

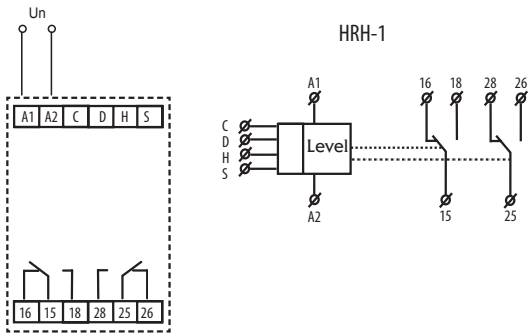
Level switch HRH-1

Advantages:

- Serves for level monitoring in wells, tanks, pools, reservoirs....
Options:
 - single switch with single-state monitoring
 - single switch with double-state monitoring
 - 2 independent switches with single-state switching
- Selectable by DIP switch:
 - drain in
 - drain away
 - combination
- Adjustable time delay when activated by level change, type selectable by DIP switch.
- Sensitivity adjustable by potentiometer.
- Frequency 50 Hz prevents liquid polarization and increased oxidation of measuring probes.
- Supply AC 230 V, AC/DC 24 V or AC 110V
- Output contact: 2x changeover 16 A /250 V AC1

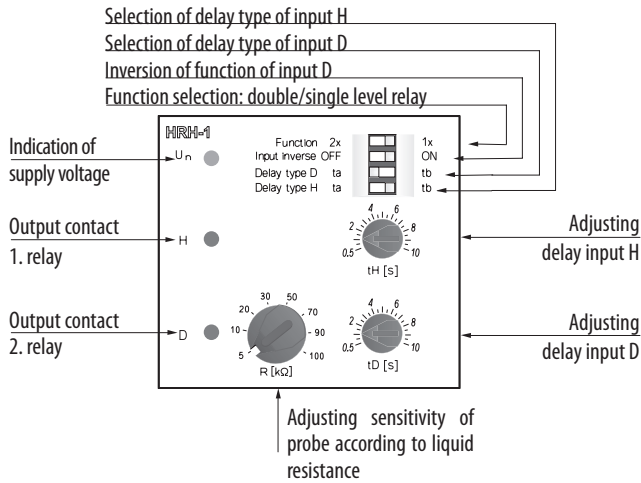
Technical data	
Function:	4
Supply terminals:	A1 - A2
Supply voltage:	AC/DC 230 V, AC/DC 24 V, AC 110 V, (galvanically separated)
Consumption:	max. 4.5 VA
Supply voltage tolerance:	-15 %; +10 %
Measuring circuit	
Hysteresis (input - opening):	in an adjustable range 5 kΩ- 100 kΩ
Voltage on electrode:	max. 5 V AC
Current in probes:	AC <1 mA
Time reaction:	max. 400 ms
Max. cable capacity:	4 nF
Time delay tD:	adjustable 0.5 -10 sec
Time delay tH:	adjustable 0.5 -10 sec
Accuracy	
Setting accuracy (mech.):	± 5 %
Output	
Number of contacts:	2x changeover (AgNi)
Rated current:	16 A / AC1
Breaking capacity:	4000 VA / AC1, 384 W / DC
Inrush current:	30 A / < 3 s
Switching voltage:	250 V AC1 / 24 V DC
Min. breaking capacity DC:	500 mW
Mechanical life:	3x10 ⁷
Electrical life (AC1):	0.7x10 ⁵
Other information	
Operating temperature:	-20 .. +55 °C
Storage temperature:	-30 .. +70 °C
Electrical strength:	4 kV (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP 40 from front panel
Overvoltage category:	III.
Pollution degree:	2
Max. cable size (mm ²)	solid wire max. 1x 2.5 or 2x1.5/ with cavern max. 1x1.5
Dimensions:	90 x 52 x 65 mm
Weight:	240 g
Standards:	EN 60255-6, EN 61010-1

Connection and symbol



Terminals description:
 A1, A2 - supply voltage
 C - wire for both probes
 D - wire of bottom probe E2
 H - wire of upper probe E1
 S - earth terminal for possible screening of cable
 15-16-18 output contact relay 1
 25-26-28 output contact relay 2

Description



Measuring probes

Measuring probe can be arbitrary (whatever conductive contact, recommended is using of brass or stainless-steel material). Conductor doesn't need to be screened, but it is recommended. In application of screened conductor is this contacted to terminal S (the earth potential).

Function description

It is a relay to control levels of conductive liquids (water, chemical solutions, foodstuff . etc.) It means measuring of liquids by measuring probes. AC voltage 5V / 50 Hz is used as a measuring signal. Using this AC signal prevents increased oxidation of probes and undesirable polarization and electrolysis of liquid. It is possible to control two independent levels or to use a combined function for one level control. It depends on DIP switch setting (see also diagram of functions). Relay is equipped by sensitivity regulation that applies to liquid resistance. When the sensitivity is set according to particular conditions it is possible to eliminate some undesirable switching (e.g. pollution of probes, sediments, humidity etc.) It is also possible to set a delay for each probe in range 0.5 - 10 s and by using. DIP switch also the type of delay (when the relay is switched on/off , the choice depends on particular application).

Level switch HRH-5

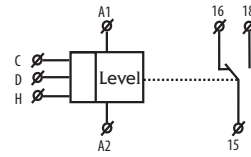
Advantages:

- Relay is designated for monitoring levels in wells, reservoirs, pools, tanks....
- In one device you can choose the following configurations:
 - one-level switch of conductive liquids (by connecting H and D)
 - two-level switch of conductive liquids
- One-state device monitors one level, two-state device monitors two levels (switches on one level and switches of on another level).
- Choice of function PUMP UP, PUMP DOWN
- Adjustable time delay on the output (0.5 - 10s)
- Sensitivity adjustable by a potentiometer (5- 100kΩ)
- Measuring frequency 10Hz prevents polarization of liquid and raising oxidation of measuring probes
- Galvanically separated supply voltage UNI 24.. 240 VAC/DC
- Output contact 1xchangeover 8A/250V AC1
- 1-module type, mounting onto a DIN rail

Technical data

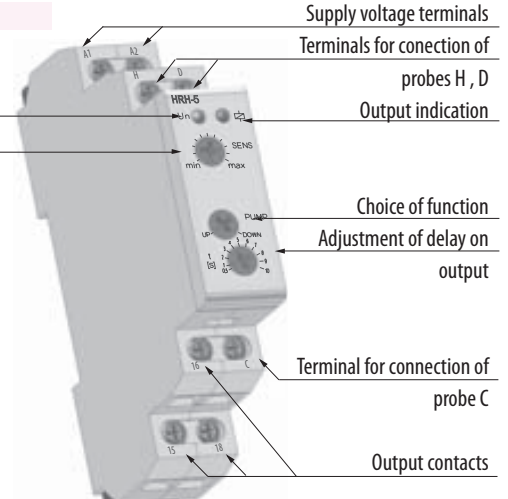
HRH-5	
Functions:	2
Supply terminals:	A1 - A2
Supply voltage:	24... 240 V AC/ DC
Input:	max. 2 VA
Tolerance of supply voltage:	-15 %; +10 %
Measuring circuit	
Sensitivity (input resistance):	adjustable in range 5 kΩ -100 kΩ
Voltage in electrodes:	max. AC 3.5 V
Current in probes:	AC <0.1 mA
Time response:	max. 400 ms
Max. capacity of probe cable:	max. 400 ms
Time delay (t):	800 nF (sensitivity 5kΩ), 100 nF (sensitivity 100 kΩ)
Time delay after switching on (t1):	adjustable, 0.5 -10 sec
Accuracy	1.5 sec
Accuracy in setting (mechanical):	± 5 %
Output	
Number of contacts:	1x changeover (AgNi)
Rated current:	8 A / AC1
Switched output:	2500 VA, 240 W
Switched voltage:	250 V AC1 / 24 V DC
Min. switched output DC:	500 mW
Mechanical life (AC1):	1x10 ⁷
Electrical life:	1x10 ⁵
Other data	
Operational temperature:	-20.. +55 °C
Storing temperature:	-30.. +70 °C
Electrical strength:	3.75 kV (supply - sensors)
Operational position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP 40 from front panel
Overvoltage category:	III.
Pollution degree:	2
Profile of connecting wires (mm ²)	max. 1x 4, max. 2x2.5/ with sleeve max. 1x2.5, 2x1.5
Dimensions:	90 x 17.6 x 64 mm
Weight:	72 g
Applicable standards:	EN 60255-6, EN 61010-1

Symbol

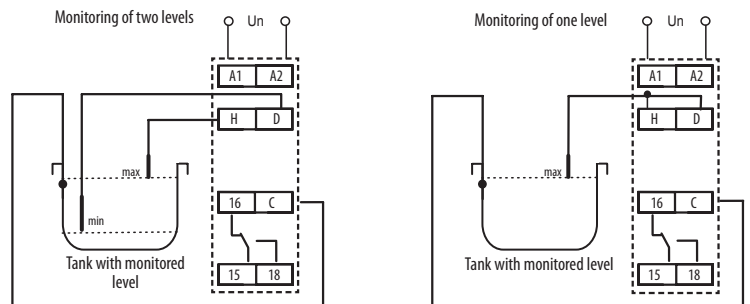


Description

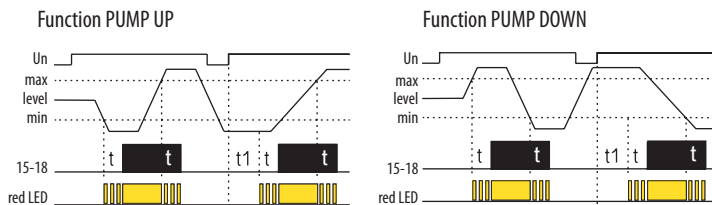
Indication of supply voltage
Choice of function



Connection



Functions



Relay is designated for monitoring of levels of conductive liquids with possibility of functions: PUMP UP or PUMP DOWN. To prevent polarization and liquid electrolysis of liquid, and undesirable oxidation of measuring probes, alternating current is used. For measuring use three measuring probes: H- upper level, D- lower level, C - common probe. In case you use a tank made of a conductive material, you can use it as probe C. In case you require monitoring of one level only, it is necessary to connect inputs H and D and connect them to one probe - in this case sensitivity is lowered by half (2.5... 50kΩ). Probe C can be connected with a protective wire of supply system (PE). To prevent undesirable switching out output contacts by various influences (sediment on probes, humidity...) it is possible to set sensitivity of the device according to conductivity of monitored liquid (corresponding to "resistance" of liquid) range 5 up to 100...kΩ. To reduce influences of undesirable switching of output contacts by liquid gorgle in tanks, it is possible to set delay of output reaction 0,5 - 10s.

Technical data - Measuring probes HRH

HRH-5-measuring probes	
Cables	10m, 15m, 20m, 30m, 40m
Max. cable size	1,5 mm ²
Insulation voltage Ui	750 V
Fluids	Conductible, unaggressive *

* Special probes for aggressive fluids

