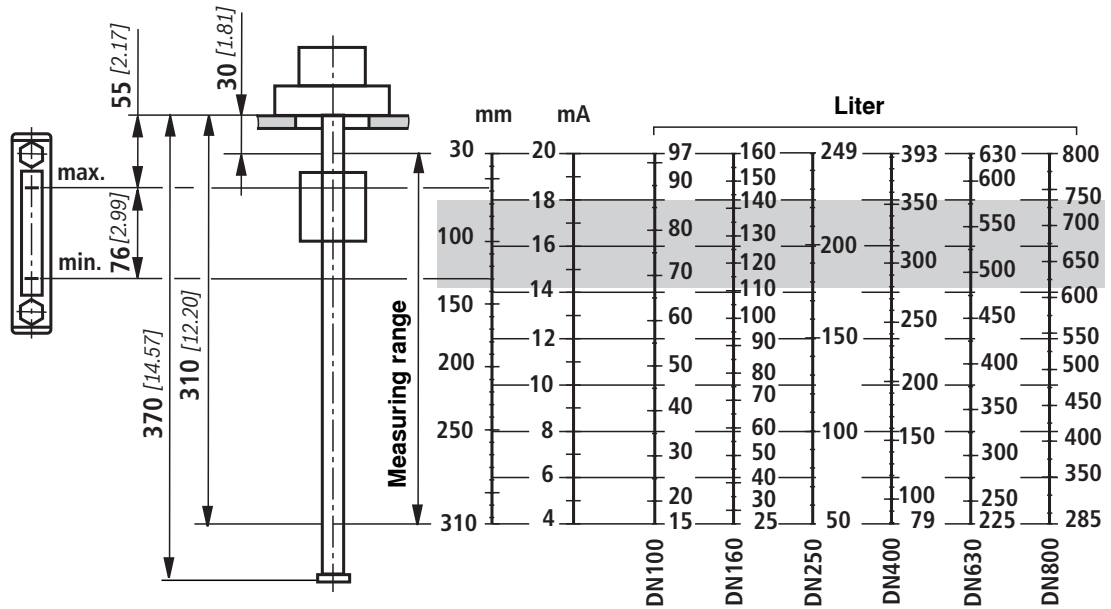
- Interrupt the voltage supply
- Loosen the plug-in connections
- Loosen the screws of the plug-in connector base and pull out the plug-in connector base with the contact strip
- Loosen the contact from the strip and mount it at the requested spot (can be adjusted in 10 mm increments)
- Insert the contact strip smoothly
- Fasten the plug-in connector base using screws
- Re-establish the plug-in connection and the power connection

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

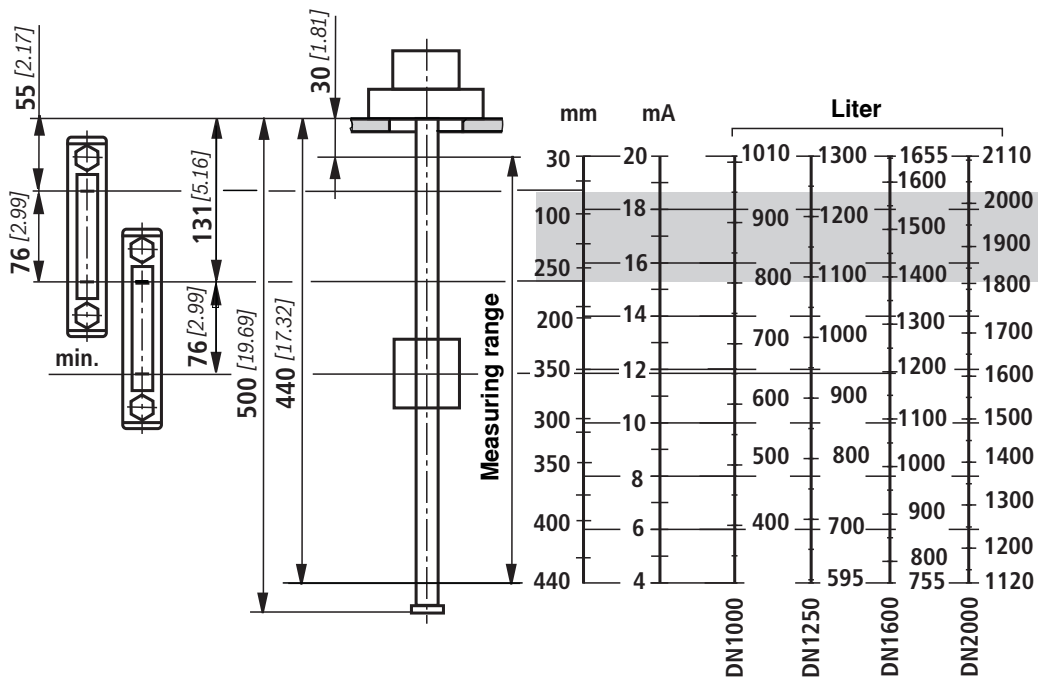
Type RTA, D1 and D2

In tank according to AB 40-40, AB 40-43 and AB 40-44

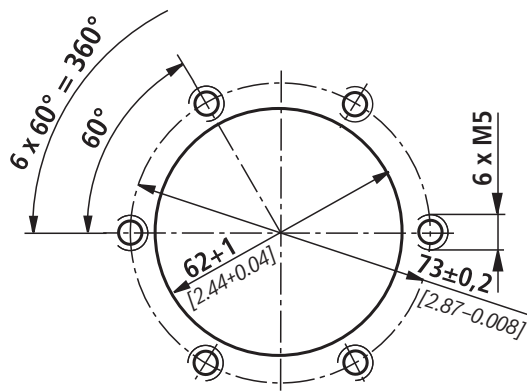
Tank size from DN100 to 800



Tank size from DN1000 to 2000



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

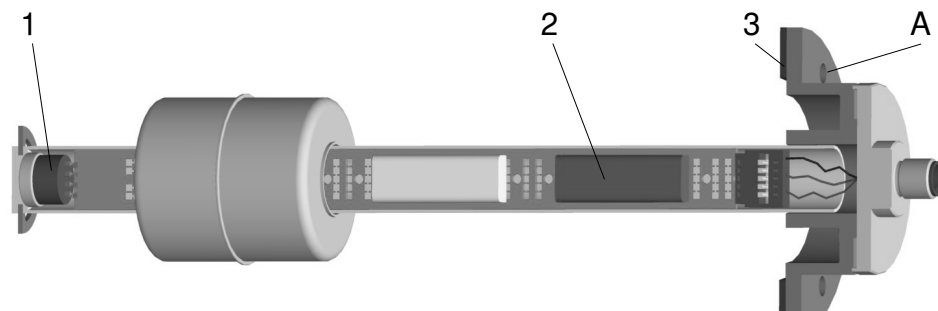


Standard breakthrough AB 03-39.73 similar to DIN 24557 part 2

Fastening screws:

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

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

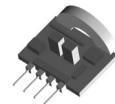
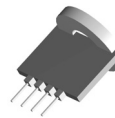
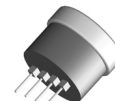


1 Temperature monitoring

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



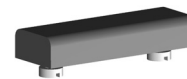
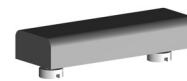
2 Level contacts

R901217055 REED CONTACT K101-DC ABZMS-41

R901217056 REED CONTACT K102-DC ABZMS-41

R901217057 REED CONTACT K103-DC ABZMS-41

R901217058 REED CONTACT K104-DC ABZMS-41

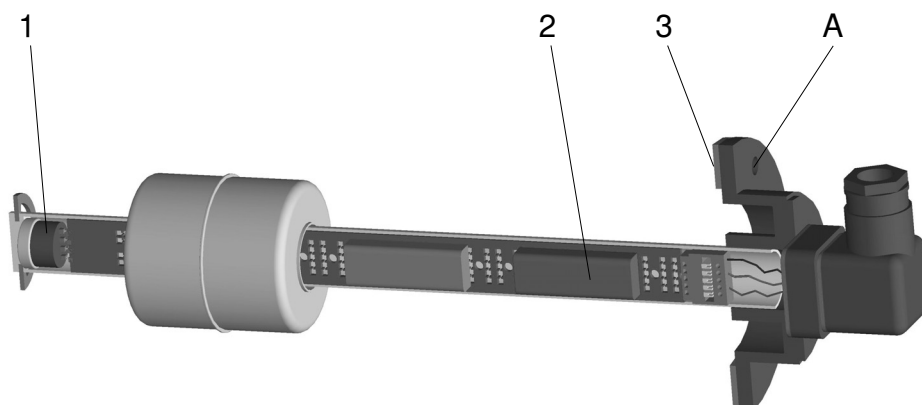


3 R901217059 SEAL 1.0X90X60 ABZMS-41

When exchanging the level contacts, correct order has to be ensured.
Contact ..K101.. (green) is to be mounted first after the mounting flange (A).
Depending on the type, this is followed by .. K102 (yellow), ..K103.. (red) and ..K104.. (blue).

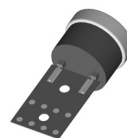
Any change in the order may cause malfunctions!

Spare parts (only for version K14 and K6: Electrical connection VDC 10-230)



1 Temperature monitoring

R901270930 TEMPERATURE SENSOR T60F-AC ABZMS-41
 R901270931 TEMPERATURE SENSOR T70F-AC ABZMS-41
 R901270932 TEMPERATURE SENSOR T80F-AC ABZMS-41



2 Level contacts

R901270933 REED CONTACT K231-AC ABZMS-41



R901270934 REED CONTACT K232-AC ABZMS-41



3 R901217059 SEAL 1.0X90X60 ABZMS-41

**When exchanging the level contacts, correct order has to be ensured.
 Contact ..K231.. (purple) is to be mounted first and ..K232.. (brown) second after the
 mounting flange (A).**

Any change in the order may cause malfunctions!

Assembly information

- Vertical installation according to technical data page 4
- Avoid flows
- Do not expose the switch to strong impact and bends
- Avoid external magnetic fields. They may impair the function of the reed contacts.

Electrical connections:

- Electrical connections may only be performed by specialists
- Before performing any works at electrical parts, the voltage supply is to be interrupted
- Tighten round connector M12x1 or mating connectors after connection
- Only plug in the round connector M12x1 or mating connector if it is de-energized
- Do not overload the contacts (see technical data)
- **In case of inductive load, provide for a protective circuit!**

Use in explosive areas according to directive 94/9/EC (ATEX)

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

Normative references

AB 24-02

Cable sets and distributors

AB 40-40

Tanks made of steel, form AN, cover form C, oil pan according to WHG

AB 40-43

Tanks made of steel, cover form C

AB 40-44

Tanks made of steel, with frame

RE 08006

Mating connectors for controlling electrically operated 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 175301-803: Detail specification: Rectangular 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

Degrees of protection provided by enclosures

VDMA 24317

Fluid technology – Flame-resistant fluids – Technical minimum requirements

VDMA 24568

Fluid technology – Fast biodegradable hydraulic fluids – Technical minimum requirements

VDMA 24574-1

Fluid technology – Terms, menu navigation and electrical connection for fluid sensors

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

Notes
