SICK insight MAGAZINE

: FOCUS **SAFE FOOD CHAIN**

SAFE TRACEABILITY

RELIABLE SENSOR SOLUTIONS FOR A SAFE FOOD CHAIN

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IMPROVING TRANSPARENCY

Dear Readers,

Progress in food technology, the globalization of trade, and shifts in our eating habits have created new conditions for the production and consumption of food. Not only are food chains becoming increasingly global, they are also becoming more and more complex, often leading to health risks in food supply. Information on origin, quality, and safety of the food we eat every day is therefore equally important for both consumers and the food industry. Sensor technology from SICK guarantees reliable data acquisition and quality assurance along the entire food chain.

Especially in processes that are part of the industrial production, processing and packaging of food, a vast array of different data must be gathered and processed and will vary based on the level of automation of the machines and systems involved. The use of sensor technology to supply data and other information plays a key role in tackling this challenge. The greater the amount of digital information available within a given process, the more efficient it becomes to transition from one process step to the next and also to control and monitor the process as a whole. This can result in added flexibility when switching between products or formats and also lead to reduced processing times, for example. Sensor technology from SICK is characterized by its high degree of integrability into your existing system networks and its selection of compatible connection devices. Our sensors are also extremely rugged, which allows them to meet any hygiene requirements and provide a reliable supply of process data, even under harsh ambient conditions.

However, it takes more than supplying process data to improve transparency in the food industry: Information about both the products themselves and their origin and location is also a vital part of achieving this goal. After all, transparency means the ability to clearly and safely identify foodstuffs at all times. It must also be possible to track the paths traveled by these items in order to ensure seamless traceability. And those products that fail to meet your strict quality requirements must be prevented from even making it onto the shelf for sale in the first place. Our application specialists are happy to help you determine which sensor solutions are the best fit for your specific needs. That‘s because at SICK, we offer flexible technology options.

We hope you enjoy reading this issue of SICKinsight.

Reinhard Bösl
Member of the Executive Board of SICK AG

Tomato harvesting 2.0
At KAGOME, RFID technology is making real-time identification and reliable traceability of tomatoes a reality.

Smooth product handling in 3D
The robot manufacturer ABB and SICK give picking robots the sense of sight – with IVC-3D vision sensors.

W8 Inox passes its practical test
Photoelectric sensors take on detection tasks in meat processing.

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Phone +49 7681 202-0 · Fax +49 7681 202-3863
www.sick.com · editorial@sick.de

Project coordination:
Stephanie Rott

Editorial team:
Solvejg Hannemann *(sh)* · Tobias Maillard *(tm)*
Ingrid Rathfelder *(ir)* · Stephanie Rott *(ro)*

Layout:
Daniel Kaidusch · Verena Weber

Pictures:
SICK AG · 123RF · ABB · Cavanna Group · MULTIVAC

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FOOD SAFETY – FROM FARM TO FORK

ENJOYMENT WITH PEACE OF MIND

A variety of foodstuffs, which were previously only available when in season, are now commercially available all year round. The demand for frozen products and ready meals is also on the rise. This desire for the rapid and permanent availability of foods has consequences for the structure of the food supply chain because many products and ingredients are now imported and exported.

>> As a result, the global trade in food entails not just logistical challenges, but also food safety risks. For instance, food fraud by international suppliers, such as the European horsemeat scandal in 2013, or food-related outbreaks of disease cannot be limited to a single region or country. In a bid to address this, consumers are calling for more transparency with regard to the provenance and authenticity of foodstuffs. They want to know the level of quality in food, what it contains, and under what conditions it was produced, processed, packaged, stored, and delivered.

Securing traceability – Preventing recalls

Legal requirements also have global ramifications on the efforts of the food industry to guarantee the highest possible standards of food safety. In no other industry do the slightest mistakes at any stage of the food chain have such serious consequences on consumer well-being as in the food production and processing industry. Food scandals such as the Dioxin Affair or the European BSE crisis in the late 1990s prompted both the foundation of the European Food Safety Authority (EFSA) in 2002 and the European Parliament and Council's adoption of Regulation (EC) No. 178/2002, which laid down the general principles of food law. This Regulation requires the food industry to establish systems to enable traceability of foodstuffs across all stages of production, processing, and distribution. In addition, food companies became responsible for recalling unsafe goods and products in order to prevent contamination of the food chain. To allow them to assess the causes of a contamination, companies must be able to trace back the trajectory of their products from the producer, through the processing stages, to retailers. In the worst-case scenario, all affected foods must be withdrawn from circulation as quickly as possible. Recalls not only entail financial damage for companies, but are also damaging to brand reputation. It is therefore essential for them to implement an appropriate traceability system which offers complete documentation on the product's route through production, thereby allowing companies to minimize the scale of recalls. Identification solutions such as RFID technology, laser-based bar code scanners, and image-based code readers from SICK collect all the information necessary to reliably trace foodstuffs.

Securing quality – Preventing errors in production, processing, and packaging

Due to the increasing consumer demand for quality, a key necessity for the food and beverage industry is quality

assurance. The high demand for foodstuffs conforming to ever more specific consumer preferences necessitates a customized approach to production, processing, and packaging. To this end, the appropriate production, processing, and packaging processes must be designed to be as flexible as possible, while also fulfilling the need to use resources efficiently. With respect to quality assurance, it is therefore worthwhile to monitor a large number of process parameters, to discover abnormalities and errors, to reduce the amount of waste, and to avoid machine downtime – all at high production speeds. Vision technology from SICK is used in the food and beverage industry to detect not only the position of goods and packaging and measure their dimensions, volume, and contours, but also to check their level of quality. This technology generates a great deal of process data, enabling better monitoring and automation of production, processing, and packaging processes, whether in the primary, secondary, or final packaging stage. For instance, even the most challenging gripping tasks can be executed in a way that prevents damage to the product. Intelligent, flexibly adjustable photoelectric sensors from SICK help to significantly enhance the quality and efficiency of packaging machines.

Securing data acquisition – Preventing bacterial growth

For safe production, processing, or filling of food and beverages, it is essential that strict hygiene standards, such as those specified by the EHEDG (European Hygienic Engineering & Design Group) or the American 3-A Sanitary Standards, Inc. are observed at all times. To this end, machines and systems in the food and beverage industry are subjected not only to particularly high temperatures, but also to daily high-pressure cleaning (washdown) and aggressive cleaning and disinfection agents. But even when such extreme conditions are in place, users would be unwise not to use intelligent sensor technology to make their production and processing procedures more efficient. SICK not only offers sensors such as photoelectric sensors, bar code scanners, and level, pressure, and temperature sensors, but also offers the corresponding accessories in rugged stainless-steel, Inox, or VISTAL™ housings. This broad product portfolio also includes sensors coated with PTFE (Teflon) or, for example, safety light curtains with enclosure rating IP 69K for hazardous point protection in wet areas. The sensors feature a high degree of seal tightness, while also offering thermal and chemical resistance. Due to their exceptional ruggedness, they are always able to collect process data reliably, thereby guaranteeing the supply of digital information. *(ro)*

AUTOMATED TOMATO HARVESTING

INTELLIGENT IDENTIFICATION

Most of us enjoy the great taste of nutritious tomatoes – as pure and fresh crops, tomato sauce, or with pasta. Around 20 million Australians eat 22 kg of processed tomatoes per head annually. Founded in 1899, the Japanese tomato processor KAGOME boasts more than 100 years' experience in the tomato growing and processing industry. Since 2010, KAGOME Australia's factory based in Echuca has been cultivating and processing tomatoes, by providing high-quality tomato products to food companies in Australia and other countries. RFID technology from SICK allows KAGOME to ensure product traceability and leads to increasing efficiency in the production process.

>> According to the Australian Food and Grocery Council (AFGC) website, "The protection of the health and safety of consumers is a fundamental requirement and a legal obligation of all companies involved in the production and sale of food and grocery products." Quality control covers KAGOME's entire process, from tomato seed management and growing crops through to in-store displays. The minimized use of agrochemicals and the maximized use of natural pollination ensure that the tomatoes supplied are grown in a manner that is friendly to people, the crops themselves, and the environment. Today, cultivating and processing tomatoes is a matter of automation, and it can be a logistic challenge to get the tomatoes from the fields to the factory in the most efficient way.

Looking for an automated identification solution

On the Echuca fields, KAGOME operates 12 harvesters loading tomatoes into more than 300 huge bins, each with a capacity of 14 tons. Once a bin is full with fresh tomatoes, it is unloaded at a bin pad, waiting for one of 12 trucks to pick it up and take it to the weighbridge close to the factory. One trip from the fields to the KAGOME factory takes approximately 90 minutes and each truck can load three bins – that is an average of around 42 tons of tomatoes per truck. Three years ago, there used to be long truck queues at the weighbridge, and the truck drivers had to wait for 12 minutes until they could get out of the truck to have the tomatoes weighed. As part of KAGOME's quality control process, three samples from each bin had to be processed in the laboratory because it was not obvious which tomatoes came from a KAGOME farm. In addition to that, the drivers had to prepare paperwork to document the harvesting process as well as the quantity and quality of the yield. This process increases the potential for human error in a paper-based quality control system, which can result in contaminated products reaching the consumer, conceivably creating widespread foodborne illness. So to ensure traceability, it was time for KAGOME Australia to look for a paperless automated identification solution to be implemented at the weighbridge.

Harvester loading tomatoes into a bin.

Guaranteeing traceability: What is the best solution for identifying tomatoes?

Food traceability is the process of tracking a product's history and sharing that data along the entire processing path – so-called "farm-to-fork" or "paddock-to-plate" programs. While traceability has always been important for the food and beverage industry, in recent years the need for real-time recalls has increased in Australia, due to plant processing errors or recalls from Food Standards Australia New Zealand (FSANZ). In the ideal case, there is no need for product recalls; however, in the event of a recall, minimizing the impact is a major focus of any food manufacturer's program of compensation. An effective tracking and tracing program comprises a number of components, starting with accurate and fast identification. For years, the identification workhorse has been the ubiquitous bar code. As foodstuffs move through the production process, they are identified by a unique code; on containers when in process, on packaging for the finished product, on cartons and pallets during transport and on shelves when they finally hit retail stores. The KAGOME specialists were looking for a real-time identification solution that can handle mud and tomato juice as well as heat, wind, and rain.

Streamlining harvesting processes with RFID

RFID technology (radio frequency identification) is increasingly found in food tracing as technology improves and prices come down. Implementation is not uncommon in the case of large containers containing raw products and in the mixing of bulk materials. It offers companies a number of ways to streamline and manage their capacities, focusing particularly on the issues of traceability and process reliability. Using wireless technology for identification purposes opens up a new dimension in automatic data recording. The automotive industry has been utilizing RFID for years, where a tag is attached to the car body and is encoded with data options for each vehicle. RFID tags offer more functionality than bar code technology, as they are read/write devices and no visual contact of the tag is required. Moreover, they are very robust so that they can even survive harsh ambient conditions such as high temperatures, mud, or wetness.

Jean-Michel Maclou (Industry Sales Manager) and Christian Herr (Sales Engineer) from SICK Australia presented the RFU63x read/write unit to KAGOME

in 2012. The device is an ultra-high frequency (UHF) RFID solution for tracking and tracing of reusable containers that also offers the possibility of bulk detection. Furthermore, the RFU63x can be used as an intelligent stand-alone system. Integrated functions such as data processing and filtering ensure stable reading performance and short reading cycles. In January 2013, KAGOME installed six RFU63x units from SICK, each equipped with three antennas for double stacked bins, at the weighbridge and discharge hill at the factory in Echuca. Resistant and stable RFID tags were attached to the tomato bins, accompanying them right from the start of the harvesting process. As a result, the RFU63x entirely meets KAGOME's requirements set out for paperless automated identification of tomatoes. In this way, RFID helps to prevent the typical errors made during inbound and outbound goods processes, for example incorrect quantity and quality data, or missing accounting entries.

RFID allows real-time identification of where the tomatoes come from. Due to paperless identification, no truck driver has to leave the truck at the weighbridge anymore, and the driver safety is enhanced. This efficiency gain means that the truck is spending less time at the weighbridge and that truck jams in front of the weighbridge and the tomato drop hill have become a thing of the past. As the truck time at the weighbridge has been reduced from previously 12 minutes to two minutes, the truck driver can go for an extra trip per 12-hour shift.

The RFU63x read/write unit by SICK does not require visual contact of the tag.

With a fleet of 12 trucks and one truck loading an average of 42 tons of tomatoes, this means a productivity gain of 504 tons in total, which is achieved thanks to using the new RFID. Thanks to the increase in reliable real-time data made available by intelligent identification technology from SICK, KAGOME gained the possibility of making better decisions, thereby increasing productivity and efficiency. *(ro)*

More about the customer at:
www.kagome.com.au

IDENTIFICATION SOLUTIONS FOR RELIABLE DATA ACQUISITION

FLEXIBILITY IS KEY

In addition to RFID technology, SICK also offers laser-based bar code scanners as well as image-based code readers for automated identification. As well as being used in the food industry to trace foodstuffs reliably, all three ID technologies can also be used to optimize production and packaging processes. Furthermore, they feature uniform connectivity, an identical user interface, and a uniform accessory concept. At SICK, this sensor compatibility is known as 4D*pro*. Flexibility in terms of the technology on offer is also a must in the food industry as one form of technology may be more suitable than others for certain processes.

LASER-BASED BAR CODE SCANNING

Identifying products by bar code

The bar code is the oldest of the product identification data carriers and has been widely used in industry and trade since the 1970s. Nearly every consumer good is labeled with the EAN-13 bar code, which is valid all over the world and which encodes the GTIN (Global Trade Item Number), a globally standardized part number. Thanks to bar codes, food is now labeled uniquely, reduced process errors have led to a higher degree of safety, warehousing can now be automated, it is easier to move goods, and, most importantly, products can be read incredibly quickly using laser scanners. If a product is recalled, the automated identification of the products involved and their distribution channels makes it possible to speed up all of the necessary measures. Giving each product a unique mark also has an impact on production as the items have to be marked, read, verified, and saved in the production line.

Quick reading rates are the bottom line: CLV6 series bar code scanners from SICK

The laser-based bar code scanners from the CLV6 series are suitable for a wide range of applications which relate to identifying foodstuffs and their packaging and labels automatically. Laser scanners from SICK feature an extensive depth of field and reading field width. Due to the wide aperture angle, just one device can cover the majority of conveyor belt widths. With their excellent reading properties and reading rate of 99.98%, the powerful bar code scanners ensure that data is gathered reliably – even with poor-quality or damaged bar codes. A reliable reading is even guaranteed with foil-protected codes and other reflective surfaces, meaning that all relevant product data is collected in a time-efficient and cost-efficient way. With 4D*pro* compatibility and a high level of user-friendliness, the bar code scanners enable flexible product changes without disrupting the process flow significantly. Furthermore, the high scanning frequency allows fast process speeds when identifying containers, for example. Large reading distances and low-contrast codes – which may occur when identifying pallets, for example – do not pose any decoding problems for bar code scanners from SICK.

The CLV622 bar code scanner from SICK checks codes on cheese labels.

Checking codes on cheese labels at Arla Foods

If a product is labeled incorrectly, this could mean that the wrong item is delivered and could make it extremely difficult to trace. Similarly, food that is not labeled correctly can trigger foodborne illness. The need for a tracing system that is as error-free as possible can also be illustrated in figures: For example, the Australian distribution centers of a large food company take in 10,000 pallets loaded with goods each day, i.e., over 3.6 million pallets each year. Each of these pallets is about two meters high and loaded with different products, which are all provided with their own bar code. An error rate of 2% would mean that 73,000 pallets would have to be taken apart, manually processed, and inspected each year. This shows how important product labeling can be. In the Arla dairy in the Swedish town of Götene, up to 3,000 cheese packets are weighed and labeled correctly every hour. No cheese can be made available on the market without a

complete and clearly readable label. The print and apply machine manufacturer Autolabel AB, which is based in Gothenburg, therefore developed a labeling system for Arla which works with photoelectric sensors, 2D vision sensors, and bar code scanners from SICK. The CLV622 bar code scanner checks whether the label is in the right place and whether it is readable. Cheese packets with non-compliant bar codes are rejected automatically.

Packaged Cheddar cheese from Arla with bar code label.

Arla Foods uses advanced labeling system for making even more cheese. Full report including video at:
www.sickinsight.com/arla

Waterproof reading performance thanks to stainless steel (Inox) and IP 69K

Whether in the wet areas of dairies, slaughterhouses, meat-cutting plants, filling lines, or food-processing facilities, bar code scanners from SICK in a resistant IP 69K-rated stainless-steel housing deliver impressive reading performance, even under the harshest of conditions. After all, as the systems are cleaned frequently and intensively, the machines and their components are constantly exposed to water jets and aggressive cleaning agents. The stainless-steel housing models have been designed for the CLV62x to CLV64x bar code scanners. Thanks to the chemical material and corrosion resistance and tightness of the housings, you can be sure of a reliable code reading, even in harsh conditions. Maier Packaging GmbH from Grassau, Germany, has developed a component for identifying bar codes on aluminum yogurt pot lids. This component was designed to be used in a packaging system belonging to the European market leader for dairy products. The company chose to integrate a CLV scanner solution for wet areas from SICK here, as the pots and lids are cleaned in PSDI mode before the yogurt is added and the lid is affixed. Once the lid has been affixed, the bar codes are read while the machine is at a standstill. The scanners are protected by IP 69K housings with a plastic disc which fulfill all of the necessary hygiene requirements – in other words, they can be cleaned easily using high-pressure cleaners and are resistant to acids and cleaning agents, just like the cables. Incidentally, the CLV6xx bar code scanner can also cope with the cold – the heating variants which are also available are suitable for use in freezers down to –35 °C.

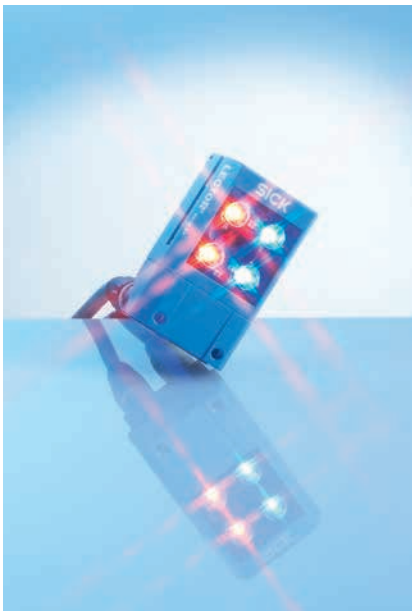
More about the customer at:
www.maier-packaging.de

Identification in the second dimension

Alongside the traditional bar code, the food industry also uses 2D codes to ensure traceability and process reliability. While data is only coded in a single dimension in one-dimensional bar codes, 2D codes map data in symbols – namely, in the form of a two-dimensional area. This provides higher information density. The data from a 2D code can be read using image-based code readers and processed further electronically. In the food industry, the use of Data Matrix codes is most common in intralogistical and packaging processes. QR (Quick Response) codes, on the other hand, are used on food packaging for mobile tagging so that consumers can trace a product with ease. In the European Union, foodstuffs must be marked with a best-before date by law. In Germany, the Batch Marking Regulation (Los-Kennzeichnungs-Verordnung – LKV) also applies, according to which all foodstuffs which are put into circulation must be provided with a batch number. This usually begins with an "L" and makes it possible to assign the product to a production run. Both the best-before date and the batch number are marked on the product in plain text. Image-based code readers read bar codes, 2D codes, and plain text automatically, shorten the processing times, and therefore increase productivity.

Flexible, compact, and well connected – the Lector62x

When it comes to omnidirectional code reading, the Lector62x image-based code reader from SICK is highly flexible. Using various image processing algorithms, it reliably identifies all types of codes used in the food industry, such as bar codes (1D), Data Matrix and QR codes (2D), as well as plain text. It is possible to switch from bar code to 2D and back again without any problems, all codes are decoded in real time, and with the Lector620 High Speed variant, codes can be read at speeds of up to six meters per second. No product goes uncaptured, production continues to run, and the high read rates of the Lector62x enable a high product throughput. Even with different process steps in which different types of code have to be read, only one code reader is required and it is even possible to read damaged codes reliably. Live images make it possible to analyze the code quality and reading performance and images can also be saved for data archiving purposes. There is an integrated microSD memory card to back up the parameters and to record images. When swapping devices, the card is simply transferred to the new device and the code reader can be used straight away. Its compact design ensures flexible integration even where space is at a premium. Commissioning the 4D*pro*-compliant code reader only requires a minimum amount of effort and it can be integrated easily into all common industrial networks. And on top of all that, it also has a USB connection.



The Lector62x image-based code reader from SICK is highly flexible.

Lector620 OCR: The best choice for optical character recognition

Missing or unreadable best-before date or batch number imprints on labeled and packaged foodstuffs lead to rejections in production or recalls later during distribution, as missing or incorrect information can present health risks for consumers. Therefore, the appropriate information must be easy to read in plain text on labels and packaging and must be checked in detail for quality and correctness. The Lector620 OCR image-based code reader does more than just identify 1D and 2D codes – it also compares and reads plain text. Featuring optical character recognition (OCR) and optical character verification (OCV), this code reader is perfect for use in the food industry. The integrated font finder ensures that the plain text can be read and also compared safely even where there are tolerances in the printing position on packages.

Lector620 OCR: The best choice for optical character recognition. Full report including video at:
www.sickinsight.com/ocr

Tracing Femeg fish specialties with mobile tagging

Frozen fish specialties can be a solid alternative to fresh fish. But where was the fish caught? And how? Based in the Hamburg area, Femeg – one of the leading manufacturers for frozen fish and seafood specialties – uses QR codes on its frozen-food packaging. The QR codes provide the retail customer with extensive information about the origin and catching conditions of the fish via a smartphone app. In order to ensure that the QR code is also readable on the manufacturer's fish packaging, the Lector620 Professional image-based code reader from SICK checks it during the packing process. The code reader can be used universally and can also cope with the widest range of packaging sizes and colors.

QR codes for traceability of fish specialities. Full report including video at:
www.sickinsight.com/femeg

Traceability and intralogistical process reliability at Goedegebuur

The Lector62x image-based code reader is even used in the packaging process in the meat processing sector – it is the basic version, the Lector620 ECO, that comes into play here. In the packaging line of the meat processor Goedegebuur, based in the Dutch city of Rotterdam, code readers from SICK identify small 2D codes measuring 18 x 18 mm. As part of the intralogistical reorganization of the packaging line, these codes were added to the labels in addition to the previous bar codes. However, the code labels can only be affixed on the front end of the crates filled with high-quality vacuum-packed beef. As a result, the Lector620 ECO has to be mounted at a tricky angle, but it still produces excellent reading results nevertheless. The code reader has proved itself as an interface between the machines, transport components, and the PLC on the one hand, and the warehouse management software and the order processing system on the other. On top of all this, thanks to the Lector620 ECO, Goedegebuur is always able to trace where the individual pieces of meat have come from and their current position – as required by the legislative authority.

Identification solutions from SICK optimize meat processing at Goedegebuur. Full report including video at:
www.sickinsight.com/goedegebuur

Sleeve identification with A+F machines

A+F, from Kirchlengern in Germany, is a leading supplier of end-of-line packaging machines and systems. Swayed by the great degree of flexibility when switching between codes, the reliable omnidirectional reading characteristics, and the compact design, A+F decided to opt for the Lector620 Professional image-based code reader when equipping its SetLine sleeving systems. As yogurt manufacturers, for example, switch between different products and container sizes, the corresponding sleeves which end up on the yogurt pots are identified by eight code readers and confirmed as correct before being unfolded in the sleeve application station. This means that a raspberry yogurt will not end up with a sleeve for a lemon yogurt. Although the position and orientation of the bar codes and 2D codes vary, the Lector620 Professional can identify them with very little trouble. Furthermore, it monitors the print and contrast quality of the codes on the sleeves. If the code readers catch several incorrect sleeve types, the system stops and the machine operator checks the infeed of the carton magazine. This means that A+F can achieve the highest degree of packaging reliability and avoid waste. *(ro)*

Lector62x: All-round talent for sleeve identification. Full report including video at:
www.sickinsight.com/a+f

IVC-3D TAKES CARE OF POSITIONING AND QUALITY ASSURANCE

PRECISION CONTROL OF A PICKING ROBOT

Packing foodstuffs, regardless of whether they are raw and fresh or in their final, packaged form, involves a high degree of automation nowadays. To broaden the scope of opportunities in picking applications, global robot manufacturer ABB and SICK have developed a solution that adds one more dimension to the control of picking robots, resulting in fewer goods damaged in the process. The solution is based on SICK 3D vision and ABB robot technologies.

>> In most cases, belts transport objects and robots pick them up in order to sort or package them. When dealing with objects with variable size and thickness arriving on belts in random positions, it is difficult for the robots to adapt to the natural variations to pick them up correctly.

The solution: A 3D vision system

While conventional 2D vision systems are performing sufficiently in many cases, they lack the height and volume information which is needed for determining the accurate position when goods naturally vary in terms of height and shape. 2D vision systems determine objects using contrast and color, while a 3D detection system is based on height and volume measurement instead. This means that objects can be detected more precisely and reliably in situations when the contrast between the objects and background is low or varying, the objects vary in height and shape, or when the carrier belt is wide enough to cause position distortions in a 2D system.

A key to the process: The height of the object

Detecting the height of the object is a key factor when it comes to improving the picking process. It increases throughput and reduces the risk of damage. Using this technique, a robot is able to pick up objects much quicker – without the risk of colliding with them. In addition, it offers more options for volume and weight inspection and detecting anomalies on the object.

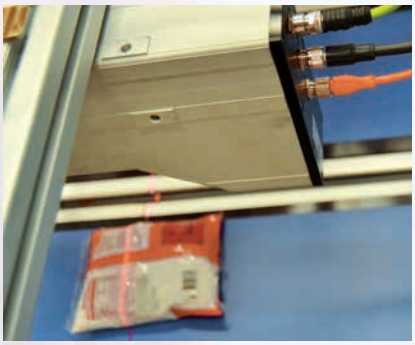
Good teamwork

SICK and ABB jointly developed a solution which combines the advantages of 3D detection in a highly marketable product. The solution is made up of components from both companies. SICK's part of the solution consists of the IVC-3D vision sensor and the "Belt picking toolkit," a piece of software which allows the IVC-3D to carry out height-based object detection. To ensure easy commissioning, the toolkit also features a web-based graphical user interface (GUI) for setting object and belt parameters. Following a simple step-by-step guided workflow, the camera and robot can be calibrated in a common coordination system. The pre-calibrated IVC-3D combines illumination, image recording and analysis in a single camera. Based on laser triangulation, the IVC-3D can capture and report data in three dimensions. As a result, picking and handling of once-difficult objects can now be carried out with ease. Data being reported contains both three-dimensional position data and timing information – the combination of these two data sets allows ABB to control the picking process in both 3D space and time.

ABB's part of the solution consists of its renowned robot products; the fast IRB 360 FlexPicker™ robot and high-performance line master controls, mainly the PickMaster™ software, are most commonly used here. It is the Pick Master™ software that forms the interface between the IVC-3D camera and the robots. The robots are constantly fed with the guidance information needed to pick the objects at the right time and place, based on the coordinates provided by the IVC-3D and the movement of the belt. The result is that objects are picked up successfully and reliably, making this an attractive solution for the majority of users working in the field of conveying.

Flexible fields of application allow handling that is gentle on products

Thanks to height-based object detection and guidance, the loss of quality and machine downtime are reduced in challenging picking applications. Irregularly shaped objects like pasta packed in pillow bags, fresh cheese, nuts, frozen and therefore fragile berries and vegetables, etc. can now be handled in a gentler fashion. Even if the bags vary in shape, contrast, orientation and size, the height-based detection principle carries out the job both more flawlessly and at lower setup complexity in comparison to 2D technologies. The same benefits also apply to fresh items like bread, fresh fruit, vegetables, and meat. In all cases, the robot can approach the ingredients in a more controlled manner, paving the way for a gentler product handling process that takes away additional barriers standing in the way of consumers enjoying delicious food. *(ir)*

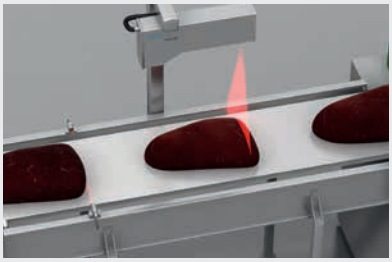


IVC-3D provides three-dimensional position data and timing information.

More about the customer at:
www.abb.com

Highly versatile: The IVC-3D vision sensor

Measuring, positioning, checking quality: With the IVC-3D, a wide range of tasks can be performed reliably and efficiently. As well as being used in the automotive and electronics industry, the IVC-3D is ideal for the specific requirements involved in processing foodstuffs. In the variant with stainless-steel housing (with enclosure rating IP 67), the sensor is easy to clean and resistant to chemical cleaning agents (Ecolab-tested).



Optimizing cutting process

Information about the shape and volume of foodstuffs helps when determining the ideal cutting position. This reduces waste and cuts costs.

Checking the completeness of packages

Incomplete packages are detected and removed reliably, preventing incorrect deliveries.

IT'S WHAT'S ON THE INSIDE THAT COUNTS

VISION SENSORS GUARANTEE FOOD SAFETY AT CROP'S

Over the past few years, the number of people suffering from food allergies has risen significantly. To ensure that every pack really does have on the inside what it states on the outside, 2D vision sensors from SICK's Inspector product family visually inspect every product that leaves the belt at Crop's. The frozen food manufacturer is therefore able to guarantee that consumers with particular food allergies will always have access to the right information.

>> The production sequences are subject to careful and comprehensive quality control, which includes the declaration of all ingredients on the relevant packaging. "This means that retailers are taking no risks whatsoever in purchasing our products. If a product were to be packaged incorrectly or not have all the ingredients listed on it, the entire batch is recalled without delay," explains Tino Blancke from Crop's.

Integrated functions

"Each packaging line is equipped with two cameras," Blancke tells us. "One camera inspects the packaging as a whole and checks that the product sleeve has been applied correctly. The second zooms in closer and makes sure that the batch number and expiry date have been printed correctly. Each time the line has been changed over, an employee checks that the new packaging meets specifications. He then issues a command to the camera system that the packaging which follows must correspond to the recorded parameters. If there is any deviation, the camera transmits an error message and the line is stopped. The batch number is checked by counting pixels in the code window. If the result is too low, the product is ejected from the production line automatically."

100 products per minute

Thanks to this incredibly practical approach, Crop's has been able to reduce its error rate in terms of final packaging inspection to zero since introducing the Inspector 2D vision sensors. All starting products are delivered to Crop's already frozen and there they go into interim cold storage at –21 °C. The production processes cover the mixing of ingredients and marinating, whereby the frozen goods chain is not interrupted. Multi-head weighers then measure out the semifinished products. Next, they are filled into bags or trays, then fed to the packaging system and, finally, to the spiral freezer. From there, they are transported back into storage. In order to ensure the cold chain is not interrupted, such a cycle only lasts between just under 15 and 30 minutes. Quality control has thus to be performed within this narrow time window too. Therefore, up to 100 products pass the lens every minute and the products must be evaluated inside a fraction of a second. This is made possible thanks to the basic functions provided by the 2D vision sensor. *(tm)*

Vision sensors guarantee food safety at Crop's.
Full report including video at:
www.sickinsight.com/crops

MONITORING CARBON MONOXIDE AND OXYGEN

ROASTING PROTECTION. AROMA PROTECTION. YOU GET THEM BOTH WITH SICK.

The GM901 gas analyzer monitors carbon monoxide during the roasting process, thus preventing potential explosions which could be caused by high concentrations of gas in the roaster. And thanks to laser technology, it is possible to measure oxygen quickly and accurately on the packaging machine itself – the proof is in the pudding, or the coffee in this case.

>> When roasting, maximum concentration is required. With industrial roasting processes, the temperatures vary between 200 and 280 °C depending on the product, degree of roasting, and desired roasting color. When the coffee beans are dried during the roasting process, CO_2 and CO are given off alongside water and oils. As the roasting process continues, particularly with batch roasters, the CO concentration can increase so sharply that there could be a risk of deflagration or even an explosion, which could destroy the roaster beyond repair. To avoid this, using dynamic measurement to track the CO concentration is recommended. This will mean that the roasting process can be stopped in good time. The GM901 gas analyzer measures carbon monoxide opto-electronically and calculates the CO concentration in mg/m³ or ppm. A purge air unit protects the optical interfaces on the sender and receiver unit from dust and dirt. The short response times that result from the quick in-situ measurement and the minimal maintenance requirements make the GM901 gas analyzer the obvious choice. And with this type of measurement, the product has really proven itself when it comes to protecting people and roasting equipment, reducing production downtime, and monitoring the roasting process – and, of course, the product quality.

The aroma must stay in the packaging

It is important to remember that the taste also depends on the packaging. Oxygen must be removed from the coffee packaging as the taste will inevitably be lost if the oxygen content is too high. The TRANSIC111LP laser oxygen transmitter from SICK makes light work of this inertization process thanks to its quick and accurate laser oxygen measurement capabilities. It measures the oxygen content directly on the packaging machine and nitrogen is added as an inert gas. Nitrogen is expensive. Adjusting the system manually with inaccurate measurements is very inefficient and costly. Ideally, the process should be monitored so that it can be controlled appropriately. This can only be done when the oxygen measurement process provides quick and accurate results.

Compared to electrochemical measurement cells, the TRANSIC111LP with laser technology performs outstandingly well. The rugged laser oxygen transmitter is easy to integrate. The O_2 is measured accurately without noticeable time delays, errors, or alarms. The rapid measured value display ensures the nitrogen is controlled reliably, automatically, and without the need for any additional manual interruptions, whereas the process of measuring with the electrochemical cell had to be given much more attention. With the TRANSIC111LP from SICK, nitrogen can be saved and maintenance costs will be lower. The transmitter is nonwearing, does not have any mechanical parts, and functions without consumables. In addition, it features outstanding tightness, meaning that incorrect measurements can be avoided – much to the astonishment of the operating personnel, who have had very different experiences in the past with electrochemical cells. *(sh)*

SENSOR INTELLIGENCE REPLACES MECHANICAL SINGULATION

FROM THE PACKAGING FLOW TO FRESH FLOWING FRUIT JUICE

Fruit juice manufacturers offer a wide range of products, from the purest fruit juices and nectars from native and exotic fruits and berries right through to vegetable juices. In the production plant of a well-known fruit juice manufacturer, the fruit juices are pressed, decanted into a huge range of Tetra Pak cartons, and then packaged again in trays without any interruptions – and the DeltaPac MultiTask photoelectric sensor from SICK is responsible for this last task.

>> A vast product range requires a varied selection of packaging shapes and sizes in all key beverage units. To be able to manage all internal and external flows of goods in large quantities and at high speed, the products need to be packaged reliably. The different Tetra Pak cartons filled with juice are therefore packaged again in trays. A tray is a box which is usually open and made of corrugated cardboard. Each tray holds either 6 or 12 fruit juice cartons. The fruit juice cartons are conveyed along a line before being placed in the trays. The juice cartons must be counted and must reach the downstream secondary packaging lines intact so that the right number of cartons ends up in the corresponding tray.

Gaps cost time and money

Previously, a mechanical singulation process was used to determine the right quantity of juice cartons. This left gaps on the belt to enable the juice cartons to be counted. As a result, the photoelectric sensors used at the time could detect the edges of the packaging and count the cartons. To create the gaps, a belt brake was used to accelerate the juice packages, which were moving comparably slowly. This often resulted in faults on the packaging line and damage such as squashed juice cartons. It was also possible that, if a gap was not created properly, it would not be detected by the photoelectric sensor and some cartons would not be counted at all. This solution was not just highly prone to errors but it also meant that the machine required constant maintenance. The belt needed to be lubricated as effectively as possible so that the juice packages were able to slide. To add to this, the belts had to be readjusted over and over again due to the different packaging formats. In the event of machine downtime, searching for the cause of the problem was incredibly time-consuming, creating a new problem in itself.

The problem with too much color

The old packaging system fitted with conventional optical sensors could not cope with the fruit juice manufacturer's wide range of packaging. It was not just

the different formats of the juice packages, but rather their colorful design that proved to be too much for the photoelectric retro-reflective sensors, which work with reflected light. When detecting very dark, extremely bright, shiny, or highly colorful surfaces, the light was only reflected partially, too much, or not at all, causing multiple switching and false signals. This resulted in the juice cartons being counted incorrectly, which could cause crashes in the bottleneck and incorrect quantities in the trays. On top of all this, you still had to carry out a weight check at the end of the line using scales.

The DeltaPac MultiTask photoelectric sensor detects and counts without the need for gaps.

Fusing technologies to enable continuous detection

meurer Verpackungssysteme GmbH, a leading manufacturer of packaging machines, has developed a solution together with SICK which makes it possible to dispense with the complex mechanical singulation process when counting juice cartons. In the fully automatic CM/TP-B tray packer from meurer, the DeltaPac MultiTask photoelectric sensor from SICK has taken on this task. The sensor detects and counts the juice cartons – which are lined up on the packaging line – without any gaps, even before the cartons are separated onto the downstream secondary packaging lines, where they are placed in 6-pack or 12-pack trays. Creating a gap is not necessary now as the MultiTask photoelectric sensor combines two intelligent technologies: The patented Delta-S-Technology® developed by SICK consists of four PinPoint 2.0 LEDs and two high-resolution energy scales, each with two receiving elements. The four receivers on the two energy scales receive the same amount of light while the light beams from the four PinPoint 2.0 LEDs detect the leading side of the juice cartons. At this point, the light energy is balanced. However, as soon as the leading edge of a juice package is brought into the beam of light, the amount of light energy is distributed to the receivers in varying degrees, disrupting the balance. Depending on the packaging contour, a distinct energy signal is created and the sensor detects where the reflected light is coming from and sends a corresponding switch signal. The DeltaPac sensor combines Delta-S-Technology® with the innovative SIRIC® ASIC technology from SICK and distance measurement for background suppression. The detection process which is based on this fusion of technologies works completely independently of the color, format, or surface structure of the juice carton. In addition, interfering factors such as glare from windows or changes in contrast do not impair the detection reliability of the intelligent sensor in any way. And the result of all this is that the correct number of juice cartons ends up in the downstream tray packaging lines.

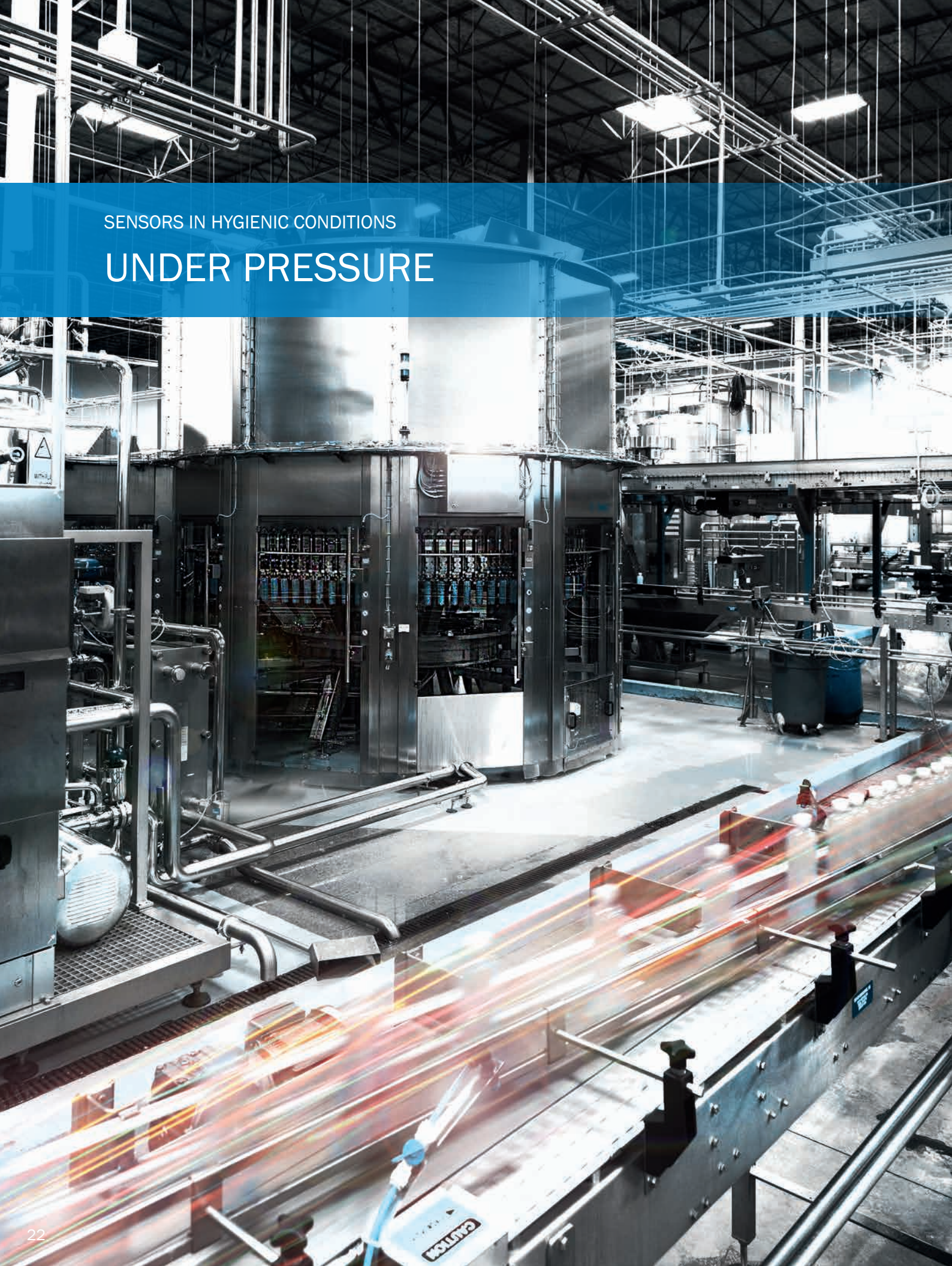
Higher efficiency and quality in the packaging process

The tray packer from meurer, complete with integrated SICK sensor intelligence, makes processing the widest range of packaging colors and formats incredibly simple. With the software and PLC supplied by meurer, the packaging speed and formats can be specified and the DeltaPac sensor will adjust itself accordingly. Time-consuming maintenance and adjustment work is no longer required thanks to the high level of detection reliability and the fact that the juice packages are constantly on the move during the counting and separation process. Furthermore, machine downtime is significantly reduced and it is no longer necessary to weigh the trays at the end of the line either. *(ro)*

More about the customer at:
www.meurer-group.com

SENSORS IN HYGIENIC CONDITIONS

UNDER PRESSURE



Achieving reliable results even in harsh conditions is particularly important in food production and processing: Supply contaminated or inedible food, and you will be faced with considerable financial losses and damage to your reputation. One popular method of fulfilling the strict hygiene standards that apply in this context is to clean the systems using high pressure every day – this means that the individual components are exposed to strong thermal and mechanical loads as well as aggressive chemical cleaning agents. This presents a real challenge to sensors.

>> Organizations such as the EHEDG (European Hygienic Engineering & Design Group) or the American 3-A Sanitary Standards, Inc. are developing guidelines for hygienic machine and system construction – including the components used in the systems. The aim is to ensure that foodstuffs can be manufactured safely. In an age of globalization, we rely more and more on harmonization between these guidelines and the certification criteria. SICK offers a wide range of solutions which are tested and certified accordingly for worldwide use in the food industry.

Task	Product group	EHEDG	Follows the recommendations of the hygiene industry	3-A	ECOLAB	Diversey	Enclosure rating IP 69K	FDA	Compliant with Regulation (EC) No 1935/2004
Measuring Monitoring Positioning	Level sensors	x		x			x	x	x
	Pressure sensors	x		x				x	x
	Temperature sensors	x					x	x	x
	Incremental encoders		x						
	3D vision sensors				x				
Detecting	Photoelectric sensors				x		x	x*)	
	Photoelectric sensors, hygienic design		x		x		x	x*)	
	Inductive proximity sensors				x		x	x*)	
	Contrast sensors				x		x	x*)	
Identifying	Bar code scanners **)						x		
Protecting	Safety light curtains **)				x	x	x		
	Single and multiple light beam safety devices **)				x	x	x		
Accessories	Chemically-resistant reflectors							x*)	
	Reflectors, enclosure rating IP 69K						x	x*)	
	Mounting **)						x	x*)	
	Mounting, hygienic design		x					x*)	
	Plug connectors and cables				x		x		

*) *Front-screen coating and adhesives used are not FDA certified materials.*
**) *With IP 69K housing.*

All data without guarantee. www.sick.com/products

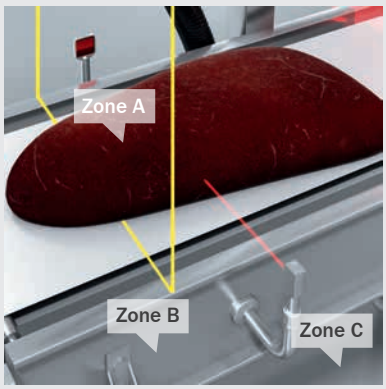
Washdown and hygienic design

Machines and systems which process foodstuffs are arranged in different zones in accordance with the relevant hygiene requirements.

Zone B
Splash zone (cleaning zone, washdown): Washdown indicates that the splash zone of a machine can be wet-cleaned well and quickly – and with this type of cleaning, there will be very few or no residues (foodstuffs, 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.

Zone A
Foodstuff zone (hygiene zone): For "hygienically designed" machines and the sensors used in these machines, certain additional standards apply. A machine is considered to be hygienically designed if it remains free from product residues during use, as these form an ideal breeding ground for germs. Consequently, it is important to avoid dead space and open joints when designing components. Sensors that are designed in accordance with hygiene standards are constructed in such a way that they can be used directly in the foodstuff zone (hygiene zone) of a machine. This really is an investment that pays off – after all, machines and systems designed hygienically do not provide any scope for buildups of product deposits. Fewer buildups of product deposits mean less cleaning, in turn reducing the amount of detergent, water, and energy required. The system throughput increases thanks to shorter cleaning intervals – this is a real economic benefit, particularly if products are changed frequently.

Machine zones



Zone A
Foodstuff zone (hygiene zone)

Zone B
Splash zone (cleaning zone, washdown)

Zone C
Non-foodstuff zone (machine casing)

Machine zones: Only hygienically designed sensors may be used directly in the foodstuff zone.

Also available with Inox housing: DFS60I incremental encoder.

All-round protection for sensor and cable: PTFE jacket.

C4000 Micro safety light curtain in IP 69K housing.

The material makes all the difference

To ensure the reliability of the sensors, even with the particular requirements of the food industry, SICK offers suitable variants in a huge range of housing materials.

Stainless steel (Inox)
Sensors enclosed in a stainless-steel housing are chemically resistant, rustproof, and durable. They guarantee chemical material resistance and absolute tightness during intensive cleaning and disinfection. SICK supplies stainless-steel sensors with a hygienic design as well as versions suitable for washdown processes.

VISTAL™
A high-strength plastic reinforced with glass fiber boasting mechanical properties which far exceed those of conventional plastics. The VISTAL™ housing, for the W9-3 small photoelectric sensor for example, reaches a level of mechanical strength and tightness never achieved previously for plastic housing, which is reflected in its high enclosure rating of IP 69K.

PTFE
A PTFE coating ensures all-round protection for the sensors and cables. The PTFE plastic is not affected by solvents or other aggressive chemicals. Its surface is so smooth and slippery that hardly any external substance can stick to it – ideal for use in hygienic and wet areas.

Housing with enclosure rating IP 69K
Housing with the enclosure rating IP 69K guarantees that the sensors and their accessories will stand up to intensive cleaning processes, regardless of whether these involve a high-pressure jet of up to 100 bar or water temperatures of up to 80 °C. The "IP 69K Housing" version of the C4000 Micro safety light curtain meets all of these criteria and is used for hazardous point protection in wet areas. A membrane for constant pressure compensation prevents the plastic tube from steaming up or fluid from entering the device. Along with the light curtain, the PVC cable also complies with the high enclosure rating IP 69K and ensures safe and reliable cable routing.

Cavanna Packaging Group

Cavanna Packaging Group is one of the first machine manufacturers in the world to offer its flow packing machine, the Zero 4, in a washdown version. To ensure that the materials used for the sensors in the machine are also durable, Cavanna relies on KTM Prime Inox contrast sensors from SICK.

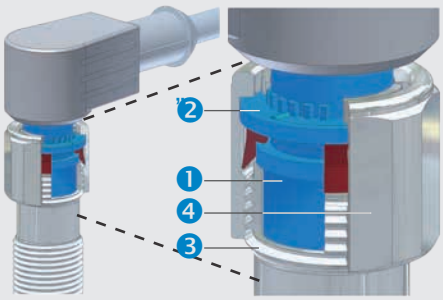
More about the customer at:
www.cavanna.com

NO CHANCE OF GERMS, EVEN IN THE ACCESSORIES

What use are hygienic sensors if the mounting components provide a breeding ground for germs? The "hygienic design" mounting system fully complies with the EHEDG recommendations: Straight or compact angled telescopic tubes are available for mounting the sensors, subject to requirements – each with integrated bayonet catch – as well as a laser-welded stainless-steel flange. The mounting systems are supplied preassembled.

SICK has developed special connecting cables made of PVC with M12 plug connectors for use in the food and beverage industry. With Ecolab certification and enclosure rating IP 69K, you can be sure that the connecting cables are resistant to the cleaning agents and disinfectants for which they have been tested. The innovative sealing technology ensures that the cables do not become leaky or damaged if they are not screwed in place correctly: Instead of a conventional sealing ring, SICK relies on a profile seal, which is placed over the thread of the sensor when establishing the screw connection. This results in both a radial and an axial seal. When the defined tightening torque of 0.6 Nm is applied, mechanical vibration protection is also activated, which ensures that the sensor and connecting cable remain firmly connected if vibrations occur. If the cables leak, this often means that the sensor switches off and the control reports a fault. In the worst-case scenario, the entire system may have to be stopped. Sealed cables therefore also increase the system throughput as the sensors do not fail as frequently. *(tm)*

Detailed design and M12 PVC connecting cable



1. The dual-action (axial and radial) profile seal ensures absolute tightness (IP 65, IP 67, and IP 69K).
2. The achievement of torque of 0.6 Nm ensures that mechanical vibration protection is activated. This dual-acting interlock offers high shock and vibration resistance up to 50 G.
3. Integrated fixed stop prevents the plug connector from being screwed too tight.
4. High-quality material: Long service life and corrosion resistance verified by Ecolab certification*.

* Tested cleaning agents/disinfectants:
P3-topactive DES, P3-topax 19,
P3-topax 56, P3-topax 66,
P3-topax 99, P3-topax 990,
P3-topoactive 200, P3-topax 52 FR

YEARS OF PRACTICAL TESTS PASSED

W8 Inox IN THE MEAT PROCESSING INDUSTRY

Danish Crown, the largest pork processing company in Europe and the second largest in the world, teamed up with the Danish Meat Research Institute to put W8 Inox photoelectric sensors from SICK through a series of practical tests spanning several years – and has now classed the sensors as “slaughter-proof.”

>> Prepared for launch jointly by Danish Crown and SICK, the W8 Inox is a family of sensors that does not fail to impress with its compact design, sensor performance, chemical and thermal material resistance and high impermeability. Practical tests were carried out in conjunction with the Danish Meat Research Institute and the photoelectric sensors from SICK passed with flying colors.

Cleaning and hygiene processes test sensors to the limit

Cutting and processing machines in the meat industry generally have to be cleaned and disinfected on a regular basis to prevent hygiene risks resulting from meat products becoming contaminated with microorganisms, spores, or inorganic residues. The agents used for cleaning and disinfecting the machines include, among others, surfactant-containing, acidic, chlorinated, and chlorine-alkaline foam cleaners, as well as neutral disinfectants containing hypochlorite or peracetic acid. In addition, this type of work often involves use of pressure washers to remove any adherent contamination. The W8 Inox miniature photoelectric sensor is designed specifically for long-term availability. The sensor housing made of

Proven reliability: The W8 Inox in the meat processing industry.

1.4404 (316L) stainless steel provides a maximum amount of corrosion resistance. The plastics used for the operating elements and the front screen feature utmost material resistance as well. Moreover, the structure and design of the W8 Inox also contribute to the long-term availability of the sensors. Together, the housing, cover, operating elements, and front screen form a strong and leak-proof unit in accordance with enclosure rating IP 69K.

M12 male connector and 300 mm connecting cable prove particularly popular

At Danish Crown and other meat processing companies, the sensor variants with M12 male connectors and 300 mm connecting cables are very popular because they allow the electrical connection (which can be of critical importance from the point of view of leak tightness) to be installed outside of the area where pressure washers are used in close proximity to the area for cleaning.

Retrofitting made easy

Depending on the detection task, various photoelectric sensors are available, all of which are suitable for use with the M3 mounting kit with a distance of 25.4 mm between the holes. As well as being compatible with the entire W8 Inox product family, this kit is also used as standard by manufacturers of meat processing machines and systems, meaning it is no trouble at all to switch over to sensor technology from SICK. *(tm)*

More about the customer at:
www.danishcrown.com

CLEAN AND SAFE

THE REAL PACKAGING CHALLENGE

The L29 single-beam photoelectric safety switch, developed especially for the packaging manufacturer MULTIVAC, stops dangerous movements safely if someone reaches into the forming station in a thermoforming packaging machine. Together with MULTIVAC, SICK has also developed custom solutions such as inductive proximity sensors, fork sensors, photoelectric retro-reflective sensors for transparent objects, encoders, and much more for packaging machines used in the food industry, for example.

>> MULTIVAC is one of the leading global suppliers of packaging solutions. Alongside thermoforming packaging machines, the portfolio covers everything from tray sealers, vacuum chamber machines, chamber conveyor belt machines, labelers, quality control systems, and automation solutions right up to turnkey lines. With around 4,500 employees and more than 70 subsidiaries, you can find MULTIVAC in every corner of the globe. The company develops and builds turnkey packaging lines, which supply, manage, separate, inspect, and label packaged products and their secondary packaging. The processes of a packaging line can be controlled centrally via the HMI 2.0 user interface from MULTIVAC, making it possible to monitor process data and process it further electronically, so that products are traceable, for example.

Everyone is looking for the ideal solution

The forming station in the thermoforming packaging machine creates packing molds. The machine uses heat to warp the foil and compressed air and a vacuum to thermoform it. It is then transported to the infeed area where the molds are filled with the products. This is all done with mechanical movements. This means that the transition from the forming station to the infeed area must be secured in such a way that the machine movement stops as soon as a person enters the area.

As part of the redevelopment of its safety concept, MULTIVAC was on the lookout for a photoelectric switch which fulfilled the new requirements as effectively as possible. Ideally, the photoelectric safety switch should have an evaluation unit. However, the conventional single-beam photoelectric safety switches from SICK were too big. SICK therefore developed a photoelectric safety switch from one of the photoelectric switches used for detection in automation technology – this was the ideal solution for MULTIVAC.

The L29 single-beam photoelectric safety switch from SICK slots seamlessly into the HMI 2.0 user interface from MULTIVAC. The sender axes can be retained as the photoelectric switch can be fitted in the same position as the previous photoelectric switches due to its compact size. The L29 has enclosure ratings IP 67 and IP 69K, as well as Ecolab approval. The VISTAL™ housing gives the product outstanding mechanical ruggedness. In addition, the housing had to be adapted to the MULTIVAC design and the logo and part number from MULTIVAC had to be visible on the sensors. SICK met all of these requirements.

optical and high-frequency influences such as ambient light, vibrations, or electromagnetic influences.

Strong housing

The L29's VISTAL™ was one of the key motivating factors behind MULTIVAC's decision to opt for the product. VISTAL™ is a very rugged housing material and consists of high-strength plastic reinforced with glass fiber. VISTAL™ boasts mechanical properties which far exceed those of conventional plastics. The stable and rigid sensor housing is resistant to chemicals, meaning that cleaning agents pose no problem for the sensor. This is an absolute must in hygienic environments in the food sector, where MULTIVAC packaging machines are used. As MULTIVAC did not want the photoelectric safety switch to interfere with the safety concept of the machine, it was also adapted to match the design of the packaging machines.

The TÜV, a German certification body that issues type test certificates, was involved in the project from the beginning. It received the test reports from SICK and carried out additional tests. As all of the results came back positive, the TÜV issued the type test certificate, meaning that all safety requirements had been fulfilled. *(ir)*

More about the customer at:
www.multivac.com

Making safety a priority

The L29 photoelectric switch fulfills the requirements of safety classes type 2 (IEC 61496), SIL1 (IEC 61508), PL c (EN ISO 13849) when combined with a test device from the Flexi Classic product family (UE410-MU). As far as electromagnetic compatibility is concerned, stricter threshold values are required. The L29 can achieve these values with some small adjustments to the electronics. For safety reasons, the maximum permitted aperture angle must be observed. If the angle is too large, the sensor cannot detect hands or fingers due to the reflective surface. This is where the L29's PinPoint LED with its highly visible light spot really comes into play. The SIRIC® optical technology makes this photoelectric switch more powerful than conventional ones. It is not at all sensitive to any known

Hardworking assistant for MULTIVAC

In the past, MULTIVAC and SICK have developed many custom solutions designed to meet the requirements of the packaging specialist. An example of this is the fork sensors from the WFS product family which are used to detect labels when packaging meat, cheese, or sausages. The DFS60I stainless-steel encoders are custom products used to check the speed of thermoformed foil for synchronizing processes on a packaging machine for the food industry. In addition, MULTIVAC also uses photoelectric sensors, color sensors, luminescence sensors, inductive proximity sensors, and many other products from SICK.

According to Wolfgang Köberle, head of the electrical engineering department in the control business division at MULTIVAC: “We have a very professional working relationship with SICK. The engineers respond to our requirements in an expert manner. We now use a wide range of SICK sensors and are planning more interesting projects together.”

LFP Inox: SAFE FOAM SUPPRESSION AND CERTIFIED HYGIENIC DESIGN

LEVEL MEASUREMENT IN BREWERIES AND DAIRIES

Conveying, mixing, and filling milk and beer often results in the formation of wet, compact foam. This is where many level measurement systems reach their limits: Capacitive systems and conductivity probes cannot deliver reliable results due to the buildups of product deposits, while float switches do not usually meet the hygiene requirements for cleanability and sterilization. However, the LFP Inox TDR level sensor is the ideal solution for applications like these.

>> Thanks to the "guided microwave" measurement principle (Time Domain Reflectometry, or TDR), the LFP Inox is able to reliably differentiate between fluids and foams or buildups. The measurement probe is resistant to CIP and SIP and can be shortened as required to around 200 mm based on its maximum measurement range of 4,000 mm. It is made of FDA-compliant stainless steel, which is suitable for foodstuffs, and features a surface roughness of 0.8 µm. Furthermore, the interchangeable process connections have also been designed in accordance with hygiene standards. As a result, the LFP Inox is certified according to EHEDG and 3-A.

Flexible automation is possible

The LFP Inox combines continuous level measurement and point level measurement in one system. Thanks to IO-Link, there are numerous configuration, diagnosis, and visualization options. The sensor is easy to commission, maintenance-free, and works largely independently of the characteristics of the fluids to be measured, meaning that it does not have to be recalibrated. This saves time and money. *(tm)*

Visit us online:
www.sickinsight.com

SICK
Sensor Intelligence.

SICK AG
Erwin-Sick-Str. 1 | 79183 Waldkirch | Germany
Phone +49 7681 202-0 | Fax +49 7681 202-3863
info@sick.de

www.sick.com

Order No. 8018612