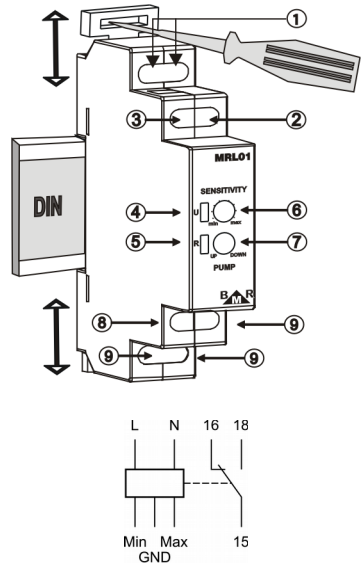
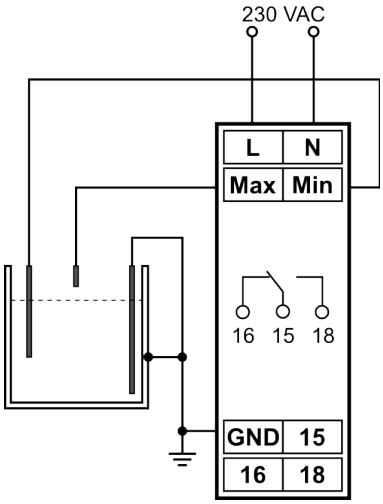
MRL01

version 1.6

Liquid level relay

1. Device description

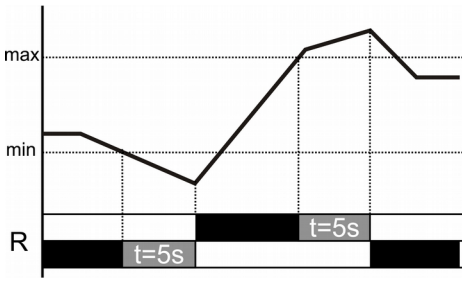
MRL01 is a double function level relay designed to control maximal and minimal level of conductive liquid in the vessel. Relay can be used to pump liquid up (function UP) or to pump liquid down (function DOWN). In the case when the vessel is made from conductive material it can be used instead of GND probe. In the measurement process, the relay is using AC current, which avoids electrolysis and probes oxidation. Relay has one double-throw output contact 16 A.

Terminal description	Terminal placement	Connection diagram
1 Supply voltage 2 Minimum level probe 3 Maximum level probe 4 Supply voltage indication 5 Output indication 6 Measurement sensitivity 7 Function selection 8 GND probe 9 Outputs		

2. Functions

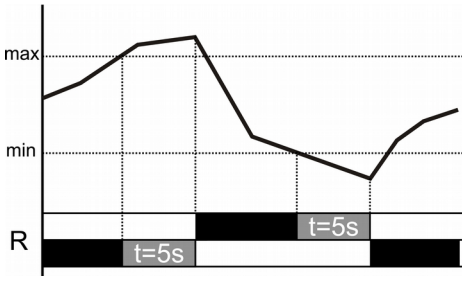
PUMP UP

If the level decreases below the minimal limit and it remains that way for the time of 2 s at least, the relay will start the pump-up process. In the moment after the maximal limit being exceeded for more then 2 s, the relay stops the pump-up process.



PUMP DOWN

If the level exceeds over the maximum limit and it remains that way for the time of 2 s at least, the relay will start the pump-down process. In the moment after the minimal limit being exceeded for more then 2 s, the relay stops the pump-down process.



3. LED diagnostic

U – ON (green)	⊗	Presence of supply voltage.
U – OFF (green)	⊗	Supply voltage is not present.
R – On (yellow)	⊗	Output contact No. 15 – 18 is closed.
R – flashing (yellow)	⊗	Signal-noise ratio is lower than sensitivity. It must be reduced by knob.

4. Technical features

Parameter	Value
Supply voltage	230 V_{AC} (+10%,-15%)
Supply terminals	L, N
System frequency	50 Hz / 60 Hz
Power consumption	max. 1.5 VA
Number of functions	2
Supply voltage indication	green LED
Output indication	yellow LED
Set sensitivity	5 kΩ ... 100 kΩ
Terminal of minimum liquid level	Min
Terminal of maximum liquid level	Max
Measuring connector - common	GND
Delay for liquid fluctuation elimination	2 sec
Output parameters	
Number and type of contacts	1x changeover contact
Rated operating voltage / current	250 VAC / 16 A
Maximum switched voltage	400 VAC
Maximum switched power	4000 VA
Trigger current	30 A
Mechanical lifetime	3 x 10^7 cycles
Electrical lifetime	1 x 10^5 cycles (250 V_{AC}, 16 A)
Others	
Working temperature	-20 ... +55 °C
Storage temperature	-40 ... +70 °C
Working position	arbitrary
Mounting	IEC 60715 (DIN 35)
Protection degree	IP20
Electrical strength	4 kV
Conductor rigid and flexible	0.2 … 2.5 mm^2
Weight	75 g
Dimensions	90 x 18 x 65 mm
Standards	IEC 60255-6, IEC 61010

Note

***Start-up procedure**: Move the sensitivity potentiometer (SENSITIVITY) to the left position **min**. Select requested function PUMP UP or PUMP DOWN. After filling the vessel with liquid to the level above the requested **max**, or to the level below requested **min** (according to the selected function), keep moving the sensitivity potentiometer (SENSITIVITY) until output the relay switches on.*

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