



Continuous Level Sensor

Application

- continuous level monitoring in metallic vessels up to 2,5m, longer rods on request
- suitable for level measurement of pastes and adhesive media
- two-rod version for plastic vessels available
- conductivity 1µS/cm min (e.g. distilled water)
- for media with homogenous conductivity

Application Examples

- continuous level monitoring in small vessels down to 100mm
- level control in first running vessels of dosing plants
- suitable for measuring the level in small vessels with overpressure

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
- CIP-cleaning up to 100°C
- with high temperature version CIP-/ SIP-cleaning up to 150°C / max. 30min
- all sensor materials with FDA approval
- available process conn.: TriClamp, dairy flange, DRD, Varivent, BioControl
- sensor is completely made of stainless steel

Features

- no calibration when changing the medium because of **potentiometric measurement principle**
- defined PG-position
- defined empty signal
- galvanic separation between power supply and output

Options / Accessories

- high temperature version up to 150°C (with neck tube)
- isolation of rods if the sensor is installed from the top (necessary for splashing, very adhesive media or media causing a film on the rod)
- installation from the bottom side
- electrical connection by M12 plug-in / cable for plug-in ex factory



Attention: Use only Negele weld-in systems to ensure a save function of the measurement point!
We advice absolutely isolated rods (**option OI**) for very adhesive media, media causing a film on the rod (e.g. base) or in CIP-plants.

Order Code

- NSK-157.1** Process connection G1/2" hygienic, only single rod, length 500mm max, up to 200mm Ø 3mm, other length Ø 6mm
NSK-357.1 Process connection G1" hygienic, single rod sensor, length 500mm max, up to 200mm Ø 3mm, other length Ø 6mm
NSK-357.2 Process connection G1" hygienic, double rod sensor, length 1500mm max, sensor rod Ø 6mm, ground rod Ø 4mm
NSK-358 Process connection G1" hygienic, single rod sensor, length > 500mm, Ø 6mm

Rod Length

Please select rod length in steps of 10mm, e.g.: 230, 240, 250 etc. length 3000mm max.

- 100...3000 (material 1.4404)
 100...3000-HAST (material Hastelloy C)
 Sonderlänge

Installation Position and Isolation

- OI (from top, PFA-isolated)
 U (from bottom, without isolation)
 O (from top, without isolation)

ATTENTION: in plants with CIP-cleaning take always the option "OI"!

High Temperature Version

- X (without)
 H (with spacer, 150°C short-time)

Electrical Connection

- X (cable entry M16x1,5)
 M12 (M12-plug V2A)

Example:

NSK-357.2 / 550-HAST / OI / H / M12



Mechanical Connection / Installation:

- **Attention!** Don't shorten the sensor rod!
- To guarantee a sure function of the sensor, the G1" thread must have a good electrical contact to the vessel wall! Because of this, **don't use any sealing materials like Teflon** or others!
- If a single rod version, **NSK-157, -357.1/...** and **-358/...**, 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!
- The sensor rod mustn't have any electrical contact to the vessel wall! Please also attend that the rod may swing if there are turbulences in the vessel!

Recommended Configuration for CIP (see the drawing beside)

for full detection: **NWM-141**
 for empty detection: **NWM-141**
 Spray ball monitoring: **NSK**: 20mA constant resp. oscillating output.
Level measurement during CIP is only possible with option O1 (with isolation)!

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

The sensor is delivered exactly calibrated. Normally no more adjustments are necessary.
 If an other calibration is needed, please follow the instructions below.

Zero Adjustment

- Connect power supply as shown in the drawing
- Connect current meter to the output
- Fill the vessel up to the lowest point of the sensor rod
- Set current output to 4mA by using poti T2

Span Adjustment

- Connect power supply as shown in the drawing
 - Connect current meter to the output
 - Fill the vessel up to the maximum level
 - Use span poti T3 to set the current output to 20mA
- Please notice the maximum turn down rate is 70% of the rod length!
 (e.g. Rod length 1000mm: max. turndown to 700mm)

Sensitivity Adjustment

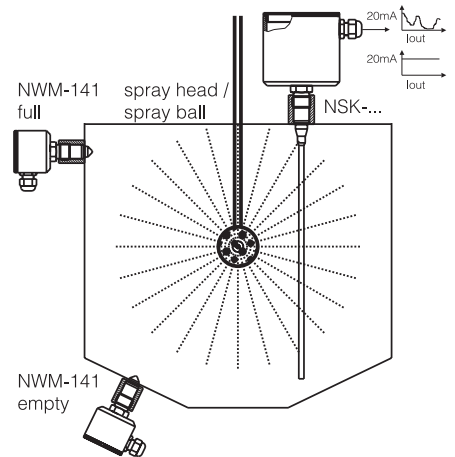
Normally no calibration is necessary.
 If another calibration is needed, use the media with the lowest conductivity to set the sensitivity!

- Connect power supply as shown in the drawing
- Fill the vessel up to the lowest point of the sensor rod
- Take notice of the red LED called "Sonde"(take a look on the table "nsk-sensitivity")
 - if the LED is switched off, turn poti T1 rightwards until the LED is flashing (status 2)
 - if the LED is always shining, turn poti T1 leftwards until the LED is flashing I (status 4)
 - if the LED is flashing, check the pulse-pause ratio: best like status 3 in the table below

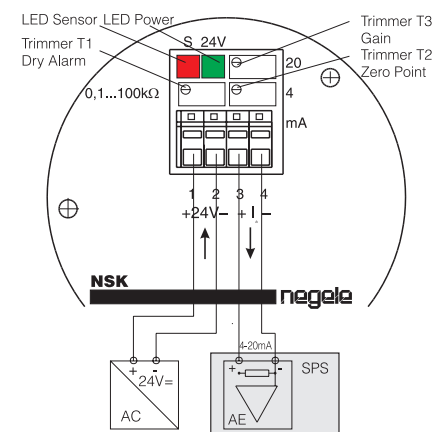
Table NSK-sensitivity

State	LED sensor	4-20mA	0,1...100kΩ
1.		2,4mA	
2.		4-20mA	
3.		4-20mA	
4.		4-20mA	

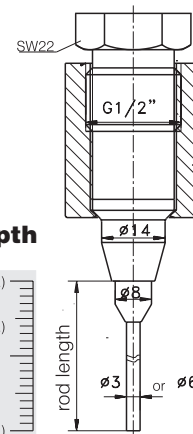
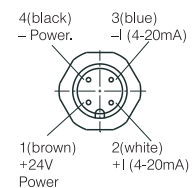
Configuration for CIP



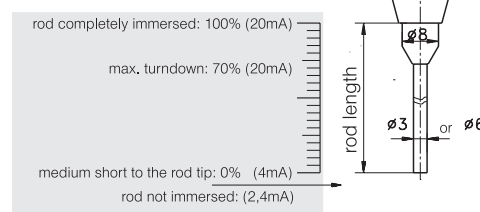
Connecting Diagram NSK-... (drawing shows top-view)



with M12 Plug-in



Description Immersion Depth



Overview of Deliverable Process Connections (Basic device and adapters order separately!)

G1/2" Adapter for: NSK-157									
	Process Connection	Negele weld-in sleeve	Weld-in sleeve (for thick vessel walls)	TriClamp	Diary flange (DIN 11851)	Varivent	DRD (press ring optional deliverable)	APV-Inline	BioControl
Size:									
DN25				AMC-132/1"-1,5"	AMK-132/25		-		AMB-25/1/2"
DN40				AMC-132/1"-1,5"	AMK-132/40		-		-
DN50	EMZ-132	EMK-132		AMC-132/2"	AMK-132/50	AMV-132 Typ 40/50	AMK-132/50	AMA-132	AMB-50/1/2"
DN65	(only one size)	(only one size)		AMC-132/3"	AMK-132/65	(only one size deliverable)	-	(only one size necessary)	AMB-65/1/2"
DN80				AMC-132/80	AMK-132/80		-		-
DN100				AMC-132/4"	AMK-132/100		-		-
Order example:	DRD-Adapter:			AMK-132 / 50					

G1" Adapter for: NSK-358 NSK-357.1 NSK-357.2									
	Process Connection	Negele weld-in sleeve	Adapter G1 1/2" to G1"	TriClamp	Diary flange (DIN 11851)	Varivent	DRD (press ring optional deliverable)	APV-Inline	BioControl
Size:									
DN25				AMC-352/1"-1,5"	-		-		-
DN40				AMC-352/1"-1,5"	AMK-352/40		-		-
DN50	EMZ-352	AMG-352		AMC-352/2"	AMK-352/50	AMV-352 type 40/50	AMK-352/50	AMA-352	AMB-50/1"
DN65	(only one size)	(only one size)		AMC-352/3"	AMK-352/65	(only one size deliverable)	-	(only one size necessary)	AMB-65/1"
DN80				AMC-352/80	AMK-352/80		-		-
DN100				AMC-352/4"	AMK-352/100		-		-
Order example:	DRD-Adapter:			AMK-352 / 50					