HYGIENIC SOLUTIONS

HYGIENIC DESIGN, WASH-DOWN, ASEPTIC

Food, beverage and pharmaceutical industry

SICK
Sensor Intelligence.

HYGIENE AS A CHAIN OF COMPETENCY: SAFE SENSOR SOLUTIONS WITH NO WEAKEST LINK

The portfolio of stainless-steel sensors and accessories from SICK offers hygienic solutions for flexible automation, protecting machines and processes, for quality control, and for identification applications. To ensure the continuous and long-term safety of products and processes, it is necessary to solve a variety of requirements with regard to the chemical resistance, thermal resistance, impermeability, and structural design of the stainless-steel sensors while adhering to market standards. These are interrelated like the links of a chain, where the weakest link will determine the suitability of the sensor or system solution for hygienic applications.

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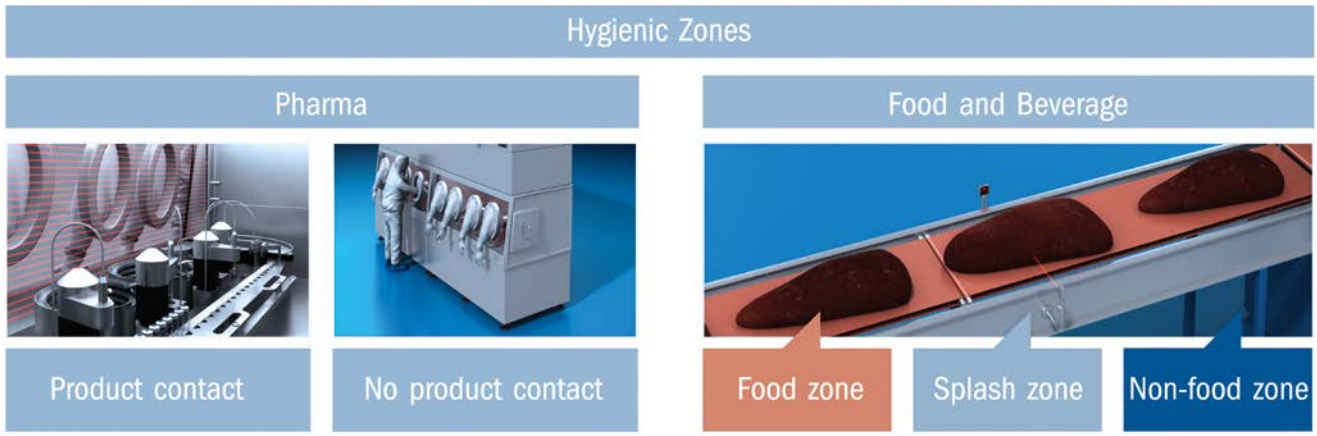
WASHDOWN AND HYGIENIC DESIGN: A REWARDING INVESTMENT

Hygiene-compliant sensors “shine” not only on account of their stainless-steel housing but also as a result of numerous other measures that guarantee best possible chemical and thermal resistance as well as impermeability. The hygienic design of the stainless-steel sensors from SICK embodies a great deal of know-how regarding the food, beverage and pharmaceutical industry. Different levels of requirements apply to the various hygiene zones in these sectors. Sensors for product contact zones, food zones, and splash zones therefore need to fulfill more stringent hygiene regulations than sensors for non-product contact zones and non-food zones.



Product contact zone

The structural and hygienic design of sensors for the pharmaceutical industry needs to satisfy the stringent hygiene standards that apply in that sector. Only by ensuring a seamless housing design, smooth transitions between the front screens and the operating and visualization components on the sensor, and rounded edges and beveled surfaces is it possible to reliably and permanently eliminate the residues that act as breeding grounds for bacteria and other microorganisms. Aggressive chemicals such as hydrogen peroxide are frequently used to clean the machine parts.

Food zone (hygiene zone)

Hygienic sensors are constructed in such a way that they can be used in direct contact with foods, i.e. in the hygiene zone of a machine. Machines and systems that have been hygienically designed provide no, or hardly any surfaces on which product deposits can build up. Fewer buildups of product deposits mean less cleaning, in turn reducing the amount of detergent, water, and energy required. Plant availability is increased as a result of shorter cleaning process times – this is a real economic benefit, particularly if products are changed frequently.

Splash zone (cleaning zone, washdown)

Washdown indicates that the splash zone of a machine can be wet-cleaned easily and quickly – and with this type of cleaning, there will be very few or no residues (food, cleaning agents, or water) left on the surfaces. Sensors in the splash zone must therefore be rugged when exposed to cleaning agents and high-pressure cleaning.

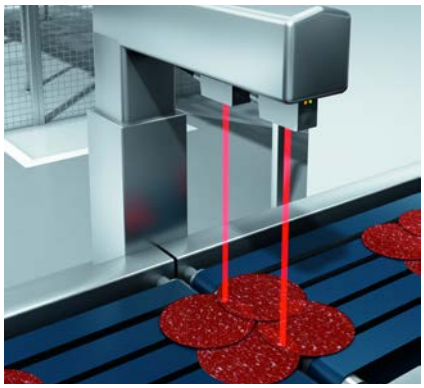
FLEXIBLE AUTOMATION

Sensing of loading cart position

Accurate positioning of the loading cart is important for transporting the product in exactly the right position in the loading cart and so ensuring safe, hygienic further processing of the product. Cylindrical photoelectric sensors like the GR18 Inox cylindrical photoelectric sensor are ideal for this task. Thanks to their compact design, such sensors can be incorporated into the machine design even in applications where there is not much installation space.

- GR18 Inox cylindrical photoelectric sensor

→ www.sick.com/GR18_Inox
→ www.sick.com/G6_Inox



Reliable detection in harsh and hygienic environments

Foods such as slices of salami should follow each other on the conveyor belt arranged correctly. Reliable detection of gaps prevents problems in the production process. The WTB4S-3H photoelectric proximity sensor with precise PinPoint technology is the right choice here. With its teach-in button that can be sterilized, the rugged stainless-steel housing meets the requirements for cleaning processes in the food industry.

- W4S-3 Inox Hygiene miniature photoelectric sensor

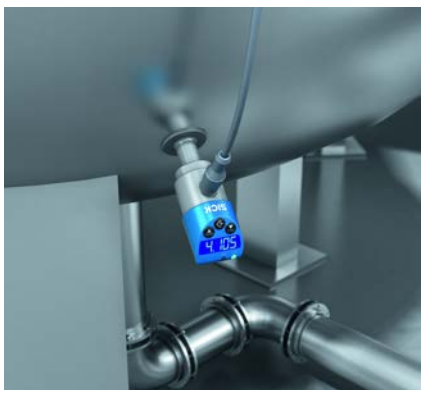
→ www.sick.com/W4S-3_Inox_Hygiene

Precise speed measurement on conveyor belts

An essential part of process control involves synchronizing the conveyor belt speed at the cheese slicer outlet with downstream machines. The DFS60 Inox incremental encoder continuously measures the actual value signal for the speed in order to reliably control the downstream process. Thanks to its IP67 enclosure rating, it is particularly suitable for use on machines in hygienic areas and wet zones.

- DFS60 Inox incremental encoder

→ www.sick.com/DFS60_Inox



Level measurement in storage tanks

Pressure sensors are used to continuously monitor the level of storage tanks in the beverage industry. As the pressure sensor comes into contact with the product, it must be suitable for stringent hygiene requirements. The PBS Hygienic pressure sensor, with its flush-mounted, highly resistant stainless-steel membrane and aseptic process connections, enables safe, hygienic operation and offers exceptional resistance to CIP and SIP processes.

- PBS Hygienic or PHT pressure sensor

→ www.sick.com/PBS_Hygienic
→ www.sick.com/PHT

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FLEXIBLE AUTOMATION

Query of coupling bend position

Coupling panels are used in storage tanks within the beverage industry to control the product flow, and they connect pipes together. The IMF inductive proximity sensor is used to query the position of the coupling bend. Thanks to a sensing face made of metal and a stainless-steel housing thus consisting of one single piece, this sensor is resistant to frequent cleaning, temperature shocks, high mechanical loads, and aggressive media.

- IMF or IMI inductive proximity sensor

→ www.sick.com/IMF
→ www.sick.com/IMI

Measurement of flow in the CIP system

Flow measurements in CIP systems are important for dosing exactly the right amounts of chemicals. The stainless-steel DOSIC® ultrasonic flowmeter in the EHEDG design reliably measures conductive and non-conductive liquids up to a medium temperature of 143 °C and therefore increases the reliability of the entire CIP process. A display and pushbuttons facilitate user-friendly sensor setup.

- DOSIC® or T-Easic FTS flow sensor

→ www.sick.com/Dosic
→ www.sick.com/T-Easic_fts

Reliable print mark detection

Reference marks help to determine packaging materials safely in automated production processes and position them correctly. The KTM contrast sensor detects these marks reliably, thereby enabling machine functions such as foil cutting to be precisely controlled. The stainless steel variant is used when hygiene requirements must be met. The associated hygienically-design mounting system also minimizes the risk of contamination.

- KTM PRIME contrast sensor

→ www.sick.com/KTM_Prime

Level measurement in buffer tanks

Buffer tanks must remain filled above a certain level to guarantee the supply of liquid to the filling machines. The LFP Inox level sensor reliably measures hot and sticky media. Using FDA-compliant materials, EHEDG-certified design, and CIP and SIP resistance, the LFP Inox is suitable for applications with stringent hygiene requirements.

- LFP Inox level sensor

→ www.sick.com/LFP_Inox

QUALITY CONTROL

Optimization of the cutting process using 3D vision

Form and volume measurements optimize cutting processes in foods such as meat and, as such, save on costs. An exact, three-dimensional measurement of any product shape reduces waste. The IVC-3D 3D vision with its stainless-steel housing is ideal for the high hygiene requirements of the food industry and can withstand aggressive cleaning.

- 3D-Vision-Sensor IVC-3D

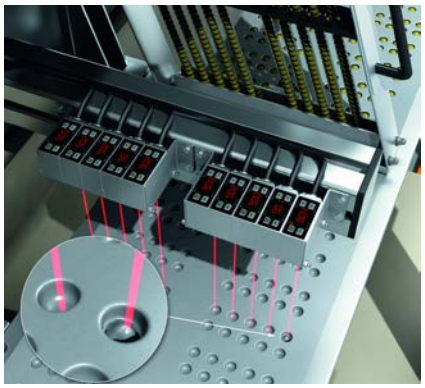
➜ www.sick.com/IVC-3D

Measurement of temperature at the heat exchanger of a CIP system

The temperature in the steam heat exchanger is permanently monitored. Temperature sensors are used to adjust the cleaning temperature. The THTE resistance thermometer has been integrated in the heat exchanger pipes via installation sleeves. Because of this, the sensor can even be replaced during operation.

- THTE temperature sensor

➜ www.sick.com/THTE



Quality control for blister packaging

With its extremely small design and light weight, the OD Mini measurement sensor opens up entirely new applications for production processes. In the monitoring of pressed blister packaging, it can measure distances of up to 250 mm in µm increments, thereby enabling, for example, the precise detection of incorrectly pressed packaging. Thanks to its display, the OD Mini can be commissioned quickly and easily.

- OD Mini displacement measurement sensor

➜ www.sick.com/OD_Mini

Point level monitoring at CIP storage containers

Point level monitoring at CIP storage containers is done by level sensors, which perform accurate empty and full detection processes at the storage container. The LFV200 vibrating level switch is the right choice here. It is wear-free, maintenance-free, and can take measurements in a huge variety of liquids. The housing has a particularly high surface quality and aseptic process connections.

- LFV200 level sensor

➜ www.sick.com/LFV200

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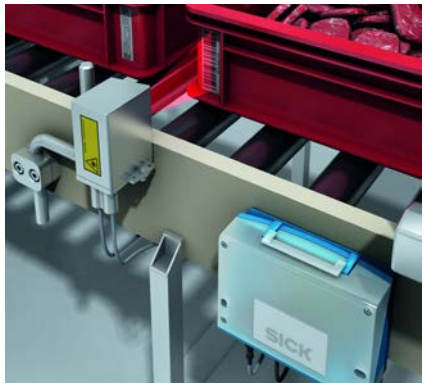
IDENTIFICATION, SAFETY, ACCESSORIES

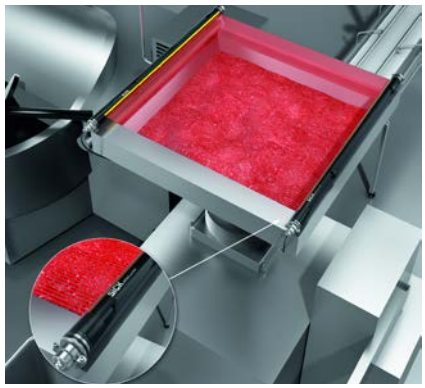


Reading of bar codes on transport crates

In the meat-processing industry, 1D bar codes on transport crates are read under harsh conditions. The bar code scanners from SICK are ideal for this purpose. Their rugged IP69K stainless-steel housing make them suitable for long-term use with intensive cleaning cycles. Thanks to the integrated polycarbonate screen, there is no risk of glass breakage and the expensive HACCP (Hazard Analysis and Critical Control Point) procedures for protecting against possible contamination become unnecessary.

- CLV62x, CLV63x, CLV64x bar code scanner

→ www.sick.com/CLV64x



Hazardous point protection on the storage container

To ensure a safe process flow, it is very important to protect the hazardous point on the storage container used to feed in the meat. This is where the deTec4 Core safety light curtain in an IP69K protective housing comes in. It provides reliable hazardous point protection and, due to its rugged and smooth material, is resistant to high-pressure cleaning in a hygienic environment.

- deTec4 Core IP69K safety light curtain

→ www.sick.com/deTec

Protection of glove ports

Pharmaceutical manufacturing facilities need to guarantee maximum product protection. This is achieved by means of physical barriers that separate the product and users. Glove ports allow access to the process without the risk of contamination. To ensure that interventions only occur when processing has stopped, the TWINOX4 safety light curtain protects the access points. Thanks to its stainless-steel housing, the TWINOX4 is suitable for all common decontamination processes.

- TWINOX4 safety light curtain

→ www.sick.com/twinox4

No chance of germs, even in the accessories

SICK has developed special mounting systems and connecting cables for use in the food and beverage industry. With Ecolab certification and an enclosure rating of IP69K, resistance to the tested cleaning agents and disinfectants is guaranteed.

- Plug connectors and cables
- Mounting systems
- Reflectors

→ www.sick.com/F+B_cables
→ www.sick.com/beftecHD
→ www.sick.com/special_reflectors

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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,800 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com

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