

SENSORS FOR FOOD AND LIFE SCIENCES.












HYGIENIC BY DESIGN

**ANDERSON-NEGELE**



## Sensor Technology for the Dairy and Cheese Industry

-  TEMPERATURE
-  PRESSURE
-  LEVEL
-  POINT
-  FLOW
-  CONDUCTIVITY
-  TURBIDITY
-  WEIGHING SYSTEMS
-  PROCESS ADAPTERS

How can I optimize my dairy and cheese production with Anderson-Negele instruments?

How can I avoid waste with sensing technology?

What can digitalization with IO-Link do?

How can hygienic design help in product quality and safety?

[ANDERSON-NEGELE.COM](https://www.anderson-negele.com)



## How can I optimize my dairy and cheese production with Anderson-Negele instrumentation?

Intelligent sensing technology can help you ensure **reproducible product quality** throughout the production process, automate processes, minimize energy and resource consumption, and avoid production downtime and food waste.

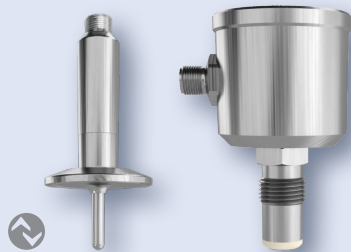
As diverse as raw material quality, recipes and processes in the production of dairy and cheese products are, so are the demands on measurement technology. That's why we offer a **complete sensor program**, each with a wide range of variants and options. You get **exactly the performance you want** for every application and every business type, from regional producers of milk or cheese specialties to industrial dairy plants – no more, no less.

**Our tip:** This brochure provides an overview of the most important products and information. All the details and configuration options can be found on our website. Clicking on the icon will take you directly to the online product category. Of course, we are also happy to help you personally in finding the optimal solution for you.

= Product category online link

### Temperature

They are indispensable in almost **every step** of production and for CIP control. That's why we offer them in 2 standards (Big and Mini), with a **comprehensive performance range** and an almost infinite variety of **configurations, process connections, and options**.



TSMA / TSBA

- ✓ For vessels and pipes from DN25
- ✓ Flush design available
- ✓ Accuracy < ±0,1 K
- ✓ Extremely robust and permanently precise
- ✓ Optional programming display

### Pressure

Keep **optimum control of process or vessel pressure** at all times. Many sensor options provide the most suitable solution for **every application, every requirement and every desired pressure measuring range**, be it as an on-site display or for PLC connection.



Transmitter: P42

- ✓ Measuring range up to 250 °C / 40 bar
- ✓ Absolute, Relative or Compound measurement
- ✓ Vacuum-proof
- ✓ Many more pressure transmitter models available



Gauge: EL

- ✓ Extremely robust, even with pressure shocks
- ✓ Accuracy up to ±0,25 %
- ✓ 90 mm display
- ✓ Two-point adjustment
- ✓ Many versions and options with 63 or 90 mm diameter

Milk Receiving





**Level**

Different temperatures, different vessel shapes, pressurized or aseptic processes, different densities, differently foaming media, different turbidity and solids contents - highly **different requirements and dynamic changes** influence the control of the filling level of your various vessels and containers. However, at all times you need to know exactly **how much product is in the vessel** or ensure that a **vessel does not overflow or run dry**. That's why we offer **different measuring techniques and many different designs and options**, so that you get the best solution for every purpose and application.

<p>Hydrostatic: L3</p>	<p>Potentiometric: NSL-F / NSL-M</p>	<p>Hydrostatic: LAR</p>
<ul style="list-style-type: none"> <li>✓ Always precise due to significantly reduced temperature effect</li> <li>✓ Direct output of volume, level or pressure</li> <li>✓ Integrated tank linearization and density compensation</li> </ul>	<ul style="list-style-type: none"> <li>✓ Highly accurate even with foam, pasty or adhering media</li> <li>✓ Installation from the top, below, or side, rod can be adapted to vessel shape</li> <li>✓ Also for pressure vessels and up to 3 m</li> </ul>	<ul style="list-style-type: none"> <li>✓ Climate-resistant, hermetically sealed measuring system</li> <li>✓ No drift problems due to condensation</li> <li>✓ Accuracy ≤ 0.075 %</li> </ul>



**Point Level**

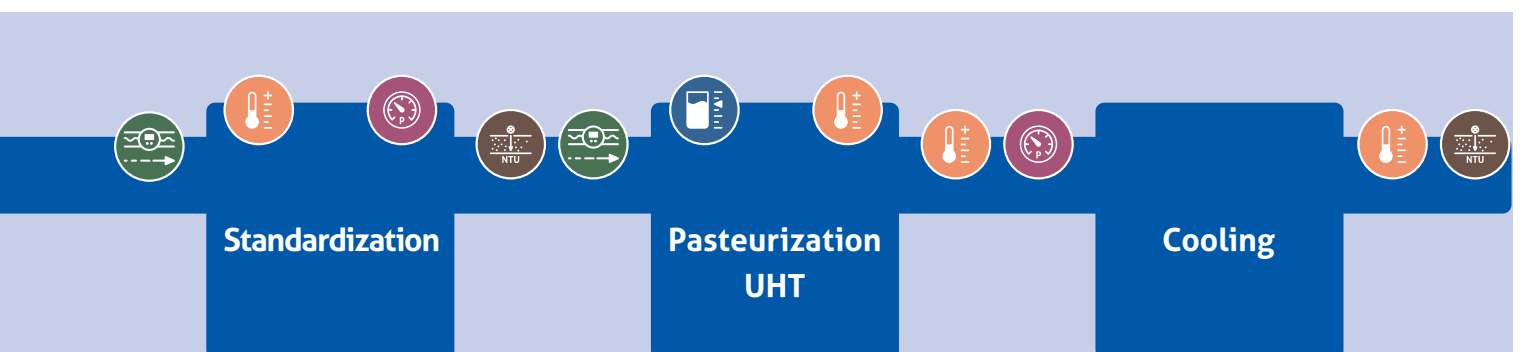
<p>Capacitive: NCS / Conductive: NVS</p>
<ul style="list-style-type: none"> <li>✓ Reliable point level control even with foamy or viscous media</li> <li>✓ Hygienic installation on top, below, or side</li> <li>✓ Very fast reaction time</li> <li>✓ Also for double-walled vessels</li> <li>✓ Optional heating to avoid condensation</li> </ul>



**What advantages does sensing technology offer in batch or continuous processes?**

Every production process has its specific requirements. In **batch processing**, instrumentation in the process vessel is often in conflict with moving parts; here, factors such as installation situation, flushness, suitability for insulated tanks and vibration resistance are important. In the **continuous process**, sensors are your "eye in the pipe", your view into the process. Here, for example, short response times, adaptation to media changes or automated error alarms are important success criteria.

**Our tip:** Thanks to a large selection of sensor types and configuration options, our product range offers a suitable technology for most requirements and production methods. Tell us your specific application and we will be happy to help you select the best solution.






Many of our sensors are available as “remote” version. The actual measuring device and the electronics unit with operating display are separated. This **protects the electronics from vibrations and high temperatures** and can significantly increase the service life. It is also extremely practical, as you can simply place the electronics and displays where it is most **convenient and accessible for easy and quick reading or programming**.

**Our tip:** Get the perfect overview of all processes and containers without having to bend down or walk around and ensure easy programming and longer service life with remote sensors.

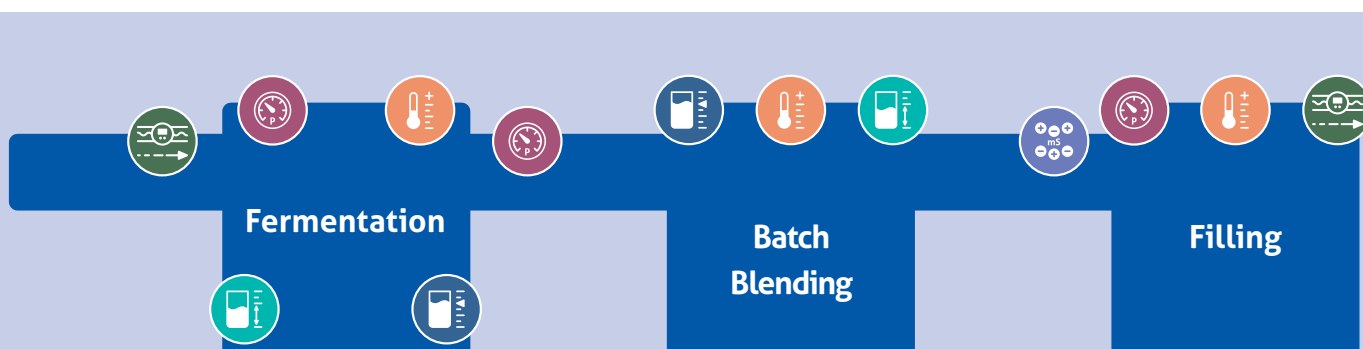
 = Remote version available

## What advantage do remote sensors offer me?

Flow Meters 		
Here's how to <b>keep control</b> of your products, monitor your blending, and ensure the <b>reliable operation</b> of your production equipment: electromagnetic, turbine, or coriolis mass flow meters offer <b>a solution for any media</b> .		
		
		
<b>Electromagnetic: FMQ / FMI / IZMSA</b>	<b>Coriolis: Micro Motion</b>	<b>Turbine: HM</b>
<ul style="list-style-type: none"> <li>✓ From the compact, robust, low-cost allrounder to the high-end version</li> <li>✓ Measuring range 30 l/h to 280 000 l/h</li> <li>✓ Measuring accuracy up to ±0.2 % ±1 mm/s</li> <li>✓ Process temperature up to 165 °C, CIP up to 130 °C (30 min.)</li> <li>✓ Certifiable version with Certificate TC7520 (2014/32/EU) available</li> </ul>	<ul style="list-style-type: none"> <li>✓ Flow and density measurement in a compact hygienic flow meter</li> <li>✓ Exceptional reliability and safety</li> <li>✓ Liquid mass flow accuracy up to ±0.05 %</li> <li>✓ Liquid density accuracy (g/cm<sup>3</sup>) up to ±0.0005</li> </ul>	<ul style="list-style-type: none"> <li>✓ Non-contact turbine pulse measurement for aqueous media</li> <li>✓ Ideal for non-conductive media such as exhaust water, oils, cleaning agents and acids</li> <li>✓ Measurement accuracy: ±0.5%</li> </ul>

Flow Switches 
Flow monitors give an alarm when the flow stops and are <b>ideal for monitoring</b> pump systems, filters, cooling circuits, the CIP return or for detecting misdirected media.

<b>Calorimetric: FTS</b> <b>Ultrasonic: FWS / FWA</b>
<ul style="list-style-type: none"> <li>✓ Measuring range 0.1...3 m/s</li> <li>✓ Very short response time</li> <li>✓ Temperature compensated</li> <li>✓ Thanks to different technologies the right solution for any, even high-purity, media</li> </ul>





**Turbidity**

Turbidity sensors can be used to clearly distinguish between liquids based on their clarity, but also on their fat content. Do you want to safeguard your product quality by precisely monitoring the degree of turbidity? Control the phase transition of milk, cream and whey with maximum efficiency? Supervise the function of your filter systems? Reuse slightly contaminated CIP media and thus save costs? Minimize wastewater costs through contamination monitoring? Then our turbidity sensors are **your perfect solution**.



ITM-51

- ✓ Front-flush design with backscatter light technology
- ✓ Easy installation due to screw or clamp connection
- ✓ Measuring range: 200...300 000 NTU
- ✓ High safety and durability due to glass-free sapphire optics



ITM-4

- ✓ Four-beam alternating light technology (90° scattered + 180° transmitted light)
- ✓ Measuring range: 0...5 000 NTU
- ✓ Measuring accuracy: resolution 0.1 %
- ✓ Response time < 1 sec.
- ✓ Many process connections from DN25 to DN100



**Conductivity Sensors**

For active, automated phase transition, control of the CIP return of acid / caustic / water and concentration control of the CIP cleaners: ILM-4, your **safeguard for process reliability**.



ILM-4

- ✓ Measuring range: ≤ 1... ≤ 999 mS/cm
- ✓ Sensor response time only 1.2 sec.
- ✓ Configurable from basic to high-end model
- ✓ Extremely robust and durable: 5 years warranty



**How can I avoid waste with sensing technology?**

For a producer, this not only means an **ecological and ethical** component, but also **pays off in hard cash**. Every liter of wasted resources means lost value. And every liter of product that ends up in the gutter even causes additional expense in wastewater treatment.

Areas where **intelligent instrumentation can help prevent losses include**, in particular, phase transition between two media, insufficient product quality

due to processes that are not optimally controlled, inaccurate level control in storage or process vessels, and a CIP process that is not automated.

**Our tip:** Examine all your processes for their optimization potential. We will be happy to help you on site.

**Cheesemaking Tank**

**Spray Drying (Milk Powder)**

**Water / Waste-water Treatment**



Anderson-Negele products are designed and built **exclusively for food and beverage applications**. Therefore, they meet the requirements for hygienic production, **certified by 3-A and EHEDG**. This means **maximum hygiene protection** of your products, **easy equipment cleaning**, and ultimately **maximum peace of mind for you and your customers**.

When it comes to process connections, we also offer a wide range of solutions

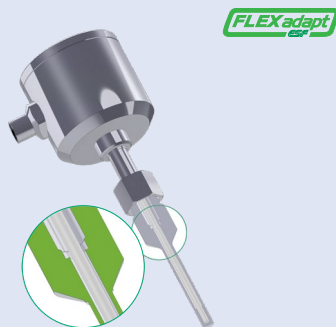
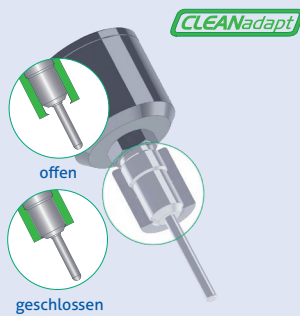
that ensure hygienic integration into your plants through dead space-free design and superior material and surface quality.

**Our tip:** With CLEANadapt and FLEXadapt, we have specially developed process connection systems that simplify sanitary installation and operation and can even be retrofitted.

## How can hygienic design help in product quality and safety?

### Process adapters

For a wide range of sensor types, our connection systems offer a **consistent sanitary installation concept**: High-quality stainless steel or PEEK for all wetted components, simple and secure screw connection or even installation in thermowells for sensor removal without disrupting the process.



CLEANadapt

FLEXadapt

✓ Installation in flow-optimized weld-in sleeves, pipe tees or adapters for existing process connections.

✓ Installation without media contact in a thermowell permanently welded into the process. Many sockets, adapters or pipes available.

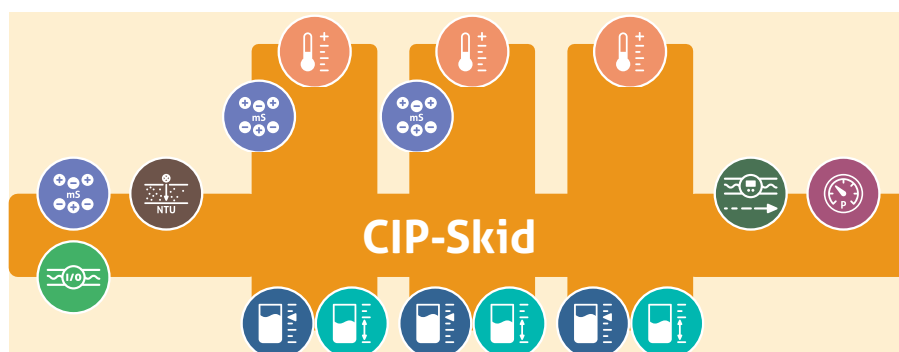
### Weighing Systems

Turn your vessel into a precision scale. When integrated level control systems fail, weighing systems come into their own. Load Discs give you **full control of the contents**, even with interchangeable containers for ingredients or additives.



Load Disc

- ✓ For loads from 100 kg to 10 t
- ✓ Measuring accuracy 0.03 %
- ✓ Long service life
- ✓ Individually configurable





## What can digitalization with IO-Link do?

Most Anderson-Negele sensors with IO-Link are equipped with "Flex-Hybrid Technology", i.e. **digital IO-Link and analog 4...20mA communication in parallel**. Even if the plant is operated analog, you can commission all sensors with only one software via computer. Specific programming can be easily transferred to other sensors by copy-paste. And in the case of a sensor exchange, the entire individual programming is transferred simply by plugging it in.

👍 **Our tip:** With Flex-Hybrid Technology, you already have advantages in installation and commissioning. And if you switch to digital IO-Link technology later, there is no need for new sensors.

🔄 = IO-Link version available

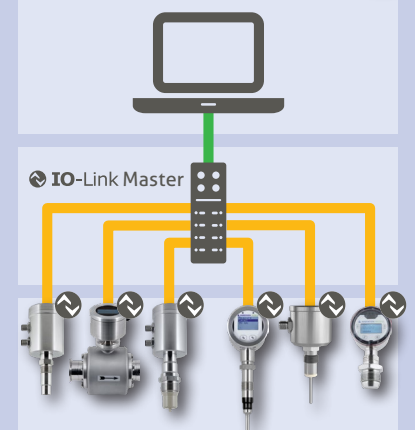
### IO-Link

Your key to greater efficiency: sensors with IO-Link in Flex Hybrid technology. These make **planning, commissioning and operating** your plants **easier, faster and more flexible**. For **existing analog plants**, Flex-Hybrid means easier programming, sensor changes with "plug-and-play", and if you upgrade to IO-Link control at some point, the sensors are changed over just by plugging them in.

- ✓ Extensive sensor program for almost all measuring categories
- ✓ Only one software for programming and configuration
- ✓ Suitable for all IO-Link masters
- ✓ Add-on instructions (AOI) available

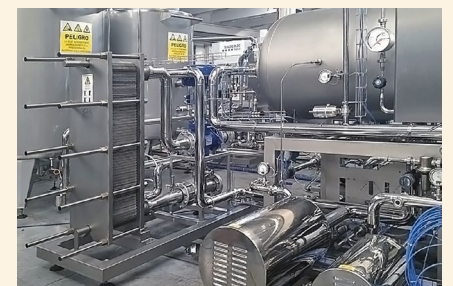
- ✓ Automatic programming transfer when replacing a sensor

More info at [www.io-link.com](http://www.io-link.com)



## And does all this really work in practice?

Many customers use our sensors under a wide **variety of everyday requirements**. Discover how other dairies and food producers are successfully overcoming their challenges with Anderson-Negele sensors. Our **case studies show examples** where we have been able to help our customers achieve their goals through application consulting, product testing or technical support. You can **find our case studies** and application reports online here: <https://www.anderson-negele.com/us/food-beverage/>



👍 **Our tip:** Our case studies can give you a small overview of the variety of applications where intelligent sensor technology, used correctly, can make your work easier, improve quality and reduce costs. We would be happy to visit you to find answers to your questions on site. **Please contact us!**



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