50059 / 3.5 / 2022-05-03 / MH / EU-NA

Product Information NFP-41 **FOOD**

Level Detector with integrated Temperature Sensor NFP-41

CLEANadapt

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 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 %

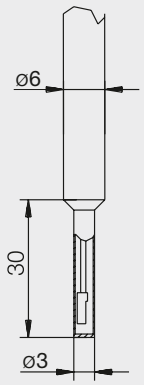
Accuracy classes of temperature sensors | Tolerances for Pt100 acc. to DIN EN 60751			
Pt100	**A**	**1/3 B**	**1/10 B**
0 °C / 100 Ω	±0.15 K / ±0.06 Ω	±0.10 K / ±0.04 Ω	±0.03 K / ±0.01 Ω
100 °C / 138.5 Ω	±0.35 K / ±0.13 Ω	±0.27 K / ±0.10 Ω	±0.08 K / ±0.03 Ω

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

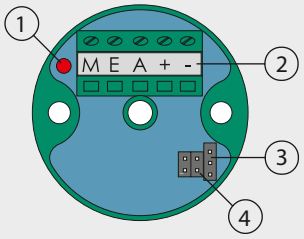
- Mount the sensor into the fitting and perform wiring according to connection figures.

Startup the level module MNV-1

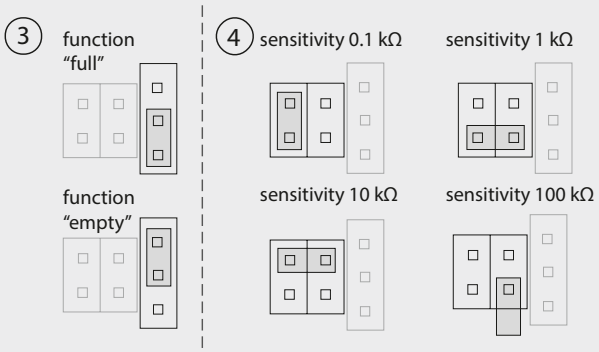
- Connecting to the voltage supply
- Setup the switching logic: see figure
- Select the lowerst sensitivity (0.1 kΩ).
- Wetting the electrode with the medium with the lowerst conductivity
- If the output is switching, the setup is finished.
- If the output is not switching, increase the sensitivity until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

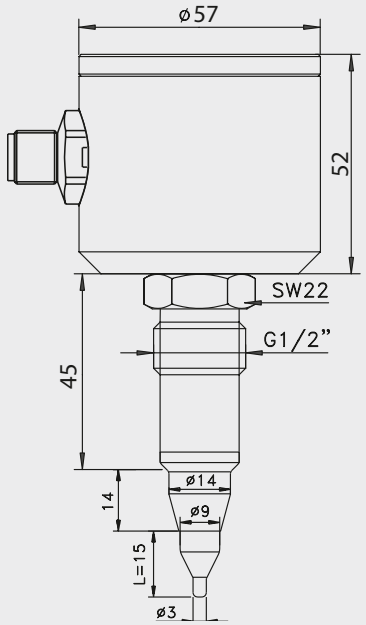


Configuration of the MNV-1C level transmitter

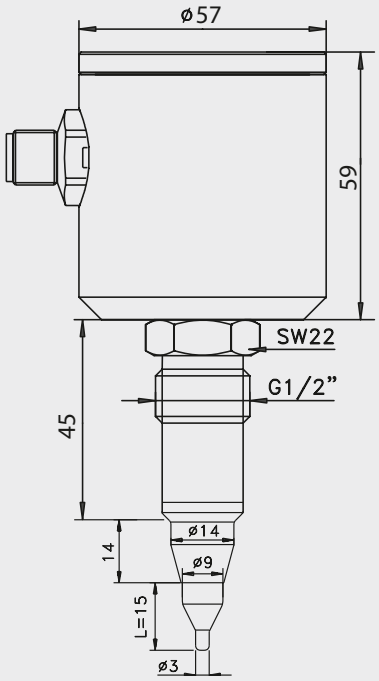


Standard setting on delivery
3: full
4: 10 kΩ

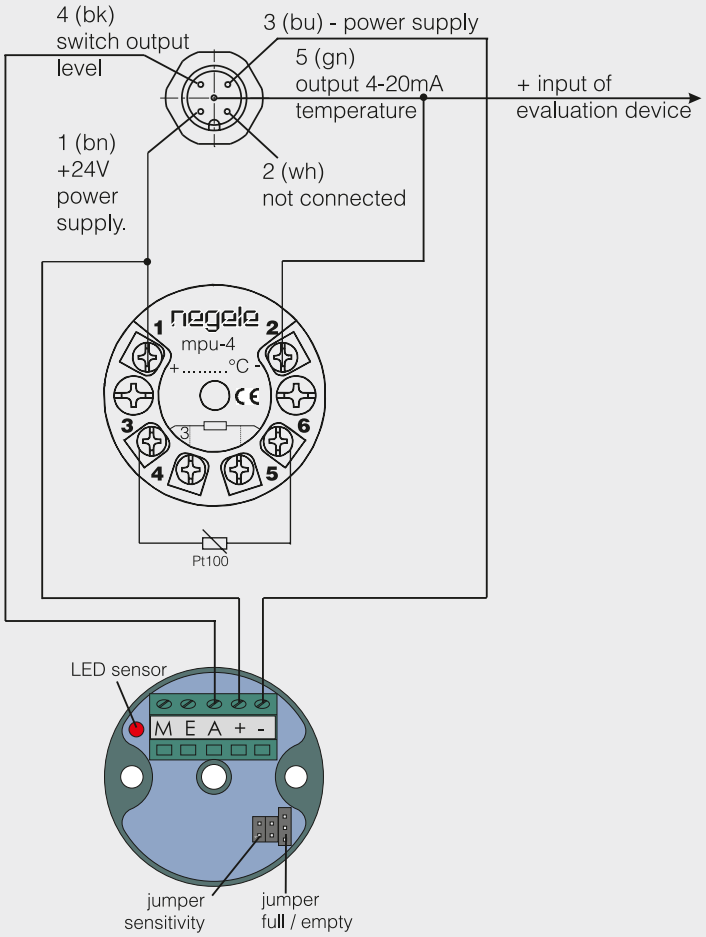
NFP-41



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

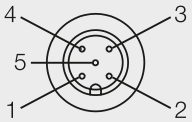


Electrical connection with transmitter for temperature and level

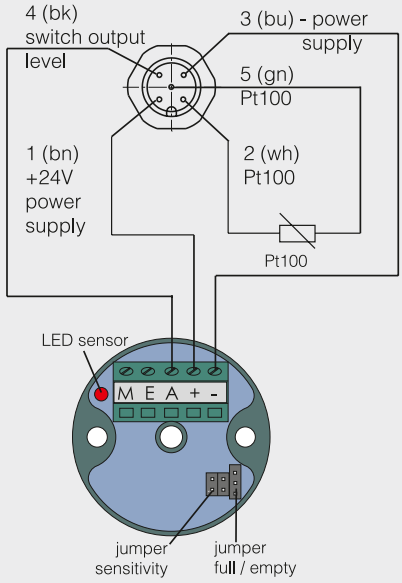


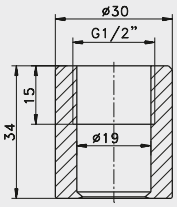
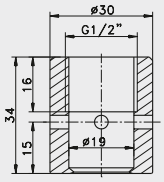
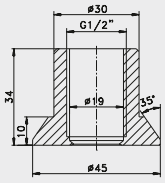
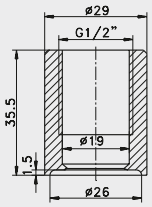
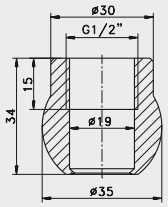
Without level transmitter

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

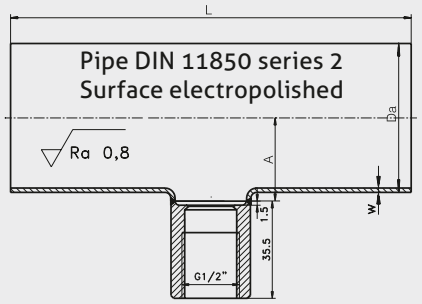
Adapter to standard process connections

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

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, dont't point nozzle directly to electrical connections!

Standards and Guidelines

- You have to comply with applicable regulations and directives.

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.

PDF

Click or Scan

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.

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.

Order Code (Ⓐ: 3-A compliant)

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

ANDERSON INSTRUMENT COMPANY
156 Auriesville Road
Fultonville, NY 12072, USA
Phone 800-833-0081
info@anderson-negele.com
techservice@anderson-negele.com

NEGELE MESSTECHNIK GMBH
Raiffeisenweg 7
87743 Egg an der Guenz, GERMANY
Phone +49 (0) 83 33 . 92 04 - 0
sales@anderson-negele.com
support@anderson-negele.com