

: FOCUS FLEXIBILITY IN LOGISTICS

NETWORKED VALUE CHAINS

INDIVIDUALIZATION IN LINE
WITH PRODUCTIVITY



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IMPROVING FLEXIBILITY THROUGH INCREASED TRANS



Dear Readers,

Flexibility is the thing that enables us to adapt to requirements and restraints in a world that is constantly changing. Our area of industry is currently experiencing two important changes. On the one hand, customers and business partners expect us to provide a wide array of options and tailor our products and services to suit their individual needs. At the same time, we are expected to improve transparency in areas such as logistics processes. Such demands have an impact on the entire value chain and seem to contradict everything that stands for efficiency and productivity.

On the other hand, we have also experienced another change resulting from the development of state-of-the-art data technology. Looking at these developments from a purely technical point-of-view, there seems to be no end to the number of opportunities available. Communication and remote intelligence are the foundations needed to increase efficiency in production and logistics, improve the monitoring and management of processes, and thus improve transparency. In the context of the “Industrial Internet,” we will see new intelligent networks of factories. They will help us all to achieve the level of flexibility needed in logistics processes, both within a single factory and across an entire chain of production sites. As a result, we will be able to bridge the gap between productivity and the demand for individualization.

Sensor intelligence plays a key role in this trend: our sensors are able to detect objects and statuses, providing users with a wealth of data. Our sensors’ computing power and intelligence enable you to trace relationships between all of this data. As such, we are able to increase transparency, which in turn forms the basis for improving flexibility. This edition contains a number of practical case studies on this subject.

We hope you enjoy reading.



Reinhard Bösl
Executive Board Member Systems & Industries

04

More flexibility

What challenges are production and logistics processes faced with when caught between the Industrial Internet, the requirements of the consumer, and the pursuit of increased efficiency? An interview with Bernhard Müller and Tony Peet.

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TRANSPARENCY



Collision protection
Now possible:
More vehicles in narrow aisles.

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INTERVIEW

INCREASED FLEXIBILITY FOR LOGISTICS PROCESSES

What challenges are production and logistics processes faced with when caught between the Industrial Internet, individual customer requirements, and the pursuit of increased efficiency? What opportunities arise and how does SICK provide support when it comes to finding innovative solutions for various tasks? An interview with Tony Peet, President, SICK Sales Company, U.S., and Bernhard Müller, Division Management Identification & Measuring, SICK AG.

SICKinsight: Mr. Peet, Mr. Müller – how flexible do businesses actually have to be these days?

T. Peet: E-commerce and online sales are a real driving force these days – not to mention, of course, the expectations that every one of us has as a consumer in regard to greater speed, flexibility, and transparency in the buying process. For businesses, this means adapting existing processes and implementing new ones – all in the name of increased flexibility. Only those who are flexible in every

respect will continue to be successful in the future.

B. Müller: As a consumer, I also want more freedom of choice and a higher degree of individuality – for example, when I'm choosing the equipment for my dream car. This, of course, has an impact on the entire supply chain and production processes, with the key word here being "batch size of 1." In the discussions surrounding the Industrial Internet, the first solutions in this domain have already been outlined.

SICKinsight: What are the biggest challenges involved in moving towards "greater flexibility"?

T. Peet: The challenge of coming up with a flexible automation system is definitely an important subject when we talk about flexibility. If our customers were able to adapt their production processes quickly to meet the needs of their customers, they would have more than just a competitive edge. They would also increase the efficiency of their production processes, particularly in the conflicting

areas between “lean production” and high levels of stock, which they would inevitably have to build up to ensure that they were always in a position to make flexible deliveries that were right on time.

B. Müller: If you look at the processes across the entire supply chain, the idea of track and trace is possibly one of the biggest challenges. Manufacturing companies will always want to know – and, in fact, have to know – where the component, the device, and then the ordered product in its finished form are located. And this is where intelligent sensor solutions come in: Complete detection, identification, and tracing are only possible if manufacturers generate the corresponding data and information which they can then use. They can also use this information to detect and eliminate faults at the earliest possible stage, with the key words here being “process and quality control.” This means that they can also avoid expensive follow-up costs.

SICKinsight: What are the key requirements to ensure that automatic identification (“auto ID”) and track and trace systems function reliably?

B. Müller: As we move towards the Industrial Internet, the requirements for automatic identification will continue to increase. This also has an impact on the technology used, e.g., image or laser-based solutions or RFID. However, when it comes to selecting the optimal solution, it is the idea of meeting individual requirements that takes center stage rather than the technology itself.

T. Peet: But that is also flexibility – having the opportunity to use the appropriate technology for a particular task. With SICK as a partner, this flexibility is guaranteed. Not only do we provide an extensive range of technology, but we also have the expertise for application-specific requirements. This means we can offer comprehensive advice when it comes to selecting the optimal solution at the earliest possible stage.

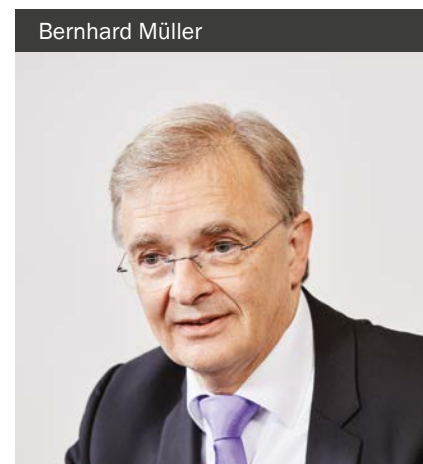
SICKinsight: Will all auto ID technologies play an equal role in the future? That is, do only image-based code readers have a place in the future, for example?

B. Müller: There are currently three technologies on the market: RFID, image-based, and laser-based. The capa-

bilities of each of these solutions are growing continuously – through advances in semiconductor technology on the one hand and increasingly efficient image-processing algorithms on the other. Today's intelligent sensor solutions are not just about recording reality accurately, but also about processing the information in the sensor. For example, thanks to a flexible output format, the data output can be adjusted exactly to suit requirements by setting and linking the logical conditions. This reduces the level of programming effort in the control unit. In light of all this, each technology will continue to have its place in the future: RFID makes it possible to read and write data, and therefore make use of data cards in many different ways. It's not even necessary to have direct “visual contact.” Laser scanners are impressive thanks to their depth of field and large reading fields, which are ideal

“If you look at the processes across the entire supply chain, the idea of track and trace is possibly one of the biggest challenges.”

Bernhard Müller, SICK AG



when reading distances change. Image-based code readers are able to read 2D codes and plain text – the saved images can be archived and analyzed. The advantages of the individual technologies are then integrated into the development of our hybrid systems, such as the Airport Luggage Identification System (ALIS) or DWS systems, which are used to determine additional object attributes such as dimensions and weight.

T. Peet: It is now clearer than ever that I can only offer the appropriate and efficient solution each time if I have a firm grasp of how to use all of the technologies required. There are yet more advantages and synergies for our customers associated with the ability to combine different technologies flexibly without any

effort. This is made possible thanks to a uniform user interface, identical connectivity, and the same accessory concept. This also applies for our vision sensors. We have therefore expanded our tried and tested IDpro platform to the 4Dpro platform. This highlights the unrivaled

added value created by our expertise in the fields of 1D, 2D, 3D, and RFID technology.

SICKinsight: What can SICK customers expect here? Which innovations will we see?

4Dpro: Added flexibility thanks to a standardized device platform



All 4Dpro devices are characterized by their uniform connectivity, identical user interface, and a uniform accessory concept. When combined with SICK's extensive expertise in 1D, 2D, 3D, and RFID technology, it results in added value.

www.sick-4dpro.com



“Increased flexibility is not possible without more and more networking coupled with the exchange of information.”

Tony Peet, SICK AG

B. Müller: We will present a range of innovations. For example, 3D snapshot technology opens up a huge range of possibilities: Users get a 3D image – practically at a glance – with spatial and depth information, even for objects that do not move. Together with intelligent evaluation processes, it enables a new breed of driver assistance and collision awareness. There is also plenty of demand in the sectors of machine safety inspection and personal protection.

T. Peet: The Lector®65x System also shows how we use the technical innovations of individual components. Now, with the help of a controller, the Lector®65x image-based code reader can be expanded at will using either several cameras or sensors for measuring volume, automating light curtains, and encoders. Customers can arrange the system to suit whatever requirements they are faced with, which also creates flexibility.

SICKinsight: Let's talk about the Industrial Internet. How does this development influence logistics?

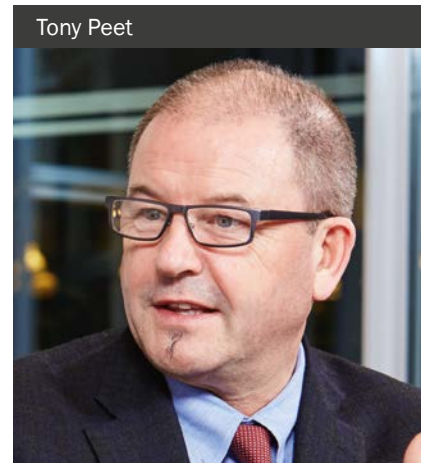
T. Peet: Increased flexibility is not possible without more and more networking coupled with the exchange of information across the boundaries of a factory or an individual hub. This also means that companies monitor and evaluate the wealth of information and data accordingly. In fact, it is only by doing this that it is possible to make the right decisions. Here, I am thinking about solutions such as our Package Analytics software in the CEP sector. All information about objects is brought together, including bar codes, volumes, weights, and even image and video data. This information can be used for analyzing, evaluating, trend forecasting, and “what if” scenarios. What's

more is that all camera, laser scanner, and RFID systems can be monitored from anywhere in the network.

B. Müller: In this context, the subject of reliable data acquisition – even in the most difficult circumstances – is also important. If, for example, intelligent data evaluation takes place directly in the sensor, as it does in our Smart Sensor Solutions, then this creates added value.

SICKinsight: The subject of RFID is often mentioned when discussing flexibility, customization and “batch size of 1.” What are the advantages of RFID technology?

B. Müller: The number one advantage of RFID is its versatility and ability to update the data card directly on the object. What's more, no “visual contact” with the object is necessary. In the automobile industry, an increasing number of UHF RFID data cards are being used, which are attached to vehicle compo-



nents. Aspects such as transparency and traceability are key here, especially when several different variants are built on one production line. Special RFID tags are also capable of enduring high temperatures in the paint shop.

T. Peet: We also employ the advantages of RFID technology in our RFGS Pro and RFMS Pro systems. These universal solutions provide total transparency in the supply chain and lend themselves well to monitoring incoming and outgoing goods. Thanks to RFID, it is possible to collect master data at an individual item level (“item level tagging”) or even identify objects in a group.

SICKinsight: Thank you for speaking to us, Mr. Peet and Mr. Müller.





SENSOR SOLUTIONS FOR THE ENTIRE VALUE CHAIN

STREAMLINING PRODUCTION PROCESSES IN THE STEEL INDUSTRY



Steel plants achieve efficient and fault-free production processes with effective logistics concepts. Logistics plays a key role in determining the success of every stage in the production process. Using intelligent sensor technology, SICK helps companies streamline processes involving cranes, conveyor belts, transport systems, and vehicles, enabling them to realize a seamless production. And because the solutions are simple, fast and accurate, the more sensors used the better.

>> Every steel plant has its own production cycle. However, there is one principle that unites them: Every stage of the process moves things forward. That is, they should not slow down the process, or cause capacity blockages. This efficiency poses a major challenge for the complex steel industry because every process must lead perfectly into the next, like gears in a gearbox. A steel plant is said to be fast if it requires only four hours to run a full production process, from receiving raw materials to loading the finished product (and this still involves handling the product at least five times in the interim). Therefore, one can imagine how complex and time-consuming the production processes used by “mega steel plants” are. A single plant may use an assortment of different steel-making techniques and produce several thousand types of steel, posing a considerable challenge for the plant management team, the staff, machines, and logistics structures. Because companies produce

different billets, blocks, sheets, wires, and pipes in an assortment of different lengths, widths, heights, and weights, the entire plant has to run like clockwork.

However, over the past few decades, the steel industry has managed to implement a number of technical innovations that have helped plants to reduce the cost of the production and improve the quality of its products, while still managing to increase process flexibility. When it comes to increasing the competitiveness of an individual plant however, internal processes such as the logistics chain and production cycles often play a decisive role. There is no shortage of areas to improve.

Monitor, control, and regulate

By providing plants with information they need to stay one step ahead, SICK’s sensor technology plays an important role. Sensor solutions enable staff to communicate clearly and ef-

ficiently with machines, help to avoid risks and disruptions, and create more streamlined handling and logistic processes. There is almost no end to the new challenges facing the area of logistics, both when it comes to the delivery of materials, and storing and transporting final products. And, let us not forget the production processes themselves, which are expected to be effective and reliable, and yet flexible.

The harsh environment does not make measurement requirements easier either. Faced with dirt, heat, vibrations from production systems, and a variety of different heavy goods vehicles, sensor solutions have to be extremely reliable, durable and robust. A high level of reliability and durability is crucial in sensor technology, while still ensuring that solutions are accurate and easy to use. This is where scanners, sensors, and encoders offered by SICK come into their own. Providing a reliable solution for monitoring the entire production



SENSOR SOLUTIONS ON THE PRODUCTION LINE IN A BID TO IMPROVE PRODUCTIVITY

chain, they enable steel companies to automate repeated processes which in turn helps to improve the quality of the final product and increase safety standards. In the event that something does change in the process, the sensors have to be adapted to the new situation. By simply adjusting the settings, users can quickly retrieve customized limits or re-define parameters.

SICK has already been working successfully with the steel industry for several years and has also helped to bring about key changes in the logistics process. For example, the traceability of goods has been improved and preventative maintenance measures have been added for production materials in the logistics chain. To tackle production processes effectively, the processes themselves have to be well-designed and transparent. It is not until a company has introduced SICK's sensor solutions that it is able to introduce efficient measures and evaluate priorities in the pro-

duction chain. This is also a case where the company that acts earliest wins. Sensor technology from SICK can be implemented right from the start because it offers solutions for a wide range of applications.

On the trail of materials

Tracking and tracing starts from the moment raw material is delivered and therefore helps to define one of the key challenges facing a plant's internal logistics concept: streamlined storage. Companies have to know how much material they have at all times. Whether they have enough piece goods or bulk materials or gas in storage. Whether it is ore, coal, scrap, oxygen, nitrogen, specific alloying agents, or water. They have to make sure not to mix up different deliveries and quality batches of similar material. SICK offers a number of different solutions for track and trace applications. Tracking material deliveries using wireless high frequency and ultra high frequency RFID technology is ideal for creating a trans-

parent logistics concept. By applying quick measurement cycles (even over larger sensing ranges), the sensors automatically provide precise location data for cranes and railway carriages. Even in difficult conditions, the sensors present a high level of availability and a long service life. It is the perfect combination of measurement certainty and economic efficiency both inside and out.

Improving productivity safely and securely

Production determines the rhythm of the plant and thus poses the next big challenge facing the logistics concept in a steel mill: always having exactly the right amount of material at exactly the right time. The majority of production processes are not usually linear, while transportation routes often crisscross the entire plant. Plants also often contain a number of different production lines that produce the same product in a variety of different dimensions, making the coordination process even more complex. Some intermediate goods and

materials have to be stored during the course of the process. Transport containers like ladles and buckets have to be set up, crane processes have to be adjusted, and automatic vehicles have to fit the application. For this to succeed, the sensor technology used has to be accurate. Luckily, SICK has the right answer thanks to its wide range of sensor products, even helping companies to reduce the risks to people and machines.

The larger the machine in question, the more difficult it is to keep track of the logistic details. To help with this, SICK's time-of-flight sensors monitor all interaction between vehicles, cranes, and systems to help prevent collisions and accidents. Whether they use opto-electronic or ultrasonic technology, sensors solve the task. During the coil manufacturing process, for instance, distance sensors can detect the exact position of a gripper arm to the nearest μm without making contact, even for small scanning ranges. The sensors do not take up much space. Their measurement processes are integrated straight into the production process and provide a high level of repeatability, thus ensuring that the machines work properly and guaranteeing quality of the finished products. All this for a low investment cost.

Journey speeds can also be increased thanks to precise positioning using distance measurement devices. This solution provides quick access to materials without putting people or machines at risk. Furthermore, sensors enable companies to make more efficient use of interim storage spaces. When automatic vehicles are used to transport and stack materials, companies have to make sure they consider safety. Indoor hazardous areas are protected using the S3000 safety laser scanner from SICK, which is compatible with both stationary and mobile uses.

Increasing production output with more sensor solutions

Automation helps to streamline work processes so that the correct amounts of materials are available at each stage of the production process, delivered in order to the right processing unit. When using gases and liquids, engineering and process control solutions are crucial for pipeline systems and have to be adjusted to other material and energy flows. SICK's scanners monitor objects on belts and in wagons. Belt capacities must not be exceeded, which is why the laser technology in the Bulkscan® LMS511 measures both the volume and mass flow, based on detected densities. Able to withstand any belt vibrations,

weather conditions and contamination, the Bulkscan transmits measurement data on the filling level and the center-of-gravity which prevents material blockages and minimum capacity levels. Overall, it is the ideal alternative to the classic belt scale.

No automation without monitoring

SICK's photoelectric proximity sensors provide solutions for rolling mills. Forklifts and rollers are used to transport billets, slabs and blocks, sometimes when they are still red hot. The solutions used for capturing, positioning and detecting therefore have to be suitably rugged. The WT45 photoelectric proximity switch senses the precise location of the material





on the roller table, helping to streamline the manufacturing process. Thanks to a thermal shield and water-cooling system, presence detection is also reliable in hot conditions. Providing a high level of measurement accuracy, SICK's short-range OD distance sensors are used for checking, sorting, and inspecting objects in quality- and cost-relevant applications. A number of different sensor heads for various precision ranges provides accurate measurements for height profiles and material thicknesses such as for quality control of the thickness such as metal strip. OD distance sensors are able to achieve measurement and output rates of up to 10 kHz, perfect for use in high-speed applications.

Straight to the customer

Once the finishing process is complete, one is left with the final product, ready to be dispatched in accordance with the end customer's specifications. Here, the various sizes, weights, and means of transport play a vital role. SICK has developed sensors to help manage, monitor, control, and track this delivery process, too. Depending on the product, the delivery is also tracked so that it can be traced at a later stage. (sh)





CUSTOM ORDERS REQUIRE FLEXIBILITY IN PRODUCTION AND LOGISTICS

THE PROBLEMS DO NOT START UNTIL THE ORDER HAS BEEN PLACED

On the Internet, customers can create their dream car in a matter of moments. The options are endless: which model? Which color? Equipment? Engine? Petrol or diesel? You can customize almost every detail. However, this has an immense impact on the production concept. All the necessary components have to be ready for the production line so that the customer's dream car is ready as soon as possible. The real challenge here is making sure that exactly the right components are available at exactly the right time. Thanks to the RFID solutions by SICK, all this is possible.

>> One of the key principles of lean production is "Eliminating waste, reducing inventory." Unfortunately, this goes against everything needed for a flexible, made-to-order production line. However, production factors such as operating equipment and materials can still be used in an economic and efficient manner if the production concept is flexible enough to react. Mass-scale production is now a thing of the past. Nowadays, products are made-to-order. As such, there is always the risk that the equip-

ment selected for a particular car will not be available for the point in production when it is required. Now, using the right combination of automatic identification technology solutions, companies can know exactly where a component is at all times. As a result, production downtime is cut to a minimum.

The higher the degree of customization in a vehicle, the more information the automobile manufacturer must collect, process and evaluate during production. Every stage of the vehicle assembly

process has to be monitored and documented using the same form of technology, leaving no margin for error. And until very recently, the need to ensure continuity and traceability across all stages posed a real difficulty for vehicle manufacturers and their sensor suppliers.

Clear body identification using RFID technology

Once a body has been painted, bar codes and Data Matrix codes become invisible, while individual punched plates



A model factory: research and training facilities in the heart of the production hall

SICK is one of the partners at the “Demonstrationsfabrik” (demo factory), which was founded in Aachen, Germany back in 2013. This 1,600 m² production facility is built around the aim of streamlining processes used in series production, with a particular focus on improving the area of production logistics. All interested business partners are given the opportunity to test, verify, or enhance their new production concepts and components. The site's infrastructure meets all the criteria expected of a futuristic, high-end production line in higher-wage countries. It combines the efficient use of energy, a high level of adaptability, and transparent processes with a high degree of automation. SICK's RFID technology therefore plays a formative role at the site.



Additional information:

www.fir.rwth-aachen.de/en/campus/demonstrationsfabrik

Its read/write attributes have been perfectly adapted to the applications used in the automotive industry. Specially designed for easy integration, the RFU630 meets all the requirements set out for vehicle production processes. The transponder is a stable RFID label which is resistant to extreme temperatures, but still cost-effective. Attached to the body's lower platform, the reliable label accompanies the vehicle right from the start of the production process. The body-ID also manages to survive the paint process unharmed, making mix-ups almost impossible.

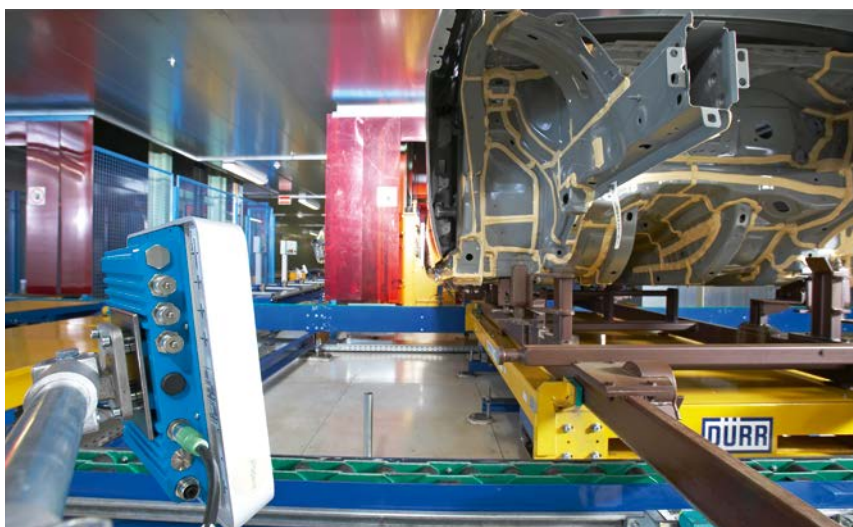
Mercedes-Benz uses reliable body identification technology that can withstand its hot and metalwork-heavy processes

The Mercedes-Benz plant in Rastatt, Germany, manages its tagged vehicles using UHF-RFID devices at a number of

different work and treatment stations, all the way up to final assembly. After pretreatment by degreasing, rinsing, and phosphating in huge spray systems and following the cathodic dip painting process, the car bodies are dried in an oven at approximately 180 °C. This would put stress on most RFID systems because the high-frequency reflections from the system can impair data transmission between the transponders and the read/write devices. However, the RFID systems offered by SICK are able to withstand all hot and metalwork-heavy production processes. With approximately 350,000 readings per day in the system, reading accuracy is a must, since erroneous readings can lead to car bodies being misdirected or mixed up. There is even the risk of collision. SICK's RFID solutions offer a reading accuracy of 99.98 %.

and active RFID tags are too expensive for consistent use. Furthermore, identification labels attached to assembly carriers are not a safe enough solution. Vehicles move between different assembly carriers several times throughout the construction process, meaning that this solution could result in a great deal of confusion. To solve this problem, the car body must be clearly labeled at the start of the production process, using a solution that remains visible throughout every stage in the production process – even in the paint shop where temperatures can reach up to 220 °C.

In a bid to solve the issue, SICK took the requirements and used them to adapt RFID technology. The result? The RFU630 read/write device using UHF technology (UHF = ultra high frequency).





Ford is currently putting the advantages of RFID to the test in its material handling systems

Ford is currently running a pilot material management project at its production plant in Saarlouis, where it is testing an electrical overhead conveyor for engine components. The plant currently produces around 1,600 vehicles a day. Using SICK's RFID technology, Ford has been able to document all stages of its production process, from the construction of the car body to the delivery of the finished product to the customer. In future, this could be extended to include repair processes, special applications, and the management of loading processes. According to Dr. Klaus Schmitz, the project manager at Ford, ensuring an extremely high level of flexibility across all production and logistics processes would give Ford a real advantage over its competitors.

No time to look and too expensive to wait. Where is the finished car?

Until the completed cars are ready to be picked up and transported to the deal-

erships, they are left parked in large parking lots. The problem occurs when it comes to finding a car that has to be transported. If a car has been parked in the wrong area by accident, it may take the company hours to locate it again. And when over 1,000 cars are produced every day, it can be quite easy to lose track. Every single car is made-to-order. Every car is different to the next. However, when information is stored on an RFID tag, the customer's dream car is located quickly and can be loaded up for transport in no time.

Reducing the impact of recall campaigns: When was the car built?

Traceability helps companies to avoid costly recall campaigns and limit the extent of damage. For example, if a faulty component is found in a car, the company has to find out which individual parts were used to assemble the final product. And more importantly, it has to find out how many other cars are equipped with the faulty component and which cars are affected. In order to ensure complete transparency in ve-

hicle parts, vehicle manufacturers are planning to document every single component in every single vehicle in future. To achieve this, they will mark all important components with transponders which are captured in their assembled state during the production process. SICK has created suitable RFID gates for this purpose and also offers customers its extensive expertise in commissioning and improving reading points. Likewise, it also provides the manufacturers' suppliers with RFID technology at component level.

Tracking components every step of the way

The high-resolution identification technology enables vehicle manufacturers to trace every individual step so that they always know which models are affected and what type of numbers are involved. In the event of a recall campaign, for instance, they can identify all cars that contain the component that needs to be repaired or replaced. (kl)



Radio Frequency Identification (RFID)

RFID is a form of automatic ID technology, one that is growing in popularity wherever process reliability is the number one priority. The more complex the goods flow, the greater the need for transparency of information. RFID technology 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. Maximum reliability, high speeds, and compatibility with a wide range of industries are just some of the benefits that make this technology so interesting to so many new applications.

Streamlining processes with RFID:

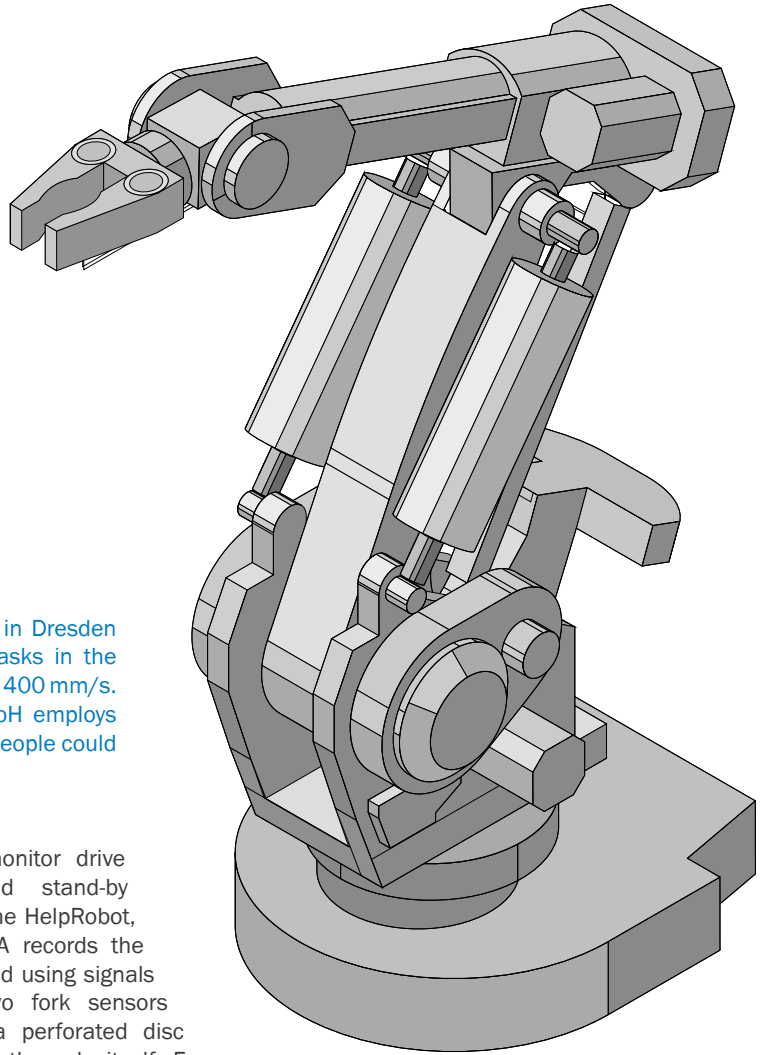
- **Reliable, up-to-date information**
By linking the material flow to the information flow, the information systems display the status of the goods flow on an ongoing basis. The information in the system is therefore both more precise and more up-to-date.
- **Preventing entry errors**
RFID helps to prevent the typical errors made during inbound and outbound goods processes, for example incorrect quantity data, incorrect product data, or missing accounting entries.
- **Reduced search times**
With RFID, entries for transactions such as stock transfers are processed automatically. Removing this labor-intensive process helps to avoid manual errors and reduce costs.
- **Reducing production downtime**
By accurately tracking materials in the information system, companies are able to keep a precise record of stock levels and adhere to delivery deadlines.
- **Improving production planning**
As the information system tracks every material flow in real time, companies can plan production processes with even more accuracy.
- **Fewer capital commitments**
Increased transparency and improved planning means that companies are able to reduce excess capacities, e.g., for containers, and thus release capital tied up in storage.
- **Remote process management**
By storing data directly on the object itself, processes can be managed without having direct access to databases (e.g., ERP systems). This increases system availability and reduces costs for extensions.



ROBOTICS FOR THE ELECTRONICS INDUSTRY

FLEXIBILITY ASSURED





The HAP-HERO® HelpRobot was created by HAP GmbH in Dresden as a mobile and flexible robot solution for handling tasks in the semi-conductor industry. At top speed, it can achieve up to 400 mm/s. The robot used at Infineon Technologies Dresden GmbH employs SICK sensor technology to monitor both the area where people could be located and the robot's speed.

>> The HAP-HERO® HelpRobot is used for automatically loading and unloading process tools and for quickly transporting items between the process tools and the transport system in the clean room. The main focus of the solution (which is also the main challenge) looks at how humans and robots can interact and cooperate with one another. The safety laser scanners S300 and S3000 by SICK detect when a person is located in close proximity to the robot. Depending on how close the person is to the robot, it either runs in crawl mode or stops completely.

Counting on a safe speed

The MOC3SA Speed Monitor from SICK monitors the speed at all times. If the robot exceeds the top speed, the Speed Monitor safely switches the drive off. Developed especially to monitor the speed of drives for safety purposes, the Speed Monitor meets the criteria of the safety level PL e according to EN ISO 13849, SIL3 according to IEC 61508, and SIL3CL according to EN 62061. The motion control module provides users with a flexible and cost-effective way

to safely monitor drive speeds and stand-by modes. In the HelpRobot, the MOC3SA records the robot's speed using signals between two fork sensors that scan a perforated disc installed on the axle itself. For added safety, the Speed Monitor communicates with the HelpRobot's safety controller as well as with the drive itself.

Cost-effectiveness assured

In addition to the technical factors, HAP is also benefiting from the economic advantages presented by the Speed Monitor. One of the module's particularly impressive points is the number of configurations available. The free Flexi Soft Designer software enables companies to design and test safety applications without wasting precious resources.

All you need is a screwdriver and you can adjust the MOC3SA whichever way you would like. What is more, applying the Speed Monitor means that HAP no longer needs to use a "safe" drive, saving

several hundred euro per HelpRobot. The area and speed monitoring solution not only enables humans to work with more flexibility, the robots themselves will benefit too. (ir)

A safe speed monitoring solution for handling robots: Read the full report at www.sickinsight.com



NETWORKED PRODUCTION AT BOSCH

VIRTUALIZATION OF PHYSICAL GOODS FLOWS WITH RFID

On the path to establishing networked production processes, the primary focus is on streamlining physical production and logistics processes. Thanks to the latest IT technology, these processes and goods flows can now be mapped virtually.



>> With the help of RFID technology, Bosch is able to record the status data for products or transport containers automatically. This data can be transferred in real time outside of the company's internal network, enabling Bosch to streamline all areas of its production and supply networks.

Virtual representation of the kanban system

A kanban system is generally used in the final stage of production: If the level of stock in the final stage of production falls short of a defined minimum value, a corresponding message is sent to the upstream production unit or warehouse, where new material can be prepared. As part of this process, kanban cards ensure that consumption information is passed on. As soon as a particular material has run out, the card is placed in a collection box. The cards are collected and distrib-

uted regularly to the areas responsible for preparing the required material. In the past, the physical material flow was transferred to an IT system manually, which required a great deal of time and effort. The margin of error was high, the data was never up to date, and the information flow was not synchronized with the material flow. However, all this has changed thanks to RFID technology and software-based data transfer processes. To support this process, every kanban card is fitted with a transponder chip.

RFID technology for error-free data recording

To begin with, Bosch started using high-frequency labels (HF technology) in several of its plants around the world. One of the solutions used was the RFH620 by SICK. Bosch decided to invest in ultra high frequency (UHF) technology in response to ever-grow-



Case studies for the RFH620

ing demands, such as longer sensing ranges, more flexible use, and standardization as part of the publicly funded “RFID-based automotive network” (RAN) project. Today, this technology sets the standard for all new applications installed within the Bosch Group. Bosch also successfully used the RFID technology in SICK’s RFU630 system for other logistics applications – such as material handling processes.

Direct data transmission to SAP

In the future, Bosch plans to use the compact RFU620 – a UHF RFID read/write device – in its production logistics processes. The reader is attached to shelves, detects kanban cards during the removal process, and transmits the card data directly to the SAP system via a middleware layer. In this way, the replenishment signal is generated in real

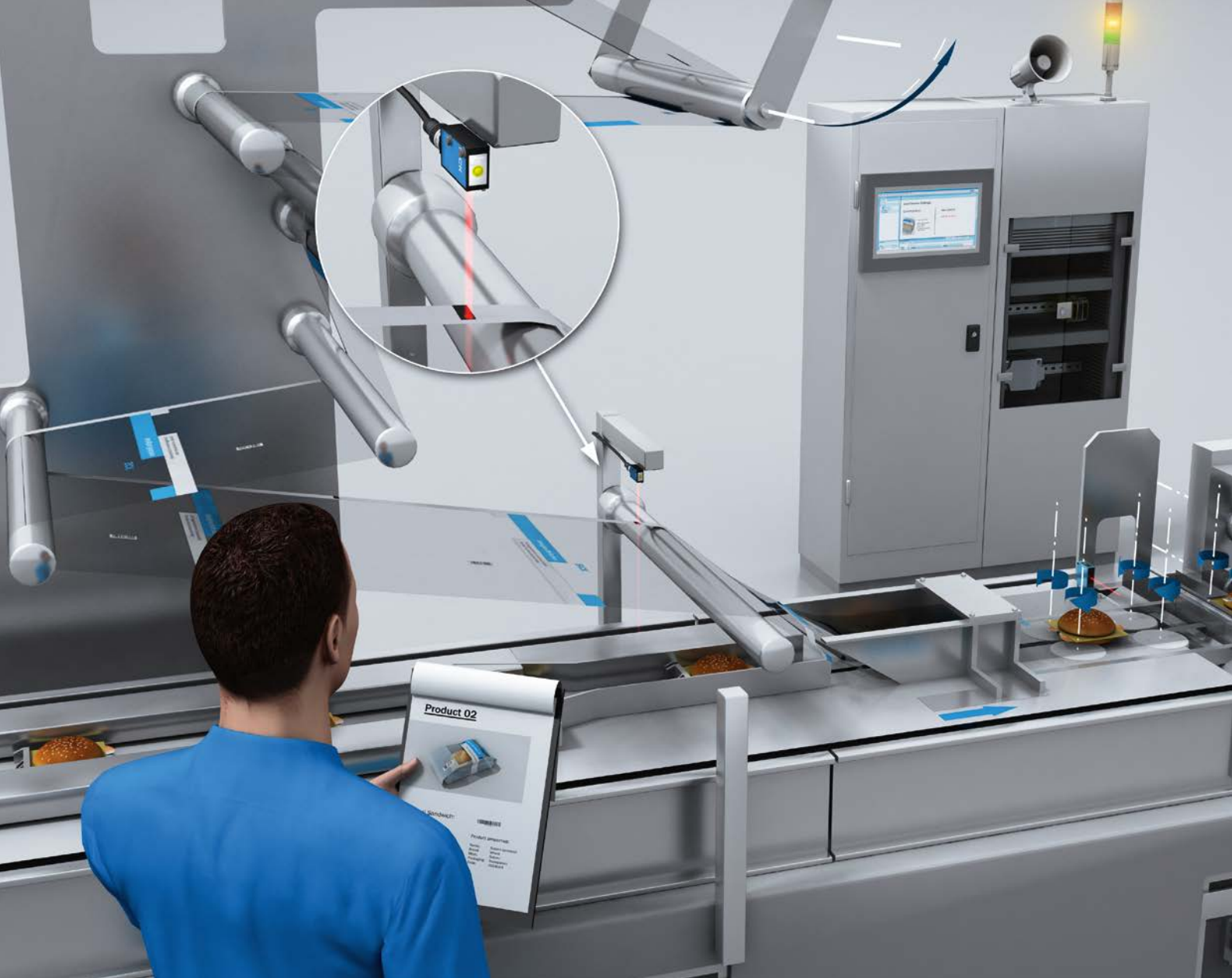


time as soon as the goods are taken, while the data verification process takes place at the same time. All necessary SAP actions – such as changing statuses, creating replenishment elements, documenting materials, and issuing receipts – take place automatically.

As such, the RFU620 is faced with quite a demanding task. The data recording process must be simple and reliable to establish a good database. Easy-to-read LEDs on the RFID sensor provide the user with clear feedback as soon as the plausibility of the SAP process step has been checked. The system does not replace kanban cards, but rather provides 1:1 mapping in SAP, enabling Bosch to virtually map the entire process in real time. This not only leads to significantly more efficient processes, but also reduces stock levels and even increases the availability of shelf space in the production process. (ae)



RFU620 UHF-RFID read/write device



“SMART SENSORS” FOR ADDED FLEXIBILITY

SPEEDY CHANGEOVERS AND QUICK PRODUCT SWAPS

The customer of today expects to be able to order a product that meets his exact needs and wishes. He mixes his own muesli. He picks his favorite chocolates for his chocolate box. He designs his own label for his champagne. He wants shoes that fit his feet exactly, in his favorite material and color. All of these options will affect the packaging process.

>> Consumers also expect to receive more and more information. They want to know how their products are manufactured and what they are made from. They want to know what the packaging is made of and how they should dispose of it.

Tailor-made products manufactured in line with a specific customer's re-

quirements call for a flexible packaging solution. As such, sensors play a considerable role in the production process. Why is that? Sensors are becoming increasingly intelligent, turning them into one of the main components in many systems.

They play a particularly important role in the Industrial Internet movement.

Effects on the packaging industry

Major changes in industry affect the foundations of the production process itself: These changes call for shorter changeovers, remote production management solutions, and packaging systems that can be adapted to product flows, formats, materials, and environmental conditions. As a result, companies can

manufacture and package made-to-order products at mass production prices. This basic concept is known as “batch size of 1.” The packaging industry is already prepared for the dawn of the Industrial Internet. The benefits of minimal changeover times and immediate production are clear: They improve the system’s flexibility when it comes to the type and size of packaging produced.

Looking for an intelligent sensor system? Smart Sensor Solutions for flexible sensor technology

Over the next few years, sensors will begin to play a fundamental role in machine automation and the improvement of flexibility. Their adaptable design has helped to win over many packaging manufacturers. Users are now able to store parameters for special formats, colors, contrasts, and surfaces straight to the sensor without having to touch the sensor at all. In the event of a product

changeover, they can be automatically activated in a matter of moments and their settings can be replicated in full. In accordance with the manufacturing process or product in question, the automation system provides the sensor with optimum application-specific parameters, such as the sensing range, hysteresis, or threshold.

What makes sensors so special

Sensors make the packaging process more transparent. They record and process values and statuses and then share them at controller level. Sensors sort, detect, locate, identify, and verify. Sensors are able to monitor certain parameters, thus enabling users to apply an accurate maintenance plan for carrying out preventive maintenance. And, sensors come with their own reliable auto-diagnosis function, meaning that they can be replaced both quickly and easily in the event of malfunction.

Interactive sensors

With its Smart Sensor Solutions powered by IO-Link, SICK provides its customers with all the advantages of an intelligent sensor system.

Its products and systems include a comprehensive range of communication functions and are also able to carry out certain functions automatically. For instance, “smart sensors” are able to count process events independently. They can also measure the time and speed at which objects pass the sensor and monitor values such as revolutions per minute.

The sensors either transmit the measured values to the control unit as absolute figures or they analyze the data themselves and transmit it in the form of binary information.

This is why SICK’s sensors are the ideal solution for improving the flexibility of automation technology in the packaging industry. (ir)

Flexible reactions: Types of product swaps

“Smart sensors” receive the product-specific parameter settings straight from the automation system. For example, when changing:

Shape and size



Color and contrast



Surface



3D CONTENT VERIFICATION FOR PACKAGING

ConVer: SO THAT EVERYTHING IS WHERE IT SHOULD BE

If you have experienced this problem yourself, then you will know just how annoying it is to start building a new piece of furniture only to discover that a part is missing or one of the components is wrong. To ensure product quality and customer satisfaction, end-of-line monitoring processes are absolutely essential. This includes things like checking to make sure that packages contain everything that they are supposed to. The ConVer quality control system from SICK allows you to improve these checks to suit your needs, making expensive complaints for incomplete products a thing of the past.

>> Errors and mistakes are an inevitable part of manual packing processes, which is why downstream completeness checks are absolutely essential. To have these quality control processes carried out by staff is both expensive and time-consuming, not to mention the fact that the results are rarely consistent. But help is at hand with the turnkey ConVer quality control system. This fully automated solution checks whether boxes or containers have been filled correctly and include all the required contents.

Content check using 3D image processing

The ConVer system comprises a scalable number of inspection stations that can be positioned along a belt wherever they are required. Each station is fitted with a Ranger E 3D vision sensor and a laser platform with six 2M lasers. The lasers generate a one-meter wide laser line that is extremely powerful yet still safe for the eyes. The Ranger E uses this laser to collect 3D information about the objects passing the sensor. This information is then compared in real time with reference images that have been taught-in previously. If any variance is detected, the system stops the belt straight away. Signal lamps and the monitor display provide the operator with essential support and instructions so that the packaging error can be corrected as quickly as pos-

sible. ConVer is particularly well suited to companies that offer a wide range of different products in either large or small batches. This is because a product can be changed within a matter of just seconds. Hardly surprising, then, that one of the largest furniture manufacturers has joined the many other companies now relying on this end-to-end solution from SICK.

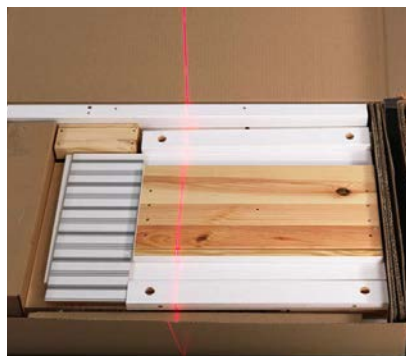
The key is often in the details

Packaging furniture is a complex process that is prone to error. Items are packed into boxes, either manually or semi-automatically by robots. There is also a wide range of products to process and each one of these can include various differ-

ent elements such as panels, screws, and hinges. However, products are frequently made up of relatively similar components, with the only difference between them being a detail such as a single borehole. This explains why com-



Position monitoring for parts with a pre-defined position



Completeness checks for packaging furniture parts

ponents may easily be forgotten or mixed up during the packaging process. The same applies to many other packaging processes in the consumer goods industry. For instance, components may have to be packaged in layers with each item placed precisely on top of the other (like tools, remote control car tracks, or cookies). This means that the components not only have to be physically available, but also in the correct position within the



packaging. If this is not the case, then production bottlenecks and delays can arise further down the line.

Process-optimized quality controls

To teach-in reference images for the thorough checking process, the packaged object is transported once through all stations of the packaging process while the system is in teach mode. The operator can use the monitor at the appropriate monitoring station to set parameters (characteristic features such as edges, grooves, or boreholes) which can then be positioned on top of the taught-in images using the drag-and-drop feature. In this way, ConVer does not check that the image matches up exactly, but rather tries to identify these particular characteristics in a specific region – regardless of the color or pattern of the object. The

operator can store verification tool settings as a template so that they can be accessed and reused at any time. This speeds up the process of changing products and batches significantly, as new products can be selected in a matter of seconds. What is more, the intuitive configuration functions mean that the system can even be operated by those with no previous experience of working with sensors.

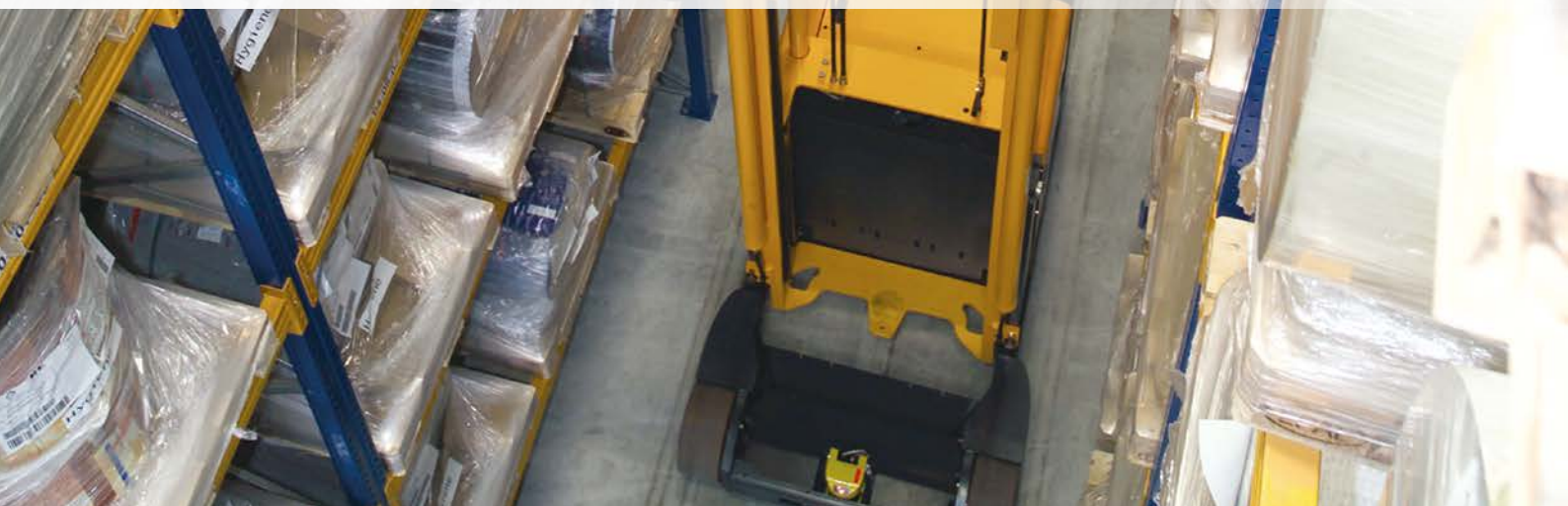
When it comes to state-of-the-art industrial image processing systems, ConVer meets all expectations. Its rugged industrial design allows that the system runs reliably even in harsh environments. The system components are carefully

attuned to one another and supplied by SICK as a complete, precalibrated turn-key set. Another highlight? The measurement data and images recorded by the system can be used for more than just correcting packaging errors. The results can also be used in subsequent systematic evaluations to identify any errors in the upstream production process that would otherwise remain undetected. And this is precisely how ConVer makes an active contribution when it comes to optimizing processes. (ms)



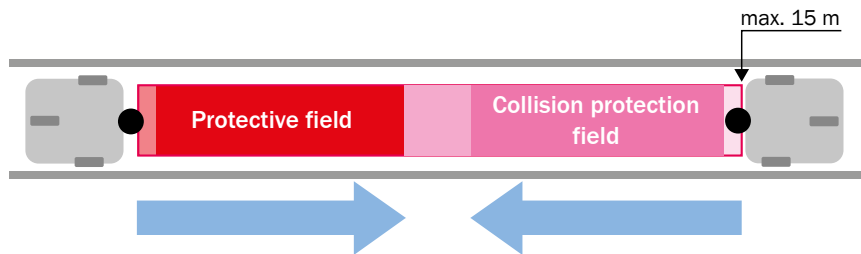
S3000 ANTI COLLISION WITH A SENSING RANGE UP TO 15 METER AT JUNGHEINRICH

**NOW POSSIBLE: MORE VEHICLES
IN NARROW AISLES**



In mobile applications, the S3000 Anti Collision safety laser scanner offers by far the largest sensing range for a field where safety is key: 15 meters. Working closely with Jungheinrich, SICK has developed a solution to provide efficient protection for very narrow aisle trucks. Thanks to this new solution, two or more industrial trucks can now be used in one narrow aisle for the first time ever. It forms the ideal basis for improving throughput and flexibility while still ensuring maximum safety.

>> A narrow aisle is a form of high-bay warehouse where the aisles are so narrow that two people would not be able to pass one another. If industrial trucks are used in such narrow aisles, the vehicle is unable to maintain the required minimum distance from the storage rack (0.5 m). In this type of high-bay warehouse, vehicles and humans are not permitted to be in the same aisle at the same time. Furthermore, these warehouses are required to adhere to the technical measures set out in DIN 15185-2 which states that additional protection for staff must be provided for a worst case scenario.



Improved throughput and flexibility while still ensuring maximum safety. The additional collision protection field safely detects vehicles at distances of up to 15 m.

More safety or more throughput rates?

Recently, companies have been faced with rising demand for increased throughput rates and more flexibility but have found that they are unable to meet it because they are not permitted to use

more than one vehicle in the same aisle at the same time. Why is this restriction in place? When two vehicles are moving towards each other at relative speed, a large protective field range must be in place to ensure that the vehicles can be brought safely to a stop, even when traveling at full speed. In their bid to provide reliable protection against collision, companies must make sure that a long enough stopping distance can be guaranteed. The answer? The S3000 Anti Collision by SICK.

S3000 Anti Collision: Safety AND more throughput

SICK is more than familiar with the subject of “collision protection.” In the outdoor environment – for example, in container terminals – 2D laser scanners enable collision-free operation of cranes and containers throughout the world. Working closely with Jungheinrich, SICK has developed the S3000 Anti Collision, the world’s first mobile personnel safety system (PSA) that is able to safely detect both vehicles and humans. The S3000 Anti Collision is able to safely detect oncoming vehicles in its target

range which spans up to 15 m – this is all thanks to a separate field (the “collision protection field”). At the same time, the S3000 Anti Collision monitors a permanent protective field of up to 7 m to safely detect human presence.

Motion Control: Only scanning what is absolutely necessary

Working in conjunction with the Flexi Soft modular safety controller and the Flexi Soft Drive Monitor, the S3000 Anti Collision provides users with the opportunity to use speed-dependent switching: If one of the safety fields is breached, the scanner transmits a signal to the vehicle control unit, requesting it to reduce the vehicle’s speed. The Drive Monitor registers the reduction in speed and shares this information with the scanner, which then reduces the field width in accordance with the speed. If a further infraction occurs, the speed is reduced once again or the vehicle is stopped straight away. However, the vehicle is only stopped when actually necessary. This reduces strain on the system while also helping to improve efficiency. (tm)





cubeXX BECOMES AN INTERACTIVE ROBOT

SENSOR INTELLIGENCE. FOR THE HUB OF TOMORROW

The distribution center of tomorrow showcases ideal solutions for flexibility and versatility. It will require technical equipment that is so versatile that it can start a new task or even change locations within just a matter of moments. A further essential element will be flexible and intelligent solutions like the cubeXX, supported by intelligent sensors for dynamic and spatial scanning.

>> These days, fully-automated warehouses are still rather inflexible and not particularly versatile. If changes are made to processes or products, extensive plans have to be drawn up, new solutions found, and, in some cases, old systems or components have to be disassembled and replaced with new systems (which then of course have to be installed). The cubeXX concept vehicle by STILL is the next step towards increased flexibility in automatic logistics processes.

Six vehicles in one

Premiered as a functioning prototype at the 2014 CEMAT fair, the cubeXX combines all the attributes of a tugger train, low-lift pallet truck, high-lift pallet truck, picking truck, a truck for double-stack use, and a forklift truck in one single device. By enhancing the open RACK (Robotic Application Construction Kit) robotic system and improving the sensor and scanner technology, STILL has transformed the cubeXX into an interactive robot. Transport jobs can be sent to

the vehicle using a number of different methods, for example, using the cubeXX iPad app or the Coaster solution developed by the Fraunhofer Institute for Materials and Logistics (IML). This coaster is the first mobile human-machine interface ready for use in the Industrial Internet. A specially developed interface enables the vehicle to communicate with the SAP HANA platform. In future, entire fleets of vehicles will be able to be managed with this solution. "The innovations provide the cubeXX with software and



hardware components that enable it to react flexibly to situations and adapt to them, for example, to stack pallets from where they actually are rather than from where they should be," explains Matthias Klug, Head of STILL Corporate Communications.

Build on a basis of Sensor Intelligence.

To be able to record the surrounding environment in real time and react accordingly to obstacles and events, the cubeXX by STILL employs intelligent technology by SICK. As such, it is able to make the most of SICK's decades of experience and expertise in the area of automated guided vehicles (FTF). The cubeXX is also fully equipped for use in areas where humans also work:

Positioning and navigation: The upper surface of the robot is fitted with a rotating LMS5xx laser scanner. The scanner generates a 3D scatter diagram. This enables the cubeXX to determine its

position based on the specified reference points. The cubeXX also analyzes its immediate surroundings in 3D. As a result, it is able to detect shelves, pallets, or other obstacles while traveling. For detecting objects, STILL has installed the compact TIM5xx laser scanner between the vehicle's load forks. This means that the cubeXX can also accurately identify moving obstacles and change its route accordingly, for example by changing direction or reducing the speed.

Personal protection: The flexible cubeXX is also compatible with automatic appli-

cations, even in areas where humans also move around. The S300 Expert safety laser scanner, the Flexi Soft safety controller, and safety switches by SICK all support this function by providing efficient personal protection.

Mobile material transport systems are used in nearly every single area of the production industry. Whether you use automated guided systems, semi-automated guided systems, transfer cars, manned forklift trucks, or narrow aisle trucks: SICK has a solution for everything and is even prepared for the automated guided system of tomorrow. (tm)



The cubeXX uses specified reference points to determine its position automatically and can also analyze its immediate surroundings in 3D

Hub2Move is a joint project run by the EffizienzCluster LogistikRuhr. Other project partners include the Fraunhofer Institute for Materials and Logistics (IML).
www.hub2move.com



ADLER: INTELLIGENT IDENTIFICATION OF OBJECTS IN THE MATERIAL FLOW

DETECTION AS AND WHEN REQUIRED

They knew what they wanted: universal transparency in the material flow, both in the warehouse and in their stores. This is why the clothing retailer Adler Modemärkte has been using RFID technology in a growing number of its branches since it first launched the solution in summer 2013. A total 170 stores now use the new technology. What is more, the company's central warehouse is also equipped with RFID technology, covering all processes in the stores themselves along with stock control at the distribution center.

>> Up to 90 % of Adler's products are currently fitted with an RFID tag. Some products are even delivered to the distribution center already equipped with an RFID tag. Tags are then fitted to all remaining products in the distribution center itself. This forms the basis for Adler's fully automated stock level management solution which uses RFID technology to control stock levels at its stores from the central warehouse.

Syspro supplied and installed the software that Adler uses to implement RFID

technology at its stores and distribution center, while the sensors and sensor systems themselves were produced by SICK.

The radio frequency modular system: A tunnel solution for identifying smaller objects on the belt

The RFMS Pro track and trace system was designed to provide users with higher throughput rates and added flexibility in the system. Objects are identified in a self-supporting RFID tunnel which



can be configured using a number of modules. The modules are available in two different sizes with or without an antenna, creating an innovative structure that can be adjusted in a number of different ways. The system can therefore be designed to suit your own facilities and material flow needs with very few planning or construction requirements.

Instead of having to be scanned by hand, goods in the receiving work station are simply placed onto the conveying line for transportation through the tunnel and then onward to their destination in the warehouse or in production. The identified transponders are always assigned to the right object, no matter how small the clearance, how fast the speed, or how high the throughput rate. The system can also pick up right where it left off if the conveying line is stopped for any reason. Sometimes goods fitted with an RFID tag that do not need to be recorded are left in close proximity to the warehouse or packing station ... Not a problem. The software uses filters to make sure that tags are not read if they do not need to be. The solution also helps to make sure that no delivery errors take place at the goods exit station. The RFMS Pro

checks to make sure that the packaged and dispatched products correspond to the specifications in the order. This has helped to improve the material flow to the stores and has reduced the margin of quantity errors.

An RFMS Pro can be expanded to create a customized high-end identification solution with the integration of bar code scanners, 2D code readers, and a volume measurement system to detect object dimensions.

The radio frequency gate system: A gateway for larger objects and warehouse vehicles

To record larger objects and goods transported by a manned forklift truck or other warehouse vehicle, the company uses the RFGS Pro track and trace system, a flexible and intelligent all-in-one solution for inbound and outbound goods. The system looks like a large door and is made up of RFID read/write devices for object identification, a central controller with an integrated allocation algorithm, and a 2D laser scanner for object, speed, and direction detection. The RFGS Pro enables the unique RFID tags to be assigned remotely. The information

from the RFID read/write device can be analyzed and any irrelevant data from the static transponder can be filtered out. Standard service, monitoring, and diagnostics tools ensure high availability of the RFGS Pro during operation. (kl)



Using RFID solutions to streamline logistics processes, improve throughput rates, and increase transparency

RFID is a form of wireless technology used in industry for automatic identification processes. Reading and writing without visual contact, reusable data cards, bulk reading of objects, maintenance-free ... All of these aspects are often cited in the argument over why RFID technology is better than optical systems using bar codes. The systems also support intelligent functions to make integration, operation, and diagnostics much easier. For the international market for material flow technology and logistics, it is also crucial that radio frequencies are standardized globally in ISO/IEC standards. That is why high frequency (HF) and ultra high frequency (UHF) sensors and sensor systems are the perfect solution for material flows.

VOLUME MEASUREMENT IN LOGISTICS

RELIABLE MEASUREMENTS NO MATTER HOW DIVERSE OR COLORFUL THE PRODUCTS



In a bid to increase efficiency, more and more retailers are using mixed pallets for their logistics processes. Logistics service providers are responding to this demand by providing suitable automation solutions. However, since this poses major optical challenges from one end of the logistics chain to the other (problems can be caused by dark packaging or transparent film material, for example), the right sensors are absolutely essential. Recognizing a need for improvement, Dematic and SICK worked closely together to develop a specialist solution for reliable volume measurement.

>> These days, the pallets used to supply goods to retailers are loaded with all manner of goods in every color of the rainbow. In the warehouse, the pallets are loaded layer by layer in exactly the same order in which they will subsequently be unloaded and the goods stacked on the shelves. This speeds up processes and can save retailers' storage space. In fact, when it comes to smaller shops or kiosks, this is the only feasible solution. So that this approach can work, the entire logistics process, from goods being placed into storage through to the loading and shipping of pallets, must run smoothly – in spite of the major challenges faced when attempting to detect “multi-colored mixed” goods.

The logistics experts at Dematic design and develop high-performance systems to automate and customize as many stages of this process as possible: from identifying the best possible storage location, using software to calculate

the pallet loading sequence through to delivering the required items in the correct order, picking items for the pallet, and wrapping the pallet in film for high transportability. At the same time, the software used to calculate the loading sequence also finds the ideal loading density for the pallet and enables pallets to be stacked one on top of the other, so that transport costs are reduced.

A big challenge for sensors

When figuring out the best storage space and the ideal way to put together mixed pallets, certain basic data is essential, such as dimension, volume, weight, or packaging attributes. Finding a reliable way to obtain this data was a major challenge for Dematic. The “mixture” of the goods on the pallet is reflected in the varying sensory challenges posed by the range of objects to be detected. Whether it is in a black or dark blue package, in shiny film, or in a transparent film pack-

age, each and every product has to be identified and measured safely and correctly.

Using light grids as a basis for measuring volume

It was this very challenge that inspired the design engineers from Dematic and SICK to come together to find a solution. The volume of the various goods loaded onto and transported along a belt had to be detected and determined. Initial tests were carried out with the VML Pro volume measurement system, which uses the MLG-2 measuring light grid. The high degree of measurement accuracy, reliable detection of transparent objects, and rapid response time were a perfect match for Dematic's requirements. The LED sender/receiver technology in the light grid is not specifically linked to the physical features of the object to be detected. The MLG-2 can be relied upon to detect transparent

bottles, black or dark blue packages, or even goods wrapped in film. This made it the solution of choice for Dematic's project.

A loop was set up with two light grid sender units and two light grid receiver units positioned vertically and horizontally in relation to the belt. The volume of the goods is determined as they pass through this "light beam curtain," providing the perfect solution for the application. Adapting the beam evaluation produced an even more stable application solution for non-aligned or unusually shaped products which has proved its worth in subsequent tests.

The data captured is processed on a connected industrial PC and sent to the control system via the MSC800 controller, whose interface protocol

has been adapted to Dematic's existing structures. Finally, the volume measurement system was installed in the new application at Dematic and underwent exhaustive tests.

Clever protection against dirt

As the project developed, the requirement for special protection against contamination quickly became clear. Although the light grid located underneath the conveying equipment is not affected by dust, if a package splits and sticky lemonade, for example, spills over it and the dirt ends up taking hold, seamless operation may be at risk. Enclosing the light grid inside a perspex tube mitigates this risk. A continuous supply of compressed air is fed through this tube to prevent dirt taking hold.

Successful use in the retail sector

Work to adapt the MLG-2 light grid to meet requirements for reliable detection and volume measurement at Dematic has been completed successfully and the system is now in operation in a distribution center operated by a large retail chain. This is just another example of how working closely with their customers enables the experts at SICK to find a successful solution for application-specific requirements. What is more, it also showcases the sensors' flexibility and adaptability. The VML Pro solution is now also available as a universal system for volume measurement using light grids for other logistics applications.

VOLUME MEASUREMENT AND MORE: SO YOU CAN CHOOSE THE RIGHT DEVICE FOR EVERY REQUIREMENT

When selecting the perfect volume measurement system, a number of different factors are taken into account, such as the objects' dimensions or the shapes and surfaces of the objects to be measured. From manual handling systems to fully automated, integrated systems for measuring the volume of moving objects, SICK has an answer for every single requirement. Its solutions are also able to record and analyze attributes such as weight or even deformations.

VML Pro – Volume measurement for transparent and film-wrapped surfaces

The VML Pro track and trace system (a light-grid-based volume measurement system) is your object measurement solution for challenging logistics applications. Based on LED light grid technology, the VML Pro enables the smallest wrapped cuboid of objects to be identified accurately, irrespective of their surface properties. This means that it is a particularly reliable solution

for measuring transparent objects and objects wrapped in film. When combined with the MSC800 system controller, the modular structure ensures full compatibility with existing intralogistics solutions from SICK. At the same time, a high degree of flexibility is assured, which enables individual adaptation to specific application requirements. One of the main focuses here is on expanding solutions by adding automatic identification systems and weighing technology.



The result? A reliable solution for demanding dimension-based tasks, designed especially for supporting storage and logistics processes for consumer goods with shiny or transparent packaging.

VMS: Volume measurement for objects of any shape or size

Ideal for measuring the volume of cuboid objects such as packages on flat belts: the VMS410/510 family of volume measurement systems. These solutions boast an array of benefits, including quick installation, easy alignment, and simple set up. Thanks to the VMS420/520 volume measurement systems, you can accurately measure almost any object moving on a flat belt at a speed of up to 3.6 m/s. The rugged two-headed volume measurement systems are also available as certified options for calculating dimensional weight.

Measuring more than just volumes

Identifying objects is one of the core processes for logistics service provid-



VMS volume measurement system

ers, couriers, express delivery services, and mail services. In order to make sure transport resources are being used as effectively as possible, you have to first identify the weight and volume of the shipped object. The ideal distribution of resources is one of the key objectives for any logistics company. Static and dynamic volume and weight measurement for cuboid and irregular shapes: SICK has a comprehensive product portfolio with a solution for every task. Every single solution features exceptional volume measurement rates and a high level of accuracy, no matter what type of transportation system is used. Customers also have the option of integrating certified systems (e.g., OIML, MID, NTEP, or NAWI-certified) for invoicing purposes.

DWS: Measuring, weighing, identifying

Lots of small packages or a handful of big ones? Small but heavy units or large light ones? The combination of weight and volume determines how much it will cost to ship an object. The ability to calculate these freight costs accurately and on an individual basis puts you one step ahead in the logistics industry – particular given today's high energy prices. SICK has created a number of DWS Dimensioning-Weighing-Scanning systems to enable courier, express, parcel, and postal service providers and logistics centers who are required to identify items as well as record their volumes and weights, to record all the data needed for their shipments. When using the DWS Static, this process takes place manually: At the touch of a button, users can record all the data they need for calculating freight costs or drawing up freight papers. The systems include the tried-and-tested volume measurement systems VMS510 or VMS520, a reliable static scale, and a hand-held scanner that records code information – all in one stable mechanical unit. DWS Static is a universal solution that can be set up in just a matter of minutes and can also be calibrated in accordance with OIML, MID, and NAWI standards. DWS Dynamic is the all-in-one solution for packages. The system

automatically measures the weight and volume of packages and identifies them by reading 1D or 2D codes. They can be integrated into existing conveyor systems and work reliably at conveyor speeds of up to 2.9 m/s. An all-in-one solution with an integrated Alibi memory, it can be calibrated in accordance with OIML R129, R51-1, and the European measuring instruments directive 2004/22/EC (known as the "MID" for short).



Dimensioning-Weighing-Scanning-System (DWS)

Detecting damage and excess packaging

Volume measurement data can also be used to streamline processes by enabling the system to detect deformations. In order to identify damaged or excess packaging, all object data is analyzed using an industrial PC. So that faulty goods are not put into storage or sent out for delivery, these objects can be filtered out, helping to prevent faults and costly downtimes. (ae)

Additional information:

www.sick.com/Track_and_trace



DISTINGUISHING BETWEEN GOODS OF ALL SHAPES AND SIZES AND HUMANS

A FLEXIBLE SAFETY SOLUTION FOR PROTECTING ACCESS TO PALLETIZING SYSTEMS

Actemium Logistics sells a range of automatic solutions designed especially for companies in the logistics industry. These solutions include picking systems, sorter systems, transportation technology, and warehouse management systems. As a means of securing access to a palletizing system, the company was on the hunt for a solution that would be able to distinguish between people and goods. The main challenge? Taking account of the wide variety of factors that affect such an identification process. In the end, SICK was able to win over Actemium with its C4000 Fusion safety light curtain.

>> Actemium installed the palletizing system at the E.Leclerc logistics center. A wide variety of goods are delivered to the center every single day. E.Leclerc packs them onto pallets, and the company then delivers them to regional supermarkets. Access to the palletizing system must be secured in order to prevent people from entering it; at the same time, however, goods must be allowed to pass through it without obstruction.

The company's decision on which solution to choose was made more complicated by some key factors. Firstly, the objects that are stored on the pallets come in a wide variety of sizes ranging from 150 mm to 1,200 mm. Not only that, but the nature of the goods can vary significantly, too – anything from bottles to vegetables to sugar. What is more, there are often spaces (either large or small in size) between the objects on the pallet. This leaves very little

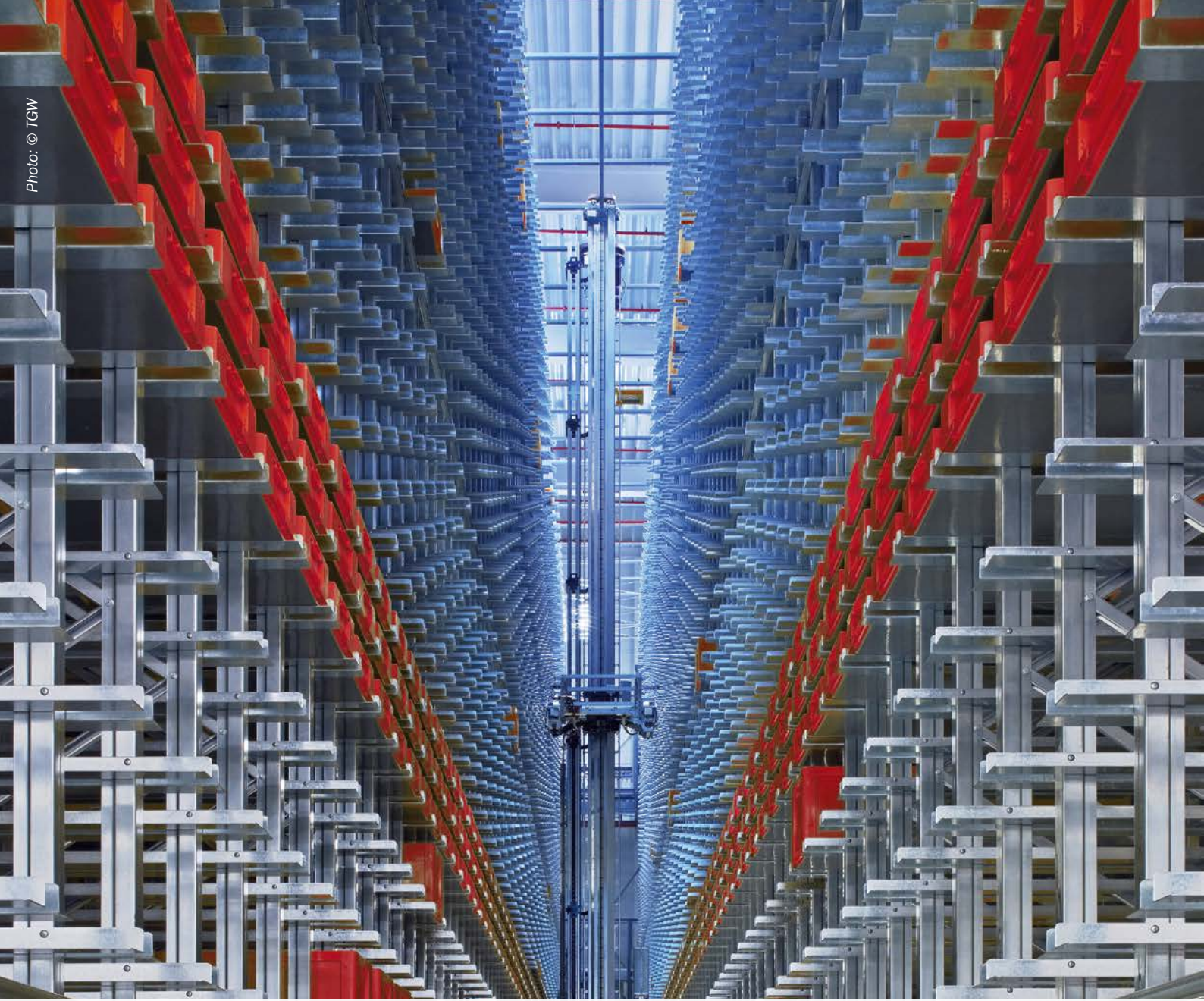
room for muting sensors designed to trigger safety sensor detection.

The answer to everything: The C4000 Fusion

Actemium decided on the C4000 Fusion safety light curtain: A horizontal light curtain that recognizes object patterns automatically and is exceptionally easy to install and maintain. It does not require any upstream or downstream muting sensors either, which means that only one pair of sensors needs to be installed: the C4000 itself. This saves a great deal of time during installation, as attaching muting sensors can be an exceptionally complex process when they have to be installed in a small space. Configuration is also a breeze: The CDS software teaches in the various sizes and shapes of the objects in full – something which also makes replacement easier in the event that equipment is damaged. All the

data is transferred to the new pair of sensors. Without any additional secondary sensors, the safety light curtain is able to distinguish between object patterns (e.g., a person's legs) both safely and reliably. The C4000 Fusion actively monitors the hazardous area on a continuous basis and thus ensures maximum safety. (ir)





ADDED DYNAMICS FOR MATERIAL-HANDLING TECHNOLOGY

POSITIONING ACCURATE TO A MILLIMETER

Storage and retrieval systems are key to the efficiency and performance of an automatic small-parts warehouse or high-bay warehouse. So that products can be stored and shipped correctly, the ability to detect the position of a storage and retrieval system to the nearest millimeter becomes even more crucial. At TGW Logistics Group, SICK's DL100 Pro distance sensors are used to determine positions within extremely short cycle times and transmit data. Furthermore, SICK's ISD400 Pro is used for optical data transmission. Together, both solutions help to ensure that all warehouse processes run smoothly.



>> The TGW Logistics Group provides turnkey intralogistics solutions for warehouse management, production, picking, and distribution. TGW is constantly on the look-out for new ways to improve the dynamics of its transportation systems. When rack feeders have to deal with long product travel paths, and vehicle speeds have to be safely monitored, there is no room for any delays or stops of any kind. Every process must run quickly and smoothly.

With its DL100 Pro long range distance sensor and the optical data transmission system in the ISD400 Pro, SICK provides customers with distance and data transmission systems that are unbeatable when it comes to dynamic design and low-noise output of measured values, even down long aisles.

The ideal technology

The synchronous output of measurement data needed for management and the direct integration of the control circuit enable users to implement very dynamic applications with acceleration of up to 15 m/s^2 and run very strict position control circuits. As a result, TGW's storage and retrieval systems are also able to achieve shorter cycle times and in turn complete more single and double cycles per time unit.

Whether for horizontal or vertical use, it is the ideal solution!

The DL100 Pro enables the traveling and lifting units in the storage and retrieval system to be positioned either horizontally or vertically. The innovative mounting system reduces mounting time and makes the unit easier to store. The sensors transmit key data related to preventive maintenance, thus helping to prevent systems from stopping unexpectedly and ensuring the ideal level of availability, productivity, and economic efficiency.

Data transmission made easy


The ISD400 Pro optical data transmission solution uses infrared light to



transmit data between the storage and retrieval system and its control unit. This does away with the need for fieldbus cabling. Fast transmission rates and extended sensing ranges ensure maximum performance.

If an error is identified during the empty bay detection process, an on-site thorough visual check used to have to be carried out.

Nowadays, several cameras are used to conduct such checks. The ISD400 Pro transmits the large image files at 100 MBit, saving users time, effort, and money. (ir)

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



JOLODA AUTOMATES LOADING AND UNLOADING AT PEPSICO

SAVING TIME, REACTING WITH FLEXIBILITY

Where there used to be manned forklift trucks driving about loading truck trailers with boxes of chips, the new Joloda loading system pushes 42 pallets into an extra long truck in one fully automated operation. Time saved: An entire thirty minutes. The new “Flat Floor Trailerskate Dock” flexible loading system is the result of close collaboration between Joloda, the loading specialist, PepsiCo, the food group, Kuehne+Nagel, the logistics provider, and Heiwo, the truck manufacturer. Installed as standard: Sensor Intelligence.

>> Speed is the key competitive advantage in the world of fast moving consumer goods, accelerated by e-commerce. That is why companies are always on the look-out for new ways of automating operational processes to meet the requirements of the ‘just-in-time’ philosophy. A prime example is PepsiCo’s fully automated loading system at Broek op Langedijk in the Netherlands.

Reduced loading time

The PepsiCo loading bay is buzzing with activity. “Normal trailers and extra long trucks are constantly being loaded and unloaded here. They are used for the shuttle to the Kuehne+Nagel warehouse in Utrecht,” says Wouter Satijn, Sales Director at Joloda Group. The extra long trucks (also known as EuroCombis) have a 21.5 m load bed – big enough for

42 pallets. “The driver simply has to connect his EuroCombi to the loading bay control system, and the loading system does the rest,” explains Satijn.

Distance measurement allows for more flexibility

In the warehouse, everything is geared towards ‘just-in-time’ processing: The automated palletizer system ensures the

individual boxes are placed in perfect alignment on the pallet. Each pallet is then taken to the Joloda automatic dock. Wouter Satijn explains, "The pallets are arranged on the Trailerskate conveyor in three groups: 16 pallets, then 10, then 16 again. When the roller gate on the auto dock opens, two bracket-mounted SICK DT500 long range distance sensors come down. They measure the depth of the trailer and check whether the trailer is set up correctly.

Distance measurement is crucial, because normal 13.3 m trailers are loaded and unloaded here as well as the extra long EuroCombis: Kuehne+Nagel needs to be able to decide at the last moment whether a trailer located nearby should collect a load from Broek op Langedijk." Satijn continues: "If the SICK sensors detect a depth of 13.3 m, then 16 plus 10 pallets can be loaded into the vehicle. If they detect a depth of 21.5 m, the system pushes all 42 pallets into the loading tunnel of the EuroCombi."

Gliding smoothly with compressed air

The actual loading process for the trailer uses the risor plate technology developed by Joloda.

Satijn: "The stationary auto dock and the trailer each uses a system with compressed air hoses under the rails. While there is no air in the hoses, the rails lie slightly lower than floor level. Then, when compressed air is introduced, the risor plates rise to floor level. There are long "skates" on the rails which are used to hold the pallets." Satijn continues: "The compressed air makes the pallets float a few centimeters above the conveyor and allows them to be moved into the truck. Once the pallets have reached the correct position in the trailer, the pressure in the hoses decreases and the rails sink back below floor level." SICK technology plays an important role here too. Four PBS pressure sensors monitor both the pressure while the pallets are being lifted and the subsequent reduction in pressure.

"This ensures that the skates are not retracted until the system is no longer pressurized," explains Satijn.

More space, more safety

The automated loading system saves an enormous amount of space in comparison to manned forklift trucks: Space which can now be used flexibly for other purposes. This also improves safety at work and personal protection. Moreover, there is hardly any mechanical load on the trailers thanks to the compressed air lifting system. "It is very important to us that all of the details satisfy our quality requirements. We only want the very best. That also applies to components we purchase from third parties, which is why we choose reliable market leaders such as SICK. Plus, it is a great advantage for us that SICK takes a proactive approach to problem solving," summarizes Wouter Satijn. (tm)



Four PBS pressure sensors monitor pressure and reduction in pressure

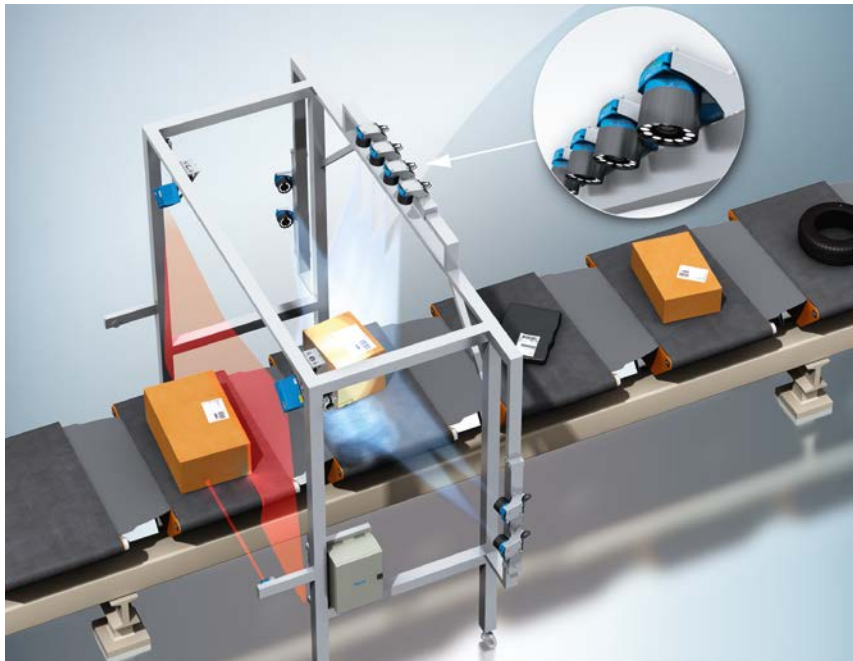


Automatic docks: 10 pallets are assigned to one group

A NEW BENCHMARK FOR FLEXIBILITY

THE PERFECT COMBINATION OF BENEFITS IN A SINGLE SYSTEM

Modern logistics processes are a force to be reckoned with: They can handle around 200,000 parcels an hour at one single reloading point. But they are also extremely demanding: They need increased safety for sorting, increased safety for identifying, and increased safety for classifying products. To prevent blockages in the parcel stream, companies have to know how to handle this flow and adapt it. So that warehouse management processes can run smoothly at all times, every single inbound and outbound product has to be recorded correctly. Sensors for identifying objects and measuring volumes are key to ensuring that data in the material flow is reliable. Sensor systems for identifying objects, measuring volumes, and weighing items set a new standard when it comes to flexibility in the logistics industry.



>> The Lector®65x System offers anything you could ask for: from a simple system to a tailor-made all-in-one solution. The track and trace system based on the Lector®65x matrix camera reliably identifies and decrypts all common types of codes. By integrating SICK's networking concept into the MSC800 network controller, the Lector®65x System can easily be combined with other products, such as ICR8xx line-scanning cameras, volume measurement systems, laser based code readers, or weighing scales. The installation process requires very little time or effort. There is no need to use an external PC. The parameters are

configured especially for our customers, the assembly frame is adapted precisely to fit the system in question, and a specialist technician visits the customer's site to install all parts of the system.

There is a demand for reliable solutions in all areas of industry

Online trade is booming. An ever-growing number of parcels are shipped every day, making the parcel sorting process more and more difficult. However, this is not the only area of industry looking for extremely efficient solutions. Take companies linked to tires, cars, and automobile parts suppliers for example;

or the airport industry; or the food and beverages industry. All of these industries are looking for a safe way to identify products, increase throughputs, and ensure seamless traceability throughout the entire supply chain.

Sorting made easy

The area of intralogistics is a typical area of application linked to automated sorting processes. However, manual handling and sorting processes can now also be partially automated thanks to the Lector®65x System.

Its dynamic focus function can read codes on parcels of all shapes and sizes located on a transport or sorting belt in a mere matter of seconds. The code is twisted? Not a problem. It can also deal with codes covered by a film or located behind an inspection window. Using height information, e.g. from an automation light grid or volume measurement system, the camera can adjust the focus position to fit each object perfectly, thereby maximizing the read rate. In addition to reading the code, the device can also assess its quality. For example, if a faulty label printer causes the no-read rate to rise, the source of the problem is very easy to locate, making it simple to improve the overall process.

Any image recorded by the Lector®65x System can be used for video coding and OCR tasks to process additional information on the supplier's label. The VMS volume measurement system provides dimensional data which can be used when streamlining warehouse activities. A scale records the weight during the material flow.

Safe identification

In factory automation, code readers live up to their potential in a number of ways, for example by identifying tires or when used for “end of line” checks in packaging systems. Documenting every stage of the process, they enable users to control processes in full and trace products.

Small, dirty, or distorted codes pose a significant challenge to the automotive

and tire industries. The omni-directional image capture and depth of field ensure that markings can be reliably identified in any position and alignment regardless of the tire size. Image-based solutions like the Lector®65x system provide code recognition in many different alignments, even for codes with low bar heights. The Lector®65x system offers even greater modularity and flexibility for designing

reading intervals. Depending on the desired field of sight, the system can be expanded to include the necessary number of cameras. The captured images are available as JPG files for analysis, archiving and tracing. (kl)

Additional information:

www.sick.com/Lector65x_System

KEEPING YOUR OBJECTS IN FOCUS AT ALL TIMES: THE FLEXIBLE LECTOR®65X SYSTEM

With its dynamic focus function, the Lector®65x matrix camera is the only camera in the world that can identify and decrypt all common types of code. It can even identify codes that are not clearly visible or packages at various heights.

Combined with the dynamic brightness adjustment function, the new sensor system is able to generate high-quality

images. When working in conjunction with a controller, the Lector®65x matrix camera forms the basis for the flexible and easy-to-expand Lector®65x System. Users have the option of adding a scanner, scales, or a volume measurement system, ensuring that the new Lector®65x System is ready for any requirement that the logistics industry

may throw at it. Combining the individual modules ensures that network integration is simple.

The Lector®65x System is available in three different versions: Core, Prime, or Pro. The right variant for you depends on the type of functions you are looking for.

THE BENEFITS AT A GLANCE

- **Dynamic focus functions with dynamic brightness adjustment**

By automatically adjusting the focus position to the height of the object in question, the system is able to identify any package, no matter what its shape or size. The focus function also enables the system to record codes on packages that are next to each other (side-by-side reading), even if the codes are not clearly visible or are moving at high speed. There is no need to adjust the masks or focus position manually.

- **Intelligent image output**

Fewer images but you can still see more. Intelligent image output: OCR and video coding increase the sorting rate. The controller sorts the images in advance.

- **Tracking function**

The integrated tracking function assigns codes in a reliable manner, thus increasing the throughput rate in the sorting process. Packages are moved closer together, leaving smaller gaps between each object. Safe identification and classification: The Lector®65x System records every single code, even when packages are close together.

- **4-mega-pixel camera**

The high-speed matrix camera with four mega-pixels and a frame rate of 40 Hz provides the best possible reading rate. The use of matrix camera technology means that every parcel is recorded more than once and every code is read several different times.

- **Easy to commission and easy to install**

Pre-assembled and pre-configured sensors make for quick and easy installation. Thanks to the handy set-up assistant, the sensor system is ready to use at just the touch of button.

- **Visualization and analysis**

The visualization software means that the system can be monitored and data can be recorded in real time. (See page 40 for more information)

FLOW OF INFORMATION AND MATERIALS

SEAMLESS TRANSPARENCY

Rugged, intelligent sensors record, process, and transmit data with full reliability. However, users do not experience true added value until this data can be used as a basis for improving business processes.

>> “Big data” has become a real issue for companies, particularly in the logistics sector where systems are required to process millions of parcels every single day. On the one hand, this data holds tremendous potential; on the other hand, however, companies face a huge challenge when it comes to find a way of processing the data in a manner which enables them to make informed decisions.

Monitor, analyze, and decide

Calling upon our extensive practical experience with automatic identification solutions, we were able to create the Package Analytics software in response to new requirements in the area of data recording and analysis. This software allows users to retrieve and analyze information on system performance and the status of all recorded data with ease – from an individual parcel on the conveyor belt to an overview of the millions transported each day. This provides operators with direct access to the key variables for the materials flow, making

these figures easier to understand and control. Thanks to this dynamic database solution, monitoring and analyzing data, and creating reports is a breeze. Specified selection criteria can be used to filter through and analyze images or videos of parcels.

High scalability and remote access

The Package Analytics software can record and visualize the bar code quality and read rate of an individual system. Furthermore, the high-performance client/server platform can be used across several systems on a single site or even networked over multiple locations. The service and support team offers exceptional availability without the hassle of a call-out – the SICK Meeting Point Router (MPR) provides safe and reliable remote access to the systems and plants listed in the Package Analytics software all over the world. (ae)

Additional information:
[www.mysick.com/en/
package_analytics](http://www.mysick.com/en/package_analytics)

Package Analytics software

Monitoring, analyzing, and streamlining all processes – from individual identification systems through to a multi-site approach.

- Improved operating times thanks to rapid notification and cause analysis
- Simple image and data exchange for improved compliance with customer conformity requirements
- Shorter response times thanks to automatic notifications of “no reads” or other unusual incidents
- Package status inspection to reduce liability claims and support cause analysis in the case of processing errors
- Increased system performance thanks to the exceptional visualization of system operation

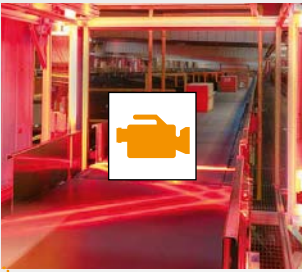
Image-based code readers



Hand-held scanners



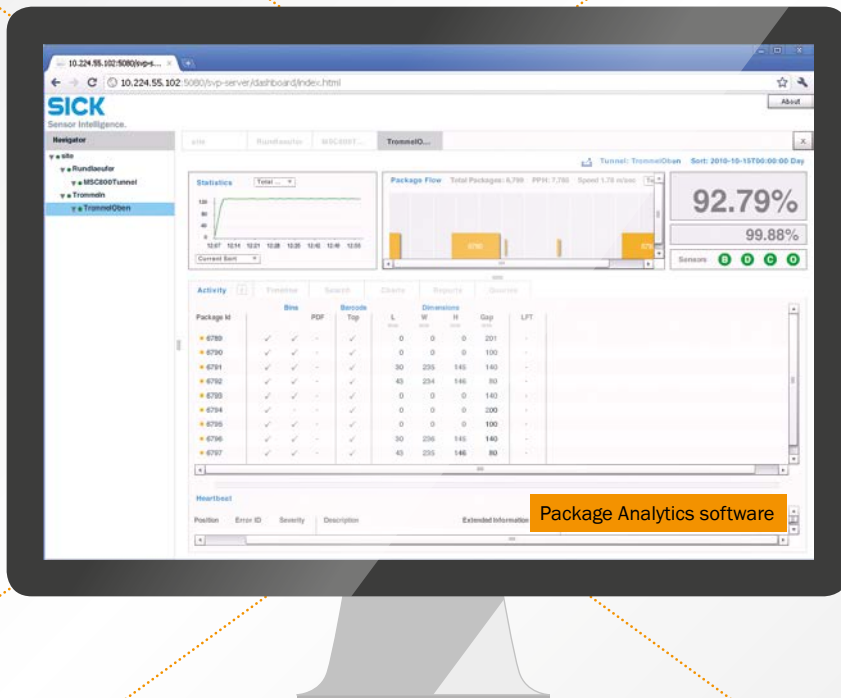
Video



External devices



Hybrid system



RFID



Bar code scanners



Dimensions and weight





SAFETY AND ACTIVE DRIVER ASSISTANCE

FOR SMOOTH-RUNNING PORT LOGISTICS PROCESSES

Operators at container terminals and loading bays aim for maximum efficiency and flexibility when it comes to logistics. They achieve this by handling containers swiftly and speeding up loading and unloading processes. This puts operations under enormous time pressure, which in turn increases the risk of accidents. But there is a solution: SICK's sensors make it possible to carry out processes at speed whilst still ensuring safety at the container terminal.

>> Increasing automation and the associated boost to flexibility no longer means that you have to neglect risks at ports and terminals. Port operators all over the world are always on the lookout for a solution that strikes a balance between these two areas. What they need is the support offered by SICK's sensors and systems.

Ports are places of hustle and bustle

Container ships are loaded and unloaded, cranes, straddle carriers, and other means of transportation move containers between the terminals. Sen-

sors have to be able to react flexibly to a wide range of applications, such as an assortment of different sensing ranges, weather conditions, vehicles, and profiles, to name but a few. As well as precise positioning, systems also need to be able to measure dimensions, contours, speeds, and distances. Sensors identify the position of containers and detect bulk materials that have to be picked up by cranes. They plot the ideal transport path for a traveling crane to help save time. They secure access to platforms, ensuring that dangerous movements are stopped when

a person enters the area. The sensors also monitor automated guided vehicles and people and objects in the vicinity of moving vehicles. They provide assistance for the drivers of reach stackers and empty container handlers. Some areas of the vehicle are not visible to the driver. The greatest danger is posed by the dynamic movement of the vehicle's tail end, which can be attributed to the rear-wheel steering and the incredibly narrow turning circle. The sensors help prevent accidents and collisions by warning the driver or issuing a stop command.



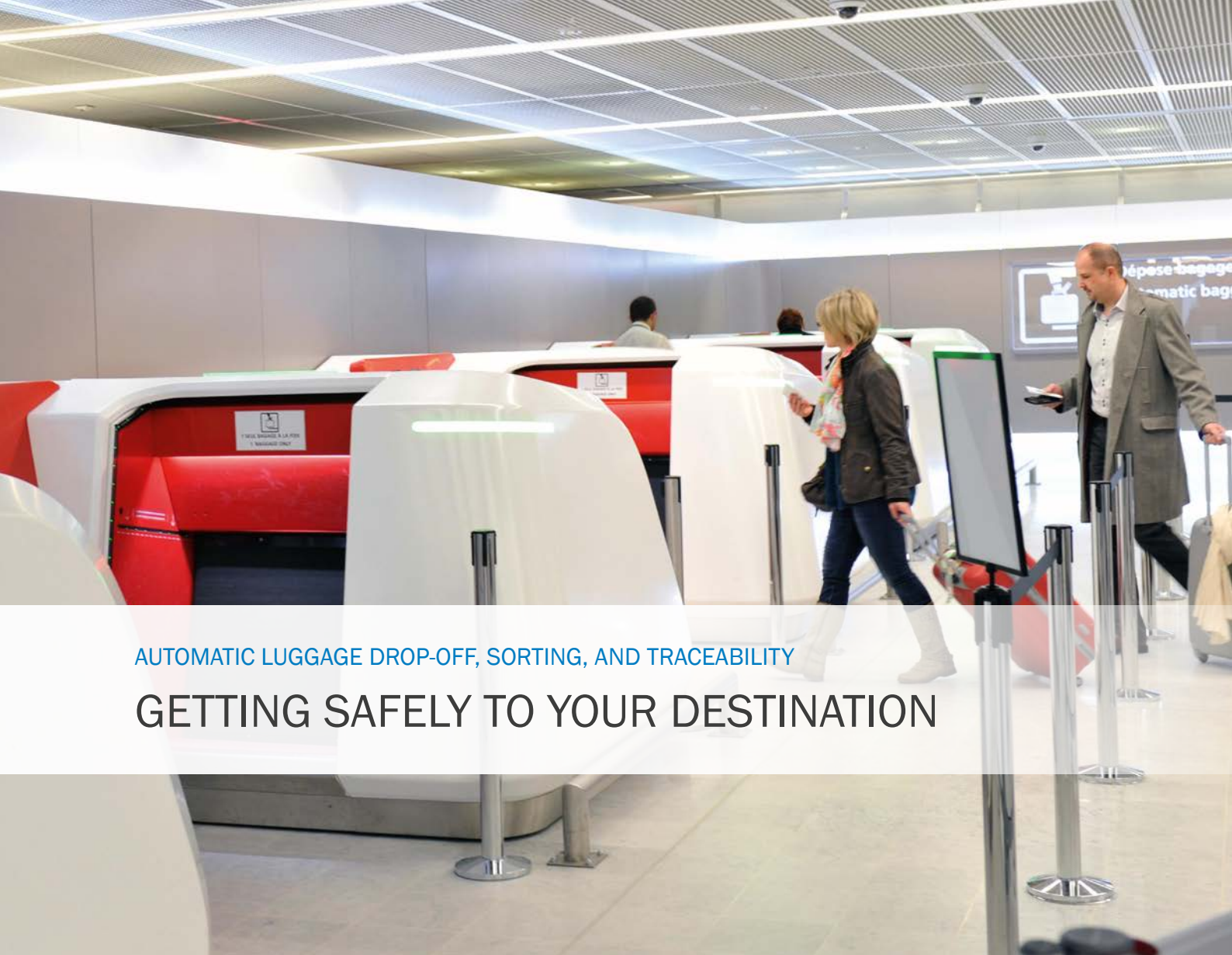
shows its true potential when maneuvering in narrow locations where visibility is poor. Due to the rear-axle steering, the tail end of a reach stacker swings out at extreme angles. Constant monitoring of the area to the rear of the vehicle gives drivers previously unachievable levels of freedom in safe maneuvering. They do not need to turn their heads, as they are kept fully informed by the display and alarms in the cab. This is even true at night, as the display features a special night mode. (ir)

YILPORT relies on SICK's RAS Prime

YILPORT Holding, a Turkish terminal operator that operates internationally, is always looking for ways to improve workflows and increase safety for its staff. During its search, the company came across SICK's RAS Prime collision awareness system. The system had to pass tough tests under extremely harsh ambient conditions, such as thick fog, dust and other weather conditions. YILPORT was impressed by the level of reliability and simple operation of the system. RAS Prime permanently monitors the area behind a reach stacker. As soon as an obstacle enters one of the three preconfigured warning zones, RAS Prime emits visual and audible signals to tell the driver that this warning zone has been violated. The distance warning function can be relied upon to support the driver during reversing. However, RAS Prime



RAS Prime for driver assistance: An impressive solution with three warning zones and a user display for objects that pose a risk of collision



AUTOMATIC LUGGAGE DROP-OFF, SORTING, AND TRACEABILITY

GETTING SAFELY TO YOUR DESTINATION

Checking in, dropping off your luggage, sitting back on the plane, picking up your luggage at the other end. A number of automatic processes are involved in making sure your journey runs as smoothly as possible. All of these processes are based around a core set of systems for identifying and tracing items. A seamless identification process is key to ensuring that luggage does not get lost or end up in the wrong place. Now, there are new ways to automate other important processes.

>> Who has not stood in a never-ending line at the baggage counter in an airport? But help is on its way. In the same way you can scan your own items at the supermarket, you can now check in your own baggage at the airport. The company ALSTEF has recently installed five automatic luggage drop-off systems (known as Bag Xpress systems) at the Air France check-in area at Orly Ouest airport in Paris. Who else is on board? Sensor solutions by SICK.

Paris: Ready to go in just 20 seconds

In 2010, Paris airports (ADP) and Air France decided to offer airlines a brand

new service. The standards were high: The system had to be able to reduce the luggage drop-off process to under 20 seconds. Moreover, the machine also had to be small enough to fit in the limited space at the check-in area. For this identification process, the specifications papers called for a device that would be able to read bar codes or RFID luggage tags. The read rate for bar codes needed to be more than 95 % regardless of where the label was located on the luggage. To make sure their project was a success, ALSTEF consulted a number of expert companies and in particular SICK. Reliable bar code identification

is now guaranteed thanks to a network of CLV651 bar code scanners that are connected to the MSC800 modular system controller. RFID reading is carried out using an antenna and a read/write device.

No more long lines at check-in:
Read the full report at
www.sickinsight.com

A successful take-off for the latest generation of ALIS:
Read the full report at
www.sickinsight.com

Zürich: ALIS sorts 29,000 pieces of luggage every single day

Based on passenger volume alone, Zürich is one of the most important airports in Europe. In 2013, 24.9 million people traveled through Zürich airport. A total of over 260,000 flights traveled to almost 200 different destinations worldwide¹⁾. During this time, the luggage sorting system dealt with around 10.5 million pieces of luggage, which averages at around 29,000 items every day. In 2001, the airport operators started using one of the most popular forms of track and trace system for airport luggage: ALIS by SICK. With a read rate of up to 99 %, ALIS guarantees the seamless transportation of luggage along conveyor systems that stretch for several miles. Thanks to the latest technological innovations and outstanding service and support packages, the operators do not need to worry when it comes to updating the reading intervals. "More and more of our passengers are checking in online. In future, they'll also have the option of printing out their own luggage tags at home as well. As a result, we are expecting the quality of labels to decline while also being faced with rising quantities of luggage," ex-



plains Dieter Bachmann, GSA Project Manager at Flughafen Zürich AG. "That's why it is absolutely essential that our new read systems ensure very high read rates, particularly when it comes to damaged labels or labels with poor printing or contrast quality."

Istanbul: Increased transparency for inbound flights

There probably are not many people who have not experienced the panic you feel when your luggage fails to appear on the pick-up belt. Considered on a global

level, only a relatively low number of airports are able to provide reliable, in-depth data about incoming luggage and make this information available to passengers and airlines. At best, the majority of airports simply count the number of incoming items of luggage without allocating them to the relevant passenger. The operators at Istanbul-Atatürk airport have decided to change this: They now use a total of eleven ALIS track and trace systems in the airport's inbound area. "The newly-installed read stations have helped us to significantly improve transparency in the inbound area at Atatürk airport," explains Bergman Gulsun from SICK, the project manager for Atatürk. "Now, the airport is able to tell passengers exactly where their luggage is and when it will be returned." This information is also important for the lost-and-found process. (tm)

¹⁾ Source: Flughafen Zürich: Facts and Figures 2013



Atatürk airport relies on track and trace systems by SICK:
Read the full report at
www.sickinsight.com



IMPROVED ORDERING SERVICES

CHOOSE YOUR OWN DELIVERY SERVICE

SICK

Do you struggle with complicated goods receipt processes? Do you often waste time unpacking, labeling and re-labeling items? Well now you do not have to! When it comes to SICK sensor technology, ordered products are grouped together, labeled, and packed in a way that enables customers either to process them directly, or to forward shipments on within Europe, without having to unpack them.

>> Thomas Henkel, Head of Global Logistics at SICK, experiences this in his day-to-day work: "Lots of our customers place regular orders for large quantities of various sensors and accessories from our range – sometimes as many as three orders a week. The first order will consist of scanners and single-beam photoelectric safety switches, the second order will contain cameras, reflectors and screws, while mounting brackets and more scanners will make up the third order."

Under normal circumstances, this means three separate deliveries to the customer. What is more, it means three good entry confirmations and three trips to the warehouse. It means that ordering information has to be found three times, the SICK article number has to be compared with the customer's article number three times, the goods have to be unpacked, sorted, and assigned three times, the packages have to be counted

three times. Every single stage of the goods entry process has to be completed on three separate occasions. The consequence? A lot of hard work and a lot of time wasted. "This need not be the case any longer," explains Henkel. "We can offer our customers a whole host of services that make these ordering and delivery processes a lot easier, truly saving on time and effort."

Multiple orders, bundled deliveries, and much more

SICK's value added services can make usual orders a lot less complicated, with the deliveries being sorted in advance so they arrive in the order in which they will be required and processed. There is also the option to set up a kanban system or arrange for shipments to be grouped together. On request, goods can also be packed straight into the customer's tote, cutting out the steps of unpacking and repacking. The information on the deliv-

ery note is printed directly as a bar code, meaning that you no longer have to worry about the hassle of typing out numbers. There are a number of additional individual services, such as the printing of customer logos, standardized symbols, bar codes, or customer-specific material numbers or text. "So the three orders in one week are combined into one delivery, and arrive at our customers' incoming goods area in the way that is best suited to them," says Henkel.

There are many advantages to SICK's additional logistics services, which will allow customers to utilize core skills, streamline existing logistics, production and purchasing processes, save on costs, comply with standards, and much more. (kl)

Additional information:
www.sick.com/vas



MORE THAN A VISION

THIS IS **SICK**

Sensor Intelligence.

In the real world, providing an effective solution for automatic identification requires more than just one technology. With SICK you have a choice. Three technologies, one philosophy: customer needs come first. For decades, customers have recognized SICK as a pioneer in vision, a leader in industrial code reading, an RFID specialist, and an expert in connectivity and big data. Our global technology experts are specialists in your industry and are located in your corner of the world. To meet your everyday challenges, it takes more than a vision. We find intelligence is what truly makes the difference.

www.sick.com/more-than-a-vision

Visit us online:
www.sickinsight.com

SICK

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