INDUSTRY GUIDE

Efficient Solutions for the Courier, Express, and Postal Industry

From individual sensors to fully featured integrated systems

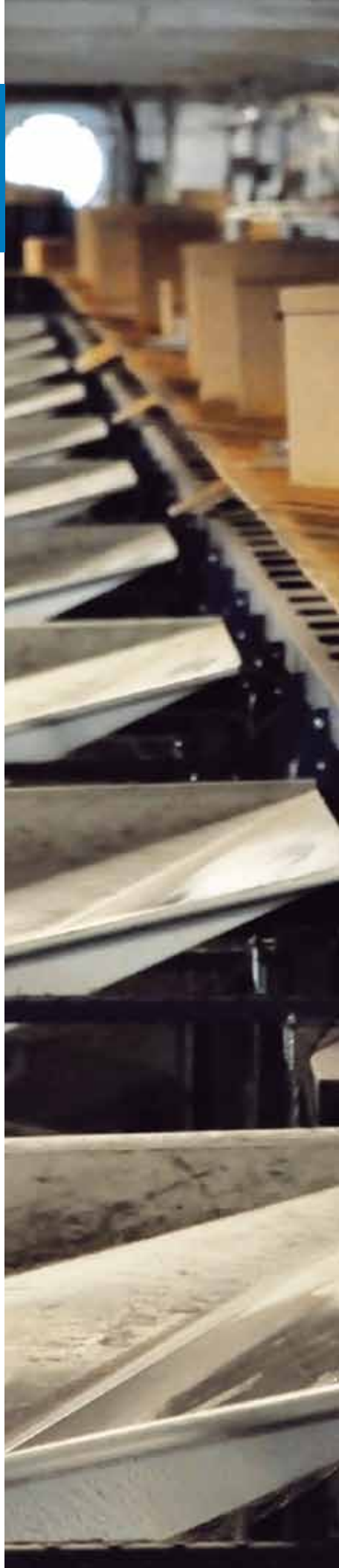
SICK
Sensor Intelligence.

Leading edge CEP processes with products, solutions and services from SICK

Courier, express, and postal (CEP) volumes are steadily increasing. The key issues shaping the future of the CEP industry are efficiency, globalization, sustainability, and security. None of these trends can be seen by themselves, some are driven by the market, others by national or international legislation and standards. But all of them put enormous pressure on the CEP industry. As one of the world's leading providers of industrial sensors and a global solution vendor to the CEP industry, SICK works to continually improve existing technologies and to develop new ones to help you master the challenges that face the CEP market.

Object sizes, shapes, and materials vary on an ever-growing scale. Customers expect maximum flexibility from the CEP operator of their choice. This means that the number and complexity of the parameters to be accounted for in the detection, identification, verification, and measurement processes are on the rise. Fair and attractive pricing as well as load optimization are based on the weight and volume of a parcel, which makes it necessary to determine the weight/volume ratio. While minimum spacing between items on a conveyor makes maximum use of the precious space inside a facility, this adds new challenges in terms of identification performance.

With its comprehensive portfolio of products, systems, solutions, engineering, and services, SICK is in a perfect position to help the CEP industry surmount these challenges. Many pioneering innovations as well as continuous optimization contribute to SICK's impeccable track record as a market leader in systems, solutions, and services for CEP system integrators and operators. SICK has been instrumental in shaping a great majority of processes as they exist in today's CEP hubs worldwide. And we are determined to continue on this track.



Contents

We deliver Sensor Intelligence.

SICK sensor solutions for industrial automation are the result of exceptional dedication and experience. From development all the way to service: The people at SICK are committed to investing all their expertise in providing with the very best sensors and system solutions possible.

A company with a culture of success

Approximately 5,000 people are on staff, with products and services available to help SICK sensor technology users increase their productivity and reduce their costs. Founded in 1946 and headquartered in Waldkirch, Germany, SICK is a global sensor specialist with more than 50 subsidiaries and representations worldwide. Our exemplary corporate culture fosters an optimum work-life balance, thus attracting the best employees from all over the world. SICK is one of the best employers – we have been among the winners of the prestigious German “Great Place to Work” award for many years in succession.

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Innovation for the leading edge

SICK sensor systems simplify and optimize processes and allow for sustainable production. SICK operates thirteen research and development centers all over the world. Co-designed with customers and universities, our innovative sensor products and solutions are made to give a decisive edge. With an impressive track record of innovation, we take the key parameters of modern production to new levels: reliable process control, safety of people and environmental protection.

A corporate culture for sustainable excellence

SICK is backed by a holistic, homogeneous corporate culture. We are an independent company. And our sensor technology is open to all system environments. The power of innovation has made SICK one of the technology and market leader – sensor technology that is successful in the long term.

Sensor Intelligence for all requirements

SICK is a renowned expert in many industries, and is entirely familiar with the critical challenges they face. While speed, accuracy and availability take center stage in all industries, technical implementations vary greatly. SICK puts its vast experience to use to provide with precisely the solution you need.

For applications worldwide

Hundreds of thousands of installations and applications go to prove that SICK knows the different industries and their processes inside out. This tradition of uncompromising expertise is ongoing: As we move into the future, we will continue to design, implement and optimize customized solutions in our application centers in Europe, Asia and North America. You can count on SICK as a reliable supplier and development partner.

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For your specific industry

With a track record of proven expertise in a great variety of industries, SICK has taken quality and productivity to new heights. The automotive, pharmaceutical, electronics and solar industries are just a few examples of sectors that benefit from our know-how. In addition to increasing speed and improving traceability in warehouses and distribution centers, SICK solutions provide accident protection for automated guided vehicles. SICK system solutions for analysis and flow measurement of gases and liquids enable environmental protection and sustainability in, for example, energy production, cement production or waste incineration plants.

For performance across the board

SICK provides the right technology to respond to the tasks involved in industrial automation: measuring, detecting, monitoring and controlling, protecting, networking and integrating, identifying, positioning. Our development and industry experts continually create groundbreaking innovation to solve these tasks.

www.sick.com/Industries

For safety and productivity: SICK LifeTime Services

SICK LifeTime Services is a comprehensive set of high-quality services provided to support the entire life cycle of products and applications from system design all the way to upgrades. These services increase the safety of people, boost the productivity of machines and serve as the basis for our customers' sustainable business success.

Benefit from an array of services

Each of our products and solutions is accompanied by a comprehensive range of services tuned precisely to the requirements of the product or solution – along its entire life cycle. Backed by extensive industry know-how and more than sixty years of experience, LifeTime Services stand for maximum availability and an exceptional service life of our products and solutions.

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Training & Education

- User training
- Seminars
- WebTraining

Product & System Support

- Commissioning
- Spare parts and repairs
- Remote support
- Hotline

Verification & Optimization

- Barcode checks
- Consulting/Engineering service
- Inspection
- Maintenance
- Accident analysis
- Stop time measurement
- Noise measurement

Consulting & Design

- System inspection
- Risk assessment
- Safety concepts
- Feasibility studies
- Software and hardware design

Upgrade & Retrofits

- Machine conversion
- Sensor upgrades
- Sensor replacements
- Retrofitting of technology

www.sick.com/service

Industry challenges

The courier, express and postal industry and SICK Sensor Intelligence.

A fully featured CEP hub is one of the most complex combinations of logistics processes conceivable. Throughput and sorting accuracy are, of course, the key factors in the CEP industry. The vast array of technologies as well as process- and business-related parameters need to be optimally aligned in order to arrive at a solution that exactly meets your requirements in terms of performance, process integration, process reliability, and scalability. SICK secures your competitive edge by providing a comprehensive range of individual products, complete solutions, customized systems, and services for all sensor tasks in the CEP industry.

Identification

Fast and reliable identification of codes on flats, parcels, bags, and other items with all auto-identification technologies: laser, camera, RFID, and hybrid systems. Identification is the core task in any CEP facility. Systems from SICK offer peak performance for all auto-identification technologies.

Measurement

Static and dynamic volume and weight measurement of cubic and irregularly shaped items: SICK offers the most comprehensive range of solutions for these tasks available on the market. The systems provide outstanding dimensioning rates on all sorter types. The certified systems (e.g., OIML, MID, NTEP, and NAWI) can be used for invoicing (legal-for-trade).

Detection

Reliable detection with all types of sensors for tasks such as leading edge detection, profile detection, double detection, empty detection, level detection, etc. support stable and efficient sorting processes and boost identification performance. Maximum throughput depends on the perfect tuning of all sensor tasks in the process – and SICK provides optimum solutions for all of these.

Positioning

Sensors support high-precision positioning and alignment of items on infeed belts, conveyors, and sorters. The correct position and orientation as well as the optimum distance between items on sorters is an essential factor in achieving maximum read rates.

Protection

Safety solutions ensure safe and ergonomic working environments and protect against injuries as well as damage. Safety sensors from SICK allow for the implementation of fully standards-compliant safety infrastructures in a highly effective way.
Surveillance solutions for buildings and areas protect against theft and manipulation of goods.

Services

Comprehensive expertise in all sensor technologies makes SICK a one-stop shopping partner. This expertise is complemented by extensive process and industry know-how. Global presence ensures efficient support and service. The combination of sensor solutions and related services constitutes a unique array of benefits that is unrivaled on the market.

Sensor solutions for the courier, express, and postal industry

The following pages contain application examples of SICK products used in different process stages.

Focus 1:
Unloading/inbound

Process overview

Incoming goods are transferred from trucks, planes and ULDs to the hub or depot. Unloading itself is usually a manual process supported by different types of conveyors for fast, efficient, and ergonomic work. In many cases, this process step also implies a transfer of risk for the goods from one service provider to another. Such a transfer of risk requires an inbound scan with manual and/or automatic identification systems which can be combined with volume and weight measurement.

Depending on the process implemented, the operators perform a presort of the items at this stage, for example by shape (cubic/irregular) or size (small/large).

The relatively high degree of manual labor at this stage necessitates the implementation of effective safety measures for the operators.

Boom conveyors

Telescopic belt and roller conveyors are used to unload/load freight. Safety laser scanners detect potential collision situations and stop the conveyor extension when humans or items are detected. These sensors provide operator safety and protection against damage during this labor-intensive process.

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Product: S300 see Page 67

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Manual identification of items

After the items are unloaded, they are subjected to identification which manifests the transfer of risk for the subsequent process steps. Wired or wireless hand-held scanners are used to read the 1D or 2D codes on labels in facilities with less volume or at stations for items of unusual shape, weight, or other conditions or for post-processing items that cannot be processed automatically.

Manual dimensioning, weighing, and scanning (DWS)

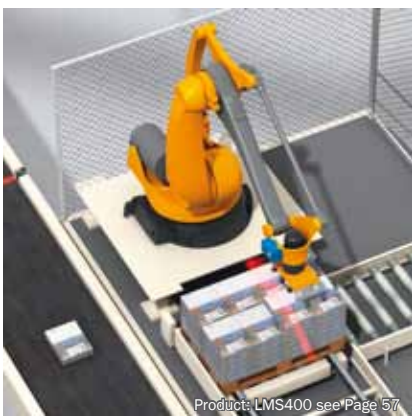
Static DWS systems read the bar code and determine the weight and dimensions of an item in a single step. Specially designed for measuring cubic and irregularly shaped items, DWS520 is a complete solution with an integrated roller conveyor specifically for smaller throughputs at manual facilities or for post-processing of rejects. The DWS system is certified so it can be used for invoicing (legal-for-trade).

Automated identification of items

After the items are unloaded, they are subjected to identification which manifests the transfer of risk for the subsequent process steps. Automated systems with permanently installed high-speed bar code scanners or image-based code readers are used for high-volume facilities. SICK provides a complete range of high-performance scanners for virtually all types of bar codes to reduce manual intervention to a minimum.

Parcel handling robots

Robots for automated picking and placing greatly increase workplace safety, ergonomics and process efficiency. Such systems are particularly suitable for sorting mass deliveries during off-peak times for optimum utilization of resources. The 3D information required to control the robot is gathered by laser scanners.



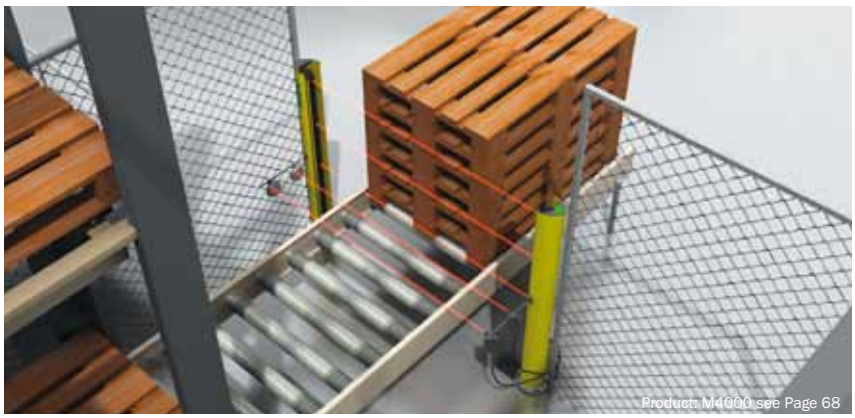
Focus 2:
Safety solutions

From risk assessment to fully compliant safety with SICK

The primary objective of safety is to avoid hazardous situations that pose health risks to humans. Measures and functions to prevent hazards also reduce the risk of damage to machines, thus increasing process reliability. Complex facilities, such as CEP hubs, usually use dedicated safety PLCs that are networked with the program logic PLC via safety gateways and fieldbuses, such as ASIsafe, PROFIsafe, and DeviceNet safety. SICK offers a comprehensive range of safety sensors, actuators, safety relays, and safety controllers for highly effective, fully compliant safety solutions. In addition, SICK supports you with professional services along the entire safety chain from risk assessment, system design, engineering with development of the logic/function blocks all the way to commissioning of globally compliant safety concepts and solutions.

Safety muting exit only

This exit monitoring solution uses multiple light beam safety devices as electro-sensitive protective devices (ESPDs).
If light beams are interrupted, the multiple light beam safety device supplies the required signal to the safety PLC. Two to four muting sensors are connected to a single muting module, which reduces wiring yet provides the benefits of traditional relay solutions.



Product: M4000 see Page 68

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Safety with emergency stop rope pull switches

Emergency stop rope pull switches allow operators to switch a system to a safe state when hazardous conditions occur. Emergency Stop rope pull switches, such as i110RP, allow you to implement fully compliant solutions. These switches are ideal safety solutions for longer conveyors since the function can be triggered at any point along the entire length of the conveyor. Additional contacts are provided for extended monitoring.

Product: i110RP see Page 66

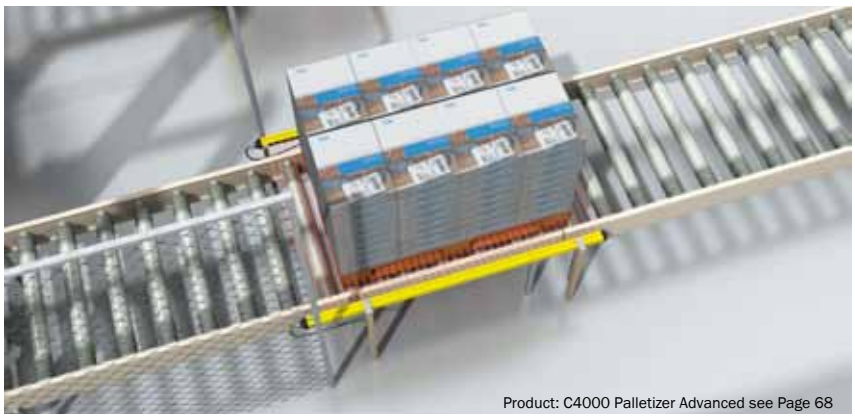
Door locking and monitoring

Guard doors prevent staff from accessing hazardous areas during operation of the system. The interlocking function ensures that the hazardous state of the system can only be activated when the guard door is closed and locked. This function is implemented with electromechanical safety switches, such as the safety locking device i110Lock. The industrial design of i110Lock with a metal actuator head provides superior reliability. A choice of actuators makes the switch suitable for almost any type of door. Additional contacts are provided for door monitoring.

Product: i110Lock see Page 67

Safety muting entry/exit

While pallets need to pass this point, operators must not do so for safety reasons. Safety light curtains allow you to implement a highly efficient safety solution with electro-sensitive protective equipment (ESPE) that does not require separate muting sensors. The system uses pattern recognition to determine whether an object is allowed to pass through the field. It can be programmed to detect pallet legs and other objects of a defined size. Direction detection and gap suppression as well as diagnostics outputs for pollution, OSSD status, or position make this solution even more reliable and flexible.



Product: C4000 Palletizer Advanced see Page 68

Safety with emergency stop pushbuttons

Emergency stop buttons allow operators to switch a system to a safe state when hazardous conditions occur. Emergency stop pushbuttons, such as ES21, allow you to implement fully compliant solutions. These pushbuttons are available in a number of different versions to meet your application-specific requirements.

Product: ES21 see Page 66

Focus 3: Induction

Process overview

At this process stage, the items are prepared for placement on the main sorter. The main tasks are singulation, orientation, and spacing of the items. Irrespective of the sorter technology (cross belt, tilt tray, shoe sorter), items must be precisely positioned on the sorter with defined spacing and often with a given orientation. High accuracy at this stage is a prerequisite for maximum read rates and helps to avoid incorrect deliveries.

Leading edge detection

Leading edge detection with reflex array sensors is required to merge items, to detect the handover status to or off the sorter cells, or for other types of simple belt control tasks. Reflex array sensors detect the leading edge of an item. The speed of individual belt segments is then controlled to create the gaps between the items.

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Product: W27-3 Reflex Array see Page 52

Leading edge and profile detection

Leading edge detection is required to feed items from belts to the main sorter with defined spacing. The combination of advanced automation light grids and high-resolution rotary encoders enables the detection of leading edges plus capture of additional item profile information, such as footprint and orientation, for optimum spacing between items.

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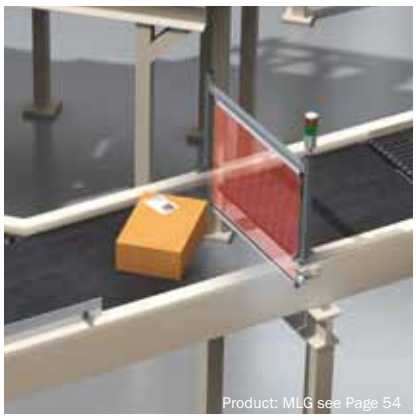

Product: MLG see Page 54

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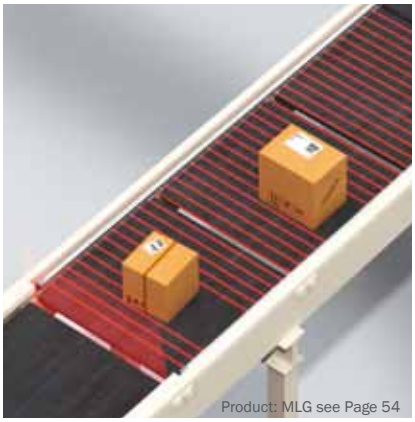
Item gapping

Precise distances between the individual items are paramount for the downstream processes. Minimum spacing between items on a conveyor makes maximum use of the precious space inside a facility. If the gap is too small, this may, for example, adversely affect the auto-ident system. With extremely short response times, SICK reflex light grids are suitable for high conveyor speeds. Polarizing filters suppress negative effects caused by reflecting surfaces.

Product: WLG see Page 53

Dynamic gapping

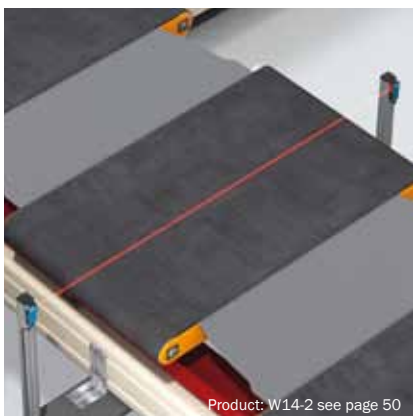
Tilt-tray or cross-belt sorters have a fixed cell length that requires one given distance value between items, regardless of the item length. Shoe sorters can be loaded more flexibly to increase their throughput. There is no need to wait for the next available cell; it is sufficient to know that an item with a measured length plus the required gap has passed. This solution is implemented with extra long light grids that enable the detection of an item's leading edge and length. The light grids are networked via fieldbuses, e.g. Profibus, so that the entire information on the item is immediately available to the PLC.



Product: MLG see Page 54

Empty detection

Empty detection is essential in avoiding double occupation of cells. If undetected, this condition inevitably results in incorrect deliveries and additional costs. A cost-effective photoelectric sensor is used to check whether the cell is empty.



Product: W14-2 see page 50

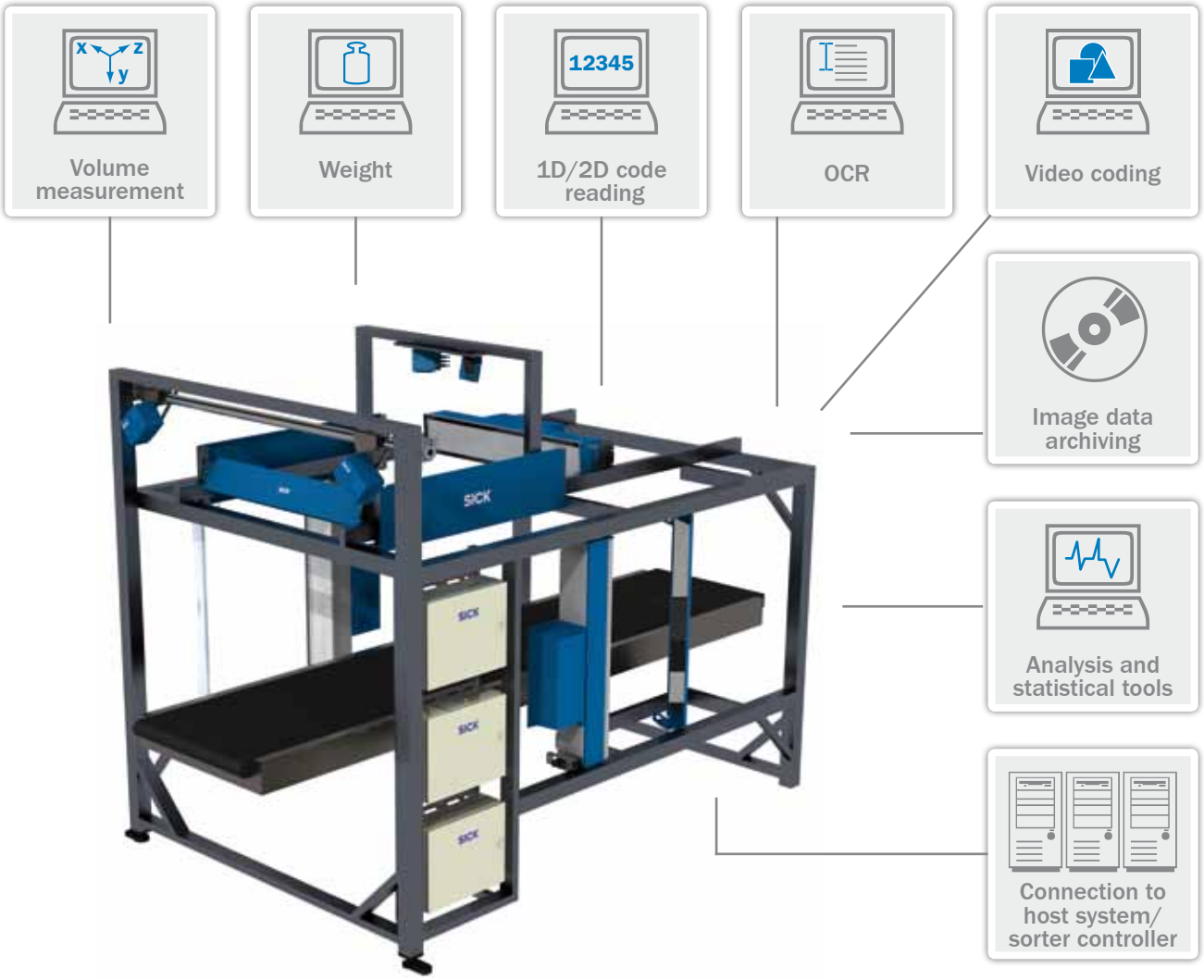
Leading edge and length detection

Leading edge detection is required to feed items from belts to the main sorter with defined spacing. The combination of high-resolution, high-speed light grids and high-resolution rotary encoders enables the detection of leading edges plus capture of additional item profile information, such as length. The time of interruption of the light grid and the speed of the belt as measured by the encoder provide the item length information required for acceleration or deceleration of the belt segments to place the item on the sorter.

Product: HLG see Page 53

Identification, volume, and weight measurement

Identification of items is a core process in the CEP industry. The code attached to the item is a unique identifier for the object. Typical codes are 1D or 2D codes as well as labels requiring OCR. RFID tags allow for reading and writing additional status information and lend themselves for high value or medical goods. All information relating to the identification as well as the object itself, such as images, dimensions, and weight, is consolidated in a database. Full traceability of the item along the entire delivery process is paramount. The performance of a sorting system hinges on identification accuracy.
Load optimization is a key objective of logistics companies, resulting from dramatically rising energy costs and environmental factors. If the weight and volume of each item to be shipped are known, the service providers can use their transportation resources to their full potential. In addition, the weight/volume ratio allows CEP operators to offer fair and attractive pricing schemes.
SICK provides complete solutions that boost the performance of all three tasks: auto-ident systems, volume measurement systems, weighing systems, or completely integrated DWS systems that support all three tasks.



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Identification

Identification of codes is one of the most challenging tasks in the CEP industry. Customers expect maximum flexibility from the CEP operator of their choice and the ability to handle varying package sizes, shapes, and materials. This means that the number and complexity of the parameters to be considered in the identification process are on the rise. The different types of codes are standardized, but they must be found and read on items in an increasingly complex package stream. The quality of labels is determined by numerous factors, such as printer performance, paper, labeling process, handling, abrasion, soiling, etc. Many of these factors are beyond the direct control of the CEP operators – yet their identification systems have to deal with them. SICK provides the right solution for all requirements.

The choice of the most suitable auto-ident system depends on a large variety of factors, such as required throughput, available floor space, type of technology, label type, code type, size and quality of codes, depths of field, space between items, orientation of codes, orientation of items, as well as types, dimensions, and speed of conveyors.

Dimensioning and weighing

The selection of the most appropriate volume measurement or fully integrated DWS system depends on a large variety of factors, such as required item dimensions and weights, throughput and sorting technologies used. As the leading vendor of volume and weight measurement and DWS systems with the most comprehensive range, SICK provides solutions for all processes to be implemented or optimized – from systems for manual handling all the way to fully automated, integrated in-motion VMS and DWS systems. This dramatically reduces complexity as well as operation and maintenance costs.

The certified VMS and DWS systems can be used for invoicing (legal-for-trade). The systems are equipped with single certified alibi memory for all relevant information. Fully automated, dynamic DWS systems can identify, measure, and weigh more than 9,000 items per hour. Conveyor speed, item size, and spacing accuracy between items determine the actual throughput. Combining weight and volume measurement technologies as well as the auto-ident system in a single system is a highly effective solution with a fast return on investment.

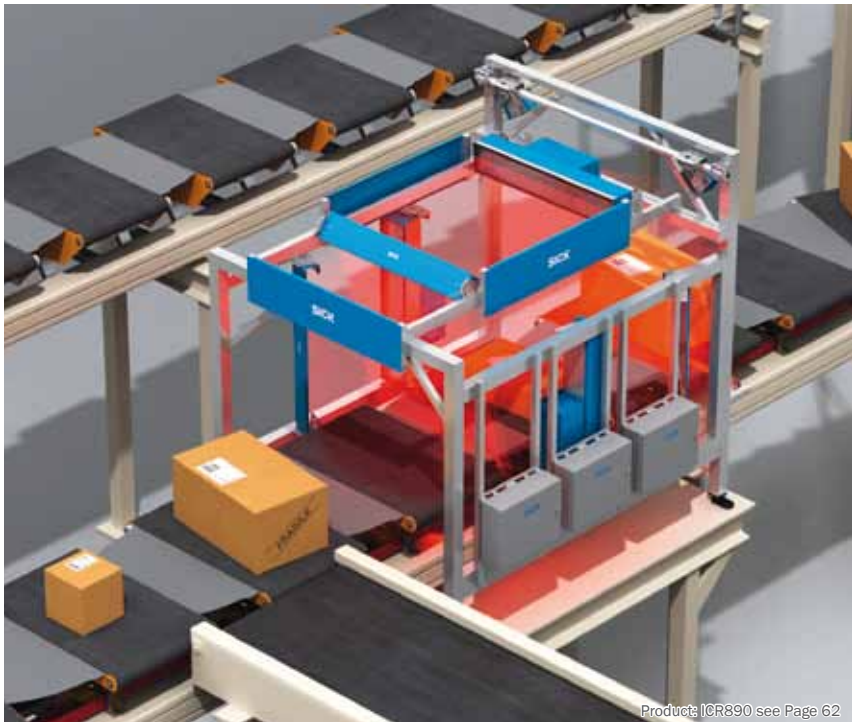
Benefits across the board

A sophisticated multi-technology solution involves a lot more than just putting a number of different sensors together. Solutions from SICK are fully customizable and scalable. They allow for easy integration into machine and control system architectures. Intelligent connectivity concepts support all standard fieldbus systems as well as Ethernet TCP/IP and industrial EtherNet/IP. With IDPro, SICK provides a standardized, holistic platform for full interoperability of all identification technologies. Identical software, identical connection systems, identical connectivity, and a unified accessories concept for all sensor types ensure effective implementation of even highly customized solutions, an easy learning curve, optimized spare parts logistics, and dramatically simplified maintenance.

Focus 4:
Identification

Camera-based identification from multiple sides

Equipped with high-performance camera systems, an integrated controller, and an array sensor for triggering, this type of auto-ident system allows for omni-directional reading of codes on virtually all standard sorter types. Resolution and image quality are superior to any other system on the market. Five-side coverage is possible with three cameras. The system supports 1D bar codes, 2D matrix codes, optical character recognition (OCR), image capturing, and video coding of unidentified labels. It excels with outstanding read rates even for partially damaged codes and lower-quality labels. An under-the-belt camera can be added for identification from all six sides. Based on off-the-shelf products, this scalable solution can be fully customized.



Product: ICR890 see Page 62

Camera-based identification from bottom side

This solution can be added to a five-side auto-ident system for reading of codes on all six sides. If combined with an in-motion scale, this solution can integrate weighing and bottom identification at the infeed points of a tilt- tray or cross-belt sorter with five-side identification and volume measurement. The application uses a high-performance camera for omni-directional reading of codes on the bottom side of items. Resolution and image quality are superior to any other system on the market. The system supports 1D bar codes, 2D matrix codes, optical character recognition (OCR), image capturing, and video coding of unidentified labels. It excels with outstanding read rates even for partially damaged codes and lower-quality labels. Based on off-the-shelf products, this solution can be customized.


Product: ICR88x see Page 62

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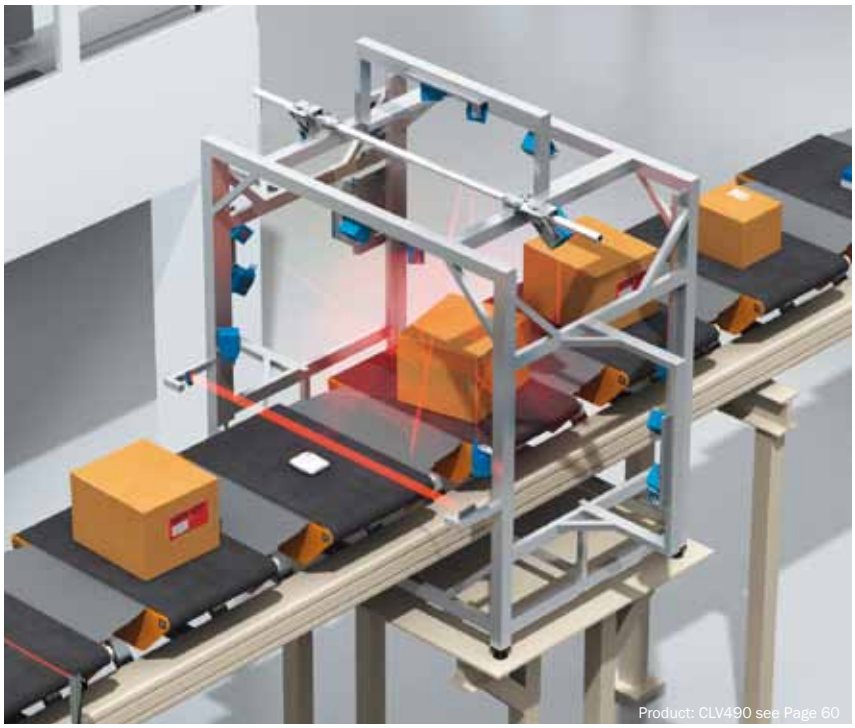

Product: CLV490 see Page 60

◂ **Laser-based identification from multiple sides**

This auto-ident solution is equipped with high-performance laser scanners, an integrated controller and an array sensor for triggering to enable omni-directional reading of bar codes on virtually all standard sorter types. Based on off-the-shelf products, this scalable solution can be fully customized. The auto-focus laser scanners can be combined in almost any configuration, allowing reading from up to five sides. The SMART code recognition technology increases the read rate of lower-quality labels.

Identification from multiple sides with hybrid systems

Technology mix solutions from SICK combine the best of all technology worlds to increase flexibility, boost performance, and optimize the price/performance ratio. Based on off-the-shelf camera and laser products, these scalable solutions can be fully customized. Such systems can, for example, use a cost-effective laser scanner to counter the effect of total reflections that may cause cameras to "go blind" (counter-skew reading). Another example: If it is known that the items are aligned in such a way that the labels are usually on one specific side, a camera is used for this side and cost-effective laser scanners on the remaining sides. The systems support 1D bar codes, 2D matrix codes, optical character recognition (OCR), image capturing, and video coding of unidentified labels. They excel with outstanding read rates even for partially damaged codes and lower-quality labels. An under-the-belt camera can be added for identification from all six sides.

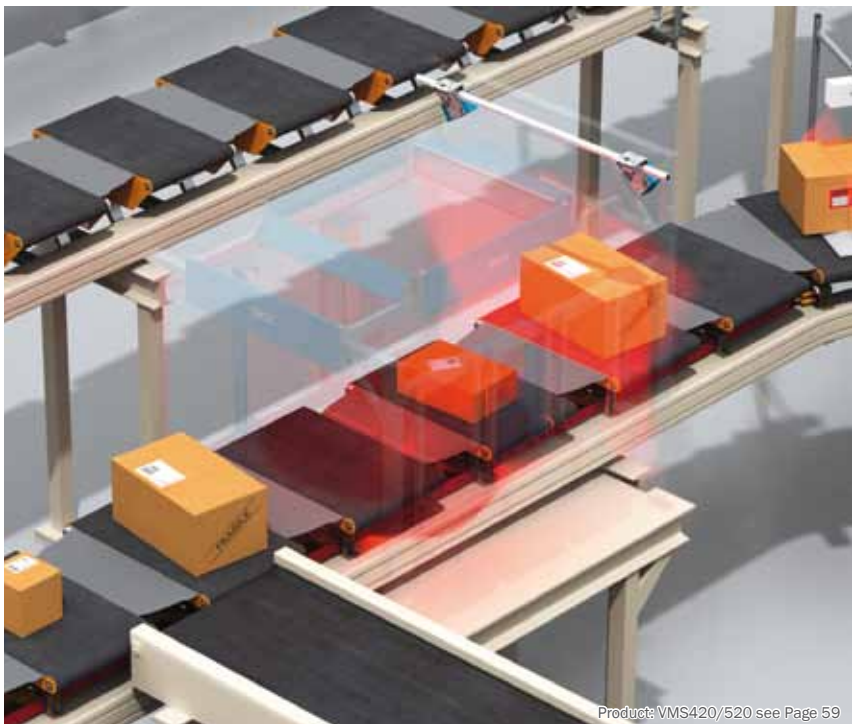
▾


Product: ICR89x System see Page 63

Focus 5:
Dimensioning/weighing

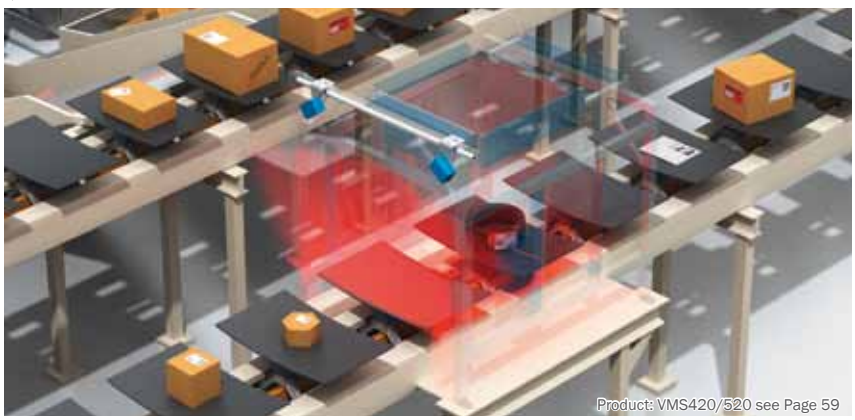
Dynamic volume measurement at cross-belt sorter ▸

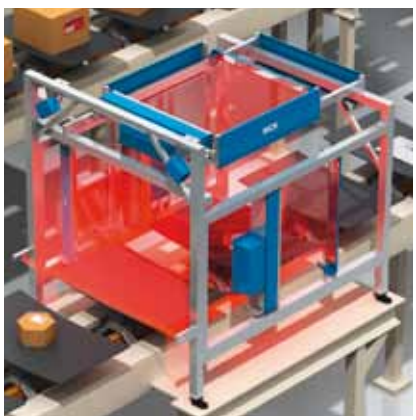
The geometry of cross-belt sorters allows for volume measurement directly above the sorter. Efficient dual-head systems boost the performance for mixed streams of cubic and irregularly shaped items. The system excels with high measuring rates and outstanding accuracy. The system is certified and can be used for invoicing (legal-for-trade). Based on off-the-shelf products, this scalable solution can be fully customized. For example, it is possible to expand the solution into a fully featured dimensioning and scanning system.



Dynamic volume measurement at tilt-tray sorter

In the past, volume measurement at tilt-tray sorters was only possible at flat inbound belts due to the geometry of the trays. The innovative volume measurement systems provided by SICK measure the volume of items directly above the tray, irrespective of their shape. The ability to measure the volume directly above the tilt tray sorter leads to dramatic cost reductions since such systems no longer have to be installed above each individual flat inbound belt. Dual-head systems boost the performance for mixed streams of cubic and irregularly shaped items. The system excels with high measuring rates and outstanding accuracy. The system is certified and can be used for invoicing (legal-for-trade). Based on off-the-shelf products, this scalable solution can be fully customized. ▾





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◂ **Volume measurement of singulated, irregularly shaped objects**
SICK provides volume measurement solutions for automated determination of freight charges on belts with bulk goods. These systems enable CEP operators to significantly increase the throughput of “non-conveyable” goods. VMS530-IDS (Irregular Dimension System) allows for determining the volume of irregularly shaped, non-touching items. With VMS530-NSDS (Non-Singulated Dimensioning System), non-singulated streams of cubic items can be effectively measured.

Manual dimensioning, weighing and scanning of irregularly shaped items
This dimensioning, weighing, and scanning system reads the bar code and determines the weight and dimensions of an item in a single step. Specially designed for measuring cubic and irregularly shaped items, DWS520 is a complete solution with an integrated roller conveyor specifically for smaller throughputs at manual facilities or for post-processing of rejects (up to 500 items per hour). The system is commissioned in a matter of minutes and can be used as a mobile station. With DWS510 Static, a single-head solution is available for cubic items. Both systems are certified so they can be used for invoicing (legal-for-trade).

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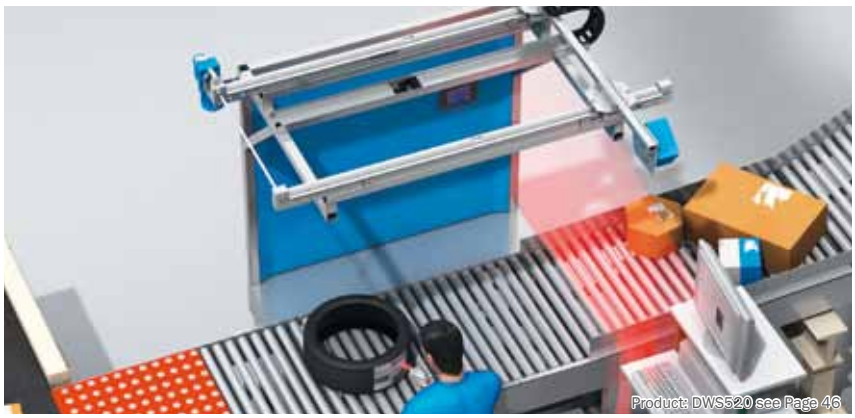
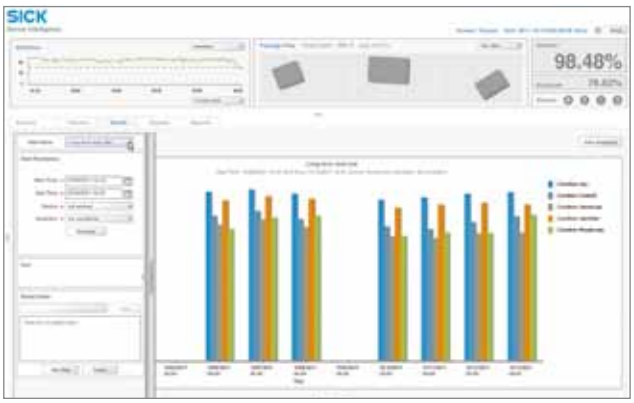


Real-time visualization

SVP, the SICK Visualization Platform, is a powerful web-enabled client-server system that maximizes the transparency of the entire identification/sorting process. It consolidates all information on each individual item, such as bar code, volume, weight, and image/video data, and enables efficient tracking. In addition, all camera, laser scanning, and RFID systems can be monitored from centralized locations literally anywhere in the CEP operator's enterprise. This allows for easy performance and health checks, enabling early detection of potential problems and appropriate intervention – before such problems cause downtimes.

SVP goes way beyond conventional visualization of the status quo of processes. The wealth of acquired data stored in the database serves as the basis for data mining. Determining recurring process patterns, anomalies and dependencies dramatically improves the ability of CEP operators to further optimize processes – based on hard facts. Queries enable, for example, root cause analyses, trend forecasts, and analyses of what-if scenarios. SVP is the only tool in the marketplace that allows for such analyses, regardless of the reading technologies employed.



SVP key features and benefits

- Real-time visualization of individual systems, entire hubs, end even multiple hubs across different sites
- Integration of all auto-ident systems with all technologies (image, laser, RFID)
- Performance, health, and status monitoring of all systems with all key metrics from read rate to bar code quality
- Live viewing of parcel streams with display of all data, such as code, dimensions, weight, and image, on each individual item

Statistics

- Tracking of items across all hubs and depots in the entire network
- Queries for determining recurring patterns, such as long-term label quality levels of individual customers, for process improvement recommendations to the customer
- Analyses of what-if scenarios, e.g., for improved load balancing and capacity utilization along different timelines and under peak load conditions

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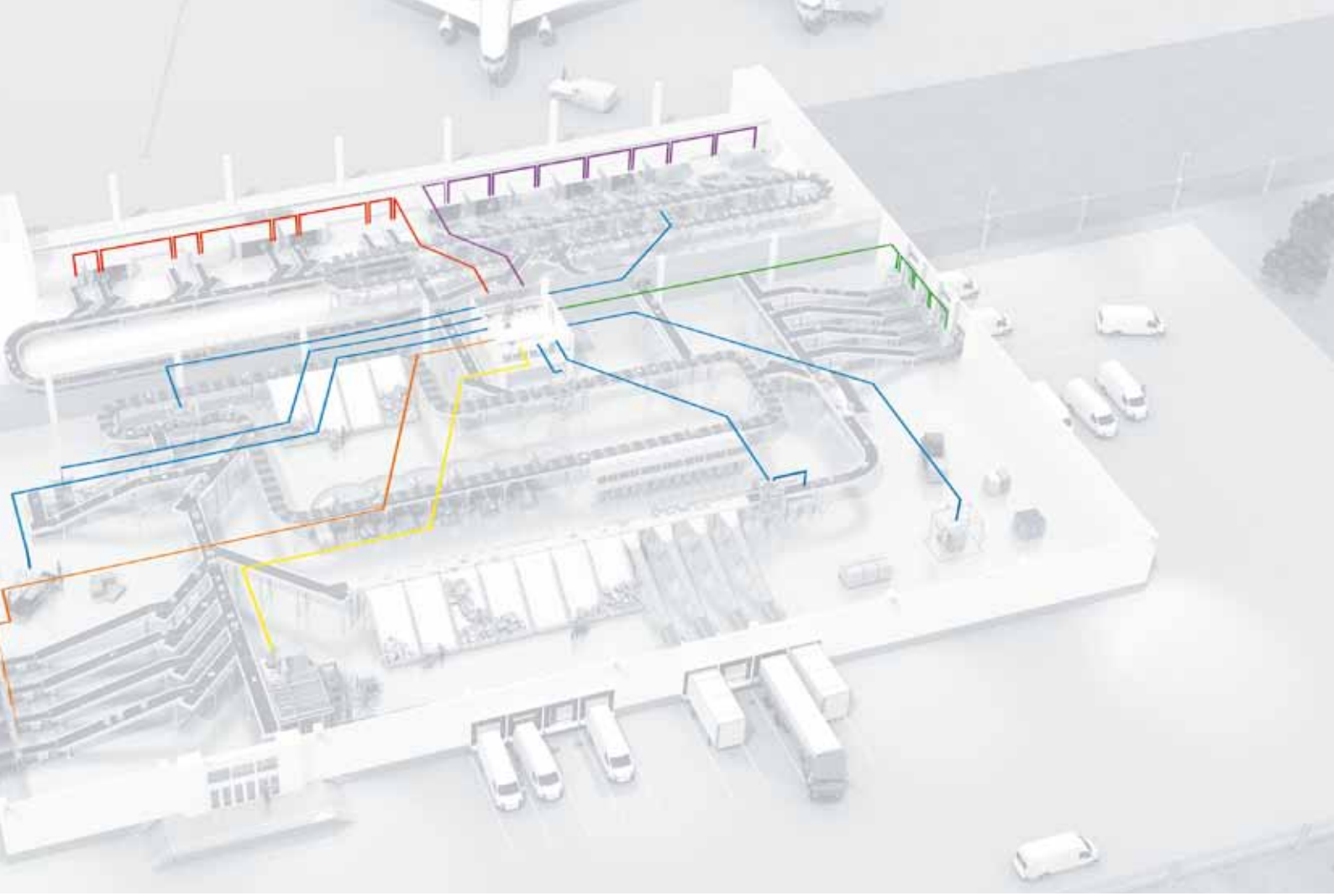
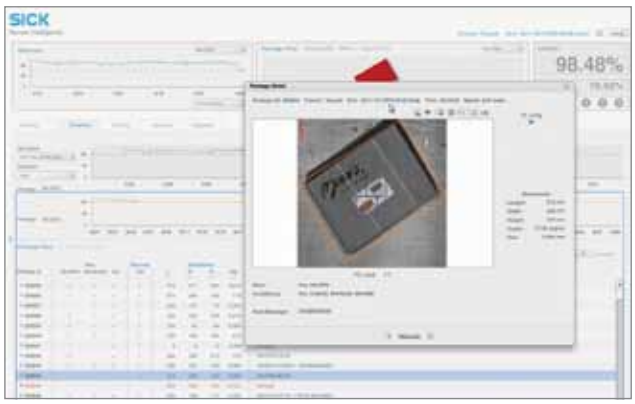
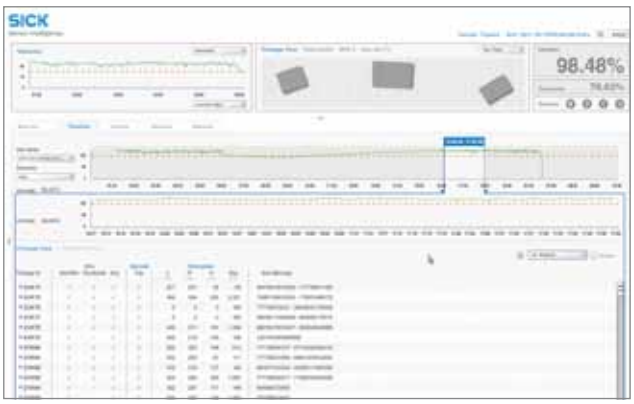




Package details

- Immediate access to all object details including camera image, evaluation of condition, and host messages
- No-Read Root Cause Analyses based on standard code qualifiers as well as extensible knowledge-based decoding attributes to determine the effects of internal and external factors



Timeline view

- Improved remote diagnostics and maintenance through SICK due to access to pertinent data
- Fully integrated archiving solution with all images and related object data
- Outstanding database searchability with criteria such as ID, gap, multiple read, and oversize, for example, for trend analyses, code quality compliance, etc.

Focus 6: Sorting

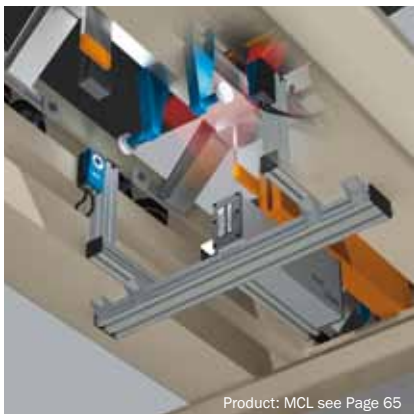
Process overview

The sorter supplies the identified items to the appropriate chutes. Typical sorters are line sorters (shoe sorters), tilt-tray sorters or cross-belt sorters. Depending on the process requirements and technologies used, the identification systems are positioned at infeed zones or directly at the main sorters. A great variety of different sensors control and monitor stable and reliable sorting processes. The corresponding applications include, among other things, empty detection, double detection, position detection, damage detection, leading edge and distance detection, speed detection, cell detection, position detection, cell identification, maintenance inspection, and safety.

Maintenance inspection at tilt-tray sorter

Identifying potential problems before they turn into unscheduled downtimes is critical in assuring process stability. Vision systems perform continuous 2D and 3D inspections of the individual trays while the sorter operates at full speed. They check critical components, such as wheels, arms, power conductors, or the integrity of trays and belts.

▼



Product: MCL see Page 65

Double detection/singulation verification

Double occupation of sorter cells inevitably results in errors and causes unnecessary costs. Streams of mixed items are reliably monitored for double items on a cell with a 3D camera. Such a solution detects doubles, for instance, flats, parcels and bags, even if such items lie on top of each other. The solution can be installed above all types of sorters.

▼

Product: Ruler see Page 58

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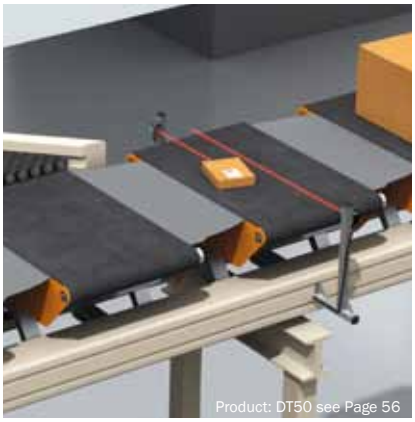
Item position detection with laser measurement sensors

Laser measurement sensors installed above the cross belt can capture full 2D and 3D contour data to precisely determine the current position of items on the cell. Items with improper alignment that might adversely affect the identification process or ejection to the outbound slides or chutes can be reliably detected so that the position can be corrected. This solution provides added precision in leading edge detection and can handle multiple items on single cells.

Item position detection with distance sensors

Distance sensors installed horizontally next to the belt can capture 2D data to precisely determine the current position of items. Objects with improper alignment that might adversely affect the identification process or ejection to the outbound slides or chutes can be reliably detected so that the position can be corrected. These sensors generate an intelligent, precise measuring grid at an outstanding price/performance ratio. They reliably detect the position of items of different colors and textures, irrespective of ambient light conditions.

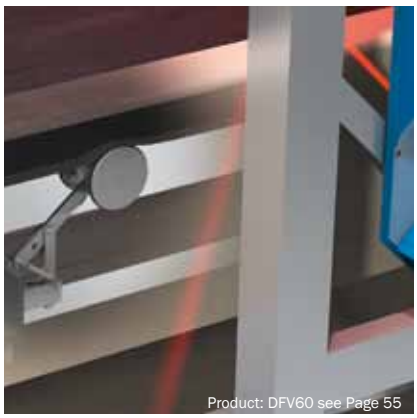


Speed measurement with laser sensors

Laser sensors are used to measure speed on sorters without rotating axes. Robust, high-performance photoelectric laser sensors create light barriers and detect a part of a cross belt or tilt-tray belt as it passes through the laser beam to provide the controller with a reliable signal.

Speed measurement with encoders

The actual speed is an essential parameter in controlling a driven system, such as a belt, with maximum precision. Cost-effective rotary encoders with a high resolution of up to 65,536 increments per revolution are used to provide the controller with a precise speed/distance feedback signal.



Overhang monitoring

Cost-effective photoelectric red light sensors are used to implement a solution that reliably detects incorrectly positioned items protruding horizontally over the belt. Such a solution effectively avoids jams and protects downstream equipment from damage.

Focus 7:
Outbound/loading

Process overview

After the sorter has ejected the individual items to the correct outbound chutes, slides, bags, or totes, the subsequent loading process that involves a higher degree of manual work must be managed and prioritized. Level detection on chutes and in bags supports these processes.

The relatively high degree of manual labor at this stage necessitates the implementation of effective safety measures for the operators.

Level control for slides/chutes

Cost-effective photoelectric red light sensors are used to monitor the filling level of slides. While the PLC knows the exact volume of the individual parcels in a slide, it has no information on the actual space still available in the slide since the parcels occupy it in an irregular way. Several sensors installed along the edge of the slide provide the PLC with the pre-alarm and alarm signals required to manage and prioritize the subsequent loading activities. PinPoint LEDs generate an extremely bright, precise light spot.


Product: G6 see Page 48

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Presentation scanning

This application increases efficiency and workplace ergonomics. Instead of taking the item from the chute, scanning it with a hand-held device, and then loading it into an ULD, for instance, the operator simply moves the item through the field of view of a bar code scanner. The bar code scanner is installed above the work area and equipped with an oscillating mirror for a large reading area.


Product: CLX49x see Page 44

Cell identification with RFID

RFID technology is ideal for applications where immunity to pollution is paramount. Each cell has its own RFID tag that is reliably detected by the interrogator equipped with controller, antenna, and communication features in a single, industrialized IP 67 package. Since RFID allows for write operations to the tag, cell identification can, for example, be integrated with the maintenance inspection application to code the health status of each individual cell.


Product: RFH620 see Page 61

Level control for bags

Ultrasonic sensors allow for continuous, non-contact measurement of the filling level of bags. Immune to dirt and dust, these sensors reliably detect bulk solids of a great range of materials. The signals, provided via analog and/or digital outputs, are used by the PLC to manage and prioritize the subsequent loading activities.


Product: UM30 see Page 54

Shoe sorter pin monitoring

Optical fork sensors are used to check whether the pins of a shoe sorter are in the correct position. This application increases the availability of the sorter and allows for early intervention in case of problems.

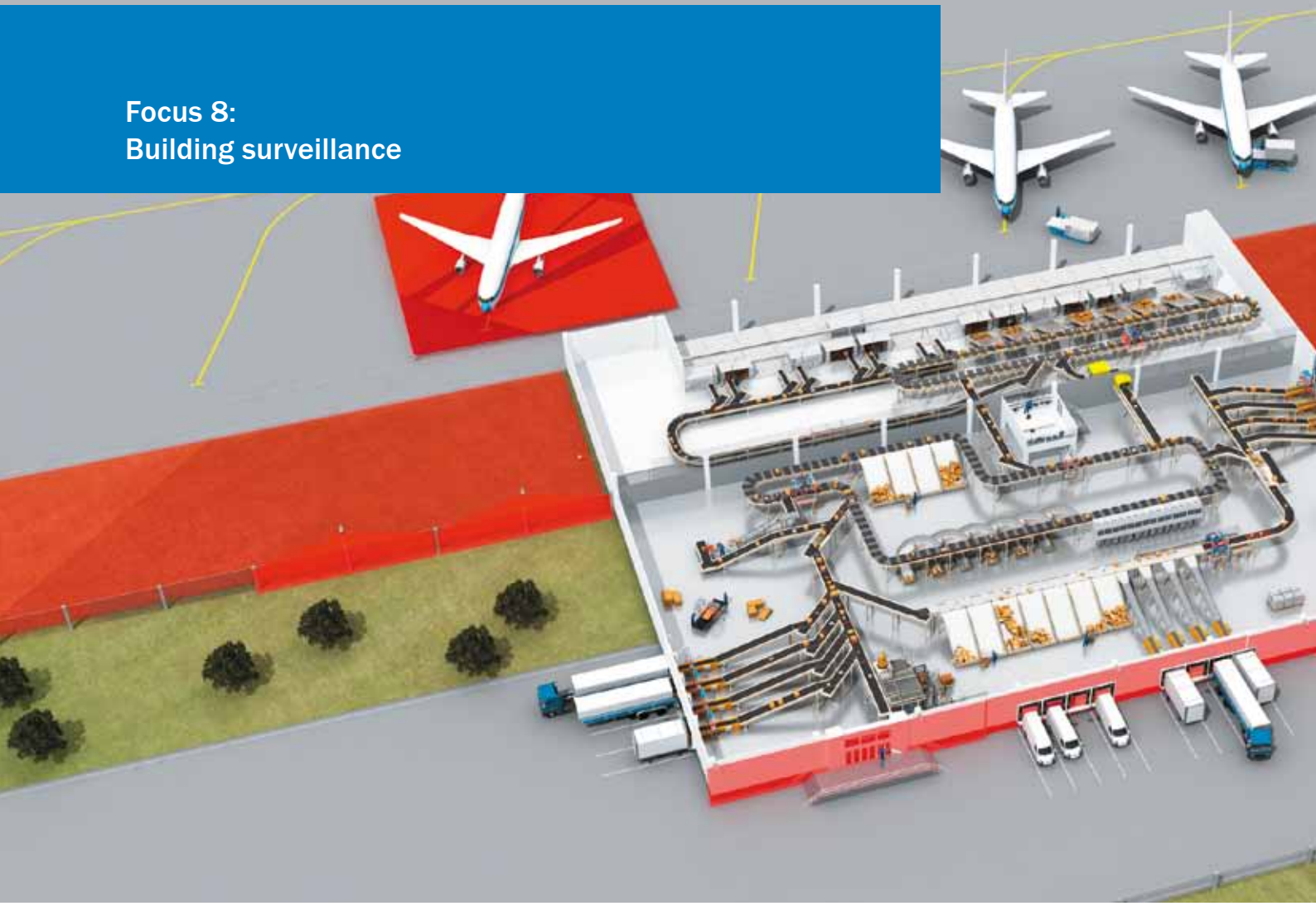

Product: WFM see Page 51

Shoe sorter pin control

Inductive proximity sensors count the pins of a shoe sorter to determine the optimum number for the next shot. The sensors excel with a high level of resistance to vibrations and shocks. SICK ASIC technology ensures superior precision.


Product: IM Standard see Page 48

Focus 8:
Building surveillance



Overview

Security is a crucial issue for the CEP industry. Protecting facilities as well as customers' valuable goods against theft is only one aspect. National and international legislation, such as the US Aviation Security Act or EU Air Security Regulations EU300/2008 and EU185/2010, have been passed or amended with the objective to establish end-to-end security of supply chains. This is complemented by numerous national and global initiatives, such as C-TPAT (Customs-Trade Partnership Against Terrorism) or AEO (Authorized Economic Operator).

SICK is a leading vendor of detection products and solutions for high-efficiency building and object surveillance. In addition, we support you in designing and engineering holistic surveillance concepts with surveillance systems that are fully compliant with the pertinent legislation and standards.

Aircraft and vehicle protection

Mobile laser scanners can be used to monitor parked airplanes and vehicles or containers. The intelligent field management functions of the SICK laser scanners can easily handle the constantly changing conditions and field geometries in such applications.

▼

Product: LD-MRS see Page 71

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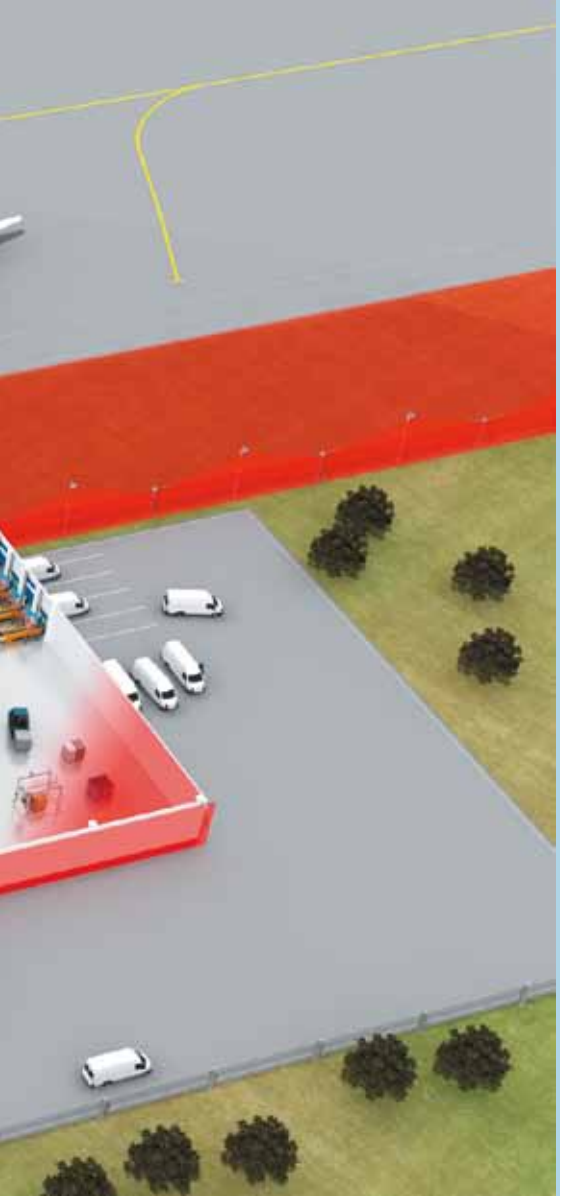


Area surveillance

Access to open spaces inside the perimeter is monitored and controlled by means of laser scanners and cameras. For example, multiple fields with blanked areas and selective field evaluation allow you to flexibly release access to lanes to specific docks for incoming and outgoing trucks. If secure areas are violated, the laser measurement data controls a camera for real-time tracking of the intruder.

Product: LD-LRS see Page 70

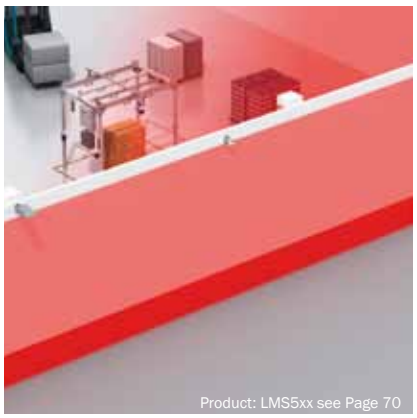
Perimeter protection

Security starts at the perimeter of a facility – the fence or wall. Laser scanners ensure that undetected intrusion becomes virtually impossible. Intelligent features, such as SICK's 5-echo technology, provide outstanding weather immunity even under extremely adverse conditions, such as heavy rain, fog, or snow. High measurement speed and recognition of predefined contours (such as small animals) reduce false alarm rates.

Product: LMS5xx see Page 70

Facade monitoring

Large vertical areas with openings, such as loading/unloading docks, pose special security risks. Facade monitoring reliably protects against theft and unauthorized entry or exit. The large scanning range and area coverage enable cost-effective security solutions.



Product: LMS5xx see Page 70

Roof protection/indoor protection

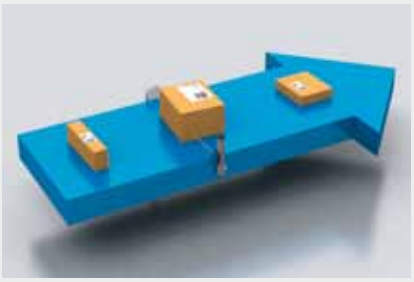
Roofs with domes, skylights or other openings are weak spots that can be reliably protected with laser scanners for area monitoring and light grids or photoelectric sensors for the openings. Indoor protection can dramatically increase supply chain security. For example, it is possible to restrict access to entire production areas under certain conditions or at certain times for security reasons (not to be confused with safety). A laser scanner can watch a moving belt without generating an alarm. But as soon as a person approaches the belt, a signal is triggered.

Product: LMC1xx see Page 69

Leading edge detection solution matrix

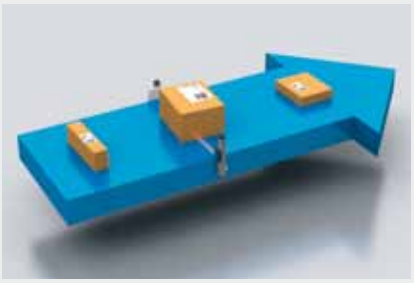
Leading edge detection is required for feeding items from belts to the main sorter with defined spacing, but also for other tasks, such as detecting the handover status to or off the sorter cells or for other types of belt control tasks. The choice of sensor for the application depends on a variety of parameters, such as item size and shape, sorter type (plane or curved surface), and required accuracy.

For merging, the sensor detects the leading edge of an item. Individual belt segments are then accelerated or decelerated at the required speeds to place the item on the proper cell of the main sorter. Depending on the implementation, it is possible to capture additional item profile information, such as footprint, length, and orientation, for optimum results along the entire process chain.



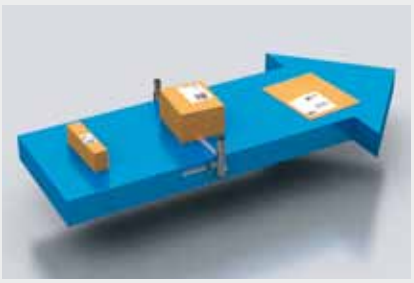
Compact photoelectric sensor (WL14-2)

- Due to punctual light spot ideal for cubic items with straight leading edges
- Mainly for sorters with plane surfaces (line sorters, cross-belt sorters, infeed belts)
- For simple triggering tasks with greater tolerances
- Easy mounting and wiring
- Minimum detection height of items depends on belt width



Reflex array sensor (W27-3 Reflex Array)

- Ideal for cubic and irregularly shaped items (e.g., flats, bags)
- Mainly for sorters with plane surfaces (line sorters, cross-belt sorters, infeed belts)
- Detection height approx. 50/24 mm, minimum detectable object > 12/5 mm[1)] in light array
- Easy mounting and wiring
- Maximum belt width 4.5/1.5 m[1)]



Fiber-optic sensor (WLL180T, LL3-TS40)

- Ideal for cubic and irregularly shaped items (e.g., flats, bags)
- Mainly for sorters with plane surfaces (line sorters, cross-belt sorters, infeed belts)
- Detection height approx. 40 mm, minimum detectable object > 5 mm in light array
- Precise positioning above the belt surface
- Maximum belt width 3.5 m

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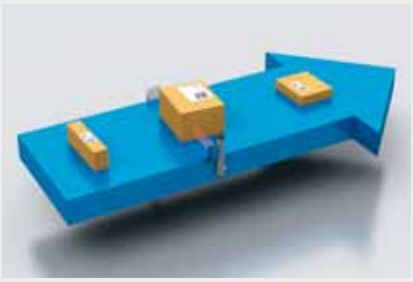
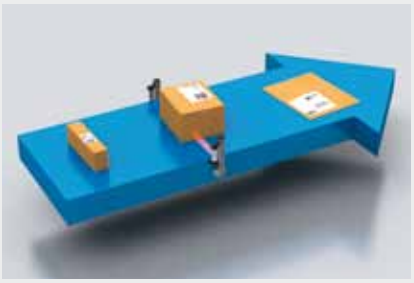


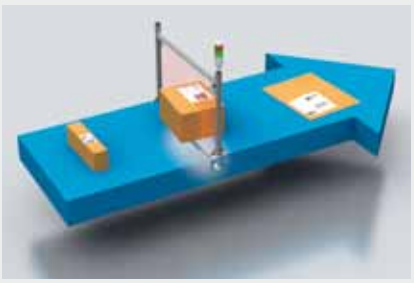
Reflex light grid (WLG12)

- Ideal for cubic and irregularly shaped items (e.g., bags)
- Mainly for sorters with plane surfaces (line sorters, cross-belt sorters, infeed belts)
- Detection height approx. 90 mm, minimum detectable object > 6 mm in light grid
- Easy mounting and wiring
- Maximum belt width 1.5 m



Automation light grid (HLG)

- Ideal for cubic and irregularly shaped items (e.g., flats, bags)
- Mainly for sorters with plane surfaces (line sorters, cross-belt sorters, infeed belts)
- Detection height approx. 50 mm, minimum detectable object 2 mm in light grid
- Reliable detection of thin items
- Maximum belt width 1.5 m



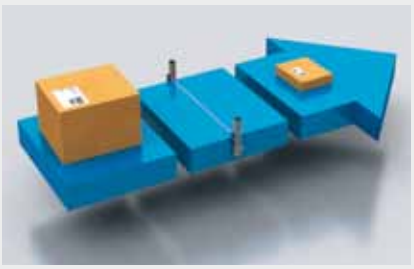
Advanced automation light grid (MLG)

- Ideal for almost all types of items
- Mainly used at infeeds between belt segments
- Detects even extremely thin items, minimum detectable object width > 15 mm
- Additional functionality, such as footprint detection, can be implemented
- For belt widths up to approx. 2.4 m

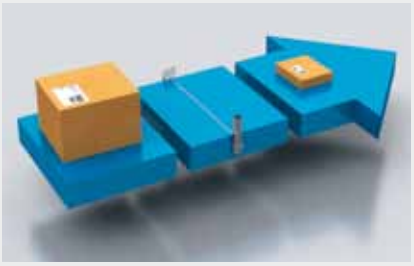
Empty detection solution matrix

Empty detection is essential in avoiding double occupancy of cells. If undetected, this condition inevitably results in delays and additional costs. SICK provides solutions that effectively avoid this problem. The technology to be used depends on the type of sorter as well as the minimum and maximum size of the items to be sorted.
The surface of cross-belt sorters is plane so that cost-effective photoelectric through-beam sensors can be used. Horizontal beams check whether the cells are empty. The leading edge/start position and end position information of the cells is also required.

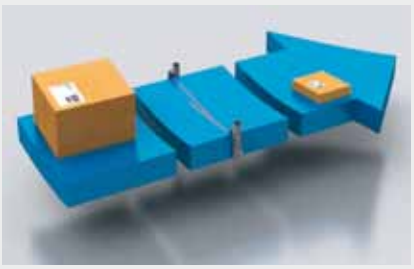
Since tilt trays do not have a plane surface, thin items in the tray may not be visible to sensors with horizontal beams. If the smallest object handled by such a sorter is higher than the outer edges of the trays, horizontal beams of cost-effective photoelectric through-beam sensors can check whether the cells are empty. Laser measurement sensors or 3D vision systems further increase flexibility and accuracy since they operate independently of the tray shape.



Through-beam photoelectric sensor (WS/WE 14)
- Ideal for sorters with plane surfaces (line sorter, cross-belt sorter)
- Recommended for object heights > 10 mm[1)]
- Sender/receiver principle with high detection reliability
- Easy mounting and adjustment
- High-precision laser spot allows for mounting close above the surface



Photoelectric retro-reflective sensor (W100 Laser)
- Ideal for sorters with plane surfaces (line sorter, cross-belt sorter)
- Recommended for object heights > 5 mm[1)]
- Detection width up to 5 m
- Easy mounting and wiring
- High-precision laser spot allows for mounting close above the surface



Distance sensor, laser-based (Dx35)
- Ideal for sorters with non-planar trays (tilt-tray sorter)
- Object height depends on tray shape and sensor positioning
- Time-of-flight principle for high detection reliability
- Easy mounting with standard brackets
- Reliable suppression of objects in the background allows for the detection of smaller items

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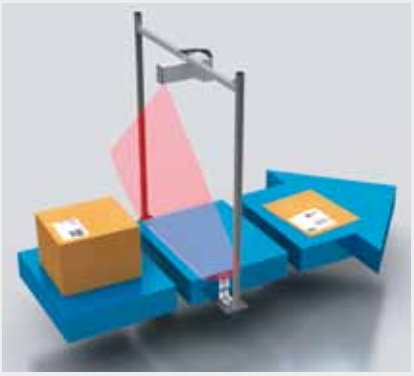
Vision sensor (Inspector)

- Ideal for sorters with non-planar trays (tilt-tray sorter)
- Minimum object height is independent of tray shape
- Influence of sorter vibrations and tolerances is drastically reduced[2)]
- Minimum object height > 6 mm
- Maximum speed 3 m/s

Laser measurement sensor (VMS410/VMS510)

- Ideal for sorters with non-planar trays (tilt-tray sorter)
- Minimum object height is independent of tray shape
- Time-of-flight principle for high detection reliability
- Minimum object height > 15 mm
- Maximum speed 3 m/s



3D camera systems (IDL System+Ruler)

- Ideal for sorters with non-planar trays (tilt-tray sorter)
- Minimum object height is independent of tray shape
- Influence of sorter vibrations and tolerances is drastically reduced[2)]
- Minimum object height > 2 mm
- Maximum speed 3 m/s

[1)] Sorter tolerance to be considered
[2)] To be evaluated under production conditions

Double detection/singulation verification solution matrix

Double occupation of cells of tilt-tray or cross-belt sorters or insufficient spacing of items on line sorters inevitably result in errors in the sorting and distribution process. Such errors can be avoided by a system for the detection of “doubles”.

The optimum solution depends on the sorting technology used and the given process parameters.

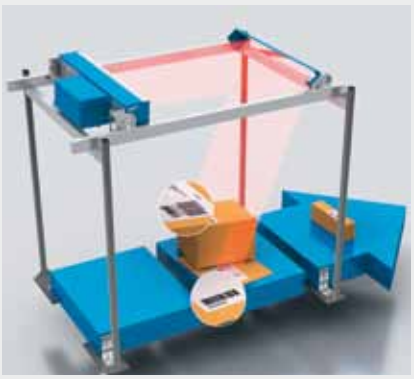
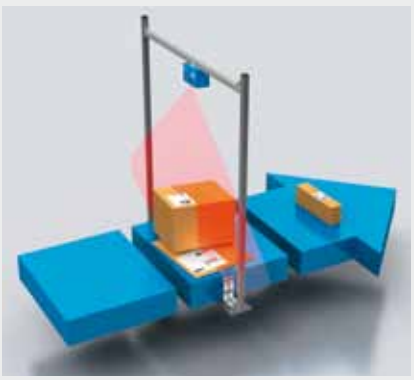


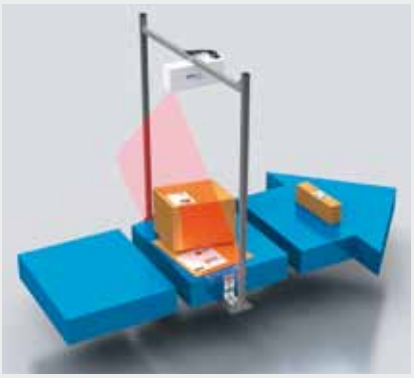
Image-based code reader (ICR89x/CLV49x/CLV69x)

- Detection principle is based on code reading
- Doubles are present if more than one valid code is visible to the auto-ident system
- Increased detection robustness in combination with VMS laser measurement system
- For camera as well as laser or hybrid auto-ident systems
- Can be implemented with existing identification system
- Suitable for all types of sorting systems



Laser measurement sensor (VMS410/VMS510)

- Detection principle is based on time-of-flight technology
- Reliable detection of doubles via object corners, edges, and sides
- Outstanding performance for cubic items
- Insensitive to ambient light
- Minimum object size 50 x 50 x 12 mm
- Maximum speed 3 m/s
- Suitable for all types of sorting systems



3D camera systems (IDL System+Ruler)

- Detection principle is based on 2D and 3D vision algorithms
- Superior performance-based on “Ground Truth Procedure”
- Influence of sorter vibrations and tolerances is drastically reduced [1)]
- Reliable double detection for cubic items, flats, and bags
- Minimum object size 50 x 50 x 2 mm
- Maximum speed 3 m/s
- Suitable for all types of sorting systems

1) To be evaluated under production conditions

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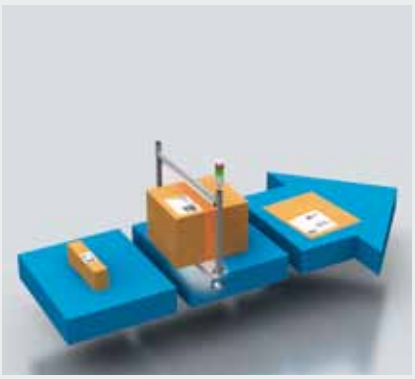
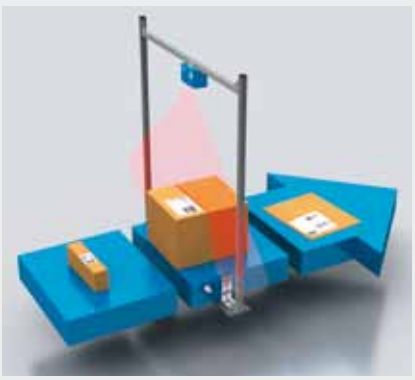
Profile detection solution matrix

Profile detection enables highly accurate centering and alignment of items on cross belts to optimize the identification process and increase the sorting efficiency. The choice of sensor depends on application parameters, such as sorter type, item size, and required accuracy.



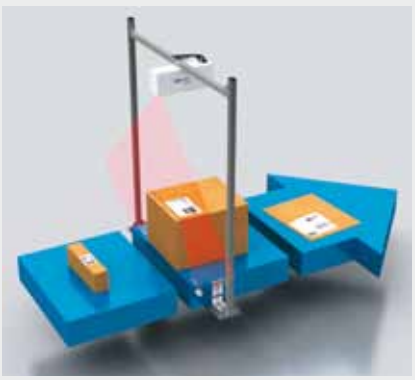
Advanced automation light grid (MLG)

- Ideal for a great variety of object types
- Mainly used at infeed points between belt segments
- Extremely thin objects detectable
- Detection resolution 15 mm
- Supports a wide range of interfaces
- Suitable for belt widths up to approx 2.4 m
- 2D profile calculation by sorter control system



Laser measurement sensor (VMS410/VMS510)

- Suitable for all sorter types and belt conveyors
- Superior accuracy for cubic items
- Minimum object height 20 mm
- Detection resolution 5 mm at a speed of 3 m/s
- Time-of-flight principle for maximum detection reliability
- Supports a wide range of interfaces
- 2D profile can be calculated in the sensor head



3D camera systems (IDL System+Ruler)

- Suitable for all sorter types and belt conveyors
- Superior accuracy for cubic objects
- Minimum object height 2 mm
- Detection resolution 5 mm at a speed of 3 m/s
- Detection principle is based on 2D and 3D vision algorithms
- Supports a wide range of interfaces

Versatile product range for industrial automation

From the simple acquisition task to the key sensor technology in a complex production process: with every product from its broad portfolio, SICK offers a sensor solution that best combines cost effectiveness and safety.

www.sick.com/products

Photoelectric sensors

- Miniature photoelectric sensors
- Small photoelectric sensors
- Compact photoelectric sensors
- Fiber-optic sensors and fibers
- Cylindrical photoelectric sensors
- Zone control

Proximity sensors

- Inductive proximity sensors
- Capacitive proximity sensors
- Magnetic proximity sensors

Magnetic cylinder sensors

- Analog position sensors
- Sensors for T-slot cylinders
- Sensors for C-slot cylinders
- Sensor adapters for other cylinder types

Identification solutions

- Bar code scanners
- Image-based code readers
- Hand-held scanners
- RFID

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Detection and ranging solutions

- Laser measurement technology

System solutions

- Volume measurement systems
- Code reading systems
- Dimension weighing scanning systems

Fluid sensors

- Level sensors
- Pressure sensors
- Flow sensors
- Temperature sensors

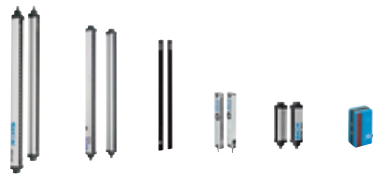
Registration sensors

- Contrast sensors
- Color sensors
- Luminescence sensors
- Fork sensors
- Array sensors

Distance sensors

- Short range distance sensors (displacement)
- Mid range distance sensors
- Long range distance sensors
- Linear measurement sensors
- Ultrasonic sensors
- Double sheet detector
- Optical data transmission
- Position finders

Automation light grids



- Advanced automation light grids
- Standard automation light grids
- Smart light grids

Vision

- Vision sensors
- Smart cameras
- 3D cameras
- Vision systems

Opto-electronic protective devices

- Safety laser scanners
- Safety camera systems
- Safety light curtains
- Multiple light beam safety devices
- Single-beam photoelectric safety switches
- Mirror and device columns
- Upgrade kits

Safety switches

- Electro-mechanical safety switches
- Non-contact safety switches
- Safety command devices

sens:Control – safe control solutions

- Safety relays
- Safety controllers
- Network solutions

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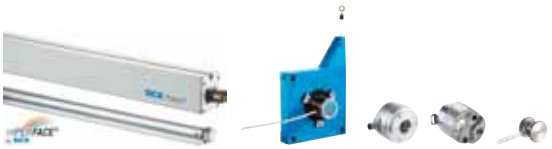
Motor feedback systems

- Interfaces: incremental, HIPERFACE® and HIPERFACE DSL®
- Safety motor feedback systems
- Rotary and linear motor feedback systems for asynchronous, synchronous motors, and linear motors

Encoders



- Rotary incremental encoders
- Rotary absolute encoders
- Wire draw encoders
- Absolute linear encoders

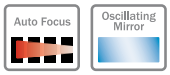
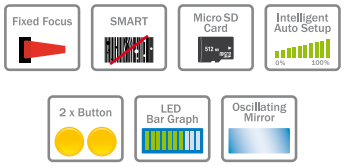
Analyzers and systems

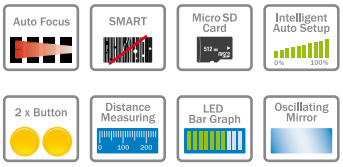
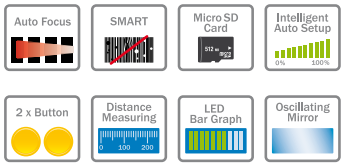
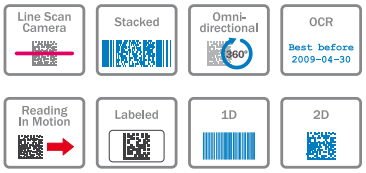
- Gas analyzers
- Dust measuring devices
- Analyzer systems
- Liquid analyzers
- Data acquisition systems
- Tunnel sensors

Gas flow measuring devices

- Gas flow meters
- Mass flow meters
- Volume flow meters

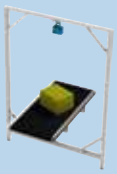
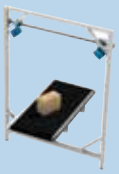
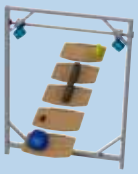
Product family overview

	 **CLV49x**	 **CLX49x**	 **CLV63x**
	Auto focus meets high speed	The all-in-one solution for omni-directional scanning	Intelligent scanning solution for logistics and automation
Technical data overview			
Focus	Auto focus	Auto focus	Fixed focus
Field of view	≤ 60° / ≤ 50°	≤ 60°	≤ 50°
Scanning frequency	600 Hz ... 1,200 Hz	600 Hz ... 1,200 Hz	400 Hz ... 1,200 Hz
Code resolution	0.17 mm ... 1.2 mm	0.3 mm ... 1 mm	0.2 mm ... 1 mm
Reading distance	400 mm ... 2,200 mm	500 mm ... 1,750 mm	44 mm ... 735 mm
Serial (RS-232, RS-422/485)	✔ , AUX (only RS-232)	✔ , AUX (only RS-232)	✔ , AUX (only RS-232)
Ethernet	– , optional via external connection module (CDM + CMF)	– , optional via external connection module (CDM + CMF)	–, optional via external connection module (CDM + CMF) / ✔
CAN bus	✔	✔	✔
PROFIBUS	– , optional via external connection module (CDM + CMF)	– , optional via external connection module (CDM + CMF)	– , optional via external connection module (CDF)
DeviceNet	– , optional via external connection module (CDM + CMF)	– , optional via external connection module (CDM + CMF)	– , optional via external connection module (CDM + CMF)
Weight	1,500 g / 2,200 g	2,000 g	250 g ... 420 g
At a glance			
			IDpro
			
	• Real-time auto focus function • Different versions ensure coverage for a variety of module widths • Label tilt from –45° to +45° • Smallest housing with auto focus and reading range up to 2.2 m • External parameter cloning plug • An oscillating mirror scanner is also available to cover larger reading areas • Optional internal heater • High scanning frequency of up to 1,200 Hz	• Real-time auto focus function • Independent of tilt (omni-directional bar code reading) • Reliable code detection in real time due to SMART technology • Smallest housing with auto focus and reading range up to 2.2 m • External parameter cloning plug • High scanning frequency of up to 1,200 Hz • Large depth of field • Optional internal heater	• Integrated pushbuttons for auto setup and reading diagnostics • Integrated LED bar graph • CAN, Ethernet TCP/IP, and EtherNet/IP available on board, no additional gateway needed (depending on variant) • Enhanced SMART code reconstruction technology • Flexible sorting, filtering, and logical functions • Advanced, easy-to-use SOPAS configuration software • High scanning frequency of up to 1,200 Hz • Advanced remote diagnostics and network monitoring capabilities available over Ethernet

	CLV65x	CLV69x	ICR88x / ICR89x
			
	Always in auto focus	Always in auto focus The highest level of flexibility and power	High-end camera systems
	Auto focus	Auto focus	Dynamic focus control
	≤ 50°	≤ 60° / ≤ 50°	Variable
	600 Hz ... 1,000 Hz	400 Hz ... 1,200 Hz	19,100 Hz
	0.25 mm ... 1 mm	0.17 mm ... 1.2 mm	≥ 0.15 mm
	125 mm ... 1,625 mm	400 mm ... 2.200 mm	0.8 m ... 3.3 m
	✔ , AUX (only RS-232)	-, only with cloning plug D sub	✔
	–, optional via external connection module (CDM + CMF) / ✔	-, only with cloning plug I/O Ethernet	✔ (3)
	✔	✔	✔ (2)
	– , optional via external connection module (CDF)	–	✔ , via MSC800 controller
	– , optional via external connection module (CDM + CMF)	–	–
	320 g / 250 g	1,500 g / 2,200 g	28.5 kg / 37 kg
	IDpro	IDpro	
			
	• Huge depth of field due to auto focus • Integrated pushbuttons for auto setup and reading diagnostics • CAN, Ethernet TCP/IP, and EtherNet/IP available on board, no additional gateway needed (depending on variant) • Enhanced SMART code reconstruction technology • Flexible sorting, filtering, and logical functions • Integrated web server provides remote diagnostics and monitoring • Advanced, easy-to-use SOPAS configuration software • Integrated LED bar graph	• Enhanced SMART decoder technology • New and flexible cloning plug technology • CAN, Ethernet and serial communications available on board (dependent on cloning plug variant) • Large depth of field due to real-time auto focus • Advanced, easy-to-use SOPAS configuration software • Integrated encoder tracking for up to 7 devices without an external controller • Flexible sorting, filtering, and logical functions • Integrated LED bar graph with pushbuttons	• Large reading field for conveyor coverage up to 3,000 mm • High-end CCD sensor (8,192 pixel) • Integrated real-time focus control • Integrated high-performance decoder board • Integrated digital zoom function • OCR compatible picture quality • Online status monitoring of all system components • Constant resolution over the entire DOF

Product family overview

				
Model name	**DWS510-ST12100**	**DWS520-ST22100**	**DWS520-ST32100 Extended**	
Part no.	**6039575**	**-**	**-**	
Features				
Scanner Design	1-scanner solution	2-scanner solution	2-scanner solution	
Light source	Visible red light (650 nm)	Visible red light (650 nm)	Visible red light (650 nm)	
Laser class	2	2	2	
Field of View	≤ 70°	70°	70°	
Performance				
Usage	Static max. object weight 30 kg / 60 kg	Static max. object weight 30 kg / 60 kg	Static max. object weight 30 kg / 60 kg	
Authorizations	Legal-for-trade approvals (OIML, MID and NAWI)	Legal-for-trade approvals (OIML, MID and NAWI)	Legal-for-trade approvals (OIML, MID and NAWI)	
Transport Speed				
Minimum object distance				
Detectable object shape				
Minimum object size	50 mm x 50 mm x 50 mm	50 mm x 50 mm x 50 mm	50 mm x 50 mm x 50 mm	
Maximum object size	1,100 mm x 700 mm x 700 mm (larger dimensions on request)	1,200 mm x 800 mm x 800 mm	1,800 mm x 900 mm x 900 mm	
Accuracy of object coverage	± 5 mm x ± 5 mm x ± 5 mm	± 5 mm x ± 5 mm x ± 5 mm	± 5 mm x ± 5 mm x ± 5 mm	
Allowed weight for legal-for-trade weighing	0.1 kg ... 60 kg	0.1 kg ... 60 kg	0.1 kg ... 60 kg	
Accuracy of scale	e = 20 g	e = 20 g	e = 20 g	
Interfaces				
Serial (RS-232, RS-422)	✔	✔	✔	
Ethernet	✔	✔	✔	
CAN bus	-	-	-	
PROFIBUS	✔	✔	✔	
PROFINET	-	-	-	
DeviceNet	-	-	-	
Output Data	Dimensions (length, width, height) of box volume and weight	Dimensions (length, width, height) of box volume and weight	Dimensions (length, width, height) of box volume and weight	
Mechanics/electronics				
Operating voltage	AC 100 ... 230 V ±15%, 50/60 Hz	AC 100 ... 230 V ±15%, 50/60 Hz	AC 100 ... 230 V ±15%, 50/60 Hz	
Power consumption	Max. 500 W	Max. 500 W	Max. 500 W	
Dimensions of the roller conveyor	L = 1,250 mm x B = 650 mm, Height above floor: adjustable from 700 mm to 950 mm (in 50 mm-steps)	L = 1,400 mm x B = 800 mm, Height above floor: adjustable from 700 mm to 950 mm (in 50 mm-steps)	L = 2,000 mm x B = 900 mm, Height above floor: adjustable from 700 mm to 950 mm (in 50 mm-steps)	
Ambient data				
Object remission	10 % ... 200 %	10 % ... 200 %	10 % ... 200 %	
Electromagnetic compatibility (EMC)	EN 61000-6-2:2001 / EN 61000-6-4:2001	EN 61000-6-2:2001 / EN 61000-6-4:2001	EN 61000-6-2:2001 / EN 61000-6-4:2001	
Vibration resistance	EN 60068-2-65, -27, -29, -64	EN 60068-2-65, -27, -29, -64	EN 60068-2-65, -27, -29, -64	
Shock resistance	EN 60068-2-65, -27, -29, -64	EN 60068-2-65, -27, -29, -64	EN 60068-2-65, -27, -29, -64	
Ambient operating temperature	0 °C ... 40 °C	0 °C ... 40 °C	0 °C ... 40 °C	
Storage temperature	-20 °C ... 70 °C	-20 °C ... 70 °C	-20 °C ... 70 °C	

							
	VMS410	**VMS510 MID**	**VMS510 OEM**	**VMS420**	**VMS520 MID**	**VMS520 OEM**	**VMS520 Sorter**
	1025985	**1043950**	**1025986**	**1041964**	**1043951**	**1041965**	**-**
	1-scanner solution			2-scanner solution			2-scanner solution
	Visible red light (650 nm)			Visible red light (650 nm)			Visible red light (650 nm)
	2			2			2
	≤ 70°			70°			≤ 70 °
	In motion flat conveyor, conveyor width < 1 m			In motion flat conveyor, conveyor width < 1 m			In motion tilt tray, crossbelt
		Legal-for-trade approvals (MID and OIML)			Legal-for-trade approvals (MID and OIML)		Legal-for-trade approvals (MID and OIML)
	<=2 m/s			<=3 m/s			<=3 m/s
	25 mm			25 mm			25 mm
	Cuboid objects, singulated			Almost any, singulated			Almost any, singulated
	50 mm x 50 mm x 50 mm (v <= 1.2 m/s) 100 mm x 100 mm x 50 mm (v = 1.2 m/s ... v = 2 m/s)			50 mm x 50 mm x 50 mm (v <= 3 m/s)			50 mm x 50 mm x 50 mm (v <= 3 m/s and only with cubical objects, otherwise 100 mm x 100 mm x 100 mm)
	2,600 mm x 1,000 mm x 1,000 mm			2,600 mm x 1,000 mm x 1,600 mm			1,600 mm x 1,000 mm x 1,000 mm
	± 5 mm x ± 5 mm x ± 5 mm (v <= 1.2 m/s)			± 5 mm x ± 5 mm x ± 5 mm (v <= 3 m/s)			± 5 mm x ± 5 mm x ± 5 mm (v <= 3 m/s)
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
		✔			✔		✔
	-	✔	-	-	✔	-	✔
		-			-		-
	-	✔	-	-	✔	-	✔
		-			-		-
		-			-		-
	Dimensions (length, width, height) of box volume			Dimensions (length, width, height) of box volume			Dimensions (length, width, height) of box volume
	≤ 24 V DC ±15 %	100 V AC ... 240 V AC ±15 %	≤ 24 V DC ±15 %	≤ 24 V DC ±15 %	100 V AC ... 240 V AC ±15 %	≤ 24 V DC ±15 %	100 V AC ... 240 V AC ±15 %
	25 W	50 W	25 W	50 W	100 W	50 W	Max. 270 W
	-	-	-	-	-	-	-
	10 % ... 200 %			10 % ... 200 %			10 % ... 200 %
	EN 61000-6-2:2001 / EN 61000-6-4:2001			EN 61000-6-2:2001 / EN 61000-6-4:2001			EN 61000-6-2:2001 / EN 61000-6-4:2001
	EN 60068-2-65, -27, -29, -64			EN 60068-2-65, -27, -29, -64			EN 60068-2-65, -27, -29, -64
	EN 60068-2-65, -27, -29, -64			EN 60068-2-65, -27, -29, -64			EN 60068-2-65, -27, -29, -64
	0 °C ... 40 °C			0 °C ... 40 °C			0 °C ... 40 °C
	-20 °C ... 70 °C			-20 °C ... 70 °C			-20 °C ... 70 °C

IM Standard - At a glance

- Precise operating distances due to ASIC technology
- Extra tough thanks to high fastener torque and hot melt adhesive filling
- M8 to M30 sizes available
- Operating distance from 1.5 mm to 20 mm
- IP 67 enclosure rating
- Operating temperature from -25 °C to +75 °C
- DC, AC and AC/DC versions available
- Customer-specific models available

Your benefits

- Reduced machine downtime
- Reduced mechanical damage
- Fewer maintenance costs due to longer service life
- High resistance to shock and vibrations

→ **www.mysick.com/en/IM_Standard**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

G6 - At a glance

- PinPoint LED for a bright, precise light spot
- Durable metal threaded inserts
- SICK ASIC technology - the result of decades of experience in photoelectric sensors
- Large, user-friendly potentiometer
- Large, bright indicator LEDs
- IP 67 enclosure rating

Your benefits

- Easy alignment and precise object detection due to a highly visible PinPoint LED
- Quick and easy mounting and high durability due to threaded metal inserts
- SICK ASIC technology provides high performance and excellent reliability
- Easy to adjust due to large, user-friendly potentiometers
- Easy to monitor due to large, bright indicator LEDs
- Easy installation with SICK accessories

→ **www.mysick.com/en/G6**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

CDRH

W100 Laser - At a glance

- Standard miniature housing with M3 threaded mounting holes
- Long sensing and scanning range
- Light/dark switching and sensitivity adjustment via rotary switch possible
- Various versions are available, including through-beam, retro-reflective and energetic
- Wide variety of accessories available
- Laser emitter LED, class 1

Your benefits

- Less contamination due to high optical operating reserve
- M3 threaded mounting holes provide easy installation
- Compact housing easily fits in applications with limited space

→ **www.mysick.com/en/W100_Laser**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

CDRH

W8 Laser - At a glance

- Laser class 1
- Background suppression
- Standard miniature housing with M3 threaded mounting holes
- Switching frequency up to 2 kHz
- Light/dark switching via rotary switch
- Mounting bracket BEF-W100-A is included with delivery

Your benefits

- Highly flexible design and operational capabilities due to precise background suppression
- Reliable detection of small objects, regardless of color or surface qualities
- Rapid switching frequency reliably detects objects travelling at high speeds which allows to optimize the production processes
- Highly visible laser light spot simplifies alignment
- All necessary accessories are included with delivery, reducing installation and procurement costs

→ **www.mysick.com/en/W8_Laser**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

W11-2 - At a glance

- Uniform housing, mounting and connection systems
- Rugged sensors for industrial use
- PinPoint LED technology provides highly visible light spot
- Space-saving plastic housing in chemically, thermally or mechanically resistant designs
- Dovetail mounting – mounting holes and oblong holes
- Highly visible 360° status LEDs

Your benefits

- Reliable object detection due to superior ASIC technology with a high immunity to ambient light
- PinPoint technology provides a bright, small and precise light spot that enables quick and easy sensor alignment
- Precise switching characteristics ensure high performance even in changing application conditions
- Highly visible 360° status LEDs provide quick and easy setup
- Compact and rugged housing design easily fits in tight spaces
- Uniform housing, mounting and connection systems simplify installation
- Versatile mounting options, including dovetail, side mounting and standard mounting holes enable quick installation

→ **www.mysick.com/en/W11-2**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

W14-2 - At a glance

- Outstanding background suppression with OES3 technology
- Highly visible and precise light spot due to PinPoint LED in selected products
- Slim, durable plastic housing
- Complete sensor family with proximity, retro-reflective and through-beam variants

Your benefits

- Reliable object detection at a cost-effective price
- PinPoint LED technology provides a highly visible red light that enables quick and easy setup
- Broad product range gives users a variety of choices to fit their application
- Rugged plastic housing in a slim design simplifies installation
- Quick and easy installation using SICK accessories saves time

→ **www.mysick.com/en/W14-2**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

W27-3 - At a glance

- Intense visible red emitter LED with consistent light spot for PinPoint versions
- Long sensing ranges with IR LED achieve up to 2500 mm
- Precise background suppression for detection of multi-colored objects
- Universal DC or DC/AC supply voltage
- Operating temperature: –40 °C – +60 °C
- IO-Link provides access to sensor information and optimizes operating processes

Your benefits

- Quick and easy commissioning due to a highly visible red PinPoint LED
- PinPoint technology can replace laser photoelectric proximity sensors in some applications. No laser safety regulations and a longer operating life due to PinPoint technology
- Resistant to ambient light, optical reflections, and crosstalk from other photoelectric devices
- Less contamination due to high operating reserves, reducing downtime
- Resistant to vibrations, reducing downtime
- Operation in harsh environments with temperatures as low as –40 °C

→ **www.mysick.com/en/W27-3**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

WFM - At a glance

- Highly visible red emitted light
- No setup, out-of-the-box operation
- 360° output indicator
- 5 fork sizes: maximum depth 120 mm, maximum width 180 mm
- Rugged, IP 67 aluminum housing

Your benefits

- Fixed housings guarantee a high level of operational safety with simple commissioning
- A visible red light enables easy alignment and fast adjustment
- The 360-degree yellow output indicator makes continual process control possible
- A wide range of different fork sizes increases installation flexibility
- The aluminum housing meets all requirements for use in harsh industrial conditions

→ **www.mysick.com/en/WFM**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

W27-3 Reflex Array - At a glance

- Minimum Detectable Object > 10 mm with a 40 mm detection area for the standard resolution variant
- Sensing range from 0 up to max. 3.5 m
- Minimum distance between sensor and reflector 0.5 m
- Intensive red light for easy alignment
- CTA automatically adjusts the switching threshold as contamination occurs over time

Your benefits

- Reliable detection regardless of target position within the array: detection height 50 mm (MDO: > 12 mm) or detection height 24 mm (MDO: > 5 mm)
- Less installation effort compared to light grids or multiple single-point photoelectric sensors
- PinPoint technology and optical alignment procedure enables simple and quick commissioning
- Continuous Threshold Adjustment (CTA) ensures less downtime

→ **www.mysick.com/en/W27-3_Reflex_Array**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

WLL180T with LL3-TS40 - At a glance

- Selectable response time up to 16 µs
- Sensing range up to 20 m, sensing distance up to 1400 mm
- Bus-compatible with anti-interference
- 2 x 4-digit display
- Adjustable hysteresis
- Rotatable display screen
- High-resolution signal processing
- Programmable time delays
- Detection of objects with various shapes
- Detection of objects whose position constantly changes, e.g., free-falling objects
- Front-edge detection

Your benefits

- Reliable, rapid process detection, even under the most difficult ambient conditions, such as dust, spray or mist
- Easy commissioning and product changeover due to external teach-in
- Cross-talk is eliminated when utilizing bus configuration option
- Quick, easy setup and adjustment due to an intuitive operating menu
- Flexible parameter adjustment due to high-resolution signal processing. Hysteresis and time delays can be adapted to suit the application, e.g., when detecting tiny or transparent objects
- Easy-to-read display, even under difficult installation conditions

→ **www.mysick.com/en/WLL180T**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

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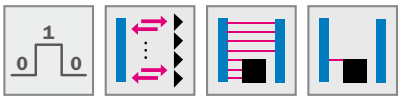


WLG - At a glance

- The direct output of individual beams for measuring and switching
- Response time 0.6 ms
- Eight visible transmission LEDs
- Eight PNP switching outputs and one alarm output
- Sensitivity can be set via a potentiometer
- Polarizing filter for reflective surfaces

Your benefits

- The WLG's fast response time keeps up with increased conveyor speeds, increasing throughput
- Detects translucent and semi-transparent objects for consistent detection of most objects
- Retro-reflective sensor saves space, installation time and cost
- Polarized retro-reflective light grids are designed to detect difficult reflective targets, such as stretch wrap and other thin films
- Visible red light reduces assembly time
- Multiple output versions indicate detection position and size of the object for closed loop process feedback and inspection

→ **www.mysick.com/en/WLG**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

HLG - At a glance

- 2 mm resolution
- Response time 3 ms
- Detection height 50 mm
- Cable synchronization
- PNP or NPN with both Q and Qnot outputs (NO/NC)
- 1 x test, 1 x teach-in input
- Connector M12, 8-pin

Your benefits

- Reliable object detection throughout the entire working range ensures consistent and reliable operation
- High availability thanks to its ability to detect very flat objects
- The HLG's short response time allows the use of higher conveyor speeds directly leading to higher throughput
- Cable synchronization provides more reliable use and higher machine uptime
- Highest measurement resolution provides smallest minimum detectable object size, for exact counting and true leading edge detection of conveyed objects, for more machine control and increased throughput

→ **www.mysick.com/en/HLG**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

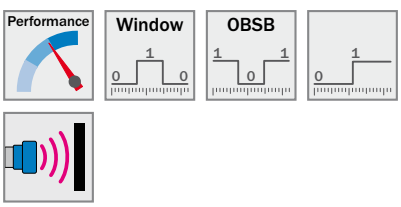
MLG - At a glance

- User-programmable and factory-preset versions available
- Sensing range up to 8.5 m
- Monitoring heights of over 3 m and up to 240 beams possible
- Resolutions of 10 / 20 / 30 / 50 mm and customer-specific resolutions possible
- External teach-in for optimal sensitivity settings
- Short response time < 3 ms
- Up to 6 PNP or NPN switching outputs and two switching inputs
- PROFIBUS, CANopen, analog outputs, RS-485

Your benefits

- MLGs are strong, high-power light grids for optically tough environments. They are incredibly flexible in their output programming to quickly make a customized solution from an off-the-shelf, easy-to-use sensor.
- Easy-to-see status information helps avoid interrupting operation, saves costs
- Different beam spacing options, detection heights and output configurations ensure a reliable solution
- Integrated PROFIBUS, CANopen bus systems, analog outputs and RS-485 interfaces reduce cabling time and costs
- A fully modular system guarantees the optimal solution for the customer
- Programmable beam analysis creates a custom output for a customer-specific application
- Integrated programming and outputs – no third box required, saves mounting time, space and cost

→ **www.mysick.com/en/MLG**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



UM30 - At a glance

- Integrated time-of-flight technology detects objects such as glass, liquids and transparent foils, independent of color
- Range up to 8,000 mm
- Display enables fast and flexible sensor adjustment
- Immune to dust, dirt and fog
- Available with combined analog and digital outputs
- Synchronization and multiplexing
- Adjustable sensitivity
- Three operation modes: Distance to Object (DtO), Window (Wnd) or Object between sensor and background (OBSB)

Your benefits

- Easy machine integration due to compact size
- Various setup options ensure flexible adaptation to applications
- Multiplex mode eliminates cross-talk interference for consistent and reliable detection and high measurement reliability
- Synchronization mode allows multiple sensors to work as one large sensor, providing a low-cost solution for area detection
- Display enables setup prior to installation, reducing on-site installation time
- Integrated temperature compensation and time-of-flight technology ensure high measurement accuracy
- OBSB-mode enables detection of any object between the sensor and a taught background

→ **www.mysick.com/en/UM30**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

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DFS60 - At a glance

- Compact installation depth
- High resolution up to 16 bits
- Optionally programmable: Output voltage, zero pulse position, zero pulse width and number of pulses
- Connection: Radial or axial cable outlet, M23 or M12 connector, axial or radial
- Electrical interfaces: 5V & 24V TTL/RS-422, 24 V HTL/push pull
- Mechanical interfaces: face mount or servo flange, blind or through hollow shaft
- Remote zero set possible

Your benefits

- Reduced storage costs and downtime due to programming by customer
- High variety of different mechanical and electrical interfaces enable the encoder to be optimally adapted to the installation situation for the specific application
- Excellent concentricity even at high speeds
- The high resolution of up to 16 bits makes applications with high measuring accuracy requirements possible
- Permanent and safe operation due to high enclosure rating, temperature resistance and bearing lifetime
- Programmability via the PGT-08 programming software and the PGT-10-S display programming tool allow the encoder to be adapted flexibly and quickly to customer needs.
- Programmable zero pulse position simplifies installation

→ **www.mysick.com/en/DFS60**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

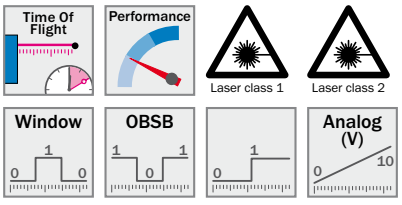
DFV60 measuring wheel encoder - At a glance

- For universal use, rotatable spring arm
- 300 mm wheel circumference with o-ring made from NBR70
- Mounting arm and measurement wheels made from aluminum
- Programmable Output voltage, zero pulse position, zero pulse width and number of pulses.
- Connection: Radial M12 connector outlet or radial/axial cable outlet
- Electrical interfaces: 5V & 24V TTL/RS-422, 24 V HTL/push pull
- Remote zero setting possible

Your benefits

- Universal-use spring arm for fast and simple mounting
- The high level of spring tension enables use in applications with harsh environmental conditions
- Reduced storage costs and downtime due to programmability
- connector-in cable outlet in radial or axial direction enables customer-specific cable solutions
- Excellent concentricity even at high speeds
- Permanent and safe operation due to high enclosure rating, temperature resistance and bearing lifetime
- Programmability via PGT-08 programming software and the PGT-10-S display programming tool enable the encoder to be adapted flexibly and quickly to customer needs.
- Programmable zero pulse position simplifies installation

→ **www.mysick.com/en/DFV60_measuring_wheel_encoder**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



CDRH
IO-Link

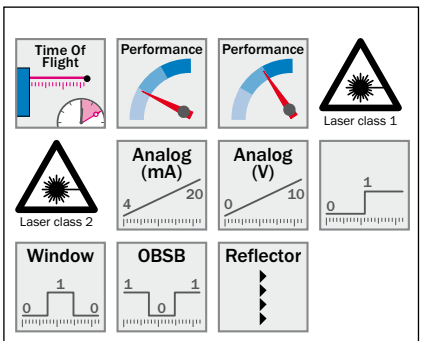
Dx35 - At a glance

- HDDM technology provides the best reliability, safety to ambient light and price/performance ratio
- Measuring range: 50 mm ... 5.000 mm to 50 mm ... 12.000 mm dependent on the selected response time
- Response time: 1.5 ms ... 333 ms
- Accuracy: ± 10 mm
- Repeatability: 0.5 mm ... 5 mm
- Reduced housing size
- Laser class 1 and 2 available
- IO-Link as well as analog and switching output

Your benefits

- Reduced housing size and blind zone allow use in confined spaces
- Consistent, reliable and precise measurement even when measuring on extremely shiny or dark objects
- Ideal solution for any application requirement, by choosing speed and range individually
- Three switching modes allow to solve demanding applications easily with one discrete output
- Anti cross talk algorithm assures reliable use of several sensors at the same time
- Simple teach in concept ensure fast and easy commissioning
- IO-Link allows highest machine flexibility and offers easy machine operation
- Low investment costs and high performance guarantee quick return on investment

→ **www.mysick.com/en/Dx35**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



CDRH RS-422

Dx50 - At a glance

- HDDM technology offers best reliability, immunity to ambient light and price/performance ratio
- Measurement ranges of 10 or 20 m directly onto the object or even 50 m on reflector
- Different performance levels depending on product and laser class chosen
- Different interfaces: switching, analog or serial interface
- Display with intuitive and consistent operating concept
- Robust die-cast zinc metal housing
- Operating temperature from –30 °C to +65 °C

Your benefits

- Wide measurement ranges up to 10, 20 or 50 m in combination with different interfaces allow an easy and fast integration in any production environment
- Highly reliable and precise measurement helps to increase process quality and stability
- High measurement or switching frequencies enable a fast material flow
- Dx50 product family is based on a common platform, offering multiple performance levels, making it easy to accommodate future changes
- Intuitive setup via display or remote teach reduces installation time and costs
- Up to 40 klx ambient light immunity – allows for use in optically challenging environments
- Low to reasonable investment costs and high to very high performance levels ensure short return on investment

→ **www.mysick.com/en/Dx50**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

LMS4xx - At a glance

- The Level Control feature, which is integrated into the sensor, features a gap-free scanning surface that can detect objects in containers, without any impairment from a shadow. Smaller objects, regardless of color, are detected at any place in the container.
- Large dynamic measurement range of 0.7 m to 3 m
- High ambient light immunity
- Rugged design
- High angular resolution
- Ideal for vision applications on pallets

Your benefits

- The integrated Level Control feature replaces a number of sensors and drastically reduces the effort required for wiring and programming
- Reliable detection at high conveyor speeds
- Neither shading nor artificial lighting is necessary
- Simple, flexible installation at positions beyond the robot collision area
- High accuracy detection and positioning measurements in real-time provide rapid data capture

→ **www.mysick.com/en/LMS4xx**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

Inspector - At a glance

- High-speed part inspection
- Robust pattern match to locate part independent of position, rotation and scale
- Multi-reference object teaching and multi-feature inspections
- Unique, homogeneous dome illumination or high power ring light
- Easy-to-use step-by-step configuration in PC including emulator
- Log, statistics and record
- Industrial Ethernet
- Large selection of adjustments and accessories

Your benefits

- The high-speed part inspection ensures you quality assurance without production overhead
- The robust pattern match algorithm guarantees high quality result even at your toughest production conditions
- The unique, homogenous dome illumination performs perfect result even for glossy objects which give you a compact solution
- The included Industrial Ethernet for configuring and monitoring over network will reduce installation complexity and enhance flexibility in the production line
- The large selection of adjustments and accessories makes the Inspector the excellent choice for your production plant with needs for a variety of application tasks

→ **www.mysick.com/en/Inspector**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

IVC-3D - At a glance

- Easy 3D measurement – provides information about object height, shape and volume
- Independent of contrast and color
- Factory calibrated – instantly providing true metric dimensions at production speed
- Easy-to-use graphical user interface for fast application development
- Stand-alone operation, no PC needed after configuration
- Simple interfacing with PLCs, robots and control systems that support Ethernet/IP or OPC
- Scans up to 5,000 profiles per second
- Industrial metal housing

Your benefits

- The IVC-3D makes advanced 3D shape inspections easy, enabling cost-efficient solutions
- Contrast-independent measurement provides greater reliability even at varying object color and when the object color is the same as the background
- Factory calibrated – instantly providing true metric dimensions at production speed
- Self-contained, including all required lighting and analysis software, reducing complexity and cost
- The IVC Studio user interface is easy-to-use and ensures fast application development, saving time and reducing costs
- The camera's OPC server and EtherNet/IP interface enables simple communication with PLCs, robots and control systems, making integration easy

→ **www.mysick.com/en/IVC-3D**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

Ruler - At a glance

- Factory calibrated 3D in millimeters at full production speed
- Contrast and color independent measurements
- High accuracy 3D for measurement widths from 100 mm up to 1.5 m
- Capture 3D, gray scale, and scatter at the same time
- Easy to integrate without need for external lights
- Robust IP 65 housing and operates in temperatures down to –30 °C for tough environments
- Remote operation over long cable distances with Gigabit Ethernet

Your benefits

- High-speed measurement allows you to increase production throughput and still ensure product quality
- Accurate size and position measurement in 3D, regardless of an object's height or color, creating robust solutions
- Simultaneously capturing 3D, scatter, and gray scale, allows for more reliable quality control and inspection
- Factory calibrated 3D with built-in lighting instantly provides results in millimeters, which makes integration easy
- Designed for tough industrial environments to ensure a long and problem-free life time
- With the freedom to select analysis tools, PC performance, and the ability to combine data from several cameras, you can adapt the solution cost and performance to your exact needs

→ **www.mysick.com/en/Ruler**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

CE MID 2004/22/EC OIML

VMS410/510 - At a glance

- Measures length, width and height of an object
- Calculation of the smallest rectangular box that fully encloses the object (box volume)
- Optimized application software
- All measuring functions are built in the measuring head, no additional evaluation unit is required

Your benefits

- Simple mounting saves time on installation, commissioning, and provides flexibility for different application environments
- Compact design ensures easy integration into new and existing systems
- Low-maintenance system (short MTTR through plug & play unit exchange)
- Tested and certified to OIML, MID and further standards

→ **www.mysick.com/en/VMS410_510**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

CE MID 2004/22/EC OIML

VMS420/520 - At a glance

- Measurement of length, width and height of any shaped object
- Calculation of the smallest rectangular box that fully encloses the object (box volume)
- Calculation of real volume
- Optimized application software
- All measuring functions are built in the measuring head, no additional evaluation unit is required

Your benefits

- Simple mounting saves time on installation, commissioning, and provides flexibility for different application environments
- Compact design ensures easy integration into new and existing systems
- Low-maintenance system (short MTTR through plug & play unit exchange)
- Tested and certified to OIML, MID and further standards

→ **www.mysick.com/en/VMS420_520**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

IDM160 - At a glance

- Identification of all popular 1D codes, with PDF version also stacked codes
- Reading distance up to 800 mm (at 0.5 mm)
- Identification of standard and high-density codes (0.076 mm)
- High throughput with up to 500 scans/sec.
- Compact housing with up to IP 65 withstanding 50 drops from 2 m on concrete
- Good read feedback via LED, beeper and vibrator
- Supports all popular corded and cordless interfaces as well as industrial fieldbuses via SICK connectivity
- Tool-free exchange of cable and battery
- Corded and cordless versions available

Your benefits

- Increased productivity and throughput thanks to fast and reliable identification
- Reduced costs thanks to 2-in-1 scan engine: covering standard and high-density codes with a single device
- High reliability thanks to industrial grade and rugged housing
- Easy to use through long range and immediate reading
- Intuitive good read feedback for noisy industrial environment via vibration, beeper and LED
- Higher user comfort through ergonomic housing design, well balanced and light weight
- High flexibility and operator mobility with corded and cordless versions
- Quick integration in most corded and cordless PC or industrial networks

→ **www.mysick.com/en/IDM160**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

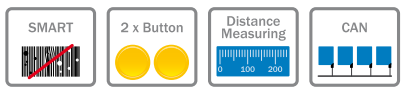
CLV49x - At a glance

- Real-time auto focus function
- Different versions ensure coverage for a variety of module widths
- Label tilt from –45° to +45°
- Smallest housing with auto focus and reading range up to 2.2 m
- External parameter cloning plug
- An oscillating mirror scanner is also available to cover larger reading areas
- Optional internal heater
- High scanning frequency of up to 1,200 Hz

Your benefits

- No supplementary components necessary for changing focus position, reducing costs
- Real-time auto focus provides the best coverage of applications with a large depth of field – even for small code heights
- External parameter cloning plug ensures very short MTTR
- SMART-enhanced read rates enable better performance with damaged or poorly printed codes

→ **www.mysick.com/en/CLV49x**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



CLV69x - At a glance

- Enhanced SMART decoder technology
- New and flexible cloning plug technology
- CAN, Ethernet and serial communications available on board (dependent on cloning plug variant)
- Large depth of field due to real-time auto focus
- Advanced, easy-to-use SOPAS configuration software
- Integrated encoder tracking for up to 7 devices without an external controller
- Flexible sorting, filtering, and logical functions
- Integrated LED bar graph with push-buttons

Your benefits

- Enhanced SMART technology reads damaged and partially obscured codes – increases read rates
- Increased processing allows for faster and more accurate performance on demanding applications
- No supplementary Ethernet gateway required when using Ethernet cloning plug – reducing costs
- Time savings during commissioning thanks to integrated buttons and bar graph
- Increased scanner intelligence enables sophisticated configuration of logical operations, reducing the control system programming effort. Data is delivered in the desired format
- Economical, multi-sided scanning can be performed without an additional system controller
- Accurate reading and bar code assignment due to auto focus distance measurement

→ **www.mysick.com/en/CLV69x**
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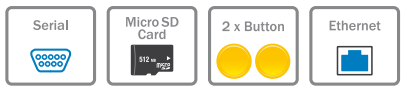


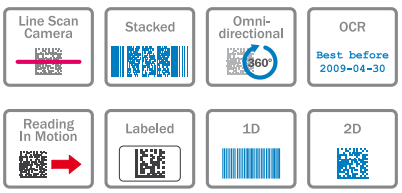
RFH62x - At a glance

- 13.56 MHz short range RFID interrogator
- Compact, industrial design with integrated antenna
- Suitable for all standard fieldbus and networks
- Application-specific modes: command, stand-alone and continuous
- Uses SICK SOPAS operating software
- Wide range of diagnostic functions
- Supports SICK cloning functionality via CMC600 or a SD Micro card

Your benefits

- Reliable identification ensures maximum throughput
- Adapts to changing needs, ensures investment over the long term
- Simple integration, saves installation time
- A wide range of functionality ensures a flexible solution
- Maintenance-free
- Compatible SICK connector technology

→ **www.mysick.com/en/RFH62x**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



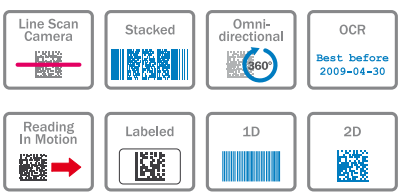
ICR88x - At a glance

- High-end camera system; optimized for short reading distances
- Highest level of integration – all decoders onboard
- Highest level of reliability – no external PCs needed
- 1D and 2D codes supported
- Parameter cloning for all components
- High line rate of 19 kHz for high-resolution images (> 200 dpi)
- Integration of laser scanners and dimension systems possible
- Industrial design for highest reliability

Your benefits

- Compact design without deflection mirrors; easy to install
- Increased read rates due to high-resolution images and powerful decoders
- Possibility of image-output for tracking and analysis
- “One-component-solution” instead of multiple matrix camera arrays
- Maintenance-free system design
- Reduced energy consumption due to reduced lighting and integrated decoder
- Easy configuration with SOPAS engineering tool
- High reliability (80,000 h MTBF); short MTTR (10 min)

→ **www.mysick.com/en/ICR88x**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



ICR89x - At a glance

- Large reading field for conveyor coverage up to 1,300 mm
- High-end CCD sensor (8,192 pixel)
- Integrated, real-time focus control
- Integrated high-performance decoder board
- Integrated digital zoom function
- OCR compatible picture quality
- Online status monitoring of all system components
- Constant resolution over the entire DOF

Your benefits

- Fast and reliable identification of poorly printed codes, optimizes read rates
- Easy configuration with SOPAS software minimizes installation and maintenance efforts
- Real-time performance monitoring and analysis using SICK visualization platform SVP
- Modular design ensures a short mean time to repair (MTTR under 10 min)
- High reliability (80,000 h MTBF) ensures a long lifetime
- Low cost of ownership
- Maintenance-free, no cyclic calibrations
- Simple component exchange via a quick-action lock system

→ **www.mysick.com/en/ICR89x**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

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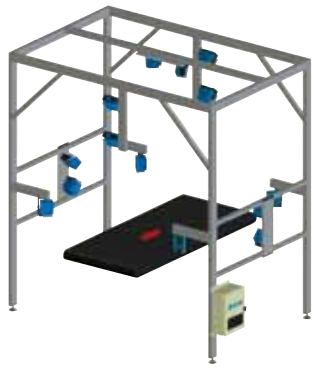


OPS Customized - At a glance

- Excellent performance
- Real-time auto focus function – no additional components needed for detection of object distances
- Use of SICK high-end scanners
- Cloning modules store the configuration parameters for each scanner and quick release brackets precisely maintain scanner alignment
- Variety of bus connection modules can be integrated

Your benefits

- Modular design permits individual adaptation to your application
- High level of operational reliability
- Highly cost-effective

→ **www.mysick.com/en/OPS_Customized**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

ICR89x System - At a glance

- Large reading field for conveyor coverage up to 1,300 mm
- High-end CCD sensor (8,192 pixel)
- Integrated real-time focus control
- Integrated high performance decoder board
- OCR compatible picture quality
- Online status monitoring of all system components
- Scalable solutions based on MSC800 network controller
- Integration of dimensioning systems and scales possible

Your benefits

- Fast and reliable identification of poorly printed codes, optimizes read rates
- Easy configuration with SOPAS software minimizes installation and maintenance efforts
- Real-time performance monitoring and analysis using SICK visualization platform SVP
- Modular design ensures a short mean time to repair (MTTR under 10 min)
- High reliability (80,000 h MTBF) ensures a long lifetime
- Low cost of ownership
- Maintenance-free, no cyclic calibrations
- Simple component exchange via a quick-action lock system

→ **www.mysick.com/en/ICR89x**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

DWS Static - At a glance

- Dimensioning, weighing and bar code information with the push of a button
- Complete solution with integrated frame and roller conveyor
- Commissioning within a few minutes
- Legal-for-trade certified (according to OIML, MID and NAWI)
- Special versions for irregular and oversized objects available

Your benefits

- Economic alternative to expensive fully-automatic DWS systems
- Automated invoicing of freight charges using legal-for-trade weight and volume data (revenue recovery)
- Several freely programmable host interfaces can be used to generate additional data for sorting parcels

→ **www.mysick.com/en/DWS_Static**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

DWS Dynamic - At a glance

- Legal-for-trade capture of volume and weight data with integrated code reading
- Flexible system design individually adapted for your application
- Highest measurement accuracy – even in rough industrial environments
- Extremely high read rates in combination with proven reliability
- Full integration in existing conveyor systems without reduction of throughput

Your benefits

- Automated invoicing of freight charges using legal-for-trade weight and volume data (revenue recovery)
- Highest read rates in combination with proven product reliability lead to the shortest return on investment period on the market
- Several freely programmable host interfaces can be used to generate additional data for sorting parcels

→ **www.mysick.com/en/DWS_Dynamic**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

IDL - At a glance

- Detection and counting of items of heights down to 2 mm
- Accurate measurement of item position on belt or tray
- Doubles detection including side-by-side, product spacing (too close), touching and piggy-back conditions
- Pre-calibrated measurement head in IP 65 housing
- Full-range item characteristics in 3D in up to 3 m/s
- Classify items by height measurement

Your benefits

- Sorting center throughput is maximized
- Position measurement enables additional sort destinations with existing sort footprint
- Minimized recirculation results in reduced package handling and minimized costs for damage
- Handling costs are decreased due to decreased missorts
- Classification of items into correct price category
- Easy and inexpensive integration by simple installation over-the-belt and easy connection to sorter protocols

➜ **www.mysick.com/en/IDL**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

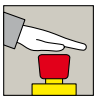
MCL - At a glance

- Vision-based system for sorter inspections
- On-demand inspection of sorter cart components
- Non-intrusive: Inspections take place during sorting activity
- Inspects at full sorter speed
- Resolution of sorter cart height position < 0.1 mm
- Pre-configured software for the inspections
- Maintenance report format: CSV and Excel

Your benefits

- Increase sorter availability: Automated maintenance inspections performed during normal sorting activity, no need to stop sorter for an inspection
- Decrease costly emergency stops: Easy detection of sorter cart problems, Preventive maintenance can take place before major problems occur, Minimize number of uncontrolled production stops
- Decrease missorts: Correct shape of tilt wheels prevent risk of missort due to incorrect off-loading
- Minimize fire hazards in a greasy environment: Correct sorter cart height ensures no sparks are generated due to contact between sorter cart and linear motors, Correct wheel shapes minimize risk of overheated wheels
- Minimize power consumption of sorter: Correct height position of sorter carts ensures minimum power consumption of sorter line
- Easy to generate, on-demand maintenance report

➜ **www.mysick.com/en/MCL**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



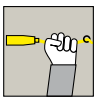
ES21 - At a glance

- Either as surface-mounted version with housing or as built-in version (Ø 22 mm)
- Built-in version for machine control panels with self-monitoring contacts between the pushbutton and switching element
- Surface-mounted version for direct mounting on different machines and systems
- Rotational or key unlocking
- Variants with LED ring lighting
- Optionally, with protective collar to prevent inadvertent actuation
- Screw connection in all variants

Your benefits

- Greater safety in built-in devices due to self-monitoring contacts
- Greater availability due to variants with a protective collar
- User-friendly status indicator by colored mark or LED ring lighting around the pushbutton
- Successful down to the last detail: award-winning and appealing design

→ **www.mysick.com/en/ES21**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



i110RP - At a glance

- Rope lengths up to 30 m, with rope break and rope pull function
- Standardized metal housing with position display and rotary unlocking lever
- 1 cable entry gland M20 x 1.5
- Slow action switching elements with four contacts

Your benefits

- The emergency stop function can be triggered at any point along the rope
- Simple adjustment of the rope tension
- Robust metal housing offers a high standard of protection for the rope pull switch
- Customer-friendly complete sets for any available rope length
- Extended diagnostics by 3rd and 4th contact

→ **www.mysick.com/en/i110RP**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

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i110 Lock - At a glance

- Narrow plastic housing
- Actuator head made from metal
- Either rigid or mobile actuators
- 3 cable entry glands M20 x 1.5
- Locked by spring force and magnetic force
- Locking and door monitoring

Your benefits

- Simple mounting without additional mounting plate – directly on the aluminum profile of the guard door frame
- Flexible electrical connection options due to three cable entry glands
- Improved diagnostics due to additional contacts for door monitoring
- Practical adjustment: With choice of actuators – suitable for any door
- Different switching elements enable the appropriate solution for electrical installation
- Reliable function of the switch due to robust metal actuator head, even when the protective device has a mechanical offset

→ **www.mysick.com/en/i110_Lock**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

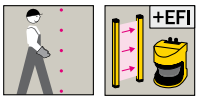
S300 Mini Standard - At a glance

- Very compact design
- Triple field sets (1 protective field and 2 warning fields)
- 1 field set
- 1 monitoring case
- 270° scan angle
- 2 m protective field range
- Easy to operate
- Vertical and horizontal protection

Your benefits

- Simple integration thanks to very compact design
- Reduction of downtimes and brake wear thanks to triple field function
- Unbeatable cost-effectiveness – 270° scan angle allows all-round protection with only two scanners
- Flexible safety solution for individual application adjustment
- Easy to manage, reducing costs and work time

→ **www.mysick.com/en/S300_Mini_Standard**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



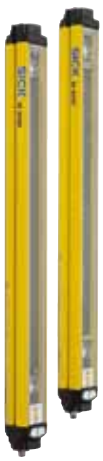
C4000 Palletizer - At a glance

- Type 4 (IEC 61496), PL e (EN ISO 13849)
- Muting alternative
- Self-teaching, dynamic blanking detects good and pallets
- Direction recognition
- Beam coding
- Reduced resolution
- Object gap suppression
- Multiple sampling

Your benefits

- Cost-effective: No additional muting sensors or protective measures are required.
- A compact sensor pair reduces the mounting requirements considerably – additional muting sensors are not required
- With the dynamic and self-teaching blanking function, the system can reliably differentiate between people and material – this provides maximum safety
- The assorted feasibility of pallets allows the passage of mesh boxes, Euro pallets and half pallets, increasing plant availability
- Saves storage space: pallets can be parked permanently in the protective field
- One system monitors several conveyor belts, reducing sensor costs
- Quick commissioning: Euro pallets, mesh boxes etc. are detected without any programming

→ **www.mysick.com/en/C4000_Palletizer**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



M4000 - At a glance

- Type 4 (IEC 61496), PL e (EN ISO 13849)
- Wide scanning range up to 70 m
- External device monitoring (EDM), restart interlock (RES) and application diagnostic output (ADO)
- Robust housing with three mounting grooves
- Simple device configuration and quick diagnostics
- Approved 7-segment display for diagnostics
- Laser alignment aid and LED optional integrated
- Active/passive variants for minimized wiring costs

Your benefits

- Wide scanning range spectrum provides standardizing one device for the relevant applications
- High level of resistance and robust design for high machine availability, even under special ambient conditions
- Mounting grooves on three housing sides ensure more flexibility during mounting and facilitate integration into the machine
- Customer-friendly interfaces and status display facilitate commissioning and maintenance
- Advanced variant: For 2- and 4-sensor muting, the on-site connection of the muting signals significantly minimizes wiring costs and simplifies commissioning and maintenance
- Economical active/passive variants minimize the wiring costs and required installation

→ **www.mysick.com/en/M4000**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

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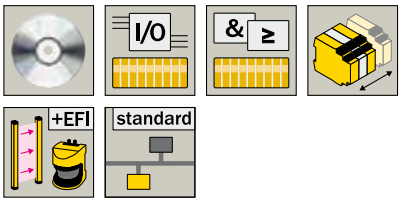


Flexi Soft - At a glance

- Modularly expandable (12 ... 144 inputs/outputs)
- Intuitive configuration software: easy operation, simulation mode, wiring diagrams, freely downloadable
- Configuration memory in the system plug
- Safely link up to four Flexi Soft safety controllers via EFI
- Integration into all common fieldbus systems
- Enhanced sensor functionalities via EFI interface
- 38 TÜV certified function blocks

Your benefits

- Prevention of redundant inputs and outputs saves money
- Fast commissioning via a system plug that saves and stores system configurations
- Less downtimes due to gateways, e.g., PROFInet I/O, PROFIBUS-DP, EtherCAT, CANopen, Modbus TCP, Ethernet (TCP/IP)
- Safe communication without additional hardware saves time, space and money
- Standard RS-232 diagnosis via the main module enables real-time diagnostics for quick commissioning, faster troubleshooting and reduced downtime
- Fast electronic installation via complete wiring diagram
- Simulation mode allows a user to verify the safety functions before installation
- Fast hardware selection by drag and drop from a list of simple to understand element icons

→ **www.mysick.com/en/Flexi_Soft**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

LMC1xx - At a glance

- The only VdS-certified laser scanner on the market (German certificate standard)
- Highest class “C” with environmental class II or IVa
- Flexible connection to DC 9 V to 30 V
- Two isolated relays (alarms) and one obstruction output
- Long detection range of 20 m, horizontal and vertical
- Up to 10 freely definable monitoring fields with intelligent evaluation algorithms
- Certified QuickStart menu
- 200 RAL colors available

Your benefits

- VdS certification for proven and reliable system acceptance by insurance companies (German certificate standard)
- High angular resolution provides a secure solution that improves reliability
- Secure, reliable detection with few false alarms due to precise field configuration of the detection area
- Small size provides unobtrusive solution
- Intelligent evaluation provides maximum application flexibility
- Easy integration into existing alarm management systems
- Low maintenance due to high immunity against environmental influences
- Cost-effective retrofitting due to low installation and wiring costs

→ **www.mysick.com/en/LMC1xx**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

LMS5xx - At a glance

- Powerful and efficient laser measurement sensor for ranges of up to 80 m
- Outstanding performance in adverse environmental conditions due to multi-echo technology
- IP 67 enclosure rating, built-in heater, highly compact design
- Low power consumption
- Fast signal processing
- Multiple I/Os
- Synchronization of multiple sensors possible

Your benefits

- Superior performance in a vast range of applications
- Smallest sensor with highest accuracy in its class
- Comprehensive range of lines and models to suit all performance and price requirements
- Fast, reliable object detection in nearly any weather conditions
- Low power consumption reduces total cost of ownership
- Best price/performance ratio in this sensor class on the market
- Fast, easy commissioning due to SOPAS software
- Self-monitoring functions increase system availability

→ **www.mysick.com/en/LMS5xx**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

LD-LRS - At a glance

- Long range, even when detecting dark objects
- High angular resolution
- High ambient light immunity
- Small light spot diameter
- Up to 4 fields can be programmed

Your benefits

- Optimum installation position on diggers and cranes due to a long scanning range
- High level of reliability, even in poor environmental conditions
- Low installation costs due to large monitoring areas
- Small objects can be reliably detected at long ranges

→ **www.mysick.com/en/LD-LRS**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

IP 69K

LD-MRS - At a glance

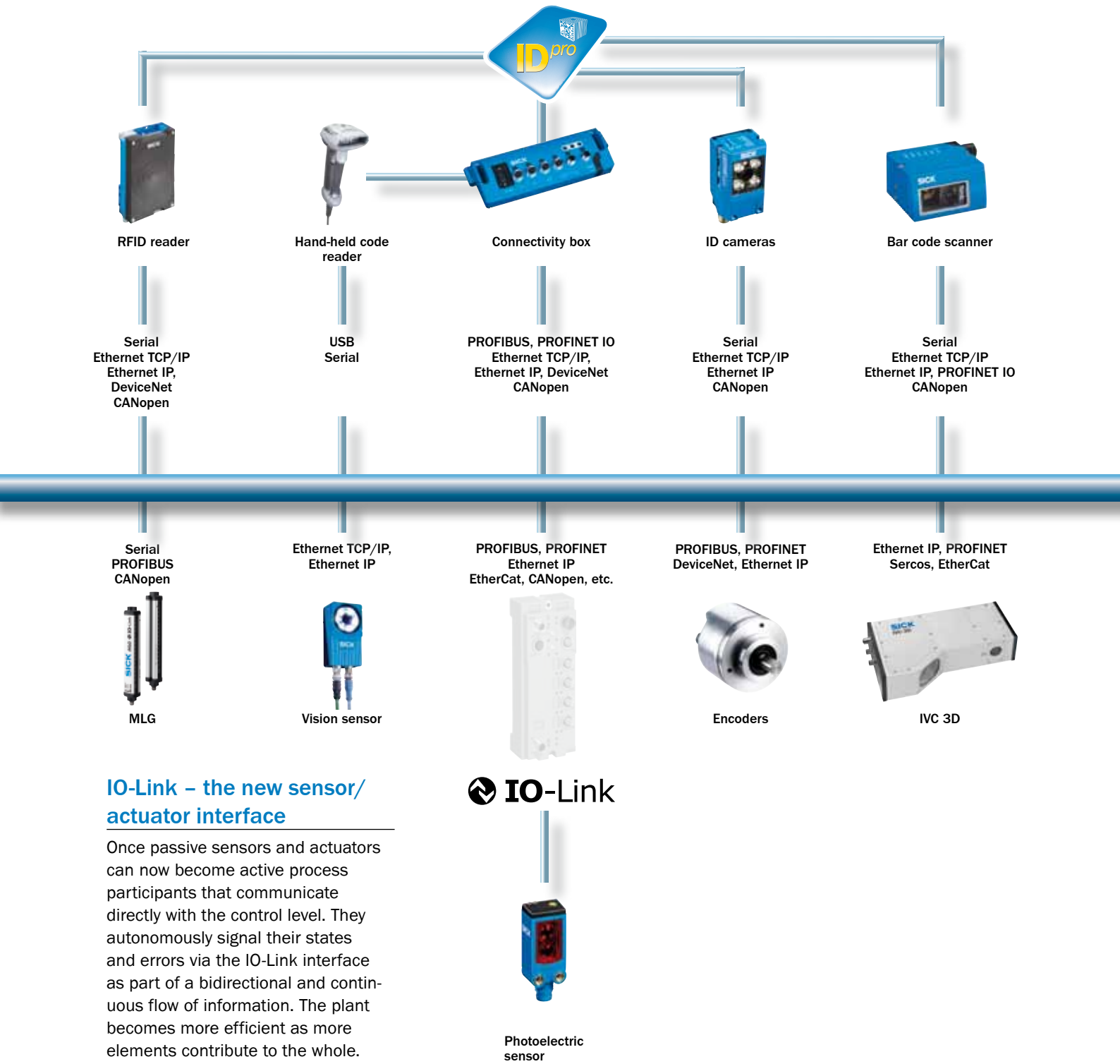
- Simultaneous measurement on 4 layers
- Excellent outdoor capabilities with multipulse technology
- Compact and lightweight design. Volume is less than 1 liter, weight is approximately 1 kg
- Wide temperature range with low power consumption: –40 °C to +70 °C at 8 W
- Operation possible even with supply voltages from 9 V DC

Your benefits

- 4-layer laser scanner technology provides reliable, trouble-free detection of objects, even on a slope
- Easy sensor integration due to compact design
- Lower power consumption reduces costs
- Real-time output of measurement data
- IP 69K-rated housing provides accurate measurements in all weather conditions

→ **www.mysick.com/en/LD-MRS**
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

SICK sensor systems: Powerful, flexible and open for all system environments.



IO-Link – the new sensor/ actuator interface

Once passive sensors and actuators can now become active process participants that communicate directly with the control level. They autonomously signal their states and errors via the IO-Link interface as part of a bidirectional and continuous flow of information. The plant becomes more efficient as more elements contribute to the whole.

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RFID reader

Volume measurement system VMS4xx/5xx

Camera systems ICR880/ICR890

Laser based bar code scanner CLV650/CLV490

Weighing data

Encoder, trigger

Light grids, height light barriers

Systemcontroller MSC800

Ethernet, PROFIBUS-DP, RS 422/RS 485,v1 Gbit/s Ethernet, OCR, video coding, archiving

Products from the industrial sensors, industrial safety systems and automatic identification divisions can be used on almost all system platforms. The potential for integration in the controller technology, based on standards valid worldwide, make every solution an investment with a secured future.

- PROFIBUS, PROFIsafe
- PROFINET
- EtherCAT
- Ethernet/IP
- CANopen
- DeviceNet
- Ethernet
- and more

PROFIBUS
Ethernet TCP/IP
Ethernet IP
PROFINET

Flexi Soft

PROFINET PROFIsafe
PROFIBUS PROFIsafe
PROFINET IO
CANopen
Ethernet TCP/IP

EFI gateways

PROFINET

S3000 PROFINET IO

Safety rope pull switches

Safety locking device

Emergency-stop pushbutton

Safety light curtain

Safety laser scanner

Simple integration into your automation world

Our intelligent sensor solutions and safety controllers make available different integration technologies that allow easy access – from HMI, PLC, and Engineering Tools – to data from our sensors. In this way, we support you towards solving your application rapidly and easily and increase machine availability with a continuous diagnostic concept.

Industrial communication

SICK's fieldbus and network solutions allow sensors and safety controllers from SICK to be connected to all common automation systems. This guarantees simple and fast access to all available data and information.

PLC and Engineering Tool integration

Whether the issue is generic integration using device description files, standardized interfaces (e. g. TCI, FDT/DTM) for diagnosis or integration into the PLC program via function blocks – the user-friendly tools from SICK support you in implementation.

HMI integration

SICK offers a wide range of means to integrate process, status, and diagnostic data from SICK sensors into a visualization system. Tools such as OPC servers, web servers, or SCL allow simple and fast integration into your individual HMI solution – independent of the technology used.

Software and tools

Our software tools support you in establishing connections, parameterizing and diagnosing sensors and safety controllers from SICK. The intuitive user interface permits simple and fast designing and realization of the application required.

www.sick.com/industrial-communication

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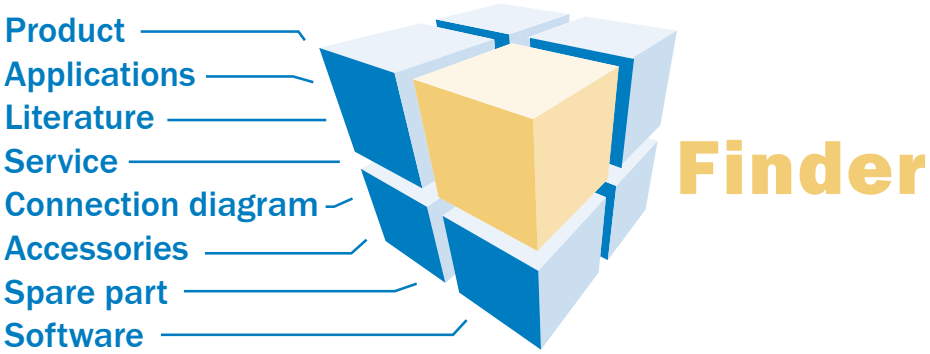
Search online quickly and safely with the SICK „Finders“



Product Finder: We can help you to quickly target the product that best matches your application.

Applications Finder: Select the application description on the basis of the challenge posed, industrial sector, or product group.

Literature Finder: Go directly to the operating instructions, technical information, and other literature on all aspects of SICK products.

These and other Finders at www.mysick.com

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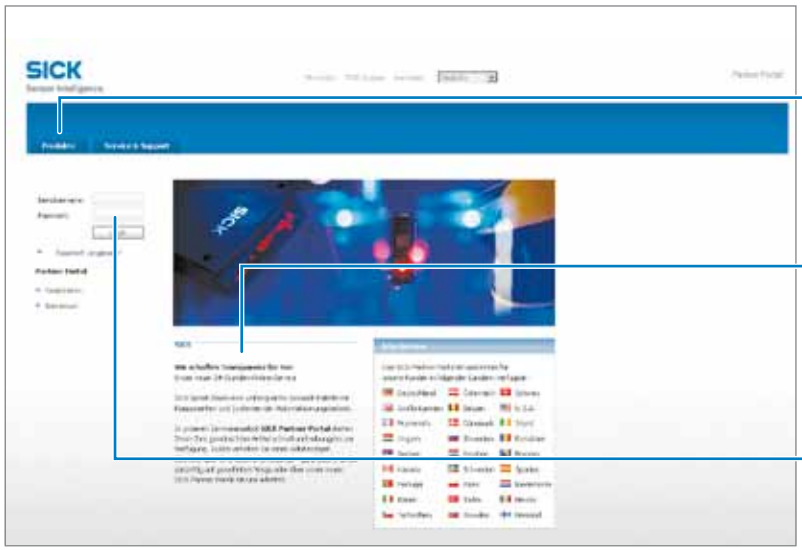

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Available 24 hours a day: Regardless of where you are in the world or what you would like to know – everything is just a click away at www.mysick.com.

Safe: Your data is password-protected and only visible to you. With the individual user management, you define who can see what data and who can execute what actions.

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Determine the price and possible delivery date of your desired product simply and quickly at any time.

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Every quote is confirmed to you via e-mail.

Order online
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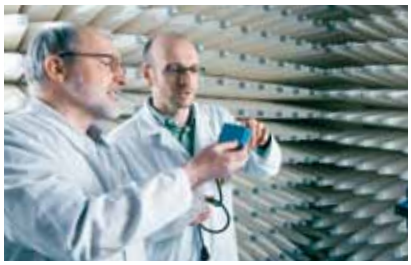
SICK at a glance



Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.

Unique product range

- Non-contact detecting, counting, classifying, positioning and measuring of any type of object or media
- Accident and operator protection with sensors, safety software and services
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids

Comprehensive services

- SICK LifeTime Services – for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under real-world conditions
- E-Business Partner Portal www.mysick.com – price and availability of products, requests for quotation and online orders

Worldwide presence with subsidiaries in the following countries:

Australia
Belgium/Luxembourg
Brasil
Ceská Republika
Canada
China
Danmark
Deutschland
España
France
Great Britain
India
Israel
Italia
Japan
México
Nederland
Norge
Österreich
Polska
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Russia
Schweiz
Singapore
Slovenija
South Africa
South Korea
Suomi
Sverige
Taiwan
Türkiye
United Arab Emirates
USA

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Sensor Intelligence.