



microScan3 Core I/O

THE NEW GENERATION OF SAFETY LASER SCANNERS

Safety laser scanners

SICK
Sensor Intelligence.

microScan3: A NEW ERA OF SAFETY

SICK has combined its extensive knowledge, considerable experience, and power of innovation into this safety laser scanner. The microScan3 complies with stringent international safety standards. Every detail has been reexamined in order to meet your requirements as fully as possible. The result is a new benchmark for safety laser scanners, personal safety, and productivity.



SICK

The top half of the page features a dark red background with a bright light source on the right, creating a starburst effect of red and orange rays. A white, curved, paper-like shape is partially visible, with the SICK logo printed on it in white. The logo is partially cut off by the right edge of the frame.

SICK

microScan3: MEETS YOUR REQUIREMENTS HEAD-ON

The microScan3 reliably monitors the hazardous area of machines and facilities, thereby ensuring the safety of your employees. Not only does it save lives, it also supports ergonomic working methods. It boasts significant performance advantages compared with other safety devices.

Simple commissioning

- Uncomplicated mounting: No special installation preparations are required for the system
- Simple alignment: Sender and receiver unit are located in a single device

Increased flexibility

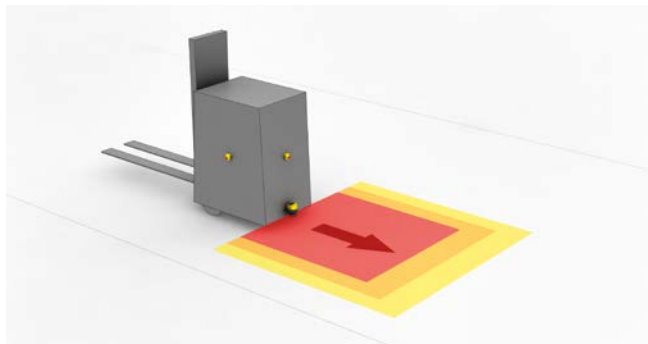
- Diverse: Intelligently designed for various ambient conditions
- Adaptable: Protection of hazardous areas doesn't require changes to work processes

One device for a range of tasks

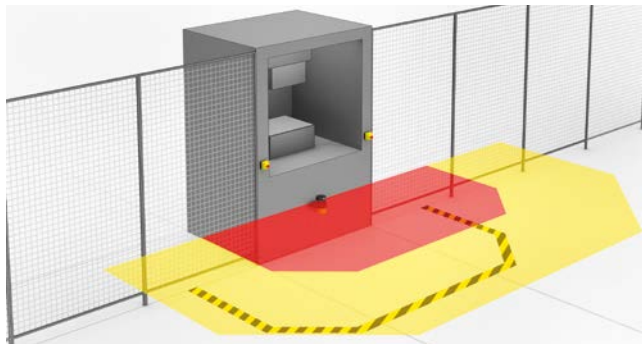
- Can be used vertically and horizontally: Suitable for hazardous area, hazardous point and access protection
- 2 in 1: Trigger machine stop and control restart

CK

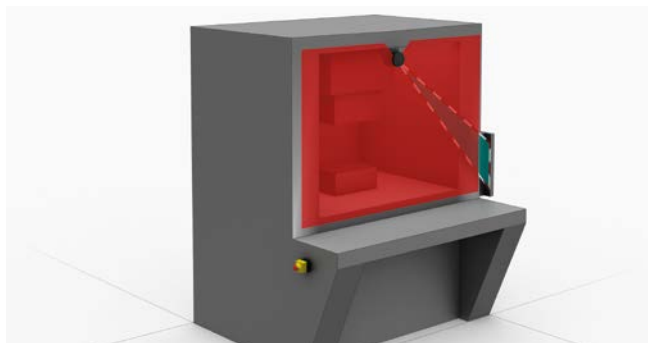
Safe in a number of applications



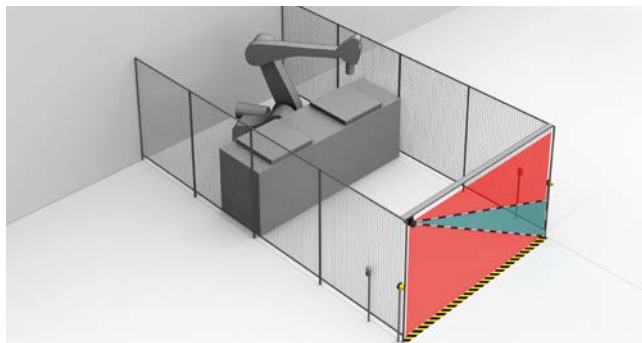
Mobile hazardous area protection: If a vehicle approaches a person in the hazardous area, the microScan3 recognizes this person by detecting their leg.



Stationary hazardous area protection: The microScan3 can tell if a person is approaching or standing in the hazardous area by detecting their leg.



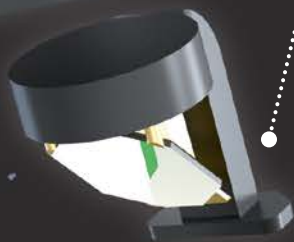
Hazardous point protection: If a person reaches into the hazardous area, the microScan3 will recognize this by detecting their arm.



Access protection: If a person enters the hazardous area, the microScan3 will recognize this by detecting their body. With additional measures people and material can be differentiated.



1 INNOVATIVE
safeHDDM™
SCANNING TECHNOLOGY



INTUITIVE
OPERATION

4



3 SMART
CONNECTIVITY



RUGGED
DESIGN

2

microScan3: ONE IMPRESSIVE PRODUCT, LEAVES A LASTING IMPRESSION



The innovative safeHDDM™ scanning technology sets new standards for safety laser scanners. By combining a compact design and a wide scanning range, it ensures that the microScan3 retains its field of view even in challenging ambient conditions.



20 years of experience with safety laser scanners in harsh industrial day-to-day work has been incorporated into the development of the microScan3. It has a high load capability and is characterized by its durability.

+ Reliable during operation

More information: → [Page 8](#)

+ Durable for high productivity

More information: → [Page 10](#)



The use of smart connectivity and standardized M12 plug connectors means that the cabling of the microScan3 is not just simple, but cost effective too. Device replacement is also quick and simple.



Using the Safety Designer software, the microScan3 can be intuitively configured and is convenient to commission. The multi-colored display clearly indicates the operational status of the laser scanner. Pushbuttons can be used to access details and additional information in easy to read text.

+ Cost-effective machine integration

More information: → [Page 11](#)

+ Quick, safe configuration and commissioning

More information: → [Page 12](#)



INNOVATIVE SCANNING TECHNOLOGY safeHDDM™

The microScan3 is compact and has a wide scanning range, as well as an impressive performance level – all made possible by an advance in technology. The innovative scan technology safeHDDM™ ensures the microScan3 retains its perspective even in challenging ambient conditions.

safeHDDM™ is based on SICK's proven HDDM™ process (HDDM = high definition distance measurement). The scan technology safeHDDM™ sets a new benchmark in the analysis of time-of-flight measurement. The process patented by SICK delivers unrivaled measurement results for safety laser scanners by filtering and analyzing numerous single pulses.

In this way, safeHDDM™ enables a very high level of resistance to ambient light and dust. And the most important part: safeHDDM™ ensures safety throughout. Even an object with a remission of just 1.8%, for example black suit pants, can be recognized safely by the laser scanner.

Exceptionally reliable



The microScan3 has incredible resistance to ambient light.



The microScan3 is highly practical as it is not affected by additional laser scanners or other infrared sources.

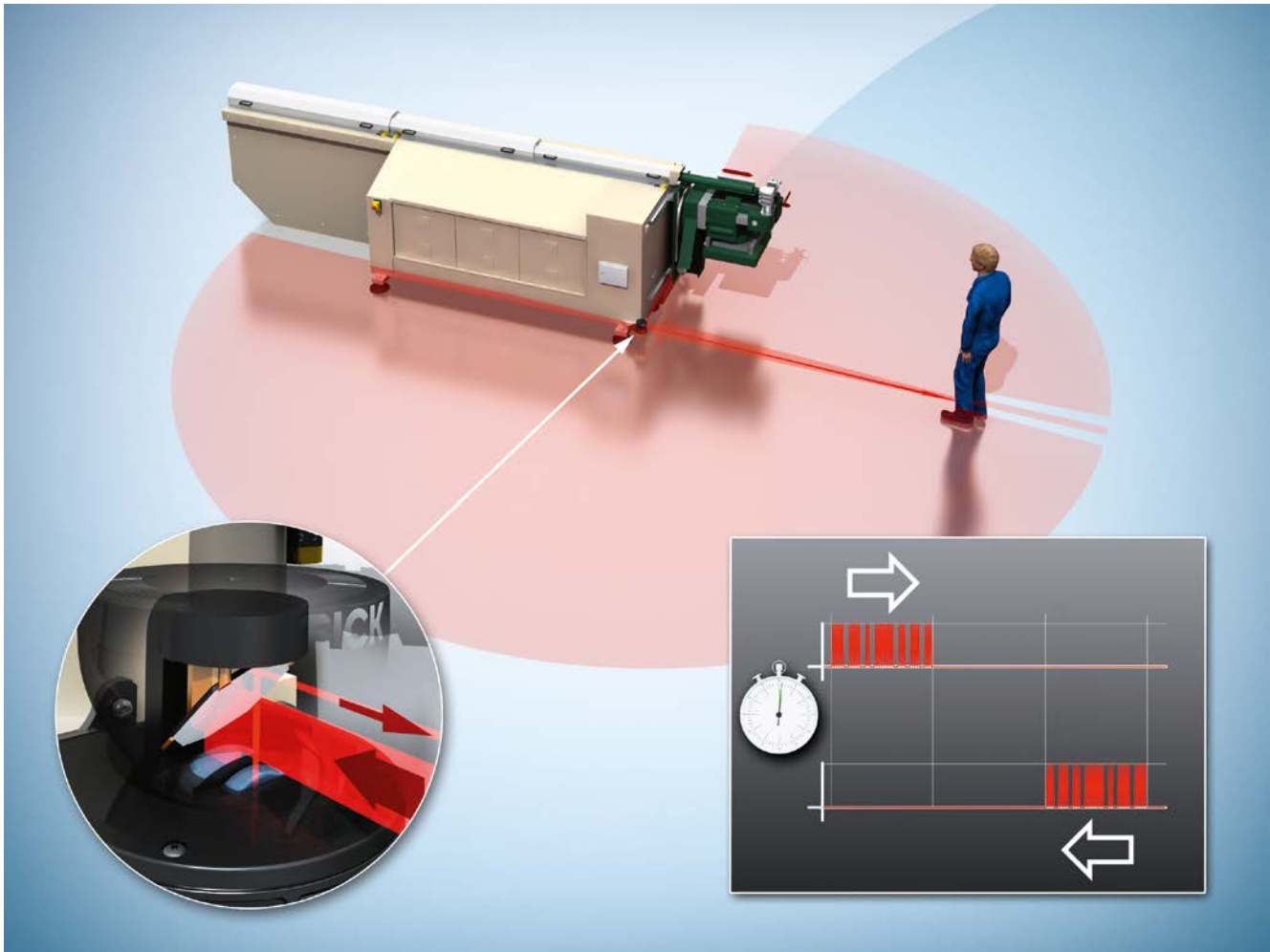


The microScan3 is resistant to dirt and dust.



- ➕ The microScan3 is significantly more reliable than standard measurement technologies thanks to the safeHDDM™ scanning technology, thus increasing your productivity.

The principle of operation



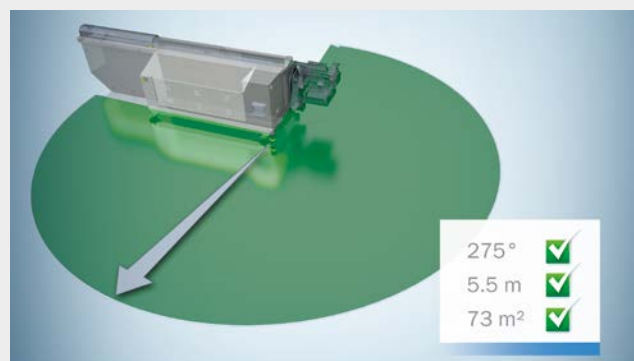
microScan3 – safe distance measurement that uses the time-of-flight measurement principle

During time-of-flight measurement, the sensor emits a pulse beam that is reflected by the object being detected. The delay time required by the beam for the path is analyzed and the distance to the object is then calculated.

The microScan3 has a scan cycle of just 30 milliseconds. Thousands of single pulses are filtered per scan cycle. These single pulses are used by the microScan3 to calculate 715 safe measured values.

275°? 275°! scan angle – without a single safety blind spot

A significant advantage of a modern laser scanner is that it can be mounted on a corner, enabling the monitoring of two sides of a machine. This is theoretically ensured by a scan angle of 270°. Yet SICK goes one step further: The microScan3 is the first safety laser scanner to reach 275°. Without this extra 5°, inaccurate mounting of the laser scanner can easily lead to a safety blind spot of almost half a meter. The microScan3 makes this problem a thing of the past.





RUGGED DESIGN

The microScan3 impresses with its rugged and compact light metal die-cast housing. Furthermore, the safety laser scanner sets new benchmarks in terms of electromagnetic compatibility (EMC).

SICK has 20 years of experience using safety laser scanners in harsh industrial day-to-day work and knows the stringent requirements placed on components in this field. The durability of the microScan3 is guaranteed by the compact light metal die-cast housing. But that's not all: The bracket is

vibration-resistant. Its integrated guide rails enable simple fixing and fast mounting of the laser scanner. And SICK has of course designed the electronics in the microScan3 in a way that electromagnetic compatibility (EMC) is guaranteed.

Excellent durability and productivity



The compact light metal die-cast housing of the microScan3 impresses in harsh industrial day-to-day work too.

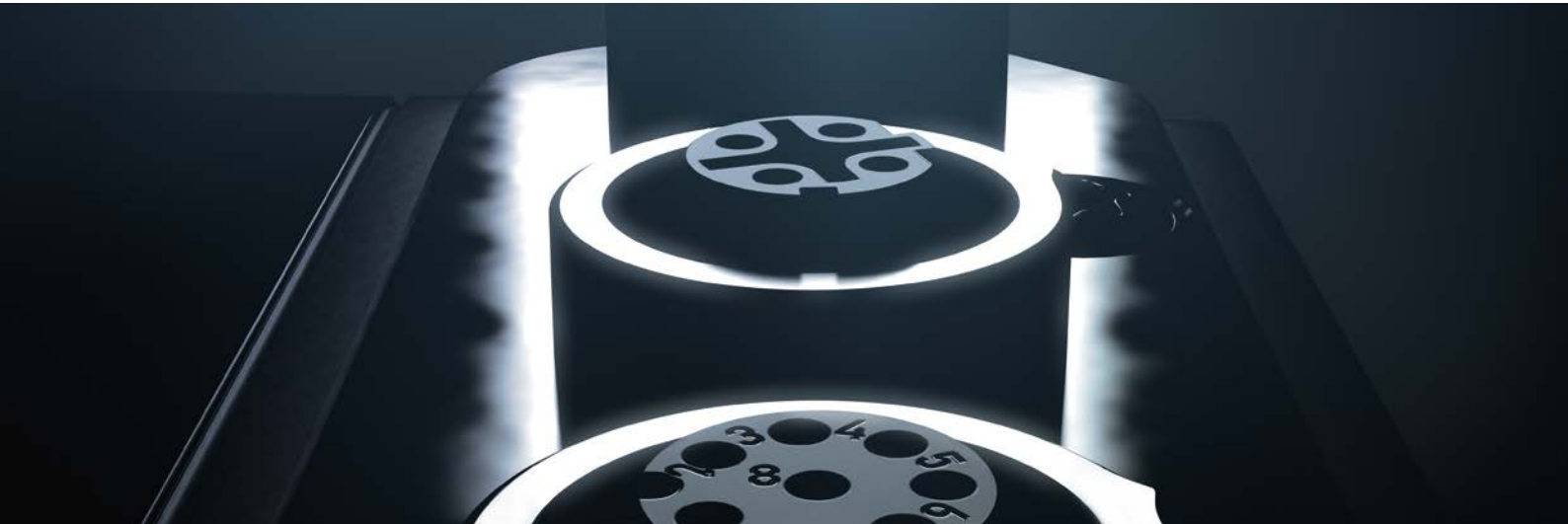


The vibration-resistant mounting systems of the microScan3 enable easy fixing.



Electromagnetic compatibility as standard: electronic components of the microScan3.

-  The microScan3 has been developed with demanding and harsh industrial applications in mind down to the last detail. The perfect combination of safety and productivity.



SMART CONNECTIVITY

You're already well aware that when it comes to the installation and commissioning of devices, time is a factor that should not be underestimated. Any complex cabling that may be required or complicated configurations of the individual components are time consuming and often cause unwanted machine downtime.

The microScan3 puts an end to wasting time and raises productivity to a whole new level. The standardized M12 connectivity of the safety laser scanner facilitates fast cabling and commissioning. A standard mini USB interface is available to configure and diagnose the device using a laptop.

Once configured, the settings are automatically stored in the integrated configuration memory, located in the system plug, and can be accessed at any time. If the laser scanner is damaged due to external forces and needs to be replaced, the configuration memory ensures that a new device is ready for use as soon as it has been connected.

Low cabling costs and fast device replacement with plug and play



The microScan3 can be cabled quickly thanks to its flexible cable and standardized M12 connectivity.



The Mini-USB interface enables the microScan3 to be configured and diagnosed quickly using a laptop.



Configuration settings are automatically stored in the microScan3's integrated configuration memory.



The microScan3 facilitates machine integration and device replacement through standardized interfaces and integrated configuration memory, thereby saving you time and money.



INTUITIVE OPERATION

Many people assume that a high-performance safety laser scanner would be complex to handle and operate. This, however, could not be further from the truth – the microScan3 sets new performance standards.

Right from the outset when configuring the device using the new Safety Designer software, it is clear that the microScan3 is highly intuitive. During operation, the status displays and LEDs are clearly visible from several angles, even from a distance.

Together with the user-friendly pushbuttons on the device, the status displays and LEDs allow for simple device diagnosis and operation at all times.



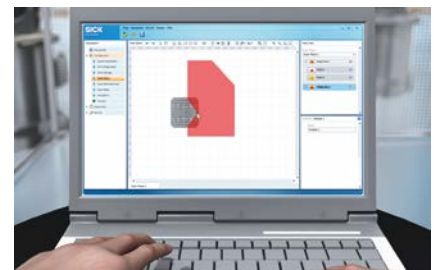
Straightforward commissioning and intuitive operation



The LEDs and the multi-colored display of the microScan3 is clearly visible.



Important diagnostic messages can be viewed on the microScan3 using pushbuttons and the display.



The configuration and diagnosis software Safety Designer is easy to use.

- +** The microScan3 is intuitive to use. After the Safety Designer software has been configured, you can carry out device diagnosis during operation using the display and pushbuttons.

microScan3: SICK's CUSTOMERS DEMAND THE BEST



You are one of the best in your field, not least because you ensure the highest standards in terms of safe and smooth processes – day in, day out. SICK is one of the world's leading providers of sensors because the performance of its sensors is designed to fulfill your specific requirements for industrial day-to-day work. With the microScan3, SICK delivers not just any safety laser scanner. SICK understands what you want and need. And the microScan3 makes it possible.

Saves time and money

As SICK sees your machines from your own point of view, its safety-rated sensors not only ensure machine safety but also smooth running of processes.

Ensures safety

SICK is your partner for automation safety technology. The microScan3 fulfills international standards and legal requirements for machinery. This allows you to export and use your machines and facilities globally – both today and in the future.

Excellent productivity and availability

Products from SICK guarantee a low failure rate and high level of reliability for your automated machines. The microScan3 ensures the productivity of your company, even in difficult production conditions.



microScan3 FOR THE AUTOMOTIVE INDUSTRY: SAFETY ON A MOVING BELT

The microScan3 is an excellent solution for requirements in the automotive industry. You can rely on the device – 24 hours a day, 7 days a week.

Uninterrupted production

The microScan3 measurement principle sets benchmarks in safety laser scanner technology:

- Reliable in dusty atmospheres, such as in body shops.
- High level of ambient light immunity, e.g., to welding systems near to the laser scanner.
- When using multiple microScan3 devices on one machine, the devices do not interfere with one another.

If the device is damaged it can be replaced quickly with the system plug and integrated configuration memory.



Simple mounting and maintenance

Extremely convenient: With the Safety Designer configuration and diagnosis software, you can commission your microScan3 very easily using the USB interface. The display shows both cleartext and graphics. This allows you to read all relevant information about the laser scanner without requiring an additional laptop.

Troubleshooting is supported by a simple diagnosis tool via the display. Additional diagnosis functions are available in the Safety Designer software.





microScan3 FOR ENGINEERING: PROTECTS HANDS, FEET, AND REVENUES

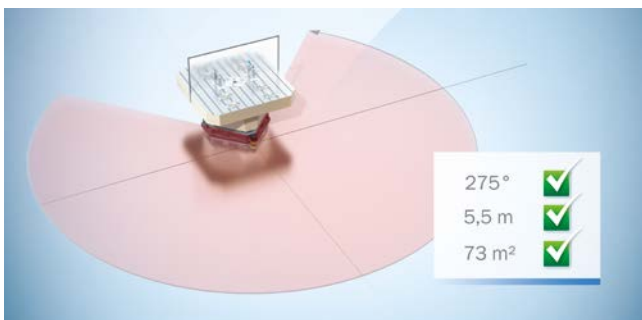
The microScan3 is ideally suited to mechanical and plant engineering around the world. With this new generation of safety laser scanner, SICK helps secure your success.

Readily available manufacturing processes

The microScan3 has an impressive monitored area, allowing it to protect large machines too. The microScan3 maintains a clear overview of all your daily material processing tasks when welding, reformulating, grinding, punching, and cutting. Unintentional machine downtimes are a thing of the past with the sophisticated microScan3 scan technology.

Cost saving as standard

The microScan3 not only protects your machines but also ensures that costs are kept low. This starts with commissioning: The standardized M12 connectivity makes it even easier to mount the microScan3. Its rugged and vibration-resistant metal housing also ensures a long service life and reduces machine downtimes.



THE NEW GENERATION OF SAFETY LASER SCANNERS



Product description

microScan3 Core: the beginning of a new generation of safety laser scanners from SICK. The microScan3 Core reliably protects hazardous areas, accesses, and hazardous points. The innovative safeHDDM™ scan technology sets new benchmarks. It combines a compact design and a large scanning range in one device. The housing of the microScan3 is rugged; its reliability is outstanding against dust and ambient light.

Its smart connectivity saves costs with cabling due to standardized interfaces. Using the Safety Designer software the microScan3 Core can be intuitively configured and comfortably put into operation. The microScan3 indicates its operational status clearly via the multicolored display. Not one of many, but many things in one: The microScan3 from SICK.

At a glance

- Innovative scanning technology safeHDDM™
- Protective field range: 5.5 m, scanning angle 275°
- Compact, rugged metal housing
- High reliability against dust and ambient light
- System plug M12, 8-pin, with configuration memory
- Intuitive configuration using the Safety Designer software
- Brilliant multicolor display

Your benefits

- safeHDDM™: Innovative scanning technology for an outstanding ratio between wide sensing range and compact design for simple integration in your machine
- Rugged design: Developed for harsh industrial day-to-day work, the microScan3 is resilient and increases productivity
- Smart connectivity: Low cabling costs due to standardized interfaces, fast device change due to configuration memory
- Intuitive operation: Simple commissioning with using Safety Designer software and diagnostic options via a display and pushbuttons



Additional information

Detailed technical data	17
Ordering information	18
Dimensional drawing	19
Connection diagrams	20
Accessories	22
Dimensional drawings for accessories	24

→ www.mysick.com/en/microScan3_Core

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



Detailed technical data

More detailed data can be found in the operating instructions. Download → www.sick.com/OI

Features

Protective field range	4 m / 5.5 m (depending on type)
Warning field range	40 m
Number of simultaneously monitored protective fields	≤ 4
Number of fields	8
Number of monitoring cases	2
Scan angle	275°
Resolution	30 mm, 40 mm, 50 mm, 70 mm, 150 mm, 200 mm, configurable
Response time	≥ 70 ms
Protective field supplement	65 mm

Safety-related parameters

Type	Type 3 (IEC 61496)
Safety integrity level	SIL2 (IEC 61508) SILCL2 (EN 62061)
Category	Category 3 (EN ISO 13849)
Performance level	PL d (EN ISO 13849)
PFHd (mean probability of a dangerous failure per hour)	8.0×10^{-8} (EN ISO 13849)
T _M (mission time)	20 years (EN ISO 13849)
Safe state in the event of a fault	In each OSSD pair, at least one OSSD is in the OFF state.

Functions

Restart interlock	✓
External device monitoring (EDM)	✓
Multiple sampling	✓
Monitoring case switching	✓
Simultaneous monitoring	✓
Static protective field switching	✓
Safe contour detection	✓
Contour as a reference	✓
Integrated configuration memory	✓

Interfaces

Connection type	Male connector, M12, 8-pin, A-coded (common male connector for power supply, inputs, and outputs)
Universal I/Os	3
Outputs	1
OSSD pairs	
Configuration method	PC with Safety Designer (Configuration and Diagnostic Software)
Configuration and diagnostics interface	USB 2.0, Mini-USB
Display elements	Graphic color display, LEDs

Electrical data

Protection class	III (EN 61140)
Supply voltage V_s	24 V DC (16.8 V DC ... 30 V DC)
Power consumption	7 W (without output load)

Mechanical data

Dimensions (W x H x D)	110 mm x 135 mm x 110 mm
Weight	1.15 kg
Housing material	Aluminum
Housing color	RAL 1021 (yellow), RAL 9005 (black)
Optics cover material	Polycarbonat
Optics cover surface finish	Outside with scratch-resistant coating

Ambient data

Enclosure rating	IP 65 (IEC 60529)
Ambient operating temperature	-10 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C
Vibration resistance	0.35 mm, 10 Hz ... 60 Hz (IEC 60068-2-6, IEC 61496-1, CLC/TS 61496-3) 5 g, 60 Hz ... 150 Hz (IEC 60068-2-6, IEC 61496-1, CLC/TS 61496-3)
Shock resistance	10 g, 16 ms (IEC 60068-2-27, IEC 61496-3)

Other information

Type of light	Pulsed laser diode
Wave length	845 nm
Detectable remission	1.8% to several 1000%
Laser class	1M (21 CFR 1040.10 and 1040.11, IEC 60825-1)

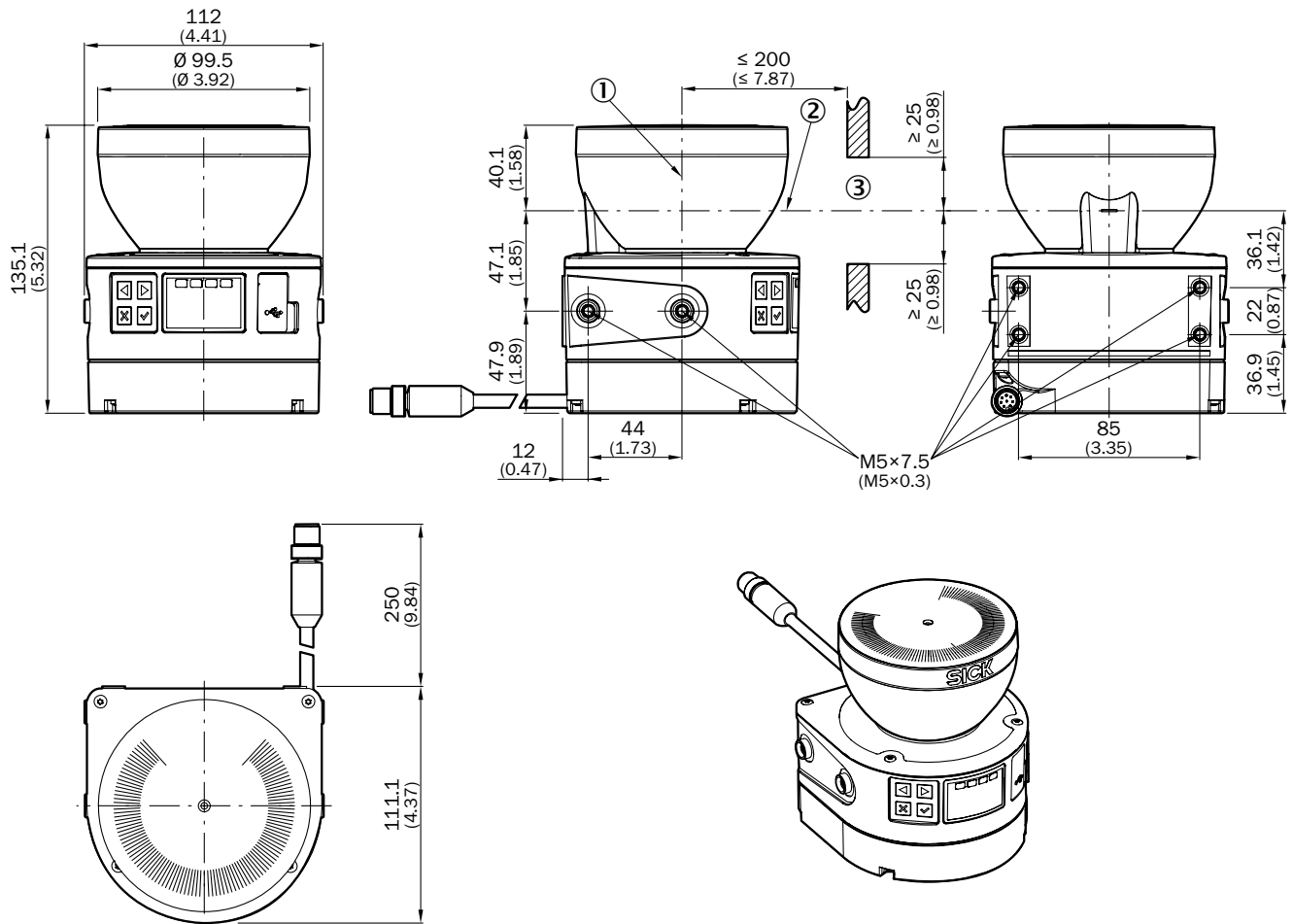
Ordering information

Items supplied microScan3:

- Safety laser scanner with system plug
- Safety instruction
- Mounting instructions
- Operating instructions for download → www.sick.com/OI
- Safety Designer (configuration and diagnostic software) for download → www.sick.de/safety_designer

Integration in the control system	Protective field range	Type	Part no.
I/O	4 m	MICS3-AAAZ40AZ1P01	1075842
	5.5 m	MICS3-AAAZ55AZ1P01	1075843

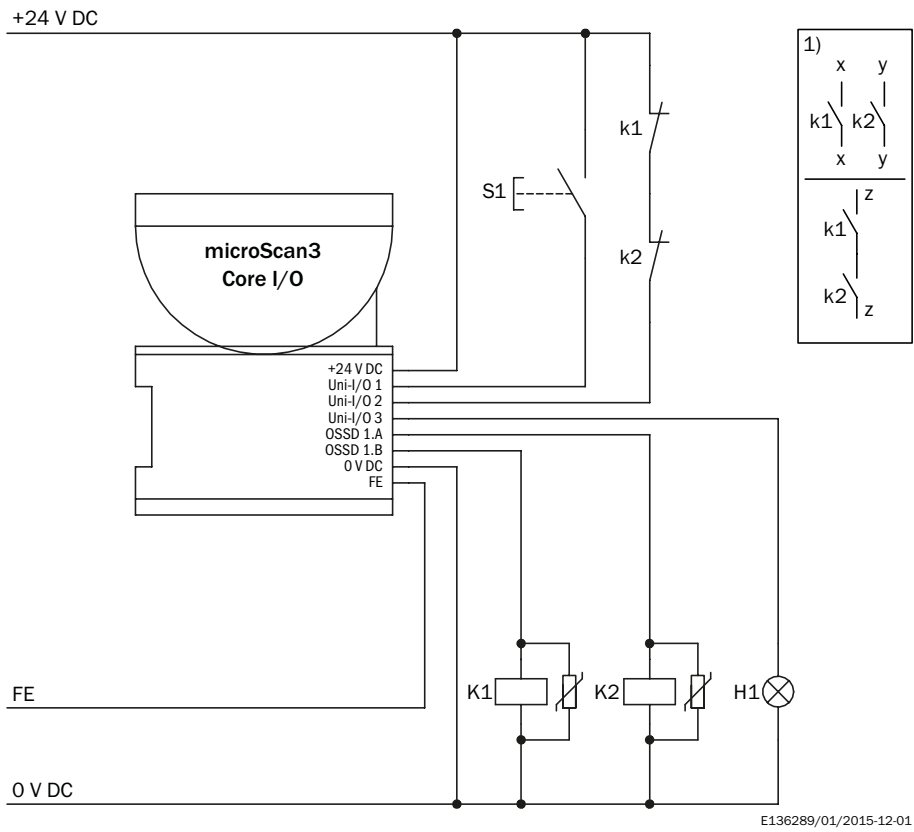
Dimensional drawing (Dimensions in mm (inch))



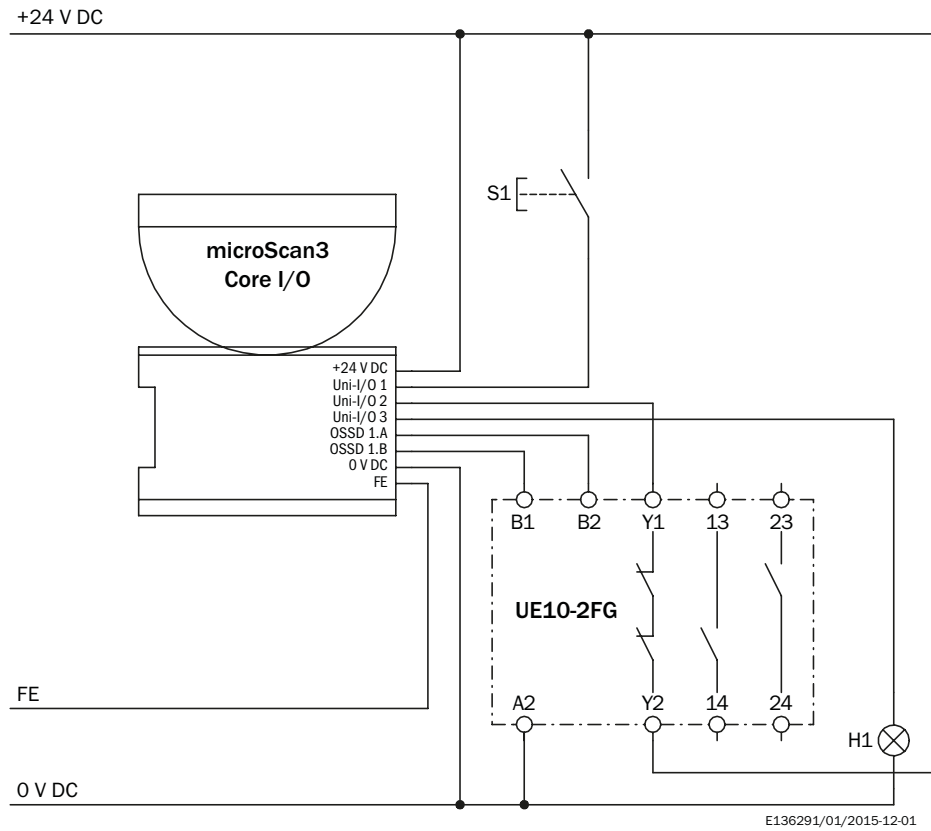
- ① Mirror axis of rotation
- ② Scan plane
- ③ Required viewing slit

Connection diagrams

microScan3 Core I/O with restart interlock and external device monitoring



microScan3 Core I/O with restart interlock and external device monitoring at UE10-2FG safety relay



Accessories required for commissioning

Description	Number	Items supplied	Further information
Connecting cable	1	–	→ Plug connectors and cables
Connection cable for configuration and diagnosis	1	–	→ Plug connectors and cables
Mounting bracket	1	–	→ Mounting brackets and mounting plates
Safety Designer (configuration and diagnostic software)	1	–	→ www.sick.de/safety_designer
Operating instructions	1	–	→ www.sick.de/microScan3_Core

Accessories

Mounting systems

Mounting brackets and mounting plates

	Description	Packing unit	Type	Part no.
	Mounting bracket for rear mounting on wall or machine	1 piece	Mounting kit 1a	2073851
	Mounting bracket for rear mounting on wall or machine with protection of optics hood	1 piece	Mounting kit 1b	2074242
	Alignment bracket, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1a (2073851) or 1b (2074242)	1 piece	Mounting kit 2a	2073852

Dimensional drawings → [page 24](#)

Connection systems

Connecting cables with female connector

- **Model:** PUR, halogen-free, shielded

	Connection type		Conductor cross-section	Cable length	Type	Part no.
	Female connector, M12, 8-pin, straight	Cable	0.25 mm ²	2 m	DOL-1208G02MD25KM1	2079314
				5 m	DOL-1208G05MD25KM1	2079315
				10 m	DOL-1208G10MD25KM1	2079316

Connection cables with male connector and male connector

- **Description:** for connecting the configuration connection to the USB interface on the PC

	Connection type		Model	Cable length	Type	Part no.
	Male connector, USB-A, straight	Male connector, Mini-USB, straight	Shielded	3 m	Connection cable (male connector-male connector)	6042517

Power supply units and power cord connectors

	Input voltage	Output voltage	Output current	Type	Part no.
	100 V AC ... 240 V AC	24 V DC	≤ 2.1 A	PS50WE24V	7028789
			≤ 3.9 A	PS95WE24V	7028790

Reflectors and optics

Optics cloths

Illustration	Description	Type	Part no.
	Cloth for cleaning the front screen	Lens cloth	4003353

Further accessories

Test and monitoring tools

Illustration	Description	Type	Part no.
 Illustration may differ	Scan finder, receiver to localize infrared scans	LS-80L	6020756

Cleaning agent

Illustration	Description	Type	Part no.
	Plastic cleaner and care product, anti-static, 0.5 liter	Plastic cleaner	5600006

Spare parts

microScan3 without system plug

Illustration	Integration in the control system	Protective field range	Spare part for	Type	Part no.
	I/O	4 m	1075842	MICS3-AAAZ40AZ1	1067360
		5.5 m	1075843	MICS3-AAAZ55AZ1	1067875

System plugs

Illustration	Description	Type	Part no.
	System connection M12, 8-pin, integrated configuration memory	MICSX-ABIZZZZ1	2073156

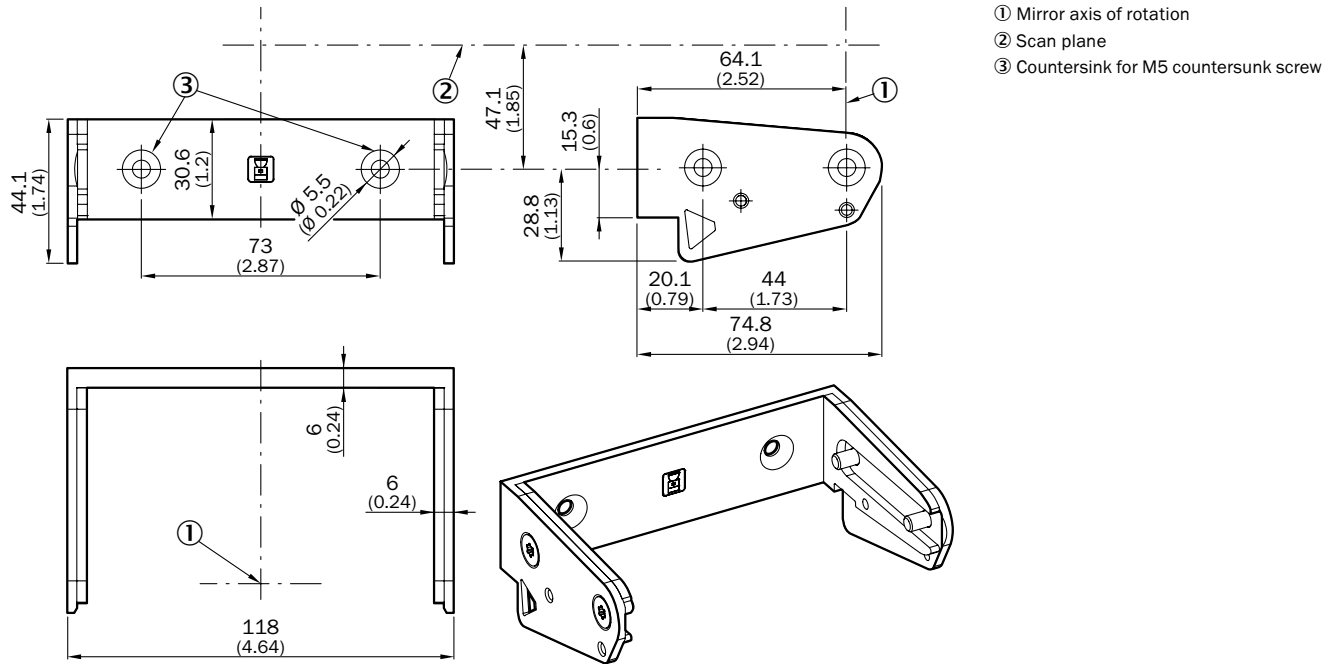
Additional spare parts

Illustration	Description	Type	Part no.
	Spare part set optic cover with replacement seal and screws	Spare part set optic cover microScan3	2073673

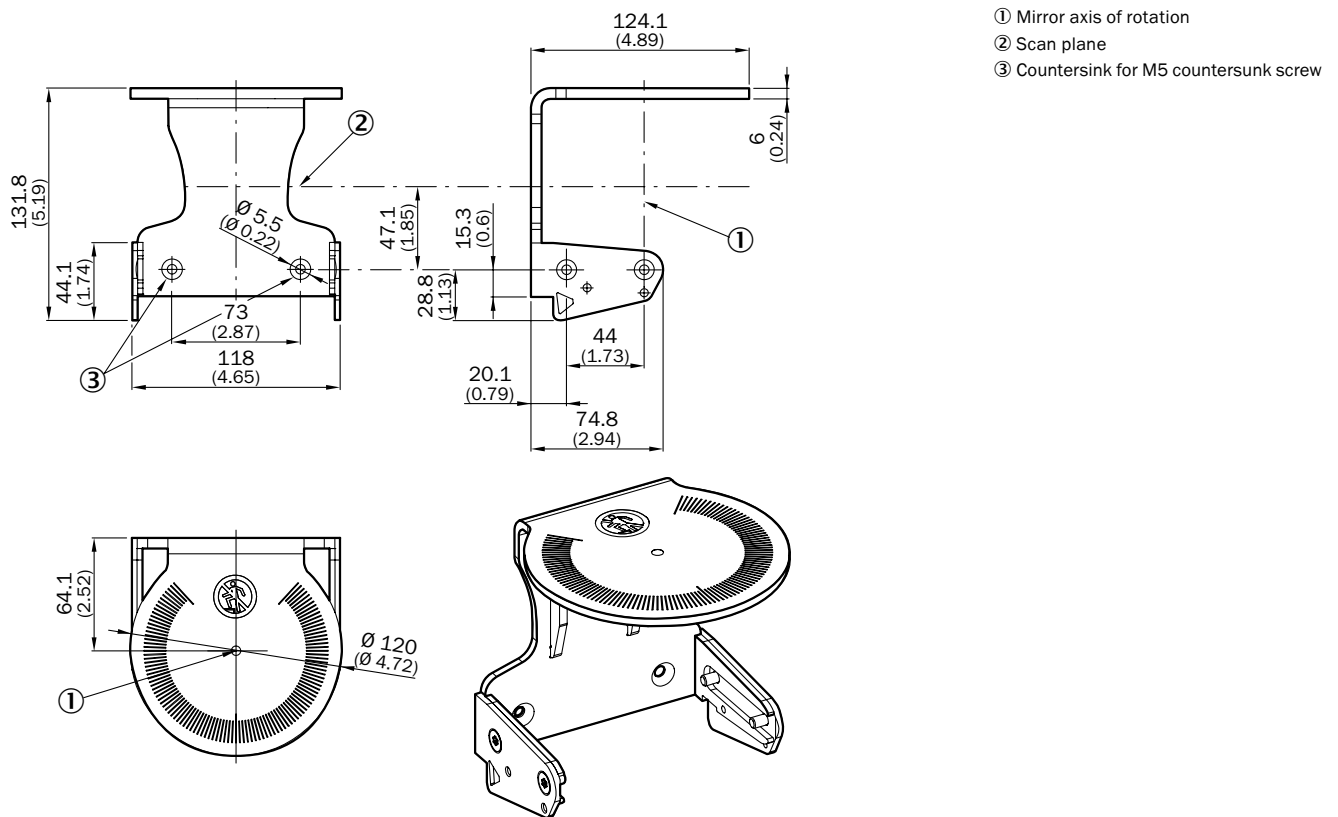
Dimensional drawings for accessories (Dimensions in mm (inch))

Mounting brackets and mounting plates

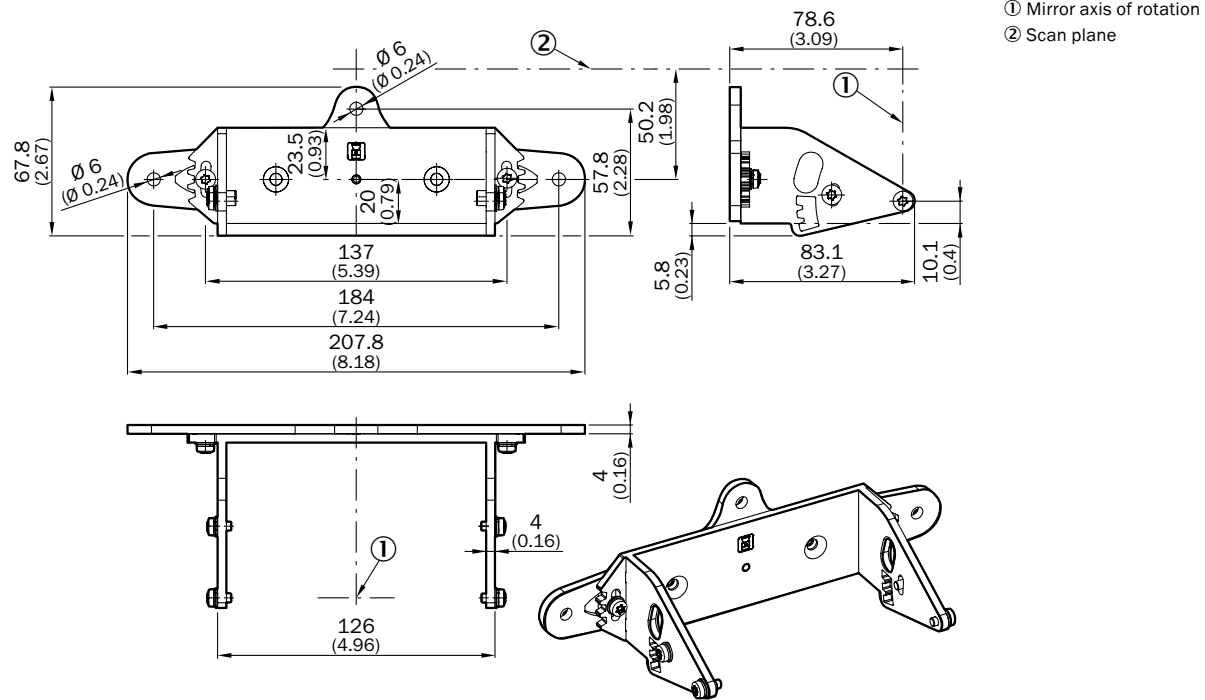
Mounting kit 1a (2073851)



Mounting kit 1b (2074242)

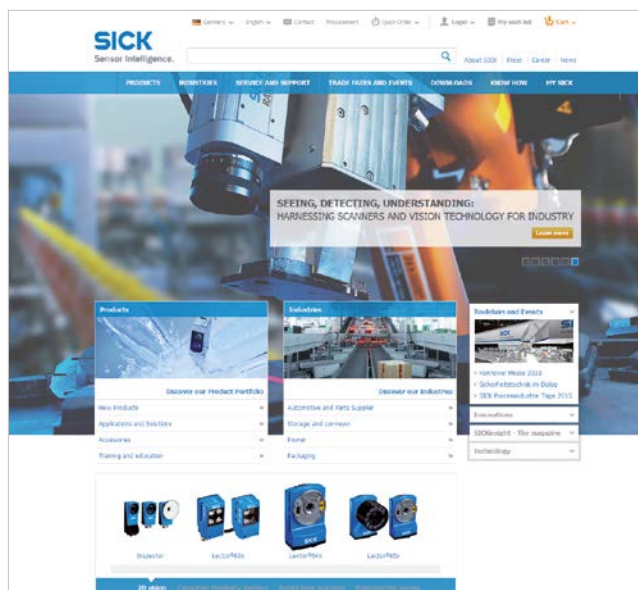


Mounting kit 2a (2073852)



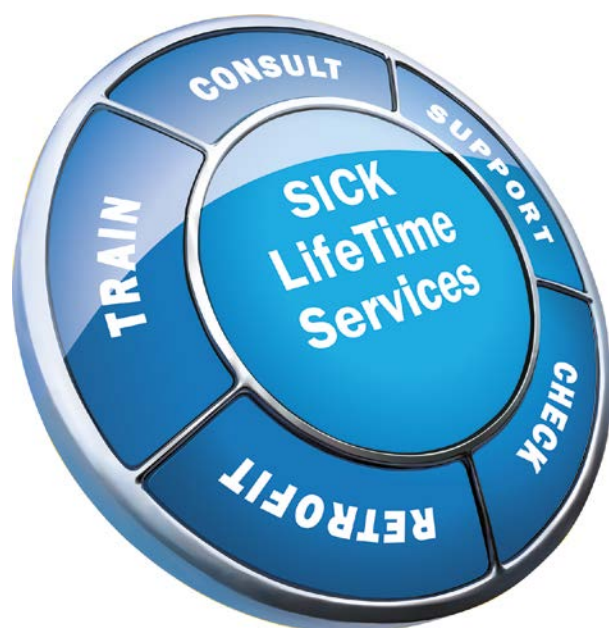
REGISTER AT WWW.SICK.COM TODAY AND ENJOY ALL THE BENEFITS

- ✓ Select products, accessories, documentation and software quickly and easily.
- ✓ Create, save and share personalized wish lists.
- ✓ View the net price and date of delivery for every product.
- ✓ Requests for quotation, ordering and delivery tracking made easy.
- ✓ Overview of all quotations and orders.
- ✓ Direct ordering: submit even very complex orders in moments.
- ✓ View the status of quotations and orders at any time. Receive e-mail notifications of status changes.
- ✓ Easily repeat previous orders.
- ✓ Conveniently export quotations and orders to work with your systems.



SERVICES FOR MACHINES AND SYSTEMS: SICK LifeTime Services

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



Consulting and design
Safe and professional



Product and system support
Reliable, fast and on-site



Verification and optimization
Safe and regularly inspected



Upgrade and retrofits
Easy, safe and economical



Training and education
Practical, focused and professional

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

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

For us, that is “Sensor Intelligence.”

Worldwide presence:

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

Detailed addresses and further locations → www.sick.com