

## MONITORING RELAY MMR, 5SV8



MMR-HL-001-A230

## Level relays MMR-HL

- For control of maximum or minimum level of a conductive liquid in a tank.
- High rated current 16 A.
- They can be used for liquid filling (function UP) or drawing off (function DOWN). If the tank is from a conductive material, it can be used instead of GND probe.
- Alternating current is used for measuring to eliminate electrolysis of the liquid and oxidation of probes. Working voltage in the measuring loop is 12 V.
- Light indication of presence of supply voltage (green LED).
- Maximum distance of electrodes is 100 m with the set sensitivity of 100 %. If sensitivity is decreased, it is possible to extend the maximum length up to 1000 m. This is true with cable capacity up to 100 nF/km. In both cases it is necessary to exclude parallel run with power cables (the distance shall be at least 20 cm between the cables).
- After connection of the relay, we recommend setting the sensitivity (knob SENSITIVITY) to maximum. If the yellow LED is blinking, there is not sufficient signal-to-noise ratio, and it is necessary to decrease sensitivity (by turning the SENSITIVITY knob to the left) until the LED stops blinking.
- If the LED is blinking even at minimum sensitivity, the correct functionality is not guaranteed. In such as it is necessary to take measure to reduce noise (other cable, placing the relay closer to the monitored place, etc.). If the LED is not blinking, the relay is ready to work.
- It is suitable to check the signal-to-noise ratio regularly. In worsening of conditions (noise increase) the yellow LED will begin blinking.
- The probes are not included in the delivery.
- Functional even at temperature -20 °C.

Type	Order code	Number of modules	Weight [kg]	Package [pcs]
MMR-HL-001-A230	OEZ:43246	1	0.091	1

## Specifications

Type	MMR-HL			
Standards	EN 60255-1 IEC 60255-1			
Approval marks				
Main circuit (contact)				
Arrangement of contacts <sup>1)</sup>	001			
Rated operating voltage/current	$U_e/I_e$	AC-1	250 V / 16 A	
Max. switched power		AC-1	4 000 VA	
		AC-3	1 kW	
		AC-5a	288 W (cos $\varphi$ = 0.8)	
		AC-5b	1 kW	
Max. switched voltage	AC 400 V			
Indication of contact state	yellow LED			
Connection – conductor rigid and flexible	0.2 ÷ 2.5 mm <sup>2</sup>			
Torque	0.5 Nm			
Mechanical endurance	3 000 000 operating cycles			
Electrical endurance	10 000 operating cycles			
Supply circuit				
Rated voltage	$U_c$	AC 230 V		
Input power	max. 1.5 VA			
Supply voltage indication	green LED			
Rated frequency	$f_n$	50 Hz		
Connection – conductor rigid and flexible	0.2 ÷ 2.5 mm <sup>2</sup>			
Torque	0.5 Nm			
Measuring circuit				
Error indication	yellow LED is blinking			
Operating voltage in measuring loop	AC 12 V			
Adjustable sensitivity	5 k $\Omega$ ÷ 100 k $\Omega$			
Delay for elimination of ripple	1.5 s			
Method of setting	control knobs on the front panel			
Connection – conductor rigid and flexible	0.2 ÷ 2.5 mm <sup>2</sup>			
Torque	0.5 Nm			
Other data				
Galvanic isolation	input/output	4 kV		
	input/probes	4 kV		
	output/probes	4 kV		
Mounting on "U" rail according to EN 60715 – type	TH35			
Degree of protection	IP20			
Ambient temperature	-20 ÷ +55 °C			
Working position	arbitrary			

<sup>1)</sup> Each digit indicates successively the number of make and break contacts.

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## Description

### Indication of presence of supply voltage

- Supply voltage presence is indicated by continuously lighting green LED.

### Indication of signal-to-noise ratio or relay closing

- Yellow LED.
- Insufficient signal-to-noise ratio - blinking.
- Relay closed - lights.

### Terminals L and N for connection of supply voltage

- $U_c$ : AC 230 V.

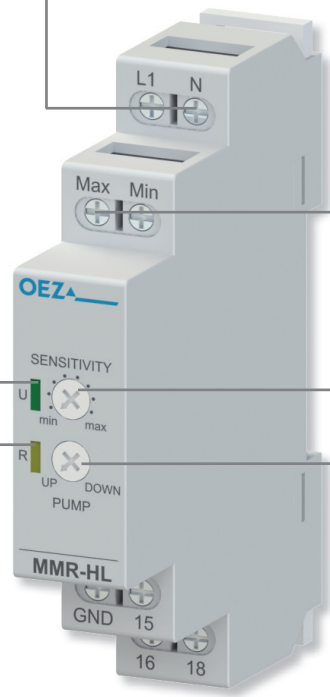
### Terminals Max, Min and GND for probe connection

### Sensitivity setting

- $5 \div 100 \text{ k}\Omega$ .

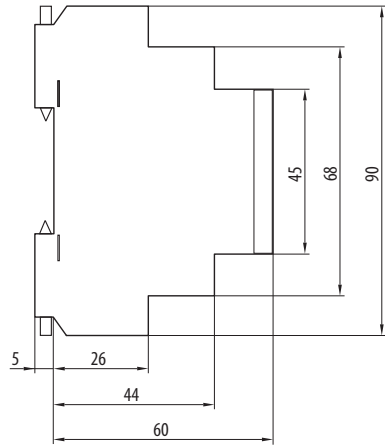
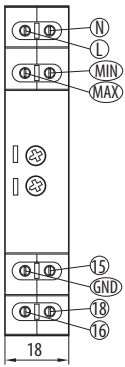
### Setting of function

- UP ... liquid filling.
- Down ... liquid drawing off.



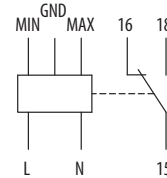
## Dimensions

MMR-HL-...

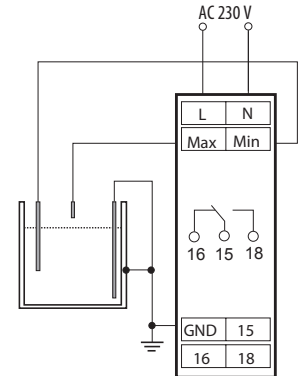


## Diagram

MMR-HL-...

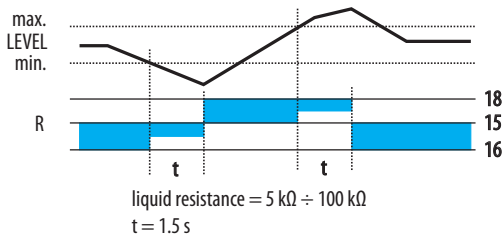


## Wiring diagram



## Graph

### Function Up = adds liquid



### Function DOWN = removes liquid

