

## Specifications

Model	.....
Process Connection	.....
Total Probe Length	$L_0 =$ ..... mm
Switching Points	$L_1 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_2 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_3 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_4 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_5 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_6 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_7 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_8 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_9 =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA $L_{10} =$ ..... mm; contact: <input type="checkbox"/> NO, <input type="checkbox"/> NC, <input type="checkbox"/> NO/NC max. contact ratings: ..... V, ..... A, ..... VA
Process Pressure	max. .... bar
Process Temperature	max. .... °C
Options	<input type="checkbox"/> vertical adjustment, <input type="checkbox"/> Ex approval, <input type="checkbox"/> RC modules, ..... pcs., <input type="checkbox"/> thermostat, ..... °C, <input type="checkbox"/> .....

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## FLOAT LEVEL SWITCH

## LCSFT

### OPERATION MANUAL



Please read this Operation Manual before mounting and operating!  
Save the Manual for future references!

## Wiring

- ◆ Connect the switch as illustrated on the left, except when there is only one normally closed or normally open contact (in which case no wiring diagram is necessary).
- ◆ Ensure the cable gland of the protective enclosure is securely sealed.



### Important notes:

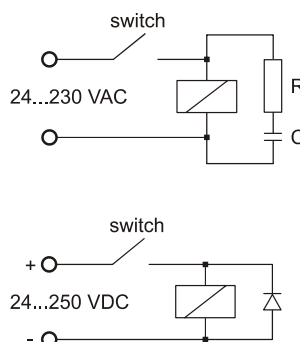
- ◆ All cabling and electrical connections must be carried out in accordance with regulations applicable in the country where the equipment is installed and by personnel qualified to do.
- ◆ Operation on a contact protection relay is recommended to prolong the life of the contacts.

## Operating



### Important note:

Use of the magnetic float switch with inductive or capacitive load may lead to the destruction of the reed switch. This may cause a malfunction to the control circuitry and harm to persons or goods.



### Operating with inductive loads

- ◆ With inductive load, the magnetic switch has to be connected to an RC module (for AC load) or a shunt diode, e.g. 1N4007, (for DC load) as shown on the left.
- ◆ Please, use RC modules according to the table below. The rating of the switch and the supply voltage will determine the type to be used. Other types might lead to destruction or lower service life of the reed contacts.

## Commissioning / Function Test

- ◆ Turn on the control unit connected to the magnet-operated float switch.
- ◆ Fill the vessel and check the function of the switching points of the switch.
- ◆ The function test can be also conducted manually on an uninstalled switch.

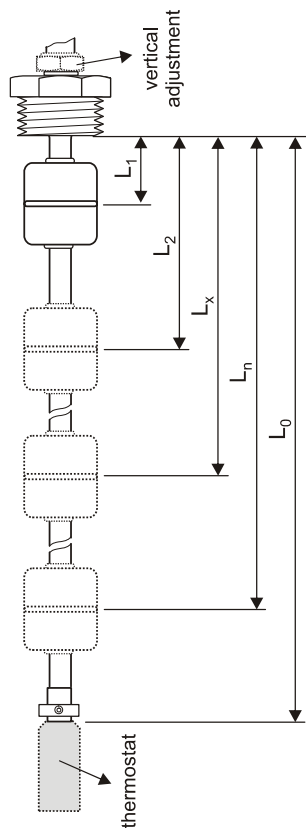


### Important note:

Make sure that the function test does not accidentally set any processes in motion.

Voltage	Capacitance	Resistance for reed contacts 40...100 VA	Resistance for reed contacts 10...40 VA
24 VAC	0.33 $\mu$ F	47 $\Omega$	100 $\Omega$
48 VAC	0.33 $\mu$ F	100 $\Omega$	220 $\Omega$
115 VAC	0.33 $\mu$ F	470 $\Omega$	470 $\Omega$
230 VAC	0.33 $\mu$ F	1000 $\Omega$	1500 $\Omega$

## Overview



### Functional description

Magnet-operated float switches operate according to the float principle with magnetic transmission. A reed contact build into the slip pipe or contact pipe is activated by the magnetic field of a permanent magnet on reaching a preset switching point. The permanent magnet is located in a float, which changes its height with the level of the medium being monitored. The switching state of the reed contact can be evaluated and processed by a series-connected control unit. The number and arrangement of the floats depend on the number of preset switching points, their contacting function and the distance apart of the switching points.

### Area of application

Magnet-operated float switches are used exclusively for level control and monitoring of liquid media. The liquid may not be heavily contaminated and should not have a tendency to crystallize.



#### Important note:

*Make sure the materials of the switch (float, slip pipe) that come into contact with the medium being monitored are suitably resistant.*

## Maintenance and Support

### Maintenance

- ◆ When used properly, the magnet-operated float switches operate free of maintenance and wear.
- ◆ The switch must be eye-checked within the scope of the necessary inspections under extreme operating conditions.



#### Important notes:

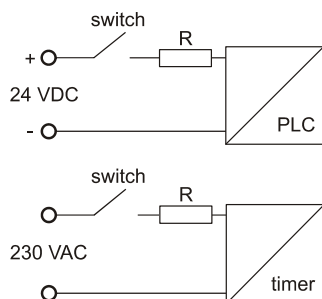
- ◆ The reed contacts must be operated on intrinsically safe circuits when operating in Ex areas of Zone 1 or 2.
- ◆ Float switches made of plastic may not be used in the Ex areas of Zone 1 or 2.
- ◆ Do not operate float switches in the immediately vicinity of strong electromagnetic fields (distance away at least 1 m).
- ◆ The switching points of the magnet-operated float switches cannot be adjusted.
- ◆ Magnet-operated float switches can only be used in media to which the material of the slip pipe and the float is resistant.
- ◆ The switches may not be exposed to heavy mechanical stresses (i.e. shock, bending, vibrations).

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### Technical support

In the unlikely event that you encounter a problem with your COMECO device, please call your local dealer or contact directly our support team.

## Operating



### Operating with capacitive loads

- ◆ With capacitive load, connecting cables longer than 50 m or connection to a PLC with capacitive circuit, requires a 22  $\Omega$  or 47  $\Omega$  (for contacts < 10 VA) resistor to be connected in series to limit current spikes.
- ◆ Use a 220  $\Omega$  resistor when connecting the switch to an electronic timer.



#### Important note:

*The maximum switch ratings given in 'Specifications' must not be exceeded. Overloading the float switch may lead to the destruction of the reed switch, which may cause a malfunction to the control circuitry and harm to persons or goods.*

## Installing

### Disassembling and reassembling



*Float removal is necessary only before installing the switch in an opening with a diameter smaller than the float diameter.*

- ◆ Mark the positions of the set collars.
- ◆ If top and bottom of the float(s) are not already marked, please do so now.
- ◆ Remove the float(s).
- ◆ After mounting the switch on the vessel as described in 'Installation', place the float(s) back from inside the vessel.
- ◆ Fix the set collars back in the marked positions.

### Installation

- ◆ Install the float switch according to its process connection type (flange or thread). For flange types, use the screws and nuts suitable for the flange.
- ◆ Fit a suitable gasket for sealing.
- ◆ Make sure the switch is installed in upright position (max. deviation from the vertical  $\pm 30^\circ$ ).