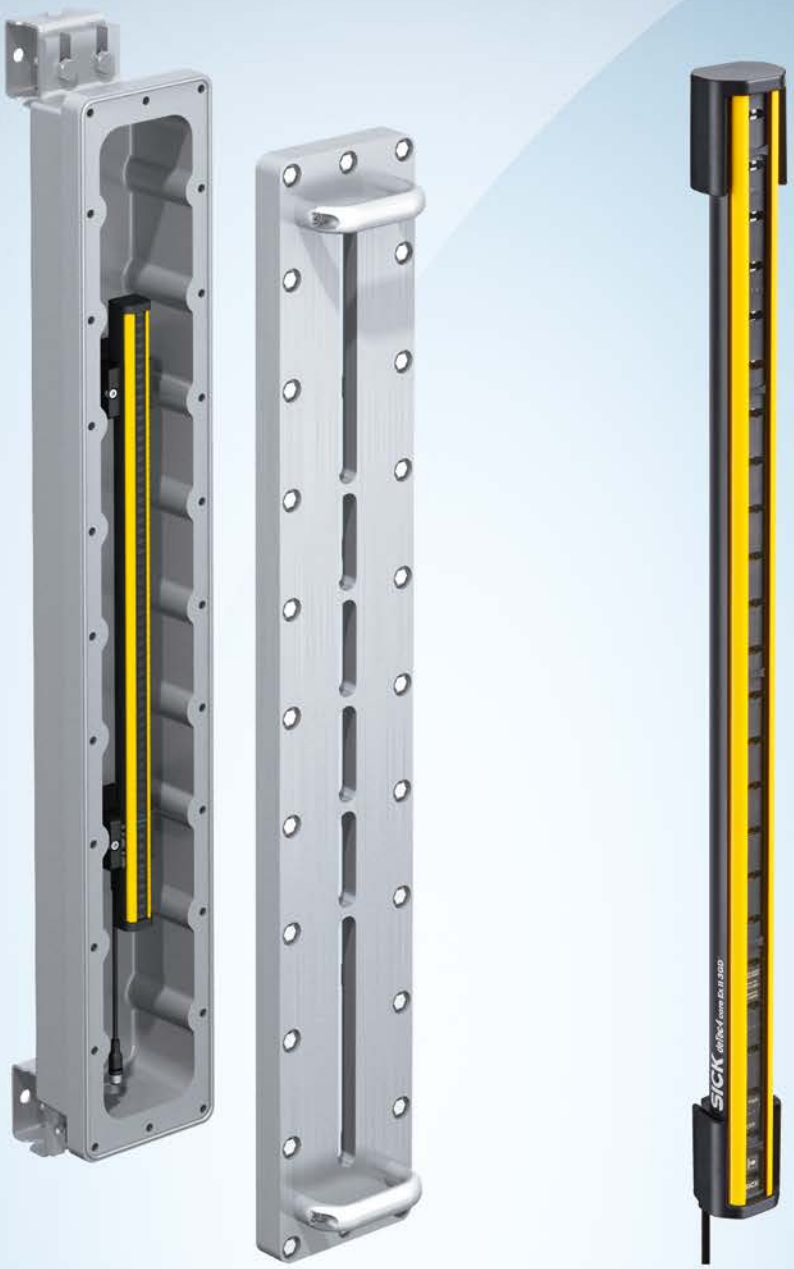
PRODUCT INFORMATION



# READY FOR EXPLOSIVE ATMOSPHERES

## EX II 2GD AND EX II 3GD

Safety light curtains, safety multibeam sensors

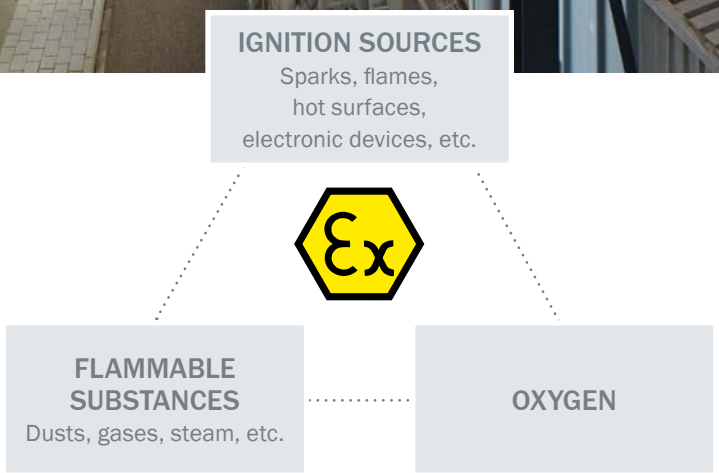
SICK
Sensor Intelligence.

# SAFE PRODUCTIVITY – EVEN IN EXPLOSION-HAZARDOUS AREAS

**In industries with explosion-hazardous areas, a single spark can be disastrous. The protective devices used in these environments must therefore be particularly rugged and reliable in order to meet the strict explosion protection requirements.**

When flammable gases, vapors and dusts are combined with oxygen in a particular mix ratio, they become explosive.

To ensure there are no ignition sources present when protecting hazardous areas, only explosion proof protective devices must be used.






8024285/2021-12-09
Subject to change without notice

## Classification of explosion hazard

| Probability of a flammable substance occurring under normal operating conditions | 1999/92/EC<br>Ex zone: Area in which explosive atmospheres could occur | 2014/34/EU<br>Device category (ATEX) and device protection level EPL (IEC Ex) |
|---|---|---|
| **Exists all of the time, for long periods or often** | Zone 0 (gases)<br>Zone 20 (dusts) | **1 G/D** (gases/dusts)<br>Highest level of protection with a very high degree of safety |
| **Exists occasionally** | Zone 1 (gases)<br>Zone 21 (dusts) | **2 G/D** (gases/dusts)<br>Increased level of protection with a high degree of safety |
| **Unlikely to exist or occurs only infrequently or temporarily** | Zone 2 (gases)<br>Zone 22 (dusts) | **3 G/D** (gases/dusts)<br>Normal level of protection with the required degree of safety |
| **Responsible** | Operating entity | Sensor manufacturer<br>For the structure of the Ex variants from SICK,<br>see page 4 |

## Certification according to international safety standards

# SAFETY, EVEN IN EXTREME CONDITIONS

As a global leader in the supply of opto-electronic protective devices, SICK has been effectively protecting humans and work environments for more than 65 years. Due to its versatile application possibilities, the deTec safety light curtain in particular is making a considerable contribution to ensuring safe productivity in nearly all industries and areas of application.

Photo: Dürr AG, Stuttgart

The deTec safety light curtains are ideal for the protection of hazardous areas, entrances, and hazardous points. Shorter downtimes and therefore higher productivity can be achieved thanks to the extensive and innovative diagnostic options. The standardized connectivity and the compatible accessories for the entire deTec product family considerably reduce configuration effort and enable quick commissioning. The required functions can be activated without software using the appropriate system plug with M12 connection.

Depending on the application, different Ex zones can be operated with the explosion-proof variants from the deTec product family.

## Limiting explosions

### 3GD

Featuring a rugged and reliable housing design, the 3GD variants are specially designed and approved for use under the strict safety requirements found in hazardous locations. All devices can be cascaded, enable space-saving machine design and offer very high flexibility as there are no blind zones. A standardized connection and accessory concept saves time and money during commissioning.

Ex II 3GD

- For gases (G) and dust (D)
- Device category (ATEX) 3
- Equipment group II
- Explosion-proof

### 2GD

The SICK devices in their explosion-proof enclosures are approved in accordance with ATEX, IECEx and NEC. Pre-wired and fully mounted in the housing, the complete system is also UL-certified and represents a truly outstanding product that is unique on the market up to now.

Ex II 2GD

- For gases (G) and dust (D)
- Device category (ATEX) 2
- Equipment group II
- Explosion-proof

8024285/2021-12-09
Subject to change without notice

# THESE ADVANTAGES IGNITE

## Guaranteeing safety

- Maximum reliability and a very high level of safety for your employees thanks to certification according to international safety standards and compliance with the ATEX guidelines for use in explosion-hazardous areas
- Maximum safety for access protection of automated material transport due to reliable human-material differentiation without the need for an additional muting sensor
For the C4000 Fusion Ex, see page 80

## Aim for high productivity

- Less downtime and increased machine availability due to exceptional ruggedness and reliability of all product components as well as extensive and innovative diagnostic options
- High availability due to fixed blanking: Detection of skids, suppression of obstructions such as cables
For the C4000 Fusion Ex, see page 80
- Efficient access protection due to high scanning ranges with low component requirements
For the deTem4 Core Ex, see page 86

## Save time and money

- Easy mounting, installation and commissioning in systems thanks to the alignment aids, plus standardized connectivity and accessories
- Save installation time and certification costs thanks to the unique, UL-certified and pre-configured complete solution, equipped with cable and pre-assembled in explosion-proof enclosure (2GD variants)

## Future-proof investment

- Various automation options enable the provision of information via IO-Link and subsequent use of data for downstream processes
- Technology leader due to smart and innovative on-site diagnostic options via NFC and “SICK Safety Assistant” mobile app
For the deTec4 Ex II 3GD, see page 10

INDUSTRY 4.0 READY®

IO-Link

NFC

Download on the App Store

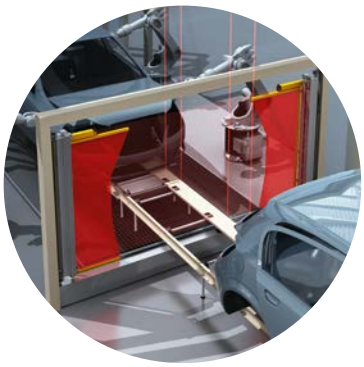
GET IT ON Google Play

# THE ULTIMATE LEVEL OF EXPLOSION PROTECTION

Whether highly explosive steam is created when painting car bodies or due to flour dust in the air of bottling systems, there is a risk of explosion in many industrial production areas. The rugged and reliable housing design of the Ex versions of the safety light curtains and safety multibeam sensors from SICK prevent sparks from reaching explosive atmospheres. The risk of a potential ignition source is therefore averted.

## AUTOMOTIVE AND PARTS SUPPLIERS

**E.g. In paint shops**



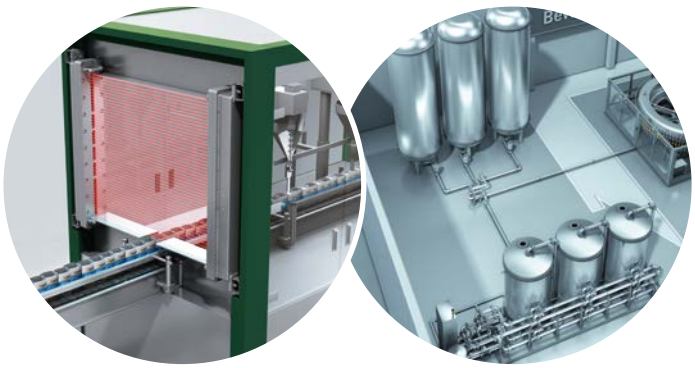
## POWER

**E.g. in coal, gas, or fuel plants**

8024285/2021-12-09
Subject to change without notice

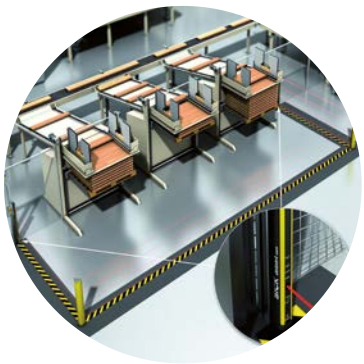
## FOOD AND BEVERAGE

**E.g. in flour filling facilities and distilleries**



## WOOD

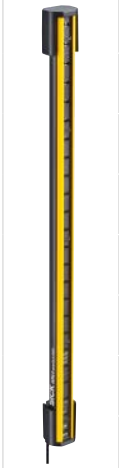
**E.g. in wood processing machines**



## WASTE AND RECYCLING

**E.g. in combustion and sewage treatment plants**

## Selection guide

| Product | Device type | | Safety-related parameters | | Resolution | | | | Number of beams, beam separation | | | Ambient operating temperature | | Enclosure rating | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Safety light curtain | Safety multibeam sensor | Type (IEC 61496) | Performance level (ISO 13849) | 14 mm | 20 mm | 30 mm | 40 mm | 2 beams, 500 mm beam separation | 3 beams, 400 mm beam separation | 4 beams, 300 mm beam separation | 0 °C ... +55 °C | –20 °C ... +55 °C | IP 65 | IP 66 | IP 67 |
| **ATEX II 3G/3D** | | | | | | | | | | | | | | | | |
|  deTec4 Ex II 3GD | ■ | | 4 | e | ■ | | ■ | | | | | ■ | | ■ | | |
| deTec4 Core Ex II 3GD | ■ | | 4 | e | ■ | | ■ | | | | | ■ | | ■ | | ■ |
| deTec2 Core Ex II 3GD | ■ | | 2 | c | ■ | | ■ | | | | | ■ | | ■ | | ■ |
| C4000 Advanced ATEX II 3G/3D | ■ | | 4 | e | ■ | | ■ | ■ | | | | ■ | | ■ | | |
| C4000 Fusion ATEX II 3G/3D | ■ | | 4 | e | | ■ | | | | | | ■ | | ■ | | |
| C4000 Entry/Exit ATEX II 3G/3D | ■ | | 4 | e | | ■ | | | | | | ■ | | ■ | | |
| deTem4 Core Ex II 3GD | | ■ | 4 | e | | | | | ■ | ■ | ■ | ■ | | ■ | | ■ |
| deTem2 Core Ex II 3GD | | ■ | 2 | c | | | | | ■ | ■ | ■ | ■ | | ■ | | ■ |
| **ATEX II 2G/2D, NFPA 70/NEC 500, classes I, II, III, div. 1** | | | | | | | | | | | | | | | | |
| deTec4 Ex | ■ | | 4 | e | | | ■ | | | | | | ■ | ■ | ■ | |
| deTec4 Core Ex | ■ | | 4 | e | | | ■ | | | | | | ■ | ■ | ■ | |
| C4000 Advanced Ex | ■ | | 4 | e | | | ■ | | | | | ■ | | ■ | ■ | |
| C4000 Fusion Ex | ■ | | 4 | e | | | ■ | | | | | ■ | | ■ | ■ | |
| deTem4 Core Ex | | ■ | 4 | e | | | | | ■ | ■ | ■ | | ■ | ■ | ■ | |

[1] Combined with a UE402 switching amplifier
[2] Devices with resolution 14 mm


8024285/2021-12-09
Subject to change without notice

| | Functions | | | | | | | | | | | | | | | | | | | | | Diagnostics | | | Scanning range up to (m) | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Protective operation | Restart interlock | External device monitoring (EDM) | Beam coding | Automated calibration of the protective field width | Configurable scanning range | Dynamic protective field width during operation | Bypass[1] | Operating mode switchover[1] | PSDI mode[1] | Reduced resolution | Fixed blanking | Floating blanking | Dynamic blanking for object pattern recognition | Self-teach dynamic Blanking for goods detection | Self-teach dynamic Blanking for pallet detection | Cascading | Smart presence detection | 2-signal muting | Smart Box Detection[2] | Safe SICK device communication via EFI/SDL | Application diagnostic output (ADO) | IO-Link | Near Field Communication (NFC) | | |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | ■ | | | | | | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | 30 | → 10 |
| | ■ | | | | ■ | | | | | | | | | | | | | | | | | | | | 15 | → 22 |
| | ■ | | | | ■ | | | | | | | | | | | | | | | | | | | | 15 | → On request |
| | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | ■ | ■ | | | 21 | → 28 |
| | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | | | 21 | → 36 |
| | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | | | | ■ | | | | | | | ■ | ■ | | | 21 | → 46 |
| | ■ | | | | | | | | | | | | | | | | | | | | | | | | 90 | → 54 |
| | ■ | | | | | | | | | | | | | | | | | | | | | | | | 90 | → 60 |
| | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | ■ | | | 25.2 | → 66 |
| | ■ | | | | ■ | | | | | | | | | | | | | | | | | | | | 10 | → 70 |
| | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | ■ | ■ | | | 16 | → 74 |
| | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | ■ | ■ | | | 17.6 | → 80 |
| | ■ | | | | | | | | | | | | | | | | | | | | | | | | 14.2 | → 86 |

# READY FOR EXPLOSIVE ATMOSPHERES

## Product description

Featuring a rugged and reliable housing design, the deTec4 Ex II 3GD safety light curtain is specially designed and approved for use under the strict safety requirements found in hazardous locations. The added safety and productivity it offers in explosive atmospheres make it a popular choice time and again.

## At a glance

- Ex II 3GD classification thanks to modified deTec4 housing
- NFC diagnostics and mobile app
- Diagnostics and automation via IOLink
- 2-signal muting
- Reduced resolution: 1 or 2 beams
- Dynamic protective field width
- Configuration of all functions without software

## Your benefits

- Maximum safety and automation in explosive atmospheres thanks to compliance with stringent regulations and strict safety requirements
- Less downtime thanks to comprehensive, innovative diagnostic options
- Differentiation between personnel and materials (muting) to maximize productivity
- Flexibility and safety for dynamic applications
- Easy commissioning and configuration without the need for software, plus a standardized housing design and accessories concept to save time and money

## Additional information

Detailed technical data . . . . . 11
Ordering information . . . . . 13
Dimensional drawing . . . . . 15
Recommended accessories . . . . . 16

→ www.sick.com/deTec

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | Resolution 14 mm | Resolution 30 mm |
|---|---|---|
| **Application** | Explosive areas | |
| **Ex-approvals** | ATEX for gas: II 3G Ex ec op is IIC T4 Gc<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc | |
| **Protective field height** | 300 mm ... 2,100 mm (depending on type) | |
| **Scanning range** | 20 m | 30 m |
| **No blind zones** | Yes | |
| **Synchronization** | Optical synchronisation | |
| **Integrated laser alignment aid** | ✔ | |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| **Category** | Category 4 (ISO 13849-1) |
| **Performance level** | PL e (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | |
| Single device | $15.3 \times 10^{-9}$ |
| Cascade with one guest | $30.5 \times 10^{-9}$ |
| Cascade with two guest devices | $45.6 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | System plug SP1 | System plug SP1 |
|---|---|---|
| **Protective operation** | ✔ | |
| **Automatic calibration of the protective field width** | ✔ | |
| **Beam coding** | ✔ | |
| **Restart interlock** | ✔ | |
| **External device monitoring (EDM)** | ✔ | |
| **Cascading** | ✔ | |
| **Smart presence detection** | – | ✔ |
| **Reduced resolution** | – | ✔ |
| **Dynamic protective field width during operation** | – | ✔ |
| **Sender with reduced scanning range** | – | ✔ |
| **Differentiation between man and material (muting)** | – | ✔ |
| 2-signal muting | – | ✔ |
| Smart Box Detection | – | ✔ [1] |

[1] Only devices with resolution 14 mm. For details, see the operating instructions.

### Interfaces

| | |
|---|---|
| **Connection type** | System plug |
| **System connection** | Depending on system plug (male connector M12, 5-pin or 8-pin) [1] |

[1] System plugs have to be ordered separately.

[2] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

| | |
|---|---|
| **Extension connection** | Depending on system plug (without extension connection or with female connector M12, 5-pin) [1] |
| **Configuration method** | DIP switch on system plug |
| **Display elements** | LEDs |
| **Display of the synchronization status of the upper and lower beams** | ✔ |
| **Application diagnostic output (ADO)** | ✔ (depending on system plug) [1] |
| **IO-Link** | ✔ (depending on system plug) [1] |
| **Near Field Communication (NFC)** | ✔ |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [2] |

[1] System plugs have to be ordered separately.

[2] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) |
| **Ripple** | ≤ 10 % |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [1] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [1] |
| Output voltage HIGH (active) | ≥ $V_s$ – 3 V |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

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

## Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529), IP67 (IEC 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 850 nm |
| **Type of light** | Near-infrared (NIR), invisible |
| **Integrated laser alignment aid** | ✔ |
| Laser class | 1 |
| Wave length | 650 nm |
| Type of light | Visible red light |

## Ordering information

### deTec4 Ex II 3GD

A deTec4 Ex II 3GD safety light curtain consists of:

- Sender
- Receiver
- System plug sender (always SP1)
- System plug receiver (SP1 or SP2) ➜ The receiver system plug defines the available functions.

**Selection aid deTec4 Ex II 3GD system plugs**

System plugs for **stand-alone**:

- Sender: SP1
- Receiver: SP1 or SP2 (defines the available functions)

Options:

- System connection 5-pin or 8-pin (e.g. for RES, EDM, ADO, Muting)
- Receiver without or with extension connection (e.g. for RES, EDM, ADO, IO-Link, muting)

System plugs for **host/guest cascade**:

- Host sender: SP1 with extension connection
- Host receiver: SP1 or SP2 (defines the available functions) with extension connection
- Guest sender: SP1 with system connection M12, 5-pin
- Guest receiver: SP1 with system connection M12, 5-pin

Options:

- Host system connection 5-pin or 8-pin (e.g. for RES, EDM, ADO)
- Guest receiver without or with extension connection (e.g. for RES, EDM, ADO, IO-Link)

System plugs for **host/guest/guest cascade**:

- Host sender: SP1 with extension connection
- Host receiver: SP1 or SP2 (defines the available functions) with extension connection
- Guest1 sender: SP1 with system connection M12, 5-pin with extension connection
- Guest1 receiver: SP1 with system connection M12, 5-pin with extension connection
- Guest2 sender: SP1 with system connection M12, 5-pin
- Guest2 receiver: SP1 with system connection M12, 5-pin

Options:

- Host system connection 5-pin or 8-pin (e.g. for RES, EDM, ADO)
- Guest2 receiver without or with extension connection (e.g. for RES, EDM, ADO, IO-Link)

**deTec4 Ex II 3GD: system plugs**

| Functions | Usage | System connection | Extension connection | Type | Part no. |
|---|---|---|---|---|---|
| SP1 | Sender and receiver | Male connector M12, 5-pin | – | 1000 | 2076832 |
| | | | Female connector M12, 5-pin (RES, EDM, ADO, IO-Link, cascading) | 1100 | 2076833 |
| | | Male connector M12, 8-pin (RES, EDM, ADO) | – | 1200 | 2076834 |
| | | | Female connector M12, 5-pin (RES, EDM, ADO, IO-Link, cascading) | 1300 | 2076835 |
| SP2 | Receiver | Male connector M12, 5-pin | – | 2000 | 2093097 |
| | | | Female connector M12, 5-pin (RES, EDM, ADO, IO-Link, cascading, smart presence detection, muting) | 2100 | 2093098 |
| | | Male connector M12, 8-pin (RES, EDM, ADO, muting) | – | 2200 | 2093099 |
| | | | Female connector M12, 5-pin (RES, EDM, ADO, IO-Link, cascading, smart presence detection, muting) | 2300 | 2093100 |

**deTec4 Ex II 3GD: Sender with regular scanning range, receiver without LED indicator lamp**

- Scope of delivery of sender and receiver without system plug. The system plugs must be ordered separately.
- For products with “On request” please contact your SICK representative.

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 14 mm | 20 m | 300 mm | C4P-SX03011A00 | 1222438 | C4P-EX03011C00 | 1222449 |
| | | 450 mm | C4P-SX04511A00 | 1121851 | C4P-EX04511C00 | 1223312 |
| | | 600 mm | C4P-SX06011A00 | 1222439 | C4P-EX06011C00 | 1222450 |
| | | 750 mm | C4P-SX07511A00 | On request | C4P-EX07511C00 | On request |
| | | 900 mm | C4P-SX09011A00 | On request | C4P-EX09011C00 | On request |
| | | 1,050 mm | C4P-SX10511A00 | 1109101 | C4P-EX10511C00 | 1109102 |
| | | 1,200 mm | C4P-SX12011A00 | On request | C4P-EX12011C00 | On request |
| | | 1,350 mm | C4P-SX13511A00 | On request | C4P-EX13511C00 | 1108872 |
| | | 1,500 mm | C4P-SX15011A00 | 1106518 | C4P-EX15011C00 | 1106519 |
| | | 1,650 mm | C4P-SX16511A00 | On request | C4P-EX16511C00 | On request |
| | | 1,800 mm | C4P-SX18011A00 | 1222440 | C4P-EX18011C00 | 1222451 |
| | | 1,950 mm | C4P-SX19511A00 | 1110108 | C4P-EX19511C00 | 1110109 |
| | | 2,100 mm | C4P-SX21011A00 | 1121852 | C4P-EX21011C00 | 1121853 |
| 30 mm | 30 m | 300 mm | C4P-SX03031A00 | 1222436 | C4P-EX03031C00 | 1222447 |
| | | 450 mm | C4P-SX04531A00 | On request | C4P-EX04531C00 | On request |
| | | 600 mm | C4P-SX06031A00 | 1121034 | C4P-EX06031C00 | 1121035 |
| | | 750 mm | C4P-SX07531A00 | 1108902 | C4P-EX07531C00 | 1108903 |
| | | 900 mm | C4P-SX09031A00 | 1109390 | C4P-EX09031C00 | 1109391 |
| | | 1,050 mm | C4P-SX10531A00 | 1108603 | C4P-EX10531C00 | 1108605 |
| | | 1,200 mm | C4P-SX12031A00 | 1106057 | C4P-EX12031C00 | 1106058 |
| | | 1,350 mm | C4P-SX13531A00 | 1106648 | C4P-EX13531C00 | 1106649 |
| | | 1,500 mm | C4P-SX15031A00 | 1222437 | C4P-EX15031C00 | 1222448 |
| | | 1,650 mm | C4P-SX16531A00 | 1121676 | C4P-EX16531C00 | 1121677 |
| | | 1,800 mm | C4P-SX18031A00 | 1107868 | C4P-EX18031C00 | 1107869 |
| | | 1,950 mm | C4P-SX19531A00 | On request | C4P-EX19531C00 | On request |
| | | 2,100 mm | C4P-SX21031A00 | On request | C4P-EX21031C00 | On request |

**deTec4 Ex II 3GD: Sender with reduced scanning range, receiver without LED indicator lamp**

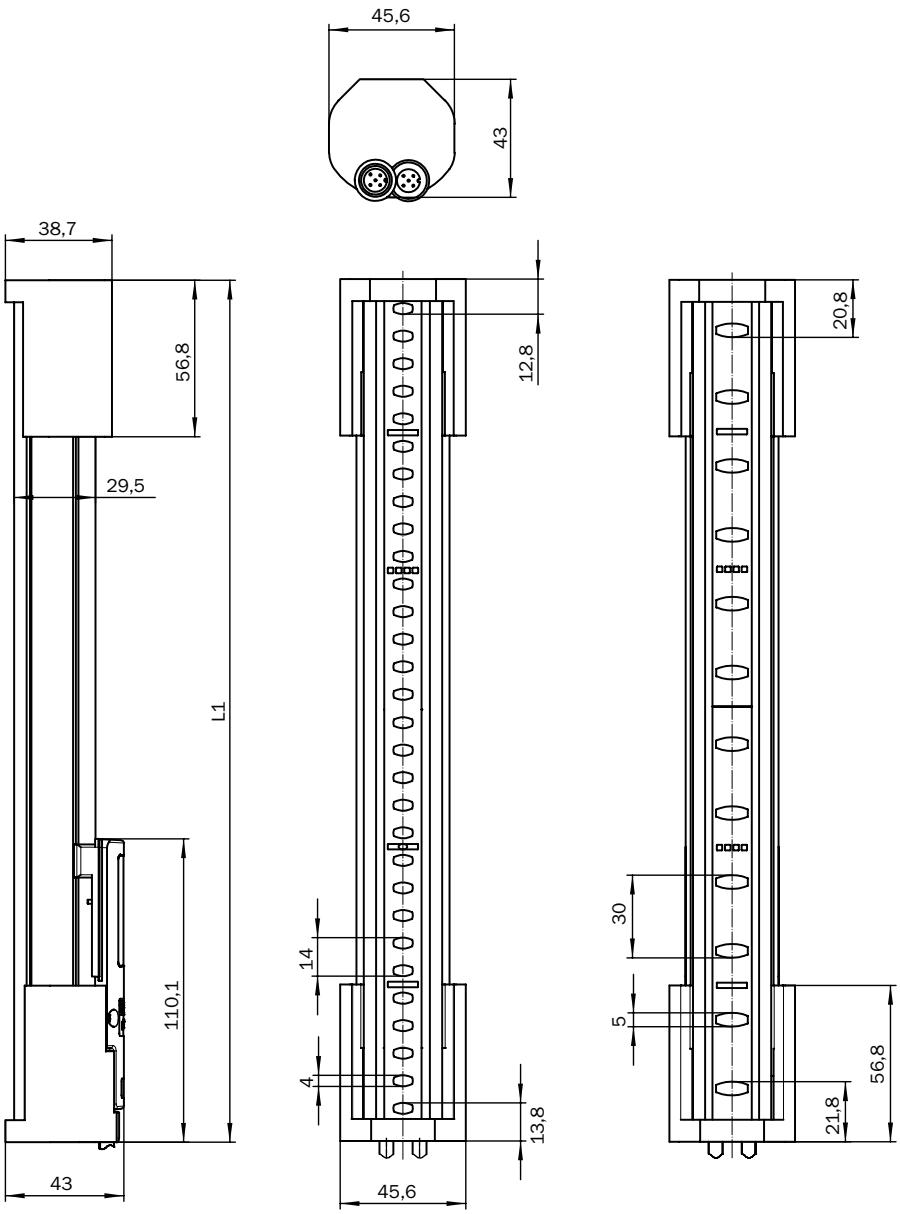
- Scope of delivery of sender and receiver without system plug. The system plugs must be ordered separately.
- For products with “On request” please contact your SICK representative.
- **Sender with reduced scanning range: ✔**

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 14 mm | 2.5 m | 300 mm | C4P-SX03011C00 | On request | C4P-EX03011C00 | 1222449 |
| | | 450 mm | C4P-SX04511C00 | 1223311 | C4P-EX04511C00 | 1223312 |
| | | 600 mm | C4P-SX06011C00 | 1107679 | C4P-EX06011C00 | 1222450 |
| | | 750 mm | C4P-SX07511C00 | On request | C4P-EX07511C00 | On request |
| | | 900 mm | C4P-SX09011C00 | On request | C4P-EX09011C00 | On request |
| | | 1,050 mm | C4P-SX10511C00 | On request | C4P-EX10511C00 | 1109102 |
| | | 1,200 mm | C4P-SX12011C00 | On request | C4P-EX12011C00 | On request |
| | | 1,350 mm | C4P-SX13511C00 | 1108871 | C4P-EX13511C00 | 1108872 |
| | | 1,500 mm | C4P-SX15011C00 | On request | C4P-EX15011C00 | 1106519 |
| | | 1,650 mm | C4P-SX16511C00 | On request | C4P-EX16511C00 | On request |
| | | 1,800 mm | C4P-SX18011C00 | On request | C4P-EX18011C00 | 1222451 |
| | | 1,950 mm | C4P-SX19511C00 | On request | C4P-EX19511C00 | 1110109 |
| | | 2,100 mm | C4P-SX21011C00 | On request | C4P-EX21011C00 | 1121853 |



8024285/2021-12-09
Subject to change without notice

## Dimensional drawing (Dimensions in mm)




| Protective field height | L1 |
|---|---|
| 300 | 313 |
| 450 | 463 |
| 600 | 613 |
| 750 | 763 |
| 900 | 913 |
| 1.050 | 1.063 |
| 1.200 | 1.213 |
| 1.350 | 1362 |
| 1.500 | 1.512 |
| 1.650 | 1.662 |
| 1.800 | 1.812 |
| 1.950 | 1.962 |
| 2.100 | 2.112 |

## Recommended accessories

### Mounting systems

#### Terminal and alignment brackets

| Figure | Description | Packing unit | Suitable for | Type | Part no. |
|---|---|---|---|---|---|
| | QuickFix bracket | 2 pieces | 1 device (sender or receiver) | BEF-3SHABPKU2 | 2066048 |
| | | 4 pieces | 2 devices (sender and receiver) | BEF-3SHABPKU4 | 2098710 |
| | FlexFix bracket<br>Sensor alignment ± 15°<br>Including screw M5 | 2 pieces | 1 device (sender or receiver) | BEF-1SHABPKU2 | 2098709 |
| | | 4 pieces | 2 devices (sender and receiver) | BEF-1SHABPKU4 | 2066614 |
| | Mounting kit FlexFix<br>(FlexFix brackets, alignment tool and mounting material suitable for fastening to device columns PU3H) | 2 pieces | 1 device (sender or receiver) | BEF-1SHABBKU2 | 2073543 |
| | FlexFix replacement kit<br>(Mounting kit for replacement of swivel mount brackets 2019649 and 2019659 or side bracket 2019506 with the FlexFix bracket when using the wells provided) | 4 pieces | 2 devices (sender and receiver) | BEF-1SHABS004 | 2100345 |
| | FlexFix replacement kit<br>(Mounting kit for replacement of swivel mount brackets 2030510 or side bracket 2019506 with the FlexFix bracket when using the wells provided) | 4 pieces | 2 devices (sender and receiver) | BEF-1SHABU004 | 2099282 |

Dimensional drawings ➜ page 30

#### Mounting tools

| Figure | Description | Packing unit | Suitable for | Type | Part no. |
|---|---|---|---|---|---|
| | Alignment tool for sensor alignment in areas with limited accessibility, e.g. device columns PU3H | 1 piece | FlexFix bracket, Compact FlexFix bracket | Alignment tool | 4084133 |

#### Front screen protection

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

#### Protective caps

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | For a deTec4 sender with extension connection that does not have an additional guest connected to it, the extension connection has no function and must be sealed with a protective cap. | Protective cap, M12 for female connector | 5310772 |

## Connection systems

### Plug connectors and cables

#### Connecting cables

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

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Female connector M12, 5-pin, straight | Flying leads | 0.34 mm² | 2 m | YF2A15-020UB5XLEAX | 2095617 |
| | | | | 5 m | YF2A15-050UB5XLEAX | 2095618 |
| | | | | 10 m | YF2A15-100UB5XLEAX | 2095619 |
| | | | | 15 m | YF2A15-150UB5XLEAX | 2095620 |
| | | | | 20 m | YF2A15-200UB5XLEAX | 2095614 |
| | | | | 30 m | YF2A15-300UB5XLEAX | 2095621 |
| | Female connector M12, 5-pin, angled | Flying leads | 0.34 mm² | 2 m | YG2A15-020UB5XLEAX | 2095772 |
| | | | | 5 m | YG2A15-050UB5XLEAX | 2095773 |
| | | | | 10 m | YG2A15-100UB5XLEAX | 2095774 |
| | Female connector M12, 8-pin, straight | Flying leads | 0.25 mm² | 2 m | YF2A18-020UA5XLEAX | 2095652 |
| | | | | 5 m | YF2A18-050UA5XLEAX | 2095653 |
| | | | | 7.5 m | YF2A18-075UA5XLEAX | 2099230 |
| | | | | 10 m | YF2A18-100UA5XLEAX | 2095654 |
| | | | | 15 m | YF2A18-150UA5XLEAX | 2095679 |
| | | | | 20 m | YF2A18-200UA5XLEAX | 2095680 |
| | | | | 30 m | YF2A18-300UA5XLEAX | 2095681 |
| | Female connector M12, 8-pin, angled | Flying leads | 0.25 mm² | 2 m | YG2A18-020UA5XLEAX | 2095779 |
| | | | | 5 m | YG2A18-050UA5XLEAX | 2095780 |
| | | | | 10 m | YG2A18-100UA5XLEAX | 2095781 |

#### Connection cables

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

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Female connector M12, 5-pin, straight | Male connector, M12, 5-pin, straight | 0.34 mm² | 0.6 m | YF2A15-C60UB5M2A15 | 2096006 |
| | | | | 1 m | YF2A15-010UB5M2A15 | 2096007 |
| | | | | 2 m | YF2A15-020UB5M2A15 | 2096009 |
| | | | | 5 m | YF2A15-050UB5M2A15 | 2096010 |
| | | | | 10 m | YF2A15-100UB5M2A15 | 2096011 |
| | | | | 15 m | YF2A15-150UB5M2A15 | 2096171 |
| | Female connector M12, 8-pin, straight | Male connector, M12, 8-pin, straight | 0.25 mm² | 0.6 m | YF2A18-C60UA5M2A18 | 2096031 |
| | | | | 1 m | YF2A18-010UA5M2A18 | 2096032 |
| | | | | 2 m | YF2A18-020UA5M2A18 | 2096033 |
| | | | | 5 m | YF2A18-050UA5M2A18 | 2096034 |
| | | | | 10 m | YF2A18-100UA5M2A18 | 2096035 |

Replacement cables (replacement of C4000 with deTec)

- **Length of cable:** 0,25 m
- **Items supplied:** 2 cables

| Figure | Connection type | | Model | Type | Part no. |
|---|---|---|---|---|---|
| | deTec system connection | Replacement C4000 | | | |
| | Female connector, M12, 5-pin, straight | Male connector, M12, 8-pin, straight | PVC, unshielded | DSL-1285GM25034KM1 | 2070987 |
| | | Male connector, M26, 12-pin, straight | PVC, unshielded | DSL-6182GM25034KM1 | 2070989 |
| | | Male connector, M26, 7-pin, straight | PVC, unshielded | DSL-6187GM25034KM1 | 2070988 |
| | Female connector, M12, 8-pin, straight | Male connector, M12, 8-pin, straight | PUR, halogen-free, unshielded | DSL-6108GM25034KM1 | 2034865 |
| | | Male connector, M26, 12-pin, straight (RES) | PUR, halogen-free, unshielded | DSL-6129GM25034KM1 | 2081442 |
| | | Male connector, M26, 12-pin, straight (ADO) | PUR, halogen-free, unshielded | DSL-6129GM25034KM7 | 2112706 |
| | | Male connector, M26, 7-pin, straight | PUR, halogen-free, unshielded | DSL-6130GM25034KM1 | 2081443 |

Replacement cables (replacement of C2000 with deTec)

- **Length of cable:** 0,25 m
- **Items supplied:** 1 cable

| Figure | Connection type | | Model | Type | Part no. |
|---|---|---|---|---|---|
| | deTec system connection | Replacement C2000 | | | |
| | Female connector, M12, 8-pin, straight | Male connector, M12, 8-pin, straight (sender) | PUR, unshielded | DSL-1M08G0M2D25KM4 | 2120145 |
| | | Male connector, M12, 8-pin, straight (receiver) | | DSL-1M08GM25D25KM4 | 2120144 |

## Modules and gateways

Connection modules

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24 V / 1 A | IOLA2US-01101 (SiLink2 Master) | 1061790 |

T-connectors and pushbuttons

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | T-connector M12, 5-pin<br>For simultaneous connection to sender and receiver. Splits the cable from the control cabinet to the sender and receiver. | DSC-1205T000025KM0 | 6030664 |
| | T-connector M12, 8-pin<br>For simultaneous connection to sender and receiver. Splits the cable from the control cabinet to the sender and receiver. | DSC-1208T000025KM0 | 6058647 |
| | T-connector with pushbutton for laser alignment aid, M12, 5-pin<br>For simultaneous connection to sender and receiver. Splits the cable from the control cabinet to the sender and receiver.<br>The pushbutton makes it possible to switch on and off the laser alignment aid integrated into the deTec4 Prime sender. | T-connector with pushbutton for laser alignment aid, M12, 5-pin | 2077933 |
| | Pushbutton for laser alignment aid, M12, 5-pin<br>The pushbutton makes it possible to switch on and off the laser alignment aid integrated into the deTec4 Prime sender. | Pushbutton for laser alignment aid, M12, 5-pin | 2082166 |
| | Pushbutton for laser alignment aid, M12, 8-pin<br>The pushbutton makes it possible to switch on and off the laser alignment aid integrated into the deTec4 Prime sender. | Pushbutton for laser alignment aid, M12, 8-pin | 2082167 |

Connectors

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | The IO-Link connector is used to establish a connection between suitable devices and an IO-Link master, enabling communication via IO-Link.<br>The IO-Link connector can also be used to connect up to 2 muting sensors. | IO-Link connector | 2092757 |

Power supply units and power supply cables

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

## Reflectors and optics

Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid AR 60,<br>Laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for deTec, deTem and MLG-2 | AR60 adapter, deTec, deTem, MLG-2 | 4070854 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 14 mm diameter | Test rod 14 mm | 2022599 |
| | 24 mm diameter<br>(An effective resolution of 24 mm can be achieved with a physical resolution of 14 mm using the function reduced resolution by 1 beam) | Test rod 24 mm | 2045592 |
| | 30 mm diameter | Test rod 30 mm | 2022602 |
| | 34 mm diameter<br>(An effective resolution of 34 mm can be achieved with a physical resolution of 14 mm using the function reduced resolution by 2 beams) | Test rod 34 mm | 2045593 |
| | Test rod holder | BEF-3WNAAAAL1 | 2052249 |

### Cleaning agent

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning the front screen | Lens cloth | 4003353 |
| | Plastic cleaner and care product, anti-static, 0.5 liter | Plastic cleaner | 5600006 |

## Safety command devices

### Reset pushbuttons

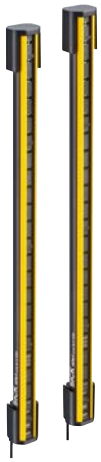
| Figure | Description | Items supplied | Type | Part no. |
|---|---|---|---|---|
| | Reset pushbutton | Including retaining clip,<br>“RESET” cover and<br>“RESET/OVERRIDE” cover | ER12-SB3C5 | 6045316 |

## Sensor Integration Gateway

SIG200

| Figure | Brief description | Type | Part no. |
|---|---|---|---|
| | • **Further functions:** Web server available, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions<br>• **I/O connection:** 4 x M12, 5-pin female connector, A-coded<br>• **Connection CONFIG:** 1 x M8, 4-pin female connector, USB 2.0 (USB-A)<br>• **Logic editor:** yes<br>• **Communication interface:** IO-Link, USB, Ethernet, PROFINET, REST API<br>• **Product category:** IO-Link Master | SIG200-0A0412200 | 1089794 |
| | • **Description:** The SIG200 Sensor Integration Gateway is an IO-Link master with 4 configurable ports through which the IO-Link devices or standard inputs or standard outputs can be connected to a PLC or cloud application using the REST API.<br>• **Further functions:** Web server available, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions<br>• **I/O connection:** 4 x M12, 5-pin female connector, A-coded<br>• **Connection CONFIG:** 1 x M8, 4-pin female connector, USB 2.0 (USB-A)<br>• **Logic editor:** yes<br>• **Communication interface:** IO-Link, USB, Ethernet, EtherNet/IP™, REST API<br>• **Product category:** IO-Link Master | SIG200-0A0512200 | 1089796 |
| | • **Further functions:** Web server available, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions<br>• **I/O connection:** 4 x M12, 5-pin female connector, A-coded<br>• **Connection CONFIG:** 1 x M8, 4-pin female connector, USB 2.0 (USB-A)<br>• **Logic editor:** yes<br>• **Communication interface:** IO-Link, USB, Ethernet, REST API<br>• **Product category:** IO-Link Master | SIG200-0A0G12200 | 1102605 |

# SAFETY IN EXPLOSIVE ATMOSPHERES



## Product description

Rugged and reliable safety technology is very important in industries with explosion-hazardous areas. A single spark can be disastrous. With the special version of the deTec4 Core Ex II 3GD safety light curtain, SICK is ensuring compliance with the high safety requirements in explosive areas. It fulfills the requirements of the ATEX guidelines for use in explosion-hazardous areas (ATEX for gas: II 3G EX and ATEX for dust: II 3D Ex). Thanks to the high resistance and reliability, the safety light curtain is particularly well-suited for use in tough industrial settings. The deTec4 Core Ex II 3GD offers maximum reliability and very high safety for employees, even in explosive atmospheres.

## At a glance

- ATEX for gas: II 3G Ex ec op is IIC T4 Gc
- ATEX for dust: II 3D Ex tc IIIC T135°C Dc
- Innovative bracket
- No blind zones
- Automated calibration of the protective field width
- LED alignment and output display
- Standardized connectivity: M12 male connector, 5-pin connection, compatible with Flexi Loop
- Enclosure ratings: IP65 and IP67

## Your benefits

- 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 time and money when it comes to installation
- Enclosure ratings IP65, IP67 and temperature resistance offer long sensor life times and therefore even more efficiency

## Additional information

Detailed technical data . . . . . 23
Ordering information . . . . . .24
Dimensional drawing . . . . . .25
Recommended accessories . . . . . 26

→ www.sick.com/deTec

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | Resolution 14 mm | Resolution 30 mm |
|---|---|---|
| **Application** | Explosive areas | |
| **Ex-approvals** | ATEX for gas: II 3G Ex ec op is IIC T4 Gc<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc | |
| **Protective field height** | 300 mm ... 2,100 mm (depending on type) | |
| **Scanning range** | 10 m | 15 m |
| **No blind zones** | Yes | |
| **Synchronization** | Optical synchronisation | |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| **Category** | Category 4 (ISO 13849-1) |
| **Performance level** | PL e (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $3.7 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | |
|---|---|
| **Protective operation** | ✔ |
| **Automatic calibration of the protective field width** | ✔ |

### Interfaces

| | |
|---|---|
| **Connection type** | Male connector M12, 5-pin |
| **Display elements** | LEDs |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [1] |

[1] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

### Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) |
| **Ripple** | ≤ 10 % |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [1] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 300 mA |

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

### Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529)<br>IP67 (IEC 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

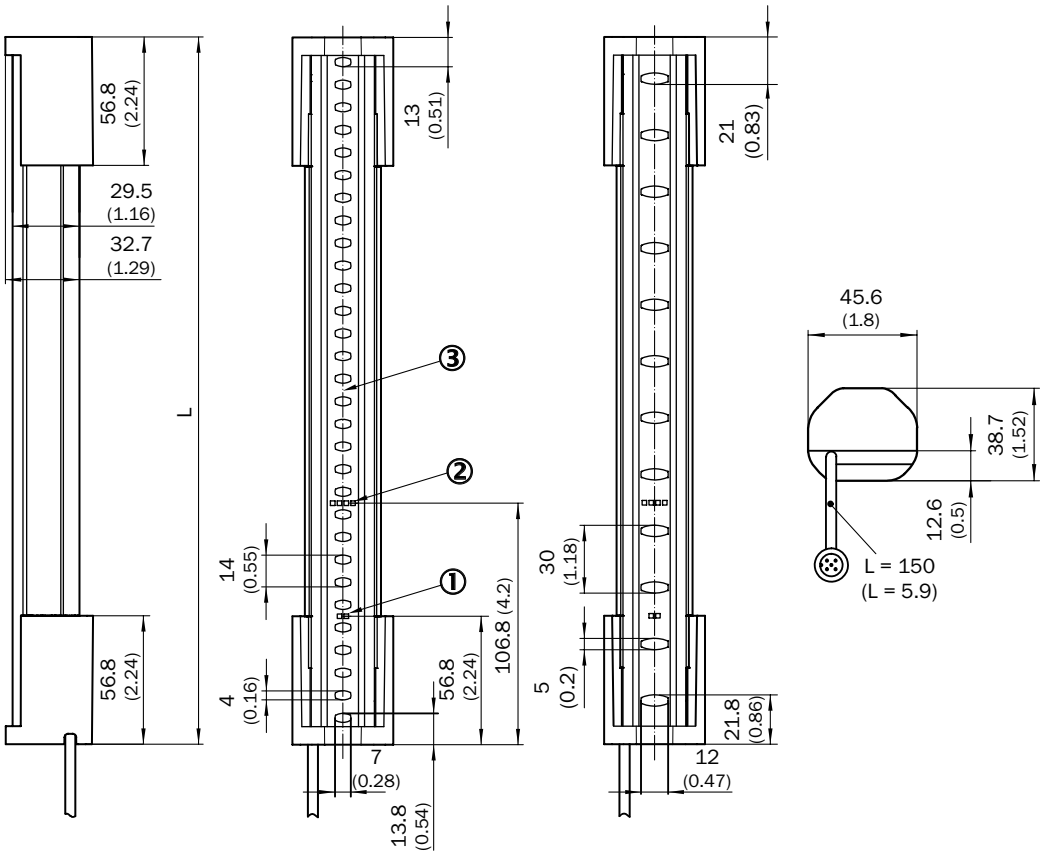
## Other information

| | |
|---|---|
| **Wave length** | 850 nm |
| **Type of light** | Near-infrared (NIR), invisible |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 14 mm | 10 m | 300 mm | C4C-SX03010A10000 | 1220313 | C4C-EX03010A10000 | 1220326 |
| | | 450 mm | C4C-SX04510A10000 | 1220314 | C4C-EX04510A10000 | 1220327 |
| | | 600 mm | C4C-SX06010A10000 | 1220315 | C4C-EX06010A10000 | 1220328 |
| | | 750 mm | C4C-SX07510A10000 | 1220316 | C4C-EX07510A10000 | 1220329 |
| | | 900 mm | C4C-SX09010A10000 | 1220317 | C4C-EX09010A10000 | 1220330 |
| | | 1,050 mm | C4C-SX10510A10000 | 1220318 | C4C-EX10510A10000 | 1220331 |
| | | 1,200 mm | C4C-SX12010A10000 | 1220319 | C4C-EX12010A10000 | 1220332 |
| | | 1,350 mm | C4C-SX13510A10000 | 1220320 | C4C-EX13510A10000 | 1220333 |
| | | 1,500 mm | C4C-SX15010A10000 | 1220321 | C4C-EX15010A10000 | 1220334 |
| | | 1,650 mm | C4C-SX16510A10000 | 1220322 | C4C-EX16510A10000 | 1220335 |
| | | 1,800 mm | C4C-SX18010A10000 | 1220323 | C4C-EX18010A10000 | 1220336 |
| | | 1,950 mm | C4C-SX19510A10000 | 1220324 | C4C-EX19510A10000 | 1220337 |
| | | 2,100 mm | C4C-SX21010A10000 | 1220325 | C4C-EX21010A10000 | 1220338 |
| 30 mm | 15 m | 300 mm | C4C-SX03030A10000 | 1220339 | C4C-EX03030A10000 | 1220352 |
| | | 450 mm | C4C-SX04530A10000 | 1220340 | C4C-EX04530A10000 | 1220353 |
| | | 600 mm | C4C-SX06030A10000 | 1220341 | C4C-EX06030A10000 | 1220354 |
| | | 750 mm | C4C-SX07530A10000 | 1220342 | C4C-EX07530A10000 | 1220355 |
| | | 900 mm | C4C-SX09030A10000 | 1220343 | C4C-EX09030A10000 | 1220356 |
| | | 1,050 mm | C4C-SX10530A10000 | 1220344 | C4C-EX10530A10000 | 1220357 |
| | | 1,200 mm | C4C-SX12030A10000 | 1220345 | C4C-EX12030A10000 | 1220358 |
| | | 1,350 mm | C4C-SX13530A10000 | 1220346 | C4C-EX13530A10000 | 1220359 |
| | | 1,500 mm | C4C-SX15030A10000 | 1220347 | C4C-EX15030A10000 | 1220360 |
| | | 1,650 mm | C4C-SX16530A10000 | 1220348 | C4C-EX16530A10000 | 1220363 |
| | | 1,800 mm | C4C-SX18030A10000 | 1220349 | C4C-EX18030A10000 | 1220362 |
| | | 1,950 mm | C4C-SX19530A10000 | 1220350 | C4C-EX19530A10000 | 1220361 |
| | | 2,100 mm | C4C-SX21030A10000 | 1220351 | C4C-EX21030A10000 | 1220364 |

## Dimensional drawing (Dimensions in mm (inch))




① Operating indicator
② Alignment indicator
③ Optical axis

| | 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) | 913 (35.94) |
| 1,050 (41.34) | 1,063 (41.85) |
| 1,200 (47.24) | 1,213 (47.76) |
| 1,350 (53.15) | 1,362 (53.62) |
| 1,500 (59.05) | 1,512 (59.53) |
| 1,650 (64.96) | 1,662 (65.43) |
| 1,800 (70.87) | 1,812 (71.34) |
| 1,950 (76.77) | 1,962 (77.24) |
| 2,100 (82.68) | 2,112 (83.15) |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | FlexFix mounting kit for 1 device, e.g. sender or receiver (FlexFix bracket, alignment tool and assembly materials for installation in PU3H device columns), plastic | 2 pieces | BEF-1SHABBKU2 | 2073543 |
| | FlexFix replacement bracket (mounting kit for replacement of swivel mount brackets 2030510 or side bracket 2019506 with the FlexFix bracket when using the wells provided), Aluminum (anodised), plastic | 4 pieces | BEF-1SHABU004 | 2099282 |
| | FlexFix replacement bracket (mounting kit for replacement of swivel mount brackets 2019649 and 2019659 or side bracket 2019506 with the FlexFix bracket when using the wells provided), Aluminum (anodised), plastic | 4 pieces | BEF-1SHABS004 | 2100345 |
| | FlexFix bracket for 1 device (e.g. sender or receiver), can be aligned ± 15°, including M5 screw, plastic | 2 pieces | BEF-1SHABPKU2 | 2098709 |
| | FlexFix bracket for 2 devices (e.g. sender and receiver), can be aligned ± 15°, including M5 screw, plastic | 4 pieces | BEF-1SHABPKU4 | 2066614 |
| | QuickFix bracket for 1 device (e.g. sender or receiver), plastic | 2 pieces | BEF-3SHABPKU2 | 2066048 |
| | QuickFix bracket for 2 devices (e.g. sender and receiver), plastic | 4 pieces | BEF-3SHABPKU4 | 2098710 |

Other mounting accessories

Mounting tools

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment tool for aligning sensors in areas with limited accessibility, e.g. device columns | 1 piece | Alignment tool | 4084133 |

### Connection systems

Plug connectors and cables

Connecting cables

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

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Female connector, M12, 5-pin, straight | Flying leads | 0.34 mm² | 2 m | YF2A15-020UB5XLEAX | 2095617 |
| | | | | 5 m | YF2A15-050UB5XLEAX | 2095618 |
| | | | | 10 m | YF2A15-100UB5XLEAX | 2095619 |
| | | | | 15 m | YF2A15-150UB5XLEAX | 2095620 |
| | | | | 20 m | YF2A15-200UB5XLEAX | 2095614 |
| | | | | 30 m | YF2A15-300UB5XLEAX | 2095621 |
| | Female connector, M12, 5-pin, angled | Flying leads | 0.34 mm² | 2 m | YG2A15-020UB5XLEAX | 2095772 |
| | | | | 5 m | YG2A15-050UB5XLEAX | 2095773 |
| | | | | 10 m | YG2A15-100UB5XLEAX | 2095774 |



8024285/2021-12-09

Subject to change without notice

Replacement cables (replacement of C4000 with deTec Core)

- **Length of cable:** 0,25 m
- **Items supplied:** 2 cables

| Figure | Connection type | | Model | Type | Part no. |
|---|---|---|---|---|---|
| | deTec system connection | Replacement C4000 | | | |
| | Female connector, M12, 5-pin, straight | Male connector, M12, 8-pin, straight | PVC, unshielded | DSL-1285GM25034KM1 | 2070987 |
| | | Male connector, M26, 12-pin, straight | PVC, unshielded | DSL-6182GM25034KM1 | 2070989 |
| | | Male connector, M26, 7-pin, straight | PVC, unshielded | DSL-6187GM25034KM1 | 2070988 |

Adapters and distributors

T-junctions

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | T-piece for simultaneous connection to sender and receiver, splits the cable from the control cabinet to the sender and receiver, 5-pin | DSC-1205T000025KM0 | 6030664 |

## Reflectors and optics

Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for deTec4, deTec2 and MLG-2 | AR60 adapter, deTec, deTem, MLG-2 | 4070854 |

## 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 |

# TOTAL FLEXIBILITY – EVEN IN EXPLOSIVE ENVIRONMENTS

## Product description

The C4000 Advanced ATEX II 3G/3D safety light curtain is a cost-effective, reliable solution that safeguards hazardous points and areas, even in potentially explosive atmospheres. Functions such as the restart interlock (RES) and external device monitoring (EDM) provide easy machine integration. Various mounting adapters and innovative accessories enable flexible installation. The industry-tested 7-segment display saves time during alignment and diagnostics. Plus, the C4000 Advanced ATEX II 3G/3D safeguards areas with up to an 1,800 mm protective field height.

## At a glance

- Type 4 (IEC 61496), SIL3 (IEC 61508), PL e (EN ISO 13849)
- ATEX II 3G/3D (2/22 zones)
- ATEX for gas: II 3G Ex nA op is IIC T4 Gc X
- ATEX for dust: II 3D Ex tc IIIC T135°C Dc
- 7-segment display
- External device monitoring (EDM) and restart interlock (RES)
- Beam coding for correct system allocation
- Configuration and diagnostics via PC

## Your benefits

- ATEX II 3G/3D for use in zones 2/22
- Large sensing ranges up to 21 m and sufficient power reserve for use in paint finishing lines, for example
- 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
- Quick and easy commissioning by means of pre-configuration of the systems or clone plug
- Convenient configuration anddiagnostics ensure increased availability

## Additional information

Detailed technical data . . . . . 29
Ordering information . . . . . .31
Dimensional drawing . . . . . .31
Recommended accessories . . . . . 32

→ www.sick.com/C4000_Advanced_ATEX_II_3G_3D

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | Resolution 14 mm | Resolution 30 mm | Resolution 40 mm |
|---|---|---|---|
| **Application** | Explosive areas | | |
| **Ex-approvals** | ATEX for gas: II 3G Ex nA op is IIC T4 Gc X<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc | | |
| **Protective field height** | 450 mm / 1,800 mm (depending on type) | 900 mm / 1,500 mm / 1,800 mm (depending on type) | 1,350 mm |
| **Scanning range** | 10 m | 21 m | |
| **Synchronization** | Optical synchronisation | | |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (EN 62061) |
| **Category** | Category 4 (EN ISO 13849) |
| **Performance level** | PL e (EN ISO 13849) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $15 \times 10^{-9}$ (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. |

### Functions

| | Functions | Delivery status |
|---|---|---|
| **Protective operation** | ✔ | |
| **Restart interlock** | ✔ | External |
| **External device monitoring (EDM)** | ✔ | Deactivated |
| **Beam coding** | ✔ | Uncoded |
| **Configurable scanning range** | ✔ | |
| **Reduced resolution** | ✔ | Deactivated |
| **Fixed blanking** | ✔ | Deactivated |
| **Floating blanking** | ✔ | Deactivated |
| **Safe SICK device communication via EFI** | ✔ | |

### Functions in combination with UE402

| | |
|---|---|
| **Bypass** | ✔ |
| **Operating mode switching** | ✔ |
| **PSDI mode** | ✔ |

### Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Hirschmann male connector M26, 12-pin |
| Permitted cable length | 50 m [1] |
| Conductor cross-section | 0.75 $mm^2$ |
| **Configuration connection** | |

[1] Depending on load, power supply and wire cross-section. The technical specifications must be observed.

[2] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[3] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

| | |
|---|---|
| Connection type | Female connector M8, 4-pin |
| Configuration method | PC with CDS (Configuration and Diagnostic Software) |
| **Display elements** | 7-segment display |
| **Fieldbus, industrial network** | |
| Integration via EFI gateways | PROFINET PROFIsafe [2] |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [3] |

[1] Depending on load, power supply and wire cross-section. The technical specifications must be observed.

[2] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[3] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [3] |
| Output voltage HIGH (active) | 24 V DC ($V_S$ – 4.2 V DC ... $V_S$) |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing cross-section** | 48 mm x 40 mm |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (EN 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –25 °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 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 950 nm |
| **Type of light** | Near-infrared (NIR), invisible |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 14 mm | 10 m | 450 mm | C40S-S144 | 1071158 | C40E-S144 | 1071159 |
| | | 1,800 mm | C40S-S136 | 1063412 | C40E-S136 | 1063413 |
| 30 mm | 21 m | 900 mm | C40S-S114 | 1050298 | C40E-S116 | 1050537 |
| | | 1,500 mm | C40S-S005 | 1024072 | C40E-S138 | 1064892 |
| | | 1,800 mm | C40S-S124 | 1051138 | C40E-S142 | 1070016 |
| 40 mm | 21 m | 1,350 mm | C40S-S125 | 1051371 | C40E-S133 | 1056824 |

## Dimensional drawing (Dimensions in mm (inch))

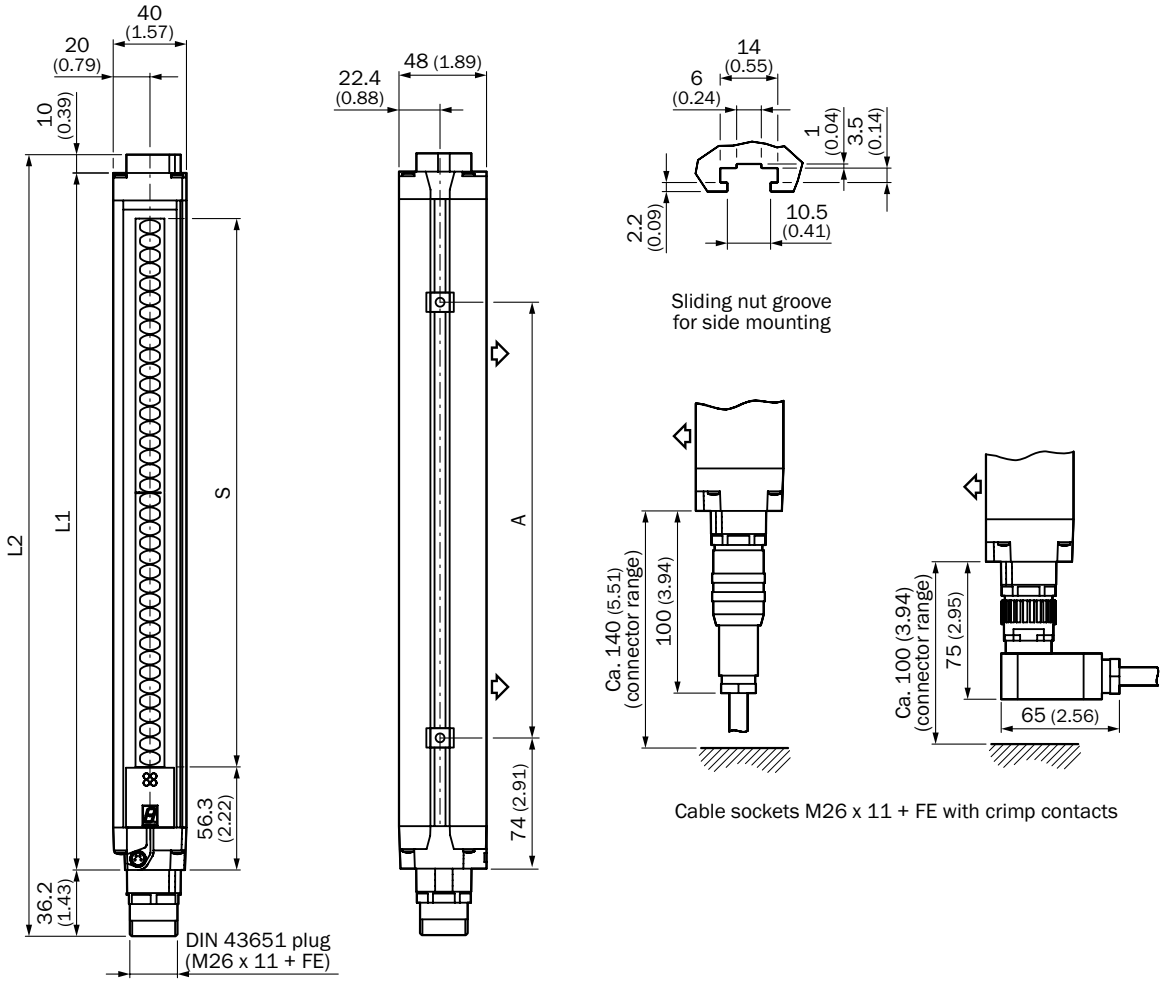



Illustration sender (receiver mirror image)

| Protective field height S | L1 | L2 | A |
|---|---|---|---|
| 450 (17.72) | 532 (20.94) | 578 (22.76) | 374 (14.72) |
| 900 (35.43) | 984 (38.74) | 1,030 (40.55) | 824 (32.44) |
| 1,350 (53.15) | 1,435 (56.50) | 1,481 (58.31) | 1,274 (50.16) |
| 1,500 (59.05) | 1,586 (62.44) | 1,632 (64.25) | 1,424 (56.06) |
| 1,800 (70.87) | 1,887 (74.29) | 1,933 (76.10) | 1,724 (67.87) |

## Recommended accessories

### Mounting systems

#### Mounting brackets and plates

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers | 4 pieces | BEF-3WNGBAST4 | 7021352 |
| | Mounting kit 11, exchangeable retainer, suitable for replacement of FGS | 4 pieces | BEF-3WNGBCST4 | 2021646 |

#### Terminal and alignment brackets

Alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Mounting kit 2, rotatable, swivel mount, Polyamide PA6 | 4 pieces | BEF-2SMMEAKU4 | 2019659 |
| | Mounting kit 3, rotatable, with shock-absorber | 4 pieces | BEF-1SHADAAL4 | 2017752 |
| | Mounting kit 6, side bracket, rotatable, Zinc diecast | 4 pieces | BEF-1SHABAZN4 | 2019506 |
| | Mounting kit, rotatable, telescopic, swivel mount, Polyamide PA6 | 2 pieces | BEF-0SMMEA002 | 2046172 |
| | Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount | 4 pieces | BEF-2SMMEAAL4 | 2044847 |
| | Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301 | 4 pieces | BEF-2SMMVAES4 | 2026850 |
| | Stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301 | 4 pieces | BEF-2SMMEAES4 | 2023708 |

#### Other mounting accessories

Sliding nuts

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Sliding nut set, M5, 4x, Included in delivery | 4 pieces | Sliding nuts | 2017550 |
| Illustration may differ | Suitable for PNS75 and PNS125 | 6 pieces | Sliding nuts for deflector mirror | 2030600 |



8024285/2021-12-09
Subject to change without notice

## Connection systems

### Plug connectors and cables

#### Cables (ready to assemble)

| Figure | Description | Model | Conductor cross-section | Number of cores | Items supplied | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | max. 100 m, fitting for EFI connections | PVC, unshielded | 0.75 mm² | 12-wire | By the meter | Connecting cable | 6021437 |

#### Connecting cables

- **Model:** PVC, unshielded

| Figure | Connection type | | Description | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | Female connector, M26, 12-pin, straight | Flying leads | – | 0.75 mm² | 2.5 m | DOL-0612G2M5075KM0 | 2022544 |
| | | | | | 5 m | DOL-0612G05M075KM0 | 2022545 |
| | | | | | 7.5 m | DOL-0612G7M5075KM0 | 2022546 |
| | | | | | 10 m | DOL-0612G10M075KM0 | 2022547 |
| | | | | | 15 m | DOL-0612G15M075KM0 | 2022548 |
| | | | | | 20 m | DOL-0612G20M075KM0 | 2022549 |
| | | | | | 30 m | DOL-0612G30M075KM0 | 2022550 |
| | | | | | 50 m | DOL-0612G50M075KM0 | 2033548 |
| | | | Without EFI: Pin 9 and 10 not connected | 0.75 mm² | 5 m | DOL-0610G05M075KM1 | 2046888 |
| | | | | | 7.5 m | DOL-0610G7M5075KM5 | 2044042 |
| | | | | | 10 m | DOL-0610G10M075KM1 | 2046889 |
| | | | | | 20 m | DOL-0610G20M075KM1 | 2046890 |

#### Field-attachable connectors

| Figure | Connection type | Permitted cross-section | Permitted cable diameter | Type | Part no. |
|---|---|---|---|---|---|
| | Female connector, M26, 12-pin, straight, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | DOS-0612G000GA3KM0 | 6020757 |
| | Female connector, M26, 12-pin, angled, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | DOS-0612W000GA3KM0 | 6020758 |
| | Male connector, M26, 12-pin, straight, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | STE-0612G000GA3KM0 | 6021191 |
| | Male connector, M26, 12-pin, angled, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | STE-0612W000GA3KM0 | 6021192 |

#### Connection cables

- **Model:** PVC, unshielded

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Male connector, M8, 4-pin, straight | Male connector, USB-A, straight | 0.25 mm² | 2 m | DSL-8U04G02M025KM1 | 6034574 |
| | | | | 10 m | DSL-8U04G10M025KM1 | 6034575 |

Modules and gateways

EFI gateways

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | PROFINET PROFIsafe | UE4740-22H0000 | 1046978 |

## Reflectors and optics

Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for housing cross-section 48 mm x 40 mm | AR60 adapter, 48x40 | 4032461 |
| Illustration may differ | Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column | AR60 adapter, 48x40, PU3H | 4056731 |

Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | 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 |
| | 40 mm diameter | Test rod 40 mm | 2022604 |

Cleaning agent

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



8024285/2021-12-09
Subject to change without notice

## Safety relays

### Switching amplifiers

| Figure | Description | Type | Part no. |
|---|---|---|---|
| Illustration may differ | UE402 switching amplifier | UE402 | 1023577 |

# TOTAL FLEXIBILITY – EVEN IN EXPLOSIVE ATMOSPHERES

## Product description

The C4000 Fusion ATEX II 3G/3D safety light curtain is a cost-effective, reliable solution that safeguards hazardous points and areas, even in potentially explosive atmospheres. Functions such as the restart interlock and external device monitoring provide easy machine integration. Various mounting adapters and innovative accessories enable flexible installation. The industry-tested 7-segment display saves time during alignment and diagnostics. Plus, the C4000 Fusion ATEX II 3G/3D safeguards hazardous points in explosion-hazardous areas with a protective field height of up to 1,800 mm.

## At a glance

- Type 4 (IEC 61496), SIL3 (IEC 61508), PL e (EN ISO 13849)
- ATEX II 3G/3D (2/22 zones)
- ATEX for gas: II 3G Ex nA op is IIC T4 Gc X
- ATEX for dust: II 3D Ex tc IIIC T135°C Dc
- 7-segment display
- External device monitoring (EDM) and restart interlock
- Beam coding for accurate system allocation
- Configuration and diagnostics via PC

## Your benefits

- ATEX II 3G/3D for use in 2/22 zones
- Large scanning ranges up to 21 m and sufficient power reserve for use in paint finishing lines, for example
- 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
- Quick and easy commissioning by means of pre-configuration of the systems or clone plug
- Convenient configuration and diagnostics ensure increased availability

## Additional information

Detailed technical data . . . . . .37
Ordering information . . . . . 39
Dimensional drawing . . . . . 40
Recommended accessories . . . . . .41

→ www.sick.com/C4000_Fusion_ATEX_II_3G_3D

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 3G Ex nA op is IIC T4 Gc X<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc |
| **Resolution** | 20 mm |
| **Protective field height** | 600 mm ... 1,800 mm (depending on type) |
| **Scanning range** | 21 m |
| **Synchronization** | Optical synchronisation |
| **Integrated laser alignment aid** | ✔ |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (EN 62061) |
| **Category** | Category 4 (EN ISO 13849) |
| **Performance level** | PL e (EN ISO 13849) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $15 \times 10^{-9}$ (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. |

### Functions

| | Functions | Delivery status |
|---|---|---|
| **Protective operation** | ✔ | |
| **Restart interlock** | ✔ | Internal |
| **External device monitoring (EDM)** | ✔ | Deactivated |
| **Beam coding** | ✔ | Code 1 |
| **Configurable scanning range** | ✔ | |
| **Reduced resolution** | ✔ | Deactivated |
| **Fixed blanking** | ✔ | Deactivated |
| **Floating blanking** | ✔ | Deactivated |
| **Dynamic blanking for object pattern recognition** | ✔ | |
| **Self-teach dynamic blanking for goods detection** | ✔ | |
| **Self-teach dynamic blanking for pallet detection** | ✔ | |
| **Multiple sampling** | ✔ | 2x evaluation |
| **Direction monitoring** | ✔ | |
| **Virtual photoelectric switches** | ✔ | |
| **Sensor gap monitoring** | ✔ | |
| **Sequence monitoring** | ✔ | |
| **Object entry monitoring** | ✔ | |
| **Detection of geometrically even objects** | ✔ | |
| **Safe SICK device communication via EFI** | ✔ | |

## Functions in combination with UE402

| | |
|---|---|
| **Bypass** | ✔ |
| **Operating mode switching** | ✔ |

## Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Hirschmann male connector M26, 12-pin |
| Permitted cable length | 50 m [1] |
| Conductor cross-section | 0.75 $mm^2$ |
| **Configuration connection** | |
| Connection type | Female connector M8, 4-pin |
| Configuration method | PC with CDS (Configuration and Diagnostic Software) |
| **Display elements** | 7-segment display |
| **Fieldbus, industrial network** | |
| Integration via EFI gateways | PROFINET PROFIsafe [2] |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [3] |

[1] Depending on load, power supply and wire cross-section. The technical specifications must be observed.

[2] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[3] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [3] |
| Output voltage HIGH (active) | 24 V DC (15 V DC ... 28.8 V DC) |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing cross-section** | 48 mm x 40 mm |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (EN 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –25 °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 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 950 nm |
| **Type of light** | Near-infrared (NIR), invisible |
| **Integrated laser alignment aid** | ✔ |
| Laser class | 1 |
| Wave length | 650 nm |
| Type of light | Visible red light |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 20 mm | 21 m | 600 mm | C40S-S139 | 1065840 | C40E-S139 | 1065841 |
| | | 750 mm | C40S-S145 | 1081732 | C40E-S145 | 1081733 |
| | | 900 mm | C40S-S146 | 1081931 | C40E-S146 | 1081932 |
| | | 1,050 mm | C40S-S131 | 1054690 | C40E-S131 | 1054691 |
| | | 1,350 mm | C40S-S147 | 1082907 | C40E-S147 | 1082908 |
| | | 1,800 mm | C40S-S135 | 1063410 | C40E-S135 | 1063411 |

## Dimensional drawing (Dimensions in mm (inch))

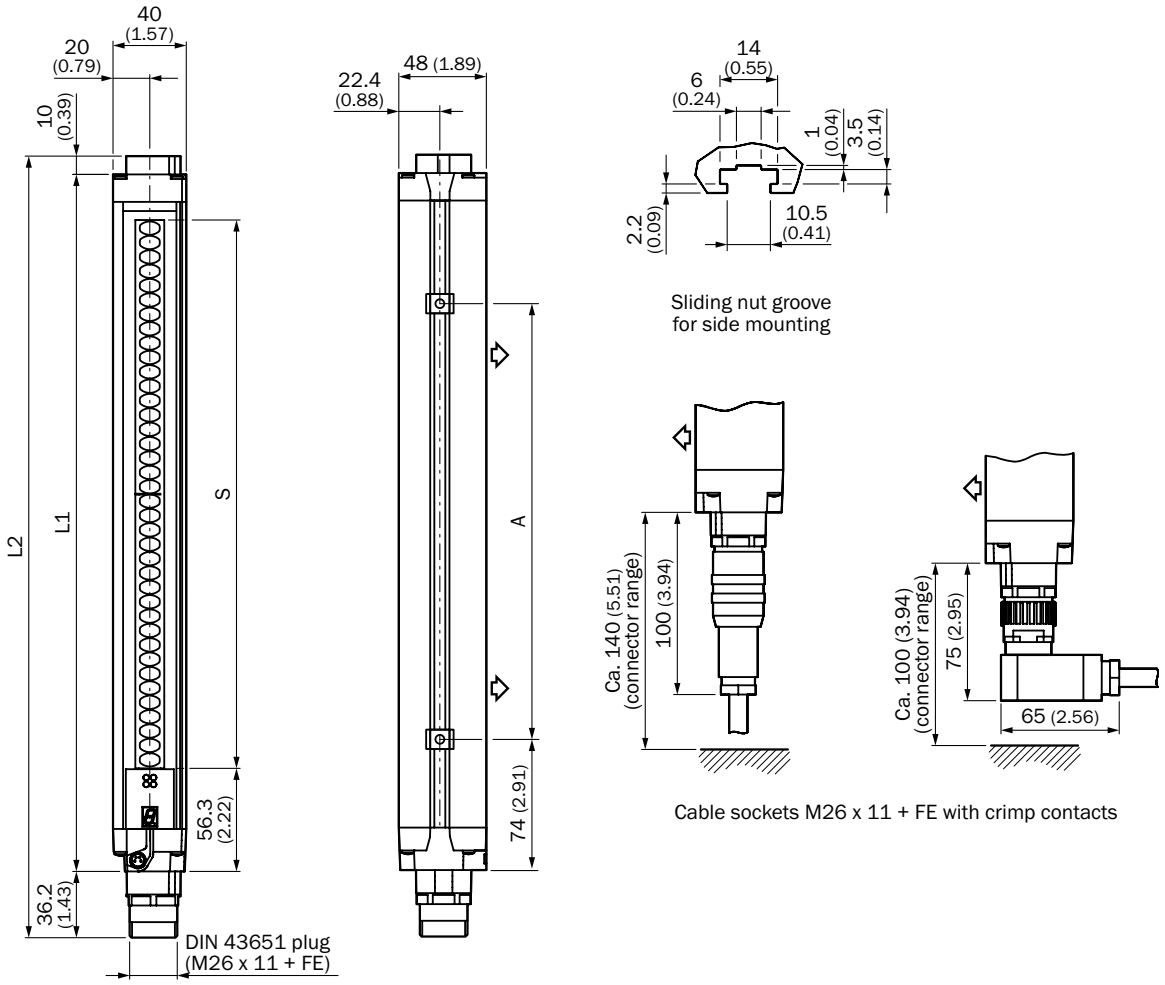



Illustration sender (receiver mirror image)

| Protective field height S | L1 | L2 | A |
|---|---|---|---|
| 600 (23.62) | 682 (26.85) | 728 (28.66) | 524 (20.63) |
| 750 (29.53) | 833 (32.80) | 879 (34.61) | 674 (26.54) |
| 900 (35.43) | 984 (38.74) | 1.030 (40.55) | 824 (32.44) |
| 1,050 (41.34) | 1,134 (44.65) | 1,180 (46.46) | 974 (38.35) |
| 1,350 (53.15) | 1,435 (56.50) | 1,481 (58.31) | 1,274 (50.16) |
| 1,800 (70.87) | 1,887 (74.29) | 1,933 (76.10) | 1,724 (67.87) |

## Recommended accessories

### Mounting systems

#### Mounting brackets and plates

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers | 4 pieces | BEF-3WNGBAST4 | 7021352 |
| | Mounting kit 11, exchangeable retainer, suitable for replacement of FGS | 4 pieces | BEF-3WNGBCST4 | 2021646 |

#### Terminal and alignment brackets

#### Alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Mounting kit 2, rotatable, swivel mount, Polyamide PA6 | 4 pieces | BEF-2SMMEAKU4 | 2019659 |
| | Mounting kit 3, rotatable, with shock-absorber | 4 pieces | BEF-1SHADAAL4 | 2017752 |
| | Mounting kit 6, side bracket, rotatable, Zinc diecast | 4 pieces | BEF-1SHABAZN4 | 2019506 |
| | Mounting kit, rotatable, telescopic, swivel mount, Polyamide PA6 | 2 pieces | BEF-0SMMEA002 | 2046172 |
| | Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount | 4 pieces | BEF-2SMMEAAL4 | 2044847 |
| | Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301 | 4 pieces | BEF-2SMMVAES4 | 2026850 |
| | Stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301 | 4 pieces | BEF-2SMMEAES4 | 2023708 |

#### Other mounting accessories

#### Sliding nuts

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Sliding nut set, M5, 4x, Included in delivery | 4 pieces | Sliding nuts | 2017550 |
| Illustration may differ | Suitable for PNS75 and PNS125 | 6 pieces | Sliding nuts for deflector mirror | 2030600 |

Stands

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Floor stands for the horizontal mounting of the safety light curtains C4000 Fusion, Entry/Exit, Palletizer, as well as the multi-beam safety light curtain M4000 Area, for mounting heights of between 70 mm and 780 mm., Includes mounting bracket | 2 pieces | BEF-3HHOCAST2 | 2041661 |

## Connection systems

Plug connectors and cables

Cables (ready to assemble)

| Figure | Description | Model | Conductor cross-section | Number of cores | Items supplied | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | max. 100 m, fitting for EFI connections | PVC, unshielded | 0.75 mm² | 12-wire | By the meter | Connecting cable | 6021437 |

Connecting cables

- **Model:** PVC, unshielded

| Figure | Connection type | | Description | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | Female connector, M26, 12-pin, straight | Flying leads | – | 0.75 mm² | 2.5 m | DOL-0612G2M5075KM0 | 2022544 |
| | | | | | 5 m | DOL-0612G05M075KM0 | 2022545 |
| | | | | | 7.5 m | DOL-0612G7M5075KM0 | 2022546 |
| | | | | | 10 m | DOL-0612G10M075KM0 | 2022547 |
| | | | | | 15 m | DOL-0612G15M075KM0 | 2022548 |
| | | | | | 20 m | DOL-0612G20M075KM0 | 2022549 |
| | | | | | 30 m | DOL-0612G30M075KM0 | 2022550 |
| | | | | | 50 m | DOL-0612G50M075KM0 | 2033548 |
| | | | Without EFI: Pin 9 and 10 not connected | 0.75 mm² | 5 m | DOL-0610G05M075KM1 | 2046888 |
| | | | | | 7.5 m | DOL-0610G7M5075KM5 | 2044042 |
| | | | | | 10 m | DOL-0610G10M075KM1 | 2046889 |
| | | | | | 20 m | DOL-0610G20M075KM1 | 2046890 |



8024285/2021-12-09
Subject to change without notice

Field-attachable connectors

| Figure | Connection type | Permitted cross-section | Permitted cable diameter | Type | Part no. |
|---|---|---|---|---|---|
| | Female connector, M26, 12-pin, straight, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | DOS-0612G000GA3KM0 | 6020757 |
| | Female connector, M26, 12-pin, angled, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | DOS-0612W000GA3KM0 | 6020758 |
| | Male connector, M26, 12-pin, straight, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | STE-0612G000GA3KM0 | 6021191 |
| | Male connector, M26, 12-pin, angled, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | STE-0612W000GA3KM0 | 6021192 |

Connection cables

- **Model:** PVC, unshielded

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Male connector, M8, 4-pin, straight | Male connector, USB-A, straight | 0.25 mm² | 2 m | DSL-8U04G02M025KM1 | 6034574 |
| | | | | 10 m | DSL-8U04G10M025KM1 | 6034575 |

Modules and gateways

EFI gateways

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | PROFINET PROFIsafe | UE4740-22H0000 | 1046978 |

## Reflectors and optics

Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for housing cross-section 48 mm x 40 mm | AR60 adapter, 48x40 | 4032461 |
| Illustration may differ | Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column | AR60 adapter, 48x40, PU3H | 4056731 |

Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 20 mm diameter | Test rod 20 mm | 2022600 |

Cleaning agent

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

## Safety relays

Switching amplifiers

| Figure | Description | Type | Part no. |
|---|---|---|---|
| Illustration may differ | UE402 switching amplifier | UE402 | 1023577 |



8024285/2021-12-09
Subject to change without notice

# TOTAL FLEXIBILITY – EVEN IN EXPLOSIVE ATMOSPHERES

## Product description

The C4000 Entry/Exit ATEX II 3G/3D safety light curtain is a cost-effective, reliable solution that safeguards hazardous points and areas, even in potentially explosive atmospheres. Functions such as the restart interlock and external device monitoring provide easy machine integration. Various mounting adapters and innovative accessories enable flexible installation. The industry-tested 7-segment display saves time during alignment and diagnostics. Plus, the C4000 Entry/Exit ATEX II 3G/3D safeguards hazardous points in explosion-hazardous area with a protective field height of up to 1800 mm.

## At a glance

- Type 4 (IEC 61496), SIL3 (IEC 61508), PL e (EN ISO 13849)
- ATEX II 3G/3D (2/22 zones)
- ATEX for gas: II 3G Ex nA op is IIC T4 Gc X
- ATEX for dust: II 3D Ex tc IIIC T135°C Dc
- 7-segment display
- External device monitoring (EDM) and restart interlock
- Beam coding for accurate system allocation
- Configuration and diagnostics via PC

## Your benefits

- ATEX II 3G/3D for use in 2/22 zones
- Large scanning ranges up to 21 m and sufficient power reserve for use in paint finishing lines, for example
- 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
- Quick and easy commissioning by means of pre-configuration of the systems or clone plug
- Convenient configuration and diagnostics ensure increased availability

## Additional information

Detailed technical data . . . . . .47
Ordering information . . . . . 49
Dimensional drawing . . . . . 49
Recommended accessories . . . . . 50

➜ www.sick.com/C4000_Entry_Exit_ATEX_II_3G_3D

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas, Explosive areas |
| **Ex-approvals** | ATEX for gas: II 3G Ex nA op is IIC T4 Gc X<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc |
| **Resolution** | 20 mm |
| **Protective field height** | 900 mm |
| **Scanning range** | 21 m |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (EN 62061) |
| **Category** | Category 4 (EN ISO 13849) |
| **Performance level** | PL e (EN ISO 13849) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $15 \times 10^{-9}$ (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. |

### Functions

| | Functions | Delivery status |
|---|---|---|
| **Protective operation** | ✔ | |
| **Restart interlock** | ✔ | Internal |
| **External device monitoring (EDM)** | ✔ | Deactivated |
| **Beam coding** | ✔ | Code 1 |
| **Configurable scanning range** | ✔ | |
| **Dynamic blanking for object pattern recognition** | ✔ | |
| **Safe SICK device communication via EFI** | ✔ | |

### Functions in combination with UE402

| | |
|---|---|
| **Bypass** | ✔ |
| **Operating mode switching** | ✔ |

### Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Hirschmann male connector M26, 12-pin |
| Permitted cable length | 50 m [1] |
| Conductor cross-section | 0.75 $mm^2$ |
| **Configuration connection** | |
| Connection type | Female connector M8, 4-pin |
| Configuration method | PC with CDS (Configuration and Diagnostic Software) |
| **Display elements** | 7-segment display |

[1] Depending on load, power supply and wire cross-section. The technical specifications must be observed.

[2] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[3] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

| | |
|---|---|
| **Fieldbus, industrial network** | |
| Integration via EFI gateways | PROFINET PROFIsafe [2] |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [3] |

[1] Depending on load, power supply and wire cross-section. The technical specifications must be observed.

[2] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[3] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [3] |
| Output voltage HIGH (active) | 24 V DC ($V_S$ – 4.2 V DC ... $V_S$) |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing cross-section** | 48 mm x 40 mm |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (EN 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –25 °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 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 950 nm |
| **Type of light** | Near-infrared (NIR), invisible |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 20 mm | 21 m | 900 mm | C40S-S129 | 1053721 | C40E-S129 | 1053722 |

## Dimensional drawing (Dimensions in mm (inch))

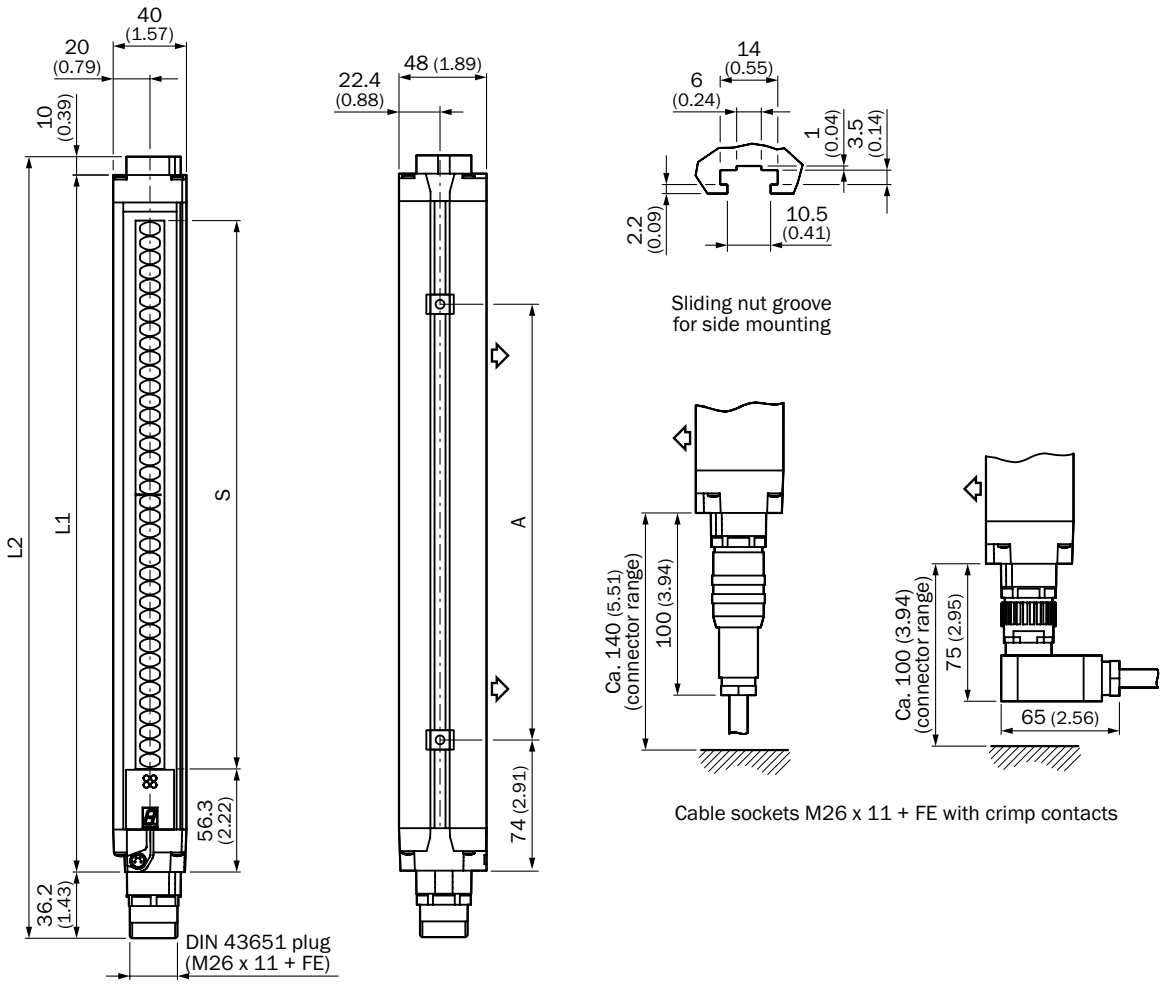



Illustration sender (receiver mirror image)

| Protective field height S | L1 | L2 | A |
|---|---|---|---|
| 900 (35.43) | 984 (38.74) | 1,030 (40.55) | 824 (32.44) |

## Recommended accessories

### Mounting systems

Mounting brackets and plates

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers | 4 pieces | BEF-3WNGBAST4 | 7021352 |

Terminal and alignment brackets

Alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Mounting kit 2, rotatable, swivel mount, Polyamide PA6 | 4 pieces | BEF-2SMMEAKU4 | 2019659 |
| | Mounting kit 3, rotatable, with shock-absorber | 4 pieces | BEF-1SHADAAL4 | 2017752 |
| | Mounting kit 6, side bracket, rotatable, Zinc diecast | 4 pieces | BEF-1SHABAZN4 | 2019506 |
| | Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount | 4 pieces | BEF-2SMMEAAL4 | 2044847 |
| | Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301 | 4 pieces | BEF-2SMMVAES4 | 2026850 |

Other mounting accessories

Sliding nuts

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Sliding nut set, M5, 4x, Included in delivery | 4 pieces | Sliding nuts | 2017550 |

### Connection systems

Plug connectors and cables

Cables (ready to assemble)

| Figure | Description | Model | Conductor cross-section | Number of cores | Items supplied | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | max. 100 m, fitting for EFI connections | PVC, unshielded | 0.75 $mm^2$ | 12-wire | By the meter | Connecting cable | 6021437 |

Connecting cables

- **Model:** PVC, unshielded

| Figure | Connection type | | Description | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | Female connector, M26, 12-pin, straight | Flying leads | – | 0.75 mm² | 2.5 m | DOL-0612G2M5075KM0 | 2022544 |
| | | | | | 5 m | DOL-0612G05M075KM0 | 2022545 |
| | | | | | 7.5 m | DOL-0612G7M5075KM0 | 2022546 |
| | | | | | 10 m | DOL-0612G10M075KM0 | 2022547 |
| | | | | | 15 m | DOL-0612G15M075KM0 | 2022548 |
| | | | | | 20 m | DOL-0612G20M075KM0 | 2022549 |
| | | | | | 30 m | DOL-0612G30M075KM0 | 2022550 |
| | | | | | 50 m | DOL-0612G50M075KM0 | 2033548 |
| | | | Without EFI: Pin 9 and 10 not connected | 0.75 mm² | 5 m | DOL-0610G05M075KM1 | 2046888 |
| | | | | | 7.5 m | DOL-0610G7M5075KM5 | 2044042 |
| | | | | | 10 m | DOL-0610G10M075KM1 | 2046889 |
| | | | | | 20 m | DOL-0610G20M075KM1 | 2046890 |

Field-attachable connectors

| Figure | Connection type | Permitted cross-section | Permitted cable diameter | Type | Part no. |
|---|---|---|---|---|---|
| | Female connector, M26, 12-pin, straight, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | DOS-0612G000GA3KM0 | 6020757 |
| | Female connector, M26, 12-pin, angled, crimp contacts | 0.5 mm² ... 1.5 mm² | 8 mm ... 10 mm | DOS-0612W000GA3KM0 | 6020758 |

Connection cables

- **Model:** PVC, unshielded

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Male connector, M8, 4-pin, straight | Male connector, USB-A, straight | 0.25 mm² | 2 m | DSL-8U04G02M025KM1 | 6034574 |
| | | | | 10 m | DSL-8U04G10M025KM1 | 6034575 |

Modules and gateways

EFI gateways

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | PROFINET PROFIsafe | UE4740-22H0000 | 1046978 |

## Reflectors and optics

### Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for housing cross-section 48 mm x 40 mm | AR60 adapter, 48x40 | 4032461 |
| Illustration may differ | Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column | AR60 adapter, 48x40, PU3H | 4056731 |

### Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 20 mm diameter | Test rod 20 mm | 2022600 |

### Cleaning agent

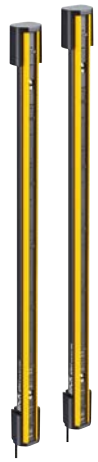
| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Plastic cleaner and care product, anti-static, 0.5 liter | Plastic cleaner | 5600006 |

## Safety relays

### Switching amplifiers

| Figure | Description | Type | Part no. |
|---|---|---|---|
| Illustration may differ | UE402 switching amplifier | UE402 | 1023577 |

# SAFETY IN EXPLOSIVE ATMOSPHERES



## Product description

Rugged and reliable safety technology is very important in industries with explosion-hazardous areas. A single spark can be disastrous. With the special version of the deTem4 Core Ex II 3GD safety multibeam sensor, SICK is ensuring compliance with the high safety requirements in explosive areas. It fulfills the requirements of the ATEX guidelines for use in explosion-hazardous areas (ATEX for gas: II 3G EX and ATEX for dust: II 3D Ex). Thanks to the high resistance and reliability, the safety multibeam sensor is particularly well-suited for use in tough industrial settings. The deTem4 Core Ex II 3GD offers maximum reliability and very high safety for employees, even in explosive atmospheres.

## At a glance

- ATEX for gas: II 3G Ex ec op is IIC T4 Gc
- ATEX for dust: II 3D Ex tc IIIC T135°C Dc
- Innovative bracket
- LED alignment and status display
- Standardized connectivity: M12 male connector, 5-pin connection, compatible with Flexi Loop
- Enclosure ratings: IP65 and IP67

## Your benefits

- 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

## Additional information

Detailed technical data . . . . . 55
Ordering information . . . . . 56
Dimensional drawing . . . . . .57
Recommended accessories . . . . . 58

→ www.sick.com/deTem4_Core_Ex_II_3GD

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 3G Ex ec op is IIC T4 Gc<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc |
| **Scanning range** | 17 m / 90 m (depending on type) |
| **Number of beams** | 2 / 3 / 4 (depending on type) |
| **Beam separation** | 500 mm / 400 mm / 300 mm (depending on type) |
| **Response time** | 20 ms |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| **Category** | Category 4 (ISO 13849-1) |
| **Performance level** | PL e (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $3 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | |
|---|---|
| **Protective operation** | ✔ |

### Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Male connector M12, 5-pin |
| Permitted cable length | ≤ 50 m [1] |
| **Status display** | LEDs |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [2] |

[1] Maximum permissible conductor resistance must be observed.

[2] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

### Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V DC ... 28.8 V DC) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 300 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing cross-section** | 38.7 mm x 45.6 mm |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529)<br>IP67 (IEC 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | Near-infrared (NIR), invisible |

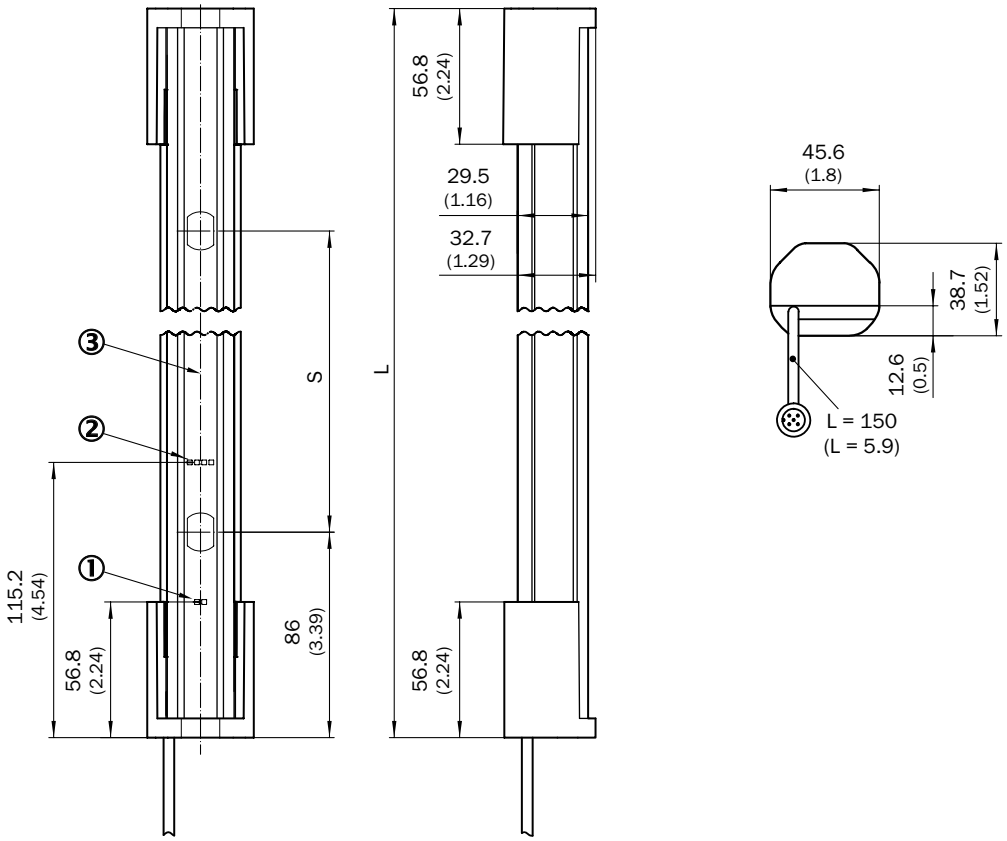
## Ordering information

| Scanning range | Number of beams | Beam separation | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 17 m | 2 | 500 mm | M4C-SX0250LA10 | 1092039 | M4C-EX02500A10 | 1092041 |
| | 3 | 400 mm | M4C-SX0340LA10 | 1092042 | M4C-EX03400A10 | 1092044 |
| | 4 | 300 mm | M4C-SX0430LA10 | 1092045 | M4C-EX04300A10 | 1092047 |
| 90 m | 2 | 500 mm | M4C-SX0250HA10 | 1092040 | M4C-EX02500A10 | 1092041 |
| | 3 | 400 mm | M4C-SX0340HA10 | 1092043 | M4C-EX03400A10 | 1092044 |
| | 4 | 300 mm | M4C-SX0430HA10 | 1092046 | M4C-EX04300A10 | 1092047 |



8024285/2021-12-09
Subject to change without notice

## Dimensional drawing (Dimensions in mm (inch))




① Operating indicator
② Alignment indicator
③ Optical axis

| Number of beams | Beam separation S | Length L |
|---|---|---|
| 2 | 500 (19.69) | 672 (26.46) |
| 3 | 400 (15.75) | 972 (38.27) |
| 4 | 300 (11.81) | 1,072 (42.2) |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | FlexFix mounting kit for 1 device, e.g. sender or receiver (FlexFix bracket, alignment tool and assembly materials for installation in PU3H device columns), plastic | 2 pieces | BEF-1SHABBKU2 | 2073543 |
| | FlexFix bracket for 1 device (e.g. sender or receiver), can be aligned ± 15°, including M5 screw, plastic | 2 pieces | BEF-1SHABPKU2 | 2098709 |
| | FlexFix bracket for 2 devices (e.g. sender and receiver), can be aligned ± 15°, including M5 screw, plastic | 4 pieces | BEF-1SHABPKU4 | 2066614 |
| | QuickFix bracket for 1 device (e.g. sender or receiver), plastic | 2 pieces | BEF-3SHABPKU2 | 2066048 |
| | QuickFix bracket for 2 devices (e.g. sender and receiver), plastic | 4 pieces | BEF-3SHABPKU4 | 2098710 |

Other mounting accessories

Mounting tools

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment tool for aligning sensors in areas with limited accessibility, e.g. device columns | 1 piece | Alignment tool | 4084133 |

### Connection systems

Plug connectors and cables

Connecting cables

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

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Female connector, M12, 5-pin, straight | Flying leads | 0.34 mm² | 2 m | YF2A15-020UB5XLEAX | 2095617 |
| | | | | 5 m | YF2A15-050UB5XLEAX | 2095618 |
| | | | | 10 m | YF2A15-100UB5XLEAX | 2095619 |
| | | | | 15 m | YF2A15-150UB5XLEAX | 2095620 |
| | | | | 20 m | YF2A15-200UB5XLEAX | 2095614 |
| | | | | 30 m | YF2A15-300UB5XLEAX | 2095621 |
| | Female connector, M12, 5-pin, angled | Flying leads | 0.34 mm² | 2 m | YG2A15-020UB5XLEAX | 2095772 |
| | | | | 5 m | YG2A15-050UB5XLEAX | 2095773 |
| | | | | 10 m | YG2A15-100UB5XLEAX | 2095774 |

Adapters and distributors

T-junctions

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | T-piece for simultaneous connection to sender and receiver, splits the cable from the control cabinet to the sender and receiver, 5-pin | DSC-1205T000025KM0 | 6030664 |

## Reflectors and optics

### Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for deTec4, deTec2 and MLG-2 | AR60 adapter, deTec, deTem, MLG-2 | 4070854 |

### Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

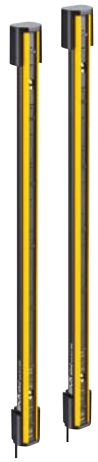
### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

### Cleaning agent

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

# SAFETY IN EXPLOSIVE ATMOSPHERES



## Product description

Rugged and reliable safety technology is very important in industries with explosion-hazardous areas. A single spark can be disastrous. With the special version of the deTem2 Core Ex II 3GD safety multibeam sensor, SICK is ensuring compliance with the high safety requirements in explosive areas. It fulfills the requirements of the ATEX guidelines for use in explosion-hazardous areas (ATEX for gas: II 3G EX and ATEX for dust: II 3D Ex). Thanks to the high resistance and reliability, the safety multibeam sensor is particularly well-suited for use in tough industrial settings. The deTem2 Core Ex II 3GD offers maximum reliability and very high safety for employees, even in explosive atmospheres.

## At a glance

- ATEX for gas: II 3G Ex ec op is IIC T4 Gc
- ATEX for dust: II 3D Ex tc IIIC T135°C Dc
- Innovative bracket
- LED alignment and output display
- Standardized connectivity: M12 male connector, 5-pin connection, compatible with Flexi Loop
- Enclosure ratings: IP65 and IP67

## Your benefits

- 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

## Additional information

Detailed technical data . . . . . .61
Ordering information . . . . . 62
Dimensional drawing . . . . . 63
Recommended accessories . . . . . 64

→ www.sick.com/deTem2_Core_Ex_II_3GD

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 3G Ex ec op is IIC T4 Gc<br>ATEX for dust: II 3D Ex tc IIIC T135°C Dc |
| **Scanning range** | 17 m / 90 m (depending on type) |
| **Number of beams** | 2 / 3 / 4 (depending on type) |
| **Beam separation** | 500 mm / 400 mm / 300 mm (depending on type) |
| **Response time** | 20 ms |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 2 (IEC 61496-1) |
| **Safety integrity level** | SIL1 (IEC 61508)<br>SILCL1 (IEC 62061) |
| **Category** | Category 2 (ISO 13849-1) |
| **Performance level** | PL c (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $3 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | |
|---|---|
| **Protective operation** | ✔ |

### Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Male connector M12, 5-pin |
| Permitted cable length | ≤ 50 m [1] |
| **Status display** | LEDs |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [2] |

[1] Maximum permissible conductor resistance must be observed.

[2] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

### Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V DC ... 28.8 V DC) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 300 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing cross-section** | 38.7 mm x 45.6 mm |
| **Housing material** | Aluminum extruded profile |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529)<br>IP67 (IEC 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

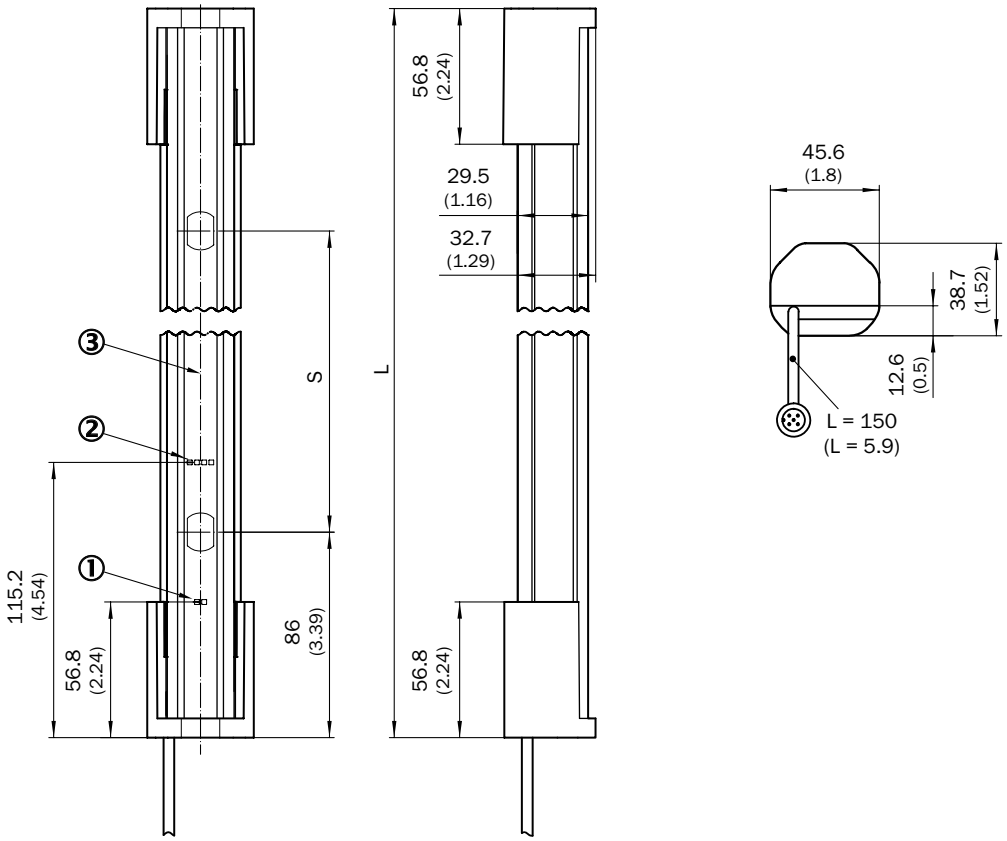
## Other information

| | |
|---|---|
| **Wave length** | Near-infrared (NIR), invisible |

## Ordering information

| Scanning range | Number of beams | Beam separation | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 17 m | 2 | 500 mm | M2C-SX0250LA10 | 1093813 | M2C-EX02500A10 | 1093899 |
| | 3 | 400 mm | M2C-SX0340LA10 | 1093900 | M2C-EX03400A10 | 1093903 |
| | 4 | 300 mm | M2C-SX0430LA10 | 1093904 | M2C-EX04300A10 | 1093909 |
| 90 m | 2 | 500 mm | M2C-SX0250HA10 | 1093898 | M2C-EX02500A10 | 1093899 |
| | 3 | 400 mm | M2C-SX0340HA10 | 1093902 | M2C-EX03400A10 | 1093903 |
| | 4 | 300 mm | M2C-SX0430HA10 | 1093906 | M2C-EX04300A10 | 1093909 |

## Dimensional drawing (Dimensions in mm (inch))




① Operating indicator
② Alignment indicator
③ Optical axis

| Number of beams | Beam separation S | Length L |
|---|---|---|
| 2 | 500 (19.69) | 672 (26.46) |
| 3 | 400 (15.75) | 972 (38.27) |
| 4 | 300 (11.81) | 1,072 (42.2) |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | FlexFix mounting kit for 1 device, e.g. sender or receiver (FlexFix bracket, alignment tool and assembly materials for installation in PU3H device columns), plastic | 2 pieces | BEF-1SHABBKU2 | 2073543 |
| | FlexFix bracket for 1 device (e.g. sender or receiver), can be aligned ± 15°, including M5 screw, plastic | 2 pieces | BEF-1SHABPKU2 | 2098709 |
| | FlexFix bracket for 2 devices (e.g. sender and receiver), can be aligned ± 15°, including M5 screw, plastic | 4 pieces | BEF-1SHABPKU4 | 2066614 |
| | QuickFix bracket for 1 device (e.g. sender or receiver), plastic | 2 pieces | BEF-3SHABPKU2 | 2066048 |
| | QuickFix bracket for 2 devices (e.g. sender and receiver), plastic | 4 pieces | BEF-3SHABPKU4 | 2098710 |

Other mounting accessories

Mounting tools

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment tool for aligning sensors in areas with limited accessibility, e.g. device columns | 1 piece | Alignment tool | 4084133 |

### Connection systems

Plug connectors and cables

Connecting cables

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

| Figure | Connection type | | Conductor cross-section | Length of cable | Type | Part no. |
|---|---|---|---|---|---|---|
| | Female connector, M12, 5-pin, straight | Flying leads | 0.34 mm² | 2 m | YF2A15-020UB5XLEAX | 2095617 |
| | | | | 5 m | YF2A15-050UB5XLEAX | 2095618 |
| | | | | 10 m | YF2A15-100UB5XLEAX | 2095619 |
| | | | | 15 m | YF2A15-150UB5XLEAX | 2095620 |
| | | | | 20 m | YF2A15-200UB5XLEAX | 2095614 |
| | | | | 30 m | YF2A15-300UB5XLEAX | 2095621 |
| | Female connector, M12, 5-pin, angled | Flying leads | 0.34 mm² | 2 m | YG2A15-020UB5XLEAX | 2095772 |
| | | | | 5 m | YG2A15-050UB5XLEAX | 2095773 |
| | | | | 10 m | YG2A15-100UB5XLEAX | 2095774 |

Adapters and distributors

T-junctions

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | T-piece for simultaneous connection to sender and receiver, splits the cable from the control cabinet to the sender and receiver, 5-pin | DSC-1205T000025KM0 | 6030664 |

## Reflectors and optics

### Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for deTec4, deTec2 and MLG-2 | AR60 adapter, deTec, deTem, MLG-2 | 4070854 |

### Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

### Cleaning agent

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

# READY FOR EXPLOSIVE ATMOSPHERES

## Product description

The deTec4 Ex safety light curtain in its explosion-proof enclosure is specially designed and approved for use under the strict safety requirements found in hazardous locations in accordance with ATEX, IECEx, and NEC. Pre-wired and fully mounted within the housing, the complete system is also UL certified and represents a truly outstanding product that is unique within the market.

## At a glance

- Pre-assembled and pre-wired safety light curtain in an explosion-proof enclosure
- Certified for use in explosive atmospheres in accordance with ATEX, IECEx and NEC thanks to explosion-proof enclosure
- Available in protective field heights of 450 mm, 600 mm, 900 mm, 1,200 mm, and 1,500 mm

## Your benefits

- The way the device is assembled – complete with cable and pre-installed within the explosion-proof enclosure – not only saves on installation time but also on certification costs
- Maximum safety and automation in explosive atmospheres thanks to compliance with stringent regulations and strict safety requirements
- Straightforward installation and alignment
- LEDs offer a quick overview of the device status to reduce downtime and maximize productivity

## Additional information

Detailed technical data . . . . . .67
Ordering information . . . . . 69
Recommended accessories . . . . . 69

→ www.sick.com/deTec

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 2 G Ex db IIB T6<br>ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X<br>NFPA 70/NEC 500 Class I, Div. 1, Groups C and D<br>NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G<br>NFPA 70/NEC 500 Class III, Div. 1 |
| **Protective field height** | 450 mm ... 1,500 mm (depending on type) |
| **Scanning range** | 25.2 m |
| **Synchronization** | Optical synchronisation |
| **Integrated laser alignment aid** | ✔ |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| **Category** | Category 4 (ISO 13849-1) |
| **Performance level** | PL e (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $15.3 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | |
|---|---|
| **Protective operation** | ✔ |
| **Automatic calibration of the protective field width** | ✔ |
| **Beam coding** | ✔ |
| **Restart interlock** | ✔ |
| **External device monitoring (EDM)** | ✔ |

### Interfaces

| | |
|---|---|
| **Connection type** | Connecting cable (30 m) with flying leads, 8-wire |
| **Configuration method** | DIP switch on system plug |
| **Display elements** | LEDs |
| **Display of the synchronization status of the upper and lower beams** | ✔ |
| **Application diagnostic output (ADO)** | ✔ |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [1] |

[1] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) |
| **Ripple** | ≤ 10 % |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [1] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [1] |
| Output voltage HIGH (active) | ≥ $V_s$ – 3 V |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

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

## Mechanical data

| | |
|---|---|
| **Housing cross-section** | 161.8 mm x 142.1 mm |
| **Housing material** | Aluminum casting / AlSi7Mg0,6 |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529)<br>IP66 (IEC 60529) |
| **Ambient operating temperature** | –20 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 850 nm |
| **Type of light** | Near-infrared (NIR), invisible |
| **Integrated laser alignment aid** | ✔ |
| Laser class | 1 |
| Wave length | 650 nm |
| Type of light | Visible red light |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 30 mm | 25.2 m | 450 mm | EXS-06D6113A020 | 1097705 | EXE-06D6113A020 | 1097704 |
| | | 600 mm | EXS-06D6213A020 | 1097702 | EXE-06D6213A020 | 1097701 |
| | | 900 mm | EXS-09D6413A020 | 1097708 | EXE-09D6413A020 | 1097707 |
| | | 1,200 mm | EXS-12D6613A020 | 1097711 | EXE-12D6613A020 | 1097710 |
| | | 1,500 mm | EXS-12D6813A020 | 1097714 | EXE-12D6813A020 | 1097713 |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment bracket for explosion-proof enclosure | 2 pieces | BEF-1SHABRST2 | 2072525 |

### Connection systems

Plug connectors and cables

Other connectors and cables

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cable gland for the European market | Cable gland | 5329002 |

### Reflectors and optics

Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for explosion-proof enclosure | AR60 adapter, Ex | 2074849 |

### Further accessories

Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

# SAFETY IN EXPLOSIVE ENVIRONMENTS

## Product description

The explosion-proof enclosure for safety light curtains is designed and approved for use in hazardous locations according ATEX for gas: II 2 G Ex db IIB T6; for dust: II 2 D Ex tb IIIC T56°C Db IP6X; NFPA 70/NEC 500 Class I, Div. 1, groups C and D; Class II, Div. 1, groups E, F, and G; Class III, Div. 1. The enclosure is compatible with a variety of SICK safety light curtains to fit multiple applications including paint booths, granaries, chemical processing and many others. The explosion-proof enclosure and safety light curtains have been tested together and are UL listed to give you the peace of mind that your safety solution meets the necessary safety and regulatory standards.

## At a glance

- ATEX for gas: II 2 G Ex db IIB T6
- ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X
- NFPA 70/NEC 500 Class I, Div. 1, Groups C and D
- NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G
- NFPA 70/NEC 500 Class III, Div. 1
- Available in protective field heights of 600 mm, 900 mm, 1,200 mm and 1,500 mm
- Resolution of 30 mm
- Scanning range of 10 m

## Your benefits

- Compatibility with multiple SICK safety light curtains offers maximum flexibility in your application
- Durable design with flexible adjustment and handling of the whole device provides easy installation and alignment
- Pre-mounted and pre-wired safety light curtains in the enclosure reduces installation time and cost
- The IP66 enclosure rating protects the safety light curtain from water and dust to reduce downtime
- Highly visible LED status indicators provide quick troubleshooting
- One source for worldwide delivery and support of complete safety solutions

## Additional information

Detailed technical data . . . . . .71
Ordering information . . . . . .72
Recommended accessories . . . . . .72

→ www.sick.com/deTec

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 2 G Ex db IIB T6<br>ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X<br>NFPA 70/NEC 500 Class I, Div. 1, Groups C and D<br>NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G<br>NFPA 70/NEC 500 Class III, Div. 1 |
| **Resolution** | 30 mm |
| **Protective field height** | 600 mm ... 1,500 mm (depending on type) |
| **Scanning range** | 10 m |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| **Category** | Category 4 (ISO 13849-1) |
| **Performance level** | PL e (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $3.7 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | |
|---|---|
| **Protective operation** | ✔ |
| **Automatic calibration of the protective field width** | ✔ |

### Interfaces

| | |
|---|---|
| **Connection type** | Connecting cable (30 m) with flying leads, 5-wire |
| **Display elements** | LEDs |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [1] |

[1] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

### Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) |
| **Ripple** | ≤ 10 % |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [1] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 300 mA |

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

## Mechanical data

| | |
|---|---|
| **Housing cross-section** | 161.8 mm x 142.1 mm |
| **Housing material** | Aluminum casting / AlSi7Mg0,6 |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529)<br>IP66 (IEC 60529) |
| **Ambient operating temperature** | –20 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 850 nm |
| **Type of light** | Near-infrared (NIR), invisible |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 30 mm | 10 m | 600 mm | EXS-06D6203B020 | 1068407 | EXE-06D6203B020 | 1068406 |
| | | 900 mm | EXS-09D6403B020 | 1068410 | EXE-09D6403B020 | 1068409 |
| | | 1,200 mm | EXS-12D6603B020 | 1068413 | EXE-12D6603B020 | 1068412 |
| | | 1,500 mm | EXS-12D6803B020 | 1068416 | EXE-12D6803B020 | 1068415 |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment bracket for explosion-proof enclosure | 2 pieces | BEF-1SHABRST2 | 2072525 |

### Connection systems

Plug connectors and cables

Other connectors and cables

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cable gland for the European market | Cable gland | 5329001 |



8024285/2021-12-09
Subject to change without notice

## Reflectors and optics

### Alignment aids

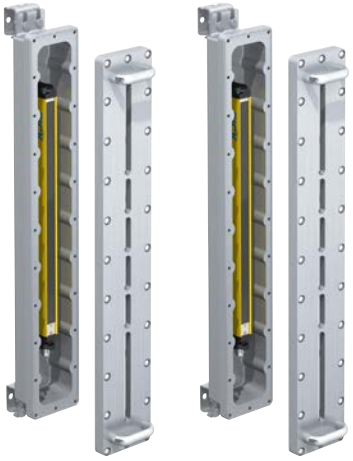
| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for explosion-proof enclosure | AR60 adapter, Ex | 2074849 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

# SAFETY IN EXPLOSIVE ENVIRONMENTS



## Product description

The explosion-proof enclosure for safety light curtains is designed and approved for use in hazardous locations according ATEX for gas: II 2 G Ex db IIB T6; for dust: II 2 D Ex tb IIIC T56°C Db IP6X; NFPA 70/NEC 500 Class I, Div. 1, Groups C and D; Class II, Div. 1, Groups E, F and G; Class III, Div. 1. The enclosure is compatible with a variety of SICK safety light curtains to fit multiple applications including paint booths, granaries, chemical processing and many others. The explosion-proof enclosure and safety light curtains have been tested together and are UL listed to give you the peace of mind that your safety solution meets the necessary safety and regulatory standards.

## At a glance

- ATEX for gas: II 2 G Ex db IIB T6
- ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X
- NFPA 70/NEC 500 Class I, Div. 1, Groups C and D
- NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G
- NFPA 70/NEC 500 Class III, Div. 1
- Available in protective field heights of 600 mm, 900 mm and 1,200 mm
- Resolution of 30 mm
- Scanning range of 16 m

## Your benefits

- 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 as a result of enclosure rating IP 66
- Well visible LED status indicator for quick fault diagnosis
- Global availability and support for the entire safety solution

## Additional information

Detailed technical data . . . . . .75
Ordering information . . . . . .77
Recommended accessories . . . . . .77

→ www.sick.com/C4000_Advanced_Ex

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 2 G Ex db IIB T6<br>ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X<br>NFPA 70/NEC 500 Class I, Div. 1, Groups C and D<br>NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G<br>NFPA 70/NEC 500 Class III, Div. 1 |
| **Resolution** | 30 mm |
| **Protective field height** | 600 mm / 900 mm / 1,200 mm (depending on type) |
| **Scanning range** | 16 m |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (EN 62061) |
| **Category** | Category 4 (EN ISO 13849) |
| **Performance level** | PL e (EN ISO 13849) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $15 \times 10^{-9}$ (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. |

### Functions

| | Functions | Delivery status |
|---|---|---|
| **Restart interlock** | ✔ | External |
| **External device monitoring (EDM)** | ✔ | Deactivated |
| **Beam coding** | ✔ | Uncoded |
| **Configurable scanning range** | ✔ | 0 m ... 5 m |
| **Safe SICK device communication via EFI** | ✔ | |

### Functions in combination with UE402

| | |
|---|---|
| **Bypass** | ✔ |
| **Operating mode switching** | ✔ |
| **PSDI mode** | ✔ |

## Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Connecting cable (30 m) with flying leads, 12-wire |
| **Configuration connection** | |
| Connection type | Female connector M8, 4-pin |
| Configuration method | PC with CDS (Configuration and Diagnostic Software) |
| **Display elements** | 7-segment display |
| **Fieldbus, industrial network** | |
| Integration via EFI gateways | PROFINET PROFIsafe [1] |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [2] |

[1] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[2] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 3.5 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [3] |
| Output voltage HIGH (active) | 24 V DC ($V_S$ – 4.2 V DC ... $V_S$) |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Housing cross-section** | 161.8 mm x 142.1 mm |
| **Housing material** | Aluminum casting / AlSi7Mg0,6 |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (EN 60529)<br>IP66 (EN 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –25 °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 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 950 nm |
| **Type of light** | Near-infrared (NIR), invisible |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 30 mm | 16 m | 600 mm | EXS-06C6203B020 | 1068398 | EXE-06C6203B020 | 1068397 |
| | | 900 mm | EXS-09C6403B020 | 1068401 | EXE-09C6403B020 | 1068400 |
| | | 1,200 mm | EXS-12C6603B020 | 1068404 | EXE-12C6603B020 | 1068403 |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment bracket for explosion-proof enclosure | 2 pieces | BEF-1SHABRST2 | 2072525 |

### Connection systems

Plug connectors and cables

Other connectors and cables

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cable gland for the European market | Cable gland | 5329002 |

Modules and gateways

EFI gateways

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | PROFINET PROFIsafe | UE4740-22H0000 | 1046978 |

### Reflectors and optics

Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for explosion-proof enclosure | AR60 adapter, Ex | 2074849 |

Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

### Cleaning agent

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

## Safety relays

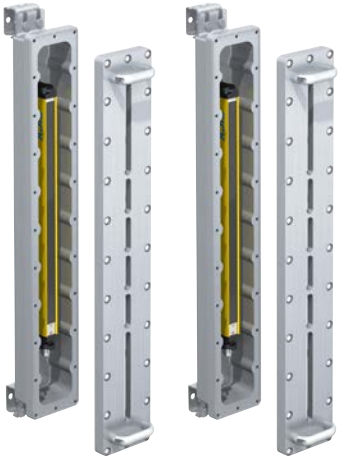
### Switching amplifiers

| Figure | Description | Type | Part no. |
|---|---|---|---|
| Illustration may differ | UE402 switching amplifier | UE402 | 1023577 |



8024285/2021-12-09
Subject to change without notice

# READY FOR EXPLOSIVE ATMOSPHERES



## Product description

The C4000 Fusion Ex safety light curtain in its explosion-proof enclosure is specially designed and approved for use under the strict safety requirements found in hazardous locations in accordance with ATEX, IECEx, and NEC. Pre-wired and fully mounted within the housing, the complete system is also UL certified and represents a truly outstanding product that is unique within the market.

## At a glance

- Certified for use in explosive atmospheres in accordance with ATEX, IECEx and NEC thanks to explosion-proof enclosure
- Access protection that can differentiate between personnel and materials – without muting
- Hazardous point protection with optional regular blanking
- Available in protective field heights of 600 mm, 900 mm, and 1,200 mm

## Your benefits

- The way the device is assembled – complete with cable and pre-installed within the explosion-proof enclosure – not only saves on installation time but also on certification costs
- Maximum safety and automation in explosive atmospheres thanks to compliance with stringent regulations and strict safety requirements
- Straightforward installation and alignment
- Maximum safety for access protection with automated material transport – the system reliably differentiates between personnel and materials without the need for an additional muting sensor
- Maximum availability thanks to regular blanking: Skids are detected and interference objects such as cables are blanked

## Additional information

Detailed technical data . . . . . .81
Ordering information . . . . . 83
Recommended accessories . . . . . 83

→ www.sick.com/C4000_Fusion_Ex

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 2 G Ex db IIB T6<br>ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X<br>NFPA 70/NEC 500 Class I, Div. 1, Groups C and D<br>NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G<br>NFPA 70/NEC 500 Class III, Div. 1 |
| **Resolution** | 30 mm |
| **Protective field height** | 600 mm / 900 mm / 1,200 mm (depending on type) |
| **Scanning range** | 17.6 m |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (EN 62061) |
| **Category** | Category 4 (EN ISO 13849) |
| **Performance level** | PL e (EN ISO 13849) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $15 \times 10^{-9}$ (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. |

### Functions

| | Functions | Delivery status |
|---|---|---|
| **Protective operation** | ✔ | |
| **Restart interlock** | ✔ | External |
| **External device monitoring (EDM)** | ✔ | Deactivated |
| **Beam coding** | ✔ | Uncoded |
| **Configurable scanning range** | ✔ | |
| **Reduced resolution** | ✔ | Deactivated |
| **Fixed blanking** | ✔ | Deactivated |
| **Floating blanking** | ✔ | Deactivated |
| **Dynamic blanking for object pattern recognition** | ✔ | |
| **Self-teach dynamic blanking for goods detection** | ✔ | |
| **Self-teach dynamic blanking for pallet detection** | ✔ | |
| **Multiple sampling** | ✔ | 2x evaluation |
| **Direction monitoring** | ✔ | |
| **Virtual photoelectric switches** | ✔ | |
| **Sensor gap monitoring** | ✔ | |
| **Sequence monitoring** | ✔ | |
| **Object entry monitoring** | ✔ | |
| **Detection of geometrically even objects** | ✔ | |
| **Safe SICK device communication via EFI** | ✔ | |

## Functions in combination with UE402

| | |
|---|---|
| **Bypass** | ✔ |
| **Operating mode switching** | ✔ |

## Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Connecting cable (30 m) with flying leads, 12-wire |
| **Configuration connection** | |
| Connection type | Female connector M8, 4-pin |
| Configuration method | PC with CDS (Configuration and Diagnostic Software) |
| **Display elements** | 7-segment display |
| **Fieldbus, industrial network** | |
| Integration via EFI gateways | PROFINET PROFIsafe [1] |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [2] |

[1] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.

[2] For additional information on Flexi Soft ➜ www.sick.com/Flexi_Soft

## Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V ... 28.8 V) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 3.5 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |
| **Application diagnostic output (ADO)** | |
| Type of output | PNP semiconductor, short-circuit protected [3] |
| Output voltage HIGH (active) | 24 V DC ($V_S$ – 4.2 V DC ... $V_S$) |
| Output voltage LOW (deactivated) | High resistance |
| Output current HIGH (active) | ≤ 100 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Housing cross-section** | 161.8 mm x 142.1 mm |
| **Housing material** | Aluminum casting / AlSi7Mg0,6 |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (EN 60529)<br>IP66 (EN 60529) |
| **Ambient operating temperature** | 0 °C ... +55 °C |
| **Storage temperature** | –25 °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 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | 950 nm |
| **Type of light** | Near-infrared (NIR), invisible |

## Ordering information

| Resolution | Scanning range | Protective field height | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 30 mm | 17.6 m | 600 mm | EXS-06C6202A020 | 1097726 | EXE-06C6202A020 | 1097725 |
| | | 900 mm | EXS-09C6402A020 | 1097729 | EXE-09C6402A020 | 1097728 |
| | | 1,200 mm | EXS-12C6602A020 | 1097732 | EXE-12C6602A020 | 1097731 |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment bracket for explosion-proof enclosure | 2 pieces | BEF-1SHABRST2 | 2072525 |

### Connection systems

Plug connectors and cables

Other connectors and cables

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cable gland for the European market | Cable gland | 5329002 |

Modules and gateways

EFI gateways

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | PROFINET PROFIsafe | UE4740-22H0000 | 1046978 |

## Reflectors and optics

### Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for explosion-proof enclosure | AR60 adapter, Ex | 2074849 |

### Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

### Cleaning agent

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

## Safety relays

### Switching amplifiers

| Figure | Description | Type | Part no. |
|---|---|---|---|
| Illustration may differ | UE402 switching amplifier | UE402 | 1023577 |



8024285/2021-12-09
Subject to change without notice

# READY FOR EXPLOSIVE ATMOSPHERES

## Product description

The deTem4 Core Ex safety multibeam sensor in its explosion-proof enclosure is specially designed and approved for use under the strict safety requirements found in hazardous locations in accordance with ATEX, IECEx, and NEC.

Pre-wired and fully mounted within the housing, the complete system is also UL certified and represents a truly outstanding product that is unique within the market.

## At a glance

- Pre-assembled and pre-wired safety multibeam sensor in an explosion-proof enclosure
- Certified for use in explosive atmospheres in accordance with ATEX, IECEx and NEC thanks to explosion-proof enclosure
- Typical scanning range of up to 14.2 m
- Versions with 2, 3, and 4 light beams

## Your benefits

- The way the device is assembled – complete with cable and pre-installed within the explosion-proof enclosure – not only saves on installation time but also on certification costs
- Maximum safety and automation in explosive atmospheres thanks to compliance with stringent regulations and strict safety requirements
- Long scanning range facilitates efficient access protection with minimal component requirements
- Straightforward installation and alignment

## Additional information

Detailed technical data . . . . . .87
Ordering information . . . . . 88
Recommended accessories . . . . . 88

→ www.sick.com/deTem4_Core_Ex

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.



8024285/2021-12-09
Subject to change without notice

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Explosive areas |
| **Ex-approvals** | ATEX for gas: II 2 G Ex db IIB T6<br>ATEX for dust: II 2 D Ex tb IIIC T56°C Db IP6X<br>NFPA 70/NEC 500 Class I, Div. 1, Groups C and D<br>NFPA 70/NEC 500 Class II, Div. 1, Groups E, F and G<br>NFPA 70/NEC 500 Class III, Div. 1 |
| **Scanning range** | 14.2 m |
| **Number of beams** | 2 / 3 / 4 (depending on type) |
| **Beam separation** | 500 mm / 400 mm / 300 mm (depending on type) |
| **Response time** | 20 ms |
| **Synchronization** | Optical synchronisation |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| **Category** | Category 4 (ISO 13849-1) |
| **Performance level** | PL e (ISO 13849-1) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $3 \times 10^{-9}$ |
| **$T_M$ (mission time)** | 20 years (ISO 13849-1) |
| **Safe state in the event of a fault** | At least one OSSD is in the OFF state. |

### Functions

| | |
|---|---|
| **Protective operation** | ✔ |

### Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Connecting cable (30 m) with flying leads, 5-wire |
| **Display elements** | LEDs |
| **Fieldbus, industrial network** | |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [1] |

[1] For additional information on Flexi Soft → www.sick.com/Flexi_Soft

### Electrical data

| | |
|---|---|
| **Protection class** | III (IEC 61140) |
| **Supply voltage $V_S$** | 24 V DC (19.2 V DC ... 28.8 V DC) [1] |
| **Residual ripple** | ≤ 10 % [2] |
| **Output signal switching devices (OSSDs)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [3] |
| ON state, switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| OFF state, switching voltage LOW | ≤ 2 V DC |
| Current-carrying capacity per OSSD | ≤ 300 mA |

[1] The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

[2] Within the limits of $V_S$.

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

## Mechanical data

| | |
|---|---|
| **Housing cross-section** | 161.8 mm x 142.1 mm |
| **Housing material** | Aluminum casting / AlSi7Mg0,6 |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (IEC 60529)<br>IP66 (IEC 60529) |
| **Ambient operating temperature** | –20 °C ... +55 °C |
| **Storage temperature** | –30 °C ... +70 °C |
| **Air humidity** | 15 % ... 95 %, Non-condensing |
| **Vibration resistance** | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-27) |

## Other information

| | |
|---|---|
| **Wave length** | Near-infrared (NIR), invisible |

## Ordering information

| Scanning range | Number of beams | Beam separation | Sender | | Receiver | |
|---|---|---|---|---|---|---|
| | | | Type | Part no. | Type | Part no. |
| 14.2 m | 2 | 500 mm | EXS-06D0250A020 | 1097717 | EXE-06D0250A020 | 1097716 |
| | 3 | 400 mm | EXS-09D0340A020 | 1097720 | EXE-09D0340A020 | 1097719 |
| | 4 | 300 mm | EXS-12D0430A020 | 1097723 | EXE-12D0430A020 | 1097722 |

## Recommended accessories

### Mounting systems

Terminal and alignment brackets

| Figure | Description | Packing unit | Type | Part no. |
|---|---|---|---|---|
| | Alignment bracket for explosion-proof enclosure | 2 pieces | BEF-1SHABRST2 | 2072525 |

### Connection systems

Plug connectors and cables

Other connectors and cables

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cable gland for the European market | Cable gland | 5329002 |



8024285/2021-12-09
Subject to change without notice

## Reflectors and optics

### Alignment aids

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | Adapter AR60 for explosion-proof enclosure | AR60 adapter, Ex | 2074849 |

### Optics cloths

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | Cloth for cleaning optical surfaces | Lens cloth | 4003353 |

## Further accessories

### Test and monitoring tools

| Figure | Description | Type | Part no. |
|---|---|---|---|
| | 30 mm diameter | Test rod 30 mm | 2022602 |

### Cleaning agent

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

8024285/2021-12-09
Subject to change without notice

# WORKING WITH SICK IN A DIGITAL WORLD

Making your digital business environment comfortable

## Find a suitable solution in next to no time

- Online product catalog
- Application Solver
- Online configurators and selectors

## My SICK is your personal self-service portal

- Open around the clock
- Clear product information
- Company-specific price conditions
- Convenience during the ordering process
- Document overview
- Availability and delivery times

**Register now:**
➜ www.sick.com/myBenefits

## Even more value

- Digital Customer Trainings ➜ www.sick.com/c/g300887
- Digital Service Catalog ➜ cloud.sick.com
- SICK AppPool ➜ apppool.cloud.sick.com

# 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

8024285/2021-12-09 · 2MHS · Pre USmod en51

# SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,400 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



SICK
Sensor Intelligence.