OPTO-ELECTRONIC PROTECTIVE DEVICES

OVERVIEW OF THE PRODUCTS

Safety laser scanners, safety light curtains, safety camera systems, multiple light beam safety devices, single-beam photoelectric safety switches, mirror columns and device columns

SICK
Sensor Intelligence.

OPTO-ELECTRONIC PROTECTIVE DEVICES

Opto-electronic protective devices are the first choice in order to implement maximum productivity for machines and plants. Unlike fences and doors, they do not limit during handling or material transport and provide a better view in the machine room. The broad portfolio comprehensively meets the requirements of hazardous point protection, access protection, and hazardous area protection. The SICK-specific interface (EFI) offers additional process optimization.

Application examples

Whether for persons, machines or other objects, in automated production and logistics processes, safety is the highest priority. For decades, SICK has been producing pioneering products for the protection of hazardous areas and hazardous points as well as for access protection.

Use our Safety Solution assistant. It guides you from your safety task to a product recommendation for safety sensors and safe control solutions.

➜ **www.sick.com/safety-solution-assistant**

Hazardous point protection with finger or hand detection

The worker works very close to the hazardous point of the machine here. The stopping time is very short. With a detection capability of 14 mm, individual fingers are reliably detected.

Benefits

- Enables very frequent operator/machine interaction and an unimpeded view
- The distance to the hazardous point is reduced to a minimum
- Supports high productivity

Hazardous point protection with hand and person detection

The worker works close to the hazardous point of the machine. The stopping time is very short. With a detection capability of up to 40 mm, hands are reliably detected.

Benefits

- Enables unrestricted access, frequent interaction and an unimpeded view into the machine
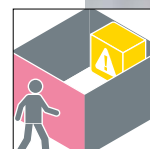- With presence detection, automated restart can be initiated
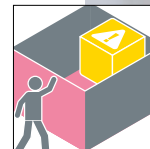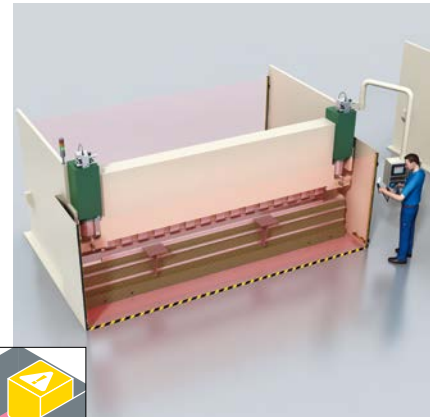
One-sided access protection with person detection

The worker interacts with the machine regularly, but not frequently. Safety laser scanners or multiple-beam systems reliably detect persons when entering a hazardous area.

Benefits

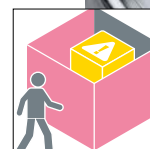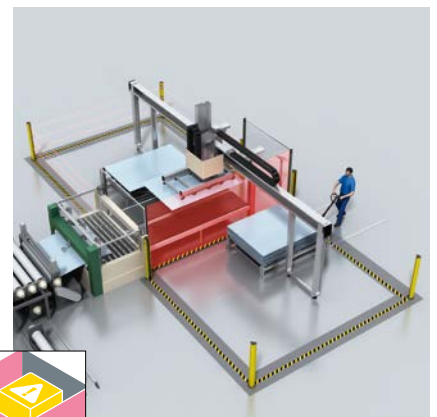- Enables unrestricted access and an unimpeded view into the machine

Multi-sided access protection with person detection

The worker interacts with the machine regularly, but not frequently. Safety laser scanners or multiple-beam systems detect a person entering the hazardous area from several sides.

Benefits

- Enables unrestricted access to the machine from several sides and an unimpeded view into the machine

One-sided access protection with differentiation between persons and material

For muting, entry/exit monitoring and machines with automated material transport systems. Safety laser scanners or multiple-beam systems reliably detect persons.

Benefits

- Unimpeded material transport supports high productivity
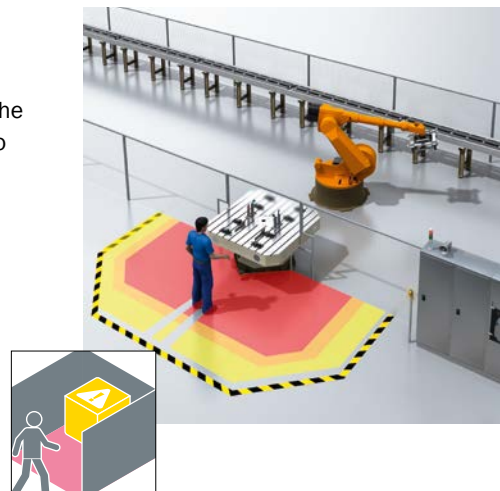

Stationary hazardous area protection with person detection in the presence

The worker interacts with the machine regularly, but not frequently. The view into the hazardous walk-through area can be restricted. With a detection capability of up to 70 mm and respective mounting height, human legs are reliably detected.

Benefits

- Combined approach and presence monitoring
- Enables unrestricted access to the machine

Mobile hazardous area protection with person detection when approaching
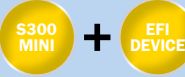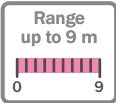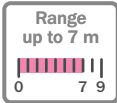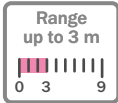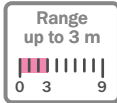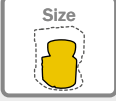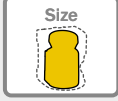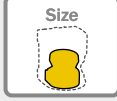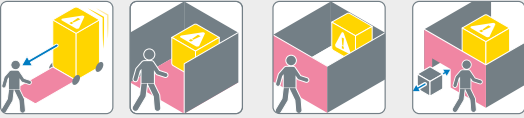
Protection of persons while vehicles are moving. With a detection capability of up to 70 mm and respective mounting height, human legs are reliably detected.

Benefits

- Reduced downtimes and wear caused by frequent braking
- The minimum distance can be automatically adjusted to the speed.

AN OVERVIEW OF THE MOST IMPORTANT PROPERTIES OF OPTO-ELECTRONIC PROTECTIVE DEVICE

	Safety laser scanners			
	microScan3	S3000	S300	S300 MINI + EFI DEVICE
	The new generation of safety laser scanners	Powerful and modular	Compact – all functions in a single device	Ultra-compact – focused on the essentials
Protective field range The protective field range describes the maximum range of the monitored field.	Range up to 9 m	Range up to 7 m	Range up to 3 m	Range up to 3 m
Scanning angle The scanning angle describes the maximum viewing angle of the scanner.	Angle 275°	Angle 190°	Angle 270°	Angle 270°
Fields The number of fields indicates how flexibly the scanner can be adapted to different process phases.	128 fields	64 fields	48 fields	48 fields
Dimensions: width x height x depth The smaller the device, the simpler it is to integrate in a system.	110 mm x 135 … 163 mm x 110 mm	155 mm x 185 mm x 160 mm	102 mm x 152 mm x 106 mm	102 mm x 116 mm x 104 mm
Integration in the control	Local inputs and outputs (I/O), EFI-pro, PROFINET PROFIsafe, CIP Safety™ over EtherNet/IP™	Local inputs and outputs (I/O), EFI, PROFINET PROFIsafe	Local inputs and outputs (I/O), EFI	Local inputs and outputs (I/O), EFI
Safety tasks				
Detailed Information	➜ 9	➜ 11	➜ 13	➜ 14

	Safety light curtains	Safety camera systems	Multiple light beam safety devices	Single-beam photoelectric safety switches
	deTec · miniTwin TWIN0X4 · C4000	V200 V300	deTem M4000	L4000 L2000 · WSU WEU 26-3
	Small, compact or extremely rugged for individual application solutions	Simple commissioning thanks to self-teaching protective field	Resistant and reliable, even for special ambient conditions	Easy integration due to small, compact designs with maximum scanning range
Resolution / beam separation The safety task determines the necessary resolution of the application.	Resolution: 14 mm ... 40 mm	Resolution: 20 mm ... 30 mm	Beam separation: 60 mm ... 600 mm	Single-beam
Maximum protective field height Specifies the maximum detection height for the protective field.	120 mm ... 2,100 mm	0.4 m ... 1.5 m x 0.4 m ... 1.5 m	300 mm ... 1,800 mm	Single-beam
Maximum scanning range The scanning range indicates how far apart the sender and receiver can be.	Range up to 30 m 0 m ... 30 m	0.4 m ... 1.5 m x 0.4 m ... 1.5 m	Range up to 90 m 0 m ... 90 m	Range up to 70 m 0 m ... 70 m
Safety tasks				
Detailed information	→ 17	→ 24	→ 29	→ 31
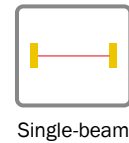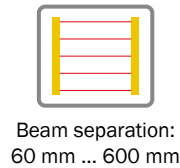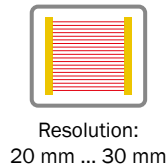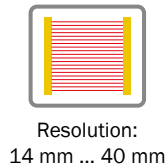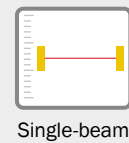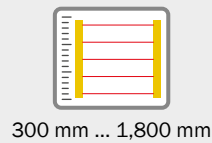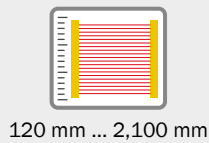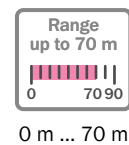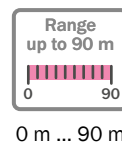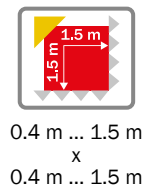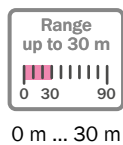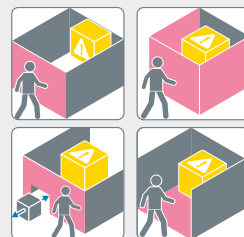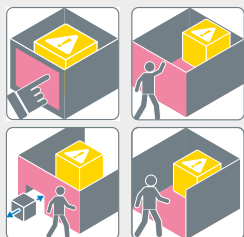
	microScan3 Core I/O	microScan3 Core – EFI-pro	microScan3 Core – PROFINET	microScan3 Core – EtherNet/IP™
	The new generation of safety laser scanners for stationary applications			

Technical data overview

	microScan3 Core I/O	microScan3 Core – EFI-pro	microScan3 Core – PROFINET	microScan3 Core – EtherNet/IP™
Protective field range	4 m / 5.5 m / 9 m	4 m / 5.5 m / 9 m	4 m / 5.5 m / 9 m	4 m / 5.5 m / 9 m
Warning field range	40 m / 64 m	40 m / 64 m	40 m / 64 m	40 m / 64 m
Scanning angle	275°	275°	275°	275°
Number of fields	8	8	8	8
Number of monitoring cases	2	8	8	8
Response time	≥ 70 ms / ≥ 90 ms	≥ 95 ms / ≥ 115 ms	≥ 95 ms / ≥ 115 ms	≥ 95 ms / ≥ 115 ms
OSSD pairs	1	0	0	0
Safety outputs via network	0	8 / 4	8 / 4	8 / 4
Integration in the control	Local inputs and outputs (I/O)	EFI-pro	PROFINET PROFIsafe	CIP Safety™ over EtherNet/IP™
Performance level	PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)

At a glance

- Reliable technology and a rugged design: microScan3 Core safety laser scanners are at home in harsh industrial environments. Even in environments with dirt, dust and ambient light, the new generation of scanners shows how extremely resistant it is - thanks to the safeHDDM® scan technology, aluminum housing and well-designed fastening concept.
- Smart integration: Low cabling costs due to standardized interfaces, fast device change due to configuration memory, and safe machine integration via networks possible
- Intuitive operation: Easy commissioning with the Safety Designer software and diagnostic options via the display, pushbuttons, or network
- Intelligent functions: Simultaneous protective fields, contour detection fields or measurement data output - with the help of the intelligent functions, the sensor settings can be optimally adjusted to the different requirements.

Detailed information	→ www.sick.com/microScan3_Core

microScan3 Pro – EFI-pro	microScan3 Pro – PROFINET	microScan3 Pro – EtherNet/IP™
The new generation of safety laser scanners for mobile applications		
4 m / 5.5 m / 9 m	4 m / 5.5 m / 9 m	4 m / 5.5 m / 9 m
40 m / 64 m	40 m / 64 m	40 m / 64 m
275°	275°	275°
128	128	128
128	128	128
≥ 95 ms / ≥ 115 ms	≥ 95 ms / ≥ 115 ms	≥ 95 ms / ≥ 115 ms
0	0	0
8 / 4	8 / 4	8 / 4
EFI-pro	PROFINET PROFIsafe	CIP Safety™ over EtherNet/IP™
PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)

- Reliable technology and a rugged design: microScan3 Pro safety laser scanners are at home in harsh industrial environments. Even in environments with dirt, dust and ambient light, the new generation of scanners shows how extremely resistant it is - thanks to the safeHDDM® scan technology, aluminum housing and well-designed fastening concept.
- Smart integration: Low cabling costs due to standardized interfaces, fast device change due to configuration memory, and safe machine integration via networks possible
- Intuitive operation: Easy commissioning with the Safety Designer software and diagnostic options via the display, pushbuttons, or network
- Intelligent functions: Simultaneous protective fields, contour detection fields or measurement data output - with the help of the intelligent functions, the sensor settings can be optimally adjusted to the different requirements

➜ www.sick.com/microScan3_Pro

	S3000 Standard	S3000 Advanced	S3000 Professional	S3000 Expert	
	Economical yet reliable	Optimize production processes safely	High-performance - the right protection for any speed	Safety gaps have no chance - with 64 fields	

Technical data overview

Protective field range	4 m / 5.5 m / 7 m	4 m / 5.5 m / 7 m	4 m / 5.5 m / 7 m	4 m / 5.5 m / 7 m	
Warning field range	49 m	49 m	49 m	49 m	
Scanning angle	190°	190°	190°	190°	
Number of fields	4	12	24	64	
Number of monitoring cases	1	4	16	32	
Response time	≥ 60 ms / ≥ 120 ms	≥ 60 ms / ≥ 120 ms	≥ 60 ms / ≥ 120 ms	≥ 60 ms / ≥ 120 ms	
OSSD pairs	1	1	1	1	
Safety outputs via network	4	4	4	4	
Integration in the control	Local inputs and outputs (I/O) EFI	Local inputs and outputs (I/O) EFI	Local inputs and outputs (I/O) EFI	Local inputs and outputs (I/O) EFI	
Performance level	PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)	

At a glance

S3000 Advanced
- Large protective field range of 7 m makes it suitable for a wide range of applications
- Safety technology - with no loss of productivity
- Quick recommissioning via configuration memory
- Modular expansion modules, simple cabling, and additional functions such as simultaneous monitoring of up to four protective fields by SICK safety controllers via EFI
- Easy installation, commissioning, and maintenance for stationary and mobile applications
- Simple alignment and reliable operation in vertical mode

S3000 Professional
- Large protective field range of 7 m makes it suitable for a wide range of applications
- Variety of field sets guarantees safety and productivity when protecting vehicles or moving machine parts
- Quick recommissioning via configuration memory
- Modular expansion modules, simple cabling, and additional functions such as simultaneous monitoring of up to four protective fields using SICK safety controllers via EFI
- The correct protective field at any speed avoids unnecessary stops
- Personnel protection and navigation support in one device
- Easy installation, commissioning, and maintenance for stationary and mobile applications

Detailed information	➜ www.sick.com/ S3000_Standard	➜ www.sick.com/ S3000_Advanced	➜ www.sick.com/ S3000_Professional	➜ www.sick.com/ S3000_Expert

	S3000 Remote	S3000 PROFINET IO Advanced	S3000 PROFINET IO Professional
	The scanner for more safety	Always available - safety technology in your network	Always available - safety technology in your network
	4 m / 5.5 m / 7 m	4 m / 5.5 m / 7 m	4 m / 5.5 m / 7 m
	49 m	49 m	49 m
	190°	190°	190°
	64	8	16
	32	4	16
	≥ 60 ms / ≥ 120 ms	≥ 68 ms / ≥ 128 ms	≥ 68 ms / ≥ 128 ms
	0	0	0
	4	2	2
	EFI	PROFINET PROFIsafe	PROFINET PROFIsafe
	PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)

S3000 Remote
- Easy installation, commissioning, and maintenance for stationary and mobile applications
- Large protective field range of 7 m makes it suitable for a wide range of applications
- Variety of field sets guarantees safety and productivity when protecting vehicles or moving machine parts
- Quick recommissioning via configuration memory
- Modular expansion modules, simple cabling, and additional functions such as simultaneous monitoring of up to four protective fields by SICK safety controllers via EFI
- Personnel protection and navigation support in one device

S3000 PROFINET IO Advanced
- Reliable, fault-tolerant communication with an FPLC controller using state-of-the-art fiber-optic technology
- Efficient, cost-effective protection – networked through direct integration into PROFINET IO networks
- Rapid diagnosis by means of remote access prevents downtimes
- Standardized integration in FPLC controllers, thanks to GSDML generic station description
- Large protective field range of 7 m makes it suitable for a wide range of applications
- Quick recommissioning via configuration memory
- Easy installation, commissioning, and maintenance for stationary and mobile applications

➜ www.sick.com/S3000_Remote

➜ www.sick.com/S3000_PROFINET_IO_Advanced

➜ www.sick.com/S3000_PROFINET_IO_Professional

	S3000 Anti Collision	S3000 Cold Store
	Maximum productivity by safe collision protection of up to 15 m	Reliable safety for tough requirements in cold storage

Technical data overview

Protective field range	7 m / 15 m	7 m
Warning field range	–	49 m
Scanning angle	190°	180°
Number of fields	32	12
Number of monitoring cases	32	4
Response time	≥ 120 ms	≥ 60 ms / ≥ 120 ms
OSSD pairs	1	1
Safety outputs via network	4	4
Integration in the control	EFI	Local inputs and outputs (I/O) EFI
Performance level	PL d (ISO 13849)	PL d (ISO 13849)

At a glance

	• Collision protection of up to 15 m and person protection of up to 7 m in one device • Can only be used in EFI system network with modular Flexi Soft safety controller • Up to 16 switchable field sets • Configuration memory integrated in the system plug • Extended measurement data output via RS-422 with landmark recognition	• First safety laser scanner available on the market which can be used at temperatures as low as –30 °C • Hazard area, hazard point, access or vehicle protection in cold areas • Large protective field range of 7 m makes it suitable for a wide range of applications • Modular expansion modules, simple cabling, and additional functions such as simultaneous monitoring of up to four protective fields by SICK safety controllers via EFI • Easy installation, commissioning, and maintenance for stationary and mobile applications

Detailed information	➔ www.sick.com/S3000_Anti_Collision	➔ www.sick.com/S3000_Cold_Store

S300 Standard	S300 Advanced	S300 Professional	S300 Expert
Economical yet reliable	Optimize production processes safely	High-performance - the right protection for any speed	Flexible and pioneering - for challenging applications
2 m / 3 m	2 m / 3 m	2 m / 3 m	2 m / 3 m
8 m	8 m	8 m	8 m
270°	270°	270°	270°
3	12	24	48
1	4	32	32
≥ 80 ms	≥ 80 ms	≥ 80 ms	≥ 80 ms
1	1	1	1
1	1	1	1
Local inputs and outputs (I/O) EFI	Local inputs and outputs (I/O) EFI	Local inputs and outputs (I/O) EFI	Local inputs and outputs (I/O) EFI
PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)	PL d (ISO 13849)

- Simple integration due to compact design
- Easy installation, commissioning, and maintenance for stationary and mobile applications
- Safety technology - with no loss of productivity
- Quick recommissioning via configuration memory
- Easy modular expansions, simple cabling, and additional functions using SICK safety controllers via EFI
- Simple alignment and reliable operation in vertical mode

- Simple integration due to compact design
- Easy installation, commissioning, and maintenance for stationary and mobile applications
- Variety of field sets guarantees safety and productivity when protecting vehicles or moving machine parts
- Quick recommissioning via configuration memory
- Easy modular expansions, simple cabling, and additional functions using SICK safety controllers via EFI
- The correct protective field at any speed avoids unnecessary stops
- Personnel protection and navigation support in one device

➜ www.sick.com/ **S300_Standard**

➜ www.sick.com/ **S300_Advanced**

➜ www.sick.com/ **S300_Professional**

➜ www.sick.com/S300_Expert

	S300 Mini Standard	S300 Mini Remote
	Economical yet reliable	Very high functionality in mini format

Technical data overview

Protective field range	1 m / 2 m / 3 m	2 m / 3 m
Warning field range	8 m	8 m
Scanning angle	270°	270°
Number of fields	3	48
Number of monitoring cases	1	32
Response time	≥ 80 ms	≥ 80 ms
OSSD pairs	1	0
Safety outputs via network	0	1
Integration in the control	Local inputs and outputs (I/O)	EFI
Performance level	PL d (ISO 13849)	PL d (ISO 13849)

At a glance

• Simple integration due to ultra-compact design • Easy installation, commissioning, and maintenance for stationary and mobile applications • Easy to manage, reducing costs and work time • Reduction of downtime and brake wear thanks to triple field function • Simple alignment and reliable operation in vertical mode	• Simple integration due to ultra-compact design • Easy installation, commissioning, and maintenance for stationary and mobile applications • Variety of field sets guarantees safety and productivity when protecting vehicles or moving machine parts • Easy modular expansions, simple cabling, and additional functions using SICK safety controllers via EFI • Simple alignment and reliable operation in vertical mode

Detailed information	➜ www.sick.com/S300_Mini_Standard	➜ www.sick.com/S300_Mini_Remote

	deTec4	deTec4 Core	deTec2 Core
	Safe and intelligent	Efficient integration. Quick installation. Simply safe.	

Technical data overview

	deTec4	deTec4 Core	deTec2 Core
Scanning range	30 m	15 m	15 m
Protective field height	300 mm … 2,100 mm	300 mm … 2,100 mm	300 mm … 2,100 mm
Resolution	14 mm / 30 mm	14 mm / 30 mm	14 mm / 30 mm
Type	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)	Type 2 (IEC 61496-1)
Safety integrity level	SIL3 (IEC 61508) SILCL3 (IEC 62061)	SIL3 (IEC 61508) SILCL3 (IEC 62061)	SIL1 (IEC 61508) SILCL1 (IEC 62061)
Performance level	PL e (ISO 13849)	PL e (ISO 13849)	PL c (ISO 13849)
Enclosure rating	IP65, IP67 (IEC 60529)	IP65, IP67 (IEC 60529)	IP65, IP67 (IEC 60529)
Ambient operating temperature	–30 °C … +55 °C	–30 °C … +55 °C	–30 °C … +55 °C

At a glance

deTec4

- Increased productivity and short downtimes thanks to extensive and innovative diagnostic options
- Safety and automation united: IO-Link makes a cost-effective system design possible
- Muting provides maximum productivity and safety in differentiating between people and material
- Highest availability: Smart presence detection prevents unwanted switch-offs
- Flexibility and safety for dynamic applications during machine operation
- Easy commissioning and configuration without the need for software, saving time and money

deTec4 Core / deTec2 Core

- Simple assembly with innovative mounting and no blind zones
- Quick commissioning thanks to integrated LED display and automated distance measurement of up to 10 m
- Simply safe: rugged and reliable thanks to IP65 / IP67 enclosure rating and an ambient operating temperature down to –30 °C, enabling use in harsh ambient conditions
- Intelligently standardized: M12 connectivity, 5-pin, reduces costs and enables safe series connection with Flexi Loop
- Basic function with minimal configuration effort enables quick replacement when servicing is required

Detailed information	➜ www.sick.com/deTec	➜ www.sick.com/deTec	

deTec4 Core IP69K	deTec2 Core IP69K	deTec4 Core HG	deTec2 Core HG
Safest under high pressure		Safety for environments where coolants, lubricants and cleaning agents are used	
12.5 m	12.5 m	15 m	15 m
300 mm … 1,800 mm	300 mm … 1,800 mm	300 mm … 2,100 mm	300 mm … 2,100 mm
14 mm / 30 mm	30 mm	14 mm / 30 mm	14 mm / 30 mm
Type 4 (IEC 61496-1)	Type 2 (IEC 61496-1)	Type 4 (IEC 61496-1)	Type 2 (IEC 61496-1)
SIL3 (IEC 61508) SILCL3 (IEC 62061)	SIL1 (IEC 61508) SILCL1 (IEC 62061)	SIL3 (IEC 61508) SILCL3 (IEC 62061)	SIL1 (IEC 61508) SILCL1 (IEC 62061)
PL e (ISO 13849)	PL c (ISO 13849)	PL e (ISO 13849)	PL c (ISO 13849)
IP65, IP66, IP67 (IEC 60529) IP69K (ISO 20653)	IP65, IP66, IP67 (IEC 60529) IP69K (ISO 20653)	IP65, IP67 (IEC 60529)	IP65, IP67 (IEC 60529)
–30 °C … +55 °C	–30 °C … +55 °C	–30 °C … +55 °C	–30 °C … +55 °C

- Enclosure rating IP69K offers high resistance and long service life, making it more economical
- Certified material resistance for maximum reliability
- The ideal design for efficient cleaning in the food industry – it ensures high process and production quality while reducing the risk of contamination
- Replaceable protective housing offers flexibility and saves money in the event that service is needed
- Breathable membrane ensures the highest availability
- Reduction of cleaning times and costs compared to a mechanical protective device

- The hardened glass front screen offers high resistance to coolants, lubricants and cleaning agents and therefore maximum reliability
- Innovative bracket concept for easy mounting saves installation time and costs
- No blind zones for very high flexibility and space-saving machine design
- Quick installation thanks to integrated LED display and automated calibration of the protective field width save time and money
- Standardized connectivity for Flexi Loop integration saves installation time and costs
- Enclosure ratings IP65, IP67 and temperature resistance offer long sensor life times and therefore even more efficiency

➜ www.sick.com/deTec

➜ www.sick.com/deTec
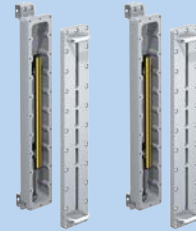
	deTec4 Core EX II 3GD	deTec4 Core EX	

Security in explosive atmospheres

Technical data overview

	deTec4 Core EX II 3GD	deTec4 Core EX	
Scanning range	15 m	10 m	
Protective field height	300 mm … 2,100 mm	600 mm / 900 mm / 1,200 mm / 1,500 mm	
Resolution	14 mm / 30 mm	30 mm	
Type	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)	
Safety integrity level	SIL3 (IEC 61508) SILCL3 (IEC 62061)	SIL3 (IEC 61508) SILCL3 (IEC 62061)	
Performance level	PL e (ISO 13849)	PL e (ISO 13849)	
Enclosure rating	IP65, IP67 (IEC 60529)	IP65, IP66 (IEC 60529)	
Ambient operating temperature	0 °C … +55 °C	–20 °C … +55 °C	
Ex approvals	ATEX II 3G / 3D	ATEX II 2G / 2D, NFPA 70 / NEC 500, Classes I, II, III, Div. 1	

At a glance

	deTec4 Core EX II 3GD	deTec4 Core EX	
	• Uniform housing and accessory concept for standard and special industrial environments saves time and money when planning systems • Innovative bracket concept for easy mounting saves installation time and costs • No blind zones for very high flexibility and space-saving machine design • Quick installation thanks to integrated LED display and automated calibration of the protective field width save time and money • Standardized connectivity for Flexi Loop integration saves installation time and costs • Enclosure ratings IP65, IP67 and temperature resistance offer long sensor life times and therefore even more efficiency	• Compatibility with numerous SICK safety light curtains makes high flexibility in the application solution possible • Durable housing • Simple installation and alignment with the special mounting system • Quick commissioning of pre-mounting systems, comprises light curtain and housing • Low downtimes thanks to resistance to water and dust due to IP66 enclosure rating • Well visible LED status indicator for quick fault diagnosis • Global availability and support for the entire safety solution	

Detailed information	➜ www.sick.com/deTec	➜ www.sick.com/deTec	

miniTwin4	miniTwin2	TWINOX4
The smallest light curtain with the highest protection level, PL e	Small design, great flexibility, and universal possibilities	Compact design for maximum reliability
5 m	8 m	4.5 m
120 mm … 1,200 mm	120 mm … 1,200 mm	300 mm / 420 mm / 600 mm
14 mm / 24 mm / 34 mm	14 mm / 24 mm / 34 mm	14 mm
Type 4 (IEC 61496-1)	Type 2 (IEC 61496-1)	Type 4 (IEC 61496-1)
SIL3 (IEC 61508)	SIL1 (IEC 61508)	SIL3 (IEC 61508)
SILCL3 (IEC 62061)	SILCL1 (IEC 62061)	SILCL3 (IEC 62061)
PL e (ISO 13849)	PL c (ISO 13849)	PL e (ISO 13849)
IP65 (IEC 60529)	IP65 (IEC 60529)	IP65, IP67 (IEC 60529)
–20 °C … +55 °C	–20 °C … +55 °C	–20 °C … +55 °C
–	–	–

miniTwin4 / miniTwin2

- Cost-effective machine integration: the miniature design, cascading, and fine stepping of the protective field lengths enable flexible adaptation to the machine design
- Standardization saves time and resources by making logistics, order processing, and service more straightforward
- Exemplary handling: software-free, almost fully automated commissioning and intuitive operation with sustainable optics
- LED-guided start-up together with colored LEDs for quick alignment and unequivocal protective field visualization ensure rapid diagnostics
- A continuous protective field for cascade applications eliminates blind zones, reduces the safety distance, and thereby increases productivity
- Application-specific brackets increase mounting flexibility, while reducing the mounting time

TWINOX4

- The small, elegant stainless-steel housing saves space, enables optimum integration into the machine design, and offers great flexibility
- Highest level of media resistance for maximum reliability
- Efficient cleaning ensures high process and production quality and a low risk of contamination
- Efficient ordering process and cost savings due to reduced storage needs and spare parts maintenance
- Adjustable brackets ensure the highest availability
- Quick on-site diagnostics with LED status indicators over the entire protective field height

➜ www.sick.com/miniTwin4   ➜ www.sick.com/miniTwin2   ➜ www.sick.com/TWINOX4

	C4000 Advanced	C4000 Advanced ATEX II 3G / 3D	
	Increased productivity with greater machine safety	Security in explosive atmospheres	

Technical data overview

	C4000 Advanced	C4000 Advanced ATEX II 3G / 3D
Scanning range	21 m	21 m
Protective field height	300 mm ... 1,800 mm	450 mm ... 1,800 mm
Resolution	14 mm / 20 mm / 30 mm / 40 mm	14 mm / 30 mm / 40 mm
Type	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)
Performance level	PL e (ISO 13849)	PL e (ISO 13849)
Enclosure rating	IP65 (EN 60529)	IP65 (EN 60529)
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Ex approvals	–	ATEX II 3G / 3D

At a glance

- The blanking functions ensure reliable and stable object detection thereby increasing productivity
- Time-saving alignment and diagnostics by means of 7-segment display
- Beam coding protects the systems against mutual interference and thus offers a high level of availability
- The clone plug allows quick and easy duplication of configurations, thus saving time and costs
- Increased flexibility and reduced wiring complexity via cascading of up to a maximum of three systems
- Convenient configuration and diagnostics ensure increased availability

Detailed information	➔ www.sick.com/C4000_Advanced	➔ www.sick.com/C4000_Advanced	

C4000 Advanced Ex

Security in explosive atmospheres

	16 m
	600 mm / 900 mm / 1,200 mm
	30 mm
	Type 4 (IEC 61496-1)
	SIL3 (IEC 61508)
	SILCL3 (EN 62061)
	PL e (ISO 13849)
	IP65, IP66 (EN 60529)
	0 °C ... +55 °C
	ATEX II 2G / 2D,
	NFPA 70 / NEC 500, Classes I, II, III, Div. 1

- Compatibility with numerous SICK safety light curtains makes high flexibility in the application solution possible
- Durable housing
- Simple installation and alignment with the special mounting system
- Quick commissioning of pre-mounting systems, comprises light curtain and housing
- Low downtimes thanks to resistance to water and dust due to IP66 enclosure rating
- Well visible LED status indicator for quick fault diagnosis
- Global availability and support for the entire safety solution

➜ www.sick.com/C4000_Advanced_Ex

	C4000 Fusion	C4000 Fusion ATEX II 3G / 3D
	Multi-functional and user-friendly, high availability and reliability	Security in explosive atmospheres

Technical data overview

Scanning range	21 m	21 m
Protective field height	300 mm ... 1,800 mm	600 mm ... 1,800 mm
Resolution	20 mm	20 mm
Type	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)
Performance level	PL e (ISO 13849)	PL e (ISO 13849)
Enclosure rating	IP65 (EN 60529)	IP65 (EN 60529)
Ambient operating temperature	0 °C ... +55 °C	0 °C ... +55 °C
Ex approvals	–	ATEX II 3G / 3D

At a glance

- Increased system productivity, since the safety light curtain is not shut down as a result of falling chips
- Dependable: skids are detected, interference objects such as cables are blanked
- Cost-effective due to the savings made on additional muting sensors or other protective measures
- Maximum safety for access protection with automated material transport – the system reliably differentiates between man and material
- Easy integration and quick commissioning save time and costs since secondary sensors are not required
- Safe: also offers protection in areas where there is no object, in contrast to conventional muting solutions
- The integrated laser alignment aid enables time-saving alignment of the sender and receiver

Detailed information	➔ www.sick.com/C4000_Fusion	➔ www.sick.com/C4000_Fusion

C4000 Palletizer	C4000 Entry/Exit	C4000 Entry/Exit ATEX II 3G / 3D
Innovative alternative to muting for access protection	Revolutionary access protection with differentiation between people and material	Security in explosive atmospheres

7 m	19 m	19 m
750 mm ... 1,800 mm	900 mm ... 1,500 mm	900 mm
30 mm / 40 mm	20 mm	20 mm
Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)
SIL3 (IEC 61508)	SIL3 (IEC 61508)	SIL3 (IEC 61508)
SILCL3 (EN 62061)	SILCL3 (EN 62061)	SILCL3 (EN 62061)
PL e (ISO 13849)	PL e (ISO 13849)	PL e (ISO 13849)
IP65 (EN 60529)	IP65 (EN 60529)	IP65 (EN 60529)
0 °C ... +55 °C	0 °C ... +55 °C	0 °C ... +55 °C
–	–	ATEX II 3G / 3D

• Cost-effective due to the savings made on additional muting sensors or other protective measures • With the dynamic and self-teaching blanking function, the system can reliably differentiate between man and material – this provides maximum safety • Mixed pallet operation allows mesh boxes, Euro pallets, and half pallets to pass, significantly increasing system availability • Saves storage space: pallets can be parked permanently in the protective field • One system monitors multiple conveyor belts, reducing sensor costs • Quick commissioning: Detects Euro pallets, mesh boxes etc. without any programming	• Cost-effective due to the savings made on additional muting sensors or other protective measures • With the dynamic and self-teaching blanking function, the system can reliably differentiate between man and material – this provides maximum safety • Beam coding protects the systems against mutual interference and thus offers a high level of availability • Time-saving alignment and diagnostics by means of 7-segment display	

➜ www.sick.com/C4000_Palletizer	➜ www.sick.com/C4000_Entry_Exit	➜ www.sick.com/C4000_Entry_Exit

	V300 Work Station Extended	V200 Work Station Extended
	Perfect protection with minimal space requirements	

Technical data overview

Type	Type 3 (IEC 61496)	Type 2 (IEC 61496)
Safety integrity level	SIL2 (IEC 61508) SILCL2 (EN 62061)	SIL1 (IEC 61508) SILCL1 (EN 62061)
Category	Category 3 (ISO 13849)	Category 2 (ISO 13849)
Performance level	PL d (ISO 13849)	PL c (ISO 13849)
Resolution	20 mm, 24 mm, 30 mm	20 mm, 24 mm, 30 mm
Maximum protective field range	1.41 m, 1.7 m, 2.12 m	1.41 m, 1.7 m, 2.12 m
Large optical field	1 m x 1 m 1.2 m x 1.2 m 1.5 m x 1.5 m	1 m x 1 m 1.2 m x 1.2 m 1.5 m x 1.5 m
Response time	≤ 20 ms	≤ 20 ms

At a glance

- Individual design of protective fields enables highly flexible machine design
- Quick and easy commissioning without additional software
- Practical single-pushbutton operation and automated alignment
- No variants: One-device concept for all aperture sizes
- Reduced storage, logistics and commissioning costs
- No expert knowledge required
- High machine availability through quick and simple maintenance

Detailed information	➜ www.sick.com/V300_Work_Station_Extended	➜ www.sick.com/V200_Work_Station_Extended

	deTem4 Core	deTem2 Core	
	Access protection: easy and efficient		

Technical data overview
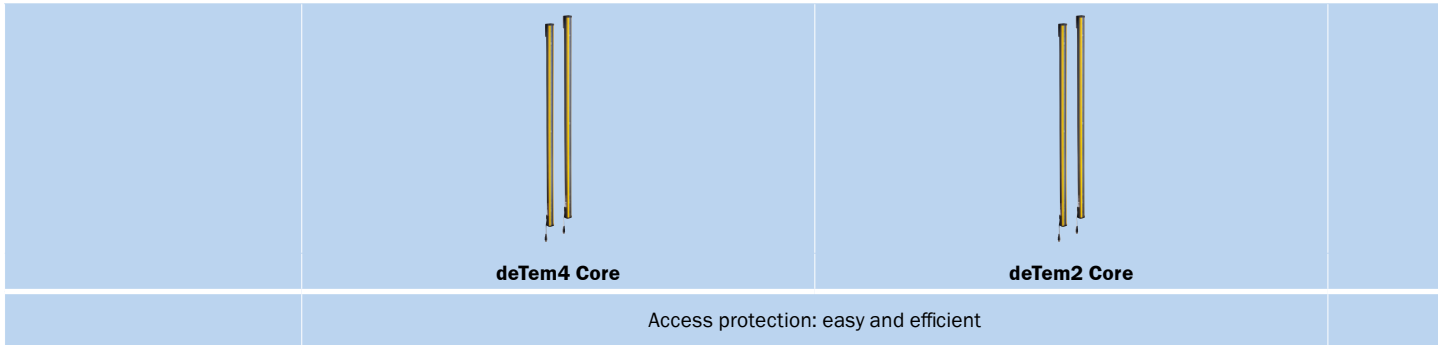
	deTem4 Core	deTem2 Core	
Scanning range	90 m	90 m	
Number of beams	2 / 3 / 4	2 / 3 / 4	
Beam separation or resolution	500 mm / 400 mm / 300 mm	500 mm / 400 mm / 300 mm	
Type	Type 4 (IEC 61496-1)	Type 2 (IEC 61496-1)	
Safety integrity level	SIL3 (IEC 61508) SILCL3 (IEC 62061)	SIL1 (IEC 61508) SILCL1 (IEC 62061)	
Performance level	PL e (ISO 13849-1)	PL c (ISO 13849-1)	
Enclosure rating	IP65, IP67 (IEC 60529)	IP65, IP67 (IEC 60529)	
Ex approvals	–	–	
Integrated laser alignment aid	–	–	
End cap with integrated LED	–	–	

At a glance

- Protection of large access areas with multiple beam deflections as well
- Little space required
- The same quick and easy mounting and commissioning as the deTec:
- The same accessories and connectivity
- Reduced variant diversity
- Reliable in challenging environments

Detailed information	➜ www.sick.com/deTem4_Core	➜ www.sick.com/deTem2_Core	

deTem4 Core IP69K	deTem2 Core IP69K	deTem4 Core Ex II 3GD	deTem2 Core Ex II 3GD
Safest under high pressure		Security in explosive atmospheres	
15.5 m	15.5 m	90 m	90 m
2 / 3 / 4	2 / 3 / 4	2 / 3 / 4	2 / 3 / 4
500 mm / 400 mm / 300 mm	500 mm / 400 mm / 300 mm	500 mm / 400 mm / 300 mm	500 mm / 400 mm / 300 mm
Type 4 (IEC 61496)	Type 2 (IEC 61496)	Type 4 (IEC 61496-1)	Type 2 (IEC 61496-1)
SIL3 (IEC 61508)	SIL1 (IEC 61508)	SIL3 (IEC 61508)	SIL1 (IEC 61508)
SILCL3 (IEC 62061)	SILCL1 (IEC 62061)	SILCL3 (IEC 62061)	SILCL1 (IEC 62061)
PL e (ISO 13849)	PL c (ISO 13849)	PL e (ISO 13849-1)	PL c (ISO 13849-1)
IP65, IP66, IP67 (IEC 60529) IP69K (ISO 20653)	IP65, IP66, IP67 (IEC 60529) IP69K (ISO 20653)	IP65, IP67 (IEC 60529)	IP65, IP67 (IEC 60529)
–	–	ATEX II 3G / 3D	ATEX II 3G / 3D
–	–	–	–
–	–	–	–

• Enclosure rating IP69K offers high resistance and long service life, making it more economical • Certified material resistance for maximum reliability • The ideal design for efficient cleaning in the food industry – it ensures high process and production quality while reducing the risk of contamination • Replaceable protective housing offers flexibility and saves money in the event that service is needed • Breathable membrane ensures the highest availability • Reduction of cleaning times and costs compared to a mechanical protective device	• Uniform housing and accessory concept for standard and special industrial environments saves time and money when planning systems • Innovative bracket concept for easy mounting saves installation time and costs • Fast installation thanks to integrated LED display saves time and money • Standardized connectivity for Flexi Loop integration saves installation time and costs • Enclosure ratings IP65, IP67 and temperature resistance offer long sensor life times and therefore even more efficiency

➜ www.sick.com/deTem4_Core_IP69K

➜ www.sick.com/deTem2_Core_IP69K

➜ www.sick.com/deTem4_Core_Ex_II_3GD

➜ www.sick.com/deTem2_Core_Ex_II_3GD

	M4000 Standard	M4000 Standard A/P
	High efficiency and maximum availability without the need for a PC	Intelligent wiring and maximum availability

Technical data overview

Scanning range	90 m	7.5 m
Number of beams	2 … 8	2 / 4
Beam separation or resolution	220 mm … 600 mm	500 mm / 300 mm
Length of the monitored area	–	–
Type	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)
Performance level	PL e (ISO 13849)	PL e (ISO 13849)
Enclosure rating	IP65 (EN 60529)	IP65 (EN 60529)
Integrated laser alignment aid	– / ✔	–
End cap with integrated LED	– / ✔	– / ✔

At a glance

- The broad scanning range spectrum allows the device to be standardized for the relevant application
- Resilient and rugged design for high system availability, even under exceptional ambient conditions
- Reduced installation effort due to flexible protective field adjustment using deflector mirrors
- Customer-friendly interfaces and status indicators facilitate commissioning and maintenance
- Mounting grooves on three housing sides ensure greater mounting flexibility and facilitate integration with the machine
- Fast start-up times due to easy alignment using the optional laser alignment aid and configuration directly on the device
- Reduced downtimes thanks to all-around-visible LEDs and diagnostics displays
- Economical active/passive variants minimize the wiring and installation workload

Detailed information	➜ www.sick.com/M4000_Standard	➜ www.sick.com/M4000_Standard_A_P

	M4000 Advanced	M4000 Advanced A/P	M4000 area
	Intelligent and efficient: on-site connection of the muting signals		Broad spectrum of scanning ranges for area protection or presence detection
	90 m	7.5 m	70 m
	2 … 8	2 / 4	–
	220 mm … 600 mm	500 mm / 300 mm	60 mm / 80 mm
	–	–	300 mm … 1,800 mm
	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)
	SIL3 (IEC 61508)	SIL3 (IEC 61508)	SIL3 (IEC 61508)
	SILCL3 (EN 62061)	SILCL3 (EN 62061)	SILCL3 (EN 62061)
	PL e (ISO 13849)	PL e (ISO 13849)	PL e (ISO 13849)
	IP65 (EN 60529)	IP65 (EN 60529)	IP65 (EN 60529)
	– / ✔	–	–
	– / ✔	– / ✔	–

- The broad scanning range spectrum allows the device to be standardized for the relevant application
- Resilient and rugged design for high system availability, even under exceptional ambient conditions
- Mounting grooves on three housing sides ensure greater mounting flexibility and facilitate integration with the machine
- Customer-friendly interfaces and status indicators facilitate commissioning and maintenance
- For 2-sensor and 4-sensor muting, the on-site connection of the muting signals minimizes the wiring effort considerably and simplifies commissioning and maintenance
- Reduced downtimes due to all-around-visible LED and diagnostics displays as well as the configuration memory in the UE403 muting switching amplifier
- Economical active/passive variants minimize the wiring and installation workload

- The broad scanning range spectrum allows the device to be standardized for the relevant application
- Resilient and rugged design for high system availability, even under exceptional ambient conditions
- Mounting grooves on three housing sides ensure greater mounting flexibility and facilitate integration with the machine
- Customer-friendly interfaces and status indicators facilitate commissioning and maintenance

➜ www.sick.com/M4000_Advanced

➜ www.sick.com/M4000_Advanced_A_P

➜ www.sick.com/M4000_Area

	WSU/WEU26-3	L4000 systems	L41
	Rugged design for high durability under extreme environmental conditions	Complete system that is highly reliable and offers fast response times	Universal use up to type 4, with safe control solutions from SICK

Technical data overview

Scanning range	70 m	60 m	60 m
Light sender/light type	Infrared light	LED / visible red light	LED / visible red light
Size	50 mm x 156 mm x 116 mm	M18 / M30	M18 / M30
Supply voltage	+24 V DC	+24 V DC	+24 V DC
Enclosure rating	IP67 (EN 60529)	IP67 (EN 60529)	IP67 (EN 60529)
Ambient operating temperature	–25 °C … +55 °C	–20 °C … +55 °C	–40 °C … +55 °C
Type	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)	Type 4 (IEC 61496-1)
Performance level	PL e (ISO 13849)	PL e (ISO 13849)	PL e (ISO 13849)

At a glance

WSU/WEU26-3	L4000 systems	L41
• Extremely rugged for high system availability • Well-suited to extreme ambient conditions such as heat, cold or moisture • Fewer variants thanks to standard sender • Easy electrical integration using cable gland and relay outputs	• Compact design (M18, M30 and 22.5-mm housing for UE401) for easy integration • Particularly flexible setup of protective fields for easy integration • For applications with negative temperatures and requiring an IP67 enclosure rating • Long optical scanning range up to 60 m • Easy configuration without additional tools, only with the help of jumpers	• Simple integration thanks to small, compact designs • Cost savings due to the ability to directly connect to a safety controller • Flexible device integration makes it possible to set up individual access protections • Well-suited to extreme ambient conditions such as heat, cold or moisture

Detailed information	➜ www.sick.com /WSU_WEU26-3	➜ www.sick.com /L4000_Systeme	➜ www.sick.com/L41

	L21	L27	L28	L29
	Cylindrical design for safety applications up to type 2	Standard design and long scanning range for safety applications up to type 2	Compact design for optimal integration into safety applications up to type 2	Small design for optimal integration into safety applications up to type 2
	60 m	35 m	18 m	6 m
	LED / visible red light	LED / visible red light	LED / visible red light	LED / visible red light
	M18 / M30	24.6 mm x 92.8 mm x 54 mm	17.6 mm x 87.5 mm x 33.5 mm	12.2 mm x 50 mm x 23.6 mm
	+24 V DC	+24 V DC	+24 V DC	+24 V DC
	IP67 (EN 60529)	IP67 (EN 60529)	IP67 (EN 60529)	IP65, IP66, IP67 (IEC 60529) IP69K (ISO 20653)
	−40 °C … +55 °C	−40 °C … +60 °C	−40 °C … +60 °C	−40 °C … +60 °C
	Type 2 (IEC 61496-1)	Type 2 (IEC 61496-1)	Type 2 (IEC 61496-1)	Type 2 (IEC 61496-1)
	PL c (ISO 13849)	PL c (ISO 13849)	PL c (ISO 13849)	PL c (ISO 13849)

L21
- Easy integration due to small, compact designs with maximum scanning range
- Cost savings due to the ability to directly connect to a safety controller
- Flexible device integration makes it possible to set up individual access protections
- Well-suited to extreme ambient conditions such as heat, cold or moisture

L27
- Easy integration due to small, compact designs with maximum scanning range
- Cost savings due to the ability to directly connect to a safety controller
- Flexible device integration makes it possible to set up individual access protections
- Well-suited to extreme ambient conditions such as heat, cold or moisture

L28
- Easy integration due to small, compact designs with maximum scanning range
- Cost savings due to the ability to directly connect to a safety controller
- Flexible device integration makes it possible to set up individual access protections
- Well-suited to extreme ambient conditions such as heat, cold or moisture

L29
- Easy to integrate into applications due to very small dimensions
- Easy to install and reliable in operation thanks to the rugged VISTAL® housing
- Very good material resistance tested according to the Ecolab test method
- Well-suited to extreme ambient conditions such as heat, cold or moisture
- Quick and simple alignment thanks to a very easy to see PinPoint LED light spot
- Multiple mounting options with M3 slotted hole bracket

➔ www.sick.com/L21   ➔ www.sick.com/L27   ➔ www.sick.com/L28   ➔ www.sick.com/L29

	Mirror columns with continuous mirror	Mirror columns with individual mirrors	
	Intelligent multi-sided protection of the area around hazardous points	Intelligent multi-sided protection of the area around hazardous points	

Technical data overview			
Design	Mirror columns with continuous mirror	Mirror columns with up to 4 adjustable individual mirrors	
Suitable for	Safety light curtains Multiple light beam safety devices	Multiple light beam safety devices	
Suitable for protective field height	≤ 2,100 mm	–	
Suitable for number of beams	Any	2 / 3 / 4	
Suitable for beam separation	Any	300 mm … 600 mm	
Mirror length	1,082 mm … 2,132 mm	90 mm	
Mirror width	125 mm	100 mm	
Column height	1,281.5 mm … 2,419 mm	985 mm / 1,185 mm / 1,285 mm	

At a glance			
	• Multi-sided protection using deflector mirrors eliminates additional active devices, which reduces cabling effort and costs • Increased productivity due to unhindered access to the system while maintaining protection	• Multi-sided protection using deflector mirrors eliminates additional active devices, which reduces cabling effort and costs • Increased productivity due to unhindered access to the system while maintaining protection • Separate adjustable mirrors for simpler and more convenient commissioning	
Detailed information	➜ www.sick.com/Mirror_columns_with_protective_field_height_mirror	➜ www.sick.com/Mirror_columns_with_separate_mirrors	

Device columns with external grooves	Device columns for outdoor applications
Intelligent protection of access routes and areas	Heated front screen for clear view

Device columns with two externally located mounting grooves	Device columns with heated front screen for outdoor applications
Safety light curtains Multiple light beam safety devices	Multiple light beam safety devices
≤ 2,100 mm	–
Any	3 / 2
Any	400 mm / 500 mm
–	–
–	–
985 mm … 2,420 mm	1,223 mm

• Sturdy, torsion-free device protection prevents damage and reduces costs • Simple, convenient installation of additional accessories due to the external mounting grooves on the device column • Increased productivity due to unhindered access to the system while maintaining protection	• Sturdy, torsion-free device protection prevents damage and reduces costs • Increased productivity due to unhindered access to the system while maintaining protection

➜ www.sick.com/Device_columns_with_external_grooves   ➜ www.sick.com/Device_columns_for_outdoor_use

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Safe and regularly tested

Upgrade and retrofits
Simple, 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 8,800 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:

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