Level Detector with integrated Temperature Sensor

Application
- level detection and temperature measurement in one device

Example of use
- dry running and temperature protection in pipes
- level detection and temperature measurement in vessels

Hygienic Design / Process Connection
- hygienic measurement point which is easy to sterilize (EHEDG, 3A-certificates)
- because of elastomer free sealing system, the connec tion will be without gaps and crevices
- CIP-/ SIP-cleaning up to 140°C
- food compatible materials according to FDA
- sensor completely made of stainless steel and PEEK
- adapters available for all current process connections

Features
- 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)
- other insertion length (20...500mm)
- Pt100 chip with other classes of accuracy, e.g. 1/3 DIN B, 1/10 DIN B
- readymade connecting cable for M12 plug-in
- neck tube 50mm for permanent temperature up to 150°C
- fast response sensor tip

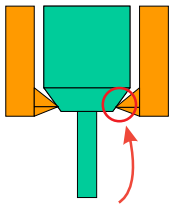
NFP-41

NFP-41 with electronic module


EMZ-132


EMK-132


EHG-1/2"


hygienic elastomerfree sealing system

Order Code

Sensor	Insertion length [mm]	Transmitter	Electrical connection	Ranges mpu-4	Sensor tip diameter	Accuracy class
NFP-41	15 special length ...500	x without	PG only	-10...+40°C 0...50°C 0...100°C 0...150°C	3mm 4mm	A 1/3B 1/10B
		m (temperature and level) mnv-1 (only level)	M12 only			

Order example: NFP-41/ 015 / m / 0...150 / 1/3B

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Specification NFP-41

Process connection	hygienic	Weld-in fitting e.g. EMK-132 or EHG-25 / 1/2"
Insertion length	standard	15mm, max. 500mm
Material	head	stainless steel 303 (1.4305)
	protection tube	316 L (1.4404)
sensing resistor	acc. ITS 90	1xPt100 class A
Protection class		IP69K
Temperature range	ambient	-50...+80°C
	sensor tip	-50...+150°C
Operating pressure		max. 10bar
electr. connection	cable junction	M16x1,5 (PG)
	plug-in	M12-plug 303 (1.4305) 5pins

Level Module mnv-1

Temperature	operating	-10...+80°C
	storage	-20...+90°C
Humidity	without condensate	0...95%
Supply		15...36VDC
Electrode E1	voltage	1,5...2VAC/300Hz no DC signal
Sensitivity selectable	mnv-1	0,1; 1; 10; 100kOhm
Output	short-circuit-proof	active 50mA
Delay	fix	0,5s
Switching logic min/max selectable	mnv-1	via jumpers

Pt100 Transmitter mpu-4

Temperature range	standard	-10...+40, 0...50°C 0...100 / 150 / 200°C
Accuracy		<±0,1% (full scale)
Temperature drift	zero, span	<0,01%/K (full scale)
Electrical connection	supply	8...35VDC
Output	analog	4-20mA
Temperature range	ambient	-40...+85°C
	storage	-40...+120°C
Humidity	without condensate	0...98%

Accuracy Class Pt100

Tolerances of Pt100 acc. DIN ITS 90

Pt100	class B	class A	class 1/3B	class 1/10B
0°C 100Ω	±0,3K ±0,12Ω	±0,15K ±0,06Ω	±0,10K ±0,04Ω	±0,03K ±0,01Ω
100°C 138,5Ω	±0,8K ±0,30Ω	±0,35K ±0,13Ω	±0,27K ±0,10Ω	±0,08K ±0,03Ω

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 NFP-41/015 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 cut the electrode!

General Operating Manual

- Mounting the sensor into the fitting. Electrical connection see page 3.

Startup the level module mnv-1

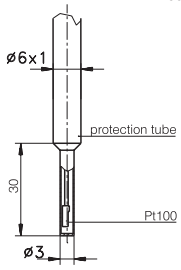
- connecting to the voltage supply
- setup the switching logic
  (describtion see page 3: configuration mnv-1)
- select the lowerst sensitivity (0,1KΩ).
- wetting the electrode with the medium with the lowerst conductivity
- if the output is switching, the setup is finished.
- if the output is not switching, increase the sensitivity until the output is switching. Setup is finished.

Sensor tip diameter and response time

All temperature sensors are available with smaller sensor tips, to ensure a shorter response time. The below-mentioned times are according to a PT100 sensor in boiling water.

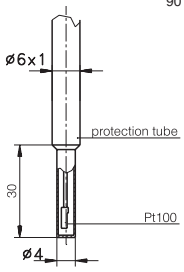
Sensor tip ø3mm

validity: t_{50}≤0,5s
90%-time: t_{90}≤1,5s



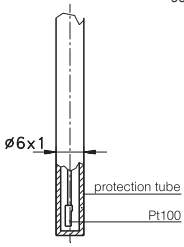
Sensor tip ø4mm

validity: t_{50}≤2,4s
90%-time: t_{90}≤6,5s

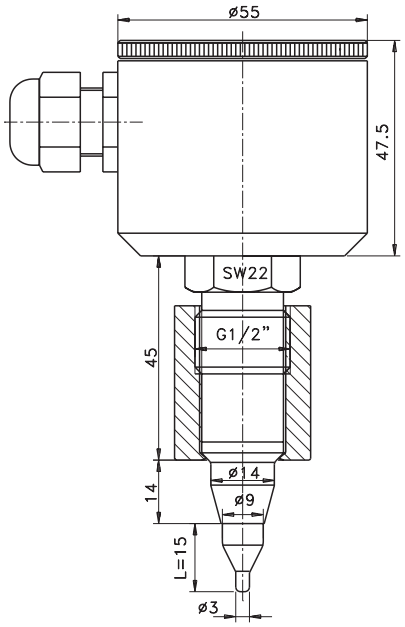


Sensor tip ø6mm

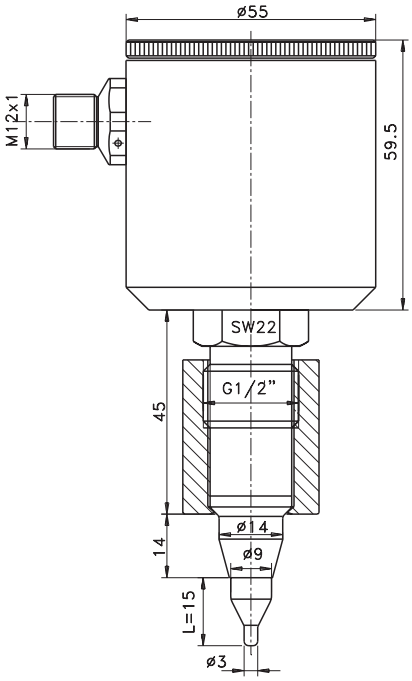
validity: t_{50}≤3,0s
90%-time: t_{90}≤8,0s



Drawings

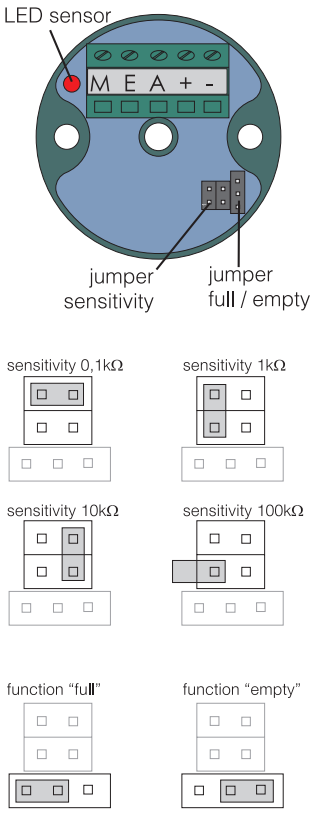


NFP-41

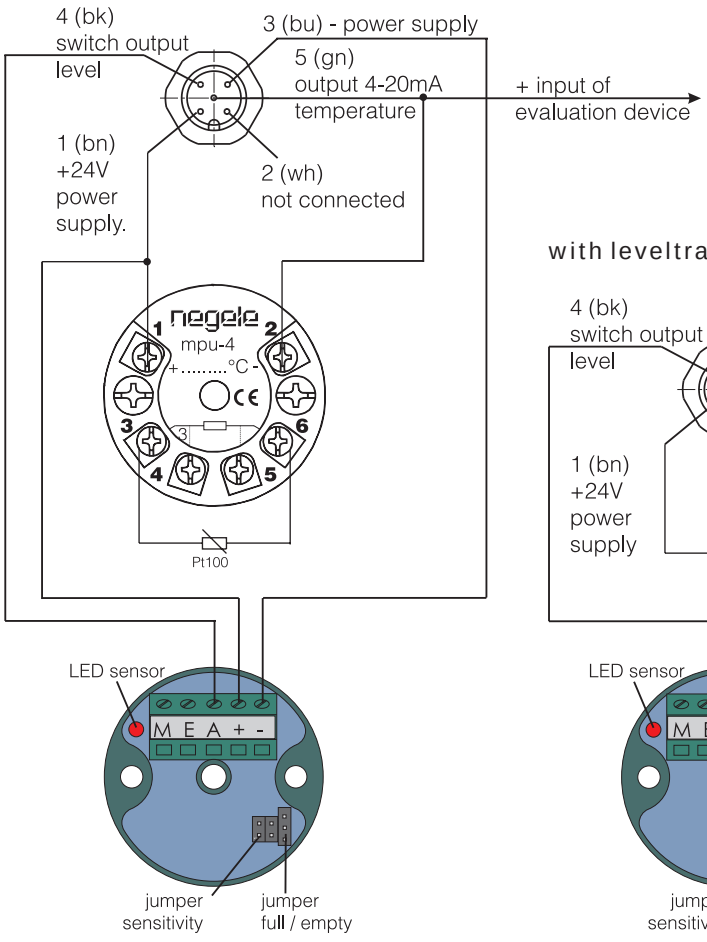


NFP-41 with electronic module

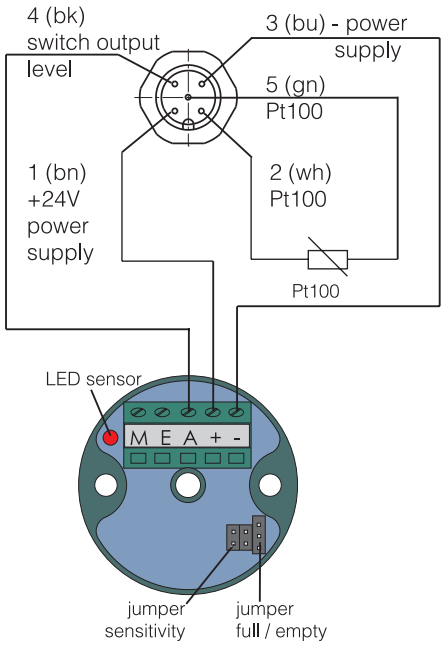
Configuration mnv-1



Electrical Connection
with transmitter for temperatur and level



with leveltransmitter and Pt100



without transmitter

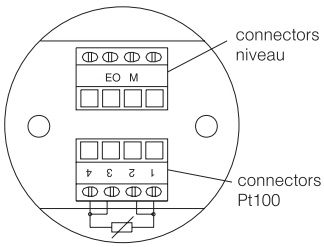


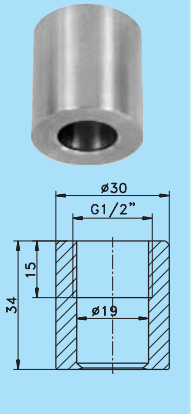
Table Torque

Thread size	Sealing system	Torque min. [Nm]	Torque max. [Nm]
G1/2"	PEEK / SS	5	10

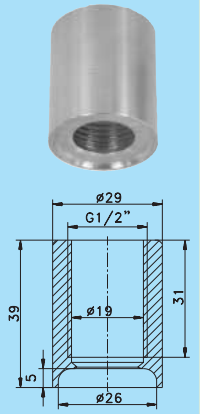
Important information: Use only Negele weld-in systems, to guarantee a safe function of the measurement point!

Process connection G1/2" hygienic

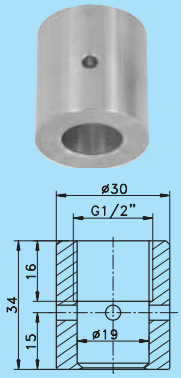
Cylindrical weld-in fitting (standard)	Cyl. fitting with weld-on ring (standard)	Cylindrical fitting with control-holes	Weld-in fitting with collar	Weld-in ball	Dummy flange BST
for vessels	for installation in pulled-out pipes	for vessels, with leakage detection	for thick- walled vessels	for sloped installation	to close existing measurement point



EMZ-132



EMS-132



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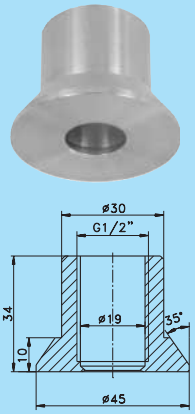
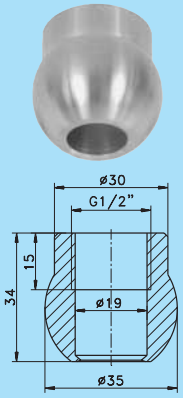
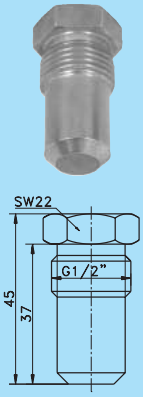


EMK-132



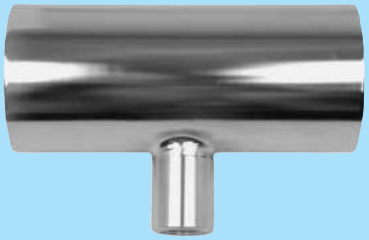
KEM-132

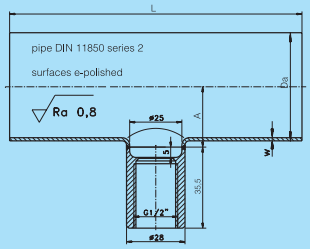


BST-130

Dimension table EHG-... / 1/2"

Type	DN	L[mm]	A[mm]
EHG-25 / 1/2"	25	100	15
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





Overview of all available process connections

Thread size	TriClamp	Dairy flange (DIN11851)	DRD (press ring optional available)	Varivent	APV-Inline	BioControl	Adapter G1/2" / G1"
G1/2" adapter							
Pipe size							
DN25	AMC-132/1"-1,5"	AMK-132/25		AMV-132/25	-	-	AMG-1
DN40	AMC-132/1"-1,5"	AMK-132/40		AMV-132/40	AMA-132	AMB-50/1/2" and AMB-65/1/2" from DN40 up to DN100	
DN50	AMC-132/2"	AMK-132/50	AMK-132/50	AMV-132/40	AMA-132		
DN65	AMC-132/3"	AMK-132/65	(only one size)	AMV-132/40	AMA-132		
DN80	AMC-132/80	AMK-132/80		AMV-132/40	AMA-132		
DN100	AMC-132/4"	AMK-132/100		AMV-132/100	AMA-132		

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