

- ▶ Level monitoring of conductive liquids
- ▶ Multifunction
- ▶ Secure isolation of the measuring circuit
- ▶ 1 change over contacts
- ▶ Width 35mm
- ▶ Installation design



## Technical data

### 1. Functions

Level monitoring of conductive liquid, timing for tripping delay and turn-off delay separately adjustable and the following functions (selectable by means of rotary switch):

Pump up                      pump up or minimum monitoring  
 Pump down                pump down or maximum monitoring

### 2. Time ranges

	Adjustment range
Tripping delay (Delay ON):	0.5s to 10s
Turn-off delay (Delay OFF):	0.5s to 10s

### 3. Indicators

Green LED ON:              indication of supply voltage  
 Yellow LED ON/OFF:      indication of output relay

### 4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40  
 Mounted on DIN-rail TS 35 according to EN 50022  
 Mounting position:        any  
 Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20  
 Tightening torque:        max. 1Nm  
 Terminal capacity:  
     1 x 0.5 to 2.5mm<sup>2</sup> with/without multicore cable end  
     1 x 4mm<sup>2</sup> without multicore cable end  
     2 x 0.5 to 1.5mm<sup>2</sup> with/without multicore cable end  
     2 x 2.5mm<sup>2</sup> flexible without multicore cable end

### 5. Input circuit

Terminals:                    A1-A2  
 Rated voltage Un:         see table ordering information or printing on the unit  
 Tolerance:                    -15% of +10% of Un  
 Rated consumption:        2VA (1.0W)  
 Rated frequency:         AC 48 to 63Hz  
 Duty cycle:                  100%  
 Reset time:                  500ms  
 Hold-up time:                -  
 Drop-out voltage:         >30% of supply voltage  
 Overvoltage category:    III (in accordance with IEC 60664-1)  
 Rated surge voltage:      6kV

### 6. Output circuit

1 potential free change over contact  
 Rated voltage:              250V AC  
 Switching capacity:        1250VA AC1 B300/P300  
                                       (in accordance with IEC 60947-5-1)  
                                       therm. constant current 5A  
 Fusing:                        5A fast acting  
 Mechanical life:            20 x 10<sup>6</sup> operations  
 Electrical life:                2 x 10<sup>5</sup> operations  
                                       at 1000VA resistive load  
 Switching frequency:      max. 6/min at 1000VA resistive load  
                                       (in accordance with IEC 60947-5-1)  
 Overvoltage category:    III. (in accordance with IEC 60664-1)  
 Rated surge voltage:      6kV

### 7. Measuring circuit

Measuring input:            conductive probes  
                                       (Type SK1, SK2, SK3)  
 Terminals:                    E1-E2-E3  
 Sensitivity:                  0,25 to 100kΩ (4mS to 10μS)  
 Sensor voltage:              12V AC  
 Sensor current:              max. 7mA  
 Wiring distance (capacity of cable 100nF/km):  
                                       max. 1000m (set value <50%)  
                                       max. 100m (set value 100%)  
 Overvoltage category:    III (in accordance with IEC 60664-1)  
 Rated surge voltage:      6kV

### 8. Accuracy

Base accuracy:              -  
 Adjusting accuracy:       -  
 Repetition accuracy:      -  
 Voltage influence:         -  
 Temperature influence:   -

### 9. Ambient conditions

Ambient temperature:     -25 to +55°C  
 Storage temperature:     -25 to +70°C  
 Transport temperature:   -25 to +70°C  
 Relative humidity:         15% to 85%  
                                       (in accordance with IEC 60721-3-3  
                                       class 3K3)  
 Pollution degree:         2, if built in 3  
                                       (in accordance with IEC 60664-1)

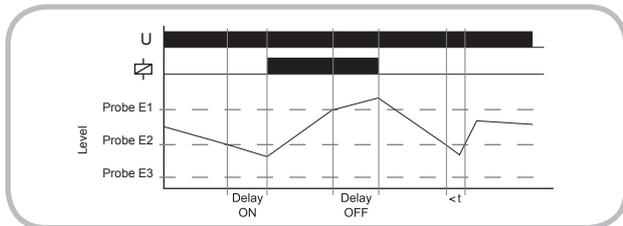
### 10. Weight

Single packing:             140g

## Functions

### Pump up

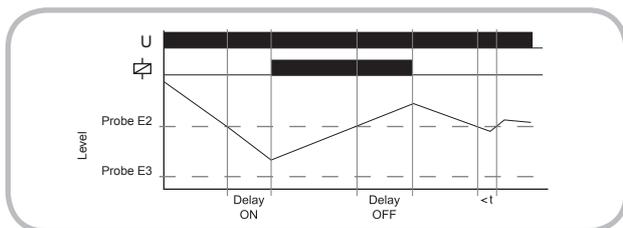
Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the minimum probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output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



### Minimum monitoring (Pump up)

Connection the 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 tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



### Note

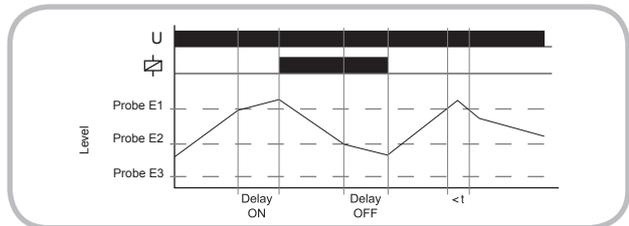
Use cables with low capacity for wiring the probes especially with extended wiring length.

Following processes are suggested for the adjustment:

- The existent time delay should be to minimum (0,5s).
- The function selector switch must be in position pump down.
- Turn the sensitivity controller slowly clockwise from min to max until the relais switches into on-position. (probes must be in dipped state)
- The moistened probes should be taken out of the liquid to control if the relais switches into off-position. If the relais 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)

### Pump down

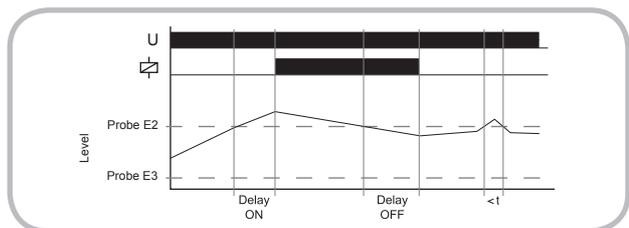
Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the maximum probe E1 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches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



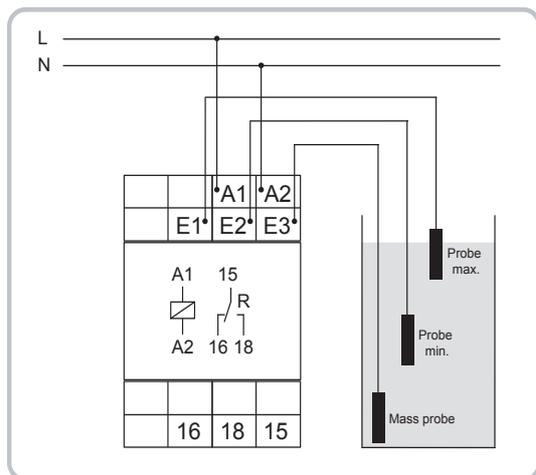
### Maximum monitoring (Pump down)

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.

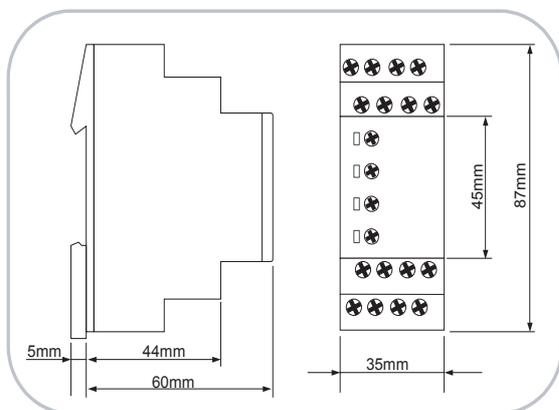
When the probe E2 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



## Connections



## Dimensions



## Ordering informations

Type	Rated voltage Un	Delay ON	Delay OFF	Part Nr. (PQ 1)
E3LM10	230V AC	0,5s to 10s	0,5s to 10s	1341500