

Potentiometric Level Switch

Range of Applications

- especially for level control of pastes and very adhesive media
- level monitoring in metallic pipes and vessels
- product monitoring in pipes
- minimum conductivity 1µS/cm (e.g. dest. water)

Application Examples

- pump protection / dry run protection of mono pumps
- full / empty detection in metallic pipes and vessels
- level detection in cream cheese production

Hygienic Design

- by using Negele weld-in sleeves EMZ-132 or the build-in system EHG-.../ 1/2" an optimized hygienic and easy cleanable measurement point will be achieved (3A-certificate, EHEDG-registration)
- CIP cleanable up to 100°C
- high temperature version CIP-/ SIP cleanable up to 150°C / 30min max.
- FDA conformable sensor materials
- sensor completely made of stainless steel (protection type IP69K)
- available process connections:
TriClamp, diary flange, DRD, APV, Varivent, BioControl

Features

- potentiometric measurement principle
- defined PG-position
- integrated evaluation circuit with 4-20mA output signal
- defined empty signal

Options / Accessories

- high temperature version up to 150°C (with neck tube)
- evaluation electronics vgw-e
- electrical connection with M12 plug-in
- readymade cable for M12 plug-in

Attention: Use only Negele weld-in systems to ensure a save function of the measurement point!

Specification

Process connection	thread	G1/2"
	torque	10Nm max.
Materials	head /	stainless steel V2A,
	thread connection	(1.4305) Ø55mm /
		WW 36mm
	isolator	PEEK
	rods	stainl. steel (1.4404)
		Ø 3mm or 6mm
Temperature ranges	ambient	0...50°C
	process	-10...100°C
	high temp. version	-10...150°C
		30min max.

Electr. connection	2x cable entry	PG (M16x1,5)
		2pin. 1,5mm ²
	cable connection	M12 plug-in
	supply voltage	SS V2A, (1.4305)
		18...36V DC
Output	analog	4-20mA, burden
		resist. 500Ω max.
Empty signal	output	2,4mA (conductivity
		> 1µS/cm)
Type of protection		IP69K
Operation pressure		10bar max.

Order Code

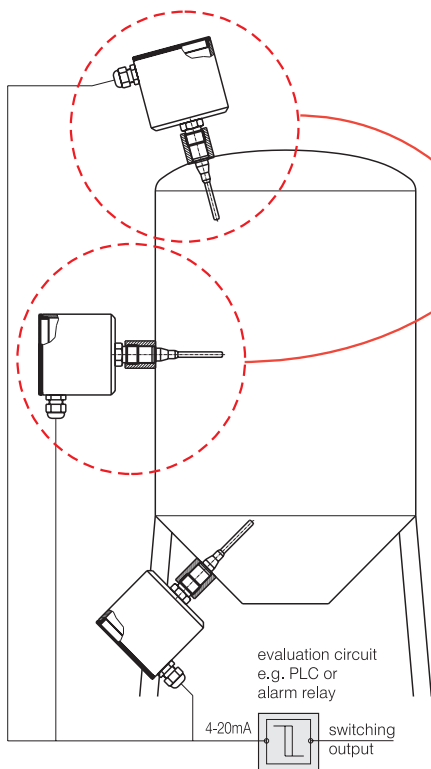
Type	Process connection	Probe length [mm]*	High temperature version up to 150°C	Electr. connection	
NSS-157	G1/2"	30	for DN 50	x standard h high temperature (with neck tube)	PG M12
		45	for DN 65		
		60	for DN 80		
		80	for DN 100		
		100	for DN 125		
		130	for DN 150		
		200	for vessels		
Order example:		NSS-157 / 40 / h / M12			



Installation Examples

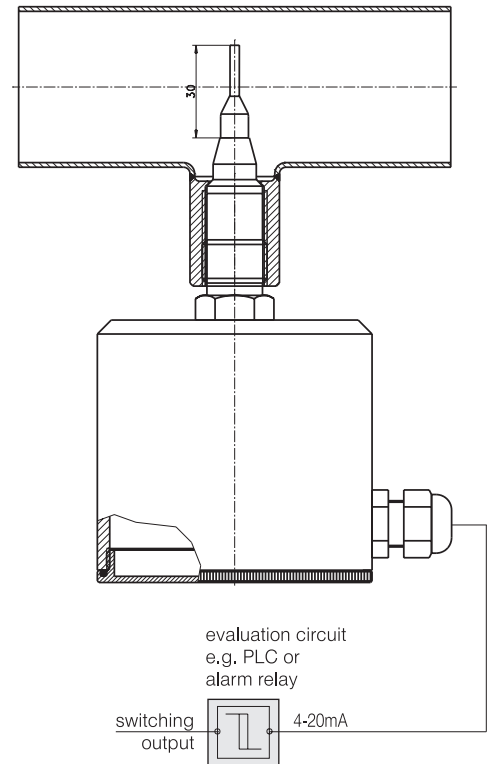
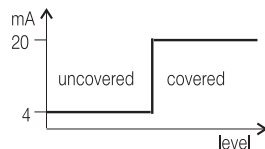
level control in vessels
e.g. full- / empty monitoring

installation in pipes
e.g. dry run protection



Attention:
If the level probe will be installed into the top of a vessel or horizontally the current output is like the diagram shows:

- probe uncovered: 4mA
- probe covered: 20mA



Electrical Connection

Important information: To guarantee a trouble-free function the power supply cable as well as the signal cable should be shielded and grounded at the electric control box.

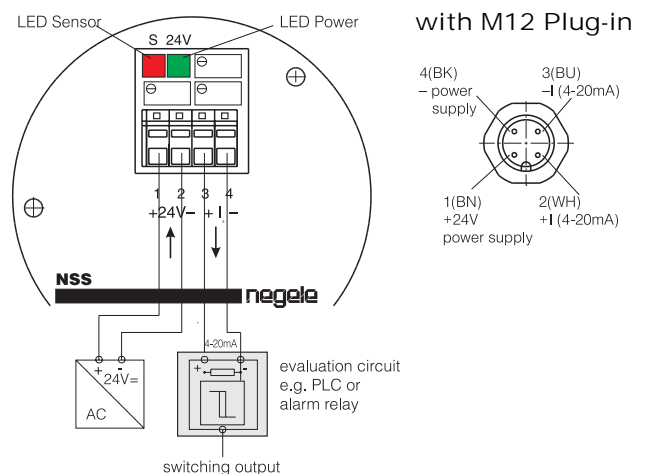
Adjustment Zero and Gain

The device will be shipped exactly calibrated, thus normally there is no calibration necessary.

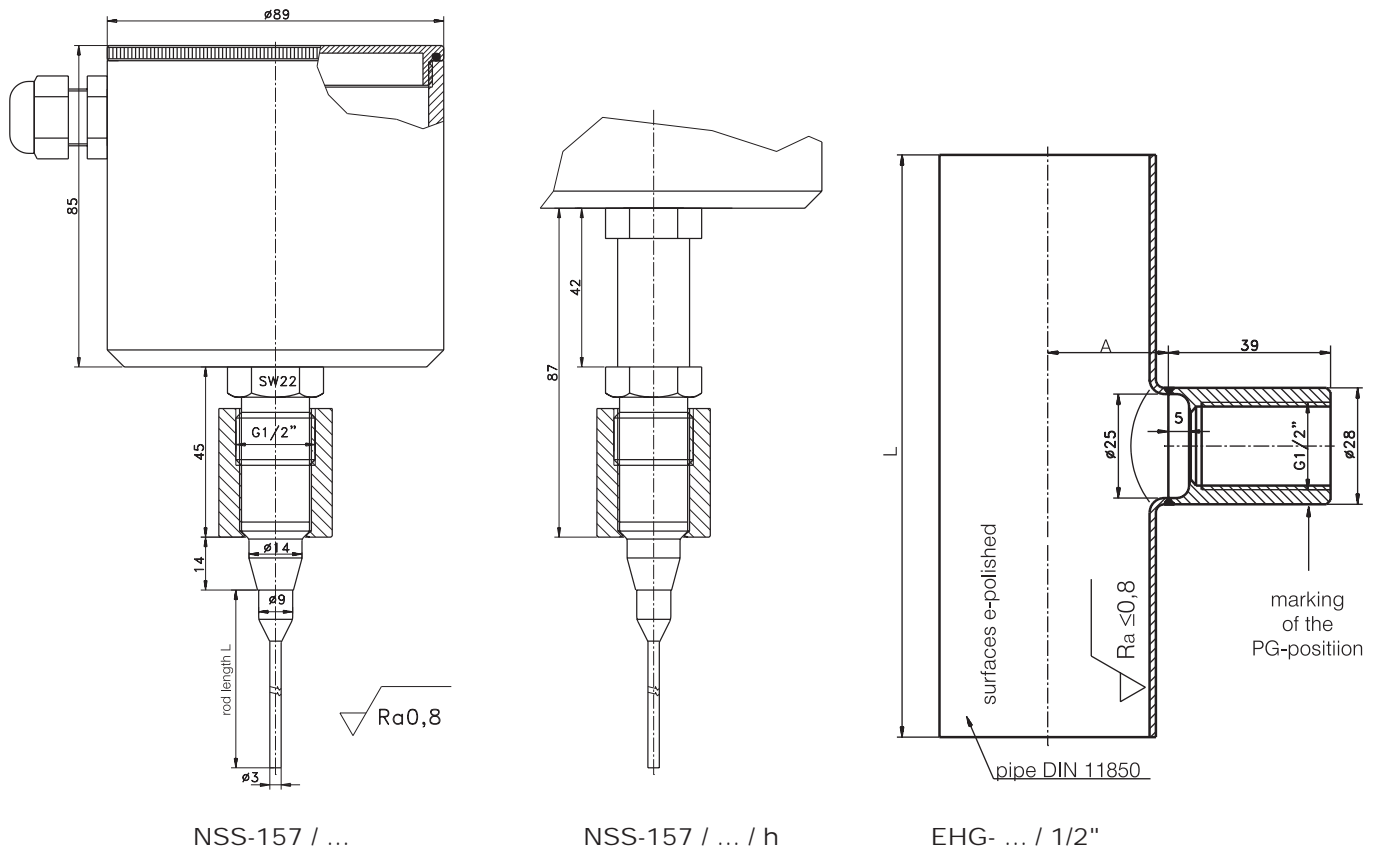
First-time Operation

- Make the electrical connection according to the electrical connecting plan and apply supply voltage.
- Set the alarm point of the evaluation unit as required.
Give attention to the following:
 - a more higher alarm point causes a lower sensitivity to adhesions.
 - when installing the sensor in pipes the setting of the alarm point depends of the filling high that is defined "full".
 - if it is required to monitor the pipe to completely filling high we recommend to set the alarm point between 19mA and 20mA.

Connecting Plan NSS-... (view from above, lid open)



Dimensioned Drawings of NSS-157 and build-in system EHG



NSS-157 / ...

NSS-157 / ... / h

EHG- ... / 1/2"

Mechanical Installation

- **Attention:** Do not shorten the rod of the level probe!
 - To guarantee a trouble-free function of the measurement point give attention to a good electrical contacting of the process connection of the level probe to the pipe or vessel.
- Do not use any isolating sealing materials like Teflon or similar!
- When installing into a pipe the level probe has to be mounted from the bottom side! In this case use the Negele build-in systems type EHG. The length of the rod is optimized for these build-in systems.
 - When installing into a vessel you can do the mounting from all directions. If you will install the level probe from above, give attention to the note of the **Installation Examples** (see above)!
 - The vessel or pipe has to be made of an electrical conducting material like stainless steel.

Dimensions of EHG-... / 1/2"

Type	DN	L[mm]	A[mm]
EHG-40 / 1/2"	40	120	22
EHG-50 / 1/2"	50	140	29
EHG-65 / 1/2"	65	160	38
EHG-80 / 1/2"	80	180	46
EHG-100 / 1/2"	100	200	55

Application Example: level switch NSS-157 mounted in EHG-50 / 1/2" and evaluation electronics vgw-e



evaluation electronics
vgw-e with free adjustable
alarm point



level switch
NSS-157 / 30 / M12
with EHG-50 / 1/2"

Specification vgw-e

input	analog	4-20mA
output	1 relay contact	250V AC / 3A
alarm point	free adjustable	0-100% of rod length
supply voltage	standard	230V AC
	optionally	24V AC, 115V AC 24V DC

order example: vgw-e / 230V AC

Other Process Connections (sensor and adapter must be ordered separate!)

process connection	Negele weld-in sleeve	sleeve with collar (for vessels)	TriClamp	diary flange (DIN 11851)	Varivent-Inline	DRD (press ring optionally deliverable)	APV-Inline	BioControl
Size								
DN50	EMZ-132	EMK-132	AMC-132/2"	AMK-132/50	AMV-132/ 40	AMK-132/50	AMA-132	AMB-50/1/2" and AMB-65/1/2" from DN50 up to DN100
DN65	(only 1 size)	(only 1 size)	AMC-132/3"	AMK-132/65	AMV-132/ 40	(only 1 size)	AMA-132	
DN80			AMC-132/80	AMK-132/80	AMV-132/ 40		AMA-132	
DN100			AMC-132/4"	AMK-132/100	AMV-132/ 40		AMA-132	
Order example:		DRD adapter:		AMK-132 / 50				