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Conductive Foam Sensor



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HYGIENIC BY DESIGN

ANDERSON-NEGELE

Conductive Multilevel Sensor

CLEANadapt

Application/intended use

- Point level measurement in aqueous, conductive media in tanks and pipes with minimum conductivity. The conductivity depends on the evaluation device: 1 µS/cm when using external evaluation units, e.g. VNV series or ZNV-Z, and 10 µS/cm when using the internal level transmitter MNV-1C.

Application examples

- Empty/full indication in tanks
- Level control in tanks
- Overfill protection in dosing systems

Hygienic design/process connection (NVS-345 and NVS-50 only)

- Hygienic and easy-to-sterilize measuring point (EHEDG certification, 3-A certificates)
- Elastomer-free sealing system for gap-free sensor installation without dead space
- CIP/SIP cleaning up to 143 °C/120 min
- Sensor made entirely of stainless steel and PEEK; PFA coating
- Adapters for all standard process connections
- Product-contacting parts are compliant with EU Regulation 10/2011 and FDA (NVS-345 and NVS-50)
- Conformity with 3-A standard (NVS-345 only)

Special features/advantages

- Defined position of the cable entry (NVS-345 only)
- Available with or without an integrated level transmitter MNV-1C
- Choice of different electrical connections
- Electrodes can be shortened and bent as required

Options/accessories

- Version with rope electrodes available (NVS-110.SEIL)

Selection of the right sensor type



Coating:

For foamy, adhesive (e.g. yogurt) and/or wetting media (e.g. alkaline solutions), we suggest using a sensor with a coated electrode. Sensors with an uncoated electrode are recommended for aqueous, non-adhesive and non-wetting media. If rod lengths are greater than 500 mm, the coated version should be used since the electrodes may come into contact with each other and lead to incorrect readings.

Authorizations



NVS-345/...B



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Technical data	
Type	NVS-345
Process connection	Thread G1"; hygienic
Electrodes	
Quantity	2
Length [mm]	200; 500; 850; 1000; 1500; 2000
Diameter	4mm (8mm optional)
Temperature ranges*	
Ambient	-10...+60 °C
Process	0...110 °C
CIP/SIP cleaning	143 °C/120 min.
Process pressure	Max. 10bar
Tightening torque	10...20 Nm
Materials	
Connecting head	Stainless steel (1.4305)
(Threaded) connector	Stainless steel (1.4305)
Electrodes	Stainless steel (1.4404)
Ropes/rope weights	-
Insulator	PEEK
Coating (electrodes)	PFA
Coating (rope)	-
Rope electrodes available	No
Electrical connection	M12 plug connection (1.4305) Cable gland M16 x 1.5
Protection class	IP69 K (with M12 plug connection) IP67 (with cable gland)



Technical data of level transmitter MNV-1C		
Temperature	Operation	-10...+60 °C
	Storage	-20...+60 °C
Humidity	Without condensation	0...95 % r. F.
Supply voltage		15...36 V DC
Electrode E	Voltage	1.5...2VAC/300Hz, no DC signal
Adjustable sensitivity	MNV-1C	0.1; 1; 10; 100 kΩ
Output	Short-circuit-proof	Active 50mA
Delay	Fixed	0.5 s
Switching function	Selectable min./max.	MNV-1C jumper

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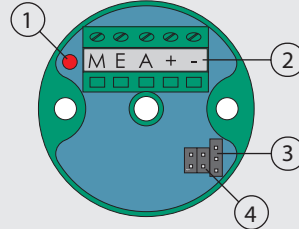
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Explanation of switching states

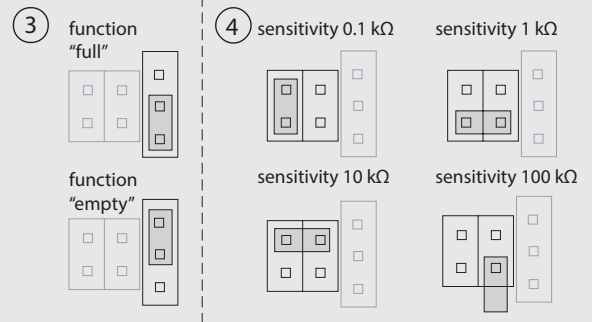
Full indicator: The output is active when immersed
Empty indicator: The output is active when not immersed

Level transmitter MNV-1C

- 1: LED sensor
(lights up when the sensor is immersed in the medium, regardless of the switching function)
- 2: Terminal block
- 3: Empty/full jumper
- 4: Sensitivity jumper



Configuration of level transmitter MNV-1C



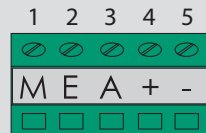
Standard setting on delivery
 3: full
 4: 10 kΩ

Setting up level transmitter MNV-1C

- Connect the supply voltage.
- Set the switching function. See the adjacent configuration description.
- Set the lowest sensitivity. See the adjacent configuration description.
- Wet the sensor with the least conductive medium.
- If the output switches, the selected sensitivity can be retained and the calibration is finished. If the output does not switch, please continue as follows:
- Increase the sensitivity until the output switches. Once this happens, calibration is finished.

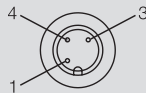
Electrical connection with MNV-1C

Terminal block



- 1: Ground (sensor)
- 2: Electrode (sensor)
- 3: Active output
- 4: Supply voltage
- 5: 15...36 V DC

M12 connector



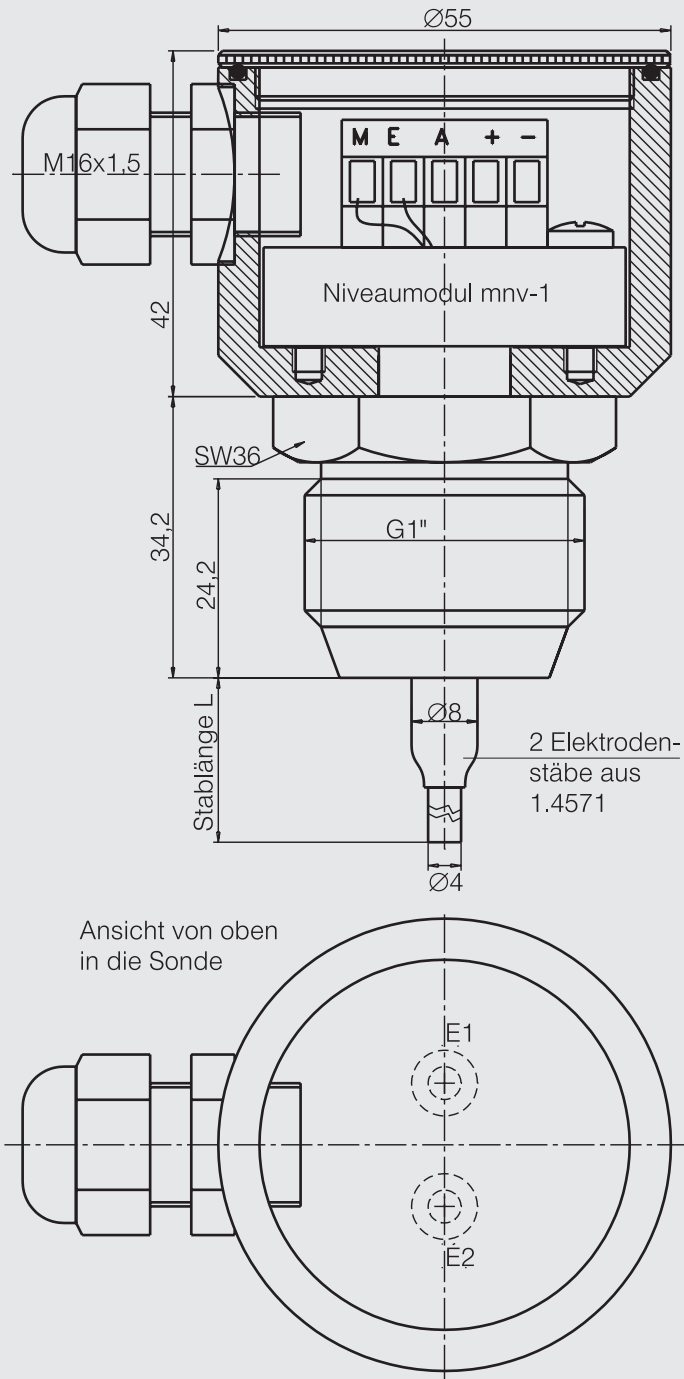
General setup procedure

- If necessary, cut the electrodes to the required lengths. In doing so, ensure that the compound between the rod and the thread connector is not strained excessively. If using coated electrodes, do not damage the insulation of the rod part that remains on the sensor.
- Strip 5 mm of insulation off the tip of insulated rods.
- Screw the sensor into the sleeve and connect as shown in the wiring diagram. Do not damage the coating when inserting the sensor into the sleeve.

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NVS-345.2/M



Requirements for a measuring point compliant with the 3-A Sanitary Standard 74-06



- The sensors of the NVS-345 series conform to the 3-A Sanitary Standard.
- The sensors are designed for CIP/SIP cleaning at a maximum temperature of 143 °C for 120 minutes.
- Only approved in combination with the **CLEANadapt** build-in system (EMZ, EMK, EHG with pipe diameters >DN25, ISO 20 and 1", adapters AMC and AMV).
- When using the EMZ and EMK weld-in sleeves, the weld must comply with the requirements of the current 3-A Sanitary Standard.
- Mounting position: The mounting position, self-draining properties and position of the leakage hole must be in accordance with the current 3-A Sanitary Standard.

Note on material conformity as per European Regulation 1935/2004 or 10/2011



- The plastics used in the NVS-345 and NVS-50 sensors are materials approved by European Regulations 1935/2004 and 10/2011 for contact with food.
- The materials of the NVS-110, NVS-110.SEIL and NVS-120 sensors are not in accordance with the European regulations specified above.

Mounting instructions



- When installing the NVS-345, only use Negele weld-in systems to ensure proper functioning of the measuring point.
- When screwing in the sensors, do not exceed the maximum permissible torque (see the technical data on page 2).
- If the tank wall is being used as the reference electrode (only possible with NVS-345 and NVS-50), ensure that the sensor process connection makes good electrical contact with the pipe and tank wall. Do not use insulating sealants such as Teflon. The tank wall must be made of metal in this case.
- When installing the sensors, ensure that the electrode emerges from the medium when it is drained.
- When tightening and loosening the sensor, only use the wrench flats provided this purpose, never the connecting head.

Cleaning/Maintenance



- When using a pressure washer, do not point the nozzle directly at the electrical connections.

Reshipment



- Sensors and process connection must be clean and must not be contaminated with hazardous media and/or heat-conductive paste. Note the cleaning information!
- To avoid damage of the equipment, use suitable transport packaging only.

Notice on conformity



Applicable guidelines:

- Electromagnetic Compatibility Directive 2004/108/EC
- The CE label confirms compliance of this product with the applicable EC directives.
- You have to guarantee the compliance of all guidelines applicable for the entire equipment.

Transport/Storage



- No outdoor storage
- Store in an area that is dry and dust-free
- Do not expose to corrosive media
- Protect against solar radiation
- Avoid mechanical shock and vibration
- Storage temperature 0...40 °C
- Relative humidity max. 80%

Standards and guidelines



- Compliance with the applicable regulations and directives is mandatory.

Disposal



- This instrument is not subject to the WEEE directive 2002/96/EC and the respective national laws.
- Give the instrument directly to a specialized recycling company and do not use the municipal collecting points.

Order code for standard multilevel sensors

**NVS
-345**

(Head diameter 55mm of stainless steel with CLEANadapt G1" hygienic process connection)
Comes with 1 1/2" or 2" Tri-clamp adapter

Electrode1

200N	(uncoated 200mm, diameter 4 mm)
200N-8	(uncoated 200 mm, diameter 8 mm)
200B	(coated 200 mm, diameter 4 mm)
200B-8	(coated 200 mm, diameter 8 mm)
500N	(uncoated 500 mm, diameter 4 mm)
500N-8	(uncoated 500 mm, diameter 8 mm)
500B	(coated 500 mm, diameter 4 mm)
500B-8	(coated 500 mm, diameter 8 mm)
850N	(uncoated 850 mm, diameter 4 mm)
850N-8	(uncoated 850 mm, diameter 8 mm)
850B	(coated 850 mm, diameter 4 mm)
850B-8	(coated 850 mm, diameter 8 mm)
1000N	(uncoated 1000 mm, diameter 4 mm)
1000N-8	(uncoated 1000 mm, diameter 8 mm)
1000B	(coated 1000 mm, diameter 4 mm)
1000B-8	(coated 1000 mm, diameter 8 mm)
1500N	(uncoated 1500 mm, diameter 4 mm)
1500B	(coated 1500 mm, diameter 4 mm)
2000N	(uncoated 2000 mm, diameter 4 mm)
2000B	(coated 2000 mm, diameter 4 mm)
2500N	(uncoated 2500 mm, diameter 4 mm)
[mm]N	Special length, uncoated
[mm]B	Special length, coated
[m]	(length in m; only for NVS-110.SEIL)

Electrode 2

(selection options: see Electrode 1)

level transmitter

M (integrated in head with 2 electrodes)

Open circuit monitoring

(only possible with external evaluation unit)

X (not required)

Electrical connection

M12 (M12 connector 1.4305)

NVS- 345

200B/

500B /

X /

X /

M12

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Accessories



Instead of the integrated level transmitter, standard multilevel sensors can also be used with external devices for installation on DIN rails, for example. The full selection of external evaluation units, the technical data and the order code can be found in the „Evaluation units for conductive multilevel sensors“ product information. Please call for more information.

Overview of the evaluation units for conductive multilevel sensors for DIN-rail installation



VNV-E



VNV-D



ZNV-Z



VNV-V



VNV-S



VNV-WEV



VNV-WD

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