



- Level monitoring of conductive liquids MIN, MAX
- Multifunctions monitoring relays
- Timing adjustment for tripping delay (Delay ON) and turn-off delay (Delay OFF) ❶
- Secure isolation of the measuring circuit
- 2 changeover contacts: 2 C/O
- Rated load: 5 A / 250 V AC at cat. AC1
- Installation design: width 22,5 mm
- Recognitions, certifications, directives:

Type of relay

MR-GP2P

Output circuit

Number and type of contacts		2 C/O - changeover
Rated load	AC1	5 A / 250 V AC
Max. breaking capacity	AC1	1 250 VA
Max. operating frequency		3 600 cycles/hour
• at 100 VA resistive load		360 cycles/hour
• at 1 000 VA resistive load		PN-EN 60947-5-1

Input circuit

Supply voltage U	24-110-230 V AC; terminals A1-A2 (galvanically separated)
Drop-out voltage	AC: $\geq 0,3 U_n$
Operating range of supply voltage	24-110 V AC: $-0,15 < U_n < 0,1$ 230 V AC: $-0,15 < U_n < 0,15$
Rated power consumption	2,0 VA / 1,5 W
Rated frequency	AC: 48...63 Hz
Duty cycle	100%
Measuring circuit	<ul style="list-style-type: none"> • terminals • sensitivity • sensor voltage • sensor current • wiring distance
	probes (type SK1, SK2, SK3); terminals E1-E2-E3 0,25...100 k Ω (4 mS...1 μ S) 12 V AC max. 7 mA capacity of cable 100 nF/km: max. 1000 m (set value < 50%) max. 100 m (set value 100%)

Insulation

Rated surge voltage	6 000 V AC
Overvoltage category	III PN-EN 60664-1
Insulation pollution degree	3 PN-EN 60664-1

General data

Electrical life	• resistive AC1	$\geq 2 \times 10^5$ 1 000 VA
Mechanical life (cycles)		$\geq 2 \times 10^7$
Dimensions (L x W x H)		90 x 22,5 x 103 mm
Weight		100 g
Ambient temperature	<ul style="list-style-type: none"> • storage, transport • operating 	-25...+70 °C -25...+55 °C PN-EN 60068-1 -25...+40 °C UL 508
Housing protection category		IP 40
Relative humidity		15...85% PN-EN 60721-3-3 class 3K3
Shock resistance		15 g 11 ms PN-EN 60068-2-27
Vibration resistance		0,35 mm DA 10...55 Hz PN-EN 60068-2-6

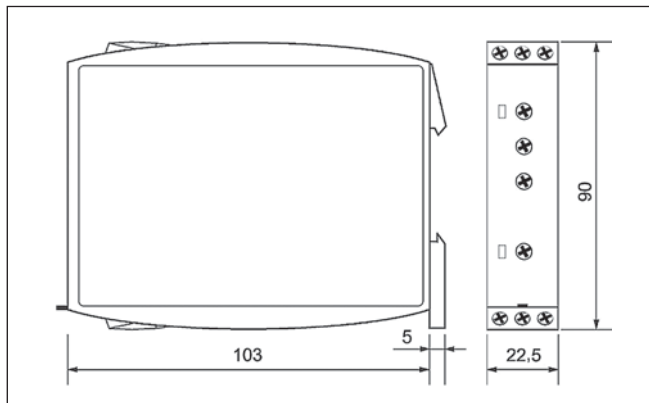
Measuring circuit data

Functions	PUMPUP, PUMPDOWN ❷ timing adjustment for tripping delay (Delay ON) and turn-off delay (Delay OFF) ❶
Time intervals (timing adjustment)	tripping delay (0,5...10 s) turn-off delay (0,5...10 s)
Recovery time	500 ms
LED indicator	green LED ON - indication of supply voltage yellow LED ON/OFF - indication of output relay

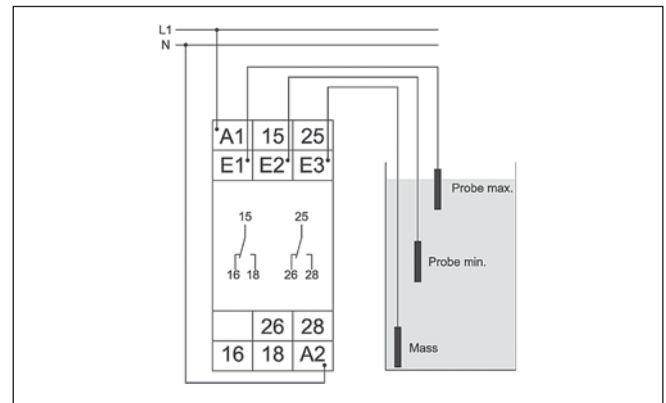
❶ Separately adjustable.

❷ Selectable by means of rotary switch.

Dimensions



Connections diagram

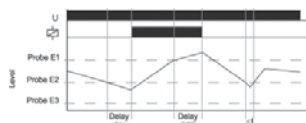


Mounting, mechanical design

Relays **MR-GP2P** are designed for direct mounting on 35 mm DIN rail mount, EN 50022. Mounting position: any. Self-extinguishing plastic housing, IP 40. Shockproof terminal connection according to VBG 4 (PZ1 required), IP 20. Maximum screw torque: 1,0 Nm. Terminal capacity: 1 x 0,5 do 2,5 mm² with/without multicore cable end, 1 x 4 mm² without multicore cable end, 2 x 0,5 do 1,5 mm² with/without multicore cable end, 2 x 2,5 mm² flexible without multicore cable end.

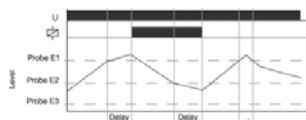
Functions

PUMP UP



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).

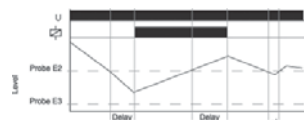
PUMP DOWN



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

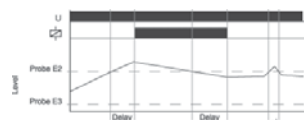
(Delay OFF) begins. After the expiration of the interval the output relay R switches into off-position (yellow LED not illuminated).

Minimum monitoring (PUMP UP)



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 relays switch 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 relays switch into off-position (yellow LED not illuminated).

Maximum monitoring (PUMP DOWN)



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.

Following processes are suggested for the adjustment:

- the existent time delay should be to minimum (0,5 s),
- the function selector switch must be in position pump down,
- turn the sensitivity controller slowly clockwise from min. to max. until the relays switch into on-position (probes must be in dipped state),
- the moistened probes should be taken out of the liquid to control if the relays switch into off-position; if the relays doesn't switch into off-position, turn the sensitivity controller slightly back to min. (counter clockwise),
- set the existent time delay to desired value to fade out a short term moisten the probes by waves in the liquid,
- set the function selector switch to desired position (either pump up or pump down).

U - supply voltage; **R** - output relay