- **Multifunctions monitoring relays (monitoring of liquid levels in a tank - MIN, MAX)** • 3 versions of relays: 24, 110, 230 V AC ❶
- Timing adjustment of turn-off delay (Delay OFF) and tripping delay (Delay ON) ❷ • Secure isolation of the measuring circuit
- Output: 2 CO (2 changeover contacts)
- Industrial cover, width 22,5 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Recognitions, certifications, directives: CE

Output circuit - contact data

Number and type of contacts		2 CO
Rated voltage		250 V AC
Max. breaking capacity	AC1	750 VA (3 A / 250 V AC) ❸ 1 250 VA (5 A / 250 V AC) ❹
Max. operating frequency • at resistive load 100 VA • at resistive load 1 000 VA		 3 600 cycles/hour 360 cycles/hour

Input circuit

Supply voltage	AC	24 ... 230 V ❶ terminals A1-A2
Must release voltage		AC: ≥ 0,3 U_n
Operating range of supply voltage		24, 110 V AC: 0,85...1,1 U_n 230 V AC: 0,85...1,15 U_n
Rated power consumption	AC	2,0 VA / 1,5 W
Range of supply frequency	AC	48...63 Hz
Duty cycle		100%
Measuring circuit • terminals • sensitivity • sensor voltage • sensor current • wiring distance		conductive sensors (type SK1, SK2, SK3) ❺ terminals E1-E2-E3 adjustable: 0,25...100 kΩ 4 ms...10 µs 12 V AC max. 7 mA sensitivity setting < 50%: max. 1000 m ❻ sensitivity setting < 100%: max. 100 m

Insulation according to PN-EN 60664-1

Rated surge voltage	6 000 V 1,2 / 50 µs
Overvoltage category	III
Insulation pollution degree	3

General data

Electrical life	• resistive AC1	> 2 x 10^5 1 000 VA
Mechanical life (cycles)		> 2 x 10^7
Dimensions (L x W x H)		90 x 22,5 x 108 mm
Weight		100 g
Ambient temperature	• storage • operating	-25...+70 °C -25...+55 °C
Cover protection category		IP 20 PN-EN 60529
Relative humidity		15...85%
Shock resistance		15 g 11 ms
Vibration resistance		0,35 mm DA 10...55 Hz

Meassuring circuit data

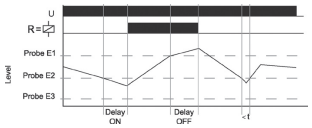
Functions	Pump up, Pump down
Range of delay timing adjustment	turn-off delay (Delay OFF): 0,5...10 s tripping delay (Delay ON): 0,5...10 s
Recovery time	500 ms
LED indicator	green LED U ON - indication of supply voltage U yellow LED R ON/OFF - output relay status

❶ See „**Ordering codes**". ❷ Separately adjustable (two adjusting knobs). ❸ If the distance between the mounting relays is less than 5 mm. ❹ If the distance between the mounting relays is greater than 5 mm. ❺ Conductive sensors of the SK type are not basic equipment of the supervisory relay MR-GP2P. Purchase of sensors to be agreed with Relpol S.A. ❻ Capacity of cable 100 nF/km.

Export Sales Department phone +48 68 47 90 832, 951 • e-mail: export@relpol.com.pl

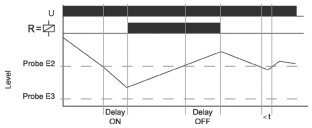
Functions

Pump up - Pumping in (filling).



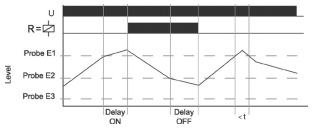
Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the minimum probe E2 the set interval of the tripping delay (Delay ON) begins. After the expiration of the interval the output relay R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the maximum probe E1, the set interval of the turn-off delay (Delay OFF) begins. After the expiration of the interval the output relay R switches into off-position (yellow LED not illuminated).

Pump up - Minimum level monitoring.



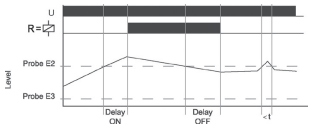
Connection of probe rods E2 and E3 (**bridge E1-E3**). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the probe E2 the set interval of the tripping delay (Delay ON) begins. After the expiration of the interval the output relay R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of the turn-off delay (Delay OFF) begins. After the expiration of the interval the output relay R switches into off-position (yellow LED not illuminated).

Pump down - Pumping off (emptying).



Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the maximum probe E1 gets moistened the set interval of the tripping delay (Delay ON) begins. After the expiration of the interval the output relay R switches into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of the turn-off delay (Delay OFF) begins. After the expiration of the interval the output relay R switches into off-position (yellow LED not illuminated).

Pump down - Maximum level monitoring.



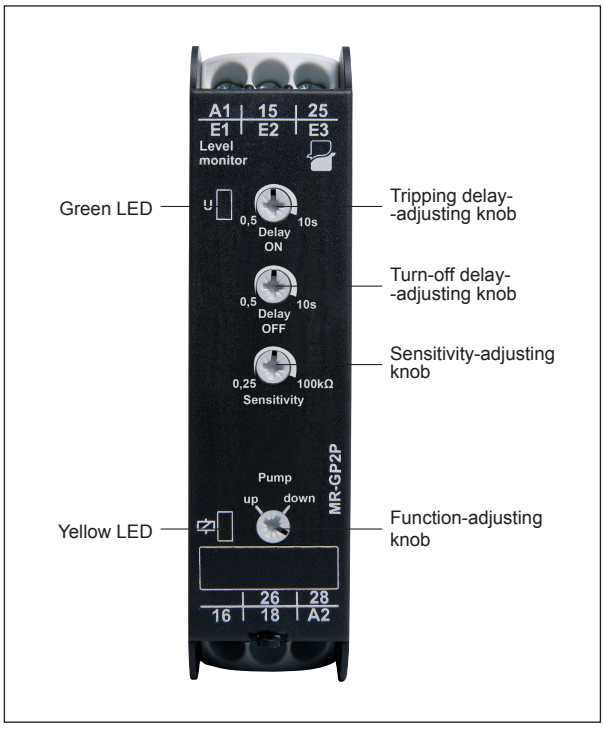
Connection of probe rods E2 and E3 (**bridge E1-E3**). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the max. probe E2 gets moistened the set interval of the tripping delay (Delay ON) begins. After the expiration of the interval the output relay R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of the turn-off delay (Delay OFF) begins. After the expiration of the interval the output relay R switches into off-position (yellow LED not illuminated).

Note: use cables with low capacity for wiring the probes especially with extended wiring length.

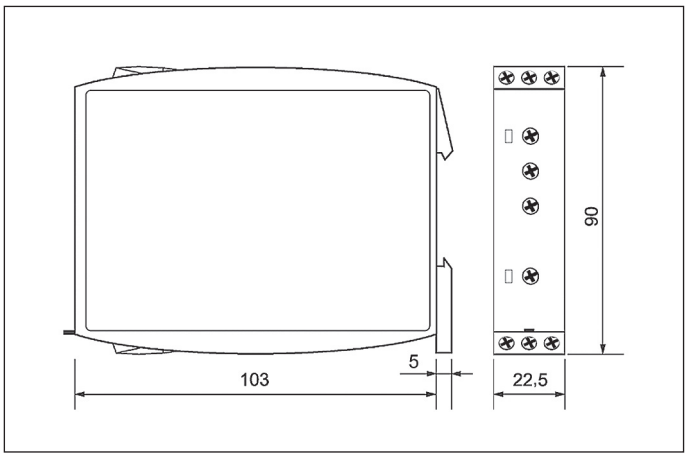
The following processes are suggested for the adjustment:
- the existent time delay should be minimum (0.5 s),
- the function selector switch must be in the pump down position,
- turn the sensitivity controller slowly clockwise from min. to max. until the relay switches into on-position (the probes must be in dipped state),
- the moistened probes should be taken out of the liquid to control if the relay switches into off-position; if the relay does not switch into off-position, turn the sensitivity controller slightly back to min. (counter-clockwise),
- set the existent time delay to the desired value to fade out a short term moisten the probes by waves in the liquid,
- set the function selector switch to the desired position (either pump up or pump down).

U - supply voltage; **R** - output state of the relay

Front panel description



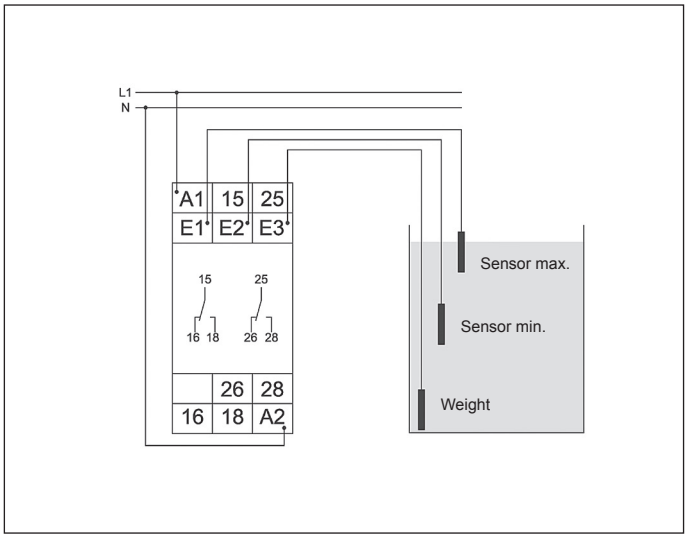
Dimensions



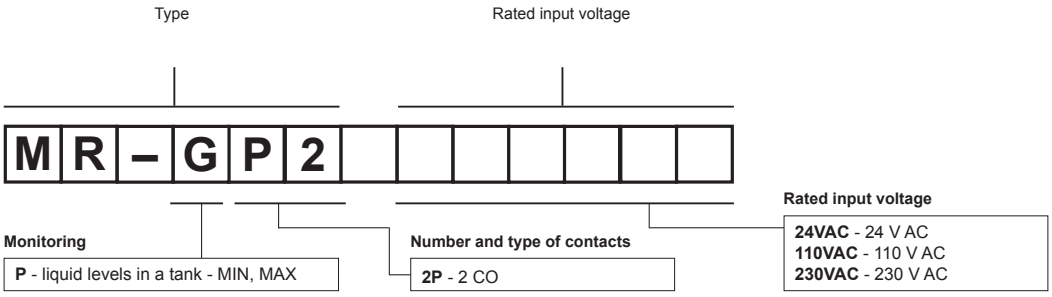
Mounting

Relays **MR-GP2P** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Terminals - cross section of the connection cables:** 1 x 0,5 ... 2,5 mm² with/without multicore cable end, 1 x 4 mm² without multicore cable end, 2 x 0,5 ... 1,5 mm² with/without multicore cable end, 2 x 2,5 mm² flexible without multicore cable end.

Connection diagram



Ordering codes



Example of ordering code:

MR-GP2P 230VAC monitoring relay **MR-GP2P**, multifunction (relay perform 2 functions), industrial cover, width 22,5 mm, two changeover contacts, rated input voltage (supply): AC - 230 V

PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. **2.** Never touch any live parts of the device. **3.** Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. **4.** In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.