



## Magnetic float level switch RIZUR-M

### Intended use and application area

Magnetic float level switches RIZUR-M are designed for liquid level control in open and closed tanks, including those under pressure, that are used in the manufacturing facilities of chemical, petrochemical, medical, food, and other branches of the industry.

They can also be used as an indicator of presence/absence of the controlled liquid in the required amount at a specified tank height. Media controlled: water, petroleum products, oils, other liquids.

The switches can be used in the automatic control systems, industrial process control and monitoring systems, as well as in other automatic systems, filtering and cleaning systems, in reservoirs for cooling and lubricating liquids.

When the controlled medium reaches the specified level the level switch generates «dry contact» signal (two contacts are used: NC and NO, or a break-before-make contact).

The switches are used for both standard and hazardous zones in accordance with the explosion protection markings. The switches can be calibrated in the factory environment to signalize levels for different types of liquids by a trial-and-error method and installation of a suitable float gauge.



Technical regulations  
 TU 26.51.52-001-12189681-2018  
 TR Customs Union conformity certificate  
 №EAEU RU C-RU.HA91.B.00029/19

### Technical specifications

Medium temperature, °C	-60...+150
Process pressure, MPa	1,6; 2,5; 4,0; 6,3; 10; 16 (up to 32 on request)
Minimum medium density, kg/m <sup>3</sup>	500
Material contacting the media	St. steel 304, 316L, titanium, PTFE, PP, etc.
Number of control points	Up to 8
Max. permissible voltage on the contacts, V	250
Max. switching current, A	0,5 (up to 2 on request)
Max. load on the contacts, W	20; 60; 200
Ambient temperature, °C	-60... +50
Switch orientation during installation	Vertical, horizontal
Ingress protection	IP65, IP66, IP67
Explosion protection marking	0Ex ia IIC T6 Ga X 1Ex d IIC T6 Gb X Without explosion protection
Housing material	Aluminium, stainless steel
Process connection	Threaded, flange (at least DN25 - see order code)
Average service life, years	10

## Design and operating principle

Level switches RIZUR-M have three design variants: RIZUR-M-V (vertically mounted), RIZUR-M-G (horizontally mounted).

The immersed part of the RIZUR-M-V sensor is a rod with a float (or several gauges in different points). The traveling distance of the float is limited at the top and bottom parts by restrainers. Inside the float there's a permanent magnet, and inside the rod, which is a hollow pipe, there's a reed switch. When the float moves, the magnetic field affects the reed switch which causes control circuit to open or close.

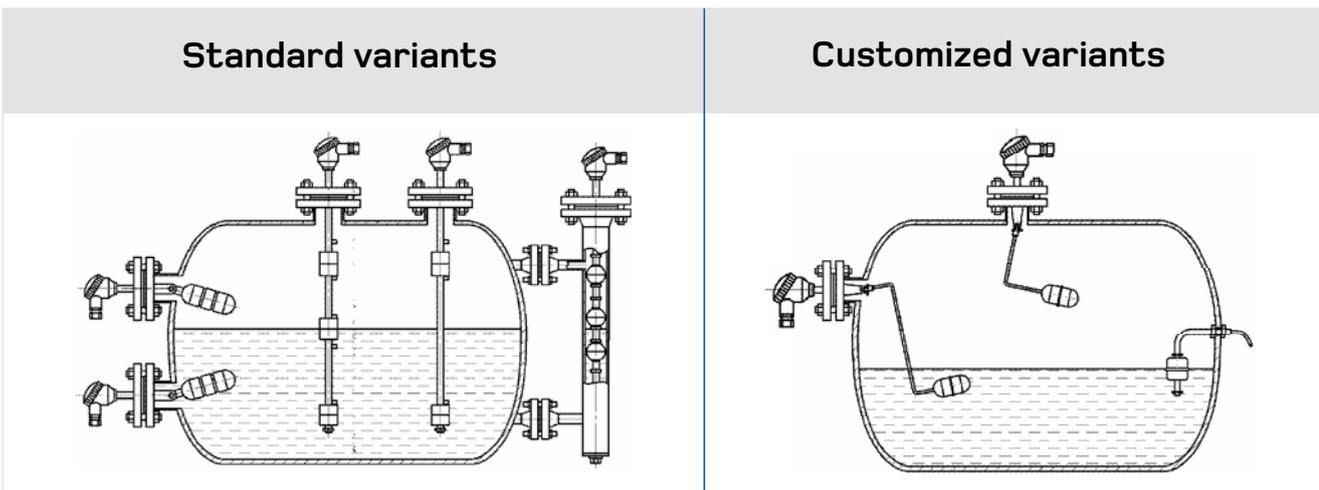
Level switches RIZUR-M-V can have a housing with terminal blocks for the signal cables as well as a cable gland.

The immersed part of the RIZUR-M-G is a horizontally placed float, attached to a special fulcrum. When the liquid level goes up, it makes the float go up too (including the built-in magnet) which, in turn, affects the sensor in the switch's housing that opens or closes the control circuit.

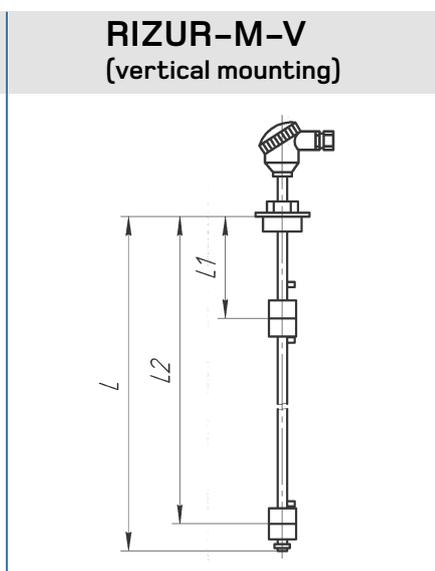
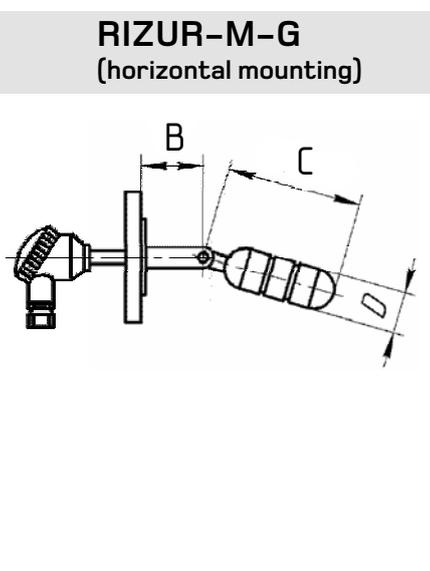
The switches can be supplied in different design variants - depending on the process connection type (threaded or flange). Standard variant has a minimal connection size depended on the float's diameter.

However, there're design variants with the thread or flange connection smaller than the float's diameter and the float itself is attached to the rod inside the reservoir.

## Installation example



## Dimensional specifications



B+C - 230mm in standard version  
(can be different upon an agreement  
with the manufacturer)  
D - float diameter  
L - probe length  
L1...L8 - location of the control  
points (should be indicated at the  
order time)

It's possible to manufacture switches  
with different connection  
types: flange, sleeve nut, fitting  
connection, welded, etc.

## Order code for the level switches RIZUR-M-V

Ordering information: RIZUR-M-V-2-0-500/700-M2-1000-10-I-M-20/1,6/1000-0-0-0  
 1 2 3 4 5 6 7 8 9 10 11 12 13

1. Design variant	
RIZUR-M-V	Vertically mounted float level switch
2. Number of control points	
X	Choose between 1 and 8
3. Housing material	
0	Aluminum (standard)
1	Stainless steel 12X18H10T/AISI
4. Sensor length	
xx	Specify the required sensor length in mm (in multipoint version - specify switching points L1/L2/L3/.../L8)*
* Max. probe length – 6 000 mm.	
5. Process connection (see table of restrictions depending on the	
THREAD (thread type)	
M2	Thread - nozzle M32x2
M3	Thread - nozzle M33x1,5
M6	Thread - nozzle M36x2
M8	Thread - nozzle M48x2
D1	Thread - nozzle G 1"
D4	Thread - nozzle G 1¼"
D2	Thread - nozzle G 2"
K1	Thread - nozzle NPT 1"
NPT2	Thread - nozzle NPT 2"
FLANGE (acc. to GOST 33259-2015)	
XX/_/_	Flange face
A	Type A, flat face
B	Type B, raised face
C	Type C, tongue
D	Type D, groove
E	Type E, spigot
F	Type F, recess
_/XX/_	Nominal inside diameter, mm
25	DN 25
32	DN 32
40	DN 40
50	DN 50
65	DN 65
80	DN 80
125	DN 125
150	DN 150

_/_/XX	Nominal pressure
10	PN 10
16	PN 16
25	PN 25
X	Customized process connection: thread, flange, welded, etc. (specified in written form outside the order code)
6. Media density	
700	≥ 700 kg/m <sup>3</sup>
1000	≥ 1000 kg/m <sup>3</sup>
7. Process pressure	
10	Up to 10 kgf/cm <sup>2</sup>
25	Up to 25 kgf/cm <sup>2</sup>
X	Customized (upon an agreement with the manufacturer)
8. Type of explosion protection	
N	Without explosion protection
D	1Ex d IIC T6 Gb X - ex-housing
I	0Ex ia IIC T6 Ga X - intrinsically safe circuit
9. Cable gland	
0	Without cable glands (plug M20x1,5)
M	One cable gland M20x1,5 for the non-armoured cable
MM	Two cable glands M20x1,5 for the non-armoured cable
B	One cable gland M20x1,5 for the armoured cable
BB	Two cable glands M20x1,5 for the armoured cable
X	Customized (the number and type of the cable glands is specified in written form outside the order code)
10. Medium parameters (All three parameters should be specified)	
XX/XX/XX	Operating temperature, °C/Operating pressure, MPa/Medium density, kg/m <sup>3</sup>
11. Bypass chamber	
0	Without a bypass chamber
KBU	With a bypass chamber*
* Please, attach an order code or an inquiry form for the bypass chamber (see pages 37, 38)	
13. IS barrier	
0	Without IS barrier
IS	With IS barrier*
* Please, attach an order code or an inquiry form for the IS barrier	
14. Soft enclosure	
0	Without soft enclosure
SE	With soft enclosure*
* Please, attach an inquiry form for soft enclosure RIZUR	

### Restrictions depending on the medium density and process pressure

Flange/Thread	Max. pressure kgf/cm <sup>2</sup>	Min. medium density, kg/m <sup>3</sup>
DN 25	10	1000
DN 32	25	1000
DN 40	25	700
DN 50	25	700
DN 65	25	700
DN 80	25	700

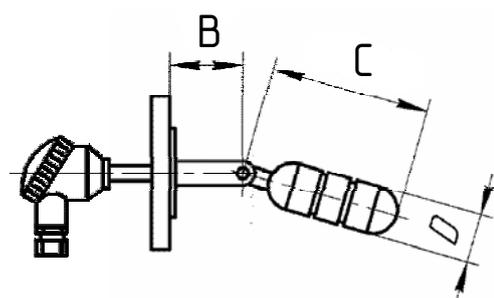
Flange/Thread	Max. pressure kgf/cm <sup>2</sup>	Min. medium density, kg/m <sup>3</sup>
DN 125	25	700
DN 150	25	700
M 32x2	10	1000
M 33x1,5	25	1000
M 36x2	25	1000

Flange/Thread	Max. pressure kgf/cm <sup>2</sup>	Min. medium density, kg/m <sup>3</sup>
M 48x2	25	700
G 1"	10	1000
G 1-1/4"	25	700
G 2"	25	700
NPT 1"	10	1000

## Order code for the level switches RIZUR-M-G

Ordering information: PI3YP-M-G-1-16-G2-N-MM-L230-20/1,6/900-0-0  
                                   1      2 3 4 5 6 7                  8          9 10

1. Design variant	
RIZUR-M-G	Horizontally mounted float level switch
2. Housing material	
0	Alluminium (standard)
1	Stainless steel
3. Process pressure	
16	Up to 16 kgf/cm <sup>2</sup>
25	Up to 25 kgf/cm <sup>2</sup>
40	Up to 40 kgf/cm <sup>2</sup>
63	Up to 63 kgf/cm <sup>2</sup>
100	Up to 100 kgf/cm <sup>2</sup>
160	Up to 160 kgf/cm <sup>2</sup>
4. Process connection, thread/flange type	
G2	Thread G2"
NPT2	Thread NPT 2"
F/X-XXX-XXX	Flange connection acc. to GOST 33259-2015, «X» is for flange facing, e.g. B-150-16, means that flange facing is form B, DN150, PN 16
X	Customized (please, specify the information in written form outside the order code)
5. Type of explosion protection	
N	Without explosion protection
D	1Ex d IIC T6 Gb X - ex-housing
I	0Ex ia IIC T6 Ga X - intrinsically safe circuit
6. Cable gland	
0	Without cable glands (plug M20x1,5)
M	One cable gland M20x1,5 for the non-armoured cable
MM	Two cable glands M20x1,5 for the non-armoured cable
B	One cable gland M20x1,5 for the armoured cable
BB	Two cable glands M20x1,5 for the armoured cable
X	Customized (the number and type of the cable glands is specified in written form outside the order code)
7. Specialized lever length (in standard version B+C equals 230mm)	
L230	B+C equals 230mm (standard)
LXXX	X is length in mm
8. Medium parameters (All three parameters should be specified)	
XX/XX/XX	Operating temperature, °C/Operating pressure, MPa/Medium density, kg/m <sup>3</sup>
9. IS barrier	
0	Without IS barrier
IS	With IS barrier*
* Please, attach an order code or an inquiry form for the IS barrier	
10. Soft enclosure	
0	Without soft enclosure
SE	With soft enclosure*
* Please, attach an inquiry form for soft enclosure RIZUR	



B+C - 230mm in standard version  
 (can be different upon an agreement  
 with the manufacturer)  
 D - float diameter



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# INQUIRY FORM № \_\_\_\_\_

## Float level switch RIZUR-M

 Technical regulations  
 TU 26.51.52-001-12189681-2018

Company name	
Contact person, position	
Contact information, phone, e-mail	
Number of switches, pcs	
Media	
Media density, kg/m <sup>3</sup>	
Viscosity, cP	
Operating temperature/Design temperature, °C	
Operating pressure/Design pressure, MPa	
Media characteristics: aggressive to stainless steel, crystallization, adhesion, gas saturation, etc.	
Ambient temperature, °C	
Mounting type: - horizontal (RIZUR-M-G) - vertical (RIZUR-M-V)	
Process connection (threaded, flange - specify the connection size, thread type, flange facing)	
Housing material: - aluminum - stainless steel	
Float/rod material (stainless steel 304, 316L, titanium, PTFE, PP)	
The number and location of switch points L1/L2/L3/L4/L5/L6/L7/L8:	
Explosion protection type: - Without explosion protection - Exia - intrinsically safe circuit - Exd - explosion-proof housing	
Order code acc. to the catalogue (desirable)	
Entrance cable specification or a desirable model and the number of the cable glands (1 or 2 pcs)	
Bypass chamber (Please, attach an order code (p.37) or an inquiry form (p.38) for a bypass chamber).	
IS barrier (Please, attach an order code or an inquiry form for an IS barrier)	
Soft enclosure (Please, attach an inquiry form for soft enclosure RIZUR)	

