

SENSORS FOR FOOD AND LIFE SCIENCE



SANITARY BY DESIGN

ANDERSON-NEGELE

Digital (R)Evolution

Sensor range with IO-Link Digital Communication



Flex-Hybrid: Your Key to Greater Efficiency

The digital (R)evolution in Sanitary Measurement Technology

Make the planning, commissioning, and operation of your plants easier, faster, and more flexible

Digital + Analog: The Best of Both Worlds

For the safe process control of an entire plant technology with a large number of measuring points, control and actuation devices, IO-Link offers significant advantages.

After extensive testing of its practical suitability, we transfer this technology as a digital data transfer standard of the future on all measurement categories. We rely on our Flex-Hybrid technology with IO-Link parallel to the analog 4...20 mA connection.

Data highway instead of one-way street

Installation and commissioning are extremely time- and cost-saving. A three-pole standard cable without special shielding is sufficient for bidirectional, interference-free signal transmission and power supply.

In practice, the point-to-point connection at the field level is established from various sensors to IO-Link masters and from there, via field bus systems, to the PLC.

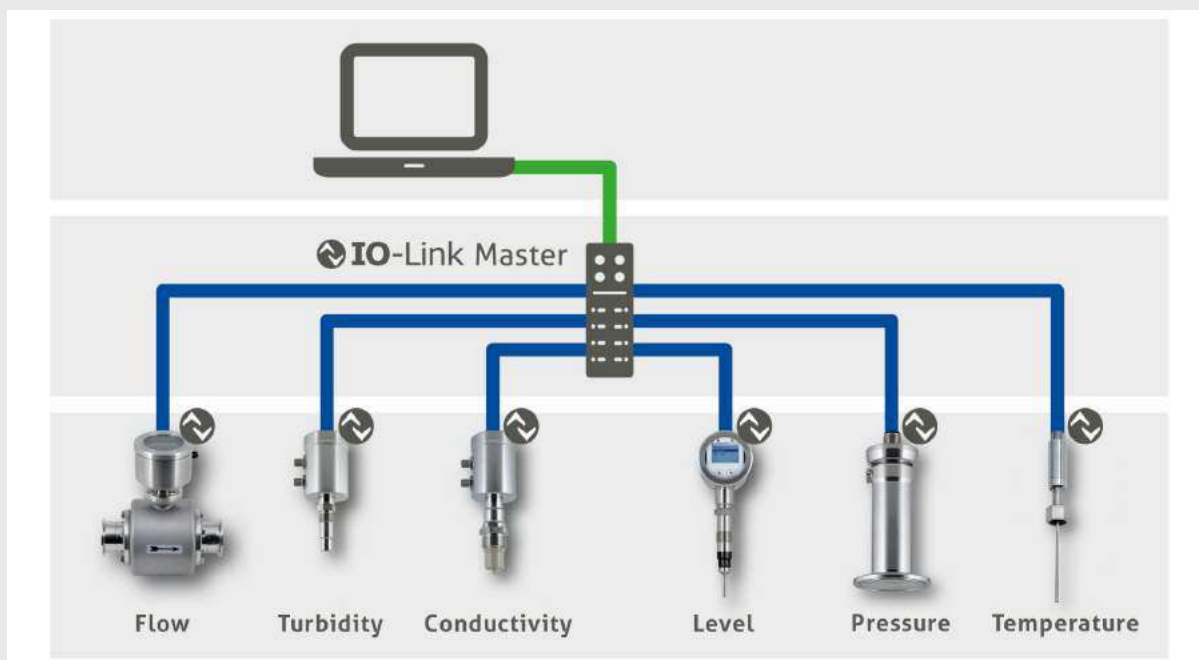
From simple data transfer to intelligent communication

With IO-Link, data streams are also possible in the opposite direction, towards the sensors. Each sensor can be parameterized independently of the manufacturer via an IO-Link master. For an optimal process adaptation, specific settings such as measuring ranges or adjustments can be carried out on site.

The status of operating conditions can be checked and queried at any time. Potential malfunctions, signs of wear, or an increased risk of failure can be detected early, and condition-dependent and production downtimes can be better avoided.

"Plug-and-play" takes on a new meaning

With IO-Link, sensor replacement is easier and safer than ever before and can be performed independently, at any time, and by any employee without any programming effort. For this purpose, the device configuration of each connected sensor can be stored in the IO-Link master. The new sensor will automatically be recognized, configured, and parameterized by the IO-Link master and is immediately operational.



Wide Range of Applications

with a comprehensive choice of IO-Link sensors

Temperature

TS: The new sensor generation with IO-Link
You thought a temperature sensor could not be improved? It can!



Flow

Reliable Flow Control
FMQ with IO-Link: Always exactly what you need for your application!



Conductivity

Efficiency and precision now come with IO-Link
ILM-4: For even more process reliability in phase transition



Turbidity

Cost reduction through precise phase changeover
Make the best of your resources with ITM-51 and IO-Link: Valuable products



Level

There's something in there for you:
Level measurement with NSL-F and IO-Link: Modular configuration for every application



Pressure

Economical, compact, need-based
And now also digital: P42 with IO-Link



An Anderson-Negele Temperature sensor cannot be made better ? It can ! TSM – One Temperature sensor for All

NEW: IO-Link and 4...20 mA with Flex-Hybrid Technology

The Flex Hybrid Technology with IO-Link and 4...20 mA combines the best of two worlds: Data can be transmitted from the sensor in **digital, analog, or parallel mode**.

- Thanks to its flexible communication with plug & play, **installation and commissioning are time- and cost-saving.**
- **Simple individual programming** with IO-Link Master, e.g., for changing the measuring range or for two-point calibration using offset and span
- Sensor replacement is **easier than ever before**, thanks to the "Smart Replace Design" with automatic sensor identification, configuration, and parameter setting.

The new standard for temperature: Further improved quality

The Anderson-Negele temperature sensors are already **synonymous with quality, reliability, and durability**. The new TSM series can outperform even this:

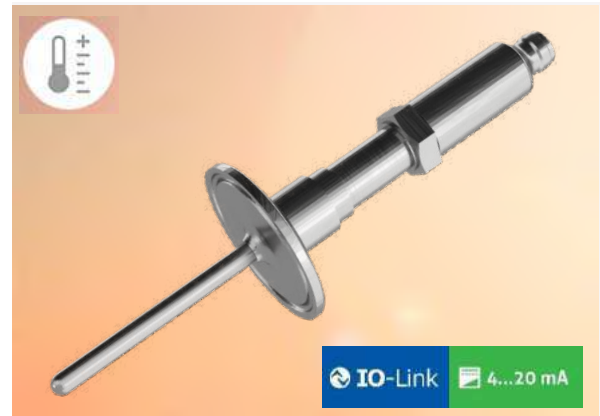
- **Extended process temperature range:** -200...400°C (-328...752 °F)
- Considerably **improved measuring accuracy:** $< \pm 0.1$ °C/F
- Higher **ambient temperature resistance:** 90 °C (194 °F)
- **Robust One-piece design** entirely in stainless steel: Long-term stability and application reliability

Consistently modular and compatible

Thanks to the **completely modular concept**, you can configure **your individual sensor** in just a few steps. Nearly all combinations are possible.

- For **new equipment**, Flex-Hybrid technology offers maximum flexibility and sustainability.
- For **retrofitting**, TSM can replace any TSMU mini-sensor in existing installations - with all additional benefits
- For the **replacement of third-party devices**, a suitable model is always possible due to the large selection of process adaptations and maximum flexibility in the configuration

Available soon: Version TSB (Ø 55 mm) with extended functions



Technical specification at a glance

- **One Temperature sensor for all applications**
- Extremely **compact Mini version** (Head Ø 18 mm)
- **Flex-Hybrid Technology** with digital + analog interface (IO-Link + 4...20 mA)
- **Modular Design: step-by-step configuration** from the economic basic version to the high-end model
- Insertion length **0...2000 mm (0...78")**
- **Version for flush installation available**
- **T₉₀ response time < 1.5 s** with sensor tip 3 mm
- Installation with thermowell possible, thus **sensor removal without process opening**
- **Protection class IP 69K** for max. application safety
- **Two-point calibration** possible using offset and span

Modular design: Maximum flexibility for simplified individual configuration



SENSORS FOR FOOD AND LIFE SCIENCE.

Order code

TSMF

Temperatur Sensor Mini for Food Applications, material wetted parts 1.4404 (AISI 316L)

Standard temperature range (-50...250 °C / -58...482 °F)

Ext. temperature range (-200...400 °C / -328...752 °F)

Process connection

Process connection

T05Tri-Clamp 1/2" and 3/4"

CH1CLEANadapt M12 (incl. spacer)

T10Tri-Clamp DN10

CH2CLEANadapt G1/2" (incl. spacer)

TC1Tri-Clamp 1" and 1½"

GH1Thread G1/2" (incl. spacer)

TC2Tri-Clamp 2"

NH1Plain rod (incl. spacer)

T25Tri-Clamp 2½"

TC3Tri-Clamp 3"

V10Varivent type B DN10/15

V25Varivent type F DN25

V40Varivent type N DN40/50

C01CLEANadapt M12

C02CLEANadapt G1/2"

C03CLEANadapt G1/2"-P (PEEK)

C04CLEANadapt G1/2"-SP (short version, PEEK)

N01Plain rod

G01Thread G1/2"

G02Thread G1/4"

Process connection without media contact

M02FLEXadapt ESF G3/8" with cap nut, sensor tip ø 3 mm

M03Sensor G3/8" with cap nut, sensor tip ø 4 mm

Spacer extension

XWithout spacer (perm. process temp. ≤ 100 °C / 212 °F, standard for extended temperatur range)

SShort spacer (permanent process temperature ≤ 150 °C / 305 °F)

HLong spacer (permanent process temperature ≤ 250 °C / 482 °F)

RTD type

01x Pt100 A, 2-wire (probe length ≤ 250 mm)

11x Pt100 AA, 2-wire (probe length ≤ 150 mm)

22x Pt100 A, 2-wire (probe length ≤ 250 mm)

32x Pt100 AA, 2-wire (probe length ≤ 150 mm)

41x Pt100 A, 4-wire (probe length ≥ 50 mm)

51x Pt100 AA, 4-wire (probe length ≥ 50 mm)

61x Pt100 AAA, 4-wire

72x Pt100 A, (3) 4-wire (probe length ≥ 50 mm, 3-wire with sensor tip ø 3 mm)

82x Pt100 AA, (3) 4-wire (probe length ≥ 50 mm, 3-wire with sensor tip ø 3 mm)

92x Pt100 AAA, 4-wire

A1x Pt1000 A, 2-wire

Variable probe length [mm]

0...50In steps of 5 mm

51...250In steps of 5 mm

251...500In steps of 10 mm

501...1000In steps of 50 mm

1001...2000In steps of 100 mm

Intermediate lengthsNot for M02, M03, C03, C04

Probe length for process connection [mm]

M02M03C03, C04

37680

5914810

83198

97234

160238

249

Probe diameter

033 mm (standard for M02, not for xHx)

044 mm (standard for M03)

066 mm

088 mm (standard for C03, C04 with sensor tip)

1010 mm (standard for C03, C04 frontflush, not for Txx, Vxx)

1212 mm (not for Txx, Vxx)

Sensor tip diameter, only for probe length ≥ 50 mm

XWithout reduction (standard for M02, M03)

3For probe diameter 6 mm

4For probe diameter 6, 8, 10 mm

6For probe diameter 8, 10, 12 mm

Material

- 0** 1.4404 (AISI 316L) without certificate
(standard for C03, C04, G01, G02, M02, M03)
1 1.4404 (AISI 316L) incl. material certificate

Surface finish

- 0** $R_a \leq 0.8 \mu\text{m} / 32 \mu\text{in}$

Transmitter

- 0** Without transmitter
I TTM.I (IO-Link only)
H TTM.H (hybrid: analog and IO-Link)

Measurement range

- 000** Without transmitter
00C Unit °C (only for TTM.I)
00F Unit °F (only for TTM.I)
00K Unit K (only for TTM.I)
04C -10...40 °C
05C 0...50 °C
10C 0...100 °C
15C 0...150 °C
20C 0...200 °C
25C 0...250 °C
10F 0...100 °F
15F 0...150 °F
20F 0...200 °F
23F 30...230 °F
25F 0...250 °F
M00 TTM custom configuration

Electrical connection with transmitter

- 4** M12 plug (4 pin)

Electrical connection without transmitter

- 4** M12 plug (4 pin) 1x RTD
8 M12 plug (8 pin) 2x RTD
P PVC-cable (≤ 90 °C / 194 °F)
T PTFE-cable (≤ 250 °C / 482 °F)

Cable length [m] (with hardwired cable only)

- 1...50**

TSMF / C01 / X / 0 / 100 / 06 / 4 / 0 / 0 / 0 / 000 / P / 12

Order code

TSPM	Temperatur Sensor Mini for Pharma Applications, material wetted parts 1.4435 (AISI 316L)		
Standard temperature range (-50...250 °C / -58...482 °F)		Process connection without media contact	
Process connection		Process connection without media contact	
T05	Tri-Clamp 1/2" and 3/4"	G03	Thread G1/4", sensor tip ø 3 mm, spring loaded
T10	Tri-Clamp DN10	M01	PHARMadapt ESP G3/8" with cap nut, sensor tip ø 3 mm, spring loaded
TC1	Tri-Clamp 1" and 1½"	M04	Sensor G3/8" with cap nut, sensor tip ø 4 mm, spring loaded
TC2	Tri-Clamp 2"		
T25	Tri-Clamp 2½"		
TC3	Tri-Clamp 3"		
C01	CLEANadapt M12		
C02	CLEANadapt G1/2"		
N01	Plain rod		
I46	Ingold 46 mm (Fermenter)		
I52	Ingold 52 mm (Fermenter)		
E08	PHARMadapt EPA-8		
E18	PHARMadapt EPA-18		

The compact & cost-effective all-rounder. With IO-Link

Permanently precise flow measurement with FMQ

It has everything you really need

The FMQ electromagnetic flow meter is an extremely versatile, robust and reliable device for all conductive media. The performance spectrum is tailored to almost all applications, including dosing and filling applications.

FMQ with IO-Link: Thanks to Flex-Hybrid technology, you can use digital or analog communication or both in parallel

- **Extremely compact:** Minimal size of measuring body and electronics allow easy, vibration-insensitive integration into almost all applications
- **Extremely robust:** All components are completely made of stainless steel. The magnetic field coils of the measuring system are consistently encapsulated, which guarantees permanently reliable, precise measuring results even in very harsh environments with strong vibrations or pressure surges
- **Extremely reliable:** Completely protected against moisture, corrosion and vibrations; vacuum-proof measuring tube lining made of high-quality PFA; process temperature up to 100°C (212 °F), CIP-capable, pigging possible.
- **Always accurate:** Automatic signal processing ensures correct measured values even when changing media (e.g. milk/CIP cleaner)
- **Easy commissioning and operation:** User-friendly, rotatable display with optical buttons, no opening of the housing, no mechanical buttons, for quick and easy programming
- **Manufacturer-independent process connection:** Standard aseptic flange according to DIN 11864, with O-ring (no sanitary-sensitive surface seal), pipe standard DN10 ...DN100 (1/2" ...4")



Technical specifications at a glance

- **Flex-Hybrid Technology** with digital + analog interface (IO-Link + 4...20 mA)
- **Measuring range** from 30 l/h to 640 000 l/h (8 gal/hr to 169 000 gal/hr)
- **Measuring accuracy:** $\pm 0,5\%$ $\pm 2\text{mm/s}$
- For liquids, mashs and pastes with a conductivity of $> 5 \mu\text{S/cm}$
- **Process temperature** up to 100 °C (212 °F) permanently
- **CIP-/ SIP-cleaning** up to 130 °C (266 °F) / max. 30 minutes
- Sensor with aseptic flange, many **common process connections** available



Modular Sensor platform with IO-Link and 4...20 mA

The **Flex-Hybrid Technology** with **IO-Link and 4...20 mA** combines the best of both worlds: Data from the sensor can be transmitted with digital or analog interface or with both in parallel. The bidirectional communication enables status control and preventive maintenance at any time to avoid production downtimes. Installation and commissioning are time- and cost-saving thanks to plug-and-play technology. Sensor replacement is easier than ever before thanks to "Smart Replace Design" with automatic detection, configuration and parameterization.

Main application area: Food | Material: 1.4404 (AISI 316L)

FMQ Magnetic-Inductive Flow Meter

Nominal diameter/size

010	10 mm
015	15 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
065	65 mm
080	80 mm
100	100 mm

Certificate

S None

Display / Cap

L	Optical LED status display (not available with M12 connection options K or L)
B	Blind stainless steel cap
D	Graphic display

M12 Connection / Communication

O	M12 connector, 4-pin, plastic
K	M12 connector IO-Link, 4-pin, stainless steel
L	M12 connector IO-Link with switch input, 5-pin, stainless steel
S	M12 connector without switch input, 4-pin, stainless steel
M	M12 connector with switch input, 5-pin, stainless steel

Connection

0	Butt-weld
1	ASME clamp
2	DIN clamp

Elastomer

A	EPDM
B	Silicone

FMQ 010 S L O O A

More process reliability in phase separation with inline conductivity control

Inductive Conductivity Meter ILM-4

Benefits in production and CIP / SIP processes

ILM-4 with IO-Link and 4...20 mA enables an active, automated and temperature compensated phase transition. This applies both to different media in production processes and to the CIP / SIP return flow of acid / caustic / water.

These media can be drained or returned to the storage tanks in the highest possible grade by means of precise inline conductivity measurement. The multiple use of the cleaning media ensures in addition maximum cost efficiency and environmental protection.

Benefits in cleaning agent's control

For an optimal and reproducible cleaning result, each cleaning agent must be concentrated to the specified value by re-dosing with concentrate and fresh water. This is ensured by the highly precise measurement of conductivity with the ILM-4.

Advantages of the ILM-4

- **Extremely short response time (1.2 s)** for maximum efficiency
- Ready for IoT: **digital IO-Link interface and analog 4...20 mA** data transmission in parallel
- **Precise phase changeover** of different media means **less product loss** and cost minimization
- **Optimum multiple use** of the cleaning chemicals due to correct return to the respective tanks
- **Minimization of cleaning time and water consumption:** inline conductivity analysis for active switching after reaching the desired value and not after a fixed time
- **Precise concentration control of the cleaning agents**
- **Reliable product monitoring / quality assurance**
- **Very attractive price-performance ratio**

Practical customer experience

- **CIP cleaning for milk trucks:** Minimum losses in cleaning agents and **maximum recyclability** thanks to active, precise switching
- **CIP process in a fully automated dairy:** With the ITM-51 turbidity sensor, almost **all media in production and CIP/SIP** can be precisely distinguished and separated.
- **Breweries and beverage producers:** **Maximum product yield** through precise phase separation



Technical data at a glance

- **Extremely compact & robust**
- **Hybrid technology** with **digital + analog** interface (**IO-Link + 4...20 mA**): from simple data transfer to intelligent communication
- **Fast sensor response time: approx. 1.2 s**
- **Modular design:** configurable from the **low-priced basic version** to the **high-end model**
- Product-contacting sensor head made of **100 % PEEK** prevents **thermal stress cracking**
- **Selectable measuring range:** 1...999 mS/cm
- **Reproducibility** of $\leq 1 \%$ of measured value
- Compensated measurement **up to 130 °C (266 °F)**, CIP/SIP up to **150 °C (302 °F) / 60 min.**
- **Smart Replace Design** with **Remote version** for easy replacement of all components

SENSORS FOR FOOD AND LIFE SCIENCE.

Modular Sensor platform with IO-Link and 4...20 mA

The **Flex-Hybrid Technology** with **IO-Link and 4...20 mA** combines the best of both worlds: Data from the sensor can be transmitted digitally, analogously or in parallel. The bidirectional communication enables status control and preventive maintenance at any time to avoid production downtimes. Installation and commissioning are time- and cost-saving thanks to plug-and-play technology, and sensor replacement is easier than ever before thanks to "Smart Replace Design" with automatic detection, configuration and parameterization.

Order code

ILM-4 Inductive Conductivity Sensor

Submersion length of toroid

L20	20 mm
L50	50 mm

Process connection (3-A compliant)

S01	CLEANadapt G1" hygienic
TC1	Tri-Clamp 1½"
TC2	Tri-Clamp 2"
T25	Tri-Clamp 2½"
TC3	Tri-Clamp 3"
V25	Varivent type F, DN 25
V40	Varivent type N, DN 40/50

Head orientation

H	horizontal head orientation
V	vertical head orientation

Signal module output

I42	IO-Link and 1x 4...20 mA conductivity
I62	IO-Link and 2x 4...20 mA conductivity/temperature selectable, no external range switching
I63	IO-Link and 2x 4...20 mA conductivity/temperature selectable, external range switching

Electrical connection

P*	1x Cable gland M16x1.5 for I42 Analog Output
D*	2x Cable gland M16x1.5 for I62 or I63 Analog Output
M	1x M12 connector, 4-pin for output I42
N	2x M12 connector, 4-pin for output/input, 5-pin for power supply
A	2x M12 connector, 4-pin for power supply, 5-pin for output/input
C	1x M12 connector, 5-pin analog output and IO-Link
R	2x M12 connector, 4-pin for analog output, 3-pin for IO-Link and input

Display

X	Without
S	Simple User Interface with small display
L	Large User Interface with big display

Enclosure

X	Plastic cap without sight glass
P	Plastic cap with sight glass
M	Stainless steel cap without sight glass
W	Stainless steel cap with sight glass

Configuration

X	Default factory settings
S	Special order

ILM-4 L20 / S01 / V / I63 / D / S / P / X

Reduce product loss with the modular, front flush turbidity measurement

Relative turbidity meter ITM-51

Application in the production process

ITM-51 ensures active automated phase transition of milk/other products/water resp. of beer/yeast, by inline analysis of the turbidity and active changeover.

The passive phase changeover by means of time or volume control always needs a safety margin. Consequently, in every process step product is lost and/or quality affected.

Advantages with ITM-51:

- **Minimization of resource and thus value losses**
- Tank filling with **wrong medium** is avoided reliably
- **Less cost for waste water treatment**
- **Less need for additional laboratory analyses** of the tank content
- **Best possible concentration** and thus a constantly high quality of products such as milk / cream or beer / wort
- **Efficient automated clarifier control** in breweries for uniform quality of unfiltered beer

Application in the CIP/SIP-Process

Active automated and temperature-independent phase transition in the return line of product / acid / lye / water.

Advantages with ITM-51:

- Reliable **control of the agent's pollution**
- Optimal **multiple use** of the cleaning agents
- **Cost minimization** due to less waste disposal
- **Reduction of the cleaning process time** and thus also of the water consumption: active switching after reaching the desired degree of purity by inline turbidity analysis, and not after passive, fixed timing

Practical customer experiences

- Reduction of product loss from 5% to 3%, and 15% cost reduction due to less waste-water treatment
- Less laboratory analyses necessary, thus less personnel / time requirement and faster reaction to deviations
- 3.000 l less water consumption in each CIP process
- ITM-51 prevents reliably the contamination of a glycol cooler with milk products, a fact which before repeatedly disturbed the cooling process and caused downtimes
- 80% more consistency of the end product quality due to more precise changeover of cream, milk and low-fat milk
- Constant turbidity level for Craft Beer without filtering thanks to precise clarifier control in a brewery



Technical specification at a glance

- **Compact flush turbidity sensor** using the backscatter principle, in modular set-up
- **Flex-Hybrid-Technology** with digital + analog interface (IO-Link + 4...20 mA)
- Process temperature up to 266 °F (130°C), pressure -14.5...290 psi (-1...20 bar))
- Independent to reflections at **small diameters or electro-polished surfaces**
- **No color dependency** (wave length 860 nm)
- High **reproducibility**: ≤ 1% of full scale
- **Selectable range** (%TU, NTU, EBC, %solids)
- **Extended sensitivity**: 200...300.000 NTU
- **Smart Replace Design** with Remote version for easy replacement of all components

SENSORS FOR FOOD AND LIFE SCIENCE.

Modular Sensor platform with IO-Link and 4...20 mA

The **Flex-Hybrid Technology** with **IO-Link and 4...20 mA** combines the best of both worlds: Data from the sensor can be transmitted in digital, analog or in parallel mode. The bidirectional communication enables status control and preventive maintenance at any time to avoid production downtimes. Installation and commissioning are time- and cost-saving thanks to plug-and-play technology, and sensor replacement is easier than ever before thanks to "Smart Replace Design" with automatic detection, configuration and parameterization.

Order code

ITM-51 (relative turbidity meter)

ITM-51R (relative turbidity meter, remote version, remote cable must be ordered separately)

Process connection (Ⓐ: 3-A approval, Ⓔ: EHEDG approval)

S0L (CLEANadapt G1/2", extended sensor stem)

S01 (CLEANadapt G1/2")

TC1 (Tri-Clamp 1½") Ⓐ Ⓔ

TC2 (Tri-Clamp 2") Ⓐ Ⓔ

T25 (Tri-Clamp 2½") Ⓐ Ⓔ

TC3 (Tri-Clamp 3") Ⓐ Ⓔ

TL1 (Tri-Clamp 1½", extended sensor stem) Ⓐ Ⓔ

TL2 (Tri-Clamp 2", extended sensor stem) Ⓐ Ⓔ

TL5 (Tri-Clamp 2½", extended sensor stem) Ⓐ Ⓔ

TL3 (Tri-Clamp 3", extended sensor stem) Ⓐ Ⓔ

V25 (Varivent type F, DN 25) Ⓔ

V40 (Varivent type N, DN 40/50) Ⓔ

Enclosure orientation

H (horizontal)

V (vertical)

Signal module

I42 (IO-Link and 1x 4...20 mA turbidity)

I52 (IO-Link and 1x 4...20 mA turbidity, 1x switching out)

I53 (IO-Link and 1x 4...20 mA turbidity, 1x switching out, external range switching)

Electrical connection

P (cable gland M16x1.5)

D (2x cable gland M16x1.5)

M (1x M12 connector, 4 pin output/power supply)

N (2x M12 connector, 4 pin output, 5 pin input/power supply)

A (2x M12 connector, 4 pin output/power supply, 5 pin output/input)

C (1x M12 connector, 5 pin analog output and IO-Link)

R (2x M12 connector, 4 pin analog and switching output, 3 pin IO-Link and input)

Interface/Display

X (without Interface)

S (Simple User Interface with small display)

L (Large User Interface with display)

Enclosure

X (opaque plastic cap)

P (clear plastic cap)

M (without control window)

W (with control window)

Configuration

X (factory setting)

S (special customer setting)

ITM-51 S01 / V / I53 / D / L / P / X

ITM-51R S01 / I42 / D / L / P / X

Precise level measurement even with difficult media and operating conditions

Continuous Level Sensor NSL-F

Benefits in production processes

For efficient production processes, continuous, precise monitoring of the filling level of feed tanks, storage tanks or fillers is essential. The flexible, modular level sensor NSL-F with its potentiometric measuring principle offers a reliable and precise application even with difficult to measure media and with demanding applications such as:

- strongly or differently foaming media
- pasty media or media adhering to the measuring rod
- pressurized tanks
- fast level changes, e.g. during filling processes
- non-metallic tanks
- different media in one tank
- tank shapes with restricted installation access
- production environments with high mechanical or chemical stress (e.g. cleaning agents)

Advantages of the NSL-F level sensor

- **Maximum resource efficiency due to precise measurement even with demanding media:** Even with foam or with the measuring rod coated by pasty or strongly adhesive media, the **measuring accuracy is <1%** of the rod length.
- Ready for IoT: **digital IO-Link interface and analog 4...20 mA** data transmission in parallel
- **Ideal for metallic, non-metallic and pressurized tanks** due to rod length from 50 mm to 3 m, installation from below, above or from the side and optional versions
- **Extremely fast response time < 100 ms** for precise dosing monitoring, e.g. for filling systems
- **Automatic adjustment to media**, no adaptation required with alternating media in one tank
- **Hygienic alternative to float sensors** due to easily sterilizable installation solution
- **Robust construction** made entirely of stainless steel

Typical customer applications

- Dairies / milk production: milk heaters, separators, fillers, ice cream production plants, tanks for yoghurt and pasty milk products
- Breweries: Brewing, lautering and storage tanks, filters, bottling plants
- Beverage and food industry: Filling systems for alternating beverages and juices, storage and production tanks



Optional versions



Technical specification at a glance

- **Extremely precise, fast & flexible** level sensor
- **Flex Hybrid Technology** with **digital + analog** interface (**IO-Link + 4...20 mA**): from simple data transfer to intelligent communication
- Modular configuration from the **low-priced base version to the fully equipped high-end model**
- For vessels from **50 mm to 3 m (2" to 10 ft)** height
- CIP / SIP up to **143 °C (290 °F) / 120 min.**
- **Response time < 100 ms** for precise values even with rapid level changes in high-speed fillers
- **Protection class IP 69K** for highest safety
- **Smart Replace Design** with **Remote version** for easy replacement of all components



SENSORS FOR FOOD AND LIFE SCIENCE.

Modular Sensor platform with IO-Link and 4...20 mA

The **Flex-Hybrid Technology** with **IO-Link and 4...20 mA** combines the best of both worlds: Data from the sensor can be transmitted digitally, analogously or in parallel. The bidirectional communication enables status control and preventive maintenance at any time to avoid production downtimes. Installation and commissioning are time- and cost-saving thanks to plug-and-play technology, and sensor replacement is easier than ever before thanks to "Smart Replace Design" with automatic detection, configuration and parameterization.

Order code

NSL-F-00 (Potentiometric continuous level sensor, compact version in 4-wire technology, straight design)

Rod length EL, choose length in a 10-mm raster, e.g.: 0220, 0230, 0240 etc., max. length 3000 mm.
(intermediate sizes in 1-mm steps on request.)

0050...3000 (material 1.4404)

Process connection

S00 (CLEANadapt G1/2" hygienic)
S01 (CLEANadapt G1" hygienic)
TC1 (Tri-Clamp 1½")
TC2 (Tri-Clamp 2")
T25 (Tri-Clamp 2½")
TC3 (Tri-Clamp 3")
TC4 (Tri-Clamp 4")
V10 (Varivent type B, DN 10/15)
V25 (Varivent type F, DN 25)
V40 (Varivent type N, DN 40/50)

Material certificate

O (No certificate, standard)
Z (With 3.1 material certificate for 1.4404)

Mounting position

1 (Installation from top, head orientation horizontal)
2 (Installation from top, head orientation vertical)
3 (Installation from bottom, head orientation horizontal)
4 (Installation from bottom, head orientation vertical)
5 (Installation from top, head orientation horizontal, with PEEK insulation on top)
6 (Installation from top, head orientation vertical, with PEEK insulation on top)

Output signal

I42 (IO-Link and 1x 4...20mA level)

Electrical connection

C (1x M12 plug, 5 pins for analog output and IO-Link)
L (M12-plug, 5-pins, wiring according to LN sensor)

Interface/Display

X (Without interface)
L (Display interface)

Cap

X (Plastic cap without control window)
M (Stainless steel without control window)
W (Stainless steel with control window)

Insulation at rod end

XX (Without, standard)
PK (With PEEK insulation >> EL + 30 mm)

Parameter configuration

X (Standard)

NSL-F-00/ 1500/ S00/ O/ 1/ A42/ L/ X/ X/ XX/ X

Economical, compact, needs-based: Quality for your standard processes

P42 Pressure sensor with IO-Link

This temperature compensated transmitter is ideal for sanitary pressure monitoring in a variety of applications in breweries, dairies, and the beverage industry.

New: Digital communication of measurement data via IO-Link.

Benefits with P42 in Process control

Now you can also rely on the renowned Anderson-Negele quality for applications with standard process requirements. The P42 is a fast, precise, and economical device that measures process pressures and transmits the data digitally in high accuracy and speed via IO-Link.

Advantages of the P42:

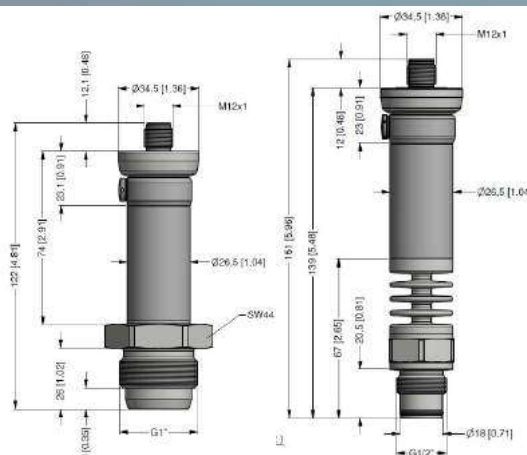
- **Compact stainless-steel design** with direct output to the PLC
- **Precise measurement even at high pressures** up to 40 bar, overpressure resistance up to 100 bar
- Very **robust and durable** design despite its delicate appearance
- Absolute or relative pressure measurement.
- Relative measurement without or with vacuum range (Compound)
- **Individual, needs-based** adaptation of the measuring range to the respective process

Benefits with P42 in Level control

With an extensive product portfolio, Anderson-Negele sensors cover all requirements of high-precision level measurement for a wide range of applications. P42 expands the application variety with the digital interface IO-Link and enables a fast, precise, and economic function for standard requirements.

Advantages of the P42:

- **Precise measurement** due to a pressure range that can be finely tuned and narrowly defined
- Optional **compound measurement**: Accurate relative pressure determination including vacuum range



Technical specifications at a glance

- **Digital data transmission with IO-Link**
- Process temperature up to 125 °C (257 °F), CIP/SIP cleaning up to 150 °C (302 °F) / max. 60 min
- With optional spacer the temperature range is up to 300 °C (572 °F) permanent
- Compact design without display, sensor completely made of stainless steel
- Process connection: hygienic thread G1" (CLEANadapt), thread G1/2", Tri-Clamp 1", 1,5" and 2", Varivent DN25 and DN40/50
- Vacuum proof

Digital Communication with IO-Link

The digital interface IO-Link enables bidirectional communication and, thus, status control and preventive maintenance at any time to avoid production downtimes. Plug and Play technology saves time and money for installation and commissioning, and automatic detection, configuration and parameterization make sensor replacement easier than ever before.

P42 Pressure sensor

Measuring range of pressure cell

- 1 0.2 bar (3 psi)
- 2 0.4 bar (6 psi)
- 3 1.0 bar (15 psi)
- 4 2.0 bar (30 psi)
- 5 4.0 bar (60 psi)
- 6 7.0 bar (100 psi)
- 7 10 bar (145 psi)
- 8 20 bar (290 psi)
- 9 40 bar (580 psi)

Pressure measurement

- A Absolute (absolute measurement, min. 0.4 bar (6 psi))
- G Gauge (relative measurement without vacuum)
- C Compound (relative measurement including vacuum)

Process connection

- 195 G1/2" DIN3852 (front flush with O-ring) only for measurement range ≥ 1 bar (15 psi)
- 182 CLEANadapt G1" hygienic
- 003 Tri-Clamp 1" / 1½"
- 005 Tri-Clamp 2"
- V25 Varivent type F, DN25 (adaption by means of CLEANadapt)
- V40 Varivent type N, DN40/50 (adaption by means of CLEANadapt)

Sealing material (only selectable for process connections 195)

- X No seal
- A EPDM < 125 °C (257 °F)
- B FKM < 200 °C (392 °F)
- C FFKM > 200 °C (392 °F)

Capillary fill

- 6 FDA approved oil

Sensor version process temperature

- X Standard temperature (max. 125 °C (257 °F))
- H High temperature version (max. 300 °C (572 °F))

Physical unit

- B bar
- P psi

Material certificate

- X No certificate
- Z 3.1 Material certificate

Configuration

- 0 Fixed value

P42 1 A 182 X 6 X B X 0

SENSORS FOR FOOD AND LIFE SCIENCES.



SANITARY BY DESIGN

ANDERSON-NEGELE



ANDERSON-NEGELE

North America

Anderson Instrument Company Inc.
Fultonville, NY 12072
USA

Phone +1 518-922-5315
Fax +1 518-922-8997
info@anderson-negele.com

Europe / EMEA

Negele Messtechnik GmbH
Raiffeisenweg 7, 87743 Egg an der Günz
GERMANY

Phone +49 8333-9204-0
Fax +49 8333-9204-49
sales@anderson-negele.com

India

Anderson-Negele India
Kurla (West), Mumbai-400 070
INDIA

info.india@anderson-negele.com

China

Anderson-Negele China
518 Fuquan North Road, Shanghai, 200335
P. R. CHINA

Phone +86 400 666 1802-7
china.sales@anderson-negele.com

SANITARY BY DESIGN

ANDERSON-NEGELE.COM