SICK innovations

THE INNOVATIONS MAGAZINE

Issue 2023/2024

EDITORIAL

At what point is a new product an innovation? If you believe the dictionary, all you have to do is create and introduce a novel, advanced solution. But for SICK, innovation means much more: For us, innovation is not just about creating something new or improving what already exists. Innovation means being imaginative, inventive, courageous and successful. We think about innovation from point of the view of your application, of the customer. We anticipate market developments. This is where “Sensor Intelligence.” makes the difference.

Do innovations just happen? No. They require specialist knowledge, expertise and bright minds. Fortunately that is exactly what we have at SICK. We don't just develop for the sake of it, but rather concentrate on the technologies and solutions that give you added value. On the one hand, we focus on our core business, the sensor. At the same time, we utilize the possibilities of the digital and virtual world to deliver holistic solutions for your specific automation needs.

Digitalization in automation is leading to a continuously growing demand for sensor products and applications. To continue to expand our leading position worldwide, we are investing heavily in research and development: The number of R&D employees throughout the Group continues to increase year by year, helping to transform innovative ideas into marketable products. Six new start-up initiatives emerged from an internal business idea competition in 2022. They impressed with concepts for digital business models that are needed in the world of Industry 4.0.

We are generating momentum time and time again with our acceleration forces, as the commitment of our employees to their projects results in impressive vigor. As sensor intelligence brings the innovative impetus to make you, our customers, happy.

Yours,

Dr. Niels Syassen
Member of Technology & Digitalization Executive Board, SICK AG

UNLEASH THE POWER OF YOUR DATA

The digital revolution has been changing all of our lives for years. But the digitalization of industrial production processes still creates many questions for companies. These include: “What do I need to consider? “When will it pay off for me?” And in particular: “How do I implement it effectively?” A particularly important aspect of this is selecting the right partner, one who can support you with implementation and has expertise in three areas: sensors, integration, and data processing. Because these areas are closely intertwined and influence each other, they need to be tailored to one another.

Generating the data at the field level

When implementing digitalization, it is sometimes forgotten that the best connection and the nicest dashboard are pointless if its foundation, i.e. the generation of data, is unreliable. SICK not only has a comprehensive portfolio of sensors, but also a deep understanding of processes and applications. Our experts will advise you when selecting and installing the sensors to ensure that you are actually measuring what really needs to be measured.

Interface between OT and IT

SICK offers a multitude of technologies and tools for ensuring a problem-free integration of the data into your control systems. Why? Because which integration options are useful depends on the application, location, and type of measurement. The issue of cybersecurity also plays an important role. SICK is guided in this respect by the international series of standards IEC 62443 “Industrial communication networks – Network and system security”. This series of standards also provides a foundation for the development of products.

Data analysis and provision

To monitor and improve your processes, you need meaningful and valuable data on which to base your decisions. Our portfolio of digital solutions has been specially developed to provide you with these insights. Learn more about digital solutions and how we can add value for you as well at:
www.sick.com/digitalsolutions

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

Miniature photoelectric sensors

W4S

Powerful miniature photoelectric sensors and photoelectric proximity sensors for automation

- Innovative technologies enable trouble-free plant operation through reliable object detection
- Many operating modes: Reduction of storage costs thanks to multifunctional variants (MultiMode device WTM4S and WLG4S)
- Very user friendly thanks to quick and convenient commissioning and operation
- Smart Sensors with innovative monitoring, diagnostic functions and process data such as distance values

Reliable detection of transparent and reflective objects

Intuitive operating concepts for quick and easy adjustment

Product description

W4S miniature photoelectric sensors and photoelectric proximity sensors are the ideal solution for the intelligent automation of industrial processes. The powerful sensors in the miniature housing reliably detect glossy, flat, uneven, perforated and transparent objects and detect a wide range of parameters such as remission and distance values. The profile is rounded out with an intuitive operating concept and intelligent diagnostic functions.

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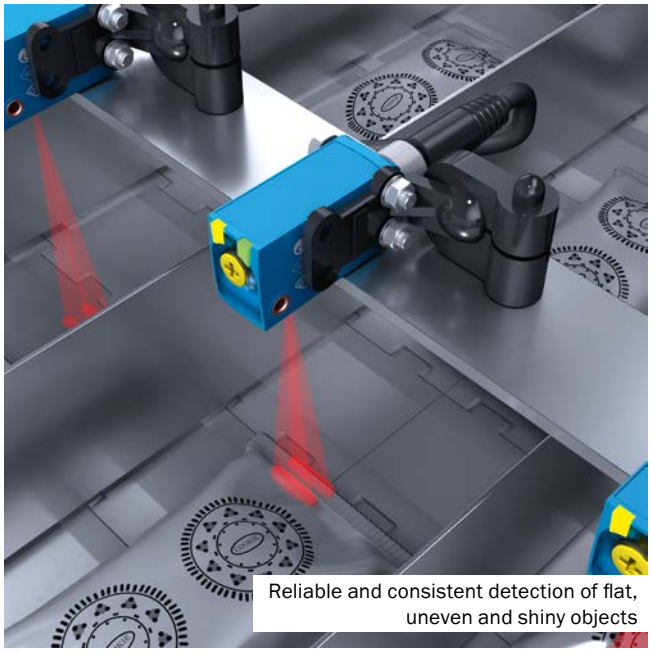
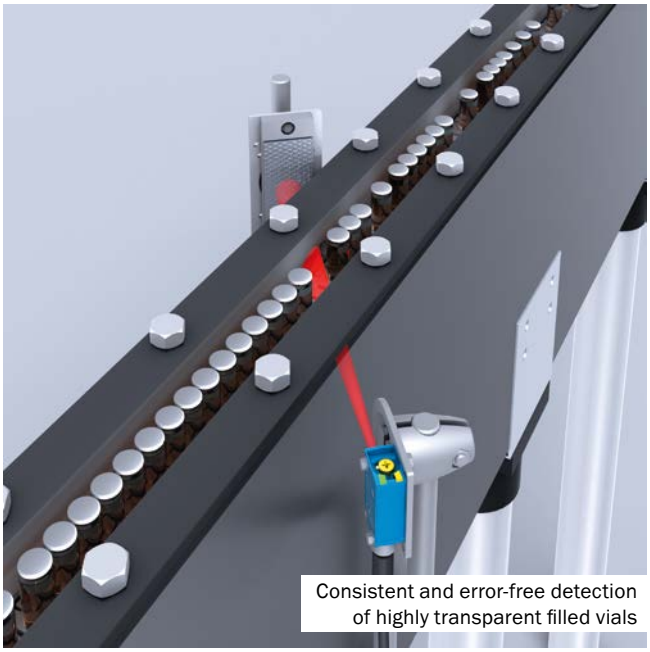
Application examples



Reliable and consistent detection of flat, uneven and shiny objects



Consistent and error-free detection of highly transparent filled vials

Technical data overview

Dimensions (W x H x D)	12.1 mm x 41.9 mm x 18.6 mm
Light sender	PinPoint LED
Type of light	Visible red light
Enclosure rating	IP66, IP67
Housing material	Plastic
Configuration	Teach-Turn adjustment, teach-in button, cable, none

Selected products

Principle of operation	Sensing range min. / max.	light spot size (distance)	Light spot shape	Type	Part no.
Photoelectric proximity sensor (background suppression, foreground suppression, MultiMode)	4 mm / 250 mm 0 mm / 250 mm 4 mm / 500 mm (depending on operating mode)	4 mm (150 mm)	Point-shaped	WTM4SP-22161120A00	1131619
Photoelectric proximity sensor (background suppression)	0 mm / 150 mm	2.5 mm x 16 mm (50 mm)	Linear, two parallel linear light spots	WTB4ST-22161120A00	1131620
Photoelectric proximity sensor (foreground suppression)	0 mm / 130 mm	2 mm (80 mm)	Rectangular, consisting of two parallel light spots	WTF4SD-22162220A00	1132089
Photoelectric retro-reflective sensor (autocollimation, ClearSens)	0 mm / 7.1 m	150 mm (5 m)	Point-shaped	WLG4SP-22162120A00	1132092
Photoelectric retro-reflective sensor (autocollimation)	0 mm / 7.1 m	150 mm (5 m)	Point-shaped	WLA4SP-22162130A00	1136389

ECOLAB PinPoint by SICK IO-Link

→ www.sick.com/W4

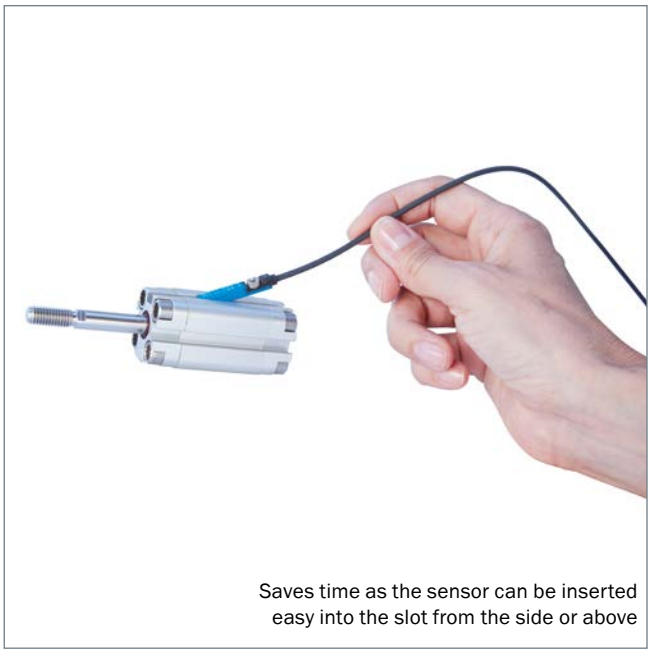
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Cylinder sensors

MPS-M

Low-cost, high-performance position sensor for T-slot cylinders

- For all commonly used T-slots
- Position feedback within a fixed measuring range of up to 50 mm
- Analog interface: 0 V to 10 V
- IO-Link (position measurement, 8 switching points, actuator diagnosis function)
- Actuator diagnosis data: Piston velocity, piston stroke, magnetic field strengths, etc.



Saves time as the sensor can be inserted easy into the slot from the side or above

Suitable for almost any mounting situation with a housing length of 32.5 mm and no interfering contours outside the slot

The wear-free measurement principle provides accurate measurement data throughout the entire service life of the sensor

Product description

The cost-effective MPS-M position sensor detects the piston position in pneumatic drives continuously and with micrometer precision without making contact. It is designed for cylinders with T-slots and can be mounted quickly, easily and securely. After installation, the MPS-M can be used directly for measurements – there is no need for parameterization or teach-in when recording the piston position. It continuously delivers exact position data via analog interface or IO-Link. Up to 8 switching points with different switching modes can also be configured using IO-Link. The actuator diagnosis function of the sensor uses performance data such as piston velocity, piston travel or number of piston strokes to make the processes in pneumatic drives visible.

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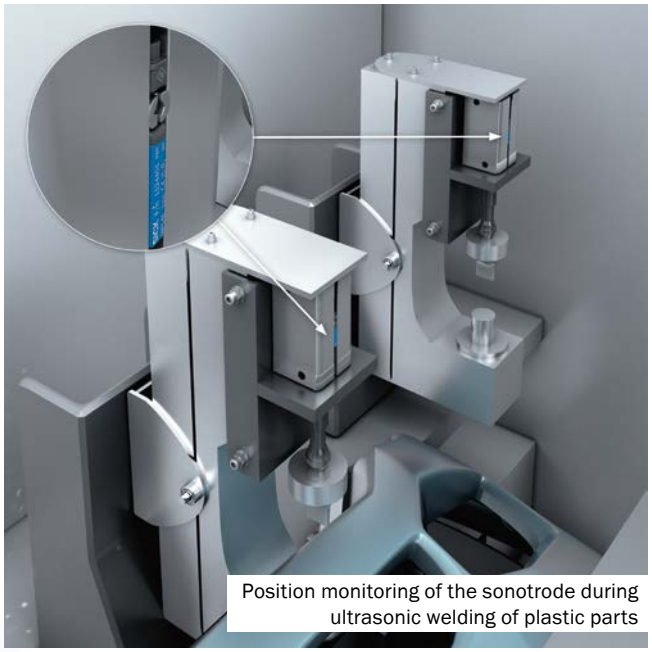
Application examples



Position monitoring of the sonotrode during ultrasonic welding of plastic parts

Technical data overview

Output function	Analog (0 V to 10 V), IO-Link
Measuring range	50 mm
Repeatability typ.	0.05 mm
Linearity error typ.	0.3 mm
Housing length	32.5 mm
Enclosure rating	IP67
Ambient temperature, operation	– 20 °C ... + 70 °C

Selected products

Connection type	Switching function	Diagnostic functionality	Type	Part no.
Cable with M8 male connector, with knurled screws, 0.5 m	Analog, IO-Link	Actuator diagnosis	MPS-M50TUH05D45CZZ	1124401
Cable open end, 2 m	Analog, IO-Link	Actuator diagnosis	MPS-M50TUH0BA45CZZ	1124403
Cable with M12 male connector, with knurled screws, 0.3 m	Analog, IO-Link	Actuator diagnosis	MPS-M50TUH03E45CZZ	1124402

IO-Link

→ www.sick.com/MPS-M

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

Color sensors

CSS High Resolution

Detects even very slight color nuances and masters changing distances

- High color resolution
- Sensing distances up to 500 mm as well as automatic sensing distance regulation
- Output of color values (L*a*b/RGB) and color similarity
- IO-Link interface, application-specific setup assistance via SOPAS
- Full color TFT display

Even detects color nuances that are difficult for the human eye to distinguish

Suitable for applications with changing distances and object sizes thanks to automatic sensing distance regulation

Structures and color gradients of natural materials are no problem thanks to the innovative teach-in process

Product description

With its high color resolution and an innovative teach-in method, the new CSS High Resolution color sensor can even distinguish between fine color nuances. It also detects color gradients and structured materials like wood. Besides sensing distances of up to 500 mm, the CSS High Resolution comes with an automatic sensing distance regulation feature: The CSS High Resolution detects colors precisely even at changing distances and with varying object sizes. Furthermore, the full color TFT sensor display shows color values (L*a*b or RGB) as well as the similarity of a detected color to a taught-in color. Up to 24 colors per identification task (job) can be transferred via the IO-Link interface and saved externally. Thanks to an application-specific setup assistant, the sensor can be quickly installed via the SOPAS software.

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Application examples

Quality control: Thorough check of color tone and structure, for example after printing, dyeing or lacquering

Technical data overview

Sensing distance	50 mm ...150 mm 50 mm ...500 mm
Light spot size	Ø 3.5 mm ... 6.5 mm [1)] Ø 8 mm ... 32 mm [1)]
Switching frequency	4 kHz
Response time	120 µs
Configuration	Single Value Teach-in, Multi Value Teach-in
Enclosure rating	IP67
Ambient temperature, operation	– 20 °C ... + 55 °C

[1)] Depending on the sensing distance.

Selected products

Sensing distance	Light spot size	Connection type	Communication interface	Type	Part no.
50 mm ... 150 mm	Ø 3.5 mm ... 6.5 mm	M12 male connector, 5-pin	IO-Link	CSS-WBG4C4115AA10Z	1120173
50 mm ... 500 mm	Ø 8 mm ... 32 mm	M12 male connector, 5-pin	IO-Link	CSS-WBGAD4115AA10Z	1120174
50 mm ... 150 mm	Ø 3.5 mm ... 6.5 mm	M12 male connector, 8-pin	IO-Link	CSS-WBG4C4118AA10Z	1113521
50 mm ... 500 mm	Ø 8 mm ... 32 mm	M12 male connector, 8-pin	IO-Link, Modbus (RS-485)	CSS-WBGAD4118RZZZZ	1120176

IO-Link

→ **www.sick.com/CSS_High_Resolution**

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

Color sensors

CSS/CSX High Speed

Captures 24 stored colors quickly and offers precise adjustment options

- Switching frequency: 13.8 kHz
- Output of color values (L*a*b or RGB) and color similarity
- Output of up to 15 colors using the “Coded” mode
- IO-Link interfaces; SOPAS software with application-specific setup assistant
- CSX: Mounting compatible with predecessor CS8

With a switching frequency of 13.8 kHz, very well suited for fast running processes

In “Coded” mode, up to 15 colors can be output by binary coding of the switching outputs

Product description

The CSS/CSX High Speed color sensor is characterized by its high switching frequency and its precise, infinitely variable sensitivity adjustment. Furthermore, the sensor outputs color values (L*a*b or RGB) as well as the similarity of a detected color to a taught-in color. Thanks to its innovative teach-in procedure, the CSS/CSX High Speed also detects color gradients and structured materials. The switching outputs of the device can be binary coded in “Coded” mode without interfaces, which enables it to output up to 15 colors. Up to 24 colors per identification task (job) can even be transferred via the IO-Link interface and saved externally. The sensor can be quickly and precisely configured for the specific application using the setup assistant in the SOPAS software.

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Application examples

Fast sorting of objects by color, for instance, components in the automotive industry and machine construction; containers and pallets in intralogistics; vial and beverage bottle lids

Technical data overview

Sensing distance	60 mm (± 9 mm) 13 mm (± 5 mm)
Light spot size	Ø 12 mm 2 mm x 4 mm
Switching frequency	13.8 kHz
Response time	36 µs
Configuration	Single Value Teach-in, Multi Value Teach-in
Enclosure rating	IP67
Ambient temperature, operation	– 25 °C ... + 75 °C

Selected products

Design	Sensing distance	Communication interface	Connection type	Type	Part no.
Small (CSS)	13 mm	IO-Link	M12 male connector, 5-pin	CSS-WBF114115AA00Z	1120168
Small (CSS)	13 mm	IO-Link, Modbus (RS-485)	M12 male connector, 8-pin	CSS-WBF114118RZZZZ	1115223
Small (CSS)	60 mm	IO-Link	M12 male connector, 5-pin	CSS-WBFA54115AA00Z	1120170
Medium (CSX)	13 mm	IO-Link	M12 male connector, 5-pin	CSX-WBF114125AA00Z	1120177
Medium (CSX)	60 mm	IO-Link	M12 male connector, 8-pin	CSX-WBFA54128AA00Z	1113515

IO-Link

→ **www.sick.com/CSS_CSX_High_Speed**

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Displacement measurement sensors

OD7000

Precise distance measurement for demanding applications

- Distance measurement using the chromatic confocal method regardless of surface and material changes
- Scanning range: 0.6 mm, 4 mm, 10 mm
- Resolving power: optionally up to 25 nm, 180 nm or 400 nm
- Allows precise and reliable measurement of distances and material thicknesses while being highly cost effective
- Certain variants of the sensor can define an encoder signal as a trigger for measurement data output using the optional integrated encoder input

Compact controller with standard Ethernet TCP/IP interface, variants with serial interface and encoder input

Three different sensor head types with different measuring ranges and resolutions – 600 µm / 25 nm, 4 mm / 180 nm, 10 mm / 400 nm

Product description

The OD7000 is a chromatic confocal distance sensor. It measures distances to objects very precisely and cost effectively – regardless of their surfaces and materials. With a resolution of up to 25 nm, the high performance sensor reliably detects whether surfaces are smooth, or whether objects are positioned precisely or have the desired material thickness. Since the sensor head and control unit are separate from one another, the compact OD7000 is easy to install even in tight measurement locations. Thanks to the intuitive user interface, the device can be configured quickly. Its Ethernet and RS-422 interfaces make system integration easy. Two variants are available, with or without encoder input. For the versions with encoder input, the sensor can be triggered via an encoder signal

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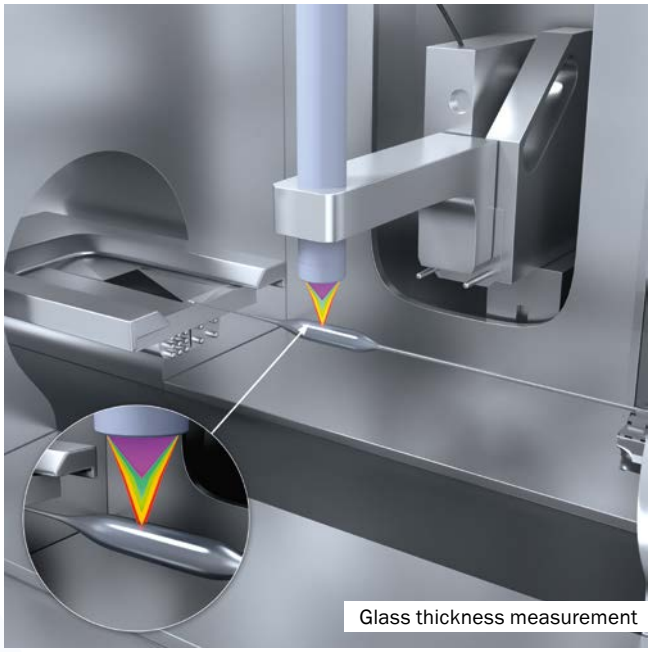
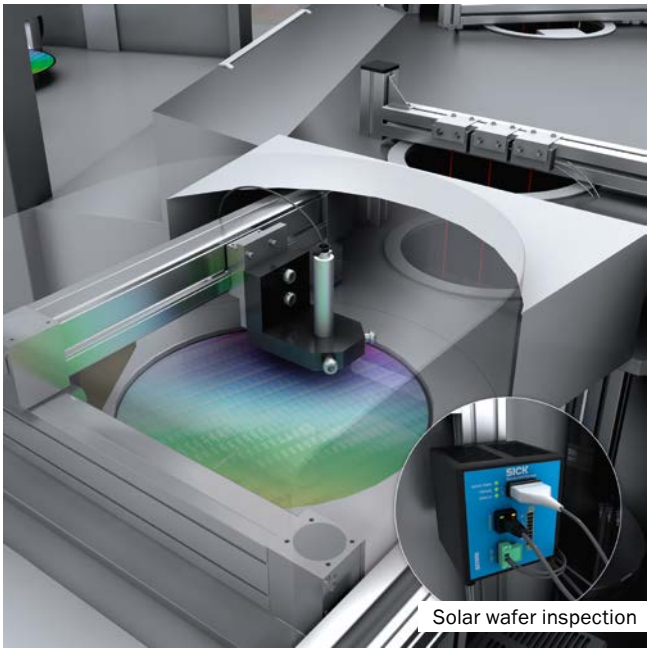
Application examples


Glass thickness measurement


Solar wafer inspection

Technical data overview

Measuring range	6.2 mm ... 74 mm
Linearity	≥ 198 nm ≥ 1.4 µm ≥ 4 µm
Measuring frequency	≤ 10 kHz
Digital output	0 ... 2
Light sender	0 ... 2
Type of light	Visible white light
Serial	✔, RS-232, RS-422 / RS-232, RS-422
Ethernet	✔, TCP/IP/TCP/IP
Analog output quantity	2
Analog output type	Current output/Voltage output
Ambient temperature, operation	0 °C ... + 50 °C

Selected products

Communication interface	Measuring range	Analog output type	Digital output	Type	Part no.
Serial, Ethernet	6.2 mm ... 6.8 mm	Current output / Voltage output	2	OD7000-10061032	6079486
		–	0	OD7000-10061031	6079487
	35.5 mm ... 39.5 mm	Current output/ Voltage output	2	OD7000-10401031	6079489
		–	0	OD7000-10401032	6079490
	64 mm ... 74 mm	Current output / Voltage output	2	OD7000-11001031	6079491

→ **www.sick.com/OD7000**

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

Mid range distance sensors

Dx80

A new level of precision

- Measuring ranges of 0.05 m to 80 m on white, up to 14 m on black
- Accuracy +/-2 mm, maximum resolution 0.1 mm
- Highly accurate measurements for increasing your process quality and saving valuable resources
- TFT color display and user-friendly menu guidance
- Resistant to ambient light and temperature changes

The icon-supported color display offers an intuitive user experience and simple commissioning

Easy integration and access to comprehensive sensor data thanks to IO-Link for improved process control

Product description

The Dx80 distance sensor combines a large measuring range with remarkable accuracy. Our specialist team has achieved this by selecting advanced materials and sophisticated measurement principles. The Dx80 distance sensor offers a measurement accuracy of +/-2 mm at a maximum scanning range of 80 m. Whether you design production lines, develop professional systems or are an expert in mobile machinery, our Dx80 distance sensor serves as a precision tool. Thanks to the extremely compact design, it can be used in the tightest of spaces. Even harsh ambient conditions cannot harm this sensor.

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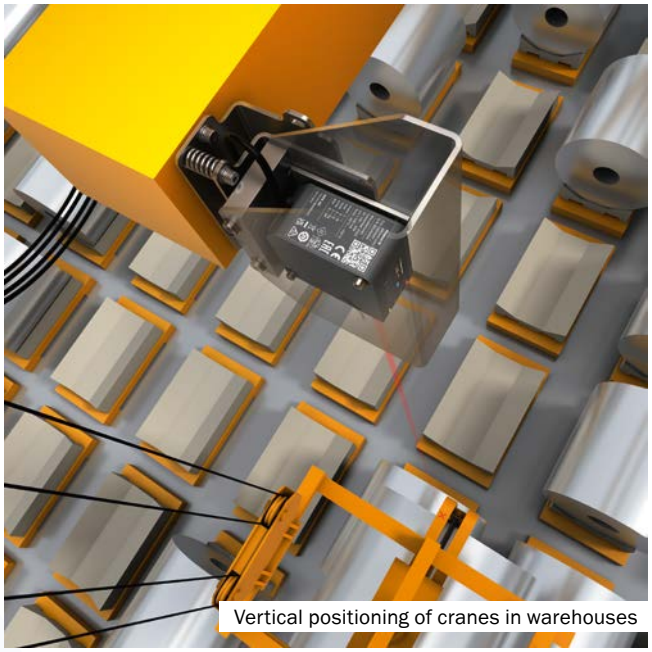
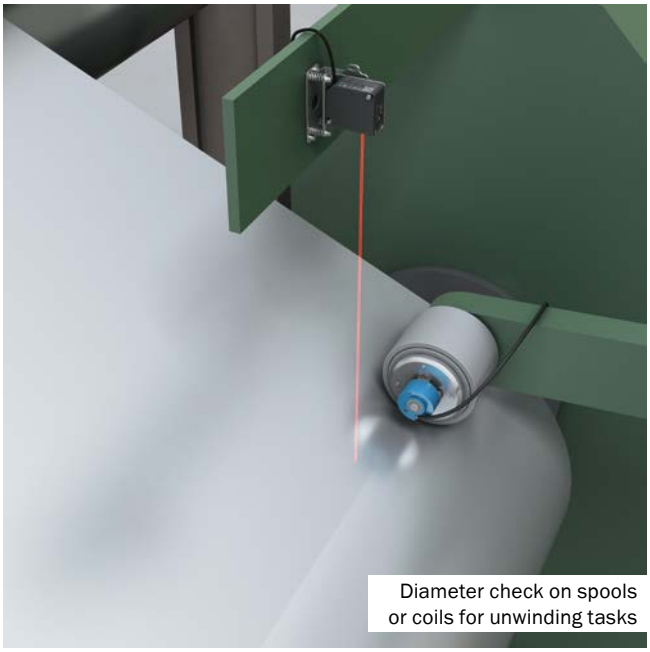
Application examples



Vertical positioning of cranes in warehouses



Diameter check on spools or coils for unwinding tasks

Technical data overview

Measuring range	50 mm ... 80,000 mm, 90% remission factor, measuring cycle time 3,000 ms 50 mm ... 40,000 mm, 90% remission factor 50 mm ... 14,000 mm, 6% remission factor
Repeatability	≥ 0.2 mm
Accuracy	± 2 mm
Response time	33 ms ... 68 ms
Output time	33 ms, 50 ms, 100 ms, 200 ms ... 3,000 ms
IO-Link	✔, IO-Link V1.1, COM3 (230.4 kBaud)
Analog output	
Quantity	1
Type	Current output/Voltage output
Digital output	1 ... 2 x push-pull: PNP/NPN
Ambient temperature, operation	– 10 °C ... + 50 °C, Uv ≤ 30 V
Light sender	Laser, red
Laser class	2 (IEC 60825-1:2014)

Selected products

Communication interface	Analog output type	Number of digital outputs	Response time	Type	Part no.
IO-Link	Current output / Voltage output	1 ... 2	33 ms ... 68 ms	DT80-311111	1118113

IO-Link

→ www.sick.com/Dx80

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

Ultrasonic sensors

UC40

The intelligent ultrasonic all-rounder with the flexible design

- Measuring range up to 5,000 mm
- Push-pull digital output with IO-Link and analog output
- Integrated temperature compensation
- Powerful due to application-specific adaptable sound cone and interference echo suppression
- Resistant to harsh conditions such as rain, fog and dust

The lean interface concept provides more flexibility and also reduces warehousing costs

It doesn't get much easier than this: Thanks to the intuitive push-lock mounting concept, the UC40 can be installed in no time at all

Product description

The UC40 is a compact ultrasonic sensor for medium distances that precisely detects the distance, presence or position of objects, regardless of material color and ambient light. That means it is also suitable for level monitoring and collision avoidance. Thanks to the convenient push-lock mounting concept and integrated analog and digital interfaces with IO-Link, the UC40 can be installed quickly and used anywhere. A rotating sensor head facilitates alignment while IO-Link and teach-in buttons accelerate parameterization. The sound cone can be adjusted variably to the requirements on site. Interference signals can be easily suppressed. This increases performance and ensures reliable object detection.

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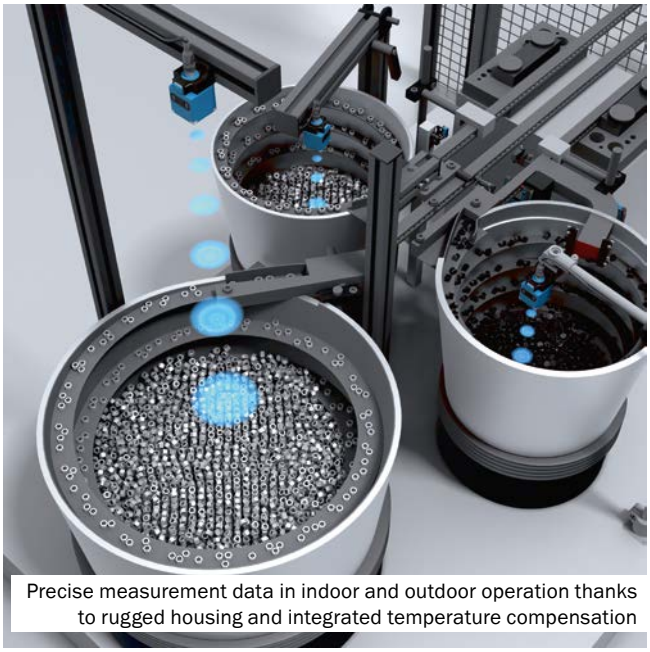
Application examples

Reliable object detection and distance measurement for collision avoidance in autonomous transport vehicles



Precise measurement data in indoor and outdoor operation thanks to rugged housing and integrated temperature compensation

Technical data overview

Operating range, limiting range	65 mm ... 3,400 mm, 5,000 mm
Resolution	0.1 mm / 1 mm
Repeatability	± 0.15%
Accuracy	± 1 %
Output time	16 ms ... 41.6 ms
Switching frequency	4 Hz / 7 Hz / 10 Hz
Analog output	Automatic: 4 mA ... 20 mA / 0 V ... 10 V
Digital output	Push-pull: PNP/NPN
IO-Link	IO-Link V1.1
Enclosure rating	IP65, IP67
Ambient temperature, operation	– 25 °C ... + 70 °C
Dimensions (W x H x D)	40 mm x 40 mm x 66 mm
Display	4 x LED

Selected products

Operating range, limiting range	Response time	Digital output	Analog output type	Type	Part no.
65 mm ... 350 mm, 600 mm	64 ms	1 ... 2 x push-pull: PNP/NPN	Current output / Voltage output	UC40-11211H	6081948
200 mm ... 1,300 mm, 2,000 mm	96 ms	1 x push-pull: PNP/NPN	–	UC40-11311B	6081946
350 mm ... 3,400 mm, 5,000 mm	160 ms	1 ... 2 x push-pull: PNP/NPN	Current output / Voltage output	UC40-11411H	6081950

IO-Link

→ **www.sick.com/UC40**

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

Safety laser scanner

nanoScan3 Pro – EFI-pro, EtherNet/IP™

The smallest safety laser scanner from SICK – extremely rugged and highly precise

- Only 80 mm high – for simple and space-saving design on mobile platforms
- Extremely resistant to light, dust and dirt thanks to the safeHDDM® scanning technology
- Protective field range: 3 m, scanning angle: 275°
- Up to 128 freely configurable fields
- New: Easy integration into control systems via EtherNet/IP™ CIP Safety™ and EFI-pro

High productivity thanks to secure network integration via EtherNet/IP™ CIP Safety™ or EFI-pro

Fast device changeover thanks to system plug with integrated configuration memory

Product description

The nanoScan3 is the smallest safety laser scanner from SICK. It is well suited for the protection and localization of mobile platforms. Thanks to the reliable safeHDDM® scanning technology, it delivers high-precision measurement data and is extremely resistant to light, dust or dirt. The easy operation of the Safety Designer configuration software and the clever integration options of the nanoScan3 ensure flexibility in applications and also save time. The nanoScan3 therefore offers a high level of performance and availability in a compact housing, thereby securing system productivity.

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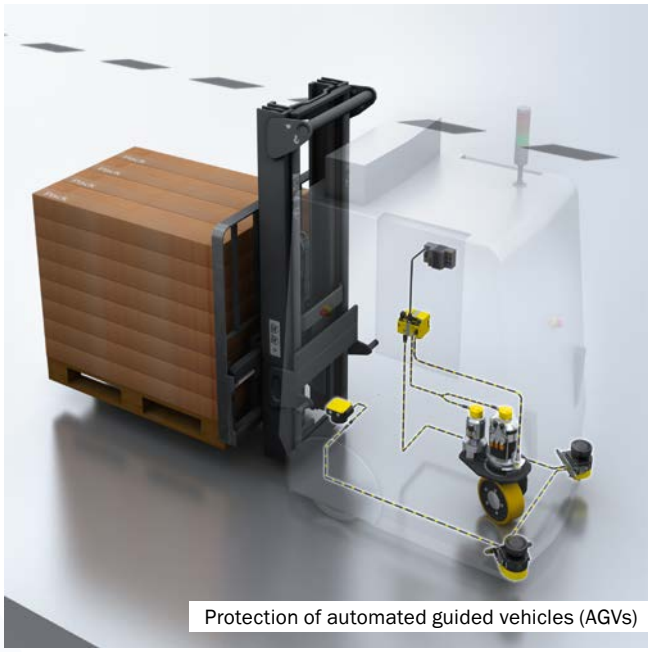
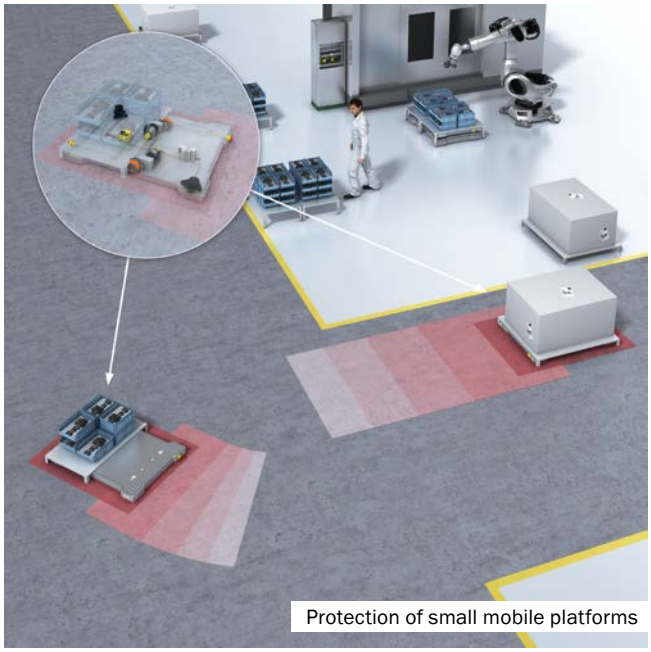
Application examples



Protection of automated guided vehicles (AGVs)



Protection of small mobile platforms

Technical data overview

Application	Indoor
Protective field range	3 m
Warning field range	10 m
Scanning angle	275°
Number of fields	8 / 128
Number of monitoring cases	2 / 128
Number of simultaneously monitored fields	≤ 8 (per nanoScan3 Pro EFI-pro safety laser scanner)
Response time	≥ 70 ms
Integration in the control	Local inputs and outputs (I/O) EFI-pro CIP Safety™ over EtherNet/IP™
Safety level	Type 3, PL d, SIL2

Selected products

Integration in the control	Type	Part no.
Local inputs and outputs (I/O), EFI-pro	NANS3-CAAZ30AA1	1126792
EFI-pro	NANS3-CAAZ30ZA1	1126793
CIP Safety™ over EtherNet/IP™	NANS3-CAAZ30IZ1	1126794

→ **www.sick.com/nanoScan3**

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

Safety laser scanner

outdoorScan3 Pro – PROFINET and airWiper

The safety laser scanner for outdoor automation

- High productivity through safe man-machine cooperation indoors and outdoors
- Certified in accordance with ISO 13849 and IEC 62998 for protecting people indoors and outdoors
- Modular accessories for high performance – even in changing weather conditions
- New: Integration into the controller via PROFINET PROFIsafe
- New: airWiper sensor kit for compressed air cleaning of the optics cover for increased availability

outdoorScan3 with modular accessories ensures high availability even in changing weather conditions

Product description

The outdoorScan3 safety laser scanner protects people outdoors in a wide range of mobile and stationary applications. Thanks to intelligent algorithms and the outdoor safeHDDM® scanning technology, the sensor achieves high productivity even in unfavorable weather conditions. The outdoorScan3 stands out thanks to the rugged housing, smart connection technology and advanced diagnostic functions. Modular accessories are also available to meet your application requirements. The Safety Designer configuration software from SICK enables intuitive operation.

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Application examples

Detection of persons at automated guided vehicles for a continuous and reliable material flow across production halls

Person and collision protection when docking and undocking passenger boarding bridges

Technical data overview

Protective field range	4 m
Warning field range	40 m
Scanning angle	275°
Number of fields	128
Number of monitoring cases	128
Response time	≥ 115 ms
OSSD pairs	0
Integration in the control	PROFINET PROFIsafe
Safety level	Type 3, PL d, SIL2
Compressed air cleaning	Possible

Selected products

Integration	Protective field	Number of fields	Compressed air cleaning	Type	Part no.
PROFINET PROFIsafe	4 m	128	Not possible	MICS3-CBUZ40PZ1P01	1094474
			Possible	airWiper Kit outdoorScan3 Pro – PROFINET	1128913

→ **www.sick.com/outdoorScan3**

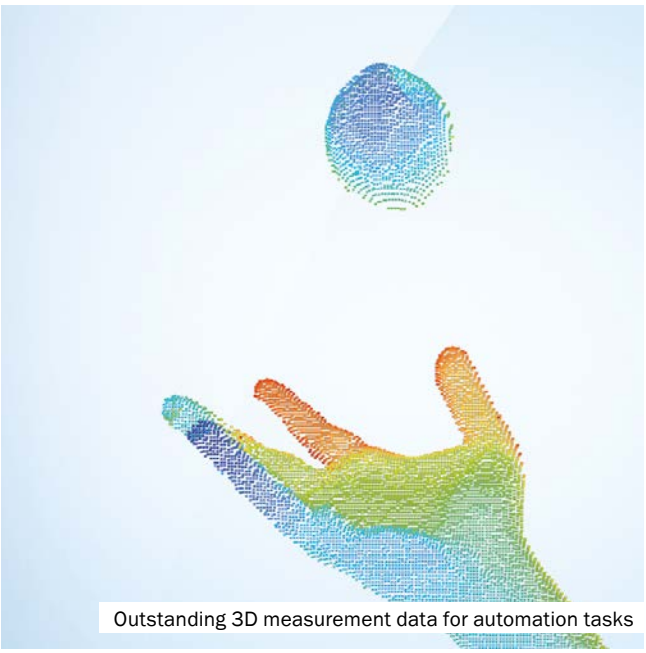
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Safety camera sensors

safeVisionary2

Safe 3D environment perception opens up new dimensions

- Solve your safety applications simply and efficiently – with the safe 3D environment perception
- Use the additional precise 3D measurement data for automation tasks, e.g., contour-based navigation for your mobile vehicles
- Benefit from user-friendly configuration, commissioning and diagnostics
- Compact shock and vibration resistant design with enclosure rating IP65 / IP67



Outstanding 3D measurement data for automation tasks

Space-saving integration thanks to compact dimensions

Product description

With its safeVisionary2, SICK is opening up new dimensions in safety technology. The 3D time-of-flight camera allows for safe three-dimensional environment perception which you can use to increase the safety and efficiency of your applications. Thanks to the precise measurement data, the camera also reliably solves automation tasks, thus eliminating the need for you to purchase additional hardware components. safeVisionary2 has a compact, rugged design and can be used reliably in a wide range of everyday industrial applications.

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Application examples

3D protective field for stationary applications

Safe collision protection and side protection for mobile applications

Technical data overview

Protective field range	≤ 2 m ≤ 4 m in Increased scanning range mode
Warning field range	≤ 7.3 m
Distance measurement range	≤ 16 m
Number of simultaneous protective fields	2
Number of monitoring cases	8
Measurement data output	Ethernet
Dimensions (W × H × D)	70 mm × 80 mm × 77 mm
Field of view	68° x 42° (protective field evaluation) 68° x 58° (measurement data)
Frame rate	30 fps
Resolution	512 x 424 pixels
Safety level	Type 2, PL c, SIL1, SILCL1

Selected products

Description	Type	Part no.
Safe 3D time-of-flight camera	V3SA2-ABBABBAAN1	1116398

→ **www.sick.com/safeVisionary2**

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

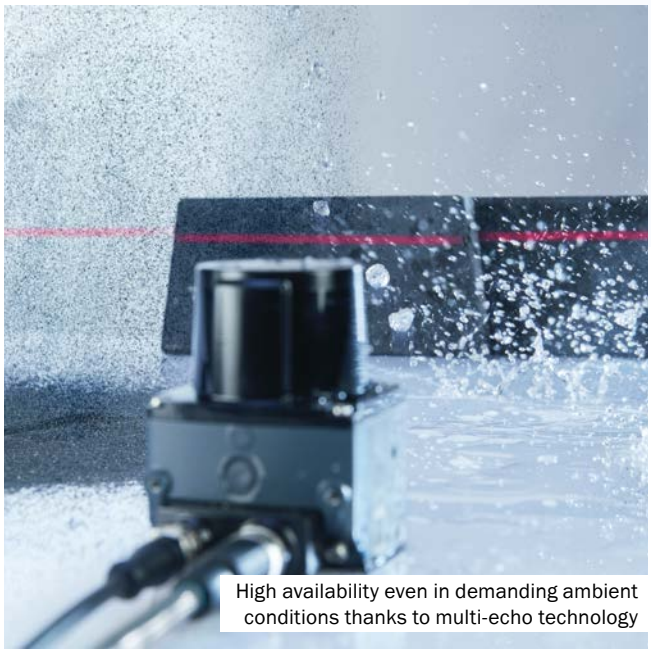
2D LiDAR sensors

picoScan100

Powerful and cost-effective in a compact housing

- Scanning range: 75 m (90% remission); angular resolution: 0.5° to 0.05°
- Dynamic Sensing Profiles
- High measurement accuracy – measurement noise, scan field flatness and angular accuracy
- Scanning frequency: 15 Hz to 50 Hz
- Efficient data processing inside the sensor ensures high availability in applications, e.g. for localization and navigation of autonomous mobile robots

Large working range and high angular resolution enable detection of small objects or fine structures even at long distances



High availability even in demanding ambient conditions thanks to multi-echo technology

Product description

With a large scanning range, fine angular resolution and high sensitivity, the picoScan 2D LiDAR sensor, successor of the TiM series, is setting new standards. It also reliably detects small and dark objects. The sensor delivers exact measurement data and features integrated processing of data that is transmitted through various communication interfaces. The compact picoScan equipped with multi-echo technology has a rugged housing and ensures reliable measurement results even under harsh ambient conditions. It can be used in demanding industrial applications both in- and outdoors. The picoScan, available in three variants (Core, Prime and Pro), can also be adapted with other features to meet individualized requirements.

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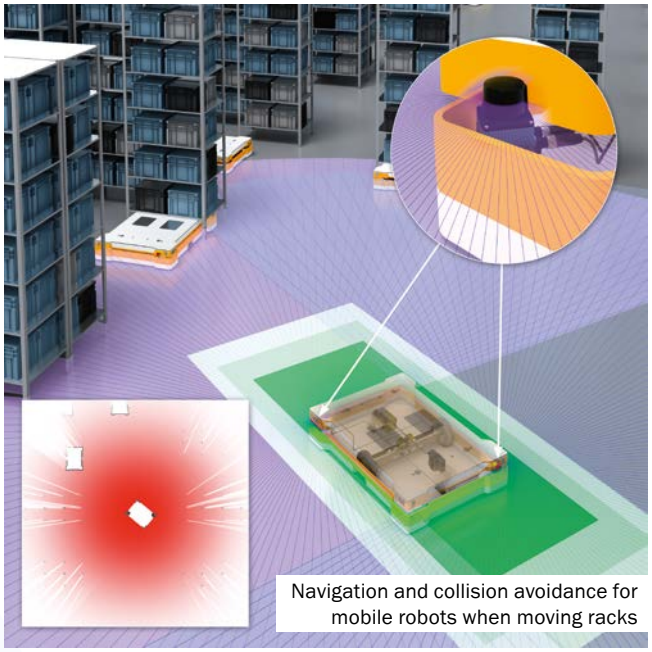
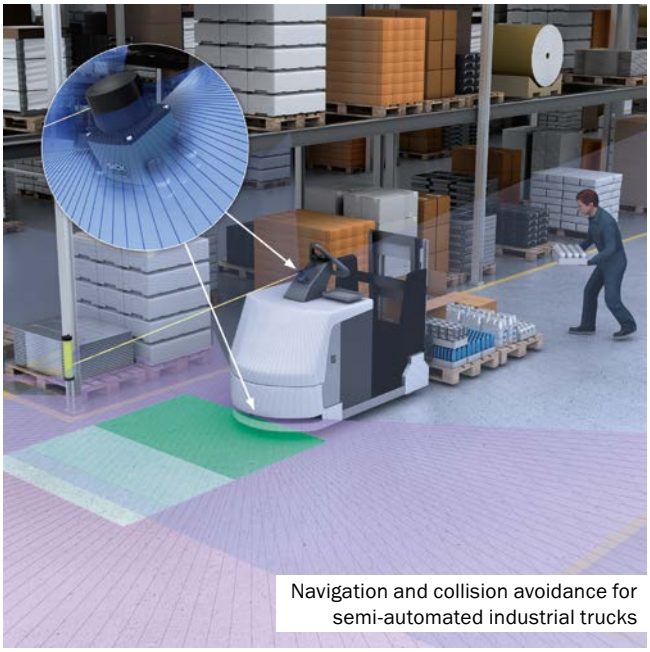
Application examples



Navigation and collision avoidance for mobile robots when moving racks



Navigation and collision avoidance for semi-automated industrial trucks

Technical data overview

Dimensions (W x H x D)	60 mm x 60 mm x 82 mm
Aperture angle	276°
Scan field flatness	± 1°
Spot size	Divergence typ.: 4.8 mrad, optics cover 8 mm
Systematic error	typ. ± 20 mm, max. 30 mm
Statistical error	≤ 5 mm (0.05 m ... 5 m)
Protection class (with system plug connected)	IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013) IP67 (IEC 60529:1989+AMD1:1999+AMD2:2013)
Ambient operating temperature	– 33 °C ... + 50 °C
Ambient light immunity	100 klx, indirect

Selected products

Scanning range	Digital add-ons	Integrated application	Type	Part no.
25 m (max)	–	Measurement data output	picoScan150 Core w/o add-on	1134607
	Multi-echo technology, Data Reduction & Data Preparation package Reliability package, LMDscandata (data format)	Measurement data output Field evaluation (future function via firmware update)	picoScan150 Core-1	1134608
60 m (max)	Dynamic Sensing Profile package Multi-echo technology Data Reduction & Data Preparation package Reliability package LMDscandata		picoScan150 Prime-1	1134609
120 m (max)			picoScan150 Pro-1	1134610

→ **www.sick.com/picoScan100**

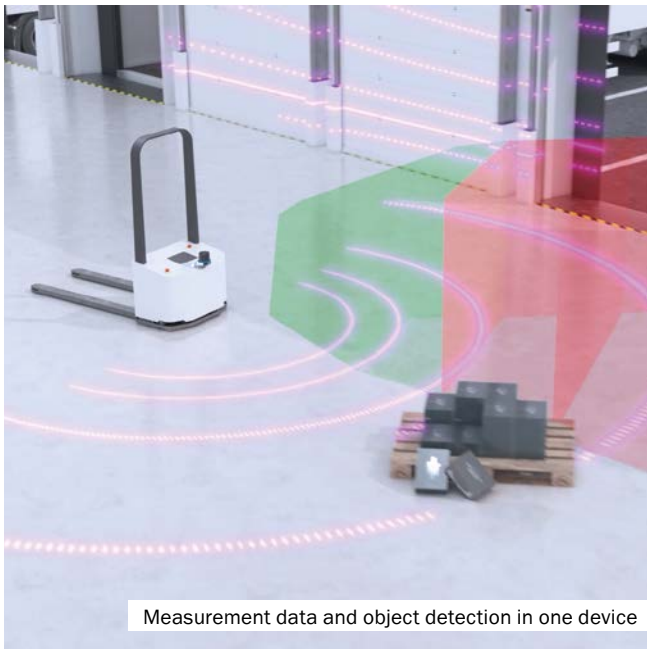
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

3D LiDAR sensors

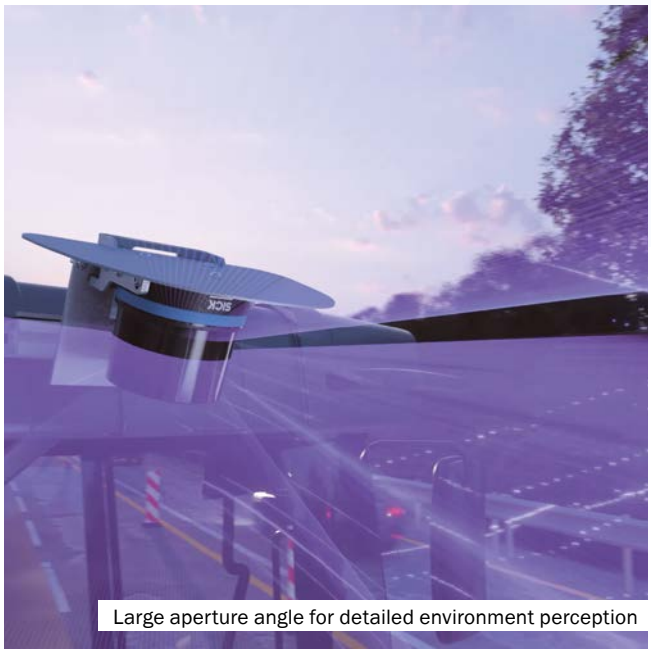
multiScan100

Precise detection and localization – everything in 3D

- 16 fanned scan layers, vertical aperture angle of 65°
- The 360° all-round view and a large vertical aperture angle make it possible to cover a large working range
- Can be used for localization tasks thanks to high-resolution 0° scan layer
- High measurement accuracy with low measurement noise for precise fine positioning
- Individual configuration possible thanks to apps and software add-ons whose measurement data the sensor evaluates directly



Measurement data and object detection in one device



Large aperture angle for detailed environment perception

Product description

The multiScan100 3D LiDAR sensor is a real multi-talent. Thanks to its high-resolution 0° scan layer, it is suitable for mapping and localization. The sensor generates a 3D point cloud that can be used to detect people and objects. It effortlessly detects fall edges and overhanging obstacles. This is how it reliably protects mobile platforms from accidents and failures. Thanks to its large working range, the sensor is also suitable for stationary applications. The multiScan100 can be individually configured and easily integrated. In addition to the device, there is a continuously growing modular software system with apps and software add-ons. A system plug for common interfaces ensures quick and flexible implementation.

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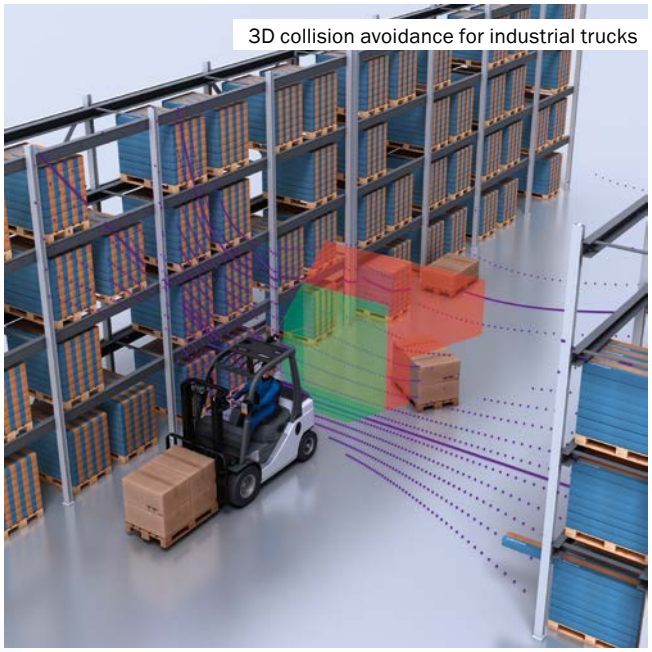
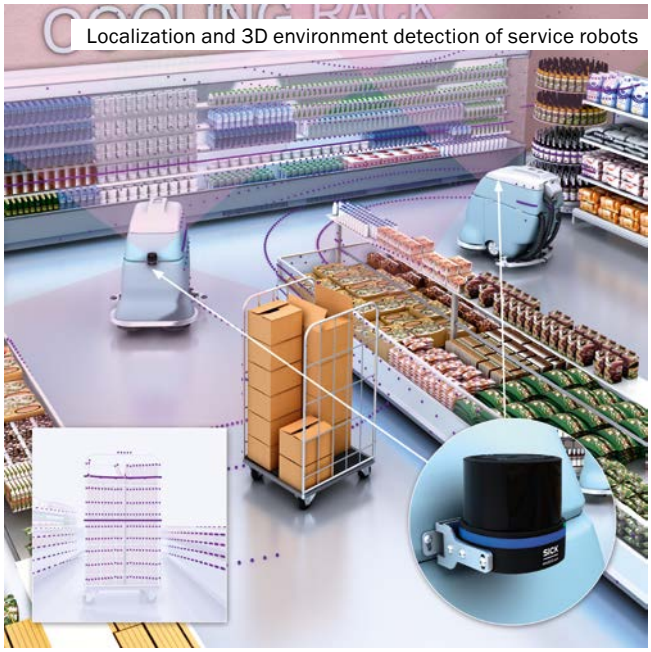
Application examples


3D collision avoidance for industrial trucks


Localization and 3D environment detection of service robots

Technical data overview

Integrated application	Measurement data output, 3D object detection
Aperture angle	
Horizontal	360°
Vertical	65°, 22.5° ... -42.5°, DIN ISO 8855
Angular resolution	0.125°, 2 high-resolution scan layers 1°, 14 scan layers
Working range	0.05 m ... 60 m
Scanning range	
At 10 % remission	10 m, at 100 kLux
At 10 % remission	12 m, at 10 kLux
At 90% remission	15 m, at 100 kLux
At 90% remission	30 m, at 10 kLux
Scanning frequency	20 Hz
Ambient operating temperature	– 30 °C ... + 50 °C
Ethernet	✔
Weight	0.7 kg

Selected products

Measurement principle	Spot size	Connection type	Remission factor	Type	Part no.
Statistical measurement procedure	5.3 mrad (0.3 °) 7.5 mrad (0.3 ° + 0.125 °)	2 x M12 round connector	2 % ... > 1.000%, Reflector	MULS1AA-112211	1131164

→ **www.sick.com/multiScan100**

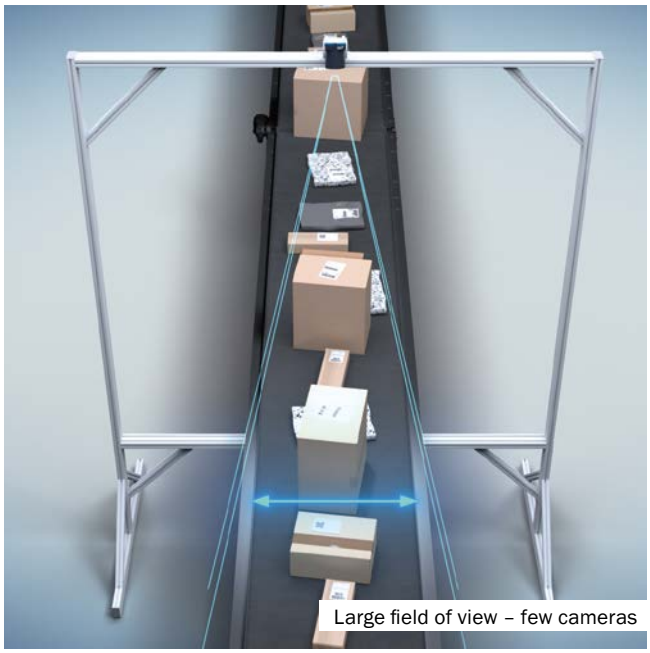
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Image-based code readers

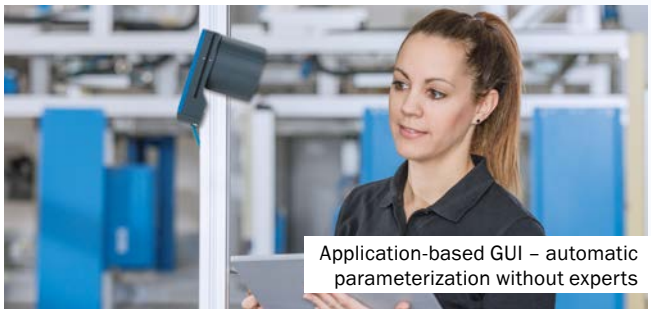
Lector85x

Quick and efficient code identification without expert support

- AI-based segmentation, super resolution, multi-core CPU
- Large depth of field, extra-large field of view
- 12, 9 or 5 megapixel resolution, various lenses and illumination colors
- High sort rate and reduction of manual rework thanks to high read rates for all objects, regardless of the code quality
- High-performance decoder and processor ensure high object throughput at low object distances, even at high conveyor speeds



Large field of view – few cameras



Application-based GUI – automatic parameterization without experts

AI-based segmentation – efficient image processing

Product description

The Lector85x image-based code reader is designed for very high scanning performance and equally high throughput. The small camera has a resolution of up to 12 megapixels, an enormous depth of field and field of view as well as very good computing power. For reading stations, this means a compact design as well as fewer devices and installation work. When combined with AI-based segmentation, the camera reliably identifies codes even at conveyor speeds of up to 3.5 m/s and correctly assigns the codes to objects. This guarantees efficient identification processes and significantly reduces manual rework. The Lector85x can be intuitively configured using a web server and is ready for use within a few minutes – without the need for specialist knowledge.

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Application examples


Identification of flats


Secondary packaging – recording serial numbers and codes

Technical data overview

Focus	Adjustable focus (manual)
Sensor resolution	2,464 px x 2,048 px 4,096 px x 2,176 px (depending on type)
Scanning frequency	30 Hz / 20 Hz (depending on type)
Enclosure rating	IP65
EtherNet/IP™	✔, TCP/IP
CAN	✔
Serial	✔, RS-232, RS-422
USB	✔, USB 2.0
Weight	640 g

Selected products

Sensor resolution	Communication interface	Optical focus	Readable code structures	Type	Part no.
2,464 px x 2,048 px	EtherNet/IP™ CAN Serial USB	Adjustable focus (manual)	1D codes, 2D codes, Stacked	V2D8505R-1MCXXXAL0SXXXX	1130543
4,096 px x 2,176 px		Adjustable focus (manual)	1D codes, 2D codes, Stacked	V2D8509R-1MCXXXAL0SXXXX	1130539

4D pro

→ **www.sick.com/Lector85x**

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

Mobile handheld scanners

IDM14x-4, IDM16x-4, IDM24x-4, IDM26x-4

Convenient and reliable identification of codes

- Identification of common 1D and 2D codes (including PDF417)
- Quick and accurate identification even of poorly printed bar codes eliminates the need to enter data manually
- Highly reliable thanks to the industrial variant with an enclosure rating of IP65 and rugged housing
- Easy configuration: Either by scanning a single barcode or using intuitive software

Easy integration into numerous fieldbus technologies thanks to modular connection technology

Easy PROFIBUS integration into track and trace systems

Product description

The IDM mobile handheld scanners reliably detect 1D and 2D codes, including stacked codes such as PDF417. Standard or very rugged variants with an enclosure rating of IP65 are available to suit the application and ambient conditions. Light, ergonomically shaped housing as well as read confirmation by LED, beeper and vibration ensure easy and intuitive operation. Cable and wireless variants ensure flexibility and mobility. The connection modules from SICK are especially suitable for integrating the device into industrial fieldbuses such as PROFIBUS or PROFINET. The combination of reliable code reading, rugged design, and SICK connectivity enables them to be used in a variety of industrial applications.

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Application examples

Traceability of products and processes through reliable code identification

Mobile identification of placement material

Technical data overview

Readable code structures	1D codes, Stacked, 2D codes
Reading distance	0 mm ... 850 mm
Ambient operating temperature	– 20 °C ... + 50 °C
Enclosure rating	IP41, IP42, IP52, IP65
Ethernet	✔ , TCP/IP, optionally via external connection module ✔ , optionally via external connection module
PROFINET	✔ , optionally via external fieldbus module
EtherCAT®	✔ , optionally via external fieldbus module
Serial	✔ / RS-232 TTL ✔ / RS-232
PROFIBUS DP	✔ , optionally via external fieldbus module
USB	✔
WPAN	✔

Selected products

Application	Readable code structures	Reading distance	Scanner design	Type	Part no.
Standard application	1D codes, stacked	20 mm ... 850 mm	Cable connection variant	IDM140-411S	6080729
Industrial application	1D codes, stacked	20 mm ... 850 mm	Wireless variant	IDM161-411S	6080745
Standard application	1D codes, 2D codes, stacked	30 mm ... 400 mm	Cable connection variant	IDM240-411S	6080735
Industrial application	1D codes, 2D codes, stacked	30 mm ... 400 mm	Wireless variant	IDM261-411S	6080751

→ **www.sick.com/IDM**

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

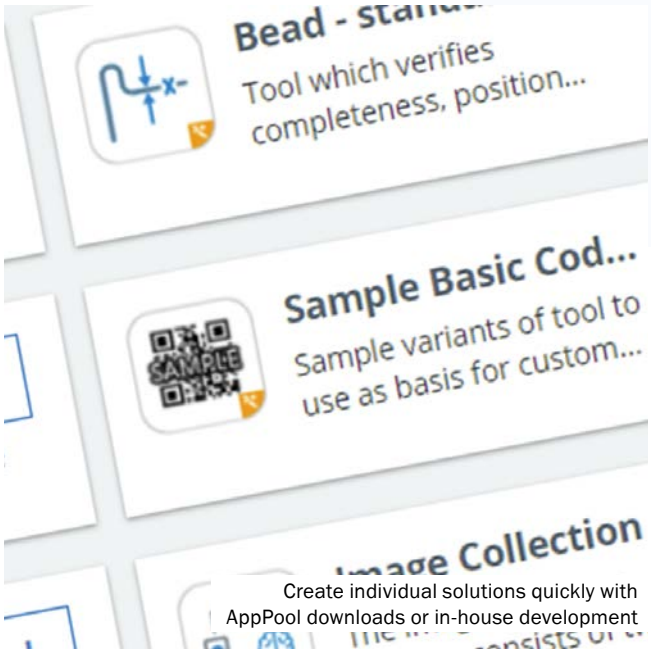
2D machine vision

Inspector85x with SICK Nova

The big picture firmly in view

- Powerful quad-core CPU
- Up to 12megapixel resolution and strong illumination
- Integrated quality inspection toolset for localization, inspection and measurement
- Optional intelligent inspection toolset for classification and anomaly detection
- SICK Nova plug-in tools with Lua scripting language for easy customization of inspection tasks

High-resolution imager and powerful illumination for outstanding detail in large FoV



Create individual solutions quickly with AppPool downloads or in-house development

Product description

With its powerful processor, the Inspector85x 2D vision camera offers solutions for complex inspection tasks even at high process speeds. The high resolution of the camera chip, together with the strong illumination, enables outstanding image quality, even with large objects. Dual-port fieldbus support ensures fast and flexible sensor integration in industrial applications. The Nova InspectorP SICK SensorApp with the Quality Inspection toolset is preinstalled on the camera. This allows both experts and non-experts to quickly and easily configure the sensor via an intuitive web-based user interface. And with the Intelligent Inspection Upgrade License, users have easy access to deep learning tools.

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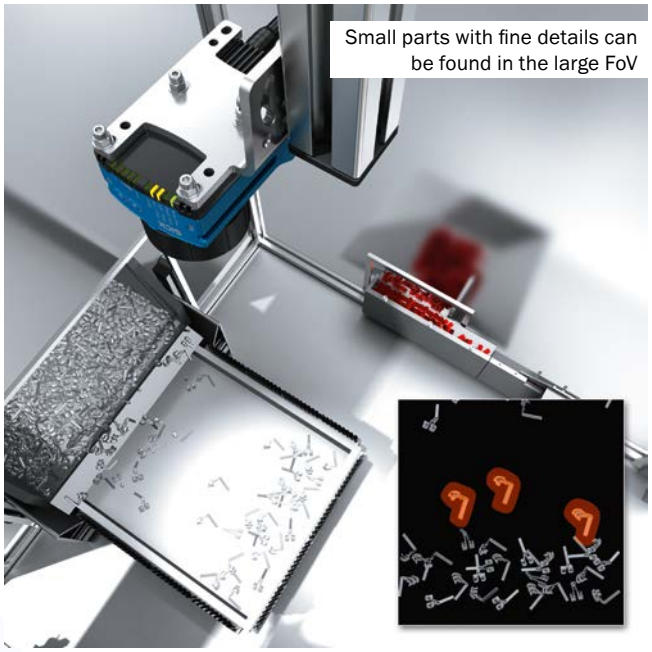
Application examples


Small parts with fine details can be found in the large FoV

The fast quad-core CPU ensures that even very fast processing speeds can be accommodated

Technical data overview

Areas of application	Classification, identification, positioning, 1D code, 2D code, presence check, quality control, measuring
Included license	The quality inspection license provides a toolset to ensure that the items produced have the exact qualities in terms of the presence and dimensions of details. The Intelligent Inspection License enables productive use of the complete tool set, including powerful deep learning image analysis tools for solving problems that are not possible with rule-based machine image processing.
Extension options	Optional Intelligent Inspection Upgrade License for devices ordered with Quality Inspection. Customized or new tools can be added with the SICK Nova tool plug-in. Development and customization of the tools is supported by SICK AppSpace and SICK AppStudio.
Ethernet	✔, Gigabit Ethernet: TCP/IP, FTP; EtherNet/IP™ Dual Port; PROFINET Dual Port
Distance	500 mm ... 2.500 mm
Dimensions	143.3 mm x 90 mm x 46 mm, housing only, without lens and optics protection hood

Selected products

SensorApp	Sensor resolution	Optical focus	Included license	Type	Part no.
Nova InspectorP	2,464 px x 2,048 px (5 megapixels)	Adjustable focus (manual)	Quality Inspection License	V2D8505P NOVA 2D QI	on request
			Intelligent Inspection License	V2D8505P NOVA 2D II	on request
	4,096 px x 3,008 px (12 Mpixel)	Adjustable focus (manual)	Quality Inspection License	V2D8512P NOVA 2D QI	on request
			Intelligent Inspection License	V2D8512P NOVA 2D II	on request

➜ **www.sick.com/Inspector85x**

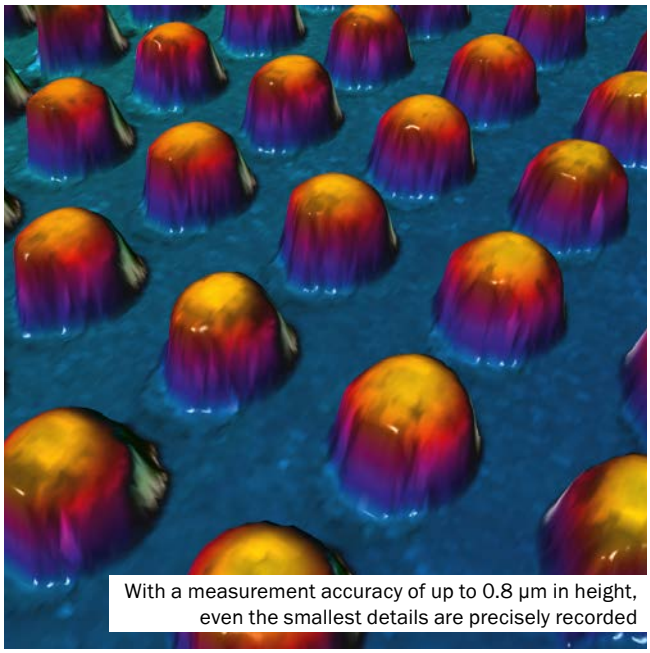
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

3D machine vision

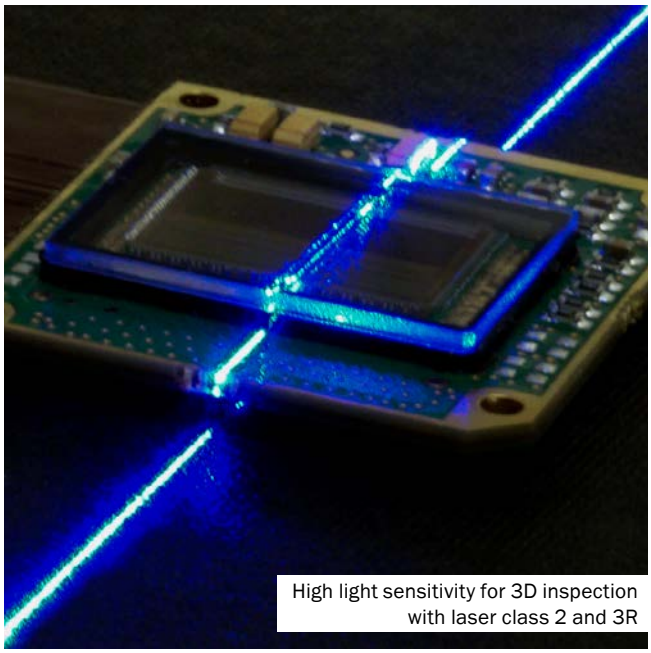
Ruler3000

Fast to high 3D performance

- CMOS sensor from SICK with ROCC technology for outstanding 3D performance
- 3D profiles at up to 46 kHz with reduced ROI
- Factory calibration shortens integration time
- Guaranteed field of view simplifies commissioning
- Suitable for batch size 1 as well as flexible production thanks to reliable and accurate measurements on dark and glossy surfaces



With a measurement accuracy of up to 0.8 µm in height, even the smallest details are precisely recorded



High light sensitivity for 3D inspection with laser class 2 and 3R

Product description

Thanks to its high accuracy and unprecedented measuring speed, the new Ruler3000 3D camera generation is the first choice for system integrators in the field of industrial machine vision. Equipped with unique 3D CMOS sensor from SICK tailored to demanding image processing tasks, the Ruler3000 cameras deliver highly reliable measurement results. The factory-calibrated sensor determines the true 3D shape of an object regardless of its contrast or color. ruler3000 3D cameras feature accurate measured values, a height resolution of up to 0.8 µm and 3200 data points per profile. That means the numerous variants of this camera offer solutions for very different challenges. The guaranteed field of view concept ensures problem-free commissioning. Conformance to GigE Vision and GenICam standards ensures cost-effective integration.

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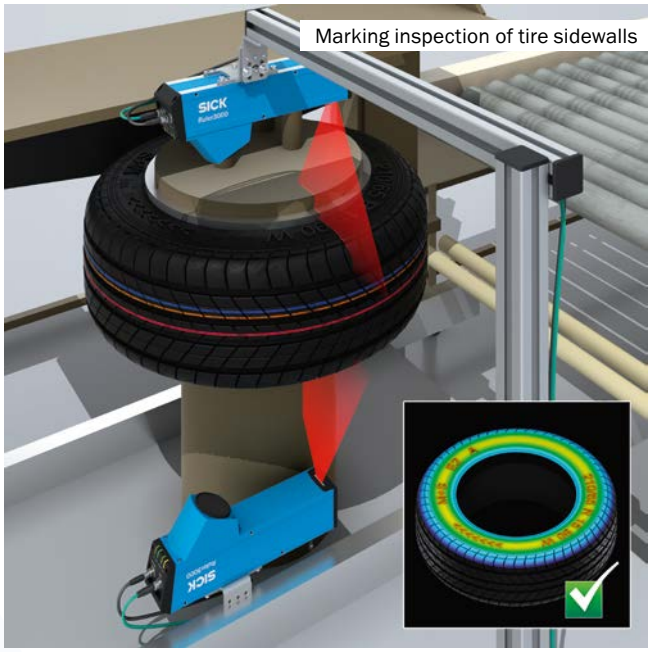
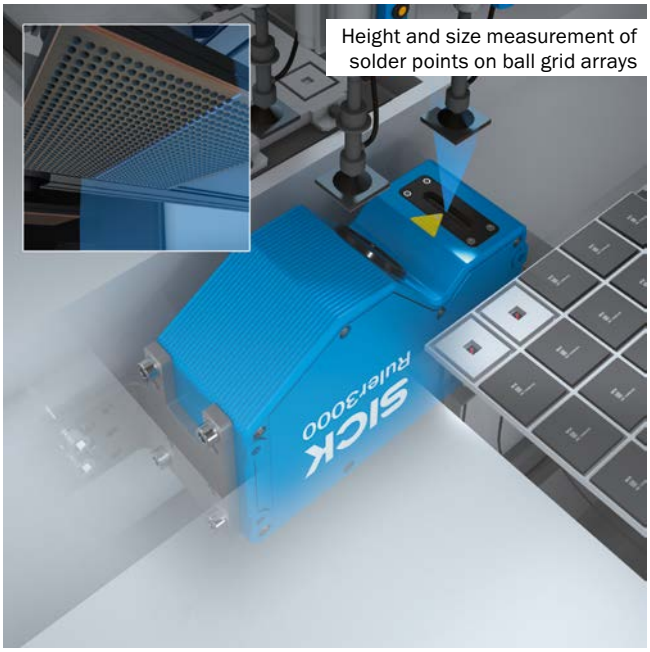
Application examples





Technical data overview

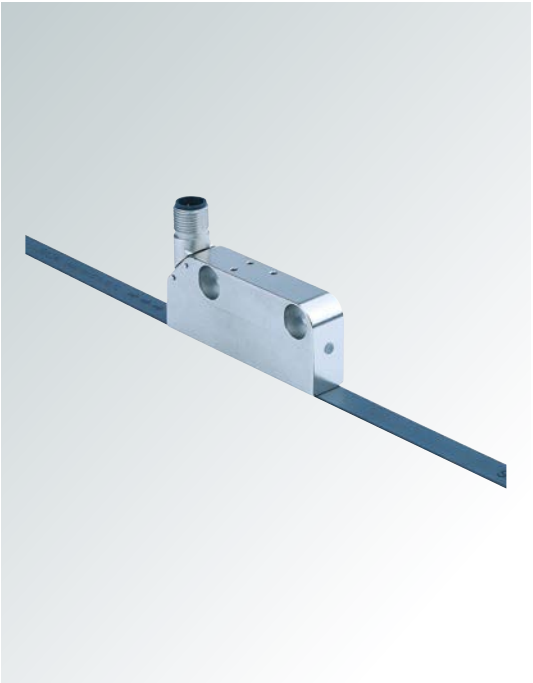
Technology	3D line scanning
Scan/frame rate	46,000 3D profiles/s, in reduced ROI 7,000 3D profiles/s, full format
Scattered light measurement	✔
Reflection measurement	✔
3D measurement	✔
Precalibrated	✔
Enclosure rating	IP65, IP67
Configuration software	Stream Setup
Ethernet	✔, UDP/IP

Selected products

Sub product family	Working distance	Illumination color	Laser class	Type	Part no.
Ruler3120	430 mm ... 1,445 mm	Red, laser, visible, 660 nm, ± 15 nm	2	V3DU3-120RM21A	1115260
Ruler3060	395 mm ... 815 mm	Red, laser, visible, 660 nm, ± 15 nm	2	V3DU3-060RM21A	1122973
Ruler3010	99 mm ... 149 mm	Blue, laser, visible, 450 nm, ± 10 nm	3R	V3DX3-010BR21A	1126983
Ruler3004	54.2 mm ... 71.8 mm	Blue, laser, visible, 450 nm, ± 10 nm	3R	V3DX3-004BR21A	1126984
Ruler3002	46.7 mm ... 55.4 mm	Blue, laser, visible, 450 nm, ± 10 nm	3R	V3DX3-002BR21A	1126985

→ **www.sick.com/Ruler3000**

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



Magnetic linear encoders

STL70S

Ultra high speed measurement for linear direct drives

- STL70-2 certified according to SIL2 and PL d (HIPERFACE® interface)
- High availability compared to optical systems – even with dust, contamination and moisture
- High traversing speeds: up to 10 m/s
- Easy to mount thanks to a rotating M12 male connector and status LED that indicates the optimal mounting position of the motor feedback system

Rotating M12 male connector for easy mounting and commissioning

Product description

Precision, speed, dynamics, and high stiffness – it is exactly these properties that play a significant role in modern applications in drive technology. The STL70 linear motor feedback system fulfills all these characteristics thanks to the HIPERFACE® interface. The SIL2 STL70-2 certified motor feedback system is used for safe position and speed detection in linear motors and axes. The magnetic principle of operation, the long measuring length of up to 16 m, and the high resolution open up a broad range of application possibilities.

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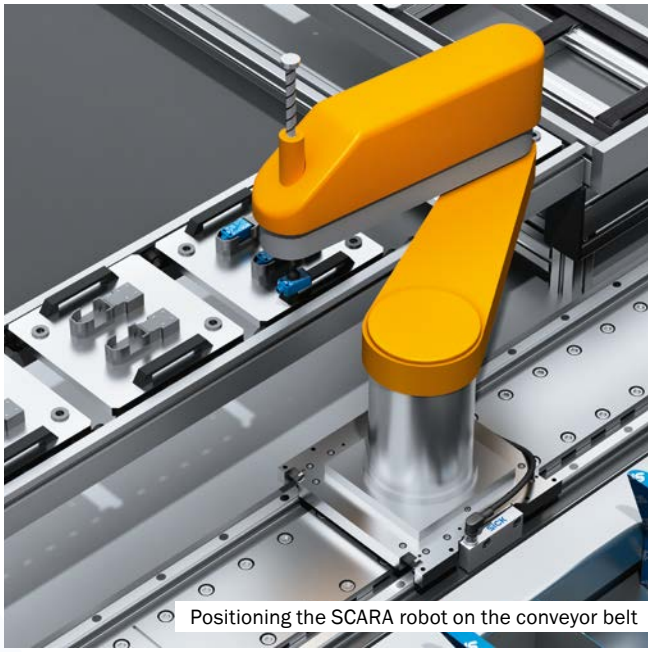
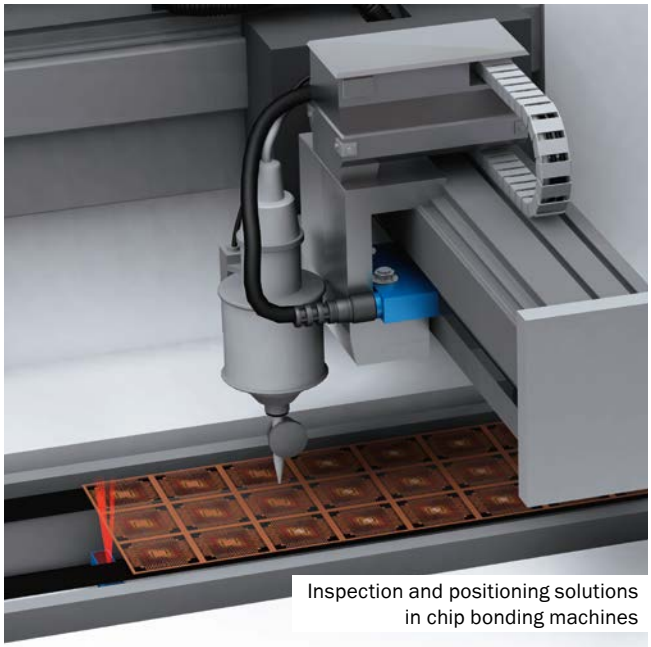
Application examples



Positioning the SCARA robot on the conveyor belt



Inspection and positioning solutions in chip bonding machines

Technical data overview

Communication interface	HIPERFACE®
Resolution	0.448 µm
Measuring lengths	up to 16,384 mm
Safety integrity level	SIL2 (IEC 61508), max. SIL2 (EN 62061)
Connection type	Male connector, M12, 8-pin, universal
Safety-related accuracy	± 0.5 mm, = ± 1/4 pin length
Safety-related measuring increment	0.25 mm
Repeatability	< 1 µm
System accuracy	± 10 µm
Max. reading distance	0.8 mm

Selected products

System part	Connection type	Communication interface	Type	Part no.
Read head	Male connector, M12, 8-pin, universal	HIPERFACE®	STL70-2HA8	1135012

→ **www.sick.com/STL_ETL70**

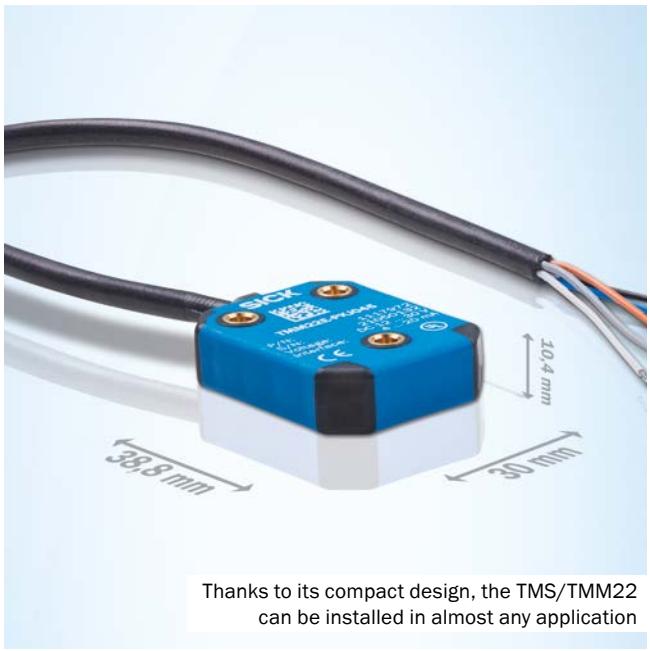
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Inclination sensors

TMS/TMM22 Basic

The rugged all-rounder for inclination measurement

- Measuring range: up to 360° (1-axis) or up to ± 90° (2-axis)
- Measurement accuracy: ± 0.1°
- Preset function for zeroing during installation
- Programmable with PGT-15 via SOPAS ET
- High reliability thanks to rugged sensor design with dust- and waterproof enclosed electronics



Thanks to its compact design, the TMS/TMM22 can be installed in almost any application

Ideal for extreme conditions thanks to the fully-encapsulated electronics and enclosure ratings IP66, IP68 and IP69K

Product description

The TMS22 (single-axis) and TMM22 (dual-axis) inclination sensors provide very precise, cost-effective inclination measurements. The foundation for this is powerful MEMS technology, which scores points with an error tolerance of ± 0.1° and high repeatability. The measured values are output via a linearized analog signal. In order to meet the requirements on resistance for outdoor applications such as solar plants, the sensor electronics are embedded directly into the housing during injection molding. This means TMS/TMM22 devices comply with the requirements according to enclosure rating IP66, IP68 or IP69K. The compact design with a height of 10.4 mm also offers countless integration options. Sensor variants that can be parameterized on the user side are also available.

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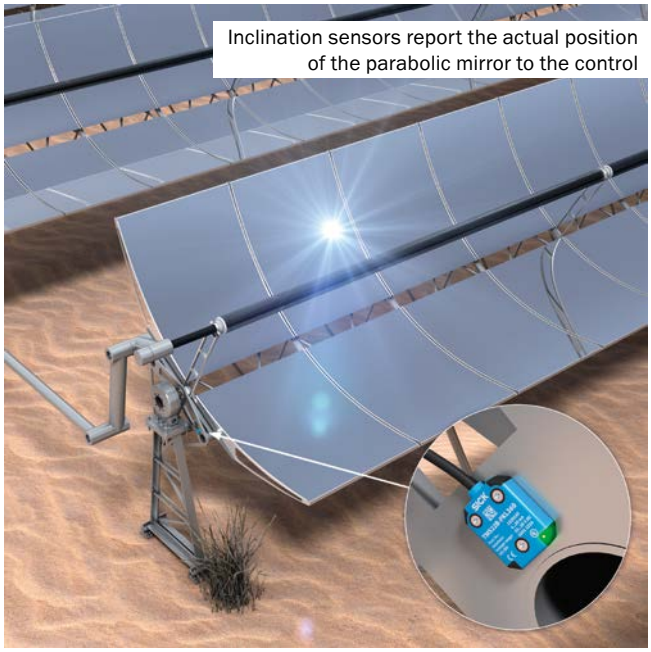
Application examples


Positioning tasks on mobile cranes


Inclination sensors report the actual position of the parabolic mirror to the control

Technical data overview

Number of axes	1 / 2
Communication interface	Analog, current Analog, voltage
Measuring range	
Single-axis	5° ... 360°
Dual-axis	± 5° ... ± 90°
Housing material	Plastic (PA12), glass fiber reinforced
Error limits G	0,1°

Selected products

Number of axes	Measuring range	Communication interface	Error limits G	Type	Part no.
1	360°	Analog, current	0,1°	TMS22B-PKG360	1129143
2	± 90°	Analog, current	0,1°	TMM22B-PKG090	1124499
1	360°	Analog, voltage	0,1°	TMS22B-PLG360	1129144
2	± 90°	Analog, voltage	0,1°	TMM22B-PLG090	1124548

➜ **www.sick.com/TMS_TMM22**

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

Wire draw encoder

VarioLine

The flexible wire draw encoder for indoor and outdoor areas

- Modular measuring system with a wide selection of interfaces
- Measuring range up to 3 m
- Rugged wire with 0.81 mm diameter; optional dirt scraper
- Easy and space-saving integration thanks to compact housing and deflection rollers
- Long period of operation, as diagnostic options and intelligent sensor functions are available via Smart Tasks

Thanks to its modular design and intelligent functions, the VarioLine can be adapted to any system environment

Product description

The compact VarioLine wire draw encoder is the ideal solution for measuring distances of up to 3 m. Its rugged stainless-steel housing, combined with a high retraction force, ensures a long service life for the device – even under harsh conditions. The VarioLine is also compatible with all other SICK encoders thanks to its extensive range of accessories and numerous interfaces. The wire draw encoder can be easily integrated into many installation spaces thanks to the deflection rollers. Smart tasks, diagnostic functions and numerous programming options make the wire draw encoder very flexible.

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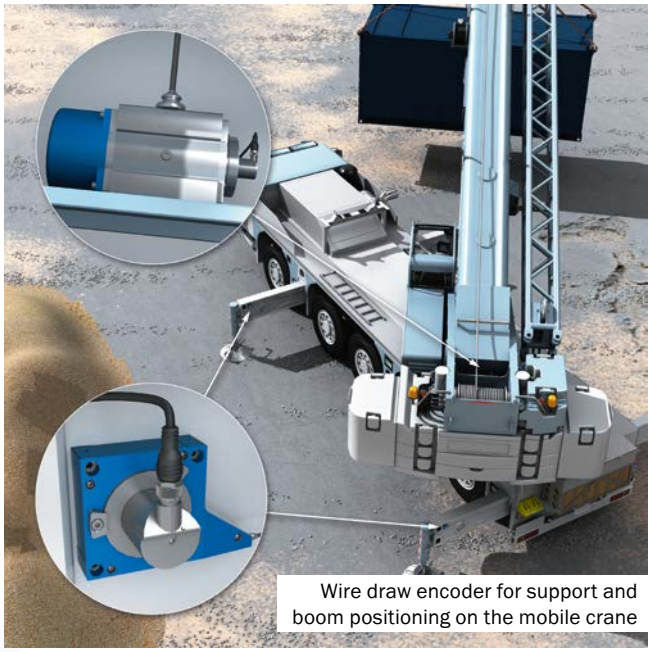
Application examples



Wire draw encoder for support and boom positioning on the mobile crane

Measurement of the fork lift height

Technical data overview

Measurement length	0 m ... 3 m
Communication interface	IO-Link, CANopen, SSI, SAE J1939, PROFINET, EtherCAT®, EtherNet/IP™, analog, incremental (type-dependent)
Resolution	0,001 mm ... 5 mm (depending on type)
Repeatability	≤ 0.5 mm ≤ 0.3 mm (on request)
Material, wire draw mechanism housing	Stainless steel 1.4301
Measuring wire diameter	0.81 mm
Operating temperature range	– 30 °C ... + 70 °C

Selected products

Communication interface	Connection type	Resolution (wire draw + encoder)	Type	Part no.
IO-Link	Male connector, M12, 4-pin, universal	0.01 mm	BCV08-Q1PM03M200	1133465
CANopen	Male connector, M12, 5-pin, universal	0.01 mm	BCV08-C1QM03M400	1133454
SAE J1939	Male connector, M12, 5-pin, universal	0.01 mm	BCV08-J1QM03M200	1133458
PROFINET	Male connector, 1x, M12, 4-pin, axial Female connector, 2x, M12, 4-pin, axial	0,0009 mm	BCV08-N1BM03N200	1133460
Analog, current, 4...20 mA	Cable, radial, 3 m	0.08 mm	BCV08-K1K-M03P200	6084942

→ **www.sick.com/VarioLine**

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

Magnetostrictive linear encoders

DAX

Flexible linear encoders for industrial tasks

- Magnetostrictive principle of operation
- Measuring lengths: 50 to 2,500 mm
- Minimal maintenance costs thanks to wear- and maintenance-free measurement principle
- Easy integration into new and existing plant designs thanks to maximum system flexibility, minimum required installation space and individual adaptation capabilities
- Available interfaces: Analog and CANopen

Profile and hydraulic versions for a wide range of installation situations

Product description

The linear encoders in the DAX® product family are suitable for determining the absolute position of piston rods in hydraulic cylinders and linear movements in industrial plants. Thanks to the use of magnetostrictive technology, the encoder is completely wear- and maintenance-free. Individual configuration options ensure customized integration in nearly any application. With its flexible system architecture, the DAX® linear encoder enables features such as backward compatibility with manufacturer-specific position magnets. Additional intelligent functions for condition monitoring, for example, allow predictive maintenance and create transparency about the current machine condition. This minimizes unplanned downtime and increases efficiency.

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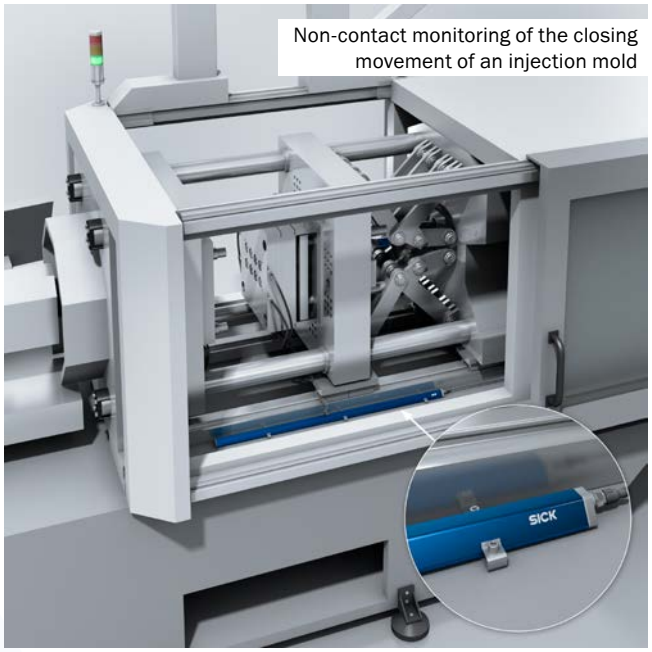
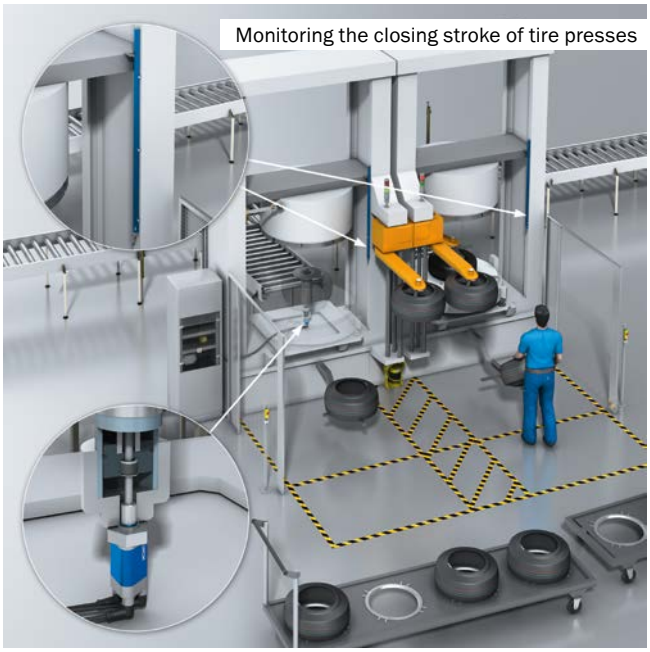
Application examples



Non-contact monitoring of the closing movement of an injection mold


Monitoring the closing stroke of tire presses

Technical data overview

Measurement length	0.05 m ... 2.5 m (freely configurable in 1 mm steps)
Communication interface	Analog, CANopen
Resolution	10 µm ... 100 µm (depending on type)
Connection type	Male connector, M12, 5-pin Male connector, M12, 8-pin
Designs	DAX Threaded DAX Slider DAX Low Profile

Selected products

Design	Communication interface	Measuring range	Connection type	Type	Part no.
DAX Low Profile	Analog/Current	0 mm ... 1,000 mm	Male connector, M12, 5-pin	DAXLAN-1000BA080000E00	1137134
DAX Low Profile	CANopen	0 mm ... 250 mm	Male connector, M12, 5-pin	DAXLON-0250B3080001900	1137133
DAX Slider	Analog/Current	0 mm ... 2,500 mm	Male connector, M12, 5-pin	DAXSAN-2500SA000900E00	1135666
DAX Slider	CANopen	0 mm ... 1,000 mm	Male connector, M12, 5-pin	DAXSON-1000S1040901300	1132835
DAX Threaded	Analog/Current	0 mm ... 650 mm	Male connector, M12, 8-pin	DAXTAN-0650RA1J0100W01	1134544

→ **www.sick.com/DAX**

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

Gas flow meters

FLOWSIC550

HIGH PRESSURE GAS FLOW METER FOR NATURAL GAS DISTRIBUTION

- Ultimate measurement certainty and safety of continuous gas supply
- Easy installation, compatible with turbine meters
- Reduction of installation costs due to integrated flow conversion
- Easy commissioning and data readout via FLOWgate™ (PC and app)
- Autonomous operation possible

FLOWSIC550 can be easily integrated into existing measuring stations

Product description

State-of-the-art technology for maximum measurement accuracy: The new FLOWSIC550 ultrasonic compact gas flow meter from SICK ensures highly accurate billing of low volume flows in high-pressure networks – a perfect complement to the FLOWSIC500. Thanks to its lack of mechanical moving parts, the FLOWSIC550 is rugged, reliable, and maintenance-free – allowing for a significant reduction in operating costs. It is overload-proof, accurate and is monitored by an intelligent diagnostics system. FLOWSIC550 can be easily integrated into existing measuring stations. FLOWSIC550 works either in mains operation or is self-sufficient in terms of energy. When used in transfer and measuring stations, FLOWSIC550 ensures a continuous and blockage-free gas supply.

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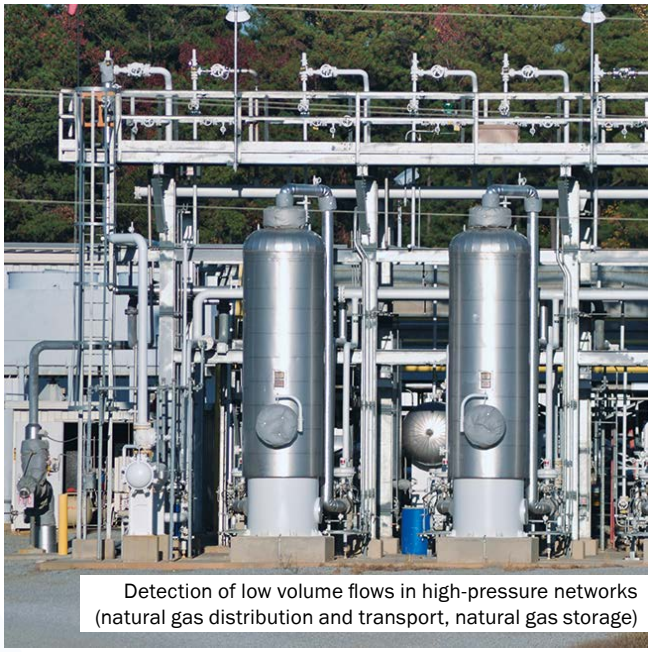
Application examples



Detection of low volume flows in high-pressure networks (natural gas distribution and transport, natural gas storage)

Measuring stations in industrial applications

Technical data overview

Measurands	Operational volume, operational volume flow, gas velocity, volume under s.c.*, volume flow under s.c.* *Additionally with integrated volume correction
Measurement principle	Ultrasonic transit time difference measurement
Meter sizes	DN50 to DN150
Accuracy class	1.0
Diagnostic functions	Permanent measured value monitoring
Flange types	PN40, PN63, ANSI300, ANSI600
Overall length	3D
Temperature range	– 40 °C ... 70 °C
Outputs	2 × RS485, 2 × pulse, 1 × status
Volume correction	Data archives and protocols
Voltage supply	External intrinsically safe supply or battery operation (5 years)
Service interface	USB or BTLE adapter
Ex approvals	CSA, ATEX, IECEx

Selected products

Description	Type	Part no.
Gas flow meters	FLOWSIC550	on request

→ **www.sick.com/FLOWSIC550**

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

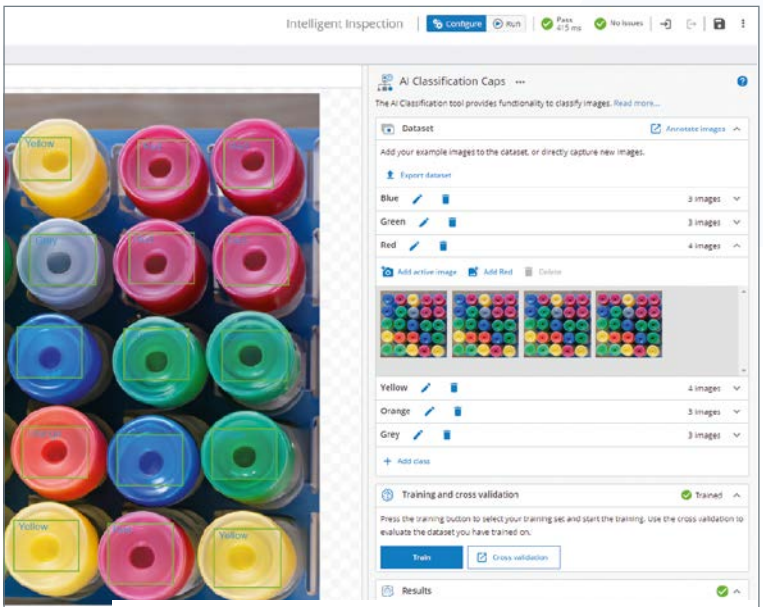
Sensor Integration Machine

SIM2x00 with SICK Nova

Powerful, customizable 2D machine vision in a small space

- Quality Inspection toolset for localization, inspection, measurement and color testing
- Intelligent Inspection toolset for anomaly detection and classification
- Supports picoCam2 and midiCam2
- Medium to high resolution for black/white and color images
- Quick customization thanks to Nova plug-ins

SIM2x00 Nova with picoCam2 or midiCam2 enables support for high-performance inspections in color or monochrome



SICK Nova enables advanced color inspection with simple operation

Product description

The SIM2x00 Nova Sensor Integration Machine is designed for machine vision applications that require high frame rates and high resolutions. The device fits into tight installation spaces and is used together with the picoCam2 or midiCam2 2D camera for color and black and white recordings. The Quality Inspection toolset ensures that manufactured products meet their specifications exactly, e.g. in terms of appearance and dimensions. The Intelligent Inspection toolset uses deep learning technology to solve complex tasks. Users can easily add standard and custom Nova tools from SICK. Custom tools are created quickly using a SICK AppSpace license. They can be used to perform special inspection tasks.

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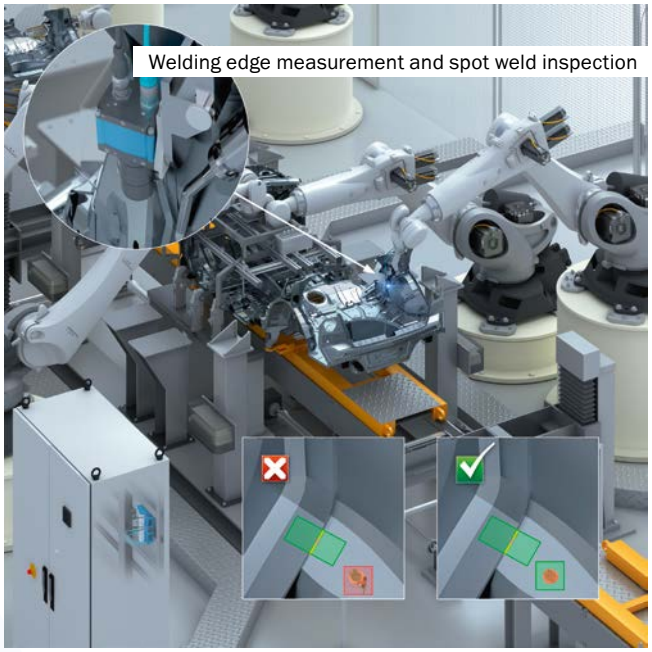
Application examples



Technical data overview

Areas of application	Powerful 2D vision solution, classification, identification, position determination, presence control, quality control, measurement
Included license	The Quality Inspection License provides a toolset to ensure that products, once manufactured, meet exact requirements, such as dimensions and presence. The Intelligent Inspection License enables productive use of the complete tool set, including powerful deep learning image analysis tools for solving problems that are not possible with rule-based machine image processing.
Extension options	The SICK Nova-Tool plug-in enables customer-specific or new tools to be added. Development and customization of the tools is supported by SICK AppSpace and SICK AppStudio.
Supported products	picoCam2 (1.58 - 5.01 megapixel, monochrome and color) and midiCam2 (1.58 - 12.29 megapixel, monochrome and color)
Connection type/Interface	I/O, Power, SERIAL, INC, Fieldbus, CAN, SENSOR S1-S6, Ethernet with PoE, USB

Selected products

Sensor app	Toolkit	FPGA acceleration	Included license	Type	Part no.
Nova SIM 2D	SICK algorithm API (image processing library) for customer development	–	Intelligent Inspection	SIM2000-2AX4G10 Nova 2D II	1135069
		–	Quality Inspection License	SIM2000-2AX4G10 Nova 2D QI	1134353
		✔	Quality Inspection License	SIM2500-2AX1G10 Nova 2D QI	1135070
		✔	Intelligent Inspection License	SIM2500-2AX1G10 Nova 2D II	1135071
	SICK algorithm API, HALCON (image processing library) for customer development	✔	Quality Inspection License	SIM2500-2AX3G10 Nova 2D QI	1135072
		✔	Intelligent Inspection License	SIM2500-2AX3G10 Nova 2D II	1135073

SICK APP SPACE

→ **www.sick.com/SIM2x00_Nova**

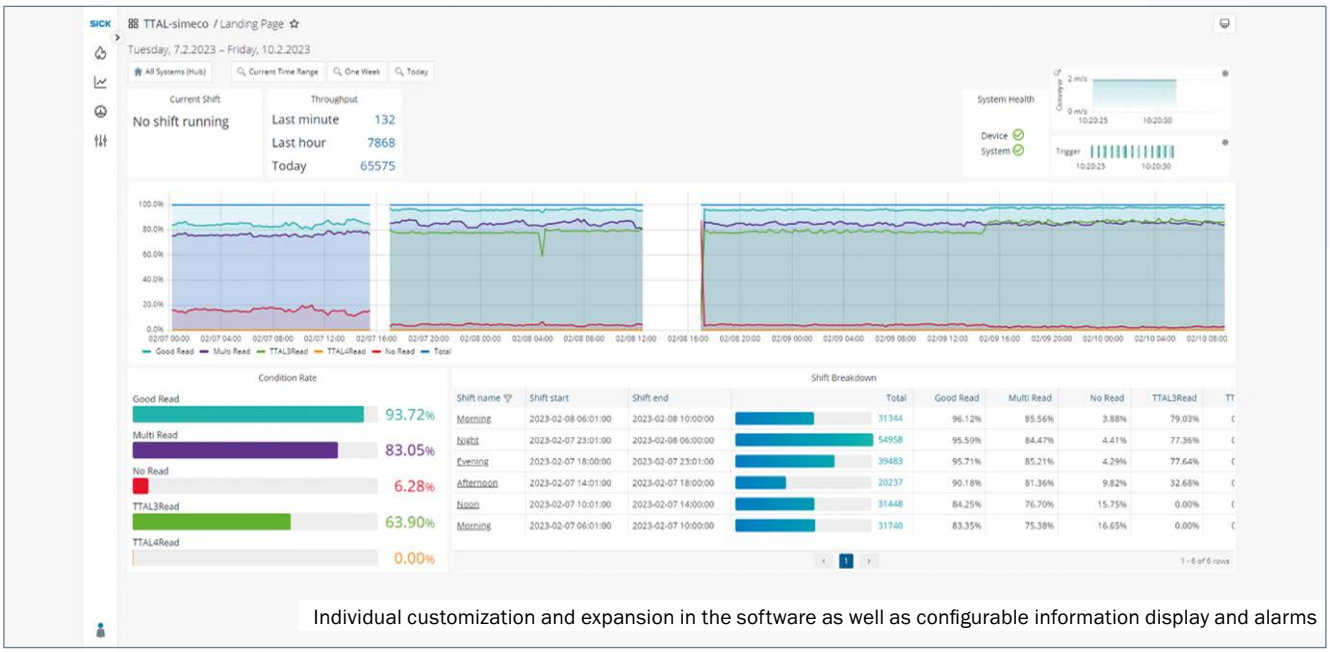
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Software for integration

Track and Trace Analytics Lite

Quick, easy diagnosis and data analysis of track and trace systems

- Overview of utilization and throughput of the overall system
- Calculation of relevant key performance indicators with access to object-related data sets via standard interface
- Clear visualization of the health status of the system at any given time
- Central analysis and monitoring of multiple systems
- Cost-effective retrofitting for track and trace systems thanks to minimal hardware requirements



Individual customization and expansion in the software as well as configurable information display and alarms

Product description

The diagnostic and analysis software is specifically tailored to track and trace systems. Even the free version provides access to system, object and process data in real time. With this data, you can continuously check the health status of the system; performance metrics can be automatically calculated and visualized. The software is flexibly expandable and offers central management of multiple systems and access to object images as additional functions. Specific object data can be exported and integrated into customer IT systems. Installing the software on the system controller ensures secure, fast and scalable data preparation.

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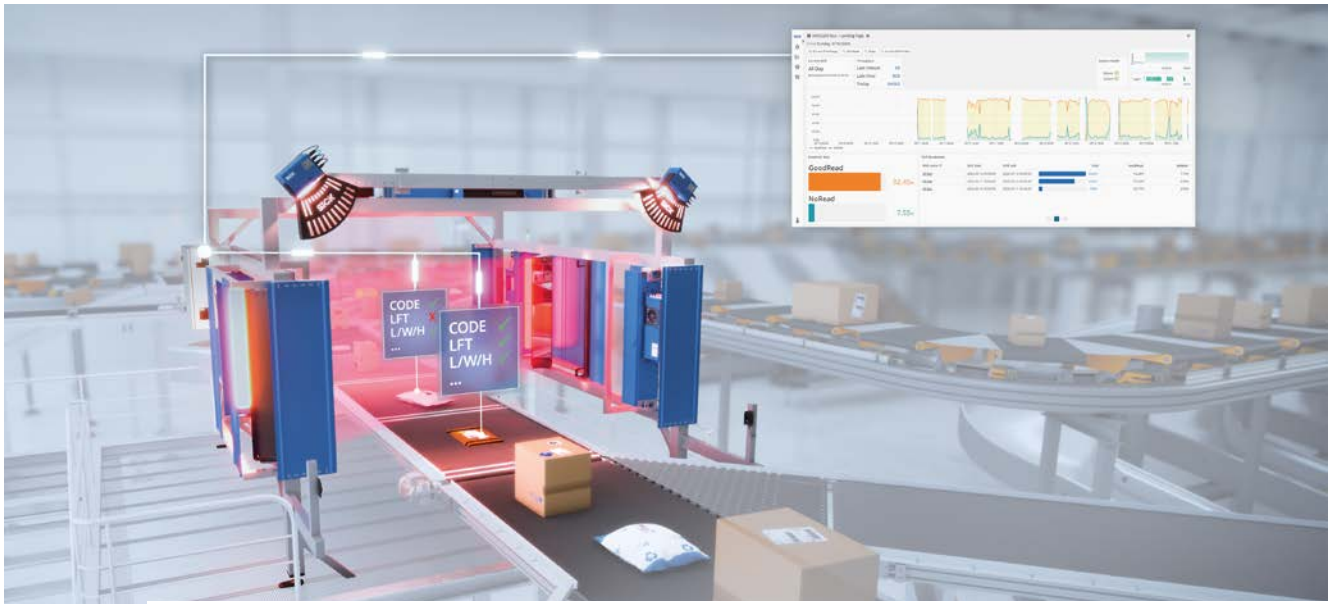
Subject to change without notice

Application examples



Real-time monitoring and analysis of system, object and process data in track and trace systems with access to historical data

Technical data overview

Description	Software for visualization and analysis of track and trace systems
Supporting products	Track and trace systems from SICK
Operating system	Installation is done on the SIM2000-2 P system controller and is supported from firmware V37.

Selected products

Description	Type	Part no.
Free version	TTAL Free	2139000
Extension to include access to historical data, as well as integration with Hub View	TTAL Basic	2136730
Basic scope with access to object images	TTAL Image	2137251
Basic scope with extension to include access to data sets for further processing	TTAL Connect	2137252
Basic scope with extension to analyze and monitor multiple systems from a central access point (hub)	TTAL Hub	2137249
Extension of the stroke scope to include access to data sets for further processing	TTAL Hub Connect	2137254
Extension of the image scope to include access to data sets for further processing	TTAL Image Connect	2137255
Extension of image scope to analyze and monitor multiple systems from a central access point (hub)	TTAL Image Hub	2137253
Full version with image, hub and connect scope	TTAL Image Hub Connect	2137256

➜ **www.sick.com/Track_and_Trace_Analytics_Lite**

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

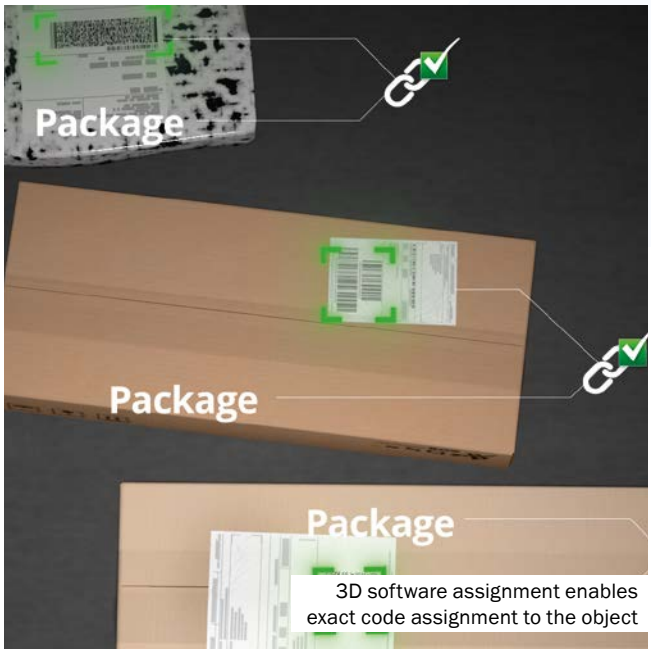
Track and trace systems

Lector Identification System

Fast image-based code reading and assignment with small object gaps

- Less manual post-processing thanks to high read rate
- Allows a high throughput due to combination of high conveyor speed and small gaps between objects
- Quick and easy commissioning
- Cost-effective solution due to small number of cameras
- Fast image transmission for vision applications

Code reading possible even with small object gaps of 50 mm



3D software assignment enables exact code assignment to the object

Product description

The Lector Identification System reads codes and assigns them to the associated object. Thanks to its high resolution, the small, powerful Lector85x 12-megapixel matrix camera offers reliable read results for any object size. It successfully reads codes regardless of the code quality thanks to intelligent, AI-based decoding algorithms. The high processing power also allows high conveyor belt speeds for greater throughput. Through real time object tracking and three-dimensional software assignment, the Lector Identification System reliably performs the code assignment task even with small object gaps. The system can be extended with additional identification technologies or additional functions such as dimensioning and weight recording.

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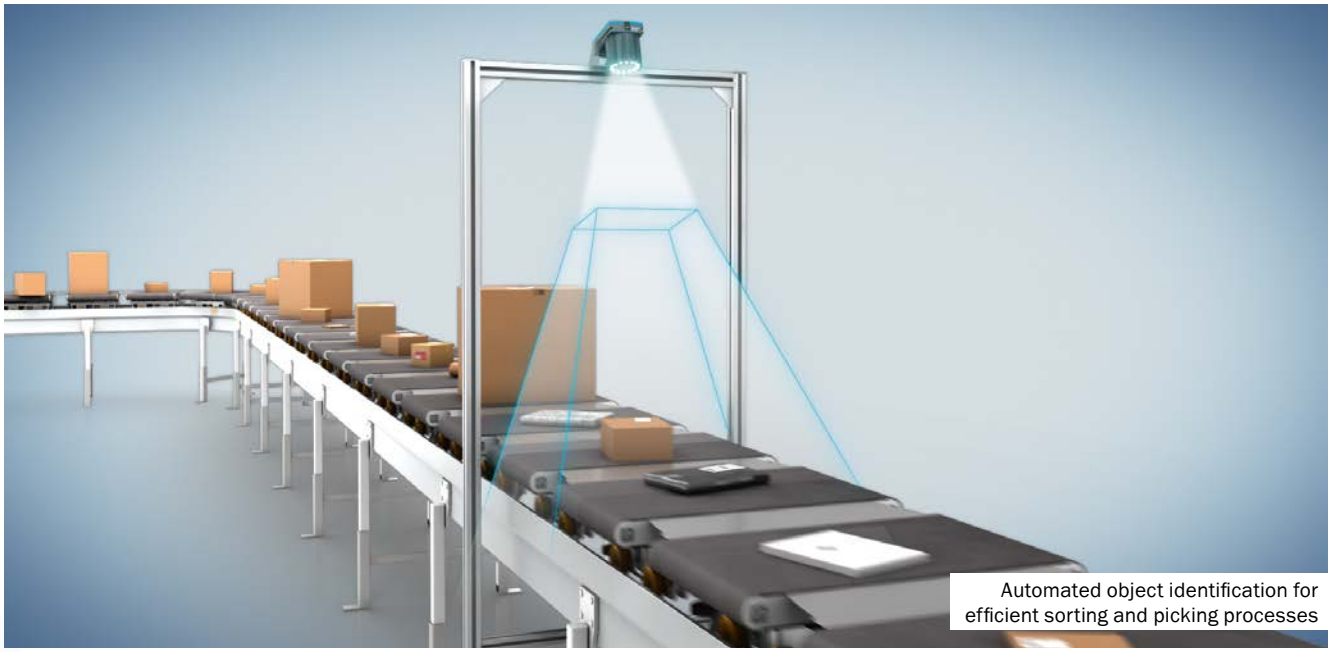
Application examples



Automated object identification for efficient sorting and picking processes

Technical data overview

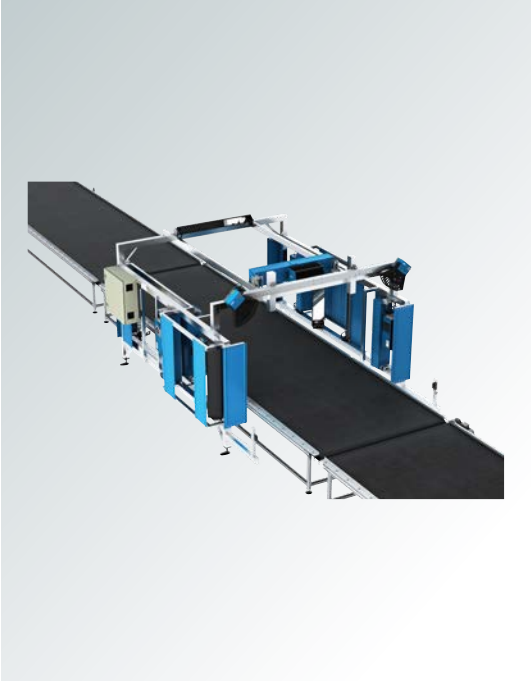
Sectors	Courier, express, parcel, and postal Retail and warehousing Storage, handling and sorting Airports
Conveyor speed	0 m/s ... 3.5 m/s
Minimum object distance	≥ 50 mm
Code types	1D 2D
Sensor resolution	5MP, 9MP, 12MP
Covered side of object	Top, right, left, front, back, bottom
Can be expanded with the following products	ICR system, volume measurement system, weighing system, RFID

Selected products

Covered object sides	Reading field width	Type	Part no.
Top	0 mm ... 800 mm	Logistics Lector Array Top-101	1131799
Top, left, right	0 mm ... 800 mm	Logistics Lector Array 3-sided-102	1131777
Top, left, right, front, back	0 mm ... 700 mm	Logistics Lector Array 5-sided-102	1131781
Top, left, right, front, back	0 mm ... 1,000 mm	Logistics Lector Array 5-sided-104	1131784

→ **www.sick.com/Lector_Identification_System**

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



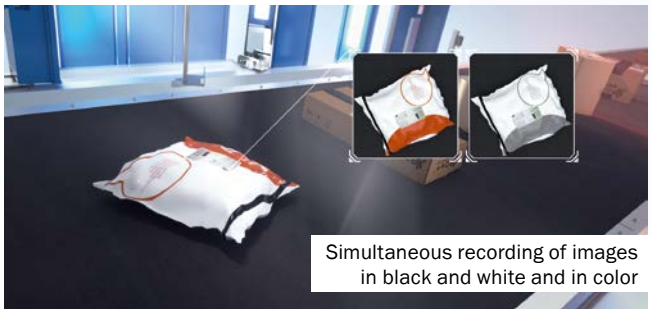
Track and trace systems

ICR Identification System Color

Efficient sorting of objects at the highest conveyor speeds

- All-in-one device: Code reading, image capture and image processing in one system
- 8/12 k quad-line color sensor
- Throughput of more than 18,000 objects/h at conveyor speeds of up to 4.5 m/s
- 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

Image-based reading of 1D and 2D codes for fast and correct sorting processes



Simultaneous recording of images in black and white and in color

Extraction of additional information from the image with AI

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.

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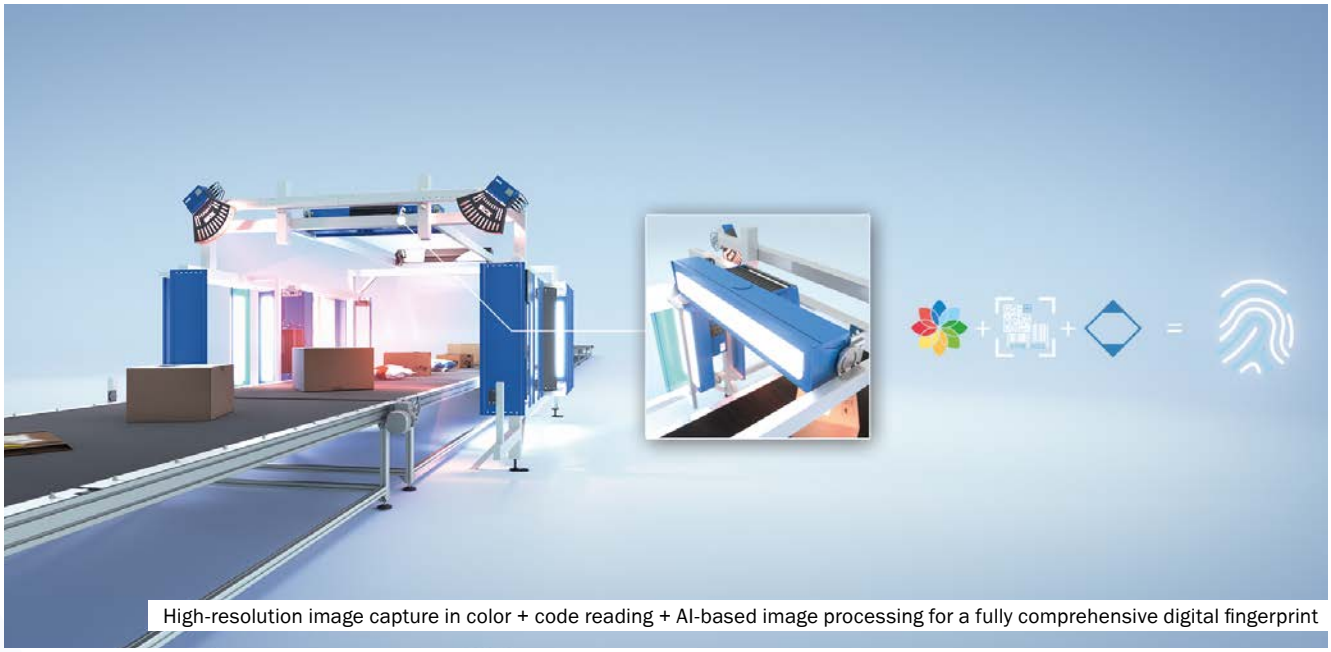
Application examples



High-resolution image capture in color + code reading + AI-based image processing for a fully comprehensive digital fingerprint

Technical data overview

Sectors	Courier, express, parcel, and postal Retail and warehousing Storage, handling and sorting
Conveyor speed	0 m/s ... 4.5 m/s
Minimum object distance	≥ 50 mm
Reading field width	up to 1,600 mm
Code types	1D 2D 4-state
MTBF	120,000 h
Additional functions	Multiple 2D / 3D Vision Solutions directly on the camera

Selected products

Sensor resolution	Focus	Max. reading field width	Image resolution	Type	Part no.
8.192 px	Dynamic focus control	1,200 mm	> 150 dpi (at 4.5 m/s) > 295 dpi (at 4.5 m/s)	ICR890-4 8k Pro Color	on request
12.288 px	Dynamic focus control	1,600 mm	> 150 dpi (at 4.5 m/s) > 295 dpi (at 4.5 m/s)	ICR890-4 12k Pro Color	on request

➜ **www.sick.com/ICR_Identification_System**

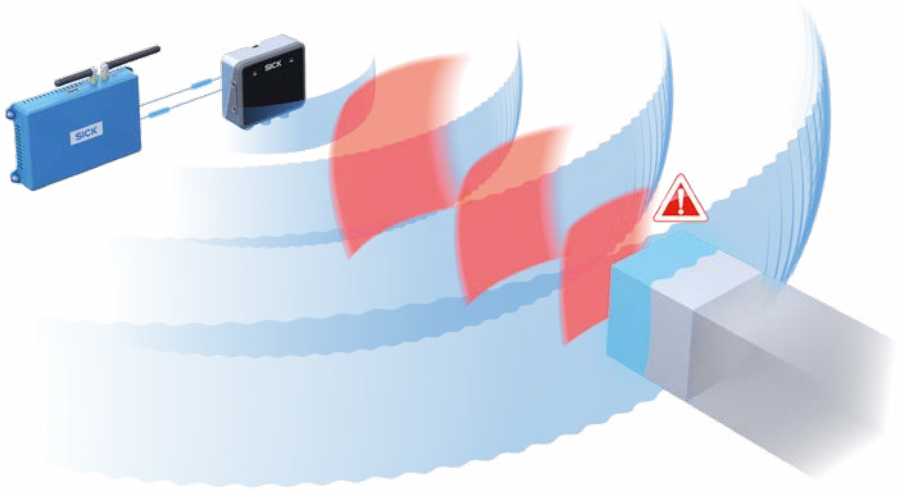
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Object detection systems

AOS Radar

High detection reliability for hazardous situations in outdoor areas

- Non-contact measurement process with radar technology
- High detection reliability and performance in any weather conditions
- Individual determination of objects with high potential for collision
- All common interfaces for connection to the customer system
- Access via web browser



Non-contact measurement procedure with radar technology and evaluation and alarms by the Telematic Data Collector gateway system

Product description

The AOS Radar (Advanced Object Detection System) object detection system enables early detection of dangerous situations with a high potential for collision. The data recorded by the radar sensor is then evaluated multiple times to rule out incorrect detection and clearly verify objects. Even in difficult weather conditions, it offers high detection reliability. This is how the system helps to increase safety and prevent accidents. The unit responsible for evaluation and alarming is the integrated Telematic Data Collector gateway system, which has a wireless communications interface in addition to common industrial interfaces.

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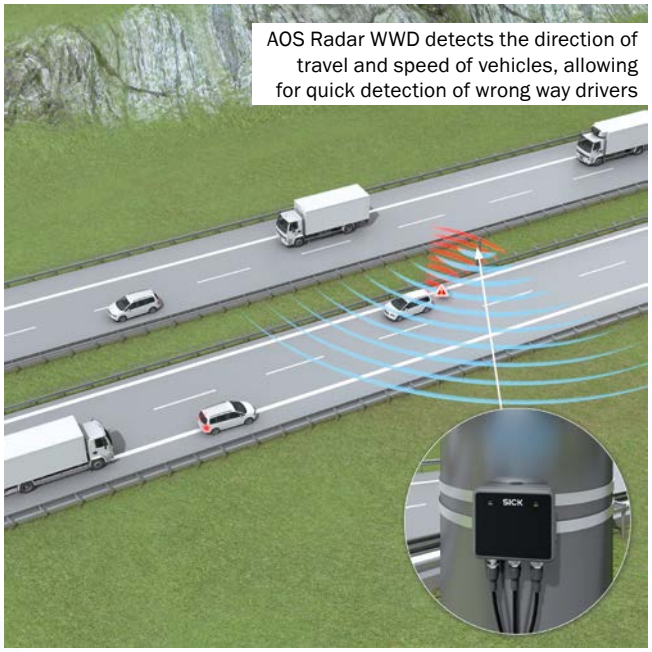
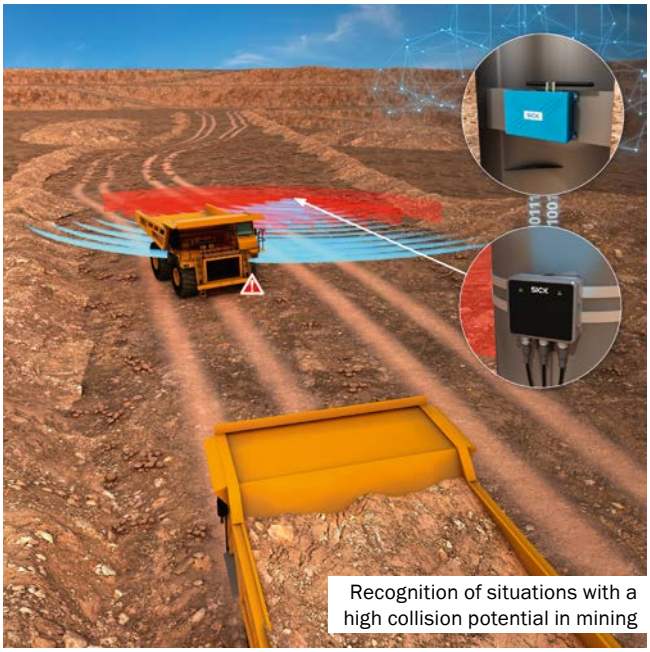
Application examples



AOS Radar WWD detects the direction of travel and speed of vehicles, allowing for quick detection of wrong way drivers



Recognition of situations with a high collision potential in mining

Technical data overview

Scope of delivery	Radar sensor RMS2000, Telematic Data Collector, TEMS-based software “Wrong Way Driver” on Telematic Data Collector
Output data	Time Lane assignment Trajectory Direction of travel Speed Validity status Wrong way driver alarm via I/Os, TCP/IP, mobile communications, MQTT
Mounting position	Above or next to the lane (0.4 m ... 5 m)
Supply voltage	24 V (9.5 V ... 36 V)

Selected products

Version/Application	Type	Part no.
Europe, Middle East, Africa, APAC excluding Japan	AOS2001-GC WWD	1133090
North America, Latin America	AOS2001-AC WWD	1133091
Japan	AOS2001-JC WWD	on request

→ **www.sick.com/AOS_Radar**

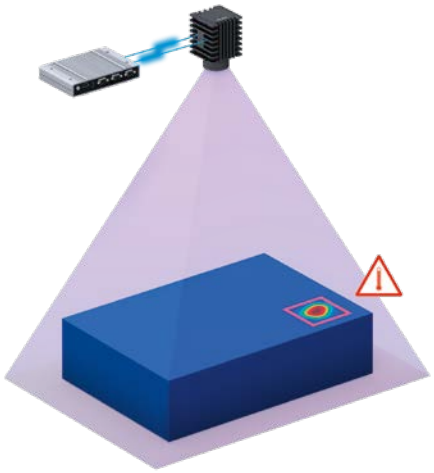
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Object detection systems

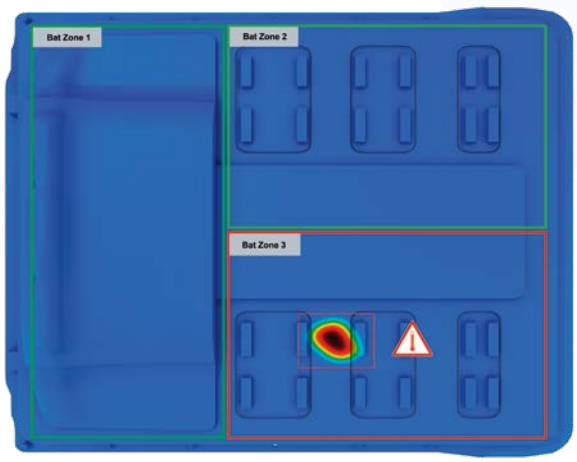
Area Hotspot Detection System

Detect and issue alarms for overheated surfaces fully automatically

- Prevention of fires due to early detection of overheated surfaces
- Targeted alarms when temperature limits are exceeded in various monitoring areas
- Output of the measurement data with thermal images for logging the hot spot monitoring
- Data transmission via TCP/IP, ProfiNet, I/O interfaces
- Use both in- and outdoors thanks to proven infrared technology



Fully automatic detection of overheated surfaces of various objects and materials both in- and outdoors



Definition of several monitoring areas with different temperature thresholds

Product description

The Area Hotspot Detection System uses thermal imaging cameras to detect overheated surfaces, e.g. on batteries, silo walls or pipelines. Early detection of hot spots can proactively prevent fires. The system continuously measures the temperature of the measured object fully automatically. Several monitoring areas with different temperature limits can be defined. When the defined threshold is exceeded, an alarm is sent to the higher-level system, which enables an early response to the fire hazard.

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Application examples

The thermal imaging camera checks the high-voltage storage units before installation for hot spots and thus for a potential fire hazard

Inspection of high-voltage storage during transport at a speed of up to 1.5 m/s

Technical data overview

System components	Infrared camera EC700 Miscellaneous accessories
Output data	Alarms Alarm data Temperature data System status Thermal images
Measuring range, temperature	– 20 °C ... + 1,000 °C
Alarm threshold	Adjustable (– 20 °C ... + 1,000 °C)

Selected products

Aperture angle	Type	Part no.
29°	AHD129	1136342
51°	AHD151	1135502
95°	AHD195	1136343

➜ **www.sick.com/Area_Hotspot_Detection_System**

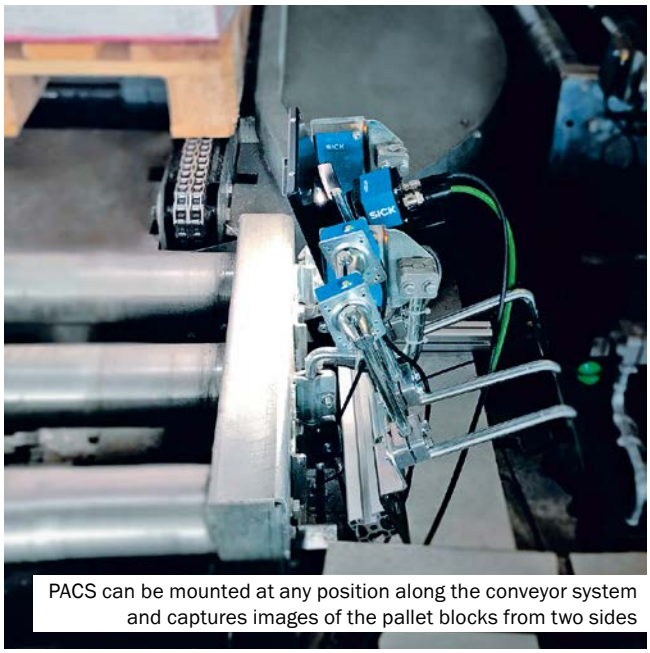
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Quality control systems

Pallet Classification System

Fast and reliable classification of different pallet types

- Automatic pallet classification during operation – without manual effort
- Transparency about pallet stocks
- Artificial neural network for evaluating a wide range of pallet types
- No expert knowledge needed to operate the system
- Easy integration into existing plants



PACS can be mounted at any position along the conveyor system and captures images of the pallet blocks from two sides

An artificial neural network evaluates the images and identifies the pallet type based on the branding on the pallet block

Product description

The Pallet Classification quality control system automatically classifies the pallets arriving at the incoming goods department. To do so, midiCam2 2D machine vision cameras record images of the pallet blocks while the pallet passes through the system. With the help of a pre-trained artificial neural network, the pallet type, for instance EPAL, Chep or UIC, is checked. PACS thus enables the correct accounting of deposit pallets or pallets subject to a pooling system. As a result, PACS ensures smooth pallet management as well as transparency regarding the current pallet inventory.

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Application examples

Classification of pallets in areas with high pallet turnover, e.g. retail and production logistics

Technical data overview

Typical object speed	0.5 m/s
Ambient temperature, operation	0 °C ... + 40 °C
Export data formats	FTP (images of pallet blocks and pallet load) TCP/IP (result log)
Configuration interface	Web interface
Supply voltage	24 V DC (21.6 V DC ... 26.4 V DC)

Selected products

Task assignment	Load documentation	Type	Part no.
Pallet classification	–	PACS1000-221	1132663
Pallet classification and load documentation	An additional midiCam2 above the conveyor captures the load of the pallet for documentation.	PACS1000-321	1127835

➜ **www.sick.com/Pallet_Classification_System**

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

Gateway systems

Automated Load Detect Ident System

Reliable load detection and identification for traceable loading and unloading of industrial vehicles

- Tracking of loading and unloading operations and cargo information of the transport vehicles
- Data basis for indirect localization of goods and therefore transparency about the location of the goods
- Easy configuration and complete data control

Automatic load detection with distance sensors and load identification with technologies such as RFID, laser and camera

Product description

The Automated Load Detect Ident System is a gateway system for the automatic detection of loading and unloading processes of industrial vehicles in logistics. The system detects the load with distance sensors and identifies it with technologies such as RFID, 1D and 2D codes. The pre-processed information is transmitted wirelessly to a software infrastructure. SICK has the Asset Analytics software solution for this purpose, which links the data with the position of the vehicle. Indirect localization means that it is known at all times where the material, load carrier and vehicle are currently located.

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Application examples

Transparency of goods movements with industrial vehicles in warehouse and production logistics

Technical data overview

Scope of delivery	TDC-E210GC/AC with ALDIS software module including connection cable and operating manual, sensors for load detection and identification
Supported sensors for load detection	Distance sensors, 2D LiDAR sensors, photoelectric sensors
Supported sensors for load identification	Image-based code readers, fixed mount barcode scanners, RFID read/write units, mobile handheld scanners
Operating system	Linux with Micro Services
Eco-system	Docker
Data protocol	MQTT, REST API
Connectivity	Mobile communication (4G) WLAN, LAN
GPS	Yes, GPS, GLONASS, BeiDo, Galileo
Serial	Yes , RS-232
Inputs/outputs (I/O)	6 analog inputs (configurable, current and voltage), 6 digital inputs/outputs (configurable), 2 additional digital inputs, 2 additional digital outputs

Selected products

Controller	Sensors for load detection	Sensors for load identification	Type	Part no.
TDC-E210GC/AC depending on region	DS35 mid range distance sensor WTT12L-B2573 photoelectric proximity sensor TiM361 2D LiDAR sensor	RFID read/write device with integrated RFU630 antenna	ALDIS-RFID30	on request
		CLV650 fixed mount barcode scanner	ALDIS-LASER50	on request
		Lector654 image-based code reader	ALDIS-VISION54	on request

➜ **www.sick.com/Automated_Load_Identification_and_Detection_System**

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

Digital solutions for integration

SICK Maritime Suite

The digital solution for the maritime industry

- Save time: The MARtracker and MARpems digital services reduce manual data entry
- More transparency: The MARtracker digital service reports the conformity status of an entire fleet of ships online
- More process reliability: MARpems continuously monitors operation of the scrubber
- MARpems provides temporary emission compliance in the event of the failure of the gas analyzer to meet IMO directive MEPC.1 / Circ883 / Rev.1

Saves operating costs and supports you in meeting statutory requirements

Tailored solution: Digital services can be activated as needed

Product description

Everything at a glance: With the SICK Maritime Suite ship owners and ship managers gain full transparency over their fleet, thereby saving operating costs. With the help of the SICK Maritime Suite, you can select individual digital services according to your specific requirements. These provide information in real time – for more transparency and simplified error analysis.

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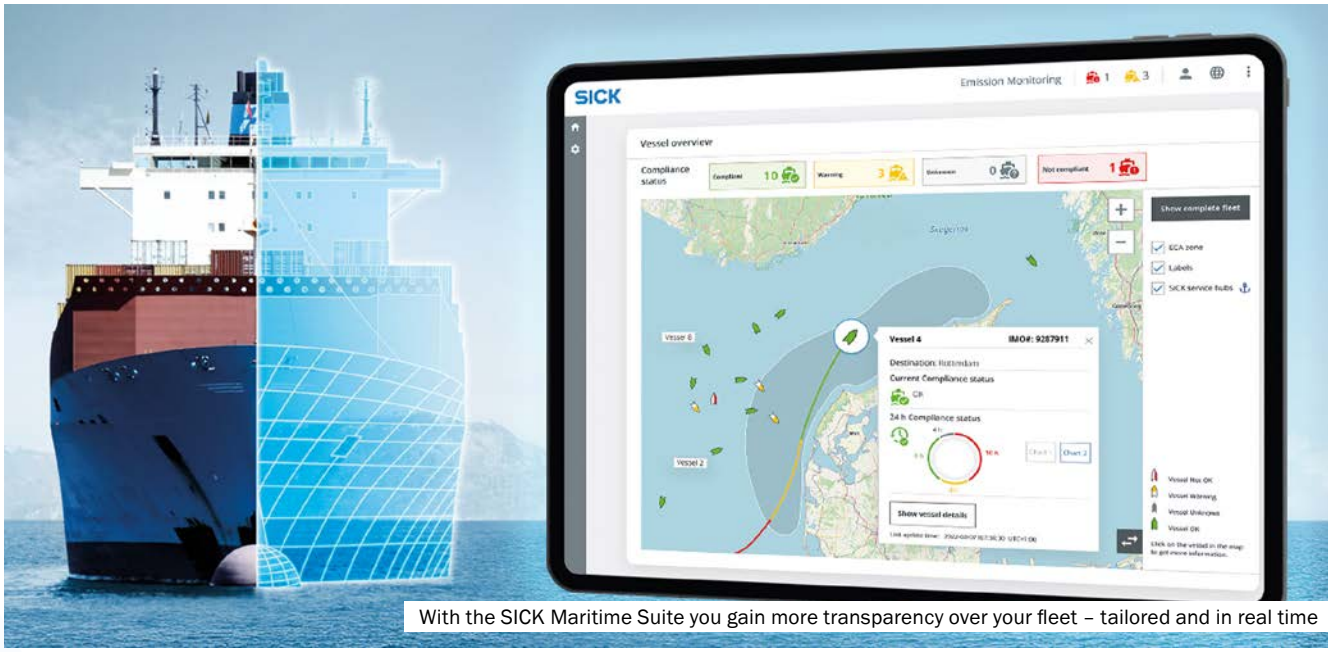
Application examples



With the SICK Maritime Suite you gain more transparency over your fleet – tailored and in real time

Technical data overview

MARtracker	Cloud based app for checking the conformity of the emission values of scrubber systems on one or more ships (fleet) in accordance with MARPOL standards and regulations.
MARpems	PEMS stands for Predictive Emission Monitoring System. On-premise solution for calculating emissions based on customer-specific process parameters for redundant compliance in the field of emission monitoring on ships with installed scrubbers.

Selected products

Description	Type	Part no.
SICK Maritime Suite	MARtracker	on request
	MARpems	on request

➜ **www.sick.com/SICK_Maritime_Suite**

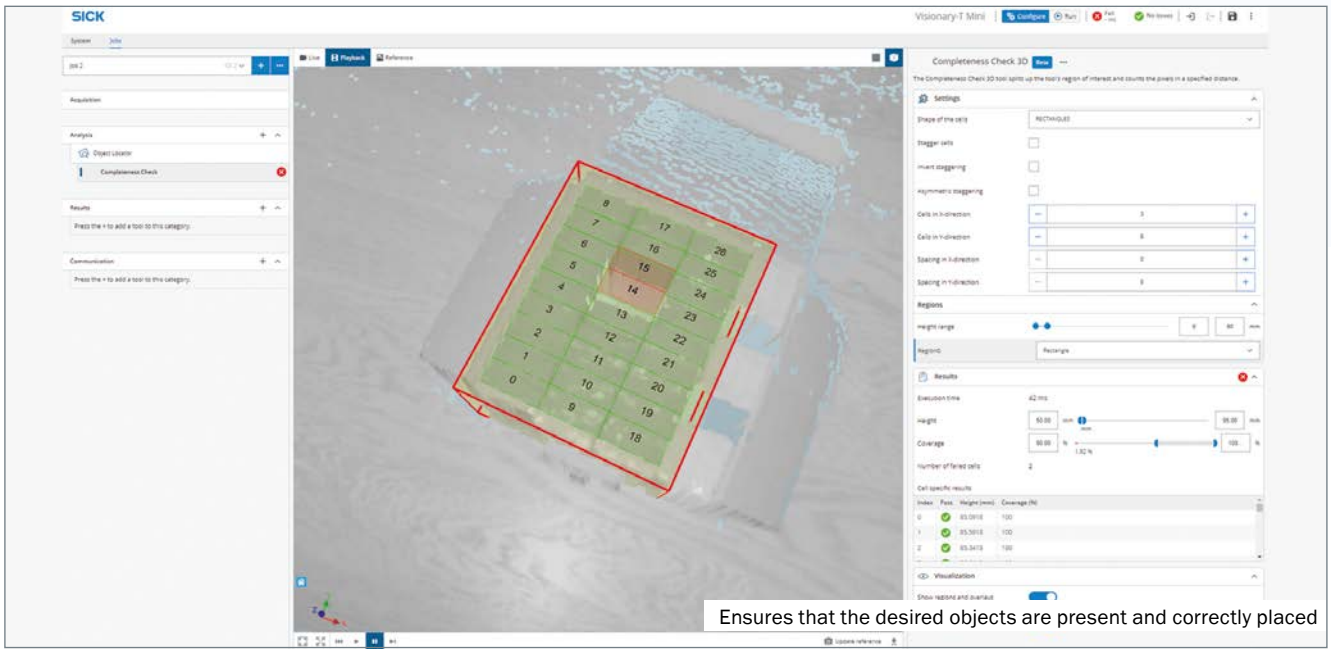
For more information, simply enter the link or scan the QR code to get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

SICK AppSpace SensorApps

SICK Nova for Visionary-S/T Mini

Turnkey and adjustable SensorApps for diverse applications

- 2D and 3D image processing inspection
- Presence Inspection applications
- User-friendly interface launched via a web browser
- Quick adaptation with SICK Nova plug-in tools
- I/O and TCP/IP interface



Ensures that the desired objects are present and correctly placed

Product description

For example, the Presence Inspection toolset running on the Visionary-S and Visionary-T Mini cameras ensures that the desired quality criteria for packaging contents are met and that no unwanted features are present. Inspection is done using special tools for image analysis which are configured using a graphic user interface in a web browser. Tool plug-in support provides exceptional customization options.

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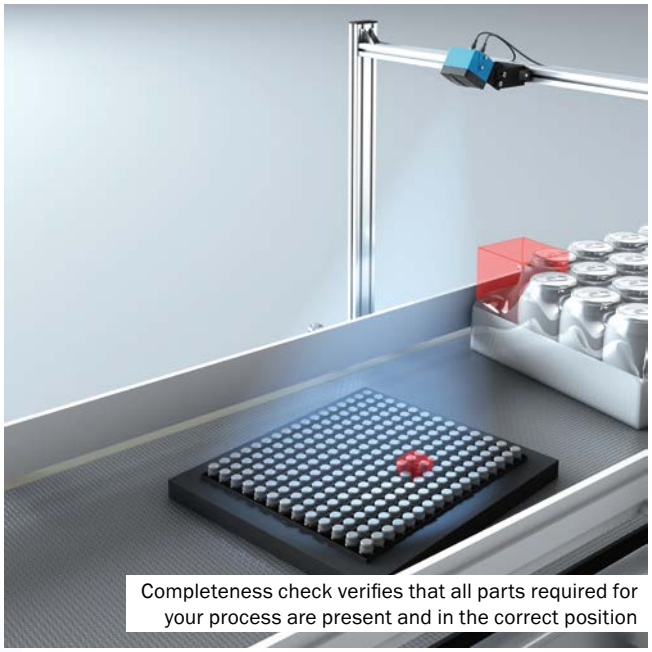
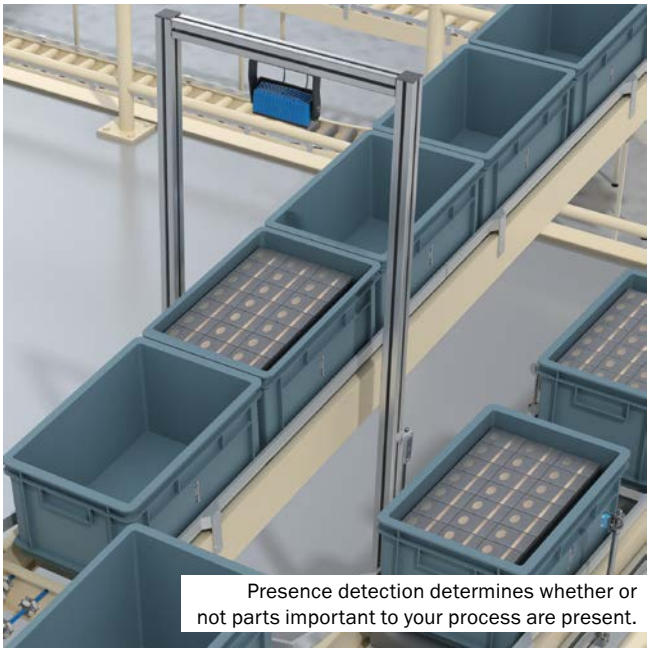
Application examples



Completeness check verifies that all parts required for your process are present and in the correct position



Presence detection determines whether or not parts important to your process are present.

Technical data overview

Application	Detection and measurement in 3D, presence control, quality control
Included license	The Presence Inspection License offers the option of using a subset of the tools of a SICK Nova SensorApp. The Presence Inspection toolset is used to ensure that desired qualities or properties are present and undesirable elements are not.
Extension options	The SICK Nova-Tool plug-in enables customer-specific or new tools to be added. Development and customization of the tools is supported by SICK AppSpace and SICK AppStudio.
Supported products	Visionary-S AP, Visionary-T Mini AP, Presence Inspection License
Technology	3D snapshot, image analysis

Selected products

Description	Type	Part no.
Nova Visionary-S SensorApp with Presence Inspection toolset	Nova Visionary-S	on request
Nova Visionary-T Mini SensorApp with Presence Inspection toolset	Nova Visionary-T Mini	on request

➜ **www.sick.com/SICK_Nova_SensorApps**

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

Digital Services for Integration

FTMg Premium Monitoring Box

Digital service reduces compressed air costs by up to 30%

- Digital solution consisting of the FTMg flow sensor (data provider), the TDC (gateway) and the FTMg Premium Monitoring Box
- Automatic detection of leakages, inefficiencies and overconsumption
- Customized alerting module for easy configuration of notifications
- Can be implemented independently of the customer PLC as a stand-alone system

Application-tailored dashboards and alerts ensure visibility into production operations

The FTMg flow sensor supplies the data to the FTMg Premium Monitoring Box

Product description

The FTMg Monitoring Box Premium is a scalable digital service for monitoring, analyzing and predicting service and process data. The FTMg flow sensor is used to continuously monitor and analyze compressed air consumption. By combining the FTMg and Monitoring Box, you can easily detect static leaks or compare the compressed air consumption per measuring point. This lowers costs, optimizes production efficiency or reduces service work.

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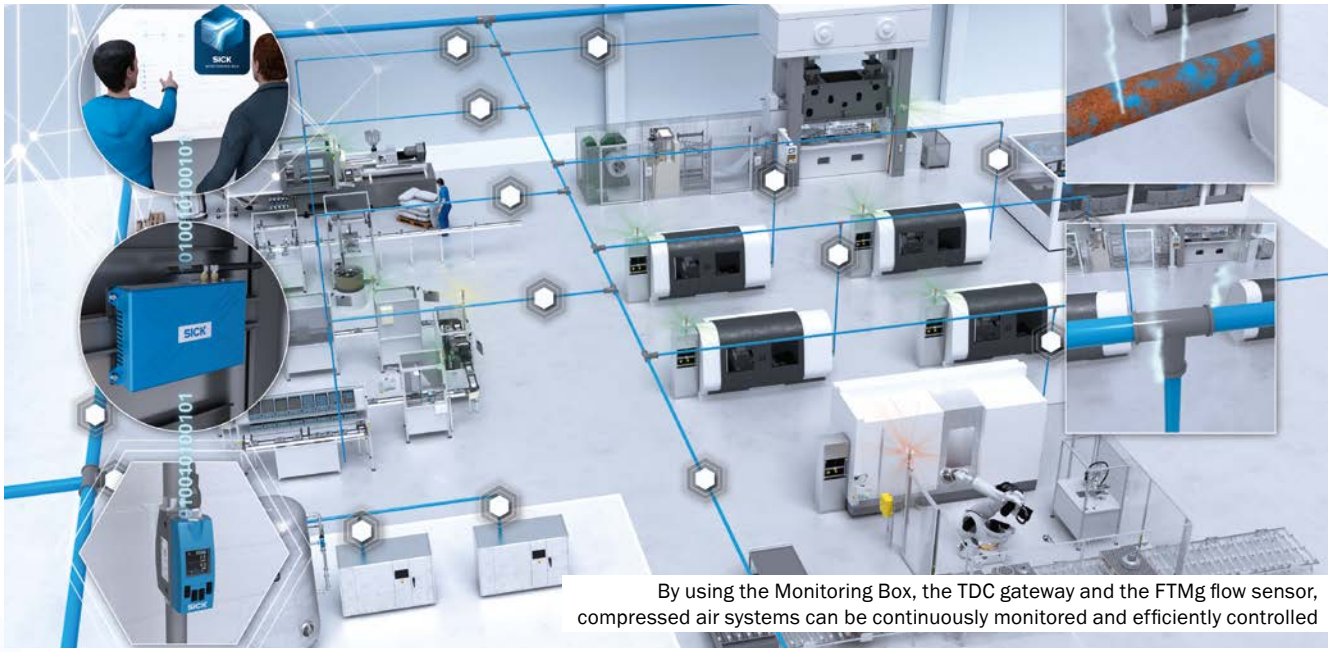
Application examples



By using the Monitoring Box, the TDC gateway and the FTMg flow sensor, compressed air systems can be continuously monitored and efficiently controlled

Technical data overview

Process data	Reference conditions for flow, energy, flow velocity, mass flow, mass, volume flow, volume, temperature, pressure
Calculated supplementary data	Statistical values (Min, Max, Avg) Total min. volume flow (standstill) Volume flow during downtime (min, trend) Volume flow during operation (max, trend) Average flow speed KPI Average flow rate KPI Average temperature KPI Average flow KPI Average pressure KPI Overall volume KPI (compressed air consumption) Overall cost KPI (based on compressed air consumption) Overall energy KPI Health status KPI
Static data	Firmware version Serial number Measuring pipe nominal width
Service data	Device state System status Day since last reset

Selected products

Supported products	Type	Part no.
FTMg-E	FTMg Premium Monitoring Box	1617432

→ **www.sick.com/Monitoring_Box**

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

LiDAR localization

CODE-LOC

Code-based localization software for automated guided vehicles (AGVs)

- Very high localization accuracy of up to +/- 1 mm
- Reliable and accurate localization regardless of the contours
- Teach-in of any code layouts possible
- Flexible solution for applications in dynamic environments
- Combination of code-based and contour-based localization using the LiDAR-LOC 2 application software

Automated guided vehicles with code-based localization

Product description

CODE-LOC is an application software for localizing automated guided vehicles (AGVs). Navigation is done with the help of 2D codes on the ground. CODE-LOC is suitable for vehicles without LiDAR sensors and for use in highly dynamic environments with constantly changing contours. Typical fields of application are goods-to-person picking processes in which entire storage racks are transported from bulk storage by AGVs. CODE-LOC can also be used in block storage and sorting applications in large halls. CODE-LOC can be used as a stand-alone software solution or as a standard component of the LiDAR-LOC 2 application software. This makes it possible to localize AGVs in a wide range of environments.

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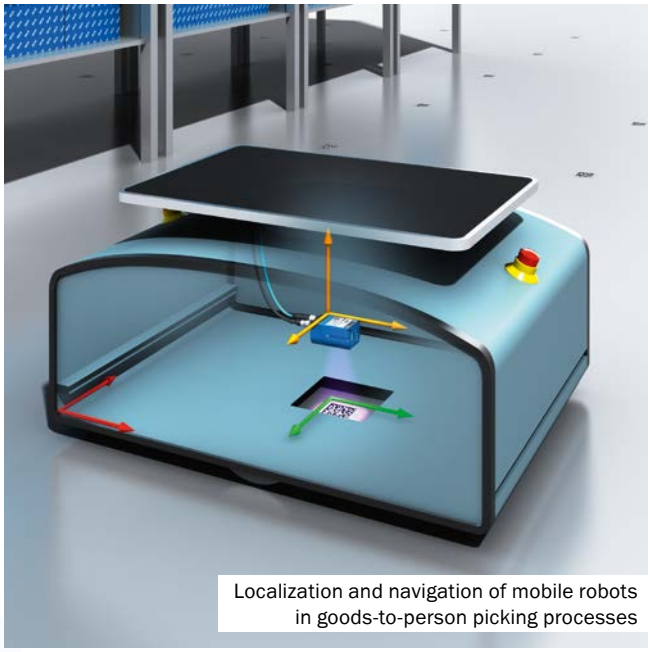
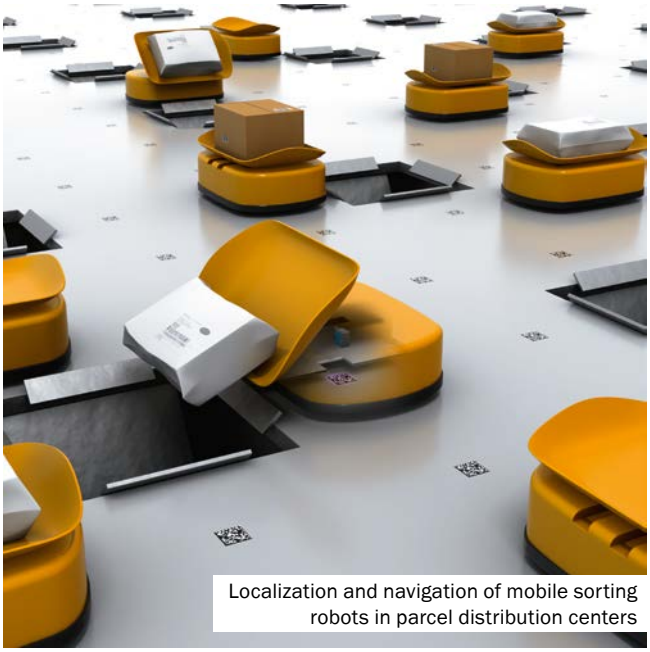
Application examples



Localization and navigation of mobile robots in goods-to-person picking processes



Localization and navigation of mobile sorting robots in parcel distribution centers

Technical data overview

Product category	Embedded software
Output data	Position (X, Y, direction angle)
Repeatability	Typ. 10 mm, position Typ. 1 mm, on codes Typ. < 0.25°, orientation Depending on the quality of the odometry
Speed	≤ 4 m/s, translatory ≤ 45 °/s, rotatory
Supported products	GLS611 GLS100 SIM1000 FX

Selected products

Description	Type	Part no.
LiDAR localization	CODE-LOC	1132922

→ www.sick.com/CODE-LOC

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

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Training and education
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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 11,900 employees and over 50 subsidiaries and equity investments, as well as numerous international agencies, SICK is always close to its customers. An extensive range of products and services creates the ideal 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.”

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