

Product Information NFP-41**FOOD**

Level Detector with integrated Temperature Sensor NFP-41


Application / Specified Usage

- Level detection and temperature measurement in one device

Application Examples

- Dry running and temperature protection in pipes
- Level detection and temperature measurement in vessels

Hygienic Design / Process Connection


- Hygienic process connection with CLEANadapt
- Versions available with EHEDG approval
- Versions available to conform to 3-A Standard 74-
- All wetted materials are FDA-conform
- Sensor completely made of stainless steel
- Complete overview of process connections: see order code
- The Anderson-Negele CLEANadapt system offers a flow-optimized, hygienic and easily sterilizable installation solution for sensors.

Features

- CIP-/SIP-cleaning up to 143 °C / 289 °F, max. 120 minutes
- Level detection and temperature measurement in one measurement point
- Available with or without integrated electronic

Options / Accessories

- Integrated temperature and level electronic (MPU-4, MNV-1)
- Readymade connecting cable for M12 plug

Communication

4...20 mA
Temperature sensor NFP-41

Specification NFP-41		
Process connection	conforming to 3-A	CLEANadapt G1/2"
Insertion length		29 mm
Material	head protection tube M12 plug insulator	stainless steel 1.4301 / AISI 304 stainless steel 1.4404 / AISI 316L stainless steel 1.4301 / AISI 304 PEEK (FDA approval number 21CFR177.2415)
Sensing resistor	acc. ITS 90	1x Pt100 class A
Protection class		IP 69 K
Temperature range	ambient sensor tip CIP/SIP	-50...80 °C / -58...176 °F -50...150 °C / -58...302 °F up to 143 °C / 289 °F, 120 min
Operating pressure		max. 10 bar / 145 psi
Electrical connection	plug-in connection	M12 plug, 5 pin
Thread size G1/2"	Sealing system PEEK	10 Nm torque max.

Level Module MNV-1		
Temperature	operating storage	-10...80 °C / -14...176 °F -20...90 °C / -4...194 °F
Humidity	without condensate	0...95 %
Supply		15...36 V DC
Sensor measurement		free of DC voltage
Sensitivity	MNV-1	0.1; 1; 10; 100 kΩ selectable
Output	short-circuit-proof	active 50 mA
Delay	fix	0.5 s
Switching logic	MNV-1	via jumpers (full/empty selectable)

Transmitter MPU-4		
Temperature ranges	standard	-10...+40; 0...50 °C / 100 °C / 150 °C
Accuracy		< ±0.25 % (range 0...150 °C)
Temperature drift	zero, span	< 0.01 %/K
Electrical connection	supply	8...35 V DC
Output	analog	4...20 mA
Temperature range	ambient storage	-40...85 °C / -40...185 °F -40...120 °C / -40...248 °F
Humidity	without condensation	0...98 %

Accuracy classes of temperature sensors | Tolerances for Pt100 acc. to DIN EN 60751

Pt100	A	1/3 B	1/10 B
0 °C / 100 Ω	±0.15 K / ±0.06 Ω	±0.10 K / ±0.04 Ω	±0.03 K / ±0.01 Ω
100 °C / 138.5 Ω	±0.35 K / ±0.13 Ω	±0.27 K / ±0.10 Ω	±0.08 K / ±0.03 Ω

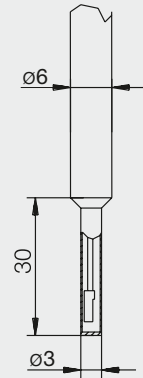
Sensor tip diameter and response time

All temperature sensors are available with smaller sensor tips, to ensure a shorter response time. The mentioned times were measured by immersing a temperature sensor from room temperature into boiling water.

The response times given are typical measured values and may vary due to factors such as process connection, immersion length and medium.

Sensor tip Ø 3 mm

50 %-Zeit: $t_{50} \leq 0.5 \text{ s}$
90 %-time: $t_{90} \leq 1.5 \text{ s}$



Mounting Instruction

- Take attention of the maximal torque when you build in the sensor!
- To guarantee a safe function, take a look on a good electrical connection between process connection of the sensor and the pipe or vessel.
- **Do not use any kind of sealing band like e.g. TEFLON tape!**
- Using the sensor in pipes for dry running protection, take care that the electrode will emerge if the pipe runs out. We propose to install the sensor in vertical pipes.
- Vessel resp. pipe wall must be made of steel!
- Please mounting and demounting the sensor, please use the spanner flat only! Do not use the connecting head!
- **Do not shorten the electrode!**

General Operating Manual

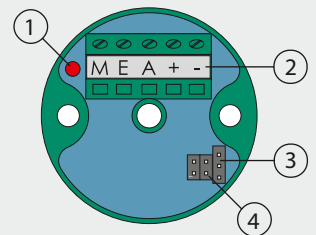
- Mount the sensor into the fitting and perform wiring according to connection figures.

Startup the level module MNV-1

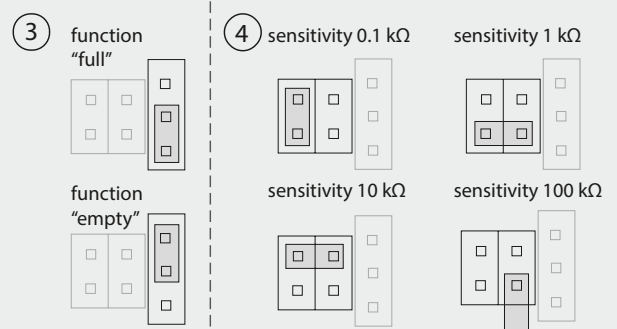
- Connecting to the voltage supply
- Setup the switching logic: see figure
- Select the lowest sensitivity (0.1 k Ω).
- Wetting the electrode with the medium with the lowest conductivity
- If the output is switching, the setup is finished.
- If the output is not switching, increase the sensitivity until the output is switching. Setup is finished.

Level transmitter MNV-1C

- 1: LED sensor (lights up when the sensor is immersed, independent of the switching function)
- 2: Terminal block
- 3: Full/empty jumper
- 4: Sensitivity jumper



Configuration of the MNV-1C level transmitter

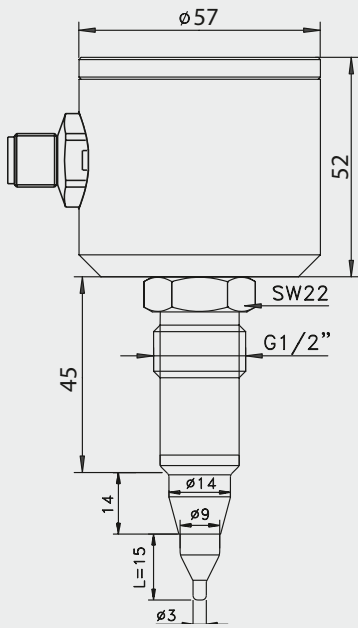


Standard setting on delivery

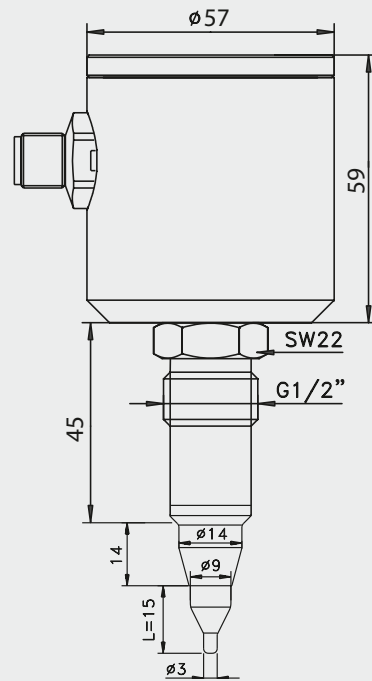
3: full

4: 10 k Ω

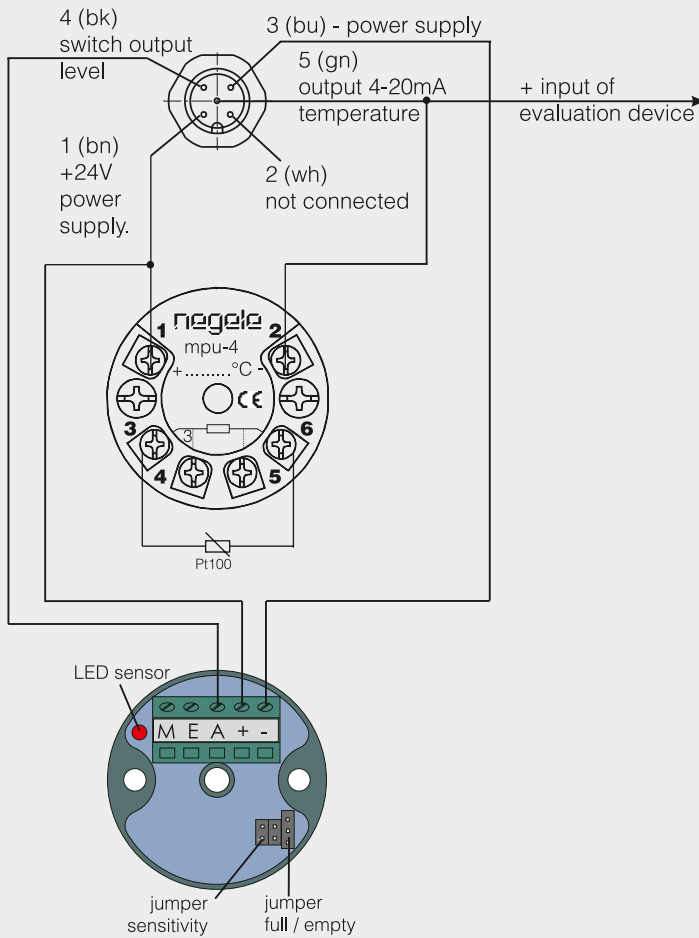
NFP-41



NFP-41 with MNV-1 and MPU-4 integrated

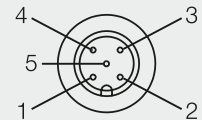


Electrical connection with transmitter for temperature and level

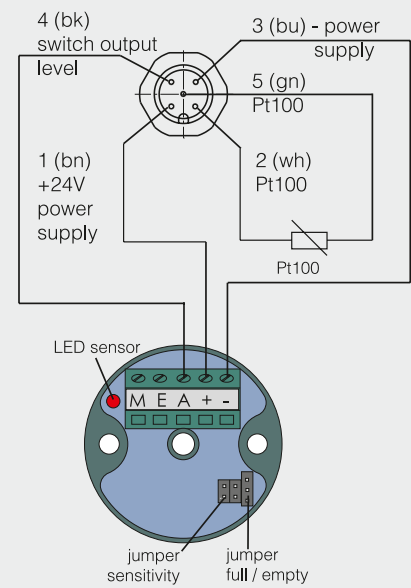







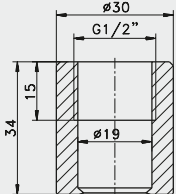
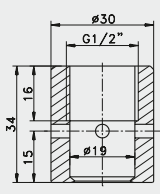
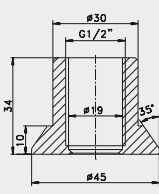
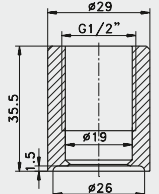
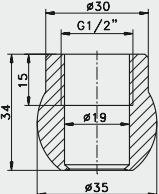
Without level transmitter

- 1: not connected
- 2: Pt100
- 3: GND
- 4: probe
- 5: Pt100



With level transmitter and Pt100



Weld-in sleeves					
CLEANadapt G1/2"					
					
	Cylindrical sleeve	Cylindrical sleeve with leakage hole	Weld-in sleeve with collar	Cylindrical sleeve with weld-in ring	Weld-in ball
	EMZ-132 * (for vessels)	EMZ-131 * (for vessels with leak monitor)	EMK-132 * (for thick-walled vessels)	EMS-132 * (for installation on pulled-out pipes)	KEM-132 * (for sloped installation)






* Deliverable with material 1.4435 / AISI 316L and 3.1 inspection certificate on request.

Adapter to standard process connections						
CLEANadapt G1/2"						
Diameter	Milk pipe (DIN 11851)	Tri-Clamp	Varivent-Inline	Tri-Clamp with tell-tale hole	DRD (press ring optional)	
DN10	-	-	AMV-132/DN10	AMC-131/DN10	AMK-132/DN50	
DN15	-	AMC-132/DN10	AMV-132/DN10	AMC-131/DN10	AMK-132/DN50	
DN20	AMK-132/DN20	AMC-132/DN10	-	AMC-131/DN10	AMK-132/DN50	
DN25	1"	AMK-132/DN25	AMC-132/DN25	AMV-132/DN25	AMC-131/DN25	AMK-132/DN50
DN32		AMK-132/DN32	AMC-132/DN25	AMV-132/DN25	AMC-131/DN25	AMK-132/DN50
DN40	1½"	AMK-132/DN40	AMC-132/DN25	AMV-132/DN40	AMC-131/DN25	AMK-132/DN50
DN50	2"	AMK-132/DN50	AMC-132/DN50	AMV-132/DN40	AMC-131/DN50	AMK-132/DN50
	2½"	AMK-132/DN65	AMC-132/2½"	AMV-132/DN40	AMC-131/2½"	-
DN65		AMK-132/DN65	AMC-132/DN65	AMV-132/DN40	AMC-131/DN65	AMK-132/DN50
	3"	-	AMC-132/DN65	AMV-132/DN40	AMC-131/DN65	-
DN80		AMK-132/DN80	AMC-132/DN80	AMV-132/DN40	AMC-131/DN80	AMK-132/DN50
DN100		AMK-132/DN100	-	AMV-132/DN40	AMC-131/DN100	AMK-132/DN50

Adapter to standard process connections

G1/2"						
Diameter		APV-Inline	SMS	BioControl		
DN20		-	AMK-132/20	-		
DN25	1"	-	AMK-132/25	-		
DN32		-	AMK-132/32	-		
DN40	1½"	AMA-132	AMK-132/40	AMB-50/½" and AMB-65/½" from DN40 up to DN100		
DN50	2"	AMA-132	AMK-132/50			
DN65	2½"	AMA-132	AMK-132/65			
DN80		AMA-132	AMK-132/80			
DN100		AMA-132	AMK-132/100			

Adapter G1/2" to other thread sizes and accessories

G1/2"					
	Adapter	Adapter	Adapter	Adapter	Blind plug
	AMG-1 (CLEANadapt G1" to CLEANadapt G1/2")	AMG-132 (Standard thread G1" to CLEANadapt G1/2")	AMG-132 / 3/4" (Standard thread G3/4" to CLEANadapt G1/2")	AMG-132 / 1¼" (Standard thread G1¼" to CLEANadapt G1/2")	BST-130 (to close a CLEANadapt G1/2" measurement point)

Note on 3-A Sanitary Standard 74-

Information on installation according to 3-A standard is available on our website:
www.anderson-negele.com/3A74.pdf

Click on the PDF icon to download the document.



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Note on EHEDG Hygienic Standard Type EL Class I

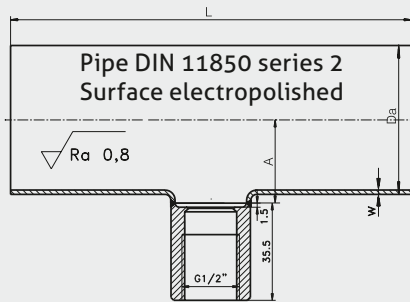
Information on installation according to EHEDG standard is available on our website:
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Dimensions EHG-DIN2-... / 1/2"



EHG-DIN2-... / 1/2"



Dimensions table EHG-DIN2-... / 1/2"

Type	DN	L	A	Da x W
EHG-DIN2-25 / 1/2"	25	100	15	29 x 1.5
EHG-DIN2-40 / 1/2"	40	120	22	41 x 1.5
EHG-DIN2-50 / 1/2"	50	140	29	53 x 1.5
EHG-DIN2-65 / 1/2"	65	160	38	70 x 2.0
EHG-DIN2-80 / 1/2"	80	180	46	85 x 2.0
EHG-DIN2-100 / 1/2"	100	200	55	104 x 2.0
EHG-DIN2-125 / 1/2"	125	375	69,5	129 x 2.0
EHG-DIN2-150 / 1/2"	150	450	82,0	154 x 2.0

Transport / Storage



- No outdoor storage
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration
- Storage temperature -55 °C...90 °C / -67...194 °F
- Relative humidity max. 98 %

Cleaning / Maintenance



- In case of using pressure washers, don't point nozzle directly to electrical connections!

Standards and Guidelines



- You have to comply with applicable regulations and directives.

Disposal



- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

Conventional Usage



- Not suitable for applications in explosive areas.
- Not suitable for applications in security-relevant equipments (SIL).

Reshipment



- Sensors shall be clean and must not be contaminated with dangerous media!
- Use suitable transport packaging only to avoid damage of the equipment!

Note on CE



- Applicable directives: Electromagnetic Compatibility Directive 2014/30/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.

Order Code (Ⓐ: 3-A compliant, Ⓔ: EHEDG approval)

NFP-41 Ⓐ Ⓔ

	Sensor length			
	015	Sensor length in mm		
		Electrical connection		
		M12	M12 plug	
			Transmitter	
			X	Without
			MNV	Integrated level transmitter
			MNV/MPU	Integrated level and temperature transmitter
				Measurement range temperature transmitter
			-10...40	Range -10...40 °C
			0...50	Range 0...50 °C
			0...100	Range 0...100 °C
			0...150	Range 0...150 °C
NFP-41 /	015 /	M12 /	MNV/MPU /	0...150

Accessories

PVC-cable with M12-connection made of 1.4305 / AISI 303, IP 69 K, unshielded

M12-PVC / 5-5 m	PVC-cable 5 pin, length 5 m
M12-PVC / 5-10 m	PVC-cable 5 pin, length 10 m
M12-PVC / 5-25 m	PVC-cable 5 pin, length 25 m

PVC-cable with M12-connection, brass nickel-plated, IP 67, shielded

M12-PVC / 5G-5 m	PVC-cable 5 pin, length 5 m
M12-PVC / 5G-10 m	PVC-cable 5 pin, length 10 m
M12-PVC / 5G-25 m	PVC-cable 5 pin, length 25 m

Programming adapter MPU-P 9701

Programming adapter for MPU-4, MPU-H and MPU-M

PVC-cable with M12-connection



Programming adapter MPU-P 9701

