

## 1. APPLICATION

Based on the conductive measuring principle, the level switch can be applied to conductive liquids with a specific conductivity over  $10^{-5}$  S/cm. For level detection probes are immersed into the tank. The **NIVOCONT KKH-212** incorporates one, while the **KKH-222** incorporates two independent switching units that realize the level detection or automatic level control (filling-emptying). The transparent plastic cover allows the state of the switching unit to be read without disassembling the device.

## 2. TECHNICAL DATA

### 2.1 GENERAL DATA

TYPE	KKH-212-5	KKH-222-5
No. of probes	3	5
Material of wetted parts		
Process connection	PP	
Probe	1.4571	
Separator	PP	
Probe voltage	max. 3.5 V AC	
Probe current	< 0,1 mA AC	
Sensitivity	Adjustable: 5 kΩ...100 kΩ	
Response	max. 400 ms	
Setting accuracy	±5%	
Delay	Adjustable: 0,5...10 s	
t <sub>1</sub> (not adjustable) delay	1.5 s	
Relay output	1 x SPDT	2 x SPDT
Switching voltage	250 V AC1, 24 V DC	
Switching current	8 A AC1, 8 A DC	
Switching power	2000 VA AC1, 240 W DC	
Mechanical life-span	1 x 10 <sup>7</sup> switches	
Electrical life-span	1 x 10 <sup>5</sup> switches	
Power supply U <sub>n</sub>	24...240 V AC/DC (AC 50...60 Hz)	
Voltage range allowed	Nominal voltage: -15...+10 %	
Power consumption	max. 2 VA	max. 4 VA
Ambient temperature	-20...+50 °C (-4...+122 °F)	
Process temperature	-20...+80 °C (-4...+176 °F)	
Process pressure	1 bar (14.5 to psi)	
Electrical connection	Cable gland: 2× M20x1.5 Ø6...12 mm (Ø0.236...0.47") cable; terminal: max. 2.5 mm <sup>2</sup> (AWG14)	
Electrical protection	Class II.	
Overvoltage category *	II.	
Pollution degree	2	
Process connection	1½" BSP	
Ingress protection	IP67	
Mass	660 g (1.45 lbs) (without probes)	800 g (1.76 lbs) (without probes)

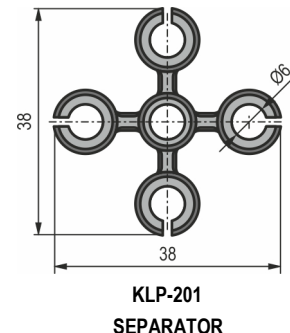
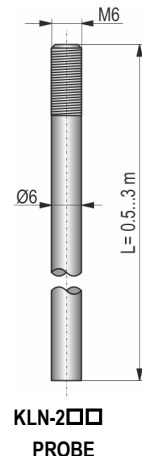
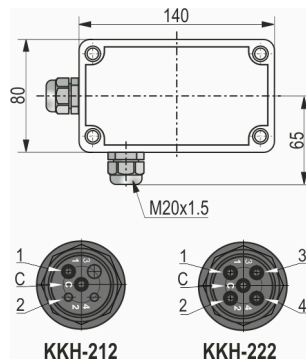
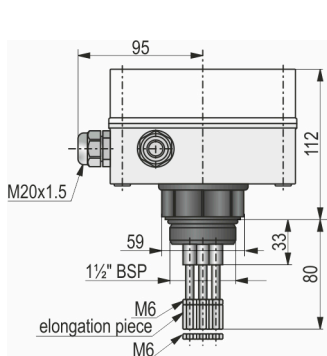
\* EN 61010 – 1 tested with 3KV

### 2.3 ORDER CODE

NIVOCONT KKH - 2 <input type="checkbox"/> 2 - <input type="checkbox"/>				NIVOCONT KLN - 2 <input type="checkbox"/> <input type="checkbox"/>			
FUNCTION	CODE	POWER SUPPLY	CODE	CODE	LENGTH	CODE	
1 channel	1	24...240 V AC/DC	5	0	0 m	0 m	0
2 channel	2			1	1 m	0,5 m	5
				2	2 m		
				3	3 m		

Separator: NIVOCONT KLP-201

### 2.4 DIMENSIONS



# NIVOCONT

KKH-2 ☐ ☐  
COMPACT CONDUCTIVE  
LEVEL SWITCH

USER'S MANUAL



Manufacturer:  
NIVELCO Process Control Co.  
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Tel.: (36-1) 889-0100 Fax: (36-1) 889-0200  
E-mail: sales@nivelco.com www.nivelco.com



### 2.2 ACCESSORIES

- User's Manual
- EU declaration of conformity
- Certificate of Warranty
- 1× O ring (EPDM)
- 1× 1½" nut
- **KKH-212**  
3× of threaded elongation piece (joined)  
6× of M6 special nut (3× joined)
- **KKH-222**  
5× of threaded elongation piece (joined)  
10× of M6 special nut (5× joined)

### 3. INSTALLATION

The 1½" BSP process connection on the polypropylene probe head serves for mounting the device in a tank.

#### ATTENTION!

**Don't attempt to tighten the device holding by the plastic housing!**

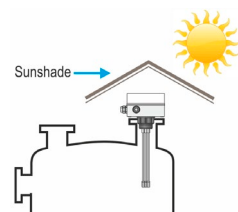
Before mounting the KLN-2□□ probes should be shortened as needed. Each probe should be assembled using 1 elongation piece and 2 special M6 nuts for screw fastening. It is suggested that KLP-201 type PP separators be used at every 0.5 m (1.64 ft) to keep the probes apart.

#### ATTENTION!

**Do not slew the insulated probe parts in the probe head!**

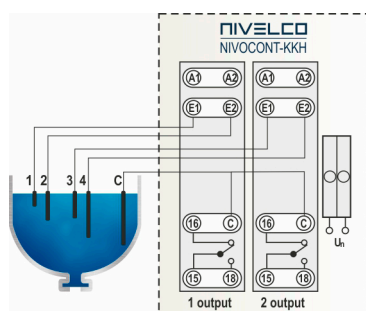
The device must be protected against direct sunlight.

When placing the device take into consideration that in case of agitated liquid medium the bending or twisting forces that affects the probes may damage the unit. In this case the use of a stilling well is recommended.



### 4. WIRING

Wiring can be done after removing the wiring pane. Only U<sub>n</sub> (power supply) and relay output 1 & 2 terminals should be used for wiring. In the case of KKH-212 the power supply must be connected directly to the A1-A2 terminals. The figure below shows the connection terminals of the device.



The 'C' reference probe must be the longest!

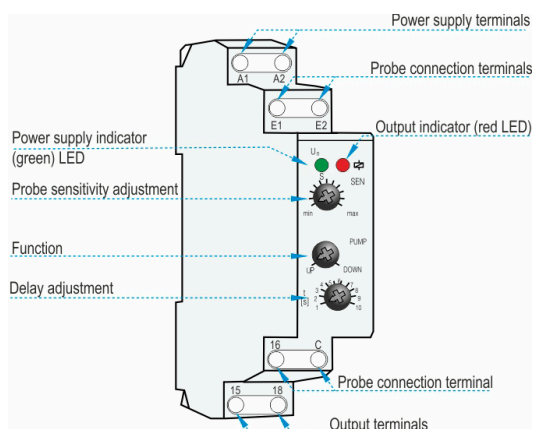
### 5. SET UP, ADJUSTMENT

Operating mode and delay time can be set with the rotary selector switch and potentiometer on the front panel.

To set sensitivity using SENS potentiometer do the following: submerge all probes into the liquid. Set a minimal delay time (t). Adjust the sensitivity from min. to max. value until the relay becomes energized. Now set the sensitivity a little higher.

#### ATTENTION!

**Don't set much higher sensitivity than needed!**

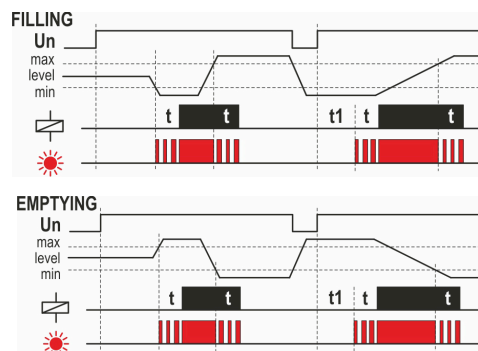


#### LED INDICATION

- |                  |  |
|------------------|--|
| Green LED is on  | – power supply is on                           |
| Red LED is on    | – relay is switched on (15 and 18 are closed)  |
| Red LED blinking | – delay indication                             |
| Red LED is off   | – relay is disconnected (15 and 16 are closed) |

**SINGLE-LEVEL MONITORING.** In this case, the probe pairs (1-2 and 3-4) should be cut to the same length. For the High Fail-safe alarm indication, the 'PUMP' switch should be in UP position, and for the Low-level alarm indication in DOWN position. Level alarm conditions are indicated in the same way (by de-energized relay state) as when a power cut-off occurs.

**LEVEL CONTROL.** During filling control, the 'PUMP' switch of the used relay unit should be in UP position, and during emptying control in DOWN position. That way in case a power supply outage occurs (de-energized relay) overfilling or unwanted emptying is prevented.



### 6. MAINTENANCE, 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](http://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

Ambient temperature: –30...70 °C (–22...158 °C)

Relative humidity: max. 85%

### 8. WARRANTY

All NIVELCO products are warranted free of defects in material or workmanship for a period of two years from the date of purchase, as indicated in the Certificate of Warranty.

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August 2019.

Information is accurate to the best of NIVELCO's knowledge.  
We reserve the right to change specifications at any time.