



# deTec4 Core Set 30/450

deTec4 Core

SAFETY LIGHT CURTAINS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type                   | Part no. |
|------------------------|----------|
| deTec4 Core Set 30/450 | 1062910  |

**Included in delivery:** C4C-SEA04530A10000 (1), DOL-1205-G05MC (1), BEF-1SHABPKU4 (1), UE48-20S2D2 (1)

Other models and accessories → [www.sick.com/deTec4\\_Core](http://www.sick.com/deTec4_Core)



### Detailed technical data

#### Features

|                                |   |         |              |         |              |
|--------------------------------|---|---------|--------------|---------|--------------|
| <b>System part</b>             | Sender/receive pair with FlexFix bracket, connecting cable, and UE48-20S safety relay   |         |              |         |              |
| <b>Resolution</b>              | 30 mm   |         |              |         |              |
| <b>Protective field height</b> | 450 mm  |         |              |         |              |
| <b>Scanning range</b>          | <table border="0"> <tr> <td>Minimum</td> <td>0 m ... 10 m</td> </tr> <tr> <td>Typical</td> <td>0 m ... 12 m</td> </tr> </table> | Minimum | 0 m ... 10 m | Typical | 0 m ... 12 m |
| Minimum                        | 0 m ... 10 m  |         |              |         |              |
| Typical                        | 0 m ... 12 m  |         |              |         |              |
| <b>Response time</b>           | 10  |         |              |         |              |
| <b>Synchronization</b>         | Optical synchronisation   |         |              |         |              |

#### Safety-related parameters

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

#### Interfaces

|  |   |  |   |                        |        |
|--|---|--|---|------------------------|--------|
| <b>System connection</b>                     | <table border="0"> <tr> <td>Connection type</td> <td>Male connector M12, 5-pin</td> </tr> <tr> <td>Permitted cable length</td> <td>≤ 50 m</td> </tr> </table>                                       | Connection type                              | Male connector M12, 5-pin   | Permitted cable length | ≤ 50 m |
| Connection type                              | Male connector M12, 5-pin   |  |   |                        |        |
| Permitted cable length                       | ≤ 50 m  |  |   |                        |        |
| <b>Fieldbus, industrial network</b>          | <table border="0"> <tr> <td>Integration via Flexi Soft safety controller</td> <td>CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET <sup>1)</sup></td> </tr> </table> | Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET <sup>1)</sup> |                        |        |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET <sup>1)</sup>   |  |   |                        |        |

<sup>1)</sup> For additional information on Flexi Soft -> [www.sick.com/Flexi\\_Soft](http://www.sick.com/Flexi_Soft).

## Electrical data

|  |  |
|--|--|
| <b>Protection class</b>                | III (EN 50178)   |
| <b>Supply voltage <math>V_S</math></b> | 24 V DC (19.2 V DC ... 28.8 V DC)  |
| <b>Ripple</b>                          | $\leq 2.4 V_{pp}^{1)}$   |
| <b>Power consumption typical</b>       | 1.73 W / 0.86 W (depending on type)  |
| <b>Safety outputs (OSSD)</b>           |  |
| Type of output                         | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>2)</sup> |
| Switching voltage HIGH                 | 24 V DC ( $V_S - 2.25$ V DC ... $V_S$ )  |
| Switching voltage LOW                  | $\leq 2$ V DC  |
| Switching current                      | $\leq 300$ mA  |

<sup>1)</sup> Within the limits of  $V_S$ .

<sup>2)</sup> Applies to the voltage range between -30 V and +30 V.

## Mechanical data

|  |                                   |
|--|-----------------------------------|
| <b>Housing cross-section (incl. system connection)</b> | 34 mm x 30.7 mm                   |
| <b>Housing material</b>                                | Aluminum extruded profile         |
| <b>Weight</b>  | 440 g / 430 g (depending on type) |

## Ambient data

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Enclosure rating</b>              | IP65 (EN 60529)<br>IP67 (EN 60529)  |
| <b>Ambient operating temperature</b> | -30 °C ... +55 °C                   |
| <b>Storage temperature</b>           | -30 °C ... +70 °C                   |
| <b>Air humidity</b>                  | 15 % ... 95 %, Non-condensing       |
| <b>Vibration resistance</b>          | 5 g, 10 Hz ... 55 Hz (EN 60068-2-6) |
| <b>Shock resistance</b>              | 10 g, 16 ms (EN 60068-2-29)         |

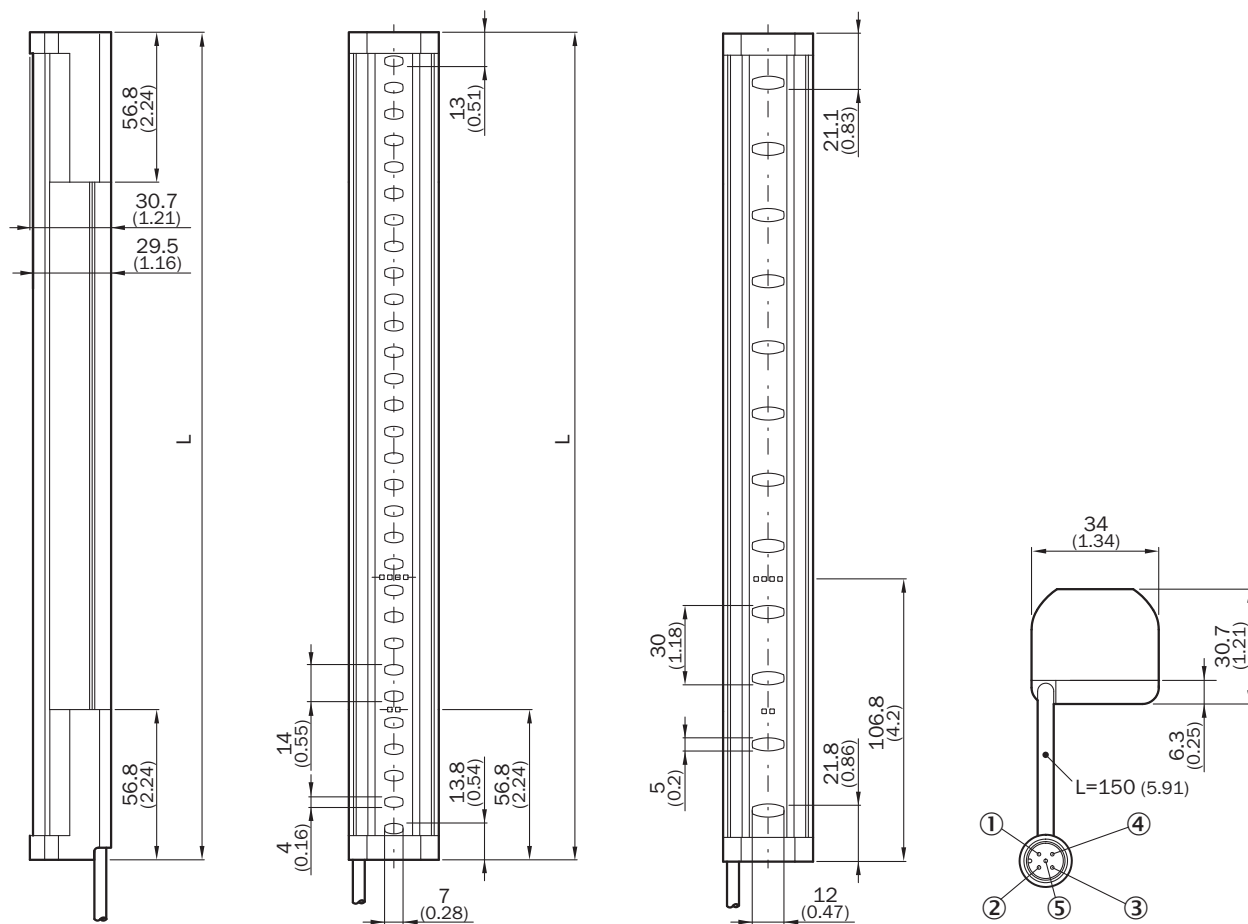
## Other information

|                    |        |
|--------------------|--------|
| <b>Wave length</b> | 850 nm |
|--------------------|--------|

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECl@ss 5.0</b>     | 27272704 |
| <b>ECl@ss 5.1.4</b>   | 27272704 |
| <b>ECl@ss 6.0</b>     | 27272704 |
| <b>ECl@ss 6.2</b>     | 27272704 |
| <b>ECl@ss 7.0</b>     | 27272704 |
| <b>ECl@ss 8.0</b>     | 27272704 |
| <b>ECl@ss 8.1</b>     | 27272704 |
| <b>ECl@ss 9.0</b>     | 27272704 |
| <b>ETIM 5.0</b>       | EC002549 |
| <b>ETIM 6.0</b>       | EC002549 |
| <b>UNSPSC 16.0901</b> | 46171620 |

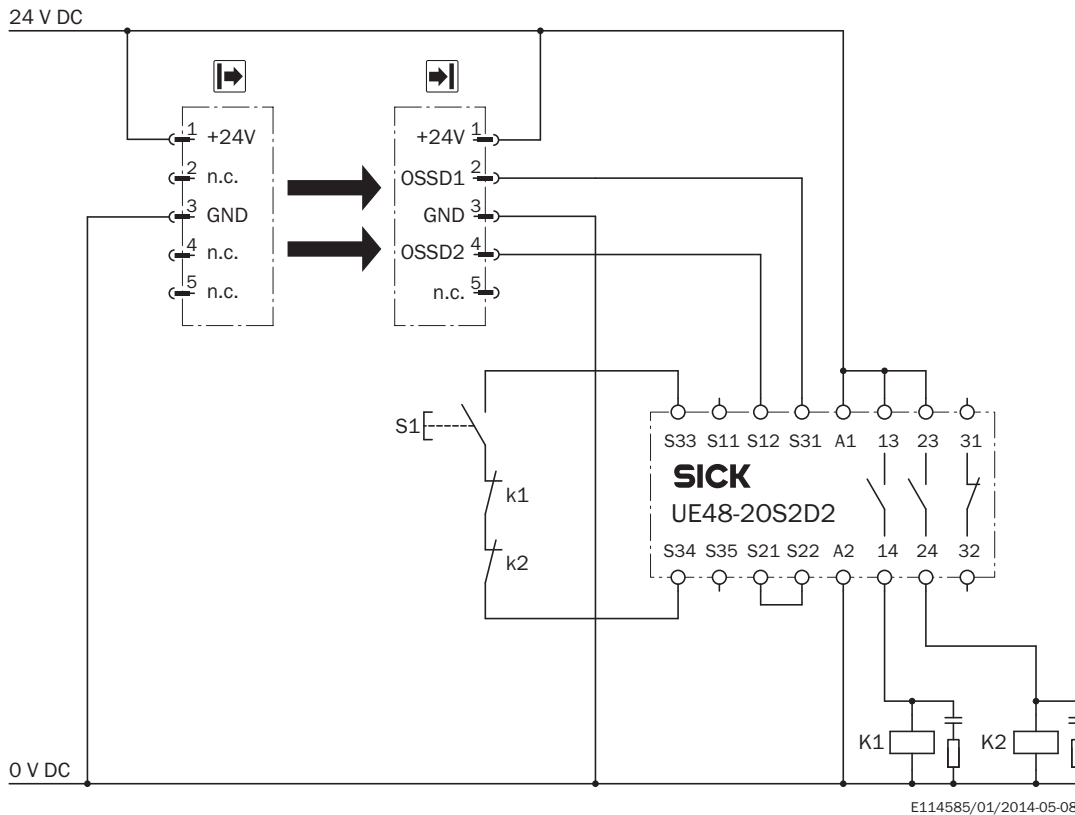
Dimensional drawing (Dimensions in mm (inch))



| Protective field height | L             |
|-------------------------|---------------|
| 300 (11.81)             | 313 (12.32)   |
| 450 (17.72)             | 463 (18.23)   |
| 600 (23.62)             | 613 (24.13)   |
| 750 (29.53)             | 763 (30.04)   |
| 900 (35.43)             | 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 (59.06)           | 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) |

## Connection diagram

deTec4 Core safety light curtain connected to UE48-20S safety relay



E114585/01/2014-05-08

### Task

Connection of a deTec4 Core safety light curtain to UE48-20S.

Operating mode: with restart interlock and external device monitoring.

### Function

When the light path is clear, the OSSD1 and OSSD2 outputs are live. The system is ready to switch on if K1 and K2 are de-energized. By pressing S1 (button is pressed and released), the UE48-20S is energized and its 13 - 14 and 23 - 24 contacts activate K1 and K2. On interruption of one of the light beams, the UE48-20S is de-energized by the OSSD1 and OSSD2 outputs and K1 and K2 are deactivated.

### Fault analysis








OSSD cross-circuits and short-circuits are detected and lead to the inhibited state (lock-out). The incorrect functioning of one of the K1 or K2 contactors will be detected and does not result in the loss of the shutdown function. Jamming of the S1 button will prevent the UE48-20S from enabling.



### Comments

<sup>1)</sup> Output circuits: These contacts are to be connected to the controller such that, with the output circuit open, the dangerous state is disabled. For categories 4 and 3, the integration must be dual-channel (x/y paths). Single-channel integration in the control (z path) is only possible with a single-channel control and by taking the risk analysis into account.

### Recommended accessories

Other models and accessories → [www.sick.com/deTec4\\_Core](http://www.sick.com/deTec4_Core)

|   | Brief description  | Type                          | Part no. |
|---|--|-------------------------------|----------|
| <b>Device protection (mechanical)</b>   |  |                               |          |
|    | 1 piece, self-adhesive protective film for the front screen (protects sensors from damage by flying sparks and welding beads)  | Self-adhesive protective film | 2069268  |
| <b>Terminal and alignment brackets</b>  |  |                               |          |
|    | 4 pieces, FlexFix bracket, plastic, can be aligned ± 15°, including screw M5, Plastic  | BEF-1SHABPKU4                 | 2066614  |
|    | 2 pieces, QuickFix bracket, Plastic  | BEF-3SHABPKU2                 | 2066048  |
| <b>Adapters and distributors</b>  |  |                               |          |
|    | CANopen, T-piece   | DSC-1205T000025KM0            | 6030664  |
| <b>Plug connectors and cables</b>   |  |                               |          |
|    | Head A: female connector, M12, 5-pin, straight<br>Head B: cable<br>Cable: Power, I/O, drag chain use, PUR, halogen-free, unshielded, 2 m   | DOL-1205-G02MC                | 6025906  |
|   | Head A: female connector, M12, 5-pin, straight<br>Head B: cable<br>Cable: drag chain use, PUR, halogen-free, unshielded, 5 m   | DOL-1205-G05MC                | 6025907  |
|   | Head A: female connector, M12, 5-pin, straight<br>Head B: cable<br>Cable: drag chain use, PUR, halogen-free, unshielded, 10 m  | DOL-1205-G10MC                | 6025908  |
|   | Head A: female connector, M12, 5-pin, straight<br>Head B: cable<br>Cable: drag chain use, PUR, halogen-free, unshielded, 20 m  | DOL-1205-G20MC                | 6050247  |
|   | Head A: female connector, M12, 5-pin, straight<br>Head B: cable<br>Cable: drag chain use, PUR, halogen-free, unshielded, 30 m  | DOL-1205-G30MC                | 6050248  |
|  | Head A: female connector, M12, 5-pin, angled<br>Head B: cable<br>Cable: Power, I/O, drag chain use, PUR, halogen-free, unshielded, 2 m   | DOL-1205-W02MC                | 6025909  |
|   | Head A: female connector, M12, 5-pin, angled<br>Head B: cable<br>Cable: drag chain use, PUR, halogen-free, unshielded, 5 m   | DOL-1205-W05MC                | 6025910  |
|   | Head A: female connector, M12, 5-pin, angled<br>Head B: cable<br>Cable: drag chain use, PUR, halogen-free, unshielded, 10 m  | DOL-1205-W10MC                | 6025911  |
|  | Head A: female connector, M12, 5-pin, straight, A-coding<br>Head B: male connector, M12, 5-pin, straight, A-coding<br>Cable: digital I/Os, drag chain use, PUR, halogen-free, unshielded, 5 m  | DSL-1205-G05MC                | 6029282  |
|   | Head A: female connector, M12, 5-pin, straight, A-coding<br>Head B: male connector, M12, 5-pin, straight, A-coding<br>Cable: digital I/Os, drag chain use, PUR, halogen-free, unshielded, 10 m | DSL-1205-G10MC                | 6038954  |
|   | Head A: female connector, M12, 5-pin, straight, A-coding<br>Head B: male connector, M12, 5-pin, straight, A-coding<br>Cable: digital I/Os, drag chain use, PUR, halogen-free, unshielded, 15 m | DSL-1205-G15MC                | 6038956  |

|   | <b>Brief description</b>   | <b>Type</b>                | <b>Part no.</b> |
|---|--|----------------------------|-----------------|
| Alignment aids  |  |                            |                 |
|  | 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, MLG-2 | 4070854         |

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

For us, that is “Sensor Intelligence.”

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