



PACKAGING

EFFICIENT APPLICATION SOLUTIONS

SICK
Sensor Intelligence.

CHALLENGES IN THE PACKAGING INDUSTRY

The packaging industry requires sensors and sensor systems that are tailored to complex, frequently changing tasks, while meeting the increasingly challenging standards for trademark protection, safety, and documentability.

From the rugged, moisture-proof photoelectric sensor, glass identification via intelligent image sensors, and checking the position of packaging elements through to protecting robotic loaders with safety laser scanners – SICK systems meet the requirements of the packaging industry.



Learn more about sensor solutions for the packaging industry
[→ www.sick.com](http://www.sick.com)



Detecting and measuring

Differently sized products require flexible machines and a broad spectrum of intelligent sensors to detect objects and measure physical sizes. SICK's modern sensors feature automatic teach-in and diagnostic capabilities, and make a significant contribution towards meeting these challenges.



Protecting

The modular construction of modern packaging requires an intelligent and flexible safety concept. SICK safety solutions ensure the protection of personnel and machines, optimize production, reduce machine footprint requirements, and decrease downtime.



Monitoring and inspecting

In order to ensure constant high quality with high throughput speeds on packaging machines, a quality control system is needed that meets the highest requirements. SICK's distance sensors and vision sensors support nearly every type of monitoring.

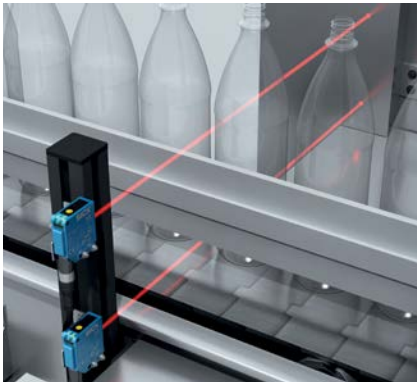


Managing and identifying data

Reliable identification of objects is a prerequisite for a smooth packaging process which lays the foundations for traceability and continuous quality improvement. SICK offers a wide range of both permanently installed and mobile readers for bar codes, 2D codes and RFID technologies.

DETECTING AND MEASURING

Presence – Position – Speed – Contour



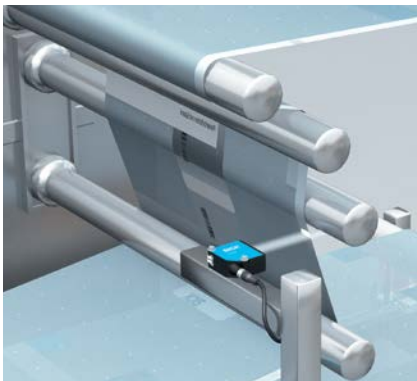
Detecting transparent objects without the use of a reflector

A typical application in bottling plants is the detection of transparent and semi-transparent bottles at the start and end of the filler. The TranspaTect reliably detects transparent, high-gloss and highly reflective objects without a reflector, and is not sensitive to dirt, which ensures high rates of detection and operational safety, and, thus, machine availability.

- MultiTask photoelectric sensor



→ www.mysick.com/en/TranspaTect



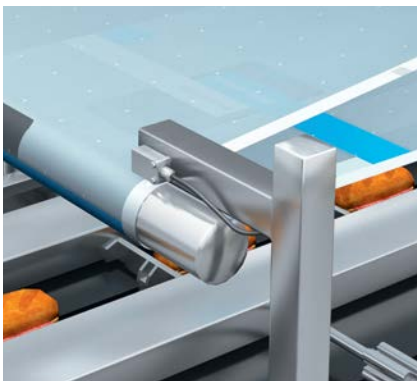
Accurate edge guiding

To ensure consistent quality and minimize the cost of waste, the packaging film must be run optimally through the flow wrap machines. The Ax20 array sensor is used for web edge control of the film, so the signals from the analog 4 to 20 mA output can make appropriate readjustments to the film throughput through the machine. A visible light spot enables accurate adjustment without additional settings.

- Array sensor



→ www.mysick.com/en/Ax20



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 in order to control machine functionality, e.g., the film cut. The stainless steel version is ideal where hygienic requirements must be met, and the accompanying Hygienic Design mounting system also minimizes the risk of contamination.

- Contrast sensor



→ www.mysick.com/en/KTM
→ www.sick.com/ktm-video



Precise position value identification

Modern packaging machines must position products quickly and precisely on conveyor belts. This is where absolute encoders such as the AFS/AFM60 EtherCAT® come into play, which take an extremely accurate position measurement and transmit data to the machine controller. Comprehensive diagnostic functionality provides helpful analysis options.

- Absolute encoder



→ http://www.mysick.com/de/AFS_AFM60_EtherCAT
→ www.sick.de/afs60-video

PROTECTING

Hazardous Point – Access – Safety Controller



Intelligent and non-contact door monitoring

The TR4 Direct non-contact safety switch protects physical guards on a packaging machine, and the sensor's high degree of tolerance to door offset, combined with its diagnostic ability, increases machine availability. The TR4 Direct enables a safe series connection and, in combination with the Flexi Soft safety controller, ensures that a machine cannot be started if the doors are open and that a running packaging machine is stopped when the door is opened.



- Non-contact safety switch

→ www.mysick.com/en/TR4_Direct



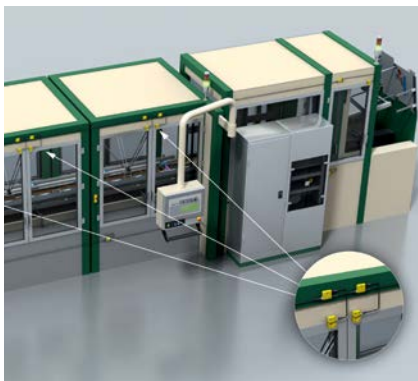
Efficient hazardous point protection

The deTec4 Core safety light curtain protects the hazardous area on an overwrapping machine when changing the film. The reliable sensor takes up little space when fitting and has no blind zones, and the integrated level indicator positions sender and receiver quickly and safely. When used in combination with the Flexi Soft safety controller, SICK offers a complete machine safety solution.



- Safety light curtain

→ www.mysick.com/en/deTec4
→ www.sick.com/detec4core-video



Safe sensor cascade with convenient diagnosis

The numerous safety switches and safety sensors installed on a packaging machine require a wiring concept that supports diagnosis of the connected components. The Flexi Loop ensures that up to eight sensor cascades – each with up to 32 dual-channel safety switches and safety sensors – can be connected and diagnosed in a cost-effective way. Locking devices, signal lamps, and pushbuttons can also be connected via standard inputs and outputs.



- Safety controller

→ www.mysick.com/en/Flexi_Soft
→ www.sick.com/flexiloop-video



Modular and safe networking

Packaging lines with a modular construction require the networking of safe data, e.g., emergency stop information, between the individual elements of the system. Here the Flexi Soft safety controller offers the option of networking multiple controls safely. Available as an option: Flexi Soft Drive Monitor for safe monitoring of drives, e.g., as required for a setup with safety limited speed. Gateways are also available for integration into all standard automation systems.

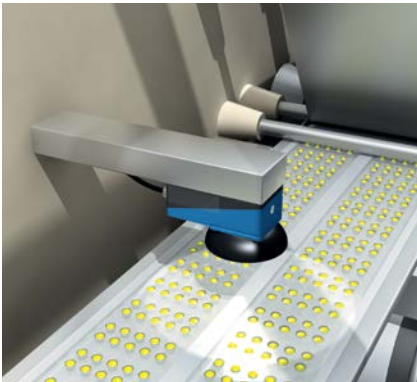


- Safety controller

→ www.mysick.com/en/Flexi_Soft
→ www.sick.com/flexiline-video
→ www.sick.com/drivemonitor

MONITORING AND INSPECTING

Quality – Process – System



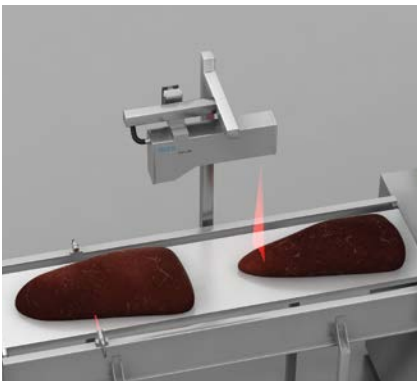
Quality control for blister packaging

Blister packaging of pharmaceutical products is monitored for completeness and size to avoid returns and improve patient safety. The Inspector I40 vision sensor checks whether a blister has been correctly filled using its flexible, interchangeable lens which makes it easy to optimize the image quality. The multi-sided toolbox ensures greater production efficiency in a wide range of quality checks.

- Vision sensor



→ www.mysick.com/en/Inspector
→ www.sick.com/inspector-video



Optimizing the cutting process

Form and volume measurements optimize cutting processes in the case of foods, i.e., meat, which reduces waste and cuts costs. The IVC-3D smart camera is ideally suited to these requirements. Its stainless steel housing meets the most stringent hygiene requirements in the food industry and also withstands aggressive cleaning agents, while the smart camera combines image processing, illumination, and evaluation in a single housing.

- Smart camera



→ www.mysick.com/en/IVC-3D



Checking safety features

To avoid the counterfeiting of products, packaging is given invisible safety marks which are only visible under UV light and can be detected by luminescence sensors. The LUT9 luminescence sensor detects fluorescent marks reliably, regardless of pattern, color, or surface properties of the carrier material. Interchangeable lenses and additional optical filters extend the sensor's application possibilities and reduce downtime.

- Luminescence sensor



→ www.mysick.com/en/LUT9



Level monitoring in foaming media

In dairies and breweries a great deal of foam is created when conveying, mixing, and filling milk or beer. The LFP Inox level sensor enables a reliable distinction to be made between liquid media and foam. Using FDA-compliant materials, EHEDG-certified design, and CIP and SIP resistance, the LFP Inox is suitable for applications with stringent hygiene requirements.

- Level sensor



→ www.mysick.com/en/LFP_Inox

IDENTIFYING

Code – Plain Text – Data Carriers



Advanced identification technology

The LECTOR®620 can reliably assign, trace and protect food and drug packaging against counterfeiting. Intelligent identification algorithms ensure that all usual 1D, 2D, and stacked codes, and plain text can be read on all kinds of materials. Intuitive setup with aiming laser, focus adjustment, and auto-setup reduces training and installation time and costs.

- Image-based code reader



→ www.mysick.com/en/LECTOR62x
→ www.sick.com/lector-video



Identifying objects

The CLV620 bar code scanner uses its SMART620 code reconstruction technology to read even damaged 1D bar codes very reliably. Integrated pushbuttons, an LED bar graph, and smart auto-setup make it extremely easy to set up the bar code scanner. The scanner features integrated serial interfaces, CAN, and Ethernet, and the optional expansion interface can be used to provide solutions for special customer needs.

- Bar code scanner



→ www.mysick.com/en/CLV620



Multifunctional code reading

For smooth tracking of drugs, serialization must be ensured in all production steps. When bundling folding boxes, the serial numbers of each box, which are contained in a data matrix code, must be determined and checked for completeness. The LECTOR®65x image-based code reader can determine the content of all codes with just a single image. Its dynamic focus and fast continuous advance imaging means the LECTOR®65x is best equipped for this task.

- Image-based code reader



→ www.mysick.com/en/LECTOR65x
→ www.sick.com/lector65x-video



Identification of loaded pallets

RFID transponders which contain all the necessary data are fitted on pallets for clear identification of packaging. Using the RFU63x RFID interrogator, the transponders can be written and/or read. Support from all standard data interfaces and fieldbuses makes it easy to exchange data with the control center and the RFID interrogator also provides many diagnostic functions.

- RFID sensor



→ www.mysick.com/en/RFU63x

DeltaPac – OBJECT DIFFERENTIATION IN A GAPLESS PACKAGING FLOW

Up to now, it was generally necessary to separate packages in order to count or detect them with the aid of, for example, photoelectric sensors. Separation of this kind – often achieved through complex mechanisms in the conveying line – is now a thing of the past, thanks to the DeltaPac MultiTask photoelectric sensor, made possible by SICK's patented Delta-S-Technologie®. The DeltaPac's principle of operation utilizes the edge contours of objects. Moving seamlessly from one object to the next, the edges change the remission behavior of the packaging surface, and this change of remission direction is used to output switching signals.

Benefits:

- Detects object contours with radii of up to 20 mm
- Conveyor speeds up to 3 m/s or production rates of up to 200,000 packages per hour
- Separation mechanisms are not required
- Packaging moves along edge-to-edge
- Quick and intuitive installation.



→ www.mysick.com/DeltPac

Smart Sensor Solutions – START BENEFITING FROM THE ADVANTAGES OF INTELLIGENT SENSORS TODAY

The implementation of sensors that are as simple to integrate as possible and diagnostic options for determining process data or reducing downtimes are key concerns in the packaging industry. A consistent communication concept right down to the lowest field level is crucial in exploiting the features and technologies of state-of-the-art sensors and actuators, and making machines and systems more productive as a result. Through IO-Link, leading automation manufacturers have managed to establish a standard that solves the problem of clearing those final tricky hurdles in the communication chain.

Benefits:

- Utilize remote automation functions to increase your productivity
- Minimize the time required for mounting, installation, and commissioning
- Optimize servicing and maintenance flexibility
- Reduce your costs across the board



→ www.sick.com/smart-sensor-solutions

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for factory, logistics, and process automation. With more than 6,000 employees and over 40 subsidiaries worldwide, we are always close to our 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.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our 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 us a reliable supplier and development partner.

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

For us, that is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium/Luxembourg, Brazil, Czech Republic, Canada, China, Denmark, Finland, France, Germany, Great Britain, Hungary, India, Israel, Italy, Japan, Mexico, Netherlands, Norway, Poland, Romania, Russia, Singapore, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, United Arab Emirates, USA

Please find detailed addresses and additional representatives and agencies in all major industrial nations at: www.sick.com