PRODUCT INFORMATION

TDC

THINK ABOUT YOUR DATA – ANALYZE AND ACT

Gateway systems

SICK
Sensor Intelligence.

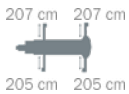
MAKING BIG DATA USEABLE – OPTIMIZED PROCESSES, HIGHEST QUALITY, LOW COSTS

In the age of Industry 4.0, automation and intelligent data management are strategic success factors and are decisive for the competitive edge and sustainability of the company.

Any company which wants to compete in the markets of tomorrow faces a wide range of challenges: The demand for quality and functionality of products is growing, and machines, systems and production processes are becoming more and more complex in industrial manufacturing. Large amounts of data are generated and must be evaluated in a profitable manner. Networking sensors, machines, systems and vehicles with IIoT platforms and processing knowledge in real time - that is what TDC gateway systems stand for.

RECORDING

The TDC system reliably records data from production and control processes using a range of interfaces. In doing so, SICK sensors can be connected, as can sensors, devices, machines, controls and systems of other manufacturers.



Plug and play

Quick and easy installation

SICK sensors can be put into operation with the plug and play function without the need for time-consuming installation or configuration.

On-board sensor technology

Additional data collection

Additional data on tilt, temperature and acceleration can be made available with the integrated sensor technology.

Localization

Real-time positioning and precise location data

The use of integrated wireless technology creates the foundation for precise position determination of vehicles or other assets both in- and outdoors.

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ANALYSIS

The merged data is filtered and simple evaluations, such as diagnostics of limit value overshoots, can be done. Pre-processing can reduce response time and transmission costs.

Wireless technology
Safe and reliable data transmission
Thanks to the mobile communication technology, data collection is also possible over large distances. Data security is ensured through the use of safe protocols.

Real-time alarms
Optimized quality assurance
With the help of user-defined notifications via SMS or e-mail, measures can be taken to ensure uniformly high product quality in real time.

TRANSMISSION

The TDC system transmits filtered sensor data and process information to a cloud or a customer service using various interfaces. They are then available for further processing worldwide and at any time.

Open standards
Armed for the future
Container technology which saves resources also supports a stable process environment and makes it possible to easily scale the system. In addition to the use of SICK applications, customer-specific applications can be integrated easily and developed in a flexible manner.

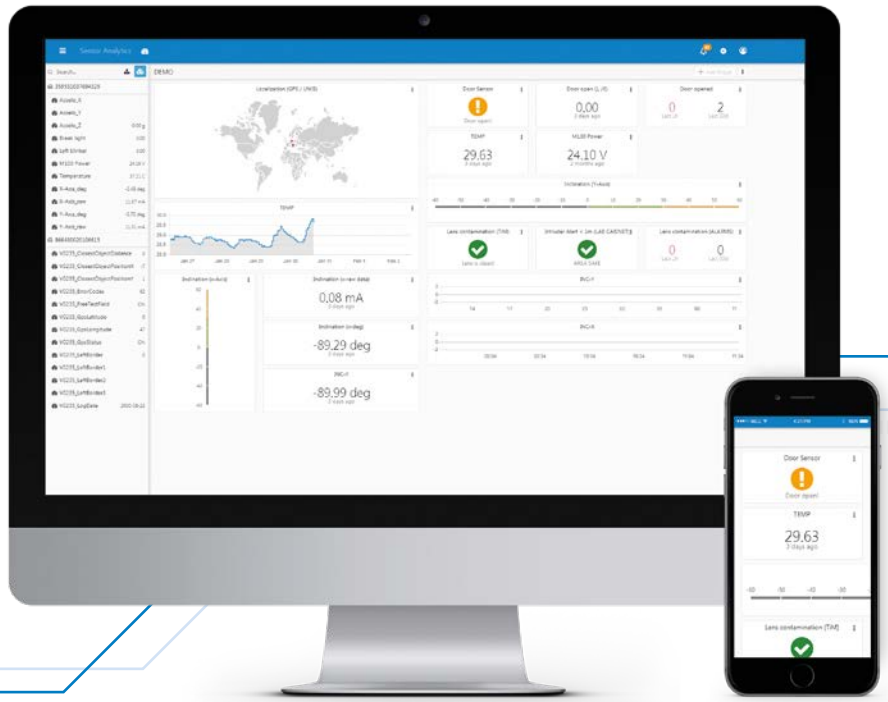
Browser-based interface
Convenient data access
In addition to device administration, the individually-configurable user interface is also used for data visualization, process control and remote configuration of sensors and devices.

DATA IN SIGHT, PROCESSES UNDER CONTROL

All information along the process chain can be merged in the SICK or a customer cloud using the TDC system - the optimal foundation for facet-rich evaluation. Sensor and process data can be visualized, important performance figures can be viewed and processes monitored.

SICK cloud services

Complete services from a single source: In addition to sensors and gateway systems, SICK also offers customer-specific cloud services (SaaS).



On the browser-based user interface, the transmitted data provides the user with maximum transparency: Accessing product data in development processes makes possible quick planning and reduced product development times. Production processes can be measured, which increases flexibility in production. In addition, the recorded data creates the foundation for diagnostics, statistics and forecasts.

Due to evaluation of data quantities directly in the device or via the cloud or other IIoT platforms, but also thanks to the reliable networking and quick data transmission via the TDC system, analysis and decision processes are sped up considerably.

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Smart Services

The ideal maintenance time as well as the service requirements of sensors, machines and system can be forecast through the evaluation of sensor and system data. With the help of preventative maintenance, the service life of all components is increased, which reduces downtimes.

⊕ Maximum availability

Localization

Server-side indoor localization systems determine the current position of vehicles and assets using the data transmitted by the TDC system. Thanks to the precise localization function, the routing of manned forklift trucks, AGVs, AGCs, mobile machine and other vehicles can be coordinated with one another, preventing possible collisions.

⊕ Route optimization

Fleet management

The TDC records the sensor data of vehicles and other assets exactly and reliably and transmits it to the cloud for monitoring, management, planning and control. The paths of trucks, cars, ships, trains and buses can be coordinated with one another and optimized by involving certain influencing factors.

⊕ Optimized resource planning

TDC systems provide the foundation for increasing operational value. Use the valuable information for operative and strategic decisions.

THINK ABOUT YOUR DATA – ANALYZE AND ACT

Product description

The TDC (Telematic Data Collector) gateway system is an open IIoT platform that links sensors and machines together for reliable network communication. As well as transmitting data to the target platform via a wired, mobile or wireless connection, the TDC also has data processing capability. Data can therefore be analyzed and evaluated locally (edge computing). With digital inputs and outputs, user-defined real-time alarms (SMS notifications) can be set based on relevant data. Process, status and diagnostic information is made more transparent, increasing the productivity and efficiency of industrial processes. SICK offers customer-specific cloud solutions (SaaS) for this purpose.

At a glance

- Open end-to-end IIoT architecture with support for Yocto Linux
- Support for standardized interfaces and protocols for data communication
- Configuration via browser-based user interface
- User-defined real-time alarms
- Indoor and outdoor localization

Your benefits

- Simple, rapid, cost-effective, profit-producing data use
- Flexibility brought by a wide range of connection and communication options
- Future-proofed thanks to the use of open standards
- Maximum availability of sensors and machines through real-time monitoring with user-defined alarms
- Possibility of increasing productivity and efficiency through transparent sensor and process data

CE

Additional information

➜ www.sick.com/TDC

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

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Subject to change without notice

Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

Performance

	TDC-B100	TDC-B200	TDC-M100	TDC-E100	TDC-E200
Sensor	Acceleration sensor, Magnetometer, Thermometers				
Internal computer	180 MHz ARM Cortex-M4			1GB, DD3, dual-core Cortex-A7 with Cortex-M4 co-processor	
Internal memory	32 MB, 256 kB SRAM			16 GB	
Operating system	FreeRTOS			Linux	
Ecosystem	–			Docker	
User interface	–			TDC-E Device Manager, Node-RED, picoStratus	
Configuration software	TDC Configurator			–	
Data protocol	MQTT			MQTT, REST API, OPC UA, Web-Socket	
Data format	–			JSON	
Connectivity					
Worldwide	Mobile communication (2G), FLAT, EU 27 + 2 [1]			–	
Europe	–			Mobile communication (3G), WLAN, WPAN, LAN, M2M SIM card, EU 27 +2 [1]	
Middle East, Africa, APAC	–			Mobile communication (3G), WLAN, WPAN, LAN	
North America, Latin American	–			Mobile communication (3G), WLAN, WPAN, LAN	
Mobile network					
Worldwide	GSM, GPRS quad band			–	
Europe	–			UMTS: 900/2100 MHz, GSM/EDGE: 850/900/1800/1900 MHz	
Middle East, Africa, APAC	–			UMTS: 900/2100 MHz, GSM/EDGE: 850/900/1800/1900 MHz	
North America, Latin American	–			UMTS: 850/1900/2100 MHz, GSM/EDGE: 850/900/1800/1900 MHz	
Network coverage	Worldwide			Europe Middle East Africa APAC North America Latin American (depending on type)	

[1] Belgium, United Kingdom, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Cyprus.

Interfaces

	TDC-B100	TDC-B200	TDC-M100	TDC-E100	TDC-E200
GPS	✔, L1 C/A satellite-based extension system: WAAS, EGNOS, MSAS, GAGAN		–		✔, L1 C/A satellite-based extension system: WAAS, EGNOS, MSAS, GAGAN
Protocol	GPS, GLONASS, BeiDo, Galileo		–		GPS, GLONASS, BeiDo, Galileo
Electrical connection	MCX		–		MCX
Modem	✔, 2 G			✔, 3G HSPA+	
Data transmission rate	–			(5.76 Mbit/s ... 14.4 Mbit/s)	
Protocol	GSM/GPRS quad-band 850/900/1800/1900 MHz			UMTS: 900/2100 MHz GSM/EDGE: 850/900/1800/1900 MHz UMTS: 850/1900/2100 MHz GSM/EDGE: 850/900/1800/1900 MHz (depending on type)	
Serial	✔, RS-485, RS-232 (Diagnose)	✔, RS-232, RS-232 (FULL), RS-485, RS-232 (Diagnose)	✔, RS-485, RS-232 (Diagnose)	✔, RS-232, RS-422, RS-485, SSI, 1Wire	
Electrical connection	Micro-Fit (4- or 6-pin)		Screw terminals up to 2.5 mm^2	Micro-Fit (20-pin)	
CAN bus	✔	✔ (2)			
Function	Data output			–	
Data transmission rate	1 Mbit/s, adjustable				
Protocol	J1939, CANOpen				
Electrical connection	Micro-Fit (4- or 6-pin)		Screw terminals up to 2.5 mm^2	Micro-Fit (20-pin)	
UART	✔				
Function	Serial communication with 3.3 V TTL levels or USB 2.0 (can be configured)		–		
Data transmission rate	921,600 bit/s, adjustable		–		
Electrical connection	Micro-Fit (4- or 6-pin)		–		
Ethernet				✔ (2)	
Data transmission rate	–			(10 Mbit/s ... 1,000 Mbit/s)	
Electrical connection	–			RJ45	
WLAN				✔	
Data transmission rate	–			(80 Mbit/s ... 100 Mbit/s), Single Band 2,4 GHz	
Protocol	–			IEEE 802.11 b/g/n	
WPAN	–			✔, IEEE 802.15.1, IEEE 802.15.4	✔, IEEE 802.15.1, IEEE 802.15.4, IEEE 802.15.3
USB				✔, USB 2.0	
Electrical connection	–			USB 2.0 A-Male connector	
Inputs/outputs					
I/O	2 analog inputs (voltage), 4 digital outputs	8 analog inputs (configurable, current and voltage), 12 digital outputs	6 analog inputs (configurable, current and voltage), 6 digital outputs (configurable)	6 analog inputs (configurable, current and voltage), 8 digital inputs/outputs (configurable)	

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	TDC-B100	TDC-B200	TDC-M100	TDC-E100	TDC-E200
Optical indicators	3, LED, status displays		2, LED, status displays 1, Display, status displays	3, LED, status displays	
Configuration interface	RS-232 (DIAG)			Web-Interface	

Mechanics/electronics

	TDC-B100	TDC-B200	TDC-M100	TDC-E100	TDC-E200
Supply voltage	12 V DC (8 V DC ... 35 V DC)			24 V DC (9 V DC ... 36 V DC)	
Power consumption	1.2 W	1.32 W	0.78 W	2.4 W	
Housing dimensions (W x D x H)	145 mm x 67 mm x 37 mm		118 mm x 23 mm x 115 mm	162 mm x 32 mm x 101 mm	
Weight	185 g		180 g	230 g	
Housing material	PBT (UL 94 V-0)		Polyamid (UL 94 V-2)	Polyamide PA6	
Housing color	Black		Gray	Light blue (RAL 5012)	
Fixing	In vehicle or control cabinet		In vehicle or control cabinet (DIN rail 35 mm x 7.5 mm according to EN 60715)	In vehicle or control cabinet	
Enclosure rating	IP20 (according to DIN EN 60529)				

Ambient data

	TDC-B100	TDC-B200	TDC-M100	TDC-E100	TDC-E200
Ambient temperature operation	–20 °C ... +55 °C			–20 °C ... +70 °C	
Ambient storage temperature	–30 °C ... +75 °C			–40 °C ... +85 °C	
Shock load	–			IEC 60068-2-27	
Electromagnetic compatibility (EMC)	EN 301489-17 V2.2.1 (2012), EN 301489-3 V1.6.1 (2013), EN 301489-7 V1.3.1 (2015), EN 301489-1 V1.9.2 (2011), EN 301489-1 V2.1.1 (2017), EN 301489-52 V1.1.0 (2016), EN 61000-6-2 (2005), EN 61000-6-3 (2007) + A1 (2011)			EN 303446-1, EN 55032, EN 55024, EN 61000-3-2, EN 61000-3-3	
Product safety	–			EN 60950-1	
Radio approval	EN 301511 V12.5.1 (2017)				

Ordering information

- **Product category:** Gateway and cloud solutions
- **Description:** The gateway networks sensors, machines and IIoT platforms for collecting and preprocessing local sensor and process data.

Version	Tasks	Network coverage	Items supplied	Type	Part no.
TDC-B100	Condition monitoring, stock monitoring, outdoor location finding, user-defined real-time alarms	Worldwide	TDC-B100 with mobile communication (EU 27+2 unlimited flow of data) including TDC configuration software, connecting cables and operating instructions	TDC-B100	6064656
TDC-B200			TDC-B200 with mobile communication (EU 27+2 unlimited flow of data) including TDC configuration software, connecting cables and operating instructions	TDC-B200	6064657
TDC-M100	Condition monitoring, stock monitoring, user-defined real-time alarms		TDC-M100 and mobile communication (EU 27+2 unlimited flow of data) including TDC configuration software and operating instructions	TDC-M100	6065413
TDC-E100		Europe	TDC-E100EU and mobile communication (EU 27+2, M2M SIM card) including connecting cables and operating instructions	TDC-E100EU	6067899
		Middle East Africa APAC	TDC-E100R2 with mobile communication (without data) including connecting cables and operating instructions	TDC-E100R2	6066438
		North America Latin American	TDC-E100R6 with mobile communication (without data) including connecting cables and operating instructions	TDC-E100R6	6067537
TDC-E200	Condition monitoring, stock monitoring, indoor location finding, outdoor location finding, user-defined real-time alarms	Europe	TDC-E200EU with mobile communication (EU 27+2, 500 MB flow of data) including connecting cables and operating instructions	TDC-E200EU	6067898
		Middle East Africa APAC	TDC-E200R2 with mobile communication (without flow of data) including TDC connecting cables and operating instructions	TDC-E200R2	6067896
		North America Latin American	TDC-E200R6 with mobile communication (without flow of data) including TDC connecting cables and operating instructions	TDC-E200R6	6067536

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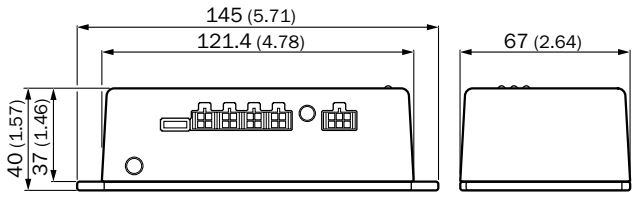
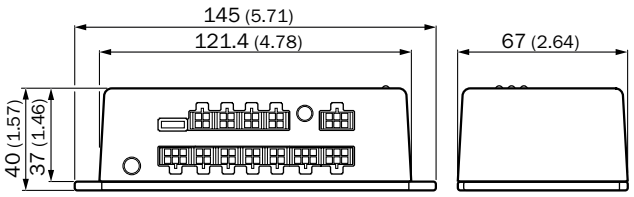
Dimensional drawings (Dimensions in mm (inch))

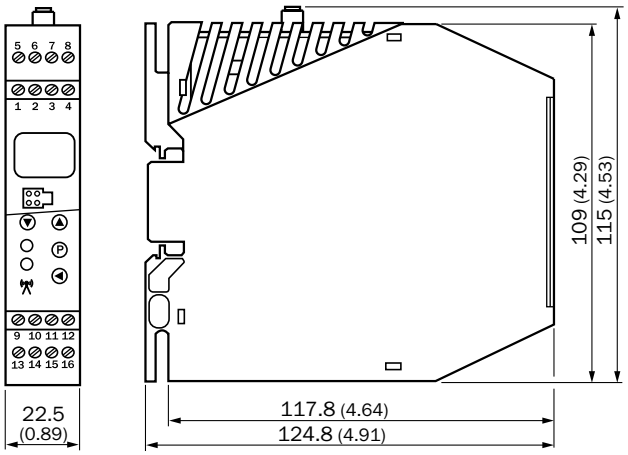
TDC-B100



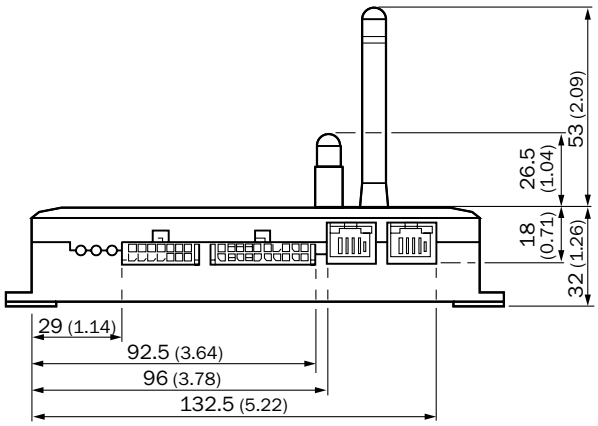
TDC-B200

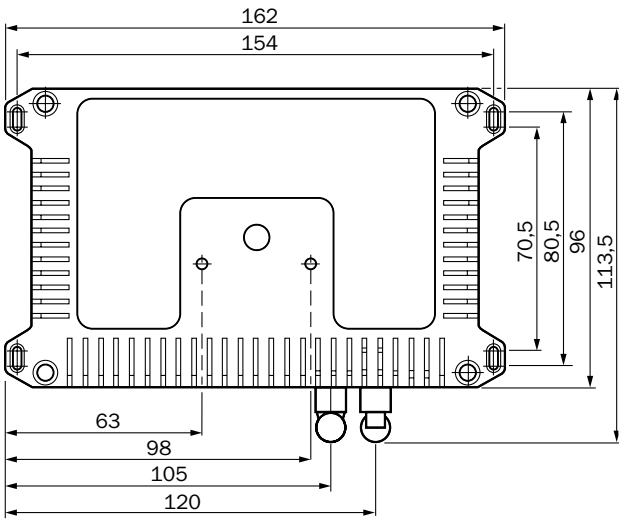


TDC-M100



TDC-E100
TDC-E200





Accessories

Mounting systems

Other mounting accessories

	Description	Type	Part no.	TDC-B100	TDC-B200	TDC-M100	TDC-E100EU	TDC-E100R2	TDC-E100R6	TDC-E200EU	TDC-E200R2	TDC-E200R6
	Electric mounting rail bracket with fixing screws for 35 mm DIN rail	Mounting rail bracket	6069266	–	–	–	●	●	●	●	●	●

Connection systems

Plug connectors and cables

	Connection type head A	Connection type head B	Cable	Type	Part no.	TDC-B100	TDC-B200	TDC-M100	TDC-E100EU	TDC-E100R2	TDC-E100R6	TDC-E200EU	TDC-E200R2	TDC-E200R6
	MOLEX 43025-14P	Flying leads	TDC PWR + AIN/DIO, 90 cm, with analog and digital cable and power supply cables, 14-wire	Connecting cable, 14-pin	6068472	–	–	–	●	●	●	●	●	●
	MOLEX 43025-20P	Flying leads	TDC COMM, 90 cm, with digital cable, CAN, RS-232, RS-485/422, SSI and 1-wire cables, 20-wire	Connecting cable, 20-pin	6068471	–	–	–	●	●	●	●	●	●
	MOLEX 43025-14P	Flying leads	TDC PWR, 90 cm, with power supply cables, 14-wire	Ersatz-Stroman-schlussleitung	6068473	–	–	–	●	●	●	●	●	●
	MOLEX 43025, 4-pin, straight	USB 2.0	Configuration cable for TDC-M100 USB 2.0, MOLEX 43025-4P, driver included in TDC configuration software	Configuration cable (USB 2.0, MOLEX 43025-4P)	6066258	–	–	●	–	–	–	–	–	–
	MOLEX 43025, 6-pin, straight	USB 2.0	Configuration cable for TDC-B100 and TDC-B200, driver included in TDC configuration software	Configuration cable (USB 2.0, MOLEX 43025-6P)	6066259	●	●	–	–	–	–	–	–	–
	MOLEX 43025-4P/6P	Flying leads	1 x UART 30 cm 4-pin MOLEX cable, 1 x CAN1 60 cm 4-pin MOLEX cable, 1 x DIAG 30 cm 6-pin MOLEX cable, 1 x RS-232 30 cm 6-pin MOLEX cable, 1 x output 30 cm 4-pin MOLEX cable, 1 x 1-Wire 30 cm 4-pin MOLEX cable, 1 x USB 30 cm 4-pin MOLEX cable, 1 x CAN2 60 cm 4-pin MOLEX cable, 1 x FULL RS-232 30 cm 4-pin MOLEX cable	4- and 6-pin connecting cable	6066260	●	●	–	–	–	–	–	–	–

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Further accessories

Antennas

	Brief description	Type	Part no.	TDC-B100	TDC-B200	TDC-M100	TDC-E100EU	TDC-E100R2	TDC-E100R6	TDC-E200EU	TDC-E200R2	TDC-E200R6
	Compact, energy-efficient and water-resistant GPS antenna with variable pretension, high amplification and low noise	GPS antenna	6069301	–	–	–	–	–	–	●	●	●
	GSM antenna with wireless, GSM and 3G bands and SMA male connector. Ideal for fixed and mobile end devices	GSM antenna	6068463	–	–	–	●	●	●	●	●	●
	WLAN/WPAN antenna with SMA male connector. Ideal for fixed and mobile end devices.	WLAN antenna	6068474	–	–	–	●	●	●	●	●	●

Hardware

	Brief description	Type	Part no.	TDC-B100	TDC-B200	TDC-M100	TDC-E100EU	TDC-E100R2	TDC-E100R6	TDC-E200EU	TDC-E200R2	TDC-E200R6
	Pre-configured SIM card for EU countries	Replacement SIM card	6068475	–	–	–	●	–	–	●	–	–
	Fuel level sensor for TDC-B200	Fuel level sensor	6066264	–	●	–	–	–	–	–	–	–

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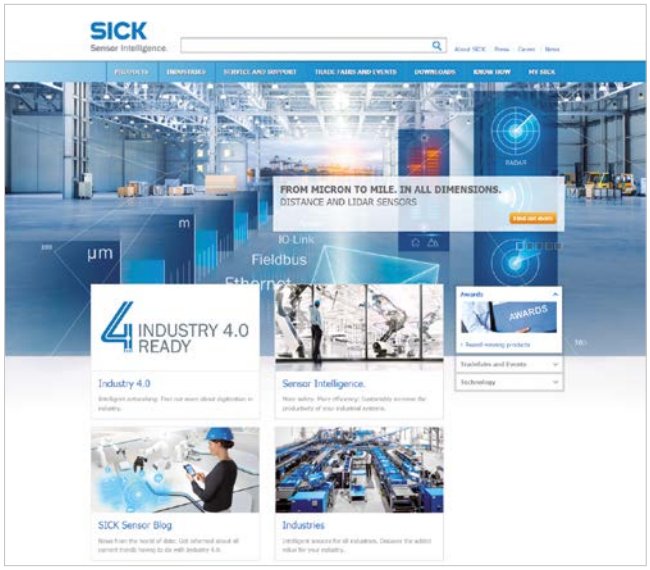
- ☑ Check your history of all your orders and quotes.
- ☑ Create, save, and share as many wish lists as you want.
- ☑ Use the direct order to quickly order a big amount of products.
- ☑ Check the status of your orders and quotes and get information on status changes by e-mail.
- ☑ Save time by using past orders.
- ☑ Easily export orders and quotes, suited to your systems.



SERVICES FOR MACHINES AND PLANTS: SICK LifeTime Services

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

Consulting and design
Safe and professional

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

Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
Easy, safe, and economical

Training and education
Practical, focused, and professional

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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 8,800 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

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

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

That is "Sensor Intelligence."

Worldwide presence:

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

Detailed addresses and further locations → www.sick.com

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