SICKinnovations

INNOVATIONS MAGAZINE

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Innovations, application reports,
technologies, and more
➜ blog.sick.com

THE RIGHT SOLUTIONS FOR MORE FLEXIBILITY AND EFFICIENCY

Many paths, one goal: "Sensor Intelligence." epitomizes our clear focus on sensor technology as a data provider for the intelligent factory, thus making it the most fundamental module for providing the highest possible levels of transparency in the supply chain. With our broad product and solution portfolio, we make sure that you are able to capture the necessary data reliably, evaluate it intelligently, and employ it purposefully for your application:

- To produce higher-quality goods in a more efficient and flexible way while saving resources
- To enable better traceability of goods
- To implement innovative safety concepts

In the context of Industry 4.0, sensors that communicate not just at controller level but also at the higher data level are needed. Our sensors can already do both: They send data reliably to the PLC, but also to higher-level data and software systems. This ensures that this proven technology can continue to be used going forward but you can take advantage of the additional benefits on a gradual basis.

In this issue of SICKinnovations, we present products, systems, and services which already provide the right solutions for your latest challenges.

For us, innovation means creating something new or improving something that already exists and, in doing so, making you as our customers even stronger. The starting point for this is always our products – high-quality and tailored to your requirements. We would like to present you our most current products on the following pages.
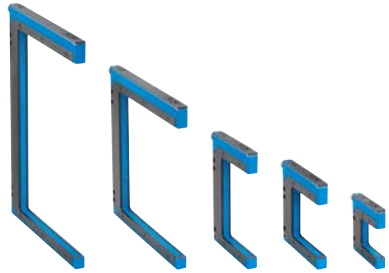
SICKinnovations

PRODUCT INNOVATIONS: START BENEFITTING FROM THE ADVANTAGES OF INTELLIGENT SENSORS TODAY WITH SICK

SIMPLICITY FOR OUTSTANDING PERFORMANCE

Product description

The WFE is a rugged fork sensor that is simple and easy to mount. Thanks to its reliability and accurate detection, it is suitable for a large number of applications. The WFE can precisely detect objects up to a size of 0.5 mm with a high switching frequency of 5 kHz. The sensitivity adjustment, a push-pull output, and the ability to select between light and dark switching make it flexible and convenient to use. The WFE is enclosed in a rugged hybrid housing (IP67) made from ABS plastic with a carbon steel frame and performs reliably even in harsh environments. 5 different fork widths and several different types of connector are available. The WFE is therefore well and truly an all-in-one fork sensor solution.

At a glance

- Sender and receiver in a single housing
- 5 different fork widths from 30 mm to max. 180 mm
- High switching frequency of 5 kHz
- Minimum detectable object (MDO) of 0.5 mm
- Durable hybrid housing made from ABS with carbon steel frame
- Sensitivity adjustment
- Light/dark switching
- Push-pull output

Your benefits

- Very rugged and durable ABS housing with carbon steel frame and IP67 enclosure rating
- Quick and easy mounting since the sender and receiver are pre-aligned within the same housing
- Large selection of fork widths for different application requirements
- Practical and versatile thanks to an intuitive sensitivity adjustment, push-pull output, and light/dark switching
- High switching frequency and fine resolution guarantees reliable detection even at high speeds

➜ **www.sick.com/WFE**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

MINI, EASY, SPEEDY, ROBUST

Product description

Top performance for universal, space-saving use in the packaging industry even under harsh conditions: The new KTM Prime contrast sensor from SICK features a high grayscale resolution and is integrated into a small, tried-and-tested housing that is also available in stainless steel. The optimized OES4 ASIC technology and a response time of 35 μs ensure reliable and accurate detection of contrast marks, even on glossy materials. The various teach-in methods ensure greater flexibility during commissioning. The integrated IO-Link interface can be used to access the parameter settings. This speeds up and simplifies format changes. For long-distance applications, KTM Prime laser version is available with sensing distance up to 250 mm.

At a glance

- High grayscale resolution
- Very large dynamic range means reliable detection of contrasts on glossy materials
- Static and dynamic teach-in in one variant

- Switching frequency: up to 15 kHz
- Sensing distance: 12.5 mm for RGB- and white LED, up to 250 mm as laser version
- IO-Link interface

Your benefits

- Small housing allows installation even where space is limited
- Powerful, fast contrast sensor ensures high machine throughput
- Three-color LED technology allows a reliable process, with contrast marks detected even in conditions with weak contrast ratios or glossy materials
- Various teach-in methods enable more flexible commissioning

- Long service life, even in harsh environments, thanks to stainless steel housing; as a result, excellent system throughput and low spare parts costs
- Enhanced diagnostics and visualization of sensor parameters, as well as quick and easy format changes, since parameter settings can be downloaded via IO-Link

→ **www.sick.com/KTM_Prime**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THE HIGHEST LEVEL OF FLEXIBILITY AND ECONOMIC EFFICIENCY – FIBERS FROM SICK

Product description

Special ambient conditions require special solutions. A common reason for use of fiber-optic sensors is tight installation space. Fibers from SICK can be laid flexibly at the most remote detection locations. They are space-saving and can be mounted in nearly any area thanks to the tiny size of the end sleeves. The product range is structured for good clarity as well as quick generation of new variants and also offers an excellent price/performance ratio. Combined with SICK fiber-optic sensors, the fibers can be used for the widest range of detection tasks, including strict precision requirements.

At a glance

- Proximity and through-beam fibers
- Threaded and smooth sleeve heads available
- Axial and radial fiber-optic head alignment available
- Fiber-optic heads with tiny dimensions
- Ambient condition-specific fiber lengths
- Product range constantly being extended to include new variants
- Excellent price/performance ratio

Your benefits

- Simple installation
- Solutions for difficult-to-access installation sites
- High degree of economic efficiency
- Compact mechanical engineering thanks to the minimal space requirements of the fibers
- Solution for a wide range of detection tasks

→ **www.sick.com/LLX**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

IDENTIFICATION SENSOR FOR READING MAGNETIC-CODED TAGS

Product description

The MIS is a magnetic-coded identification sensor that is used to identify magnetic-coded tags. The MIS is used in conjunction with magnetic-coded tags and optionally a mounting bracket from SICK. The tag number can either be output, via an analog voltage, a current output or via IO-Link. The analog output is configured by default with a 16-step division so that 15 magnetic-coded tags can be differentiated. In addition to identification, the presence of tags can

be passed on to the control via a digital switching output. Due to its function, the MIS is particularly well-suited for simple identification tasks as are used in tool or format changes, for example. Thanks to the pre-coded magnetic tags, programming effort is reduced since the tags do not first have to be written. The sensor and the tag(s) simply have to be attached to the desired position(s), then they are ready to go.

At a glance

- Identification sensor for reading magnetic-coded tags
- The tag number is output either via an analog voltage, a current output, or via IO-Link
- Digital switching output for presence detection of the tag

Your benefits

- Very easy mounting and commissioning
- High repeatability
- A second sensor for checking for presence is not needed
- No programming effort since the tags are magnetic-coded
- The rugged mounting holds the sensor in the required position, even when exposed to shock and vibration, and increases reliability
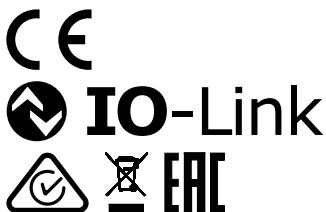
➔ **www.sick.com/MIS**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

WAY ABOVE THE STANDARD – THE ECONOMIC WAY TO BUSINESS CLASS

Product description

The photoelectric sensors in the G6 product family with their miniature housings will impress you across the board with both their standard mounting configuration of 1-inch spaced holes and also their functional characteristics. The variants with a stainless steel 1.4404 (316L) housing are especially resistant to chemicals and cleaning agents in washdown applications. With PinPoint LED and laser technology, metal inserts for mounting, large and bright indicator LEDs, user-friendly adjustment screws, IP67 and IP69K enclosure ratings, as well as the very latest ASIC technology from SICK, the G6 series far exceeds the current standard.

At a glance

- PinPoint LED and class 1 laser variants
- SICK ASIC, the result of decades of experience with photoelectric sensors
- Photoelectric proximity sensors with background suppression, energetic photoelectric proximity sensors, and through-beam photoelectric sensors
- ABS plastic housing and V4A stainless-steel 1.4404 (316L) housing
- Enclosure ratings IP67 and IP69K

Your benefits

- PinPoint LEDs (with visible red light and infrared light) or variants with a laser light spot enable objects to be detected reliably and are therefore suitable for a broad range of applications
- Superior optical performance and robustness thanks to the ASIC from SICK
- Quick and easy mounting and high durability thanks to the metal inserts with M3 thread
- Easy installation and adjustment with user-friendly potentiometer and highly visible indicator LEDs
- Variants with a stainless steel housing and IP69K enclosure rating ensure a long sensor service life in demanding washdown applications

→ www.sick.com/G6

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THE HIGHFLIER IN INTELLIGENT AUTOMATION

Product description

With the W4F, high performance and smart automation are now also available in a miniature size. The miniature photoelectric sensor is the perfect complement to the product range of a new generation of opto-electronic sensors such as the W16 and W26 and, thanks to the new ASIC technology from SICK, consistently delivers extremely reliable detection results. This allows for versatile use in a wide range of challenging installation situations. Thanks to foreground suppression (s. Acrolinx), Double-Line, v-optics and MultiSwitch, the W4F is a high-performance application specialist: Background suppression is improved and flat, highly-reflective and transparent objects are detected even more precisely. In addition, the W4F as Smart Sensors make monitoring and diagnostics easier than ever before and enable future-proof use in I4.0 plants.

At a glance

- Technologies: foreground suppression (s. Acrolinx), v-optics and MultiSwitch
- Two switching points and distance value output in one device
- Diffuse sender LED for ambient light suppression
- BluePilot: Teach-Turn adjustment with optical sensing range and alignment aid
- Smart Sensor: latest diagnostics and monitoring functions
- VISTAL® housing

Your benefits

- Solution for particularly challenging detection tasks in tight installation spaces
- Very high reliability through powerful background suppression and excellent detection of flat, highly-reflective and transparent objects
- Two switching points as well as the output of distance values expand the application possibilities
- Flexible use thanks to high optical reliability
- The highly-visible light spot combined with the intuitive BluePilot operating interface enables setup in mere seconds
- Maximum monitoring and process reliability thanks to intelligent monitoring and predictive maintenance
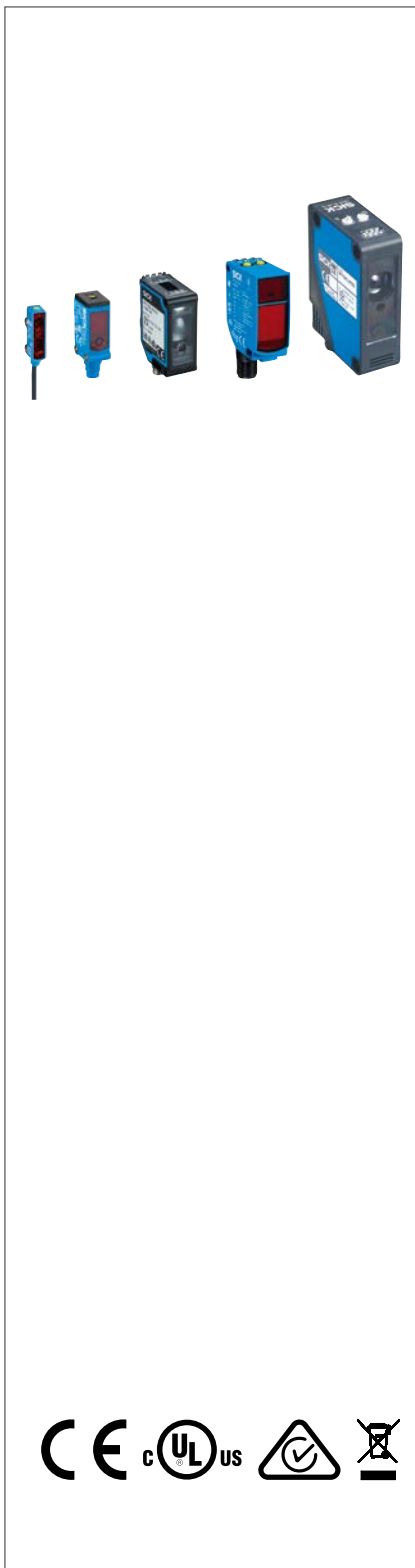- As Smart Sensors, fit for Industry 4.0

➜ **www.sick.com/W4F**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THE NEW HOME OF SENSING RANGE

Product description

PowerProx MultiTask photoelectric sensors combine powerful time-of-flight technology with compact sensor housings, giving machine designers maximum flexibility. They reliably detect objects that are traveling at high speed, small and flat objects, and jet-black or shiny objects at sensing ranges between 5 cm and 4 m, including at large detection angles. The WTT2SL, WTT4SL, WTT12L, WTT190L and WTT280L variants of the photoelectric sensors are designed to meet different requirements and provide the ideal solution to overcome any challenge.

At a glance

- Time-of-flight technology
- Laser class 1, red and infrared light
- Sensing range: 5 cm to 4 m
- Very small background range: 6 mm
- Switching frequencies of up to 1,000 Hz
- The option of up to three adjustable digital outputs or one IO-Link analog output: for up to eight switching points, distance value and smart sensor functionality

Your benefits

- Reliable object detection over long sensing ranges and at large detection angles
- Precise, simple adjustment using a potentiometer, teach-in button or display
- Excellent functionality with IO-Link
- The rugged VISTAL® sensor housing ensures high availability and a long service life
- Suitable for a wide range of applications: the variants of the photoelectric sensors are designed to cover a variety of detection requirements
- Compact sensors allow for significant flexibility in machine design

➜ www.sick.com/PowerProx

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THE PRECISE POSITION SENSOR FOR GRIPPERS AND MINIATURE CYLINDERS

Product description

MPS-G position sensors continuously detect the position of the fingers of pneumatic grippers and the piston position of miniature cylinders using a direct, non-contact method. The magnetic distance measuring system with the compact design enables extremely precise position determination. The sensor supports countless wiring and control concepts. SICK offers two prod-

uct variants for this purpose: sensors with analog voltage output and IO-Link sensors with Smart Sensor profile and two adjustable digital switching outputs – the right solution for nearly any requirement. Via IO-Link, the MPS-G also delivers comprehensive diagnostic data including performance data from pneumatic drives or data on condition monitoring of systems.

At a glance

- Position feedback with a measuring range of up to 50 mm
- Programming of up to 3 digital switching signals
- 16 switching points via IO-Link
- Adjustment of digital switching outputs via dynamic teach-in

- Diagnostic data of grippers and cylinders
- Data on machine temperature and vibration
- Detection of sensor head orientation

Your benefits

- Definition of two, three, or more switching points to differentiate between gripper positions and several objects
- Simple measurement of components with absolute position value
- Reproducible detection of very small object tolerances
- Completely protected due to flush installation of the sensor head

- Optimizes costs in orientation detection of objects and vibration monitoring in sensitive manufacturing process as additional sensors are not needed
- Optimizes processes and predictive maintenance of pneumatic systems by monitoring the drive performance
- Simplifies temperature monitoring in systems due to integrated temperature sensor

→ **www.sick.com/MPS-G**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

GET TRANSPARENCY ABOUT YOUR SAFETY SYSTEM

Product description

Safety Machine Analytics is used to monitor and analyze safety systems on machines. After quick and easy implementation, the software reads and evaluates all system status data and visualizes it in a dashboard – all in real time. The display of error messages supports the machine operator for quick troubleshooting of system errors. Safety-related events are recorded in a database and

KPIs are prepared graphically. Systematic errors and optimization potentials can be identified by the analysis of this data. This reduces machine downtime and optimizes processes. Safety Machine Analytics offers a very high degree of transparency about processes in safety systems and increases system effectiveness.

At a glance

- Visualization of safety systems
- Real time display of system status, errors, KPIs
- Recording and analysis of safety-related events
- Browser-based user interface for display on HMIs, computers, tablets, etc.
- Dashboard for the management of several safety systems
- User management for access rights

Your benefits

- Quick and easy integration of software into your system
- Complete transparency about the machine status and causes of failure in safety systems
- Increased machine availability due to quick troubleshooting
- Increase in effectiveness due to reduction of safety-related events
- Optimization of processes due to analysis and comparison of KPIs
- Location- and end-device-independent access to safety systems

➜ www.sick.com/Safety_Machine_Analytics

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

MORE EFFICIENCY WITH SAFETY

Product description

The deTem multiple light beam safety devices offer high flexibility and efficiency for access protection as well as for entry and exit monitoring with muting. The deTem features a compact housing and stands out not only due to its smart functions, but also thanks to its innovative diagnostic options. These ensure high machine availability and enable process optimization. Housing design and connectivity are standardized and therefore reduce installation work. Thanks to this standardization, numerous SICK accessories are also compatible with the deTem. SICK also offers deTem variants for explosion-hazardous areas and for applications which require enclosure rating IP69K.

At a glance

- Smart Sensor: diagnostic data via IO-Link or NFC and the SICK Safety Assistant app
- Compact housing, standardized connectivity, compatible accessories
- Integrated alignment aid with status LEDs directly on the device
- Configuration of all functions without software
- Variants for explosion-hazardous areas as well as enclosure rating IP69K

Your benefits

- Increase productivity in access protection as well as entry and exit monitoring with muting thanks to the processing of sensor data
- Minimize installation work and profit from standardized implementation of the deTem into your machine design
- Take advantage of the benefits of quick and easy device alignment
- Save time and money thanks to easy commissioning and configuration
- You can also count on the deTem in harsh environments

➔ **www.sick.com/deTem**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THE RUGGED SAFETY LASER SCANNER – EXTREMELY INTELLIGENT

Product description

The microScan3 safety laser scanner stands for the protection of very different applications: from stationary to mobile, from simple to complex. The innovative safeHDDM® scanning technology makes the microScan3 extremely resistant, even to dust and ambient light, and delivers high-precision measurement data. It increases the productivity and availability of machines.

The different variants of the microScan3 can be integrated simply and safely into countless networks. In addition, the safety laser scanner offers standardized connectivity for time-saving commissioning. The microScan3, the easy handling of its Safety Designer configuration software, and its diagnostic options combine user-friendly operation, innovation and very high performance.

At a glance

- Innovative safeHDDM® scanning technology
- High-precision measurement data via Ethernet interface
- Protective field range: up to 9 m, scanning angle: 275°
- Up to 128 freely configurable fields and up to 8 simultaneous protective fields
- Standardized communication interfaces
- System plug with configuration memory

Your benefits

- Very high machine availability and productivity thanks to the patented safeHDDM® scanning technology
- Flexibility for safe automation processes due to simultaneous protective fields, contour detection fields and detailed data output
- Safe integration into different control systems via EtherNet/IP™ CIP Safety™, PROFINET PROFIsafe, EtherCAT® FSoE, I/O etc.
- Saves time during commissioning and diagnostics thanks to the intuitive Safety Designer software, multi-color display and system plug
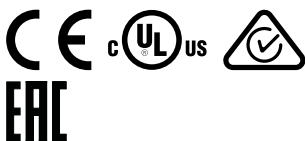
→ www.sick.com/microScan3

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SAFETY UNDER CONTROL – COMPACT, EASY, AND EFFICIENT

Product description

The Flexi Compact safety controller is based on a future-proof technology platform and can be programmed via software. Thanks to its modularity, it can be optimally configured for a wide range of application requirements and its compact construction enables it to be installed in a space-saving manner. Flexi Compact is characterized by its high usability: planning and commissioning is fast and easy using the intuitive Safety Designer configuration software and a user-friendly housing. Diagnostics data is available up to the cloud via common fieldbus systems. Faster production startup, increased machine availability, and extended functions such as safe series connection with Flexi Loop increase productivity and efficiency throughout the machine life cycle.

At a glance

- Software-programmable safety controller with modular hardware platform
- High performance Safety over Ether-CAT® backplane bus
- User-friendly housing in a slim design
- Intuitive Safety Designer configuration software
- Data communication in common fieldbus systems
- Safe series connection with Flexi Loop

Your benefits

- Usability optimized: time-saving planning of the safety application and easy commissioning
- Efficiency increased: higher productivity thanks to fast production startup, short response times, and comprehensive diagnostic options for efficient machine and system operation
- Guaranteed future-proof: flexible solutions with modular hardware, forward-looking technologies, and end-to-end data availability for Industry 4.0 applications

→ **www.sick.com/Flexi_Compact**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

OPEN ACCESS FOR SAFE PRODUCTIVITY

Product description

The Safe Robotics Area Protection safety systems from SICK are a starting point for safe human-robot interaction and enable cooperative and freely-accessible robot applications. The system comprises hardware as well as software or functional logic with tested safety functions. Not only generic but also manufacturer-specific variants are available, for example for Universal Robots, FANUC, KUKA, and Yaskawa. Thanks to the detailed documentation and robot-specific settings, these variants can be easily integrated into robot control systems and, in part, configured directly via the robot hardware. Safe Robotics Area Protection ensures less downtime, optimized work processes and therefore an increase in productivity.

At a glance

- Comprising hardware as well as software or functional logic with tested safety functions
- Generic and manufacturer-specific variants (Universal Robots, FANUC, KUKA, Yaskawa)
- Documentation with wiring diagram, SISTEMA file, and operating instructions
- Automated robot restart possible
- Performance level (PL) d

Your benefits

- Free, safe access to cooperative robot applications for less downtime, optimal work processes and high productivity
- Highly flexible and future-proof solution thanks to easy tailoring of the systems to the specific robot application and production environment
- Time-saving configuration of the systems, in part directly via the robot hardware
- Detailed documentation, compliant with relevant standards
- Low costs as the system is easy to integrate into industrial robot controllers, thanks to generic or manufacturer-specific variants for Universal Robots, FANUC, KUKA, and Yaskawa

→ **www.sick.com/Safe_Robotics_Area_Protection**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

PROVEN MEASUREMENT TECHNOLOGY FOR FLUE GAS MONITORING

Product description

The MCS200HW is a multi-component analyzer system for continuous monitoring of up to 10 IR measurement components in flue gases of industrial combustion plants. The MCS200HW is hot/wet extractive: All parts which touch media, from the gas sampling probe to the cell, are heated above the dew point and therefore protected from corrosion.

An integrated oxygen sensor also measures oxygen. As an option, a TOC measurement can be supplemented via an integrated GMS811 FIDORi. Internal reference point monitoring allows for a quick check of the measured values with test gases. The web display and the task assistant integrated in the software make operation very easy.

At a glance

- Measurement of up to 10 IR components plus O_2 and TOC
- Hot/wet extractive measurement technology
- Wear-free gas distribution through ejector pumps
- Reference point monitoring with internal calibration cells
- Certified digital Modbus® interface
- Web server for platform-independent device control
- Use of dry test gases for HCl and NH_3

Your benefits

- Reliable measurement results, even for water-soluble gas components
- Only one analyzer necessary for simultaneous monitoring of up to 12 gas components
- Measurement components can be put together flexibly and extended at any time
- Convenient, task-oriented operation
- Remote access without additional software
- High availability due to certified internal third-party monitoring (QAL3) without test gases
- Low service costs thanks to minimal maintenance requirements
- Complete data transmission through only one interface possible

→ **www.sick.com/MCS200HW**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

MANAGE YOUR DIGITAL TWINS

Product description

SICK AssetHub is a digital web service which can be used to manage the digital twins of all devices or systems of a company, regardless of the manufacturer. The web service enables an interactive overview of these assets, creating transparency. It also provides important information and documents throughout the life cycle of all assets. The clear tree structure of the technical locations makes management simple.

SICK AssetHub provides the necessary foundation for any I4.0 strategy and is a flexible basis which can be extended with modules. It can be used for other asset-centered digital web services from SICK, such as SICK LiveConnect, SICK Monitoring Box, or SICK ServiceModule. SICK AssetHub is an EAM (Enterprise Asset Management) system and is part of IntegrationSpace®.

At a glance

- Easily create digital twins
- Functional locations in clearly arranged tree structures
- Any type of asset with different structural elements can be mapped
- Rights management for collaborative work
- Additional information available for all SICK devices
- History and traceability of digital interactions

Your benefits

- Complete transparency over all your assets
- Ensuring the efficiency and productivity of your business
- All asset-related data easily findable in one place
- Manage devices vendor independent
- Any system or plant, any type of machine, production facility, industrial plant or factory can be mapped
- Simple device acquisition via smartphone app or web front-end

➜ www.sick.com/SICK_AssetHub

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

COMPACT. FLEXIBLE. INTELLIGENT.

Product description

As part of the SICK AppSpace eco-system, the programmable SIM10xx Sensor Integration Machines offer multiple sensor data acquisition and fusion processes, thereby providing space for new application solutions. The acquired data is processed and visualized for important information, for example quality control or process analysis. In addition, the IoT gateway functions enable connection from the edge to the cloud via the Internet in the context of Industry 4.0. The SIM10xx products feature a powerful processor and Ethernet interfaces for cameras and LiDAR sensors. Other sensors can be integrated via IO-Link, for instance for distance and height measuring purposes.

At a glance

- Interfaces for the cloud and cameras, illumination, LiDAR scanners, (IO-Link) sensors and encoders
- Up to 4 Ethernet ports
- SICK Interface & Algorithm API for image and sensor data processing
- Enclosure rating IP65 or IP20 (depending on type)
- Design without fans
- Flexible in use, e.g., with the Flexi Soft safety controller

Your benefits

- Easy development of customized data applications with graphical application modeling in SICK AppSpace
- Processing of sensor and camera data as well as IoT gateway functions in one device
- Configurable firewall for a high level of data security
- One-box solution: complete hardware system for a quick project start without a complex search for SW drivers, components, and cables
- Diverse image/scan processing options for all industrial fields of application
- Flexible and compact housing concept for mounting directly on the system or in the control cabinet
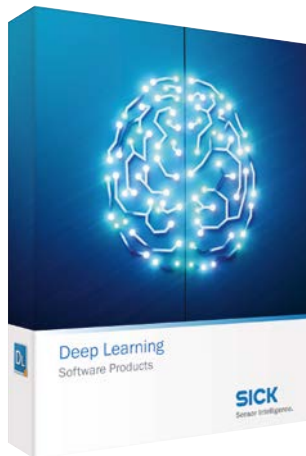
➜ **www.sick.com/SIM10xx**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

ARTIFICIAL INTELLIGENCE FOR SICK SENSORS

Product description

Deep Learning from SICK breaks new ground in industrial automation. With its user-friendly operation, Deep Learning makes it possible to train artificial neuronal networks for SICK sensors in the cloud with little effort using example images. The sensors can then evaluate and sort objects in line with customized criteria on-site – in machines or systems – even if the natural appearance of the objects varies.

At a glance

- Interference takes place directly on programmable SICK products
- Training of neuronal networks in the SICK cloud
- Support via SICK Support Portal
- Neuronal networks optimized for SICK products
- Free trial offer on request
- Deep Learning is part of the SICK AppSpace eco-system

Your benefits

- Fast, automatic, reliable decision-making by sensors, even for complex tasks
- Reduces development time and expense: image analyses are trained using example images
- No additional hardware and software is required thanks to the cloud training
- Quick support by SICK experts via the SICK Support Portal
- Training neural networks does not require that users have sound knowledge of machine learning
- A free trial offer makes it possible for you to evaluate whether Deep Learning is suitable for your application
- With SICK AppSpace, it can also be used for very individualized applications

➜ **www.sick.com/Deep_Learning**
For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

PATCHES FOR ENSURING THE SECURITY AND AVAILABILITY OF YOUR INDUSTRIAL PC AND SERVER

Product description

Patch management from SICK ensures that operating systems on industrial PCs and servers are always up to date. The service encompasses the planning, procurement, and examination of patches in the "security updates", "critical updates" and "update rollups" classes. The installation of these patch classes on operating systems ensures a secure operation system. The patch functions are tested in a test system that SICK aligns to the respective customer requirements. SICK then makes the patches available to the customer in the form of assessment reports. Patch management therefore ensures secure operating systems, closes security gaps, fixes program errors and prevents malware attacks.

At a glance

- Examines patches in the "security updates", "critical updates" and "update rollups" patch classes
- Fixes program errors, closes security gaps, and prevents malware attacks
- SICK performs functional tests
- Provision of assessment reports

Your benefits

- Reduces personnel costs of your IT department
- Increases productivity in operation since the risk of malware attacks and system downtime is reduced
- Adherence to all compliance guidelines
- Functional tests of the patches tailored to customer requirements

➜ **www.sick.com/patch_management**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

BUDGET SECURITY IN CHALLENGING ENVIRONMENTS

Product description

Service packages are always aligned exactly to the application and its challenges. SICK is flexible in assuming the responsibility for all required services, from individual maintenance to the provision of required spare parts to complete spare part and maintenance management. This makes it possible to plan even challenging applications – at a flexible price and without unpleasant surprises. The individual packages can be adapted individually to the requirements of the respective application.

At a glance

- Modular service packages at a fixed price
- Maintenance and spare parts management by SICK
- Manufacturer warranty during the entire runtime
- Condition monitoring when the application requires it
- Including remote maintenance or technical support on-site, depending on the scope

Your benefits

- Reliable budget planning and transparent cost management
- Minimized overall operating costs due to fewer unplanned service activities
- Minimal capital commitment, spare parts are provided by SICK quickly and without complications
- Maximization of plant availability due to optimal conditions
- It is possible to concentrate on your core business as SICK assumes maintenance management
- Transfer of financial failure risk to SICK

➜ www.sick.com/service_packages

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

MEASURING TRUCK LOAD VOLUMES DYNAMICALLY AND FULLY AUTOMATICALLY

Product description

The load volume measurement system measures the load volume of truck loads on flatbed loading areas or the remaining loading volume of dump trucks in a single pass and without the need for the vehicle to come to a stop. Having precise data on load volumes is especially important for loads with an unknown moisture content, for example, to determine the dry weight. The vehicle is scanned up to 100 times per second using eye-safe 2D LiDAR sensors. The 3D model created from the collected measurement data serves as the basis for calculating the load volume. The system reliably identifies irrelevant vehicle parts and fasteners and excludes them automatically.

At a glance

- Automated and non-contact load volume and remaining volume measurement
- 3D visualization including calculation of the vehicle dimensions

- Customer-specific integration of HD cameras, ANPR, WIM, RFID possible
- Web-based user interface for convenient remote access

Your benefits

- Shorter measurement process thanks to the automated volume calculation without the vehicle stopping
- Single pass – no comparative measurement required
- Effective volume values thanks to the exclusion of irrelevant vehicle parts through intelligent detection of the loading area

- Volume data for further processing available in a matter of seconds
- Easy installation, maintenance, and operation
- No installations in the road surface necessary
- Ready for use around the clock and without operators

➜ **www.sick.com/Load_Volume_Measurement_System**
For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

CE

MEASUREMENT OF TRAINS FOR DETECTION AND ALARMING OF REFERENCE PROFILE VIOLATIONS

Product description

The Railway Profiling System performs three-dimensional measurement of trains during travel and identifies protruding loads or train components which violate the permitted reference profiles. The trains are scanned 200 times a second using eye-safe 2D LiDAR sensors. Based on the generated 3D model, reference profile violations are detected and alarms are sent to the operator. The intuitive user interface supports detailed analysis of the visualized critical areas of the train profile as well as creation of appropriate measures.

At a glance

- High-precision 3D measurement with 200 Hz resolution and immediate alarming of violated reference profiles
- Data output as 3D model, 2D cross-section, and camera picture
- Configuration of several reference profiles
- No optical sensors near the ground
- Protocoling of all measurement data
- Easy mounting, maintenance, and operation

Your benefits

- Sensitive alarm signaling thanks to high measurement resolution and detection of minimal object sizes
- Rectification and assignment of reference profile violations which are both sustainable and specific to the cause
- Inspection of multiple reference profiles without adjusting the sensor systems
- Low life cycle costs thanks to minimal maintenance requirements
- Sound measurement data as a basis for planning and creation of long-term statistics
- Modular expandable system functions

➔ www.sick.com/Railway_Profiling_System

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

RELIABLE VEHICLE CLASSIFICATION WITH OPTIONAL AXLE COUNTING

Product description

The TICx02 (traffic information controller) profiling system accurately classifies vehicles in free-flowing traffic. The vehicles are scanned up to 100 times a second using eye-safe 2D LiDAR sensors. The measurement data can be used to generate a 3D model of each vehicle.

The system can also be expanded to include axle counting functionality. The TICx02 uses the recorded database for classifiying vehicles in up to 30 classes. The identification of vehicle speed and direction of movement rounds out the detection of traffic data.

At a glance

- High-precision vehicle classification
- Additional axle counting
- Data output as a point cloud
- Data history of the last 50 vehicles detected in the user interface
- TCP/IP interface for data transmission
- Event logging and monitoring of system status

Your benefits

- Reliable vehicle detection and classification in free-flowing and stop-and-go traffic
- Flexible output of up to 30 vehicle classes, e.g. TLS 8+1, TLS 5+1, TLS 2+1, or Swiss 10
- Optional non-contact axle counting in multi-lane traffic sites
- ANPR, WIM, and RFID transponders can also be integrated
- Can be used in all climate zones from –40 °C to +60 °C thanks to the expanded temperature range
- Quick data access due to storage directly in the customer system via FTP or UNC transmission
- Easy commissioning and operation thanks to an intuitive configuration wizard

CE

➜ **www.sick.com/TICx02**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SPACE AND PROTECTION FOR MEASUREMENT AND ANALYSIS TECHNOLOGY

Product description

Shelter solutions are primarily used to protect the installed analyzer systems from extreme ambient conditions such as heat, cold, dust, wind, earthquakes, and corrosive or explosive atmospheres. They also offer advantages for transport as well as on-site installation and maintenance. At the factory, everything is coordinated and pre-installed in the shelter in a clear manner. Each shelter can be equipped to fit individual customer requirements. The installation of transformers and UPS, extinguishing, climate and gas warning systems is possible, as is the implementation of sample point switching or complex redundancy and signal concepts.

At a glance

- Heating/Cooling/Ventilation (redundant on request)
- Standard shelter, 10 to 40 feet
- Insulation and high-quality paint (C5)
- Fire alarm and fire extinguishers available
- CSC certificate for standard dimensions
- Suitable for ATEX zones
- Earthquake-safe and fireproof types available (F30, F60)
- Special constructions

Your benefits

- High availability, long service life and minimal maintenance requirements of the installed technology thanks to the protection from adverse ambient conditions
- Ex-version shelters also enable the use of non-ex-analyzer systems in explosion-hazardous areas
- CSC certification enables low-cost transport on shelter ships and does away with the need for seaworthy packaging
- Minimized risk of transport damage to the measurement and analysis technology
- Quick installation as only the shelter needs to be connected
- Easy access to mounting plates and racks facilitates maintenance work

C E

→ www.sick.com/Shelter_Solutions

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

PIN INSPECTION – VERIFYING THE PRESENCE OF PINS AND THEIR POSITION

Product description

Pinspector 2D is an easy-to-set compact quality control system designed for contactless pin inspection – verifying the presence of pins and their position. Thanks to its advanced inspections, the system also detects and sorts blobs according to pre-set parameters, reads and verifies 1D and 2D codes, provides OCR, OCV functions, and measures dimensions. The specialization in the 2D pin inspection with the combination of additional inspections, makes it great match for demanding applications.

At a glance

- Pin presence and position inspection
- Additional inspections: pattern matching, edge-to-edge measurement, pixel counter, blob inspection, shape locator, reading and verification of 1D and 2D codes
- Easy teach-in of connector pin patterns
- Web-based user interface
- Inspection statistics

Your benefits

- Compact all-in-one system
- Multifunctional by combining various inspections
- High reliability thanks to robust algorithms
- Easy set-up and configuration via web interface
- Flexible optical design
- Rugged housing, ideal for harsh ambient conditions
- Multiple programs and job switching
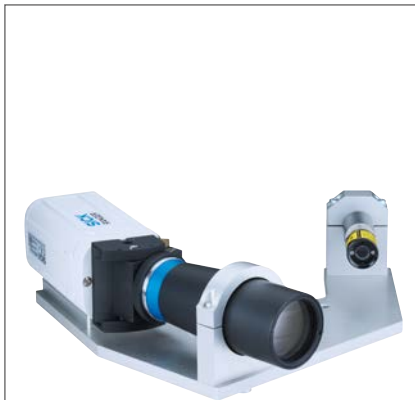
→ **www.sick.com/Pinspector_2D**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

PIN AND PRESS-FIT INSPECTION – VERIFYING THE PRESENCE AND POSITION OF PINS

Product description

Pinspector 3D is a quality control system designed for highly precise contactless inspection of pin connectors and pins at termination sides of printed circuit boards before and after the press-fit process. The system integrates smart scanning technologies and Ranger3 streaming cameras from SICK for generating 3D imaging. Using these image data in a specially developed software, the system sorts out pins with incorrect parameters, thereby preventing faulty installation, cold joints, and missing or bent pins. In this way, it helps to reduce the amount of waste to a minimum and to save production costs. Measurement results can be edited, sent, and stored in the integrated database – according to customer requirements.

At a glance

- Full-scale solution for the inspection of PCBs and pin connectors
- Autonomous modular system
- Rugged design suitable for industrial use
- Ranger cameras from SICK for high-precision 3D imaging
- Three versions – high value, fast inspection, and double-camera to prevent occlusion

Your benefits

- Inspection of multiple PCBs and pin connectors with one system
- Fast and accurate inspection of x, y, z pin position
- User-friendly drag and drop interface with many possible measurement settings
- Low maintenance costs thanks to non-contact measurement
- History tracking – a wide range of logging and reporting options

➔ **www.sick.com/Pinspector_3D**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

EFFICIENT SORTING OF OBJECTS AT THE HIGHEST CONVEYOR SPEEDS

Product description

The ICR (image-based code reader) track and trace system is the ideal identification solution for sorting processes at the highest conveyor speeds. The cubic and irregular shipping objects to be sorted are quickly and reliably identified while all common 1D/2D codes as well as postal codes are taken into account. The excellent image quality of the integrated camera also enables use in OCR, video coding and vision applications. The system can be used for thin conveyor widths as well as for widths of up to 1,600 mm and can be expanded to include products such as a volume measurement system.

At a glance

- 8/12 k quad-line sensor
- Linux-based software platform
- Ethernet-based code data transmission to the SIM2000 controller
- Integrated computing power to support the latest vision applications
- MTBF 120,000 h

Your benefits

- Throughput of more than 18,000 objects/h at conveyor speeds of up to 4 m/s
- Conveyor belt widths of up to 1,600 mm are covered
- High-resolution image quality (200 dpi) for the best read rates, OCR results, video coding and vision applications
- Completely integrated code reading and vision solutions without requiring an additional PC/server
- Monitoring option thanks to decentralized image archiving
- Reduced shadow effects and minimal system footprint thanks to the 55° camera skew angle
- Simplified and cost-efficient cabling due to Ethernet line network topology

➜ **www.sick.com/ICR_System**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

WHEN THE ACTUAL SIZE MATTERS

Product description

The VMS4x00/5x00 track and trace system is ideal for challenging applications in the field of non-contact dynamic measurement and position determination for objects on a diverse range of conveyor systems. The smallest cuboid that fully encloses the object is precisely determined using one or several laser-based measuring heads, virtually regardless of the shape of the object. With the certified system variant, the dimension data can be used for billing purposes. The SIM2000 system controller makes it possible to separate metrologically relevant software from application-specific software. The modular system construction ensures compatibility with existing solutions from SICK and enables adaptations to customer-specific applications.

At a glance

- Measurement accuracy up to 5 mm x 5 mm x 2 mm
- Object sizes up to 5.500 mm x 1.600 mm x 1.100 mm
- Conveying speeds of up to 4.0 m/s
- Certified according to MID and NTEP (OIML)
- Option of output as point cloud
- Separation of metrologically relevant software and application-specific software
- Dynamic scale value

Your benefits

- Increased throughput thanks to non-contact, dynamic measurement of objects virtually regardless of their shape
- Optimizes material handling processes and the use of vehicle and storage capacities
- Increased sales thanks to validated revenue recovery of freight costs
- Material flow optimization through inline object measurement
- Increased system availability and reduction in operating costs thanks to short MTTR
- Time savings thanks to easy installation with maximum modularity
- Range of options: stand-alone solution or in combination with reading station and weighing technology
- Flexible and individual software customization despite sealing

MID

➜ www.sick.com/VMS4x00_5x00

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

DIMENSIONING AND POSITION DETERMINATION OF LARGE OR CHALLENGING OBJECTS

Product description

The VMS6x00/7x00 track and trace system easily solves challenging applications to dimension objects and determine their exact position. The system can be used on different conveyor systems and is perfectly suited for dynamic and reliable measurement of large objects as well as black, foil-wrapped or strongly reflective objects. To do so, several laser-based LMS500 measuring units determine the smallest enveloping box of the object, regardless of its shape. The modular setup of the track and trace system ensures compatibility with existing solutions from SICK and enables adaptations to customer-specific applications.

At a glance

- Measurement accuracy: up to 20 mm x 20 mm x 20 mm
- Object sizes: up to 2,600 mm x 2,000 mm x 3,000 mm
- Conveying speeds: up to 3.0 m/s
- Redundant system setup (optional)
- MTTR: less than 10 min. thanks to hardware-based parameter cloning
- Central control unit enables easy system expansion

Your benefits

- Quick and efficient dimensioning thanks to dynamic inline object measurement
- Measures dimensions of very large objects
- Reliable measurement of objects with black, foil-wrapped or strongly reflective surfaces, regardless of the object shape
- High system availability thanks to the redundant system construction (optional)
- Reduction in operating costs thanks to short MTTR
- Range of options: either as stand-alone solution or extended with a scanning station, scale and/or IP camera

➔ **www.sick.com/VMS6x00_7x00**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

FLEXIBLE, SMART, COMPACT: ENCODERS FOR COUNTLESS FIELDS OF APPLICATION

Product description

AHS/AHM36 absolute encoders set standards when it comes to mechanical adaptation, communication and resistance to environmental influences. With their rotatable male connector or cable connection as well as various mounting hole patterns and adapter flanges, these encoders are suitable for nearly any application. The IO-Link, CANopen and SSI interfaces enable easy integration into various control environments. Encoder configuration can be adapted to individual needs using various tools. The rugged, reliable, fully magnetic sensor system provides a maximum resolution of 14 bits (singleturn) or 26 bits (multiturn). Due to the stainless-steel design and enclosure rating IP69K, the Inox versions are suitable for use under very harsh ambient conditions.

At a glance

- 36 mm absolute encoder with maximum 26 bits (singleturn: 14 bits multiturn: 12 bits)
- Face mount flange, servo flange, blind hollow shaft
- Rotatable male connector or cable connection

- IO-Link, CANopen, SSI interface with programmable parameterization
- Diagnostic functions
- Stainless steel (Inox versions)
- IP67 to IP69K protection class

Your benefits

- Simple mechanical installation thanks to the rotatable male connector or cable connection and various mounting hole patterns and shafts
- Easy integration into various control environments with IO-Link, CANopen and SSI interfaces
- Intelligent diagnostic functions evaluate maintenance intervals for the entire system

- Thanks to the rugged, reliable, fully-magnetic sensors, they can also be used in harsh environments
- High resistance to ambient influences due to stainless steel design and IP69K enclosure rating (Inox versions)
- Space-saving and cost-effective design
- High performance at a cost-efficient price

→ **www.sick.com/AHS_AHM36**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

RUGGED STAINLESS STEEL INCREMENTAL ENCODER FOR CHALLENGING APPLICATIONS

Product description

The combination of a complete stainless steel design and a rugged shaft seal make the DBS60 Inox incremental encoder resistant to harsh environmental conditions. Its stainless steel housing is offered with standard IP67 or IP69K (DBS60I-W*) enclosure ratings and has a diameter of only 58 mm, thereby enabling it to be used in challenging applications with limited installation space. The IP69K DBS60I-W* variant with its patented deflector shield, which protects the shaft seal, is an ideal product for applications in washdown environments. With various mechanical and communication interfaces as well as a resolution of up to 5,000 pulses, the DBS60 Inox fulfills customer requirements from many different fields of industry.

At a glance

- Stainless steel design: 303/304 (V2A), 316L (V4A) for the IP69K variant
- Enclosure rating: IP67, IP69K (DBS60I-W*)
- Blind hollow shaft or solid shaft with face mount flange or square flange
- Up to 5,000 pulses per revolution
- Cable connection or M12 male connector
- Interfaces: TTL/HTL, TTL/RS-422, HTL/push-pull

Your benefits

- Stainless steel housing provides a high level of resistance to environmental influences
- Ideally suited for applications requiring high protection against aggressive media and cleaning agents
- IP67 and IP69K (DBS60I-W*) enclosure ratings for optimum ingress protection
- Bacterial growth prevention through clean design (IP69K variant)
- Corrosion resistance with 316L (V4A) stainless steel (IP69K variant)
- Design of the IP69K variant suitable for high-pressure, warm-water washdown typical for environments in the food and beverage industry

→ **www.sick.com/DBS60_Inox**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THIN AND COMPACT INCREMENTAL ENCODER FOR COUNTLESS APPLICATIONS

Product description

The DLS40 incremental encoder is a reliable solution for measuring rotation speed and position. With various unique features, it is fundamentally redefining the operating principle of encoders. The housing integrated in the flange enables a low-cost, thin and compact design and therefore uncomplicated installation, especially in tight spaces. In addition, the encoder is equipped with an easily-accessible laser-marked QR code which enables direct access to the operating instructions.

At a glance

- Thin and compact design, suitable for nearly any application
- Flange with integrated housing and upper covering
- Between 50 and 1,024 pulses per revolution
- Communication interfaces: TTL/ RS-422, HTL/push-pull and Open Collector
- Radial cable connection

Your benefits

- The compact design enables encoder integration, even if installation space is tight, contributing to a smaller overall machine size
- The housing integrated in the flange enables an extremely compact and low-cost design
- Thanks to the countless output signal options, it has the right solution for any application

CE

➜ www.sick.com/DLS40

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

CAPTURES MOTION. WITHOUT CONTACT.

Product description

The rugged and maintenance-free SPEETEC 1D laser surface motion sensor detects the movements of object surfaces without contact. This detection requires no scale or measuring elements. The laser Doppler effect based technology enables the SPEETEC 1D to measure the speed, length, movement direction and position of objects on almost any surface. The non-contact measurement method used by the sensor makes it particularly suitable for applications with soft or sensitive surfaces that would be damaged by tactile measurement. The SPEETEC 1D is also ideal for encoder applications with fast and dynamic processes that are unsuitable for encoders.

At a glance

- Non-contact measurement of the speed, length, and position of objects without measuring elements
- Compatible with many materials, colors, and surfaces
- Very high measurement accuracy and repeatability
- Laser class 1
- Rugged design, compact dimensions, low weight
- TTL or HTL interface
- Speed: up to 10 m/s

Your benefits

- Opens up new possibilities for measuring sensitive, soft or smooth objects
- Optical sensors avoid damage to and contamination of the surfaces being measured and ensure a high product quality
- Slip-free measurement increases the measurement accuracy thereby optimizing productivity and process quality
- Thanks to the use of class 1 lasers, no expensive laser protection measures and no specially trained personnel are required
- High measurement accuracy, including in start-stop operation and at short measurement lengths
- Easy to incorporate into existing applications thanks to the standardized encoder interface and compact dimensions
- Rugged and maintenance-free
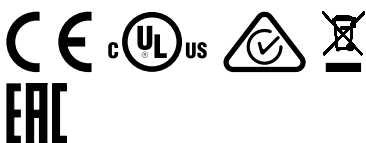
→ www.sick.com/SPEETEC_1D

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

INTEGRATED CYLINDER POSITION MEASUREMENT FOR MOBILE MACHINES

Product description

The linear encoders of the MAX® product family enable non-contact, completely integrated and absolute position measurement in hydraulic cylinders. Suitable for use under extreme ambient and operating conditions in applications in mobile machines. The innovative technology of magnetostriction offers high reliability, expanded diagnostic functions, as well as a considerable reduction in operating costs. The 48 mm housing can be easily installed in the existing cylinder construction. The MAX48N is particularly suitable for cylinders with very limited installation depths due to the radial cable routing. With its reduced housing dimensions of 30 mm, the MAX30N enables installation in very compact cylinder designs.

At a glance

- Measuring range: 50 to 2,500 mm (1 mm steps), typical resolution 0.1 mm
- Analog, CANopen, SAE J1939 and PWM interfaces are available
- Pressure-resistant housing, designed for hydraulic operating pressure of up to 400 bar
- High operating temperature (electronics) up to +105 °C
- Fluid temperature (hydraulic oil) up to max. +95 °C
- Compact dimensions: 10 mm installation space, 30 mm damping zone
- Position magnet does not need a spacer disk

Your benefits

- Magnetostriction: reliable, safe, and wear-free
- 100% mechanical and electrically compatible with existing cylinder constructions
- Save-spacing installation: better utilization of the piston stroke in tight installation space of the cylinder
- Extremely stable signal behavior and very good EMC properties: resistant to extreme electrical influences, such as radiated or coupled faults in the on-board power supply
- Status monitoring: monitoring of piston strokes, operating hours, and max. oil temperature provides a statement about the cost-optimized operation of the machine
- Favorable cost-benefit ratio

→ **www.sick.com/MAX**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

PRECISE MEASUREMENT OF LINEAR MOVE-MENTS WITH ADJUSTABLE CONTACT PRESSURE

Product description

The MWS120 is a measurement system which detects linear movements directly and reliably. With a spring travel of 10 mm and the contract pressure with easy manual adjustment, movements of the measurement surface can be compensated for vertical to the measurement direction. This enables precise measurement while ensuring gentle contact with the measurement surface. Changing to the maintenance position is also done easily and securely by hand. This makes it possible to do maintenance work is a short amount of time. Thanks to the smart design and an axle spacing of only 120 mm, the MWS120 can be integrated optimally into the application. A large selection of different encoders and interfaces as well as measuring wheels with different surfaces and diameters offers individual solutions.

At a glance

- Contact pressure can be adjusted manually from 0-24 N in 6 steps
- Compact axle spacing (120 mm) for flexible installation options
- Maintenance position can be reached manually
- Selection of various measuring wheel surfaces and diameters
- Incremental or absolute encoder interfaces can be combined

Your benefits

- Finely-adjustable contract pressure enables high process quality and process reliability on various surfaces
- Each linear measuring task can be optimally solved due to different measuring wheel surfaces and adjustable contact pressure
- Customized combinations possible thanks to a wide selection of encoders, interfaces, and measuring wheels
- Smart design for easy integration into the application and control environment
- Time-saving thanks to easy integration and quick commissioning
- Contact pressure and maintenance position can be adjusted without tools

➜ **www.sick.com/MWS120**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SENSOR HUB FOR INTELLIGENT SERVO MOTORS THAT "SAY" WHEN MAINTENANCE IS REQUIRED

Product description

With the sHub® sensor hub, servo motors can be used as a source of data for condition monitoring and predictive maintenance of the machine. The data is collected in the motor and transmitted to the control using HIPERFACE DSL®. Monitoring occurs in real time. It is therefore possible for the maintenance staff to react in a timely manner and intervene in machine processes, e.g., if servo motors are imbalanced. sHub provides additional sensor data such as vibration for intelligent servo drive systems, therefore increasing the efficiency and reliability of machines.

At a glance

- Sensor hub with a maximum of 2 inputs for external sensors
- The sensor data is integrated into the motion control system via HIPERFACE DSL®
- Collection of vibration, temperature, speed, position, and service life histogram of the servo motor (combined with EDS/EDM35)

Your benefits

- You can implement Industry 4.0 requirements such as condition monitoring and predictive maintenance through the collection of additional sensor data in the servo motor.
- Increase the availability of your machine with reliable condition monitoring and targeted maintenance
- You can minimize the time and money needed for development thanks to the existing HIPERFACE DSL® infrastructure in servo controllers
- The synchronous detection of position and vibration data increases the forecast accuracy of when a component will fail
- Additional cabling is not required

→ www.sick.com/sHub

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SAFE, EASY, FLEXIBLE: ENCODERS FOR SAFE POSITIONING

Product description

The AFS/AFM60S Pro is an absolute encoder for functional safety. It fulfills very strict test criteria and is a certified safety product up to SIL3/PL e. The absolute encoder supports the safety functions in accordance with IEC 61800-5-2 and impresses in particular with its safe positioning function. Thanks to the high enclosure rating and large temperature range, the AFS/AFM60S Pro can be used in harsh environments. With its SSI and sin/cos interface, it can be easily integrated into a range of different controls. In doing so, singleturn resolution, counting direction and other parameters can be adapted individually. The integrated error memory detects important ambient data which provides support during installation and maintenance.

At a glance

- Certified up to SIL3 (IEC 61508), SIL-CL3 (EN 62061), PL e (EN ISO 13849)
- Single- or multiturn encoder with SSI and sin/cos interface
- Programmable, integrated error memory
- Solid or hollow shaft encoder, mounting with key
- Cable connection, M23 or M12 male connector
- Operating temperature range: −30 °C to +95 °C

Your benefits

- Certified safety product that ensures the best possible protection for persons, machinery, and systems
- Easy handling of safety functions with complete solutions from SICK: safe positioning with the AFS/AFM60S Pro and the FX3-MOC1 motion control module of the Flexi Soft safety controller
- Positive and non-positive connections for mechanical reliability
- Safety status conforming to the test basics of the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA)
- Different configuration and connection options for high levels of flexibility and straightforward implementation
- Suitable for applications with small installation spaces

→ **www.sick.com/AFS_AFM60S_Pro**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

RELIABLE READING PERFORMANCE IN THE SMALLEST OF SPACES

Product description

Do you need a bar code to be reliably identified by the code reader despite a small reading distance with few distance variations, fixed orientation, and a very small amount of space? Do you also need to stick to a limited budget? As a starter model, the CLV60x fixed mount bar code scanner with 2 kpixel CMOS sensor offers reliable bar code reading at outstanding value for money. It is compact and features excellent reading performance even with short reading distances, so you only need a small amount of space. Thanks to its high scanning frequency of 750 Hz, it is also suitable for fast applications. The CLV60x can be configured quickly and easily using the SOPAS ET software.

At a glance

- High reading field height even at a 30 mm reading distance
- 2 kpixel CMOS technology
- LED status indicator detectable from virtually every direction
- Adaptation to customer requirements as an optional service
- 750 Hz scanning frequency
- Reading window on the front or on the side

Your benefits

- Minimal space requirements for integration in even the smallest machines
- High performance at a cost-efficient price
- Sound investment thanks to the long-term availability of CMOS technology and proven SICK quality
- The optional adaptation to customer requirements saves time and money during commissioning
- Easy operation and installation with the SOPAS ET user interface and the ingeniously positioned LED status indicator
- RS-232 or USB interface to connect to a control or an industrial computer
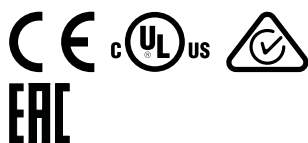
→ **www.sick.com/CLV60x**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

THE SMALL DEVICE FOR MINIATURE CODES AND MUCH MORE

Product description

The Lector61x is the smallest image-based code reader of the Lector® series. It is used for the reliable detection of 1D, 2D, and stacked codes and is characterized by excellent reading properties for very small codes, regardless of the surface quality or the material color. The compact housing with flexible cable routing makes it the ideal code reader for production lines where space is tight. Its variable and stepless focus adjustment enables use for long and short reading distances and low-cost installation is possible thanks to the snap-in mounting.

At a glance

- Powerful DPM code reader
- Compact design
- Snap-in mounting done in seconds
- Stepless focus adjustment from 50 to 300 mm with millimeter precision
- Controllable multi-color lights with optional polarizing filter
- Magnifier effect for detection of the smallest codes
- Easy auto set-up
- Integrated laser distance measurement (ToF)

Your benefits

- Flexible in use: small design, variable reading distances and reading of codes on different material colors
- Increase in productivity: Code reading is possible even if the quality of the code is poor or if the surfaces are glossy
- Low-cost commissioning: snap-in mounting done in seconds and automated parameterization
- An industrial trend: integrated optics with magnifier effect for mini codes on small components and integrated distance measurement

→ **www.sick.com/Lector61x**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

RELIABLE DPM CODE IDENTIFICATION FOR CHALLENGING INDUSTRIAL APPLICATIONS

Product description

The ZS36x8 DPM mobile hand-held scanner very quickly detects all direct partial markings (DPM) and 1D and 2D codes. The rugged housing with IP65 and IP67 enclosure rating enables the mobile hand-held scanner to withstand adverse ambient conditions. Thanks to the three-fold read confirmation via LED, beeper and vibration, it can be quickly and intuitively configured and operated. Corded and cordless variants ensure that the ZS36x8 DPM can be adjusted flexibly to countless applications. SICK offers the right connection modules for integration into industrial fieldbuses such as PROFIBUS, PROFINET and Ethernet TCP/IP. Thanks to the combination of reliable DPM code reading, rugged design, and easy fieldbus configuration, the ZS36x8 DPM can be used in a wide range of industrial applications.

At a glance

- Reading of 1D, 2D, and DPM codes
- Special illumination: direct white light; indirect, diffuse red light
- Very rugged: Survives falls from 2.4 m height and 5,000 rollovers at 1 m drop height each
- Interfaces: USB, RS-232 for integration into PROFIBUS, PROFINET, Ethernet TCP/IP, EtherCAT® industrial fieldbuses

Your benefits

- Detection of challenging DPM codes regardless of code size, surface, contrast and resolution, including very challenging marks such as needle marks, laser etching, ink-jet printing, chemical etching, ink-jet molding and thermal coating
- Detection of codes on all surfaces, e.g., reflective, irregular, and curved, due to the clever illumination system
- Fast and correct reading even on poorly printed 1D and 2D codes
- Highly reliable thanks to rugged industrial housing with enclosure rating IP65 and IP67
- Can be easily integrated into different industrial fieldbuses with connection modules from SICK

→ **www.sick.com/ZS36x8_DPM**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

INSPECTION AND SORTING BY SIZE AND COLOR

Product description

Color Inspection and Sorting inspects unpackaged, primary or secondary packaged objects regarding size and color. The SensorApp is used to count objects with different sizes and colors as well as to detect the color or color gradations of objects and therefore categorize them as "good/developed" or "bad/burned". In addition, objects with anomalies (such as wrong size or color) can be sorted out or the integrity and completeness of secondary packaging can be detected. Different application configurations can be saved as jobs, which can be loaded manually or decentrally. The SensorApp requires a hardware environment, consisting of an SIM4000 or SIM1012, a pico- or midiCam with LED illumination and a photoelectric sensor.

At a glance

- Inspection by size and color
- Flexible camera, lens and illumination concept
- Cameras for tight spaces or critical environments
- Intuitive GUI for set-up and output of results
- Flexible camera triggering
- Results from the GUI and output via digital output and TCP/IP
- Jobs can be loaded decentrally

Your benefits

- The demo mode with example images shows the principle of operation in simple terms
- Step-by-step instructions for defining objects makes it easy to set up a task
- The flexible hardware and SensorApp concept enables customized adaptations and extensions when it comes to functionality and performance
- Very well-suited to industrial use thanks to rugged devices with long service life and availability

➔ www.sick.com/Color_Inspection_and_Sorting

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

2D MACHINE VISION SOLUTION POWERED BY DEEP LEARNING

Product description

The Intelligent Inspection SensorApp from SICK ensures easy object classification that is not possible with traditional rule-based machine vision. The SensorApp is powered by deep learning technology and included when ordering the InspectorP62x Deep Learning 2D vision cameras from SICK. The example-based approach and easy-to-use user interface makes it quick to learn and paves the way for simplified solution development. The user can easily collect training data to be used in the neural network training, and deploy the trained network directly on the camera without the need for any extra equipment. In addition, traditional rule-based machine vision software tools are included.

At a glance

- Classification of objects powered by deep learning technology
- Runs on InspectorP62x Deep Learning 2D cameras
- Easy-to-use user interface in web browser
- Traditional rule-based machine vision software tools included
- Quick customization with SICK Nova Tools

Your benefits

- Simplified solution development in complex machine vision applications not possible with traditional rule-based machine vision
- Example-based approach and easy-to-use user interface that makes it quick to learn without the need for a vision expert
- Low cost of total ownership as deep learning network runs directly on the camera without additional hardware
- Reliable inspection to reduce waste, avoid production downtime, and improve productivity
- The SICK Nova Tools plug-in support with source code access offers customization capabilities to all SICK AppSpace developers

→ **www.sick.com/Intelligent_Inspection**
For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

YOUR QUALITY ASSURANCE NEEDS QUICKLY SOLVED

Product description

The SensorApp Quality Inspection, based on the SensorApp framework SICK Nova, ensures that produced items have the exact qualities required regarding presence and measurements of details. The SensorApp is included in InspectorP6xx 2D cameras and comes pre-installed. Quality assurance applications are solved by configuring a selection of tools for image analysis using a graphical user interface in a web browser. The user can easily add standard and custom SICK Nova tools. Special inspection needs are quickly solved with a custom tool, rapidly created by anyone with a SICK AppSpace license.

At a glance

- 2D machine vision inspection
- Solving detailed quality inspection applications
- Toolset for presence and measuring inspection, calibration, and location
- Quick customization and addition of SICK Nova tools
- Various FOVs, resolutions, performance levels, optics, and lighting
- Easy-to-use user interface in web browser

Your benefits

- Automated quality analysis and verification of details to improve production yield and speed
- Reliable inspection to reduce waste and avoid production downtime
- Customer satisfaction by delivering high-quality products
- Free up staff for more fulfilling assignments by eliminating dull, dangerous or dirty work tasks
- Your special inspection needs quickly solved with a custom tool
- Ability to create your own customized solutions
- The InspectorP6xx selection of 2D cameras fits various performance needs
- Embedded training makes learning quick and convenient

→ **www.sick.com/Quality_Inspection**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

EASY. COMPACT. VERSATILE.

Product description

The InspectorP62x is an industrial all-in-one vision sensor that is easy to use, compact, and versatile. The integrated system of teach auto focus optics and flexible illumination provides high-quality images right out of the box. The included and preinstalled Quality Inspection SensorApp welcomes both expert and non-expert users to configure the sensor in no time using an accessible and intuitive web user interface. As it is based on SICK AppSpace, the InspectorP62x allows for further extension or replacement of functionality through a growing collection of SICK Nova tools or SensorApps from SICK AppPool, or through custom development if needed.

At a glance

- Quality Inspection SensorApp included and preinstalled
- Compact, rugged IP65 housing with swivel connector
- Powerful LEDs, high-quality lens, and teach auto focus
- Large variety of communication interfaces
- Runs compatible SICK AppSpace SensorApps
- Programmable with SICK AppStudio

Your benefits

- Ready to solve machine vision tasks right out of the box
- Fits in small spaces and tight angles
- All-in-one design for simple stand-alone operation
- Industrial communication and digital IOs allow for flexible system integration
- Easy start for anyone with the included and preinstalled Quality Inspection SensorApp
- Extend or replace functionality through a growing collection of SICK Nova Tools or SensorApps from SICK AppPool, or through custom development if needed
- SICK AppSpace, SICK Algorithm Library, and HALCON provide exceptional flexibility

→ **www.sick.com/InspectorP62x**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

RUGGED AND HIGH-RESOLUTION STREAMING CAMERA IN ACCORDANCE WITH GIGE VISION STANDARD

Product description

With IP67 enclosure rating, the midiCam2 GigE-vision-compatible camera family is ideally suited for usage in harsh industrial environments. This is why the midiCam2 has an M12 GigE interface – the standard for industrial image processing – as well as industry-grade M12 connections for the voltage supply and trigger signals. As an alternative, it is also possible to operate it with just one cable measuring up to 100 m in length using Power over Ethernet (PoE). The midiCam2 is available with 1, 3, 5, or 12 megapixel resolution in color and monochrome variants. CMOS image sensors use global shutter technology and enable multiple image sections (AOI). Image recording and transmission are decoupled in the internal 126 MB memory bank, meaning multi-camera applications are supported.

At a glance

- Rugged housing in accordance with enclosure rating IP67
- Power over Ethernet (PoE)
- Wide-range voltage supply: 12 V DC to 24 V DC
- M12 plug connector for the GigE interface
- M12 plug connector for the voltage supply and digital inputs and outputs
- Color and monochrome variants
- Connection for c-mount lenses

Your benefits

- The midiCam2 family is ideal for use on the Sensor Integration Machine (SIM), supporting complex image processing tasks
- Ideal for multi-camera applications, e.g., several cameras on the SIM
- Simple operation using just one connecting cable thanks to PoE
- Can be used reliably, even when you need ruggedness in harsh industrial environments and IP67 enclosure rating
- Compatible with the GigE vision interface standard
- Simple plug and play installation on the SIM thanks to pre-assembled cables

➜ **www.sick.com/midiCam2**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

ULTRA COMPACT INDUSTRIAL STREAMING CAMERAS IN ACCORDANCE WITH GIGE VISION STANDARD

Product description

The picoCam2 GigE-vision-compatible camera family is ideally suited to applications where space is restricted. So that it can be used in industrial environments, the picoCam2 has a screw-fit RJ45 GigE interface – the standard for industrial image processing – as well as industry-grade plug connectors for the voltage supply and trigger signals. As an alternative, it is also possible to operate it with just one cable measuring up to 100 m in length using Power over Ethernet (PoE). The picoCam2 is available with 1, 3, or 5 megapixel resolution in color and monochrome variants. CMOS image sensors use global shutter technology and enable multiple image sections (AOI). Image recording and transmission are decoupled in the internal 126 MB memory bank, meaning multi-camera applications are supported.

At a glance

- Ultra-compact housing
- Power over Ethernet (PoE)
- Wide-range voltage supply: 12 V DC to 24 V DC
- Screw-fit RJ45 GigE interface
- Screw-fit Hirose plug connector for the voltage supply and digital inputs and outputs
- Color and monochrome variants
- Connection for c-mount lenses

Your benefits

- The picoCam2 family is ideal for use on the Sensor Integration Machine (SIM), supporting complex image processing tasks
- Ideal for multi-camera applications, e.g., several cameras on the SIM
- Simple operation using just one connecting cable thanks to PoE
- Reliable, even in very tight spaces
- Compatible with the GigE vision interface standard
- Simple plug and play installation on the SIM thanks to pre-assembled cables

➔ **www.sick.com/picoCam2**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

BIG 3D PERFORMANCE IN A SMALL PACKAGE

Product description

Highly accurate and with an unmatched measurement speed, the next generation Ranger3 streaming cameras can be configured for a wider range of needs. Powered by our unique 3D sensor tailored for demanding vision applications, Ranger3 will serve as a key component in inspection systems worldwide. The camera extracts the true 3D shape of an object, regardless of its contrast or color, and as a result improves quality for a multitude of products. Cost-effective integration is guaranteed through GigE Vision and GenICam compliance. Ranger3 offers big 3D performance in a small housing.

At a glance

- CMOS sensor from SICK with ROCC technology for superior 3D performance
- Processing of up to 15.4 gigapixels/s.
- Full-format 3D profile at 7 kHz
- Sensor resolution: up to 2,560 x 832 px
- GigE Vision and GenICam compliant
- 3D, reflective, and scattered light measurement in one device
- Industrial housing, optional IP65/67 enclosure rating

Your benefits

- Unique CMOS sensor enables fast 3D measurement speed for increased throughput
- Reliable and accurate measurements on dark and bright surfaces enable flexible production – an enabler for Industry 4.0
- High light sensitivity allows 3D inspection without higher laser power
- Accurate shape, volume and position measurements for a wide range of objects improving product quality
- Standardized software integration with GigE Vision and GenICam
- Easy mechanical integration thanks to a compact housing, the ProFlex-Front, industrial connectors, and 4D*pro* accessories

➜ **www.sick.com/Ranger3**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

RELIABLE AND ANONYMOUS DISTANCE MEASUREMENT

Product description

The DistanceGuard SensorApp detects the distance between persons and objects within a certain area and issues a warning when the defined minimum distance is undercut. The 2D LiDAR sensor of the TiM series is a hardware base which scans its environment without making contact. The integrated app combines distance clusters of anonymous persons and objects and measures the distances between them. If two objects or persons get too close, the device immediately detects this and sends a signal. The number of identified objects or persons can also be output, and a maximum number can be set here as well. Distancing rules, for example when standing in line, are therefore easy to follow. Adjustments can be made on short notice if the rules change.

At a glance

- Non-contact person and object counting as well as distance measurement between persons or objects in a defined area
- Hassle-free setting and adjustment of warning limits
- Signaling of breaches via digital output or Ethernet interface
- Detection of anonymous objects based on distance clusters

Your benefits

- Simple and reliable compliance with distancing rules based on legal stipulations, for example
- Quick adaptation to local conditions or changed regulations
- Assistance in controlling flows of visitors
- Flexible and inconspicuous installation due to compact dimensions
- Anonymized data processing: no recording of personal data such as images or videos

➜ www.sick.com/DistanceGuard

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

COMPACT. COST-EFFECTIVE. RELIABLE.

Product description

The TiM2xx is a compact, cost-effective, and reliable 2D LiDAR sensor for a range of applications. Its HDDM+ technology ensures reliable presence monitoring, localization, and object detection along with maximum machine availability. The installed rotatable M12 male connector allows for flexibility when installing the sensor and makes it the most com-

pact of its kind. The TiM2xx offers a monitored area of up to 200 m². The sensor transmits data in real time via its integrated Ethernet interface, thereby enabling simple sensor integration into any industrial control. The SOPAS engineering tool and standard telegram ensure simple configuration.

At a glance

- Quick measurement data output via Ethernet interface
- Working range up to 10 m with focused aperture angle
- Distance measurement with fine angular resolution and HDDM+ technology

- Configuration via SOPAS ET and standard telegram
- Compact, light plastic housing
- Low power consumption

Your benefits

- Quick installation and commissioning
- Simultaneous localization and mapping (SLAM)
- Reliable object detection and maximum machine availability
- Easy and transmittable parameterization

- Small space requirements and easy machine integration thanks to the small dimensions and rotatable male connector
- Particularly well-suited for use in battery-operated vehicles

➜ **www.sick.com/TiM2xx**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

ANONYMOUS AND RELIABLE PEOPLE COUNTING

Product description

The PeopleCounter is a solution developed by SICK which enables differentiation of people from objects over large detection areas. Based on the hardware of the MRS1000 3D LiDAR sensor, which generates measurement data in the form of a point cloud, the integrated SensorApp processes the data. With the PeopleCounter, people can be reliably identified using their contours. This means only people are counted, while objects are blanked out. The process runs without recording personal data, ensuring anonymized data processing.

At a glance

- Exact measurement data output via telegrams and digital outputs
- Intuitive user interface for representation and configuration of the application
- Large aperture angle and four layers of the MRS1000
- Shoulder-head-shoulder contour detection
- Pre-programmed, application-specific app based on a 3D LiDAR sensor

Your benefits

- Anonymized people counting in public spaces
- Read out of current utilization of space
- Reliable identification of the direction of movement of people at entrances and exits
- Reliable differentiation between humans and objects: Humans are detected and objects are not considered due to their contours
- Quick and easy commissioning

→ **www.sick.com/PeopleCounter**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

GRID LOCALIZATIONS WITH THAT CERTAIN SOMETHING

Product description

The GLS6 is a compact line guidance sensor for localization of automated guided vehicles (AGVs). It reliably detects Data Matrix or QR codes which are attached to the floor as rasters and deliver position data to the vehicle control. High travel speeds are no problem for this device. It can localize perfectly on contaminated ground and fits even in the smallest AGV due to its compact

size. And that certain something? Thanks to the auto focus, the GLS6 is well-suited for all ground clearances. Thanks to the integrated alignment aid, mounting is also child's play. And the parameter back-up function ensure process stability in the event of replacement. This is how intelligent localization can be.

At a glance

- Auto focus for variable reading distances of 70 mm to 500 mm
- Reliable reading of data matrix and QR codes
- Small housing with swivel connector

- Integrated angle measurement as alignment aid for mounting
- microSD memory card for backing up parameters
- Very low sensitivity to ambient light

Your benefits

- Thanks to the auto focus, it is well-suited for all ground clearances (vehicle sizes)
- Fast travel speeds possible due to real time image processing
- Fits into even the smallest AGV thanks to its compact size

- Plug and play solution with integrated angle measurement ensures quick and easy commissioning
- Code labels can be individualized for self-printing, ensuring a high level of flexibility and easy solutions
- Short downtimes when devices are replaced thanks to parameter back-up on microSD memory card

➔ **www.sick.com/GLS6**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

ENERGY CONSUMPTION FLOW METER WITH LEAKAGE DETECTION

Product description

The FTMg energy consumption flow meter measures gas flow and temperature as well as the process pressure, making it a cost-saving multi-talent. With high measurement dynamics and low pressure loss, it measures non-corrosive gases with extreme efficiency. The contrast-rich color display enables easy operation of the FTMg and allows for representation of several measured values as a process diagram. Internal data logging over seven days and integrated static evaluation help detect even the smallest leaks in a pneumatic system. PoE also enables simple web-based connection to a PC or a cloud to make energy consumption more transparent. All measurement data can be transmitted via IO-Link or with switching and analog signals.

At a glance

- Measures compressed air and non-corrosive gases such as argon, helium, carbon dioxide, and nitrogen
- Calorimetric measurement principle with a measurement accuracy of ± 3% M.V. and ± 0.3% M.E.V.
- Measurement of gas flow and temperature as well as process pressure and energy consumption with only one sensor
- Low pressure loss
- High measurement dynamics for cylinder and leakage monitoring

Your benefits

- Transparent compressed air consumption measurement according to DIN EN 50001
- Complete overview of the flow, pressure and temperature of gases increases system reliability
- IO-Link or Ethernet interfaces (communication with OPC UA) for simple system integration and data availability
- Cost savings thanks to reduced energy consumption and increase in production efficiency
- Intuitive configuration with large, contrast-rich OLED display saves time and money during commissioning
- Only one installation and commissioning process for the collection of flow, pressure and temperature data

➜ **www.sick.com/FTMg**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SIMPLY BRILLIANT – LEVEL MEASUREMENT IN BULK MATERIALS WITH 80 GHZ RADAR

Product description

The LBR SicWave free-space radar makes continuous level measurements and works with all solids. It is highly resistant to external interference, dust, or deposits. Thanks to its non-contact 80 GHz radar technology, the LBR SicWave can be put into operation easily and is maintenance-free. A wide range of options for antenna design, process connections, and housing ensure ideal connection to any application. HART communication and WPAN connection simplify service and diagnostics on the device and prepare it optimally for Industry 4.0 applications.

At a glance

- 80 GHz free-space radar with various antennas
- Measuring range: up to 120 m
- Process temperature: −40 °C to +200 °C
- Process pressure: −1 bar to 20 bar
- Process connection: thread, flange, special brackets
- Housing: plastic (IP66/IP67) or aluminum (IP66/IP68)
- With or without display and WPAN
- Certificates: Ex d, Ex ia, Ex ta

Your benefits

- One device for all continuous level measurements in solids, simplifies spare part logistics
- Increased plant availability due to non-contact, continuous level measurement
- Quick to commission, saving time and costs
- Low costs and time expenditure as it is maintenance-free
- Rugged to external interference for high plant availability
- Insensitive to foam and dust, preventing unexpected plant downtime
- Ex-certificates available
- Simplified service and diagnostic via HART or WPAN

➜ **www.sick.com/LBR_SicWave**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SIMPLY BRILLIANT – LEVEL MEASUREMENT IN LIQUIDS WITH 80 GHZ RADAR

Product description

The LFR SicWave free-space radar makes continuous level measurements and works with all liquids. It is highly resistant to external interference, foam or deposits. Thanks to its non-contact 80 GHz radar technology, the LFR SicWave can be put into operation easily and is maintenance-free. A wide range of options for antenna design, process connections and housing ensure ideal connection to any application. HART communication and WPAN connection simplify service and diagnostics on the device and prepare it optimally for Industry 4.0 applications.

At a glance

- 80 GHz free-space radar with various antennas
- Measuring range: up to 30 m
- Process temperature: −196 °C to +200 °C
- Process pressure: −1 bar to 25 bar
- Process connection: thread, flange, clamp
- Housing: plastic (IP66 / IP67), aluminum (IP66 / IP68) or stainless steel (IP69)
- With or without display and WPAN
- Certificates: Ex d and Ex ia, WHG, shipbuilding

Your benefits

- One device for all continuous level measurements in liquids, simplifies spare part logistics
- Increased plant availability due to non-contact, continuous level measurement
- Quick to commission, saving time and costs
- Low costs and time expenditure as it is maintenance-free
- Rugged to external interference for high plant availability
- Insensitive to foam and deposits, preventing unexpected plant downtime
- Ex-certificates available
- Simplified service and diagnostic via HART or WPAN

CE

➔ www.sick.com/LFR_SicWave

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

MODULAR LIDAR LOCALIZATION BASED ON NATURAL CONTOURS

Product description

The modular LiDAR-LOC localization solution enables reliable localization based on natural surrounding contours. It supports several scanners at the same time and is also particularly well suited to flat vehicle types. No additional artificial landmarks or external odometry are required for accurate position determination of mobile platforms, automated guided vehicles, or service robots thanks to the LiDAR-LOC. The smart localization algorithm guarantees high resistance to changes to the environment.

The LiDAR-LOC is available as a pure software solution which runs on various AppSpace-certified controllers. It is therefore well suited as a reliable starting point for the development of vehicle navigation.

At a glance

- Position determination for all types and sizes of mobile platforms
- High repeatability of ± 10 mm
- Contour detection with a scanning angle of up to 360°
- Localization resolution of 1 mm
- Refresh rate of 33 Hz
- Easy operation thanks to modern user interface (web browser) as well as ROS integration

Your benefits

- Modular localization solution: tailored to the respective application
- Versatile use: multiple scanners, can be used for a wide range of vehicle types
- Highly resistant to environmental changes
- Fits your existing system architectures: with or without odometer integration
- Localization based on natural contours: no reflectors necessary
- Compatible with standard LiDAR sensors from SICK
- Creates the foundation for effective vehicle navigation, efficient vehicle control, and fleet management

→ **www.sick.com/LiDAR-LOC**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

3D SNAPSHOT – POSITION DETERMINATION FOR PICKING UP DOLLIES

Product description

Precision is key when it comes to the automated pick-up of dollies with an automated guided vehicle system (AGV system). The fine positioning of the AGV system requires the exact identification of the relative place and position of the dolly. The Dolly Positioning SensorApp provides the data needed for this purpose. It runs directly on the Visionary-T AP 3D vision sensor from SICK. The measured values required to automatically pick up the dolly are pre-processed and evaluated on the sensor, then transmitted to the control of the automated guided vehicle system. The Dolly Positioning SensorApp is based on the SICK AppSpace concept and can be loaded on the sensor as a complete, application-specific Key App.

At a glance

- Automated position determination of a wide range of dollies
- Processing of distance values with 144 x 176 pixels per recording
- Working range: 1 m to 1.5 m
- < 800 ms processing time for the detection of coordinates

Your benefits

- Short process times for dolly pick-up
- Increases efficiency of automated guided vehicle systems in logistics
- Low maintenance effort due to stable app hardware combination
- Easy integration on automated guided vehicle systems
- Automated and reliable position determination for nearly any dolly
- Based on SICK AppSpace and makes it possible to load application-specific Key Apps to the sensor using SICK AppManager

→ www.sick.com/Dolly_Positioning

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

3D SNAPSHOT – FOR THE DETECTION AND POSITION DETERMINATION OF PALLET POCKETS
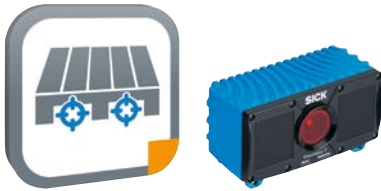
Product description

The storage and removal of loads using industrial trucks requires the precise detection of storage spaces and pallet, especially at great heights. For an automated manned forklift truck to correctly pick up and transport a pallet, for example, it must precisely detect the pallet pockets. The Pallet Pocket Detection SensorApp provides the data required to do this. It runs directly on the Visionary-T AP 3D vision sensor from SICK. The measured values required to pick up the pallet are pre-processed and evaluated on the sensor, then transmitted to the control of the automated manned forklift truck. The Pallet Pocket Detection SensorApp is based on SICK AppSpace and can be loaded on the sensor as a complete, application-specific Key App.

At a glance

- SensorApp for automated position determination of pallets
- Processing of distance values with 144 x 176 pixels per recording
- Working range: 1.5 m to 3 m
- < 800 ms processing time for the detection of coordinates

Your benefits

- Automated detection of the pallet pockets of nearly any pallet type
- Reliable position determination of pallets
- Short process times for pallet pick-up
- Increases efficiency of industrial trucks in logistics
- Low maintenance effort due to stable app hardware combination
- Easy integration on industrial trucks

➜ **www.sick.com/Pallet_Pocket_Detection**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

PROTECTION FOR PERSONS, MACHINES, AND PLANTS – CORRECT AND EFFICIENT
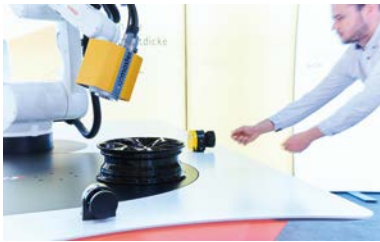
Product description

Safe plants and machines provide legal certainty for both manufacturer and user. The protection of persons, machines, and plants in many countries and regions in the world is therefore regulated by laws and standards. SICK offers safety trainings for the safety of machines and plants in factory, logistics, and process automation, from basic knowledge to expert qualification with final TÜV certificate. Ensuring safety with efficient technical solutions is always at center stage. The trainings are available all over the world and take into account special regional features of regulatory and standard specifications. All trainings are conducted by qualified experts with many years of practical experience.

At a glance

- Web-based trainings and presence trainings
- Proof of qualification after successful participation
- Integration of hand-on lessons
- In-house and customer-specific trainings are possible
- Comprehensive training material

Your benefits

- Be familiar with, understand, evaluate, and efficiently use different protective and monitoring measures
- Step-by-step development for experts for your legal certainty
- Support in legal certainty for machines and system manufacturers by teaching the current state of technology
- Knowledge which can be easily transferred and applied directly in practice including individual requirements of the training participants
- Expert knowledge supplements documentation

➔ www.sick.com/Safety_training

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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☑ Easily order online and track your delivery.

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☑ Create, save, and share as many wish lists as you want.

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☑ Check the status of your orders and quotes and get information on status changes by e-mail.

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☑ Easily export orders and quotes, suited to your systems.

SERVICES FOR MACHINES AND PLANTS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.

Consulting and design
Safe and professional

Product and system support
Reliable, fast, and on-site

Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
Easy, safe, and economical

Training and education
Practical, focused, and professional

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

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

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

That is "Sensor Intelligence."

Worldwide presence:

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

Detailed addresses and further locations ➜ **www.sick.com**

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