

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.

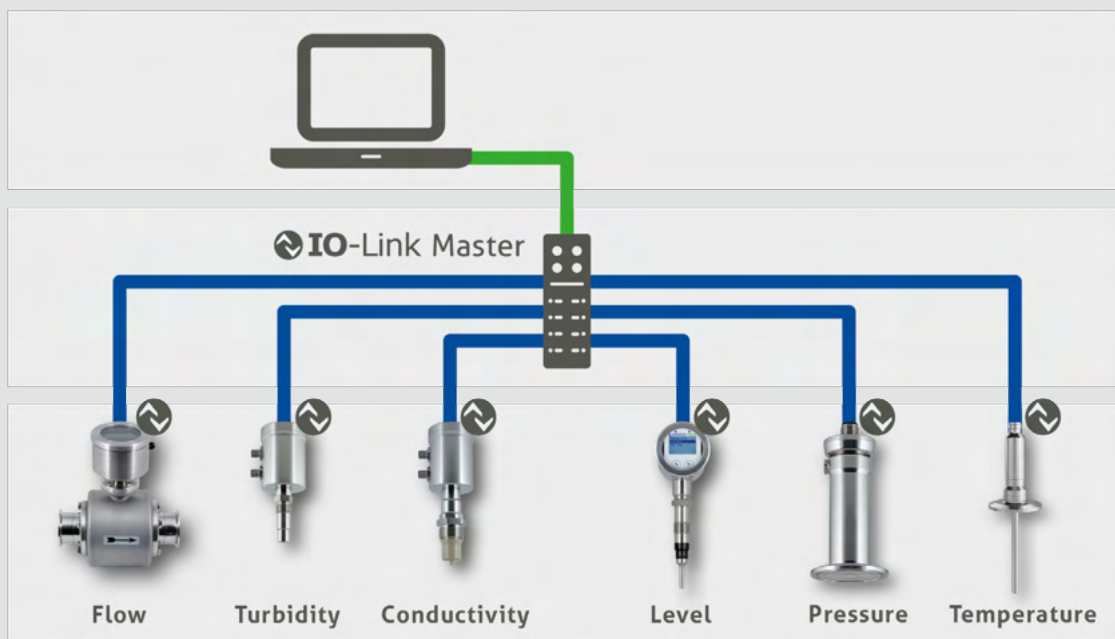
From simple data transfer to intelligent communication

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



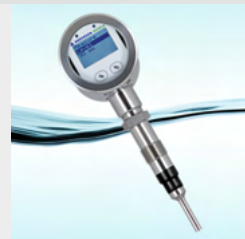
Turbidity

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



Reliability, durability, quality – a new class in sanitary temperature measurement

TSM – One Temperature Sensor for All

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

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 plug & play communication, **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

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:** -58...482 °F
- **Considerably improved measuring accuracy:** < ±0.1 °F
- **Higher ambient temperature resistance:** 185 °F
- **Robust One-piece design** entirely in stainless steel: Long-term stability and application reliability

Consistently configurable and compatible

Thanks to the **completely configurable concept**, you can design **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

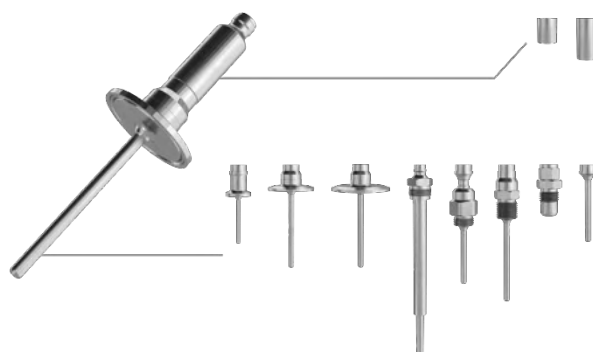
Available soon: Version TSB (Ø 2.1") with extended functions



Technical specification at a glance

- **One Temperature sensor for all applications**
- Extremely **compact Mini version** (Head Ø 0.7")
- **Flex-Hybrid Technology** with digital + analog interface (IO-Link + 4...20 mA)
- **Configurable Design: step-by-step selection** from the economic basic version to the high-end model
- Insertion length **0...43 " (0"...15/16")**
- **Version for flush installation available**
- 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 slope

Configurable design: Maximum flexibility for simplified individualization



Order code

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

Process connection (Ⓐ: 3-A compliant)

- | | | | |
|------------|-----------------------|------------|--------------------------------------|
| 001 | Tri-Clamp 1/2" | 074 | E1 Style - 1/4" Dia. (Ⓐ) |
| 002 | Tri-Clamp 3/4" (Ⓐ) | 075 | E1 Style - 3/8" Dia. (Ⓐ) |
| 004 | Tri-Clamp 1 1/2" (Ⓐ) | 079 | E3 Style - 1/4" Dia. (w/ adj. union) |
| 005 | Tri-Clamp 2" (Ⓐ) | 080 | E3 Style - 3/8" Dia. (w/ adj. union) |
| 062 | Thermo Well 41247 (Ⓐ) | 084 | 1/2" NPT (Ⓐ) |
| | | 174 | 1/2" NPT Spring Loaded (Ⓐ) |

X Fixed character

RTD type

- 0** 1x Pt100 A, 3-wire

Insertion length [inches]

- 01...43** In steps of 1 inch

Insertion length [sixteenth]

- | | | | |
|-----------|-------|-----------|--------|
| 00 | 0" | 08 | 1/2" |
| 01 | 1/16" | 09 | 9/16" |
| 02 | 1/8" | 10 | 5/8" |
| 03 | 3/16" | 11 | 11/16" |
| 04 | 1/4" | 12 | 3/4" |
| 05 | 5/16" | 13 | 13/16" |
| 06 | 3/8" | 14 | 7/8" |
| 07 | 7/16" | 15 | 15/16" |

Rod diameter (process connection specific)

- | | |
|-----------|-------------------------------------|
| 20 | 5/32" (001, 002) |
| 21 | 1/4" (004, 005, 074, 079, 084, 174) |
| 22 | 3/8" (075, 080) |
| 23 | 3/4" (004, 005) |
| 24 | 41247 Well (062) |

XX Fixed character

Surface finish

- 1** R_a ≤ 25 µin

Transmitter

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

Measurement range

- | | | | |
|------------|--------------------------|------------|-------------|
| 000 | Without transmitter | 04C | -10...40 °C |
| 00C | Unit °C (only for TTM.I) | 05C | 0...50 °C |
| 00F | Unit °F (only for TTM.I) | 10C | 0...100 °C |
| 00K | Unit K (only for TTM.I) | 15C | 0...150 °C |
| M00 | TTM custom configuration | 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 |

Electrical connection with transmitter

- 4** M12 plug (4 pin, ≤ 90 °C / 197 °F)

XX Fixed character

T SMA / 001 / X / 0 / 0100 / 20 / XX / 1 / 0 / 000 / 4 / XX

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

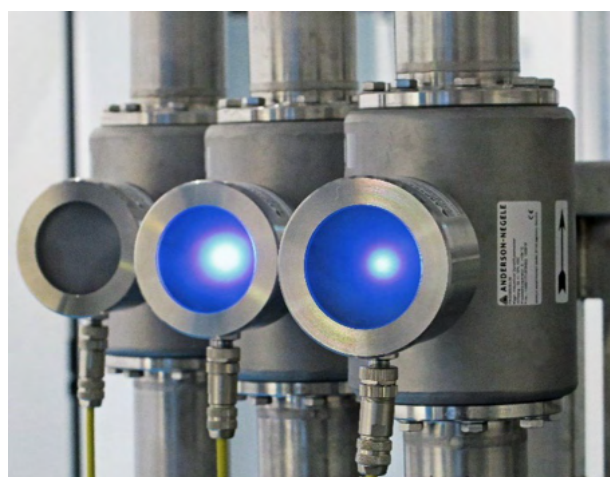
Permanently precise flow measurement with FMQ

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")
- **Separate version** (remote electronics) available, cable length from 1 to 10 m



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, mashes 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

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 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.

FMQ compact device with transmitter and head electronics					
FMQ	Compact Magnetic-Inductive Flow Meter				
	Nominal diameter/size				
	FT010	Meter tube nominal width DN10			
	FT015	Meter tube nominal width DN15			
	FT025	Meter tube nominal width DN25			
	FT032	Meter tube nominal width DN32			
	FT040	Meter tube nominal width DN40			
	FT050	Meter tube nominal width DN50			
	FT065	Meter tube nominal width DN65			
	FT080	Meter tube nominal width DN80			
	FT100	Meter tube nominal width DN100			
	FT125	Meter tube nominal width DN125			
	FT150	Meter tube nominal width DN150			
		Certificate			
		S	None		
		P	3.1 certificates of all wetted parts and factory calibration certificate		
			Display / Cap		
		L	Optical LED status light (not available with M12 connection options K or L)		
		B	Blind stainless steel cap		
		D	Graphic display		
			M12 Connection / Communication		
		X	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		
		M12	M12 connector without switch input, 4-pin, stainless steel		
		M	M12 connector with switch input, 5-pin, stainless steel		
FMQ /	FT010 /	S /	L /	X	

FMQ-R Remote version with transmitter and head electronics					
FMQ-R	Remote Magnetic-Inductive Flow Meter				
	Interconnect Cable				
	1	1 meter length			
	2	2 meter length			
	3	3 meter length			
	4	4 meter length			
	5	5 meter length			
	6	6 meter length			
	7	7 meter length			
	8	8 meter length			
	9	9 meter length			
	10	10 meter length			
		Nominal diameter/size			
	FT010	Meter tube nominal width DN10			
	FT015	Meter tube nominal width DN15			
	FT025	Meter tube nominal width DN25			
	FT032	Meter tube nominal width DN32			
	FT040	Meter tube nominal width DN40			
	FT050	Meter tube nominal width DN50			
	FT065	Meter tube nominal width DN65			
	FT080	Meter tube nominal width DN80			
	FT100	Meter tube nominal width DN100			
	FT125	Meter tube nominal width DN125			
	FT150	Meter tube nominal width DN150			
		Certificate			
		S	None		
		P	3.1 certificates of all wetted parts and factory calibration certificate		
			Display / Cap		
		L	Optical LED status light (not available with M12 connection options K or L)		
		B	Blind stainless steel cap		
		D	Graphic display		
			M12 Connection / Communication		
		X	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		
		M12	M12 connector without switch input, 4-pin, stainless steel		
		M	M12 connector with switch input, 5-pin, stainless steel		
FMQ-R /	1 /	FT010 /	S /	L /	X



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								
ILM-4R	Inductive conductivity sensor - remote version, remote cable must be ordered separately								
	Submersion length of toroid								
	L20	20 mm							
	L50	50 mm							
		Process connection (Ⓐ: 3-A conform, Ⓔ: EHEDG approval)							
		S01	CLEANadapt G1" Ⓐ Ⓔ						
		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 (not selectable for ILM-4R)						
			H	Horizontal head orientation					
			V	Vertical head orientation					
			Signal module						
			I42	IO-Link and 1x 4...20 mA conductivity					
			I62	IO-Link and 2x 4...20 mA conductivity/temperature selectable					
			I63	IO-Link and 2x 4...20 mA conductivity/temperature selectable, 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					
			S	Simple User Interface with small display (not for ILM-4R)					
			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 customer settings					
ILM-4 /	L20 /	S01 /	V /	I63 /	D /	S /	P /	X	
ILM-4R /	L20 /	S01 /		I63 /	D /	L /	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

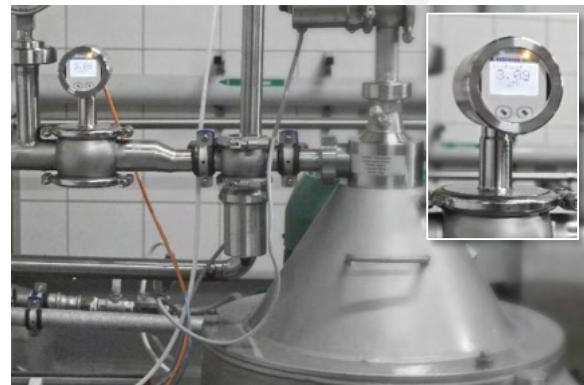
Active automated and temperature-independent phase transition in the return line of product / acid / lye / water.

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



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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



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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:

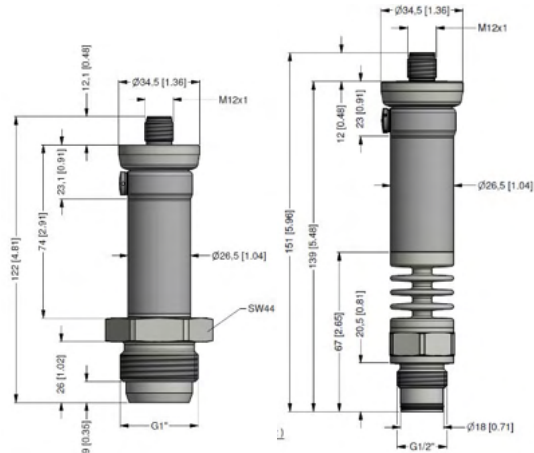
- **Compact stainless-steel design** with direct output to the PLC
- **Precise measurement even at high pressures** up to 40 bar, overpressure resistance up to 100 bar
- **Very robust and durable** design despite its delicate appearance
- Absolute or relative pressure measurement.
- Relative measurement 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 \geq 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

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