

3. INSTALLATION

A **KRK-622-□** switching unit can be mounted on DIN EN 60715 rail. It is recommended the **KLN-2□□** type probes to be cut to the length required for level detection on site. The probes should be screwed into the **KS□-□□** type sockets.

ALWAYS REMEMBER TO TIGHTEN THE PROBE WITH AN M6 NUT!

When using **KSH-204** type probe sockets the reference probes should be tightened with special SW hexagonal M6 nuts!

It is suggested **KLP-201** or **KLP-204** type PVDF separators (suitable up to +130 °C) to be used at every 0.5 m for multiple probe devices to keep the probes apart.

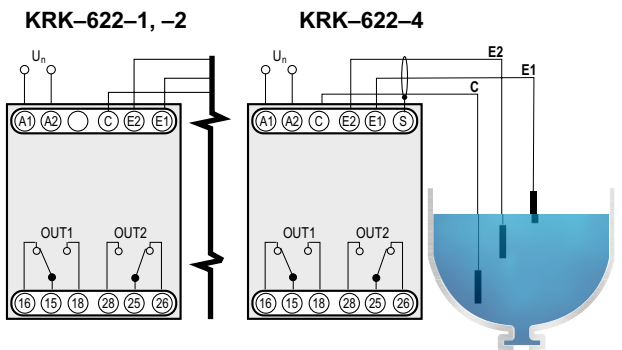
A **KSK-201** single probe, attached to an insulated cable, can be lowered into pits and wells without running the risk of a short circuit. When a detection is needed in a well or in a plastic pipe 2 of them have to be used. For additional levels additional probes should be used.

4. WIRING

If the wall of the tank is conductive no reference probe is needed. In this case terminal 'C' has to be connected to the tank.

On multiple probe units 'E1' and 'E2' are marked with 1-4, the reference probe is marked with 'C'. Admissible length of cable between switching unit and probes depends on cable capacitance and conductivity.

The terminal block assignment of **KRK-622-1** and **KRK-622-2** is not the same, the **KRK-622-4** is different. There is no 'S' terminal at the **KRK-622-1** and **KRK-622-2**. Referring to the illustration below for the terminal block assignments of the devices.



- A1, A2 – power supply
- C – reference probe
- E1 – max. probe (OUT1)
- E2 – min. probe (OUT2)
- S – shielding
- 15, 16, 18 – 1st relay output – pump control 1
- 25, 26, 28 – 2nd relay output – pump control 2 (function 1, 2, 3, 4) or alarm (function 5, 6, 7, 8)

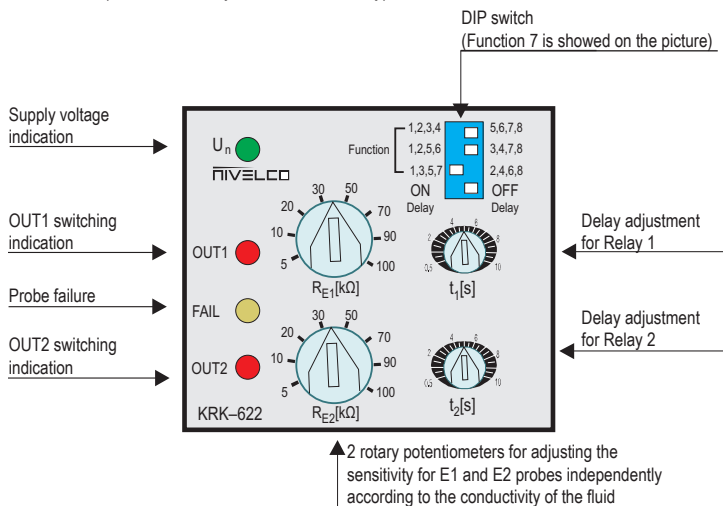
To eliminate signal interferences it is recommended to use shielded cables to the probes.

5. COMMISSIONING

5.1. ADJUSTMENT

The green LED (U_n) shows that the unit is on, the energised state of the relays are indicated by the OUT1 respectively OUT2 LEDs. If the OUT1, OUT2 (red) LEDs are flashing, they indicate the timer operation. When they light up, it shows that the corresponding relay is switched on. Yellow LED (FAIL) indicates probe failure (for example at Functions 5 and 6 probe 'E1' is flooded and probe 'E2' is not, which is unreal state so the yellow LED is on.)

Operating modes, delay ON and delay OFF can be set with the DIP switch on the front panel. $t_1[s]$ and $t_2[s]$ potentiometers are for adjusting the delay time. The delay value can change from 0.5 seconds to 10 seconds. You can set the sensitivity of the two probes independently using the R_{E1} or R_{E2} potentiometers. The sensitivity setting should comply with the conductivity of the fluid. Do not set sensitivity higher than required because the vapour precipitation may lead to operation disturbance. In heavily humid environment insulated probes can be used. With the ON Delay / OFF Delay switch on the DIP switch, delay type of the relays can be selected (switch-on delay or switch-off delay).

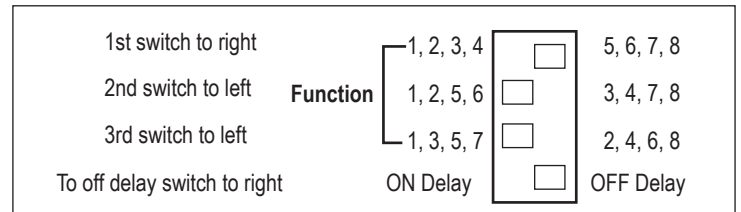


Front panel of NIVOCONT KRK-622

Example of setting DIP switch:

Select the desired function in accordance with the figures. The upper 3 switches are for selecting the number of the function you want to use. If you want to use Function 5 you should set the switches as follows: set the 1st switch to the right, the 2nd to the left and the 3rd to the left. Then select whether you need ON delay or OFF delay with the 4th switch. You can choose the type of delay, but you cannot deactivate the delay. However, the minimum delay time you can set with the potentiometers is 0.5 seconds.

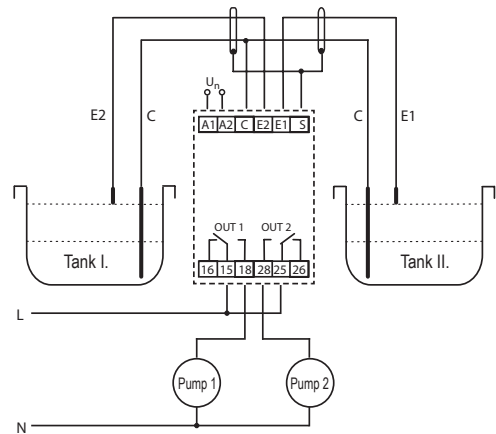
The DIP switch looks like this after setting function 5 with an OFF delay:



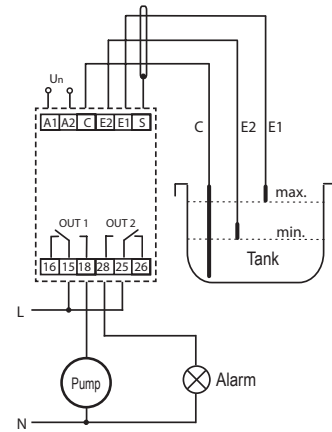
5.2 FUNCTIONS

Attention! The following wiring diagrams show the wiring of the KRK-622-4, 24 V supply voltage device.

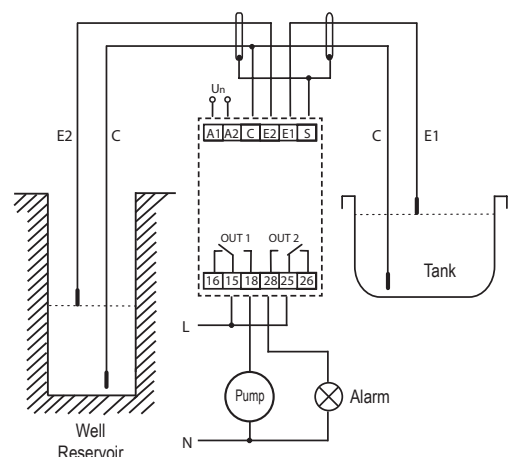
Functions 1 to 4 are for controlling 2 pumps according to the following picture:



Functions 5 and 6 are for controlling one pump (filling or emptying one tank) and for generating alarm signal according to the following picture. If level is not between 'E1' and 'E2' alarm is generated:



Functions 7 and 8 also controls one pump and generates one alarm signal:



FUNCTION 1

Controlling level in 2 separate tanks (each with 1 probe) – filling. The pumps are running and fill the tanks until the levels reach the corresponding probes (E1 or E2).

Relay 1 (E1): Pump control 1
Relay 2 (E2): Pump control 2

FUNCTION 2

Controlling level in 2 separate tanks (each with 1 probe) – emptying. The pumps are running and emptying the tanks until probes are flooded.

Relay 1 (E1): Pump control 1
Relay 2 (E2): Pump control 2

FUNCTION 3

Controlling level in 2 separate tanks (each with 1 probe). Pump 1 is emptying the tank and stops when probe 'E1' is not flooded anymore. Pump 2 is filling the tank and stops if level reaches probe 'E2'.

Relay 1 (E1): Pump control 1
Relay 2 (E2): Pump control 2

FUNCTION 4

Controlling level in 2 separate tanks (each with 1 probe). Pump 2 is emptying the tank and stops when probe 'E2' is not flooded anymore. Pump 1 is filling the tank and stops if level reaches probe 'E1'.

Relay 1 (E1): Pump control 1
Relay 2 (E2): Pump control 2

FUNCTION 5

Both probes and reference probe are in one tank. Relay 1 controls the pump, which keeps the tank filled and maintains the level between probes 'E1' and 'E2'. Relay 2 is used to alarm signalling. Relay 2 is on if the level is not between the two probes.

Relay 1 (E1): Pump control 1
Relay 2 (E2): Alarm

FUNCTION 6

Both probes and reference probe are in one tank. Relay 1 controls the pump, which keeps the tank empty and maintains the level between probes 'E1' and 'E2'. Relay 2 is used to alarm signalling. Relay 2 is on if the level is not between the two probes.

Relay 1 (E1): Pump control 1
Relay 2 (E2): Alarm

FUNCTION 7

Pumping from well to the tank – probe 'E2' is in the well, probe 'E1' is in the tank. The pump only runs if probe 'E2' is flooded (enough water in the well) and the tank is not full meaning the level does not reach probe 'E1'. The alarm reports a lack of water in the well (probe 'E2' is not flooded).

Relay 1 (E1): Pump control 1
Relay 2 (E2): Alarm

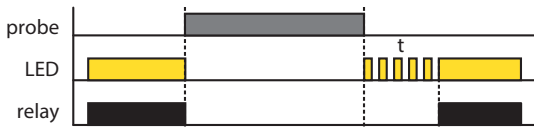
FUNCTION 8

Pumping from reservoir to the tank – probe 'E2' is in the reservoir, probe 'E1' is in the tank. The pump only runs if probe 'E2' is flooded (full reservoir) and the tank is not full (probe 'E1'). The alarm reports the status of full tank and reservoir (both probes are flooded).

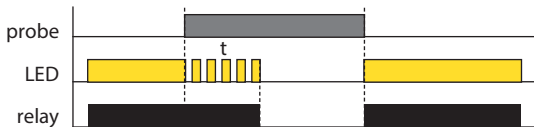
Relay 1 (E1): Pump control 1
Relay 2 (E2): Alarm

5.3 TIME DIAGRAMS

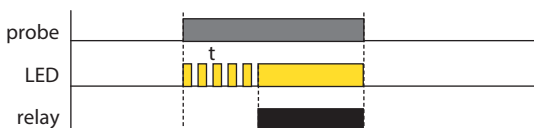
FUNCTION 1, 3, 4 – PUMP UP (FILLING), ON DELAY:



FUNCTION 1, 3, 4 – PUMP UP (FILLING), OFF DELAY:



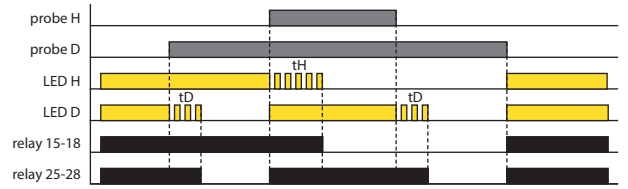
FUNCTION 2, 3, 4 – PUMP DOWN (EMPTYING), ON DELAY:



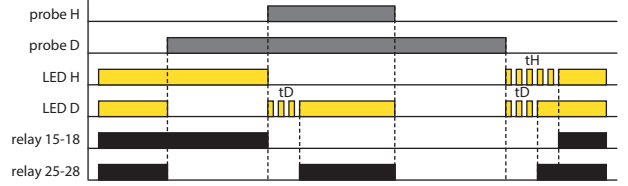
FUNCTION 2, 3, 4 – PUMP DOWN (EMPTYING), OFF DELAY:



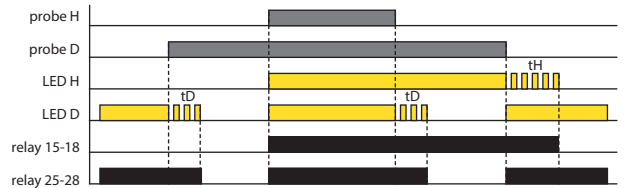
FUNCTION 5 – PUMP UP (FILLING), ON DELAY:



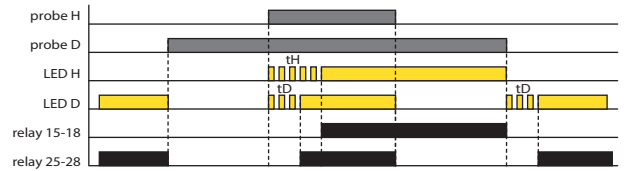
FUNCTION 5 – PUMP UP (FILLING), OFF DELAY:



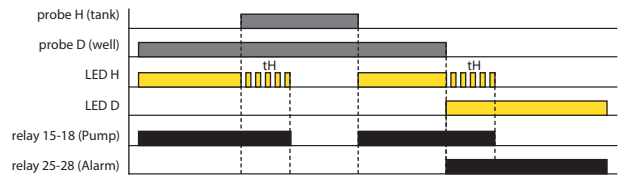
FUNCTION 6 – PUMP DOWN (EMPTYING THE TANK), ON DELAY:



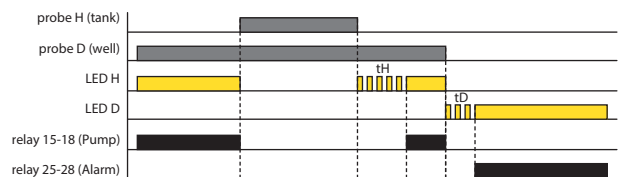
FUNCTION 6 – PUMP DOWN (EMPTYING THE TANK), OFF DELAY:



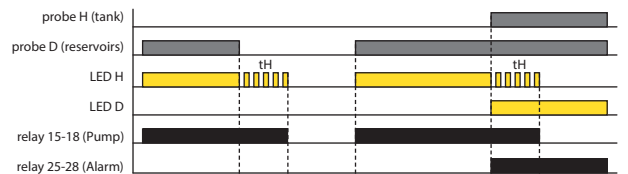
FUNCTION 7 – PUMP FROM WELL TO TANK, ON DELAY:



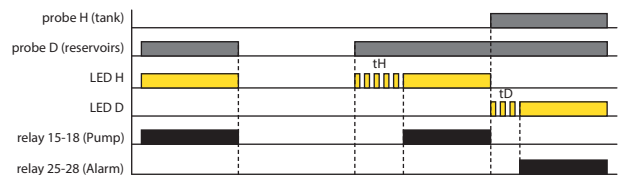
FUNCTION 7 – PUMP FROM WELL TO TANK, OFF DELAY:



FUNCTION 8 – PUMP FROM RESERVOIRS TO TANK, ON DELAY:



FUNCTION 8 – PUMP FROM RESERVOIRS TO TANK, OFF DELAY:



6. MAINTENANCE AND REPAIR

The device does not require regular maintenance. The warranty card contains the terms and conditions. Before returning the device for repairs, it must be cleaned thoroughly. The parts in contact with the medium may contain harmful substances; therefore, they must be decontaminated. Our official form ([Returned Equipment Handling Form](#)) must be filled and enclosed in the parcel. Download it from our website www.nivelco.com. The device must be sent back with a declaration of decontamination. A statement must be provided in the declaration that the decontamination process was successfully completed and that the device is clean from any hazardous substances.

7. STORAGE CONDITIONS

Storage temperature: -30...+70 °C (-22...+158 °F)

Relative humidity: max. 85%.

krk622en1905h

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NIVELCO reserves the right to change technical data without notice.