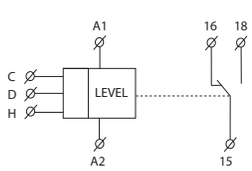
HRH-5 | Level switch

EAN code
HRH-5: 8595188136396

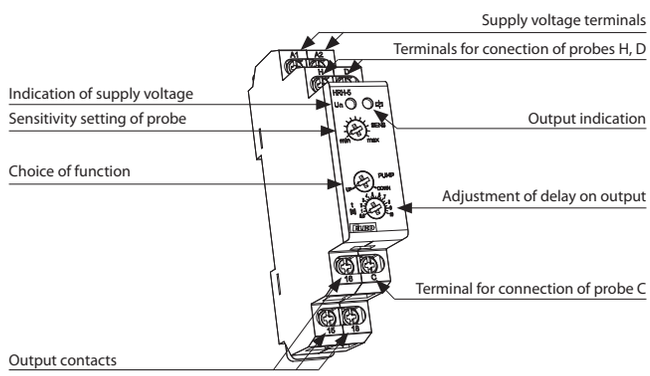
Technical parameters	HRH-5
Functions:	2
Supply terminals:	A1 - A2
Voltage range:	24.. 240 V AC / DC (AC 50 - 60 Hz)
Input:	max. 2 VA / 1.5 W
Max. dissipated power (Un + terminals):	2 W
Toleration of voltage range:	-15 %; +10 %
Measuring circuit	
Sensitivity (input resistance):	adjustable in range 5 kΩ - 100 kΩ
Voltage n electrodes:	max. AC 3.5 V
Current in probes:	AC < 0.1 mA
Time response:	max. 400 ms
Max. capacity of probe cable:	800 nF (sensitivity 5kΩ), 100 nF (sensitivity 100 kΩ)
Time delay (t):	adjustable, 0.5 -10 sec
Time delay after switching on (t1):	1.5 sec
Accuracy	
Accuracy in setting (mech.):	± 5 %
Output	
Number of contacts:	1x changeover / SPDT (AgNi / Silver Alloy)
Current rating:	8 A / AC1
Switching voltage:	2000 VA / AC1, 240 W / DC
Switched voltage:	250 V AC1 / 24 V DC
Mechanical life (AC1):	$1x10^7$
Electrical life:	$1x10^5$
Other information	
Operational temperature:	-20 °C to 55 °C (-4 °F to 131 °F)
Storing temperature:	-30 °C to 70 °C (-22 °F to 158 °F)
Electrical strenght:	2.5 kV (supply - sensors)
Operational position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP40 from font panel / IP10 terminals
Overvltage category:	II.
Pollution degree:	2
Profile of connecting wires (mm^2):	max. 2x 2.5, max. 1x 4 / with sleeve max. 1x 2.5, max. 2x 1.5 (AWG 12)
Dimensions:	90 x 17.6 x 64 mm (3.5˝ x 0.7˝ x 2.5˝)
Weight:	73 g (2.6 oz.)
Standards:	EN 60255-6, EN 61010-1
Recommended measuring probes:	see pg. 100

Symbol



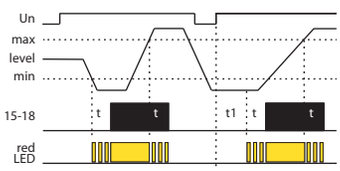
- Relay is designed for monitoring levels in wells, basins, reservoirs, tanks...
- In one device you can choose the following configurations:
  - one-level switch of conductive liquids (by connecting H and D)
  - two-level switch of conductive liquids.
- One-state device monitors one level, two-state device monitors two levels (switches on one level and switches off 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 - 100 kΩ).
- Measuring frequency 10 Hz prevents polarization of liquid and raising oxidation of measuring probes.
- Galvanically separated supply voltage UNI 24.. 240 V AC/DC.
- Output contact 1x changeover/SPDT 8A/250V AC1.
- 1-MODULE, mounting onto DIN rail.

Device description

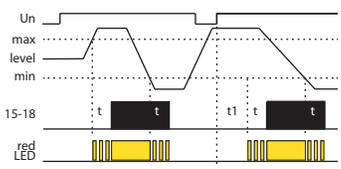


Function

Function PUMP UP



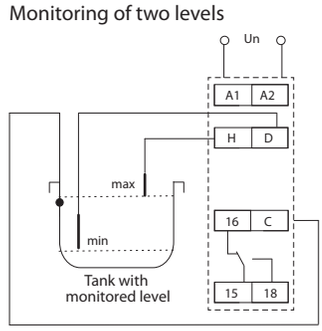
Function PUMP DOWN



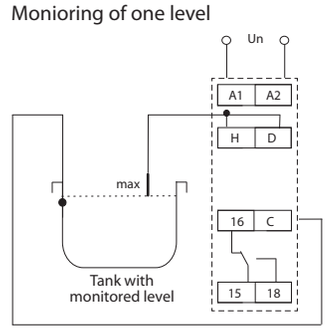
Relay is designated for monitoring of levels of conductive liquids with possibility of functions: PUMP UP or PUMP DOWN. To prevent polarization and liquid electrolysis of liquid, and undesirable oxidation of measuring probes, alternating current is used. For measuring use three measuring probes: H- upper 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 neccessary to connect inputs H and D and connect them to one probe - in this case sensitivity is lowered by half (2.5.. 50 kΩ). 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 liguid (corresponding to "resistance" of liquid) range 5 up to 100 kΩ. To reduce infuences of undesirable switching of output contacts by liquid gorgle in tanks, it is possible to set delay of output reaction 0.5 - 10s.

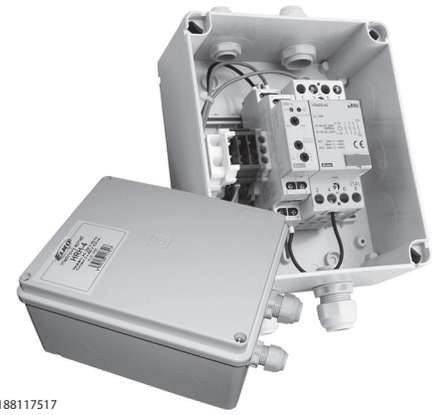
Connection

Monitoring of two levels



Monioring of one level





EAN code
HRH-4 /230V: 8595188117517
HRH-4 /24V: 8595188117500

- In an easy way it automates operations of pumps depending on level.
- Control of level in wells, tanks, reservoirs...
- It is delivered as a connected set - easy installation.
- Possibility to monitor level of any type of conductive liquid.
- It serves for an automatic operation in 1-phased and 3-phased pumps.
- Set of level switch HRH-5 and a contactor VS425.
- Function choice - pumping up or down.
- Unit requires incoming over-current protection.
- Protection degree of the set is IP55.
- There is a possibility of 4 types of probes in a various design (they are not a part of this set, it is possible to deliver).
- Unit is placed in a plastic box with dimensions 160x135x 83 mm (6.3x 5.3x 3.3").

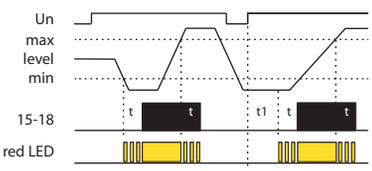
Technical parameters	HRH-4
Function:	2
Voltage range:	AC/DC 230 V or AC/DC 24 V (AC 50 - 60 Hz)
Burden:	max. 7 VA / 1.5 W
Max. dissipated power (Un + terminals):	4 W
Operating range:	-15 %; +10 %
Measuring circuit	
Sensitivity (input resistance):	adjustable in range 5 kΩ - 100 kΩ
Voltage on electrodes:	max. AC 3.5 V
Current on probes:	AC < 0.1 mA
Time response:	max. 400 ms
Max. capacity of probe cable:	800 nF (sensitivity 5 kΩ), 100 nF (sensitivity 100 kΩ)
Time delay (t):	adjustable, 0.5 - 10 sec
Time delay (t1):	1.5 sec
Accuracy	
Setting accuracy (mech.):	± 5 %
Output	
Number of contacts:	4x switching
Rated thermal current:	25 A
Loading in AC3:	4 kW / 400 V
Mechanical life:	$3x10^6$
Other information	
Operation temperature:	-20 °C to 55 °C (-4 °F to 131 °F)
Storage temperature:	-30 °C to 70 °C (-22 °F to 158 °F)
Electrical strength (supply-output):	3.75 kV, galvanically insulated
Operating position:	any
Protection degree:	IP55
Pollution degree:	2
Dimensions:	160 x 135 x 83 mm (6.3˝ x 5.3˝ x 3.3˝)
Weight:	743 g (26.2 oz.)
Standards:	EN 60255-6, EN 61010-1
Recommended measuring probes:	see pg. 100

Function description

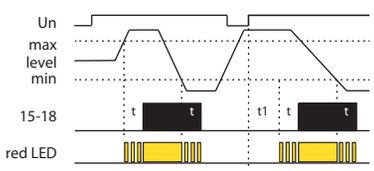
1) PUMP UP - in case the level falls under a lower limit (sensor D), a relay switches and a pump pumps a liquid up until it reaches an upper limit (probe H), then a relay opens and a pump stops pumping. When a level reaches a lower limit again, all process is repeated. After the device is energized, relay automatically closes and a pump pumps liquid to upper limit.
2) PUMP DOWN - in case a level reaches over an upper limit, a relay closes and a pump pumps liquid down. In case a level reaches a lower limit, a relay opens and a pump stops pumping. When energized, a relay is in an open state and a pump operates only after an upper limit is exceeded.
3) In case you combine inputs H and D and connect them to one probe, the device will keep only one level (upper and lower limit will become one). In function PUMP UP relay closes in case the level falls under a probe level. A pump pumps liquid up and in case the level reaches a probe level, a relay opens and a pump stops. The level is kept in a small range around the probe. In function PUMP DOWN relays closes in case a level reaches a probe level. A pump pumps down until the level reaches a probe, then relay opens and pump stops.

Function

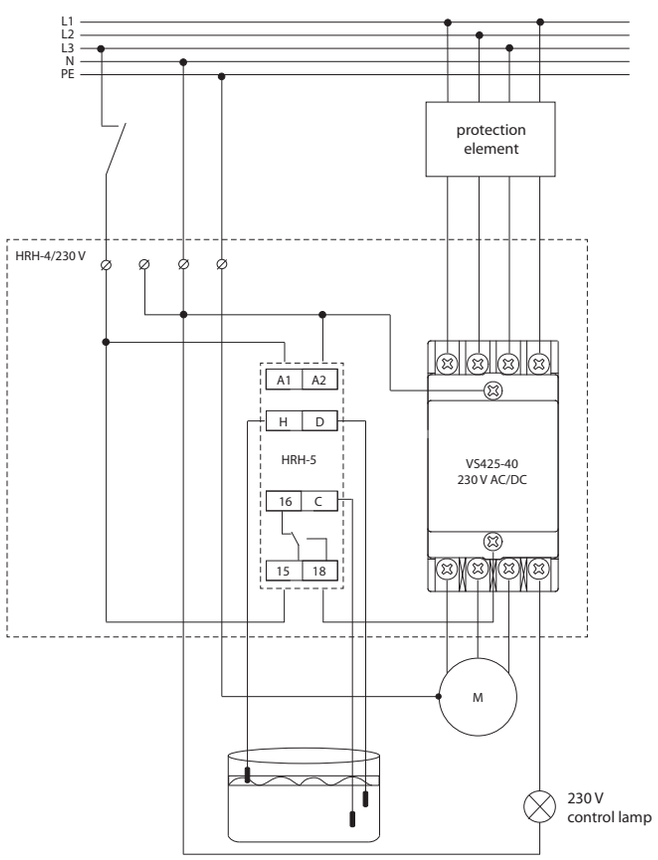
Function PUMP UP



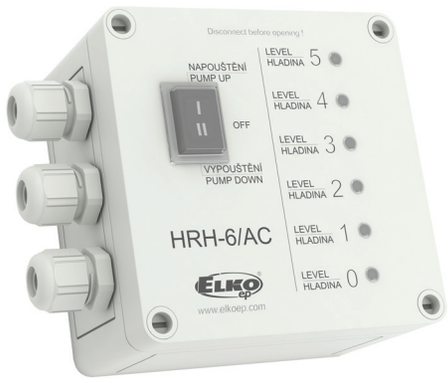
Function PUMP DOWN



Connection



HRH-6 | Level switch



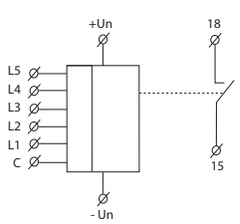
EAN code
HRH-6 /AC: 8595188136990
HRH-6 /DC: 8595188137409
HRH-6S: 8595188137416

Technical parameters	**HRH-6/DC**	**HRH-6/AC**
Function:	2	
Voltage range:	12.. 24 V DC	230 V AC / 50 - 60 Hz
Burden:	max. 1.8 W	max. 3.8 VA
Max. dissipated power (Un + terminals):	3 W	
Supply tolerance:	± 20%	-20 %; +10 %
Measuring circuit		
Sensitivity adjustable in the range*:	min. 10 kΩ max. 200 kΩ	
Voltage on probes:	max. 3 V AC	
Probe cable maximum capacity:	500 nF (for min. sensitivity), 50 nF (for maximum sensitivity)	
Time delay:	adjustable 1.. 10 s	
Output	6x LED (1x red, 1x yellow, 4x green)	
Number of contacts:	1x NO-SPST (AgNi / Silver Alloy)	
Current rating:	10 A / AC1	
Switching voltage:	2500 VA / AC1, 200 W / DC	
Peak current:	16 A / < 3 s	
Switching voltage:	250 V AC1 / 24 V DC	
Mechanical life (AC1):	$3x10^7$	
Electrical life:	$0.7x10^5$	
Other information		
Operating temperature:	-20 °C to 55 °C (-4 °F to 131 °F)	
Storage temperature:	-30 °C to 70 °C (-22 °F to 158 °F)	
El. strength (supply - probes):	x	3.75 kV
Operating position:	any	
Protection degree:	IP65	
Overvoltage category:	x	III.
Pollution degree:	2	
Dimensions:	110 x 130 x 72 mm (4.3˝ x 5.1˝ x 2.8˝)	
Weight:	288 g (10.2 oz.)	385 g (13.6 oz.)
Standards:	EN 60255-6, EN 61010-1	
Recommended measuring probe:	see pg. 100	

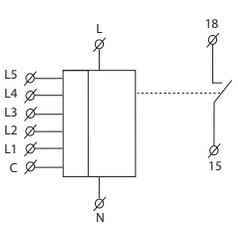
* Note: sensitivity is higher at both ends of a range of values.

Connection

HRH-6/DC



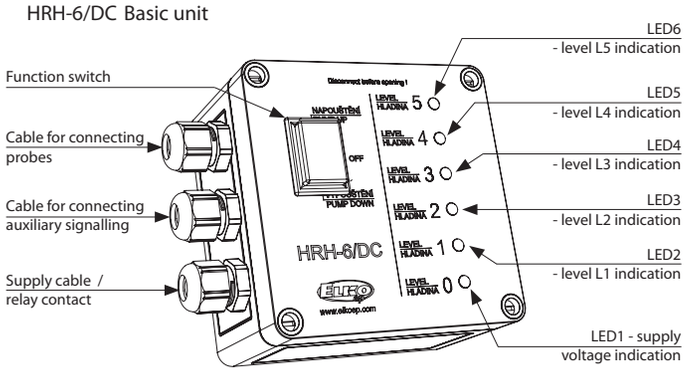
HRH-6/AC



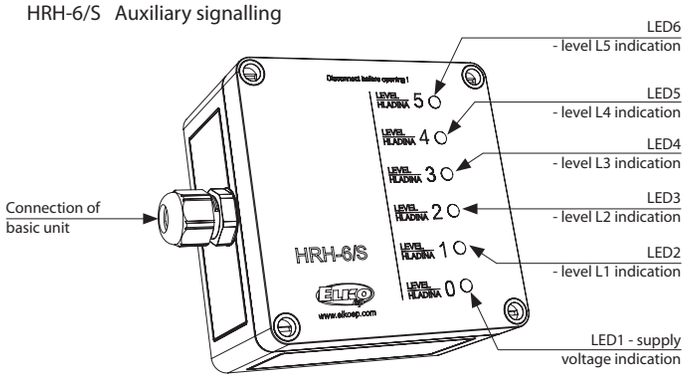
- Function 1 monitors minimal and maximal level depth, for example in fire engine cars, tanks etc.
- Function 2 monitors level depth in water collectors, basins, pools etc.
- Selection of particular function is made by jumper on the front panel.
- Level depth is indicated on the panel of device by LED.
- Device monitors 5 levels by using six probes (one probe is common).
- Common probe can be replaced by a metal (conductive) tank.
- Level indicationby six LED's on the front panel of the device.
- It is possible to connect another indication module (e.g. in fire-engine cabin).
- Adjustable sensitivity according to liquid conductvity.
- Adjustable time delay - elimination of level movement, e.g. while a tank is being filled up.
- Measuring frequency 10 Hz to prevent polarization of liquid.
- Supply voltage 12.. 24 V DC (to be used in fire-engines) or galvanically separated 230 V AC for general use.
- Contact relay 10 A for signalization of full / empty tank (according to a chosen function).
- Choice of functions PUMP UP / OFF / PUMP DOWN by a switch located on the front panel of the device.
- Protection degree IP65.

Description

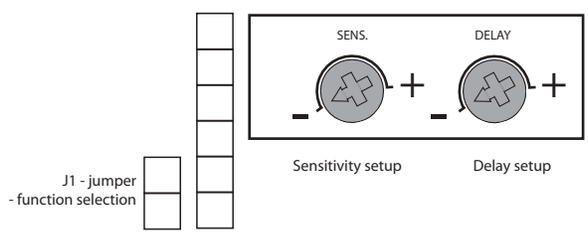
HRH-6/DC Basic unit



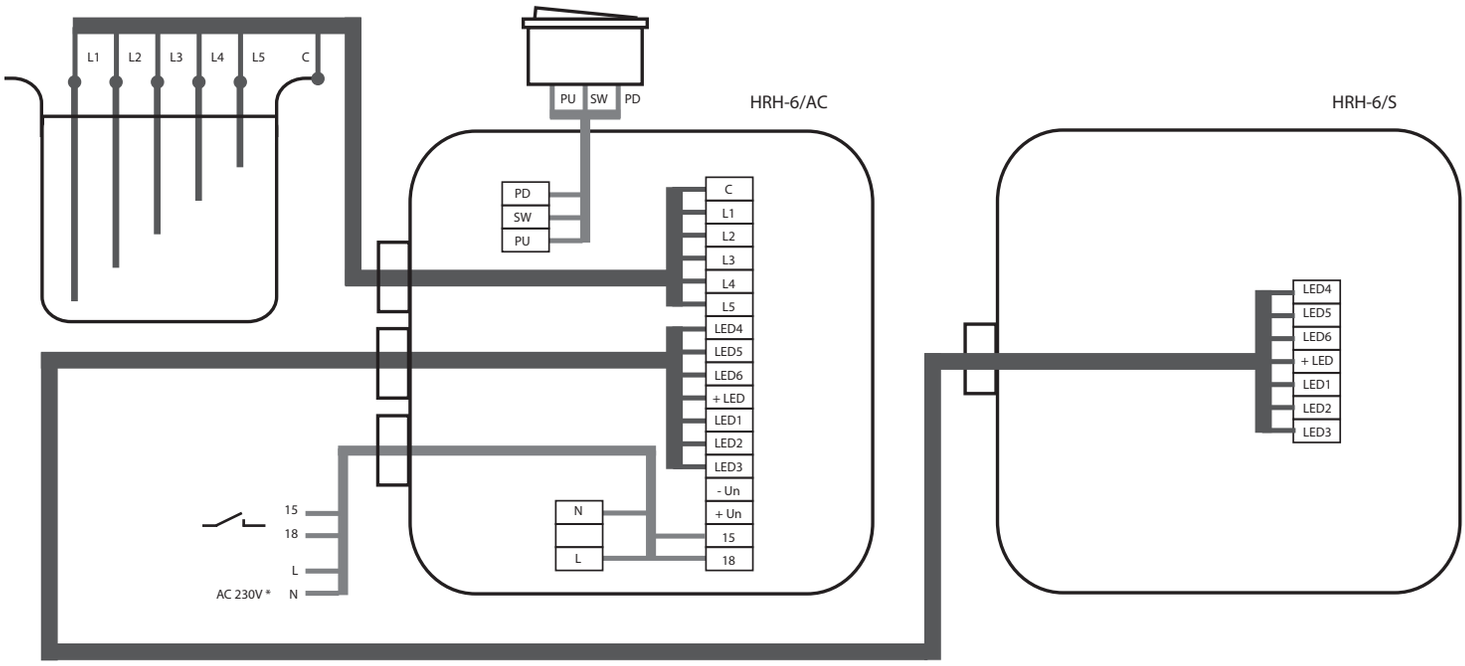
HRH-6/S Auxiliary signalling



Setup elements (inside basic unit)

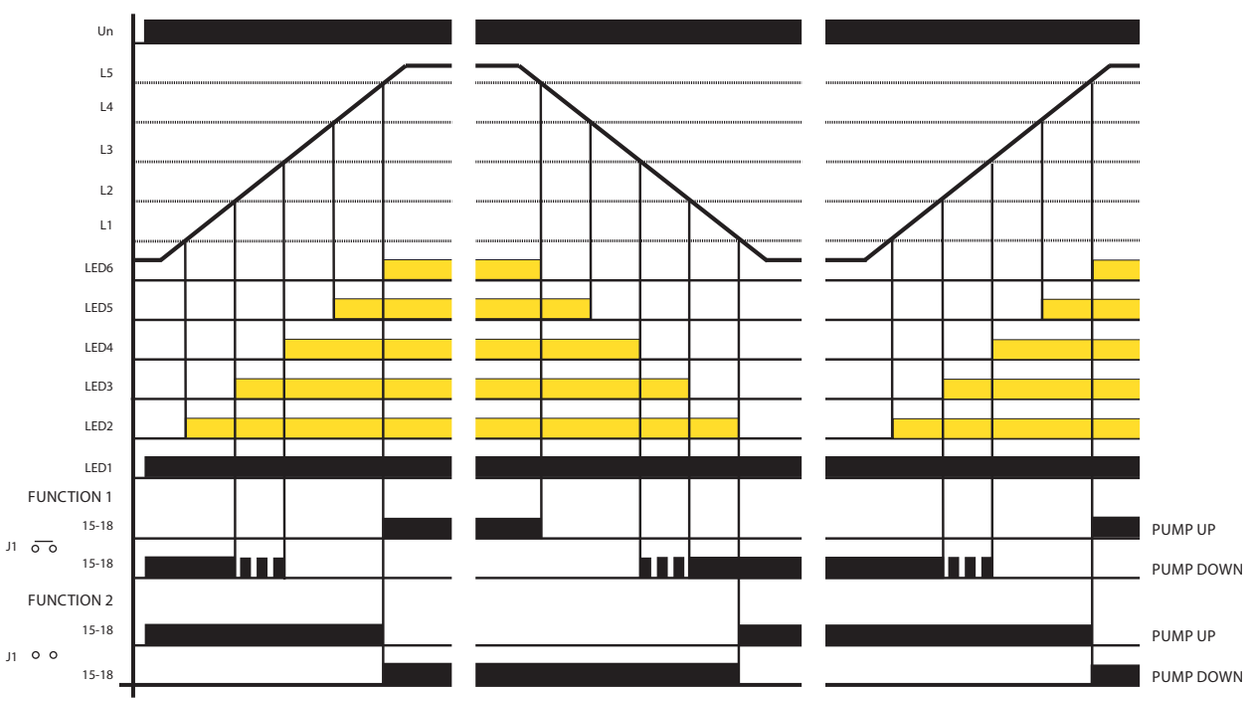


HRH-6 block connecting



* In case of HRH-6/DC, incoming supply is connected on terminals +Un and - Un.

Functions



This device monitors level of a conuctive liquid in a tank by using six single probes or one 6-fold probe. In case you use a tank made of a conductive material, it is possible to use it as a common probe C.

This common probe is connected to a pole of supply (for fire-engines it means its body) in case of supply voltage 12.. 24 V DC.

In case of supply voltage 230 V AC, the circuits are galvanically separated from the main.

The device is controlled by a three-position switch PUMP UP / OFF / PUMP DOWN. After switching into a position PUMP UP or PUMP DOWN, red LED1 shines and then also LED2.. LED6 according to liquid level. Output relay has 2 selectable functions.

Funtion setting is done by a jumper on basic board of HRH-6.

Function 1: (for use in fire-engines) - jumper is applied. In case of function PUMP UP and level reaching L5, the relay controlling e.g. acustic signalization, permanently closes and indicated full tank. In case of PUMP DOWN function and level dropunder level L3, relay priodically switches and under L2 it switches permanently (indicates almost empty tank).

Function 2: (for keeping liquid level) - jumper is not applied. In case of PUMP UP, sensor is switched until liquid reaches level L5. Then relay opens and switches again in case the lliguid level falls under level L1. In case of PUMP DOWN - relay is switched until liquid falls under level L1. Then relay opens and switches again on level L5.

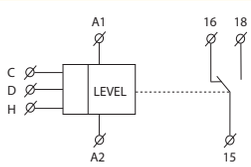
To eliminate LED flashing while level gurgle it is possible to delay reaction of probes (set delay 1.. 10s). According to conductivity of liquid it is possible to set sensitivity of probes (corresponding to "resistance" of liquid).

HRH-7 | Level switch

EAN code
HRH-7: 8595188149471

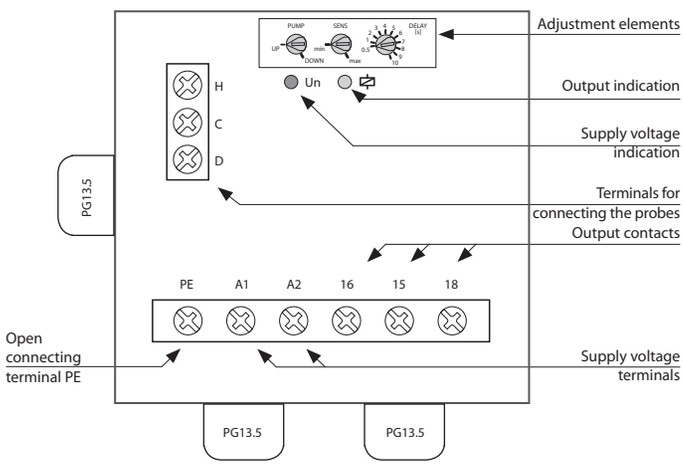
Technical parameters	HRH-7
Function:	2
Supply terminals:	A1 - A2
Supply voltage:	24.. 240 V AC / DC (AC 50 - 60 Hz)
Burden:	max. 2 VA / 1.5 W
Max. dissipated power (Un + terminals):	3 W
Supply voltage tolerance:	-15 %; +10 %
Max. value of overcharge protection:	16 A
Measuring circuit	
Sensitivity (input resistance):	adjustable from 5 kΩ - 100 kΩ
Voltage on electrodes:	max. AC 3.5 V
Current on probes:	AC < 0.1 mA
Time response:	max. 400 ms
Max. capacity of probe cable:	800 nF (sensitivity 5kΩ), 100 nF (sensitivity 100 kΩ)
Time delay (t):	adjustable, 0.5 -10 sec
Time delay (t1):	1.5 sec
Accuracy	
Setting accuracy (mechanical):	± 5 %
Output	
Number of contacts:	1x changeover / DPDT ($AgSnO_2$)
Current rating:	16 A / AC1
- contact NO:	15-18: 6A / AC3
- contact NC:	15-16: 3A / AC3
Switching capacity:	4000 VA / AC1, 384 W /DC
Switching voltage:	250 V AC / 24 V DC
Mechanical life:	$3x10^7$
Electrical life (AC1):	$0.7x10^5$
Other information	
Operating temperature:	-20 °C to 55 °C (-4 °F to 131 °F)
Storage temperature:	-30 °C to 70 °C (-22 °F to 158 °F)
Electrical strength:	3.75 kV (supply - sensor)
Operating position:	any
Protection:	IP65
Overvoltage category:	III.
Contamination degree:	2
Cable size (mm^2):	max. 2x 2.5 / with sleeve max. 2x 1.5 (AWG 12)
Dimension:	139 x 139 x 56 mm (5.5 x 5.5 x 2.2")
Weight:	241 g (8.5 oz.)
Related standards:	EN 60255-6, EN 61010-1
Recommended measuring probes:	see pg. 100

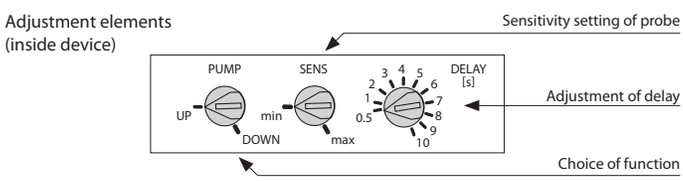
Symbol



- Suitable to operate / work in harsh conditions due to the high degree of protection IP65
- Swich monitors the level changes in wells, reservoirs, tanks, tankers etc.
- It is possible to select the following configurations:
  - one-level switch of conductive liquids monitors one level (by connecting H and D)
  - two-level switch of conductive liquids monitors two levels (switches on at one level and switched off at another level)
- Choice of function PUMP-UP or PUMP-DOWN
- Adjustable time delay of output (0.5 - 10 s)
- Adjustable sensitivity using potentiometer (5 -100 kΩ)
- Measuring frequency 10 Hz prevents liquid polarization and increased oxidation of measuring probes
- Measuring circuits are galvanically separated from the power source of the product and circuits of the relay contact by enhanced insulation according to EN 60664-1 for overvoltage category III.
- Output contact: 1x changeover / DPDT 16 A / 250 V AC1

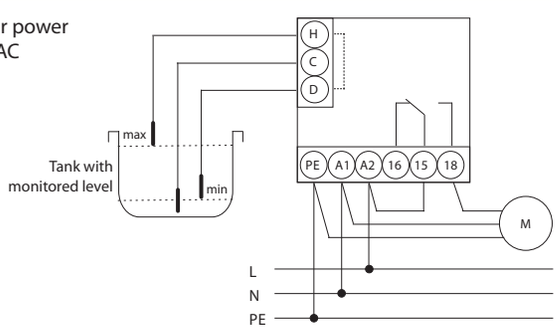
Device description



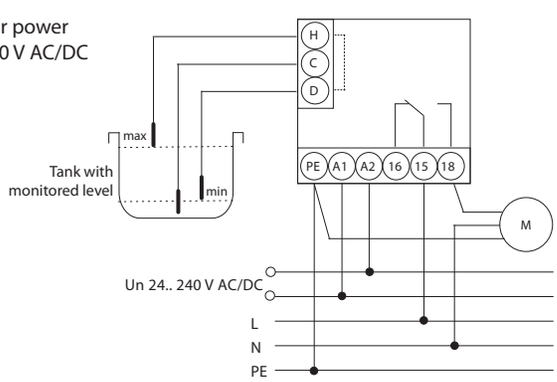


Connection

connection for power supply 230 V AC

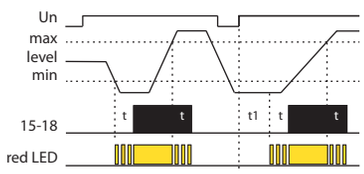


connection for power supply 24.. 240 V AC/DC

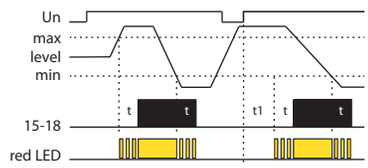


Function

Function PUMP-UP



Function PUMP-DOWN



An AC current is used for measuring to prevent polarization and electrolysis of fluid and unwanted oxidation of measuring probes. Three probes are used for measuring: H - upper level, D - lower level and C - common probe. If using a tank made from conductive material, it is possible to use the tank itself as probe C.

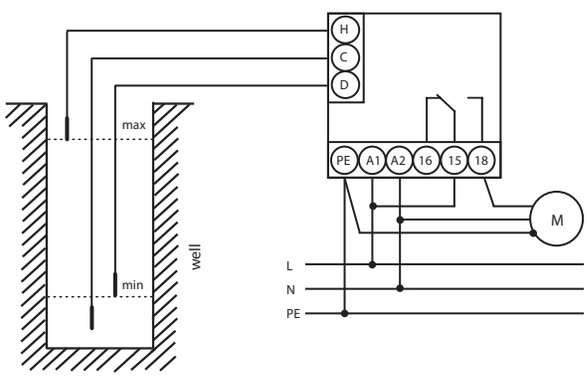
If it is necessary to monitor only one level, there are two connection options:

1. Inputs H and D are connected to a single probe - in this case the sensitivity is decreased to half (2.5.. 50 kΩ).
2. Inputs H and C are connected and the probe is connected to input D - in this case, the original sensitivity remains (5..100 kΩ).

It is also possible to connect probe C with a protective conductor of the power system (PE).

Example of connecting the level switch to a 1-phase pump at a well, borehole

wiring for supply 230 V AC (for monitoring two levels)



Monitoring TWO LEVELS of the FLUID LEVEL minimum / maximum - DRAINING function - (PUMP DOWN)

Description of draining function:

This function is used in a well or borehole where the difference between the upper and lower probes determines how much water the pump can pump out and protect against running dry.

After detecting the maximum level, the set reaction delay begins running. After this period, the output contact immediately switches on the pump until the minimum level is reached, when the set delay begins running once again. The pump then switches off.

Monitoring TWO LEVELS minimum / maximum - REPLENISHING function - (PUMP UP)

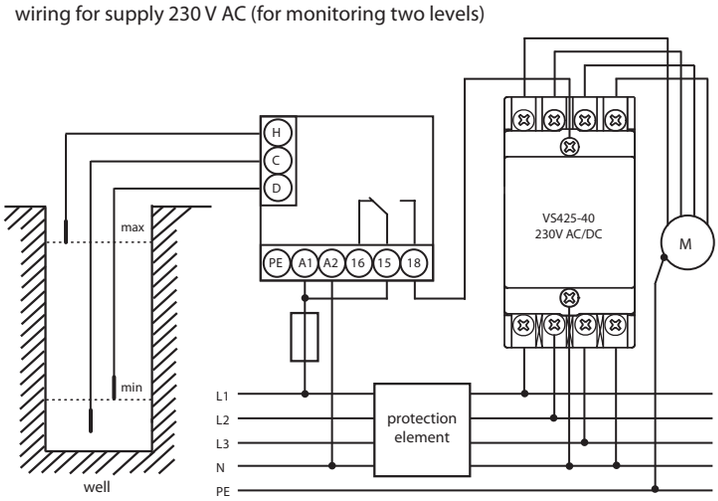
Description of replenishing function:

This function is used when you need to regularly pump in water to a well or borehole, which is leaking.

After detecting the minimum level, the set reaction delay begins running. After this period, the output contact immediately switches on the pump for the period until it reaches the maximum level, where the set delay begins running once again. The pump then switches off.

Example of connecting the level switch to a 3-phase pump at the well, borehole

wiring for supply 230 V AC (for monitoring two levels)



Monitoring TWO LEVELS minimum / maximum - DRAINING function - (PUMP DOWN)

Description of draining function:

The function is used to protect against overflows and flooding of areas. After detecting the maximum level, the set reaction delay begins running. After this period, the output contact immediately switches on the 3-phase pump until the minimum level is reached, when the set delay begins running once again. The pump then switches off.

HRH-8 | Level switch

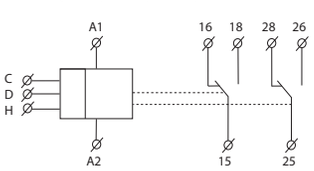
INNOVATION

EAN code
HRH-8/110V: 8595188156387
HRH-8/230V: 8595188155427
HRH-8/24V: 8595188155564
HRH-8/400V: 8595188171199

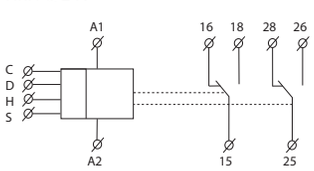
Technical parameters	HRH-8
Function:	8
Supply terminals:	A1 - A2
Voltage range:	AC 110 V, AC 230 V, AC 400 V or AC/DC 24V galvanicaly separated (AC 50-60Hz)
Burden max.:	2.5 W / 5 VA (AC 230 V, AC 110 V, AC 400 V), 1.4 W / 2 VA (AC/DC 24 V)
Max. dissipated power (Un + terminals):	4 W (110 V, 230 V, 400 V); 3 W (24 V)
Supply voltage tolerance:	-15 %; +10 %
Measuring circuit	
Hysteresis (input - opening):	in an adjustable range 5 kΩ - 100 kΩ
Voltage on electrode:	max. AC 3.5 V
Current in probes:	AC < 1 mA
Time reaction:	max. 400 ms
Max. cable capacity:	800 nF (sensitivity 5kΩ), 100 nF (sensitivity 100 kΩ)
Time delay t:	adjustable 0.5 -10 sec
Accuracy	
Setting accuracy (mech.):	± 5 %
Output	
Number of contacts:	2x changeover / SPDT (AgNi / Silver Alloy)
Current rating:	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
Output indication:	red LED
Mechanical life:	$3x10^7$
Electrical life (AC1):	$0.7x10^5$
Other information	
Operating temperature:	-20 °C to 55 °C (-4 °F to 131 °F)
Storage temperature:	-30 °C to 70 °C (-22 °F to 158 °F)
Electrical strength:	4 kV (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP40 from front panel / IP20 terminals
Overvoltage category:	III.
Pollution degree:	2
Max. cable size (mm^2):	solid wire max. 1x 2.5 or 2x1.5 /with cavern max. 1x 1.5 (AWG 12)
Dimensions:	90 x 52 x 65 mm (3.5˝ x 2˝ x 2.6˝)
Weight:	247 g / 8.7 oz (110 V, 230 V, 400 V); 145 g / 5.1 oz (24 V)
Standards:	EN 60255-6, EN 61010-1
Measuring sensors:	see pg. 100

Symbol

HRH-8 (110V, 230V, 400V)



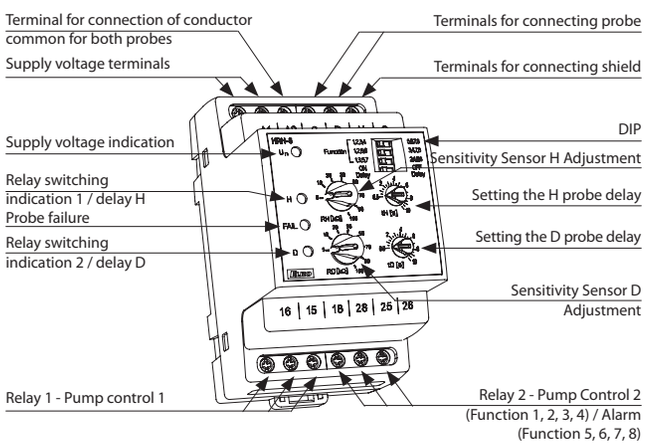
HRH-8/24V



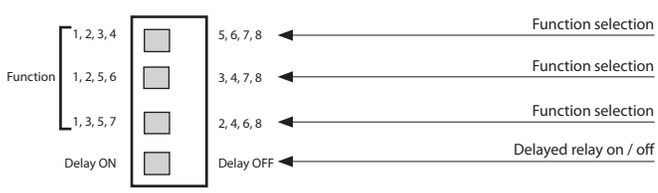
- Relay is designed to control the level of conductive liquids in wells, tanks, pools, tankers, reservoirs... (replacement HRH-1)
- Galvanically isolated supply and guard circuits
- Within one device, the following configurations can be selected:
  - 2x one-level monitoring (in separate tanks)
  - 1x two-level monitoring (in one tank)
  - Pumping from one tank to another
- DIP switch selection on the front panel (8 functions)
- Adjustable probe sensitivity (for each probe separately)
- Adjustable relay switching delay (for each probe separately
- 10Hz watch frequency prevents polarization of the liquid and increases resistance to interference by network frequency
- 2x output relay (with changeover contact 16A / 250V AC1)
- 3-MODULE design, mounting onto DIN rail.

Description

HRH-8/24V

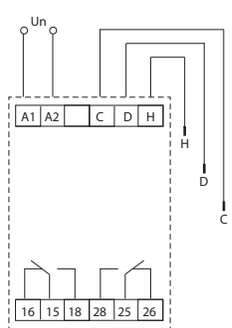


Description and importance of DIP switches

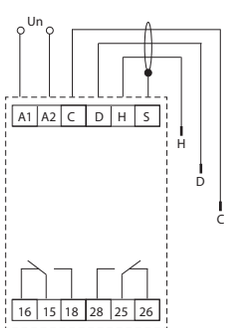


Connection

HRH-8 (110V, 230V, 400V)



HRH-8/24V



Measuring probes

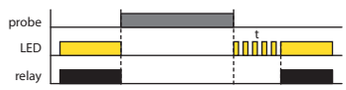
There can be any measuring probe (any conductive contact, it is recommended to use brass or stainless steel).

The probe wire does not need to be shielded, but it is recommended.

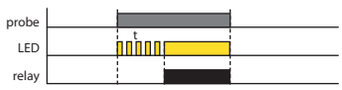
When using a shielded wire, the shielding is connected to terminal S.

Functions

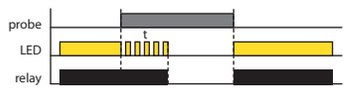
PUMP UP, ON DELAY (Function 1,3,4)



PUMP DOWN, ON DELAY (Function 2,3,4)

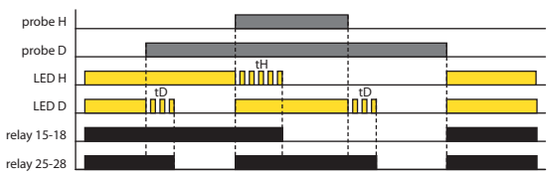


PUMP UP, OFF DELAY (Function 1,3,4)

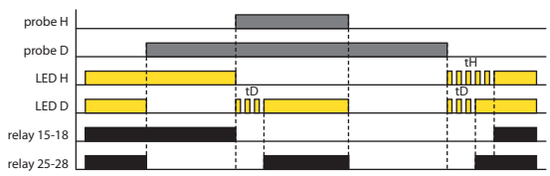


PUMP DOWN, OFF DELAY (Function 2,3,4)

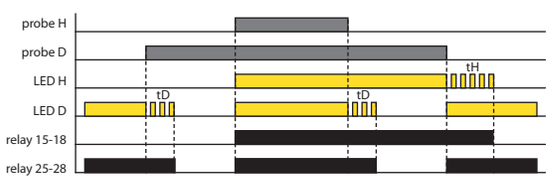
PUMP UP, OFF DELAY (Function 5)



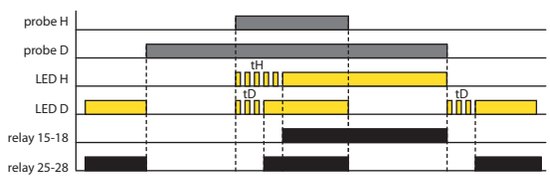
PUMP UP, ON DELAY (Function 5)



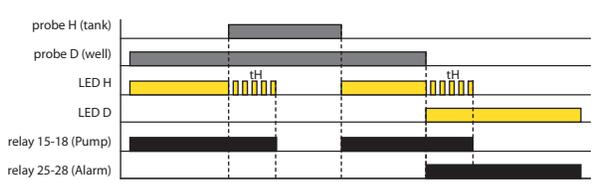
PUMP DOWN, OFF DELAY (Function 6)



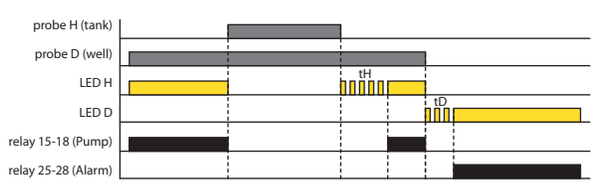
PUMP DOWN, ON DELAY (Function 6)



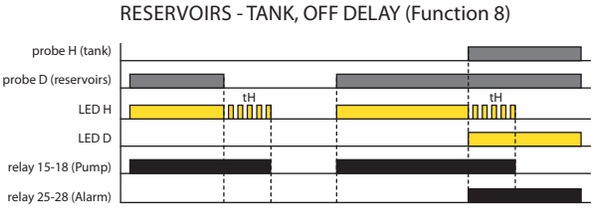
WELL - TANK, OFF DELAY (Function 7)



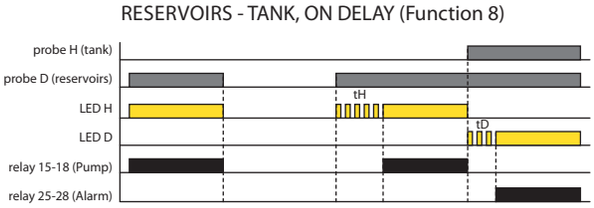
WELL - TANK, ON DELAY (Function 7)



RESERVOIRS - TANK, OFF DELAY (Function 8)



RESERVOIRS - TANK, ON DELAY (Function 8)



The relay is designed to monitor the level of conductive liquids with a choice of 8 functions:

1) - 2 separate tanks (each with 1 probe) - both PUMP UP (filling)
2) - 2 separate tanks (each with 1 probe) - both PUMP DOWN (emptying)
3) - 2 separate tanks (each with 1 probe) - H PUMP DOWN probe, D PUMP UP probe
4) - 2 separate tanks (each with 1 probe) - H PUMP UP probe, probe D PUMP DOWN
5) - both probes in one tank - PUMP UP - maintain level between probes H and D (as HRH-5), relay 1 switches on the pump, relay 2 alarm (level is not between probes H and D)
6) - Both probes in one tank - PUMP DOWN - maintaining the level between probes H and D (as HRH-5), relay 1 switches on the pump, relay 2 alarm (the level is not between probes H and D)
7) - Pumping from the well to the tank - probe D in the well, probe H in the tank. The pump only runs if the probe D is flooded (enough water in the well) and the tank is not full (probe H). The alarm reports a lack of water in the well (probe D is not flooded).
8) - Pumping from the sump to the tank - probe D in the sump, probe H in the tank. The pump only runs if the probe D is flooded (full tank) and the tank is not full (probe H). The alarm reports the status of full tank and sump (both probes are flooded).

LED indication:

The red LED lights up - the corresponding relay is switched on

Red LED flashes - delay timing

The yellow LED indicates probe failure - Functions 5, 6 probe H is flooded and probe D is not. At the same time both red LEDs flash.

To prevent polarization and electrolysis of the liquid and undesirable oxidation of the monitoring probes, an AC current of 10 Hz is used for monitoring. The low frequency has a positive effect on suppression of interference by 50 (60) Hz. Three probes are used to monitor the level: H - upper level, D - lower level and C - common probe. In the case of the use of a conductive material tank, it is possible to use the tank itself as a C probe. Probe C can also be connected to the protective conductor of the power supply system (PE). To prevent undesired switching by various influences (soiling of dips, moisture ...), the sensitivity of the device can be set according to the conductivity of the liquid being monitored (corresponding to the "resistance" of the liquid) in the range of 5 to 100 kΩ. To limit the effect of undesired switching of output contacts by raising the liquid level in the tank, it is possible to set the output response delay 0.5 - 10 s.

HRH-x | Level sets

HRH-MS HRH-MS-VS

EAN code
HRH-VS: 8595188150699
HRH-MS-1A: 8595188150873
HRH-MS-1.6A: 8595188150705
HRH-MS-VS-2.5A: 8595188150880
HRH-MS-VS-4A: 8595188150712
HRH-MS-VS-6.3A: 8595188150835

- Level sets are used to monitor levels in wells, reservoirs, tanks...
- Advantage is the possibility of setting PUMP UP and PUMP DOWN and also delayed switching (e.g. in case of level fluctuations).
- The possibility of connection to 1 or 3-phase pump (depending on the type of set).
- Easy to install without complicated wiring - ready for installation.
- There are Level sets placed in switchboard with IP65 protection (protected against dust and against water jets)
  - **HRH-VS:** level switch HRH-5 with installation contactor VS425-40 (25A contact)
  - **HRH-MS-1A:** level switch HRH-5 with motor starter MS18 0.63-1A
  - **HRH-MS-1.6A:** level switch HRH-5 with motor starter MS18 1-1.6A
  - **HRH-MS-VS-2.5A:** level switch HRH-5 with installation contactor VS425-40 (25A contact) and with motor starter MS18 1.6-2.5 A
  - **HRH-MS-VS-4A:** level switch HRH-5 with installation contactor VS425-40 (25A contact) and with motor starter MS18 2.5-4 A
  - **HRH-MS-VS-6.3A:** level switch HRH-5 with installation contactor VS425-40 (25A contact) and with motor starter MS18 4-6.3 A

Technical parameters	**HRH-VS**	**HRH- MS-1A**	**HRH-MS-1.6A**	**HRH-MS-VS-2.5A**	**HRH-MS-VS-4A**	**HRH-MS-VS-6.3A**
Function:	2					
Voltage range:	230 / 400 V AC 50 - 60 Hz					
Input (max.):	4.6 VA / 1.5 W	2 VA / 1.5 W	2 VA / 1.5 W	4.6 VA / 2 W	4.6 VA / 2 W	4.6 VA / 2 W
Toleration of voltage range:	-15 %; +10 %					
Measuring circuit						
Sensitivity (input impedance):	adjustable in range 5 kΩ - 100 kΩ					
Voltage on the electrodes:	max. AC 3.5 V					
Current in probes:	AC < 0.1 mA					
Time response:	max. 400 ms					
Max. capacity of probe cable:	800 nF (sensitivity 5 kΩ), 100 nF (sensitivity 100 kΩ)					
Time delay (t):	adjustable, 0.5 - 10 sec					
Time delay after switching on (t1):	1.5 sec					
Accuracy:						
Setting accuracy (mech.):	± 5 %					
Output						
Number of contacts:	4	1	1	4	4	4
Rated thermal current:	25 A	8 A	8 A	25 A	25 A	25 A
Load on AC3:	4 kW	1 A	1.6 A	2.5 A	4 A	6.3 A
Switching voltage:	230 V / 400 V	230 V	230 V	400 V AC	400 V AC	400 V AC
Electric life (A3):	0.5 x 10^6	1 x10^5	0.5 x 10^6	0.5 x 10^6	0.5 x 10^6	0.5 x 10^6
Current setting range MS18:	-	0.63 - 1 A	1 - 1.6 A	1.6 - 2.5 A	2.5 - 4 A	4 - 6.3 A
Other information						
Operating temperature:	-20 °C to 55 °C (-4 °F to 131 °F)					
Storage temperature:	-25 °C to 70 °C (-13 °F to 158 °F)					
Electrical strength:	3.75 kV (supply - probe)					
Operating position:	any					
Protection degree:	IP65 set					
Pollution degree:	2					
Dimension:	201 x 128 x 120 mm (7.9 x 5 x 4.7")			201 x 202 x 120 mm (7.9 x 7.9 x 4.7")		
Weight:	862 g (30.4 oz)	872 g (30.7oz.)	872 g (30.7oz.)	1358 g (47.9 oz.)	1358 g (47.9 oz.)	1358 g (47.9 oz.)
Related standards:	EN 60255-6, EN 61010-1					
Recommended measuring probes:	see pg. 100					

Functions

PUMP DOWN function (DOWN) used for protection against Idle Running or against overflow and flooding areas.

Detecting the maximum level results in activation of adjusted delayed response. After that output contact immediately turns on single or 3-phase pump until it reaches the minimum level. Then the pump turns off.

In case that a reservoir is made of a conductive material e.g. metal tanks, there can be a difference in connection of HRH-5 leve sets - it is not necessary to put inside a common probe „C" and connect with SHR-2 probe, but thanks to conductivity of vessel we can connect probe C to the reservoir body.

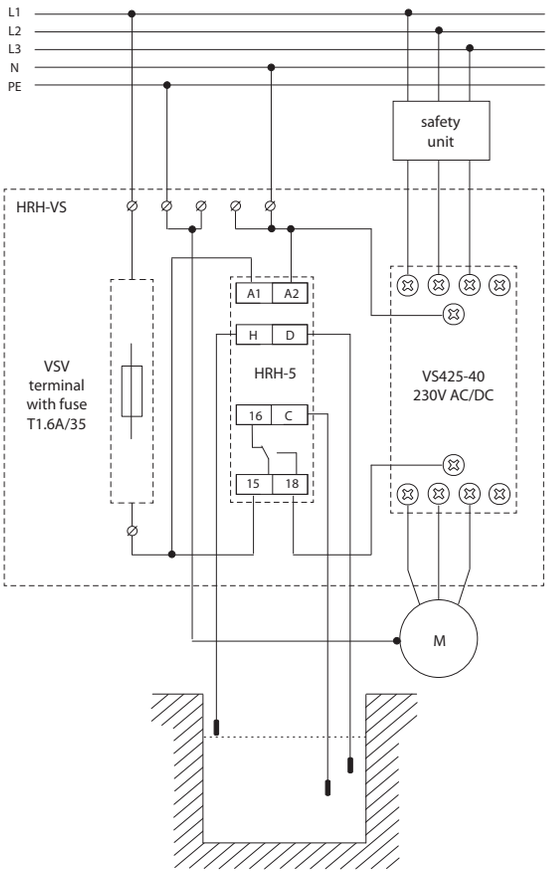
The length of wire cable (between the level switch and probe) can be up to 50 m. We don't recommend placing near the power lines, because the sensitivity of equipment can be affected and thus the entire functionality.

Recommended accessories:

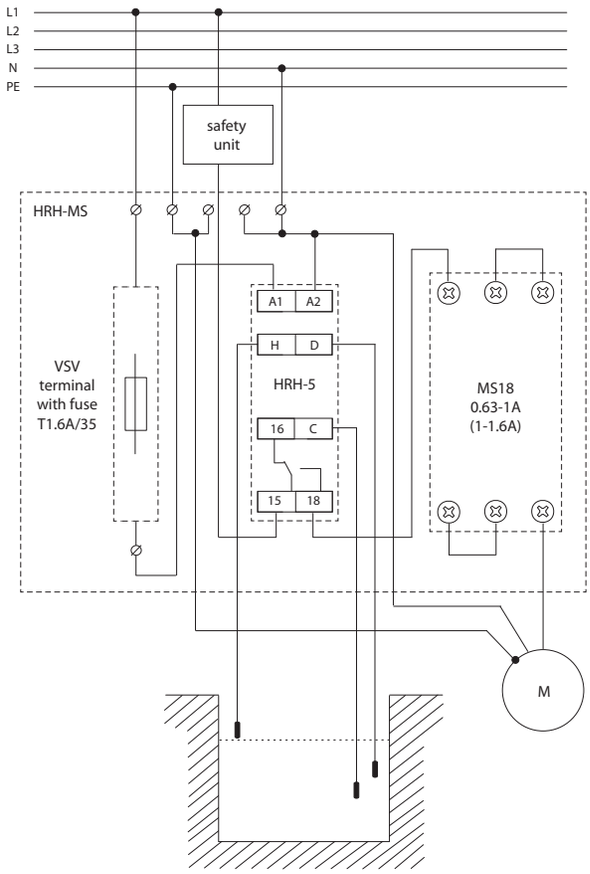
- 3 wire cable D03VV-F 3x0,75/3,2
- 1 wire cable D05V-K 0,75/3,2
- SHR-2 probe - probe covered by PVC (protected) - used in moderately polluted waters, drilling, wells. Assembly - hanging in the well.

Connection

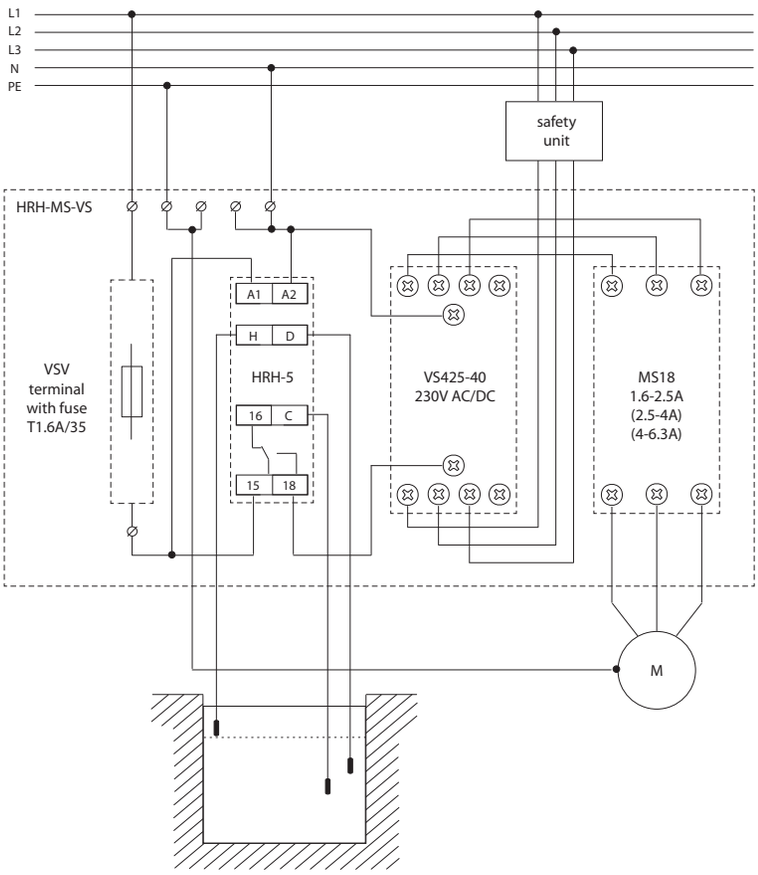
Level set HRH-VS



Level set HRH-MS-1A (HRH-MS-1.6A)



Level set HRH-MS-VS-2.5A (HRH-MS-VS-4A, HRH-MS-VS-6.3A)



SHR-1-M, SHR-1-N, SHR-2, SHR-3 | Level sensors

SHR-1-M SHR-1-N

EAN code
SHR-1-M: 8595188110105
SHR-1-N: 8595188111379

SHR-1-M: brass sensor
SHR-1-N: stainless steel sensor

- Sensor to control flooding.
- Suitable for use in drinking water.
- Electrode with diametr 4 mm (0.2") is placed in plastic cover.
- Panel or to holder mounting.
- Conductor is connected to terminal board, shrink bushing for feeder place insulation is a part of device.
- Max. wire profile: 2.5 mm^2 (AWG10).
- Installation: after connecting a wire to the sensor, run the shrink bushing over the wire onto the sensor.
- Heat the sensor and by shrinking the connection of sensor and wire will be hermetical.
- Weight: 9.7 g (0.3 oz.).
- Operating temperature: -25 °C to +60 °C (-13 °F to 140 °F).
- Total sensor lenght: 65.5mm (2.58 ").

EAN code
SHR-2: 8595188111263

Level probe **SHR-2**

- Detection sensor is electrode, which in connection with switchable device is used for level detection for example in wells, tanks,...
- To be ued in electric conductive fluids and mechanically polluted fluids with temperature: 1°C to 80°C (33.8 °F to 176°F).
- Suitable for use in drinking water.
- Stainless steel one-pole electrode reside in PVC cover, intended for tank wall mounting or mounting by socket.
- To ensure corret function of the sensor, it is necessary to have the electrode without dirt which could disable the connection of the electrode and fluid and thus lead to malfunction.
- Max. wire profile: 2.5 mm^2 (AWG 10).
- Recomended wire D05V-K0.75/3.2.
- Installation:
  - conductor wire is connected by feazing of two brass screws to stainless steel electrode.
  - conductor is caulked by bushing Pg7 with protection degree IP68.
- Weight: 48.6 g (1.7 oz.)
- Dimensions: max. diameter 21 mm (0.8"), lenght 96 mm (3.8").

SHR-2 in open state

EAN code
SHR-3: 8595188111270

Level probe **SHR-3**

- Stainless probe to be used into demanding industrial environments, designated for screwing into tank wall or cover.
- Suitable for use in drinking water
- The probe is installed in horisontal, vertical or in sidelong position on tank side or in tank cover. Installation is done by soldering or by fixing nut. It is necessary to use 24 mm (1") screw. It is necessary to use an adequate torque with regards to a seal and operational overpressure in a tank.
- Sensor has connecting wire - lenght 3 m, which is connected to sensor to scan electrode and sensor bushing connecting wire is double-wire PVC AWG 18 (0.75 mm^2), connection of wires: brown - scan electrode, blue - sensor bushing.
- Connection M18x1.5 screw.
- Protection degree IP 67.
- Sensor weight without cable: 100 g (3.3 oz.).
- Operating surroundings: place without the danger of detonation, temperature on screw: max. 95°C (203°F).
- Pressure immunity: on 25 °C (77 °F) 4 MPa, on 95 °C (203 °F) 1.5 MPa.
- Weight: 239 g (8.4 oz.).
- Material: bushing and sean electrode: stainless steel W.Nr. 1.4301, insulation insert of electrode: PTFE.
- Internal material: self - extinguishing epoxide resin.
- Operating temperature: -25 °C to 60 °C (-13 °F to 140 °F).
- Total sensor lenght: 65.5mm (2.58 ").