Continuous Level Sensor

74-03

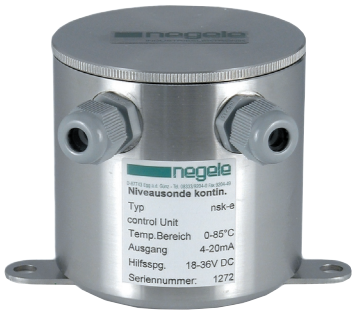
Application
- Continuous level monitoring in metallic vessels up to 2,5 m
- Suitable for level measurement of pastes and adhesive media
- Two-rod version for plastic vessels available
- Conductivity 1 µS/cm min (e. g. destilled water)

Application Examples
- Coninuous level monitoring in small vessels down to 200 mm
- Level control in first running vessels of dosing plants to ensure a constant pressure

Hygienic Design / Process Connection
- By using Negeles weld-in sleeve **EMZ-352** or **EMZ-132** respectively will result a hygienic measurement point, easy to sterilize and with a minimum of flow resistance (3-A certificate, EHEDG permit)
- CIP-/ SIP-cleaning up to 150 °C
- FDA conformable sensor materials
- Sensor completely made of stainless steel, isolator made of PEEK
- Available process connections:
  TriClamp, dairy flange, DRD, Varivent, APV-Inline, BioControl

Features
- Potentiometric measurement principle
- Integrated evaluation circuit with 4...20 mA output signal
- Defined empty signal

Options / Accessories
- isolation of rods in PFA if the sensor is installed from the top
- Installation from the bottom side



Electronic

rod length in mm	200...500	501...2500
rod in mm	Ø 6	Ø 10
thread connection	G1/2" G1"	G1"
double rod version	G1" Ø6/Ø4	G1" Ø6/Ø4

Conditions for a measuring point according to 3-A-Standard 74-03:
- The sensors NSK-187.1A, -387.1A, -387.2A, -388A are approved according to the 3-A-Standard.
- Only with the build-in system CLEANadapt (EMZ, EMK, Adapter AMC, AMV, AMA und AMB) allowed.
- The welding seam by using of EMZ and EMK has to correspond with 3-A-Standard 74-03, D6.1.4: “The minimum radii for fillets of welds in product contact surfaces shall be not less than 1/4" in. (6.35 mm) except that the minimum radii for such welds may be 1/8" in. (3.18 mm) when the thickness of one or both parts joined is less than 3/16" in. (4.76 mm).
- Self draining has to be warranted by the build-in position.
- The process connection needs a self-draining leakage hole.

Specification

Process connection	thread	G1/2" or G1" resp. at the sensor
	torque G1/2"	10 Nm max
	torque G1"	20 Nm max
Materials	head / thread connection	stainless steel V2A, (1.4305) 55 mm dia. / WW 36 mm
	isolator	PEEK
	rods	stainless steel (1.4404) 6 or 10 mm dia.
Operation pressure		10 bar max
Temperature ranges	ambient	0...70 °C
	process	-10...100 °C
	CIP-/ SIP-cleaning	up to 150 °C max 30 min

Accuracy		≤ 1,0 %
Linearity		≤ 1,0 %
Electr. connection	2x cable entry	PG (M16 x 1,5) 2pin 1,5 mm²
	cable connection	M12 plug-in for power supply
	supply voltage	18...36 V DC
Sensor connection	cable LIYY (oil resist.)	5 x 0,75 mm²
	length max	1,5 m (or shorter)
Output	analog	4...20 mA, burden resist. 500 Ω max
Empty signal	output	2,4 mA
Type of protection		IP69 K

Order Code

Type	Model	Rod length	Installation position/ Isolation	Electrical connection
NSK-187 NSK-387.1 NSK-387.2 NSK-388	single rod G1/2" with ≤ 1,5 m cable and electronic single rod G1" with ≤ 1,5 m cable and electronic double rod G1" with ≤ 1,5 m cable and electronic single rod G1", Ø 10 mm with ≤ 1,5 m cable and electronic	100... 500 mm 100... 500 mm 200... 800 mm 501... 2500 mm	O top / without OI top / with isolation U bottom / without isolation	PG M12 (power supply only)

Order example: **NSK-187 / 200 / OI / PG**

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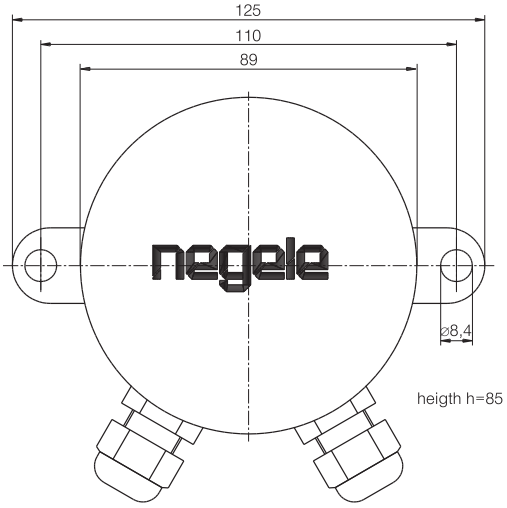
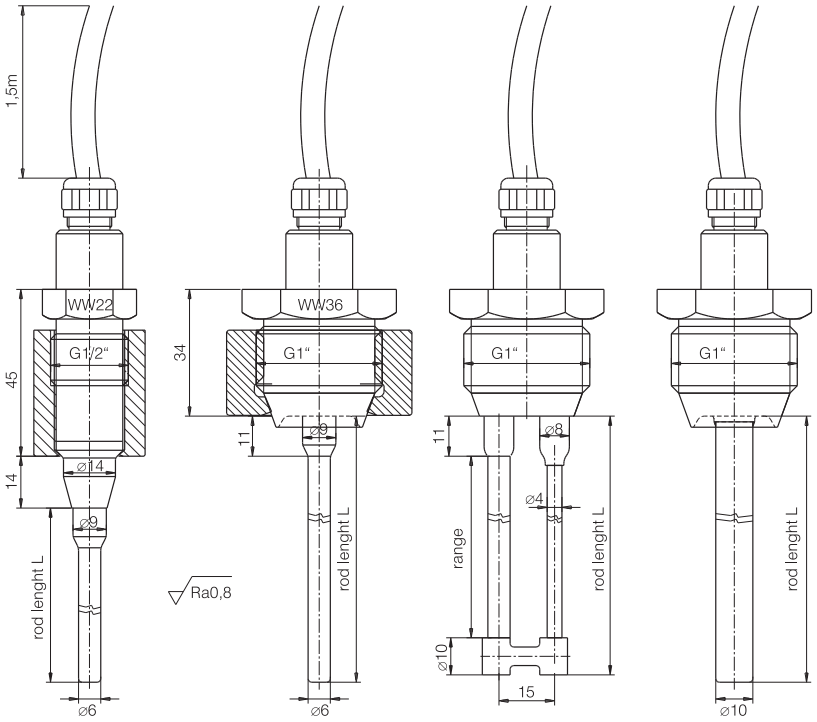
Product Information NSK-187, -387, -388

Dimensioned Drawings NSK-...



Electronic



NSK-187/... **NSK-387.1/...** **NSK-387.2/...** **NSK-388/...**

Mechanical Connection / Installation

- **Attention!** Don't shorten the sensor rod!
- Use only Negele weld-in systems to ensure a save function of the measurement point!
- It's not possible to exchange different electronics and sensor rods, just in some cases!
- If a single rod version, **NSK-187, -387.1/...** and **-388/...**, is used, the sensor rod should be nearly parallel to the vessel wall. If this is not possible you can use the Negele indicator, **PEM-DD**, for a linearisation!

Electrical Connection / First Time Operation

Attention: To guarantee a trouble-free function the power supply cable as well as the signal cable should be shielded and grounded at the electrical control box!

Sensor Calibration

A calibration is neccessary in this cases:

- the sensor rod is changed
- a sensor rod with another length is built in
- the sensor cable has been shorten

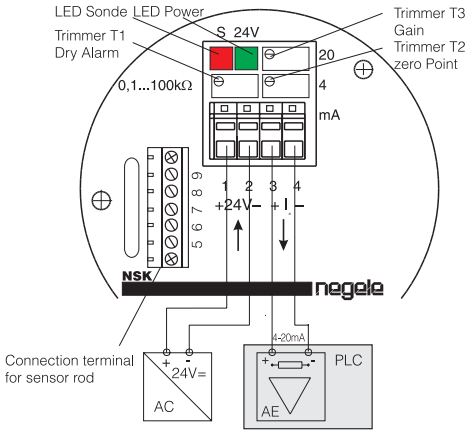
To do the calibration, follow the instructions below:

- connect power supply as shown in the drawing
- connect current meter to the output
- fill the vessel and control the levels
  e. g. 50 % level = 12 mA, 100 % level = 20 mA.
- use trimmer T2 and T3 to set the current output if needed:
  0 % = 4 mA, 100 % = 20 mA. The current output of 0 % and 100 % can be adjusted separately.

Adjustment of dry alarm

- fill the vessel up to the lowest point of the sensor rod
- turn the trimmer T1 (dry alarm) until the red LED called "Sonde" will be flashing shortly (take a look on the table "nsk-sensitivity" status 3).

Connection Diagramm NSK-e view from top, (lid open)



Connection of sensor rod

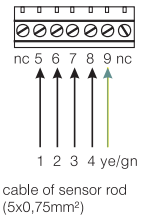


Table NSK-sensitivity

status LED S	4-20mA	0,1...100kΩ
1.	2,4mA	
2.	4-20mA	
3.	4-20mA	o.k.
4.	4-20mA	

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