deTec4 Core / deTec2 Core
EFFICIENT INTEGRATION. QUICK INSTALLATION. SIMPLY SAFE.
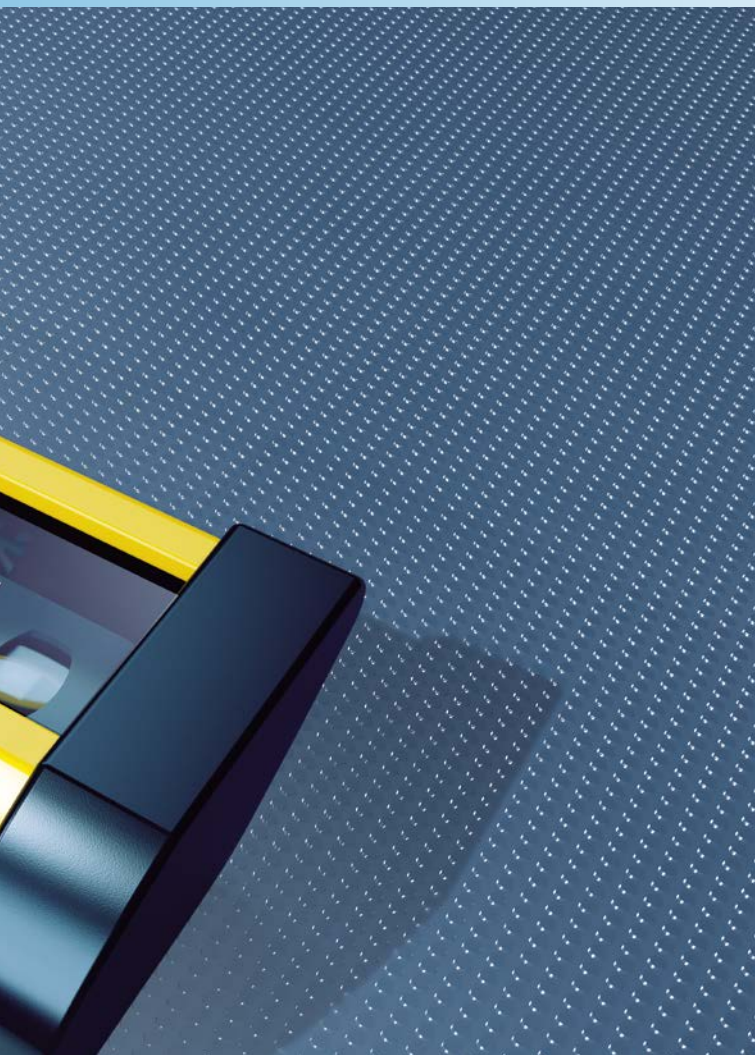
Safety light curtain

SICK
Sensor Intelligence.

DETEC4 CORE / DETEC2 CORE: PURE SAFETY FROM THE MARKET LEADER

SICK, creator of the safety light curtain, is the world's leading manufacturer of optical safety devices. SICK is now introducing a completely new generation of light curtains – the deTec4 Core and the deTec2 Core.

With this development, SICK is focusing on the essentials: state-of-the-art safety.

**product
design award**

2013

A new standard in every sense

The deTec4 Core and deTec2 Core safety light curtains makes it easier than ever before to cost-effectively protect hazardous zones and access points. The deTec family is efficient to integrate, quick to install and safe in routine operation – deTec4 Core or deTec2 Core is also the best-in-class safety light curtain in each case.

- Efficient integration ➜ Page 4
- Quick installation ➜ Page 8
- Simply safe ➜ Page 10

Based on more than 60 years of experience

The development and production of safety light curtains has been one of SICK's core areas of competency for more than six decades. Our safety light curtains are proven in the field - through their widespread use worldwide in a multitude of applications. Economic factors are also an important consideration, in addition to safety matters. Optimally designed safety technology with user-oriented functionality is key to increasing system efficiency. Of course, it goes without saying that SICK utilizes open systems that ensure a high level of investment security.

DETEC4 CORE SAFETY LIGHT CURTAIN: ECONOMICAL AND RELIABLE DURING OPERATION

The deTec4 Core safety light curtain is the perfect solution for cost-effective protection of hazardous points and single-sided access protection. In doing so, safety is made easy right from the outset.

Safety and efficiency combined – for maximum availability

Day for day, the deTec4 Core safety light curtain ensures safety of personnel and productivity of machines and systems in a cost-effective manner for many industries. For example, machines for processing workpieces of all dimensions.
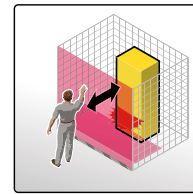
Typical areas of application include:
- Machine tools industry
- Automotive
- Handling and warehousing systems
- Consumer goods and packaging industry
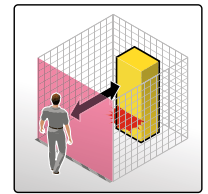
deTec4 Core safety light curtain for a wide range of safety applications
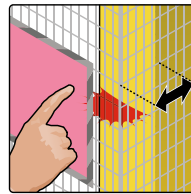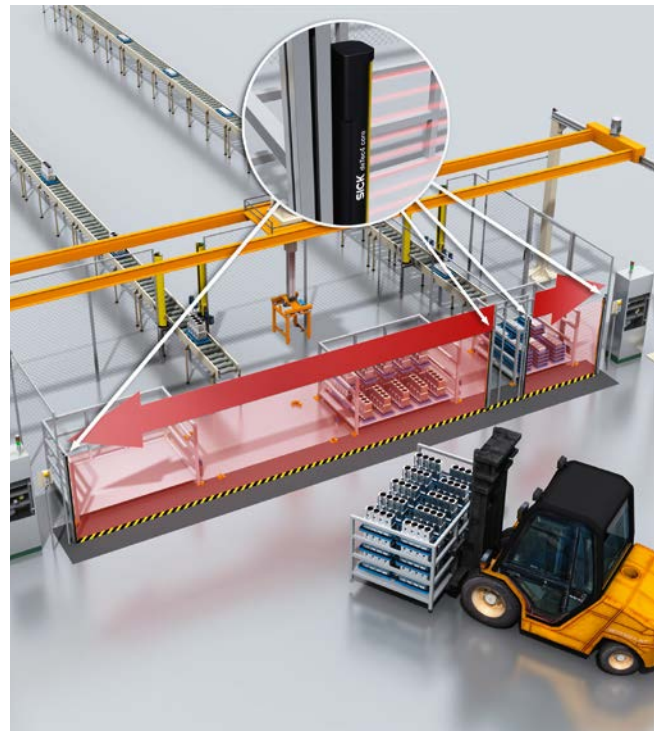

Finger and hand detection

Hand and person detection

Single-sided access protection

EFFICIENT INTEGRATION – FROM PLANNING TO SELECTION AND INSTALLATION

In the event of minimal space: continuous protective fields

The complete housing of the deTec4 Core safety light curtain generates a continuous protective field with high resolution right up to the ends of the housing. This minimizes the safety distances in terms of machine integration. And, with protective field heights of up to 2100 mm, the deTec4 Core safety light curtain also reduces allowances for reaching under and reaching over the protective field in accordance with current safety standards. An additional advantage: short safety distances for the operator to hazardous points accelerates processes with higher productivity.

deTec4 Core – the technology at a glance

- Type 4 (IEC 61496), SIL3 (EN 62061), PL e (EN ISO 13849)
- No blind zones
- Resolution of 14 mm or 30 mm
- Protective field height of 300 mm to 2,100 mm
- Automatic calibration on the protective field width up to 10 m range
- Ambient operating temperature of –30 °C to +55 °C
- Enclosure rating IP 65 and IP 67
- Flexi Loop compatible M12 male connectors

deTec4 Core safety light curtain on the Internet ➜ www.sick.com/detec4

DETEC2 CORE SAFETY LIGHT CURTAIN FOR TYPE 2: SAFETY AND SIMPLE HANDLING

The deTec2 Core clearly implements the central concepts of pure safety for the machine and its operators in a way which is extremely clear for both the integrator and the machine operator. Each product family is designed for specific applications and ambient conditions.

Safety for defined protection levels

According to the risk assessment, typical PL c and/or SIL1 applications include machines with a low injury potential or low levels of access by the operator. Common examples are assembly work stations, loading systems with rotating tables or mobile trays, test devices, or even riveting and pasting machines.
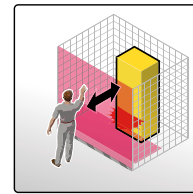
Typical areas of application include:
• Machine tools industry: handling & assembly
• Food & Beverage
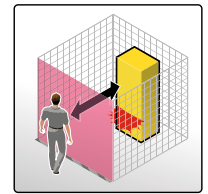• Packaging industry

deTec2 Core safety light curtain for a wide range of safety applications
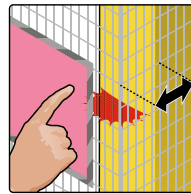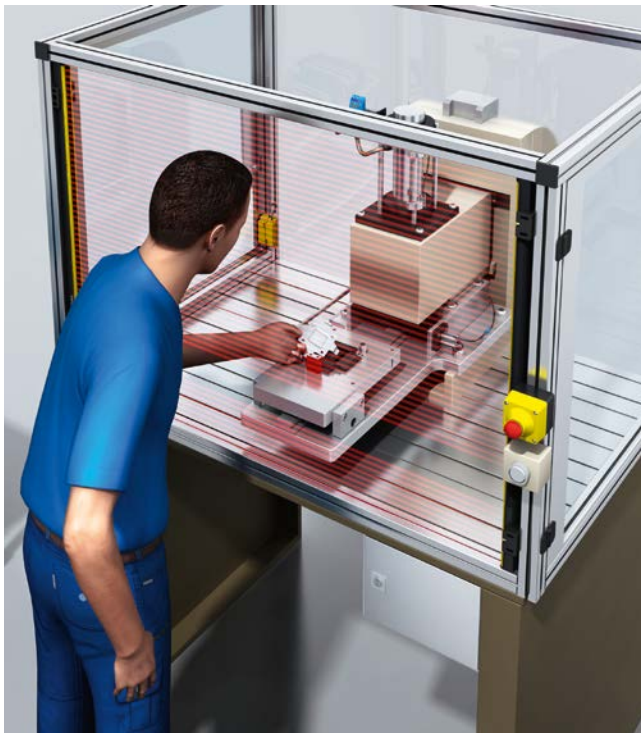

Finger and hand detection

Hand and person detection

Single-sided access protection

INTUITIVE AND RUGGED IN DAILY USE

Just switch it on: safe without setup, quick service and diagnosis

Externally, the deTec2 Core has a rugged and clean design – which is sure to satisfy in terms of functionality. The detec2 Core is designed purely for protective operation. There is no need for extensive configuration work; the safety light curtain is active as soon as it is switched on. The deTec2 Core ensures exact adjustment of its own sensing range. The integrated four-LED alignment display also ensures fast and accurate positioning of the sender and receiver in relation to each other. A red/green LED displays the current operational status of the safety light curtain clearly.

deTec2 Core – the technology at a glance

- Type 2 (IEC 61496), SIL1 (EN 62061), PL c (EN ISO 13849)
- No blind zones
- Resolution of 14 mm or 30 mm
- Protective field height of 300 mm to 2,100 mm
- Automatic calibration on the protective field width up to 10 m range
- Ambient operating temperature of –30 °C to +55 °C
- Enclosure rating IP 65 and IP 67
- Flexi Loop compatible M12 male connectors
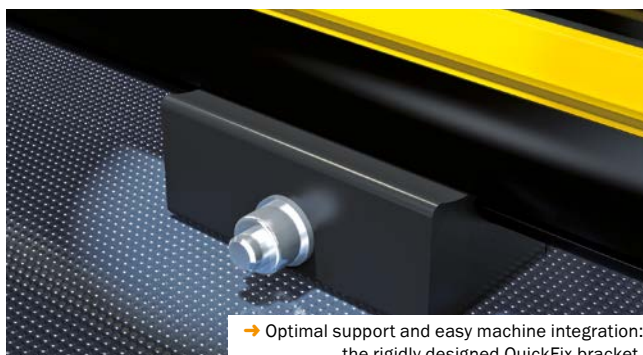
SOPHISTICATED DESIGN
FOR RAPID INSTALLATION

The deTec4 Core and the deTec2 Core safety light curtains are impressive with minimal commissioning and maintenance requirements. An innovative system of brackets as well as rapid alignment and diagnostics with the help of integrated status indicators.

Mounting and alignment in seconds

The mounted deTec4 Core or deTec2 Core safety light curtain can be rotated +/−15° on the machine thanks to its FlexFix bracket – greatly facilitating the alignment process. The semi-circular contours on the rear of the housing additionally enable positioning of the bracket on various parts of the housing. The safety light curtain can be mounted without blind zones regardless of where the bracket is placed on the housing.

Saves time thanks automatic calibration on the protective field width

The new "automatic calibration on the protective field width" function is impressive during initialization. The deTec4 Core or the deTec2 Core automatically measures the scanning range following the mounting and alignment processes. This means that it requires no configuration and is always optimally set up.

➔ Fasten with a single screw: the easy to align FlexFix bracket.

➔ Optimal support and easy machine integration: the rigidly designed QuickFix bracket.

DEVELOPED FOR ULTIMATE EASE

LEDs enable fast commissioning

As all basic functions of the deTec4 Core and deTec2 Core safety light curtain are available without prior configuration, the commissioning process can be carried out without the need for software. Moreover, the safety light curtain cuts down commissioning time thanks to its integrated LEDs and diagnostic functions.

Plug-and-play maintenance and exchange

Maintenance tasks can be carried out quickly on the deTec4 Core or deTec2 Core safety light curtain without the need for configuration or wiring. Its sophisticated bracket design and standardized 5-pin M12 connection technology additionally simplifies the rapid exchange of individual devices. Bright LEDs provide continuous status information for all processes.

→ Direct feedback during alignment: the optimal position of the two housings relative to each other is indicated by the four blue LEDs.

RUGGED HOUSINGS FOR HARSH PRODUCTION ENVIRONMENTS

Protecting people every day, keeping machines available and always keeping economic efficiency in mind – no problem for the solid deTec4 Core or deTec2 Core safety light curtain.

Impact-resistant housing, completely re-designed

An ingenious combination of metal and synthetic components make the safety light curtain of the deTec family extremely rugged. This means it easily withstands even hard impacts and safety is ensured at all times.

No blind zones: flexible system integration

The deTec4 Core or deTec2 Core safety light curtain can always be optimally positioned, regardless of the available installation points for brackets on the machine frame. Its complete lack of blind zones and bracket design offers a high degree of flexibility in terms of machine integration.

Reliability with IP 67 rating

High availability is guaranteed for applications in harsh environments. The safety light curtain fulfills the requirements of IP 65 as well as IP 67 in a single device.

Temperature resistant up to −30 °C

The safety light curtain is designed for operating temperatures between −30 °C and +55 °C for consistent safety in all operational conditions. This means it is suitable for refrigerated areas where it provides accident-free and cost-effective processes.

SIMPLY SAFE –
PROVEN EXPERTISE FROM SICK.

Uncomplicated integration into safety controllers

Just like all of SICK's safety devices, the deTec4 Core and the deTec2 Core safety light curtain were especially developed so that it can be integrated into all standard controllers without additional effort. This means that SICK's industry-leading expertise offers perfect integration into all safety and system environments in the area of machine safety.

## Complete solutions with safetyPLUS®

safetyPLUS® from SICK offers comprehensive solutions for industrial automation – including development and services:

- Application-oriented functions and trend-setting products that increase your system efficiency
- Incorporating the currently applicable international standards in order to support your business all over the world
- Services that range from realization of your ideas through to regular maintenance
- Tools for safety engineering
- A full range of services to support the safety functions in your machines and systems

For more information visit ➜ www.sick-safetyplus.com

EFFICIENT INTEGRATION. QUICK INSTALLATION. SIMPLY SAFE.
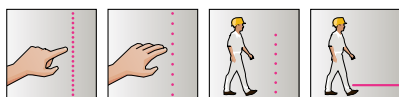
Product description

The deTec4 Core safety light curtain is impressive with a new innovative system of brackets, no blind zones, and the increased height of its protective field. The effort required for commissioning and maintenance is minimized. The half-rounded contour of the rear of the housing enables the brackets to be positioned in any location on the housing. The FlexFix bracket facilitates alignment at up to +/–15°. Integrated LED displays, diagnostic functions, and automatic calibration on the protective field width

help to save time and costs during commissioning. The deTec4 Core is also suitable for use in harsh ambient conditions thanks to the enclosure rating IP 65 and IP 67. With ambient operating temperatures of between –30 °C and +55 °C, the safety light curtain can also be used in low-temperature environments. The deTec4 Core provides reliable hand and finger protection at the highest PL e protection level. The available protective field heights range from 300 mm to 2,100 mm.

At a glance

- Type 4 (IEC 61496), SIL3 (EN 62061), PL e (EN ISO 13849)
- Absence of blind zones
- Resolution of 14 mm or 30 mm
- Protective field height of 300 mm to 2.100 mm

- Automatic calibration on the protective field width up to 10 m range
- Ambient operating temperature of –30 °C to +55 °C
- Enclosure rating IP 65 and IP 67
- Flexi Loop-compatible M12 male connector

Your benefits

- Simple assembly with innovative mounting and no blind zones
- Quick commissioning thanks to integrated LED display and automatic calibration on the protective field width up to 10 m range
- Simply safe: rugged and reliable thanks to enclosure rating IP 67 and an ambient operating temperature down to –30 °C, enabling use in harsh ambient conditions

- Intelligently standardized: M12, 5-pin provide cost reductions and enables a safe series connection with Flexi Loop
- Basic function without configuration effort enables quick replacement when servicing is required

Additional information

→ **www.mysick.com/en/deTec4_Core**

For more information, just 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

You can find more detailed data in the operating instructions. Download ➜ www.mysick.com

Safety-related parameters

Type	Type 4 (EN 61496)
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)
Category	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)
PFHd (mean probability of a dangerous failure per hour)	$3{,}7 \times 10^{-9}$ (EN ISO 13849)
T_M (mission time)	20 years (EN ISO 13849)
Safe state in the event of a fault	At least one OSSD is in the OFF state.

Performance

Resolution	14 mm	30 mm
Protective field height	300 mm … 2,100 mm (depending on type)	
Scanning range	0 m … 7 m	0 m … 10 m
Response time	11 ms … 22 ms (depending on type)	10 ms … 14 ms (depending on type)
Synchronization	Optical synchronisation	

Interfaces

Connection type	M12, 5-pin
Permitted cable length	≤ 50 m

Electrical data

	Sender	Receiver
Protection class	III (EN 50178)	
Supply voltage V_s	24 V DC (19.2 V DC … 28.8 V DC)	
Ripple	≤ 2.4 V_{pp} [1]	
Power consumption typical	0.82 W … 2.4 W (depending on type)	1.63 W … 4.8 W (depending on type)
Safety outputs (OSSD)		
Type of output	–	2 PNP semiconductors, short-circuit protected, cross-circuit monitored [2]
Switching voltage HIGH	–	24 V DC (V_s – 2.25 V DC … V_s)
Switching voltage LOW	–	≤ 2 V DC
Switching current	–	≤ 300 mA

[1] Within the limits of V_s.

[2] Applies to the voltage range between –30 V and +30 V.

Mechanical data

	Sender	Receiver
Housing cross-section (incl. system connection)	34 mm x 30.7 mm	
Weight	290 g ... 1,920 g (depending on type)	300 g ... 1,930 g (depending on type)

Ambient data

Enclosure rating	IP 65 (EN 60529) IP 67 (EN 60529)
Ambient operating temperature	–30 °C ... +55 °C
Storage temperature	–30 °C ... +70 °C
Air humidity	15 % ... 95 %, non-condensing
Vibration resistance	5 g, 10 Hz ... 55 Hz (EN 60068-2-6)
Shock resistance	10 g, 16 ms (EN 60068-2-29)

Ordering information

Items supplied deTec4 Core:

- Safety light curtain consisting of a sender and a receiver
- 4 QuickFix brackets
- Test rod with diameter corresponding to the resolution of the safety light curtain
- Operating instructions on CD-ROM
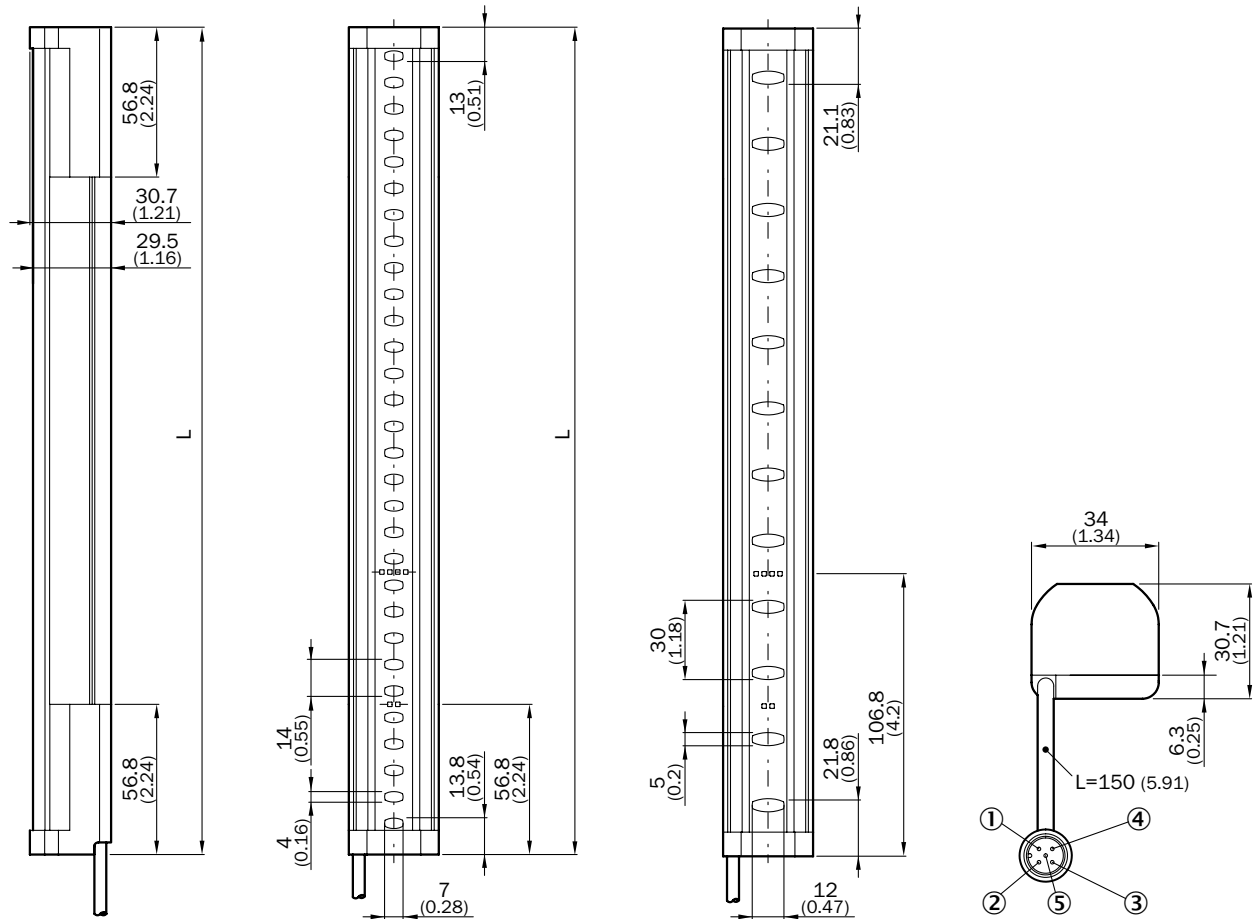- Adhesive label with information on the daily check

- **Resolution:** 14 mm
- **Scanning range:** 0 m … 7 m

Protective field height	Sender		Receiver	
	Model name	Part no.	Model name	Part no.
300 mm	C4C-SA03010A10000	1211450	C4C-EA03010A10000	1211463
450 mm	C4C-SA04510A10000	1211469	C4C-EA04510A10000	1211470
600 mm	C4C-SA06010A10000	1211471	C4C-EA06010A10000	1211472
750 mm	C4C-SA07510A10000	1211473	C4C-EA07510A10000	1211474
900 mm	C4C-SA09010A10000	1211475	C4C-EA09010A10000	1211515
1,050 mm	C4C-SA10510A10000	1211476	C4C-EA10510A10000	1211477
1,200 mm	C4C-SA12010A10000	1211478	C4C-EA12010A10000	1211479
1,350 mm	C4C-SA13510A10000	1211480	C4C-EA13510A10000	1211481
1,500 mm	C4C-SA15010A10000	1211482	C4C-EA15010A10000	1211483
1,650 mm	C4C-SA16510A10000	1211484	C4C-EA16510A10000	1211485
1,800 mm	C4C-SA18010A10000	1211486	C4C-EA18010A10000	1211487
1,950 mm	C4C-SA19510A10000	1211488	C4C-EA19510A10000	1211489
2,100 mm	C4C-SA21010A10000	1211490	C4C-EA21010A10000	1211491

- **Resolution:** 30 mm
- **Scanning range:** 0 m … 10 m

Protective field height	Sender		Receiver	
	Model name	Part no.	Model name	Part no.
300 mm	C4C-SA03030A10000	1211462	C4C-EA03030A10000	1211464
450 mm	C4C-SA04530A10000	1211492	C4C-EA04530A10000	1211493
600 mm	C4C-SA06030A10000	1211494	C4C-EA06030A10000	1211495
750 mm	C4C-SA07530A10000	1211496	C4C-EA07530A10000	1211497
900 mm	C4C-SA09030A10000	1211498	C4C-EA09030A10000	1211516
1,050 mm	C4C-SA10530A10000	1211499	C4C-EA10530A10000	1211500
1,200 mm	C4C-SA12030A10000	1211501	C4C-EA12030A10000	1211502
1,350 mm	C4C-SA13530A10000	1211503	C4C-EA13530A10000	1211504
1,500 mm	C4C-SA15030A10000	1211505	C4C-EA15030A10000	1211506
1,650 mm	C4C-SA16530A10000	1211507	C4C-EA16530A10000	1211508
1,800 mm	C4C-SA18030A10000	1211509	C4C-EA18030A10000	1211510
1,950 mm	C4C-SA19530A10000	1211511	C4C-EA19530A10000	1211512
2,100 mm	C4C-SA21030A10000	1211513	C4C-EA21030A10000	1211514

Dimensional drawing (Dimensions in mm (inch))

Protective field height	L
300 (11.81)	313 (12.32)
450 (17.72)	463 (18.23)
600 (23.62)	613 (24.13)
750 (29.53)	763 (30.04)
900 (35.43)	912.5 (35.93)
1,050 (41.34)	1,062.5 (41.83)
1,200 (47.24)	1,212.5 (47.74)
1,350 (53.15)	1,362 (53.62)
1,500 (59.06)	1,512 (59.53)
1,650 (64.96)	1,662 (65.43)
1,800 (70.87)	1,811.5 (71.32)
1,950 (76.77)	1,961.5 (77.22)
2,100 (82.68)	2,111.5 (83.13)

Connection diagrams

deTec safety light curtain connected to UE48-2OS safety relay

E114585/01/2014-05-08

The deTec4 Core safety light curtain can be connected to the UE48-2OS switching amplifiers. It is operated with restart interlock and external device monitoring.

When the protective field is clear, the OSSD1 and OSSD2 outputs carry voltage. The system can be switched on when K1 and K2 are in the de-energized position. Pressing the S1 button switches on the UE48 switching amplifier. Contacts 13-14 and 23-24 of the UE48 activate the K1 and K2 contactors. When the protective field is interrupted, the OSSD1 and OSSD2 outputs carry no voltage. The UE48 switches off and K1, K2 are deactivated.

Failure of K1 and K2 does not cause the loss of the shut-down function. Cross-circuits and shortcircuits of the OSSD1 and OSSD2 outputs are recognized and lead to the locking state. It is recognized if the K1 or K2 contactors does not de-energize.

Accessories required for commissioning

Description	Number	Items supplied	Further information
Mounting bracket	1	✔	➜ Terminal and alignment brackets
Connecting cables	2	–	➜ Plug connectors and cables
Operating instructions	1	✔	–
Test rod	1	✔	➜ Test and monitoring tools

Accessories

Mounting systems

Terminal and alignment brackets

Alignment brackets

Figure	Description	Packing unit	Type	Part no.
	FlexFix bracket	4 pieces	BEF-1SHABPKU4	2066614
	QuickFix bracket	2 pieces	BEF-3SHABPKU2	2066048
	FlexFix brackets including mounting material suitable for fastening to device columns	2 pieces	BEF-1SHABBKU2	2073543
	Exchange of C2000/C4000 swivel mount bracket by FlexFix bracket	4 pieces	BEF-1SHABP004	2071021

Device protection (mechanical)

Front screen protection

Figure	Description	Suitable for	Packing unit	Type	Part no.
	Self-adhesive protective film for the front screen (protects sensors from damage by flying sparks and welding beads)	Sufficient for two sensors with a protective field height of 2.100 mm	1 piece	Self-adhesive protective film	2069268

Connection systems

Plug connectors and cables

Connecting cables with female connector

- **Model:** TPU, halogen-free, unshielded

Figure	Connection type		Conductor cross-section	Cable length	Type	Part no.
	Female connector, M12, 5-pin, angled	Flying leads	0.34 mm²	2 m	DOL-1205-W02MC	6025909
				5 m	DOL-1205-W05MC	6025910
				10 m	DOL-1205-W10MC	6025911
	Female connector, M12, 5-pin, straight	Flying leads	0.34 mm²	2 m	DOL-1205-G02MC	6025906
				5 m	DOL-1205-G05MC	6025907
				10 m	DOL-1205-G10MC	6025908
				20 m	DOL-1205-G20MC	6050247
				30 m	DOL-1205-G30MC	6050248

Connection cables with female connector and male connector

Figure	Connection type		Model	Conductor cross-section	Cable length	Items supplied	Type	Part no.
	Female connector, M12, 5-pin, straight	Male connector, M12, 5-pin, straight	TPU, halogen-free, unshielded	0.34 mm²	2 m	–	DSL-1205-G02MC	6025931
					5 m	–	DSL-1205-G05MC	6029282
					10 m	–	DSL-1205-G10MC	6038954
					15 m	–	DSL-1205-G15MC	6038956
		Male connector, M12, 8-pin, straight	PVC	0.34 mm²	0.25 m	Packaging unit: 2 pcs.	DSL-1285GM25034KM1	2070987
		Male connector, M26, 12-pin, straight	PVC	0.34 mm²	0.25 m	Packaging unit: 2 pcs.	DSL-6182GM25034KM1	2070989
		Male connector, M26, 7-pin, straight	PVC	0.34 mm²	0.25 m	Packaging unit: 2 pcs.	DSL-6187GM25034KM1	2070988

Adapters and distributors

T-junctions

Figure	Description	Type	Part no.
	T-connector plugs directly into receiver, splits the single home run from control cabinet between sender and receiver	DSC-1205T000025KM0	6030664

Power supply units and power cord connectors

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

Reflectors/optics

Alignment aids

Figure	Description	Type	Part no.
	Laser alignment aid for various sensors, laser class 2 (IEC 60825): Never look into the beam.	AR60	1015741
	Adapter AR60 for deTec4 und deTec2	Adapter AR60, deTec	4070854

Deflector mirrors

- **Mirror material:** glass

Figure	Description	Items supplied	Suitable for protective field height	Type	Part no.
	Horizontal deflection	Incl. mounting kit swivel mount. Pay attention to the reduction of the scanning range!	150 mm ... 300 mm	PNS125-034	1019425
			150 mm ... 450 mm	PNS125-049	1019426
			150 mm ... 600 mm	PNS125-064	1019427
			150 mm ... 750 mm	PNS125-079	1019428
			150 mm ... 900 mm	PNS125-094	1019429
			150 mm ... 1,050 mm	PNS125-109	1019430
			150 mm ... 1,200 mm	PNS125-124	1019431
			150 mm ... 1,350 mm	PNS125-139	1019432
			150 mm ... 1,500 mm	PNS125-154	1019433
			150 mm ... 1,650 mm	PNS125-169	1019434
			150 mm ... 1,800 mm	PNS125-184	1019435
			150 mm ... 300 mm	PNS75-034	1019414
			150 mm ... 450 mm	PNS75-049	1019415
			150 mm ... 600 mm	PNS75-064	1019416
			150 mm ... 750 mm	PNS75-079	1019417
			150 mm ... 900 mm	PNS75-094	1019418
			150 mm ... 1,050 mm	PNS75-109	1019419
			150 mm ... 1,200 mm	PNS75-124	1019420
			150 mm ... 1,350 mm	PNS75-139	1019421
			150 mm ... 1,500 mm	PNS75-154	1019422
			150 mm ... 1,650 mm	PNS75-169	1019423
			150 mm ... 1,800 mm	PNS75-184	1019424

Optics cloths

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

Further accessories

Test and monitoring tools

Figure	Description	Type	Part no.
	14 mm diameter	Test rod 14 mm	2022599
	30 mm diameter	Test rod 30 mm	2022602
	Test rod holder	BEF-3WNAAAAL1	2052249

Cleaning agent

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

SIMPLY SAFE: EASILY OPERATED AND RUGGED IN EVERYDAY USE
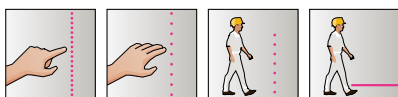
Product description

The deTec2 Core safety light curtain is impressive with a new innovative system of brackets, no blind zones, and the increased height of its protective field. The effort required for commissioning and maintenance is minimized. The half-rounded contour of the rear of the housing enables the brackets to be positioned in any location on the housing. The FlexFix bracket facilitates alignment at up to +/–15°. Integrated LED displays, diagnostic functions, and automatic distance measurements help to save time and costs during commissioning. The deTec2 Core is also suitable for use in harsh ambient conditions thanks to the enclosure rating IP 65 and IP 67. The deTec2 Core provides reliable hand and finger protection at PL c protection level. With ambient operating temperatures of between –30 °C and +55 °C, the safety light curtain can also be used in low-temperature environments. The available protective field heights range from 300 mm to 2,100 mm.

At a glance

- Type 2 (IEC 61496), SIL1 (EN 62061), PL c (EN ISO 13849)
- Absence of blind zones
- Resolution of 14 mm or 30 mm
- Protective field height of 300 mm to 2,100 mm
- Automatic calibration on the protective field width up to 10 m range
- Ambient operating temperature of –30 °C to +55 °C
- Enclosure rating IP 65 and IP 67
- Flexi Loop-compatible M12 male connector

Your benefits

- Simple assembly with innovative mounting and no blind zones
- Quick commissioning thanks to integrated LED display and automatic calibration on the protective field width up to 10 m range
- Simply safe: rugged and reliable thanks to enclosure rating IP 67 and an ambient operating temperature down to –30 °C, enabling use in harsh ambient conditions
- Intelligently standardized: M12, 5-pin provide cost reductions and enables a safe series connection with Flexi Loop
- Basic function without configuration effort enables quick replacement when servicing is required

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Additional information

➜ www.mysick.com/en/deTec2_Core

For more information, just 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

You can find more detailed data in the operating instructions. Download ➜ www.mysick.com

Safety-related parameters

Type	Type 2 (EN 61496)
Safety integrity level	SIL1 (IEC 61508) SILCL1 (EN 62061)
Category	Category 2 (EN ISO 13849)
Performance level	PL c (EN ISO 13849)
PFHd (mean probability of a dangerous failure per hour)	3.1×10^{-8} (EN ISO 13849)
T_M (mission time)	20 years (EN ISO 13849)
Safe state in the event of a fault	At least one OSSD is in the OFF state.

Performance

Resolution	**14 mm**	**30 mm**
Protective field height	300 mm … 1,200 mm (depending on type)	300 mm … 2,100 mm (depending on type)
Scanning range	0 m … 7 m	0 m … 10 m
Response time	11 ms … 16 ms (depending on type)	10 ms … 14 ms (depending on type)
Synchronization	Optical synchronisation	

Interfaces

Connection type	M12, 5-pin
Permitted cable length	≤ 50 m

Electrical data

	Sender	**Receiver**
Protection class	III (EN 50178)	
Supply voltage V_s	24 V DC (19.2 V DC … 28.8 V DC)	
Ripple	≤ 2.4 V_{pp} [1]	
Power consumption typical	0.82 W (DC) … 1.68 W (DC) (depending on type)	1.63 W (DC) … 3.36 W (DC) (depending on type)
Safety outputs (OSSD)		
Type of output	–	2 PNP semiconductors, short-circuit protected, cross-circuit monitored [2]
Switching voltage HIGH	–	24 V DC (V_S – 2.25 V DC … V_S)
Switching voltage LOW	–	≤ 2 V DC
Switching current	–	≤ 300 mA

[1] Within the limits of V_S.

[2] Applies to the voltage range between –30 V and +30 V.

Mechanical data

	Sender	Receiver
Housing cross-section (incl. system connection)	34 mm x 30.7 mm	
Weight	290 g ... 1,920 g (depending on type)	300 g ... 1,930 g (depending on type)

Ambient data

Enclosure rating	IP 65 (EN 60529) IP 67 (EN 60529)
Ambient operating temperature	–30 °C ... +55 °C
Storage temperature	–30 °C ... +70 °C
Air humidity	15 % ... 95 %, non-condensing
Vibration resistance	5 g, 10 Hz ... 55 Hz (EN 60068-2-6)
Shock resistance	10 g, 16 ms (EN 60068-2-29)

Ordering information

Items supplied deTec2 Core:

- Safety light curtain consisting of a sender and a receiver
- 4 QuickFix brackets
- Test rod with diameter corresponding to the resolution of the safety light curtain
- Operating instructions on CD-ROM
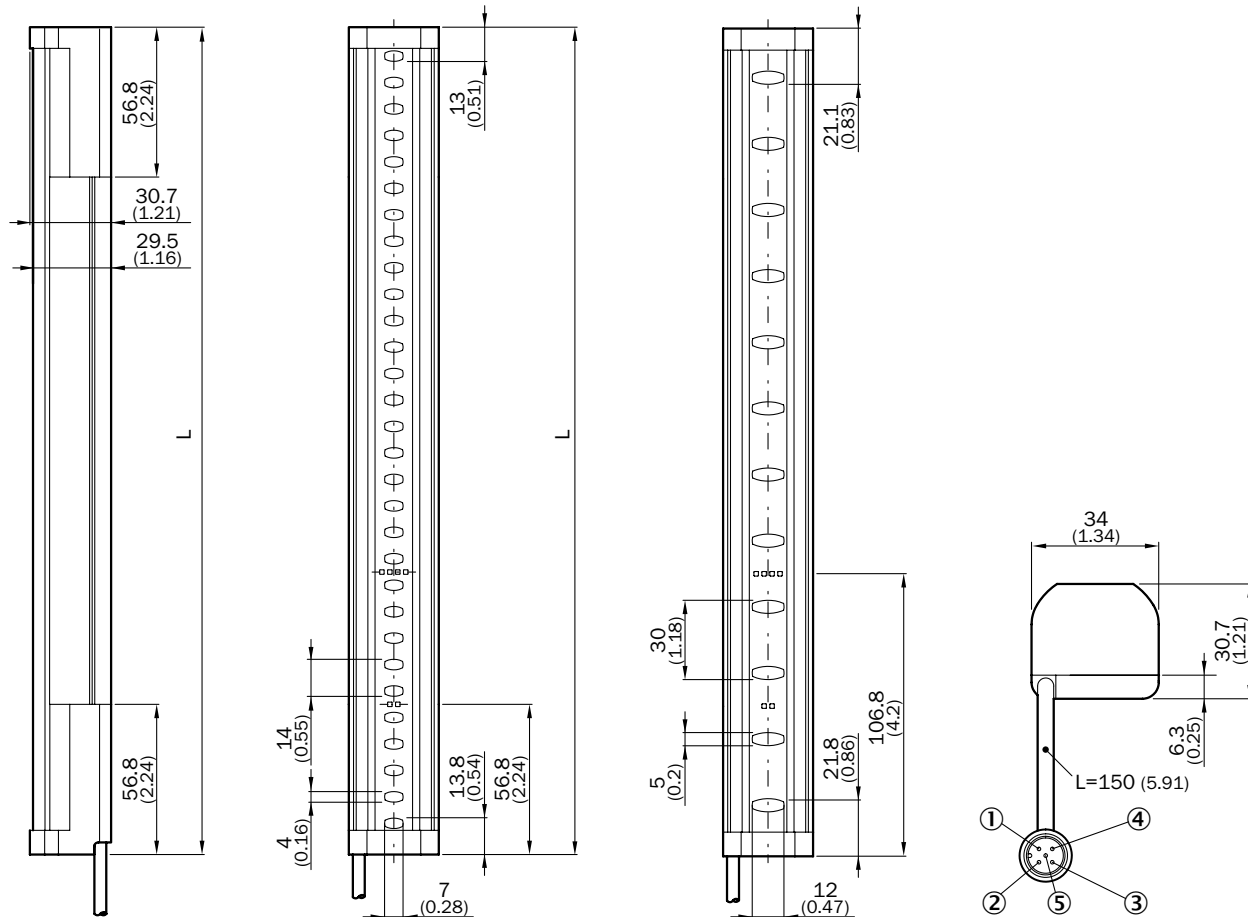- Adhesive label with information on the daily check

- **Resolution:** 14 mm
- **Scanning range:** 0 m ... 7 m

Protective field height	Sender		Receiver	
	Model name	Part no.	Model name	Part no.
300 mm	C2C-SA03010A10000	1213163	C2C-EA03010A10000	1213188
450 mm	C2C-SA04510A10000	1213189	C2C-EA04510A10000	1213190
600 mm	C2C-SA06010A10000	1213191	C2C-EA06010A10000	1213192
750 mm	C2C-SA07510A10000	1213193	C2C-EA07510A10000	1213194
900 mm	C2C-SA09010A10000	1213195	C2C-EA09010A10000	1213196
1,050 mm	C2C-SA10510A10000	1213197	C2C-EA10510A10000	1213198
1,200 mm	C2C-SA12010A10000	1213183	C2C-EA12010A10000	1213199

- **Resolution:** 30 mm
- **Scanning range:** 0 m ... 10 m

Protective field height	Sender		Receiver	
	Model name	Part no.	Model name	Part no.
300 mm	C2C-SA03030A10000	1213200	C2C-EA03030A10000	1213184
450 mm	C2C-SA04530A10000	1213202	C2C-EA04530A10000	1213203
600 mm	C2C-SA06030A10000	1213204	C2C-EA06030A10000	1213205
750 mm	C2C-SA07530A10000	1213206	C2C-EA07530A10000	1213207
900 mm	C2C-SA09030A10000	1213208	C2C-EA09030A10000	1213209
1,050 mm	C2C-SA10530A10000	1213210	C2C-EA10530A10000	1213211
1,200 mm	C2C-SA12030A10000	1213212	C2C-EA12030A10000	1213213
1,350 mm	C2C-SA13530A10000	1213214	C2C-EA13530A10000	1213215
1,500 mm	C2C-SA15030A10000	1213216	C2C-EA15030A10000	1213217
1,650 mm	C2C-SA16530A10000	1213218	C2C-EA16530A10000	1213219
1,800 mm	C2C-SA18030A10000	1213220	C2C-EA18030A10000	1213221
1,950 mm	C2C-SA19530A10000	1213222	C2C-EA19530A10000	1213223
2,100 mm	C2C-SA21030A10000	1213201	C2C-EA21030A10000	1213164

Dimensional drawing (Dimensions in mm (inch))

Protective field height	L
300 (11.81)	313 (12.32)
450 (17.72)	463 (18.23)
600 (23.62)	613 (24.13)
750 (29.53)	763 (30.04)
900 (35.43)	912.5 (35.93)
1,050 (41.34)	1,062.5 (41.83)
1,200 (47.24)	1,212.5 (47.74)
1,350 (53.15)	1,362 (53.62)
1,500 (59.06)	1,512 (59.53)
1,650 (64.96)	1,662 (65.43)
1,800 (70.87)	1,811.5 (71.32)
1,950 (76.77)	1,961.5 (77.22)
2,100 (82.68)	2,111.5 (83.13)

Connection diagrams

deTec safety light curtain connected to UE48-2OS safety relay

E114585/01/2014-05-08

The deTec2 Core safety light curtain can be connected to the UE48-2OS switching amplifiers. It is operated with restart interlock and external device monitoring.

When the protective field is clear, the OSSD1 and OSSD2 outputs carry voltage. The system can be switched on when K1 and K2 are in the de-energized position. Pressing the S1 button switches on the UE48 switching amplifier. Contacts 13-14 and 23-24 of the UE48 activate the K1 and K2 contac-

tors. When the protective field is interrupted, the OSSD1 and OSSD2 outputs carry no voltage. The UE48 switches off and K1, K2 are deactivated.

Failure of K1 and K2 does not cause the loss of the shut-down function. Cross-circuits and shortcircuits of the OSSD1 and OSSD2 outputs are recognized and lead to the locking state. It is recognized if the K1 or K2 contactors does not de-energize.

Accessories required for commissioning

Description	Number	Items supplied	Further information
Mounting bracket	1	✔	➜ Terminal and alignment brackets
Connecting cables	2	–	➜ Plug connectors and cables
Operating instructions	1	✔	–
Test rod	1	✔	➜ Test and monitoring tools

Accessories

Mounting systems

Terminal and alignment brackets

Alignment brackets

Figure	Description	Packing unit	Type	Part no.
	FlexFix bracket	4 pieces	BEF-1SHABPKU4	2066614
	QuickFix bracket	2 pieces	BEF-3SHABPKU2	2066048
	FlexFix brackets including mounting material suitable for fastening to device columns	2 pieces	BEF-1SHABBKU2	2073543
	Exchange of C2000/C4000 swivel mount bracket by FlexFix bracket	4 pieces	BEF-1SHABP004	2071021

Device protection (mechanical)

Front screen protection

Figure	Description	Suitable for	Packing unit	Type	Part no.
	Self-adhesive protective film for the front screen (protects sensors from damage by flying sparks and welding beads)	Sufficient for two sensors with a protective field height of 2.100 mm	1 piece	Self-adhesive protective film	2069268

Connection systems

Plug connectors and cables

Connecting cables with female connector

- **Model:** TPU, halogen-free, unshielded

Figure	Connection type		Conductor cross-section	Cable length	Type	Part no.
	Female connector, M12, 5-pin, angled	Flying leads	0.34 mm²	2 m	DOL-1205-W02MC	6025909
				5 m	DOL-1205-W05MC	6025910
				10 m	DOL-1205-W10MC	6025911
	Female connector, M12, 5-pin, straight	Flying leads	0.34 mm²	2 m	DOL-1205-G02MC	6025906
				5 m	DOL-1205-G05MC	6025907
				10 m	DOL-1205-G10MC	6025908
				20 m	DOL-1205-G20MC	6050247
				30 m	DOL-1205-G30MC	6050248

Connection cables with female connector and male connector

Figure	Connection type		Model	Conductor cross-section	Cable length	Items supplied	Type	Part no.
	Female connector, M12, 5-pin, straight	Male connector, M12, 5-pin, straight	TPU, halogen-free, unshielded	0.34 mm²	2 m	–	DSL-1205-G02MC	6025931
					5 m	–	DSL-1205-G05MC	6029282
					10 m	–	DSL-1205-G10MC	6038954
					15 m	–	DSL-1205-G15MC	6038956
		Male connector, M12, 8-pin, straight	PVC	0.34 mm²	0.25 m	Packaging unit: 2 pcs.	DSL-1285GM25034KM1	2070987
		Male connector, M26, 12-pin, straight	PVC	0.34 mm²	0.25 m	Packaging unit: 2 pcs.	DSL-6182GM25034KM1	2070989
		Male connector, M26, 7-pin, straight	PVC	0.34 mm²	0.25 m	Packaging unit: 2 pcs.	DSL-6187GM25034KM1	2070988

Adapters and distributors

T-junctions

Figure	Description	Type	Part no.
	T-connector plugs directly into receiver, splits the single home run from control cabinet between sender and receiver	DSC-1205T000025KM0	6030664

Power supply units and power cord connectors

Figure	Input voltage	Output voltage	Output current	Type	Part no.
	100 V AC … 240 V AC	24 V DC	≤ 2.1 A	Power supply	7028789
			≤ 3.9 A	Power supply	7028790

Reflectors/optics

Alignment aids

Figure	Description	Type	Part no.
	Laser alignment aid for various sensors, laser class 2 (IEC 60825): Never look into the beam.	AR60	1015741
	Adapter AR60 for deTec4 und deTec2	Adapter AR60, deTec	4070854

Deflector mirrors

- **Mirror material:** glass

Figure	Description	Items supplied	Suitable for protective field height	Type	Part no.
	Horizontal deflection	Incl. mounting kit swivel mount. Pay attention to the reduction of the scanning range!	150 mm … 300 mm	PNS125-034	1019425
			150 mm … 450 mm	PNS125-049	1019426
			150 mm … 600 mm	PNS125-064	1019427
			150 mm … 750 mm	PNS125-079	1019428
			150 mm … 900 mm	PNS125-094	1019429
			150 mm … 1,050 mm	PNS125-109	1019430
			150 mm … 1,200 mm	PNS125-124	1019431
			150 mm … 1,350 mm	PNS125-139	1019432
			150 mm … 1,500 mm	PNS125-154	1019433
			150 mm … 1,650 mm	PNS125-169	1019434
			150 mm … 1,800 mm	PNS125-184	1019435
			150 mm … 300 mm	PNS75-034	1019414
			150 mm … 450 mm	PNS75-049	1019415
			150 mm … 600 mm	PNS75-064	1019416
			150 mm … 750 mm	PNS75-079	1019417
			150 mm … 900 mm	PNS75-094	1019418
			150 mm … 1,050 mm	PNS75-109	1019419
			150 mm … 1,200 mm	PNS75-124	1019420
			150 mm … 1,350 mm	PNS75-139	1019421
			150 mm … 1,500 mm	PNS75-154	1019422
			150 mm … 1,650 mm	PNS75-169	1019423
			150 mm … 1,800 mm	PNS75-184	1019424

Optics cloths

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

Further accessories

Test and monitoring tools

Figure	Description	Type	Part no.
	14 mm diameter	Test rod 14 mm	2022599
	30 mm diameter	Test rod 30 mm	2022602
	Test rod holder	BEF-3WNAAAAL1	2052249

Cleaning agent

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

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