



# EXE-12D6603B020

deTec

**SAFETY LIGHT CURTAINS**

**SICK**  
Sensor Intelligence.



### Ordering information

#### deTec4 Core Ex

| Resolution | Scanning range | Protective field height | System part | Type            | Part no. |
|------------|----------------|-------------------------|-------------|-----------------|----------|
| 30 mm      | 10 m           | 1,200 mm                | Receiver    | EXE-12D6603B020 | 1068412  |

Completely pre-installed including connecting cable, 30 m, flying lead, 5-wire

Other models and accessories → [www.sick.com/deTec](http://www.sick.com/deTec)

Illustration may differ



### Detailed technical data

#### Features

|                                |                                                                                                                                                                                                                                     |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application</b>             | Explosive areas                                                                                                                                                                                                                     |
| <b>Ex-approvals</b>            | 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 |
| <b>System part</b>             | Receiver                                                                                                                                                                                                                            |
| <b>Compatible sender</b>       | 1068413                                                                                                                                                                                                                             |
| <b>Resolution</b>              | 30 mm                                                                                                                                                                                                                               |
| <b>Scanning range</b>          | 10 m                                                                                                                                                                                                                                |
| <b>Protective field height</b> | 1,200 mm                                                                                                                                                                                                                            |
| <b>Response time</b>           | 12 ms                                                                                                                                                                                                                               |
| <b>Synchronization</b>         | Optical synchronisation                                                                                                                                                                                                             |
| <b>Items supplied</b>          | Receiver in explosion-proof enclosure with connecting cable, 30 m<br>2 handles including screws<br>Test rod with diameter corresponding to the resolution of the safety light curtain<br>Operating instructions on CD-ROM           |

#### Safety-related parameters

|                                                                           |                                        |
|---------------------------------------------------------------------------|----------------------------------------|
| <b>Type</b>                                                               | Type 4 (IEC 61496-1)                   |
| <b>Safety integrity level</b>                                             | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| <b>Category</b>                                                           | Category 4 (ISO 13849-1)               |
| <b>Performance level</b>                                                  | PL e (ISO 13849-1)                     |
| <b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b> | $3.7 \times 10^{-9}$                   |

|                                           |                                        |
|-------------------------------------------|----------------------------------------|
| <b>T<sub>M</sub> (mission time)</b>       | 20 years (ISO 13849-1)                 |
| <b>Safe state in the event of a fault</b> | At least one OSSD is in the OFF state. |

## Functions

|                                                            |   |
|------------------------------------------------------------|---|
| <b>Protective operation</b>                                | ✓ |
| <b>Automatic calibration of the protective field width</b> | ✓ |

## Interfaces

|                                                                                     |                                                                                                           |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>System connection</b>                                                            | Connecting cable, 30 m, flying lead, 5-wire                                                               |
| <b>Display elements</b>                                                             | LEDs                                                                                                      |
| <b>Fieldbus, industrial network</b><br>Integration via Flexi Soft safety controller | CANopen <sup>1)</sup><br>DeviceNet™<br>EtherCAT®<br>Ethernet/IP™<br>Modbus TCP<br>PROFIBUS DP<br>PROFINET |

<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 (IEC 61140)                                                                      |
| <b>Supply voltage V<sub>S</sub></b>                              | 24 V DC (19.2 V ... 28.8 V)                                                          |
| <b>Ripple</b>                                                    | ≤ 10 %                                                                               |
| <b>Power consumption typical</b>                                 | 2.21 W (DC)                                                                          |
| <b>Output signal switching devices (OSSDs)</b><br>Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>1)</sup> |
| ON state, switching voltage HIGH                                 | 24 V DC (V <sub>S</sub> – 2.25 V DC ... V <sub>S</sub> )                             |
| OFF state, switching voltage LOW                                 | ≤ 2 V DC                                                                             |
| Current-carrying capacity per OSSD                               | ≤ 300 mA                                                                             |

<sup>1)</sup> Applies to the voltage range between –30 V and +30 V.

## Mechanical data

|                              |                          |
|------------------------------|--------------------------|
| <b>Dimensions</b>            | See dimensional drawing  |
| <b>Housing cross-section</b> | 161.8 mm x 142.1 mm      |
| <b>Housing material</b>      | Aluminum cast/AlSi7Mg0.6 |

## Ambient data

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| <b>Enclosure rating</b>              | IP65 (IEC 60529)<br>IP66 (IEC 60529) |
| <b>Ambient operating temperature</b> | –20 °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 (IEC 60068-2-6) |
| <b>Shock resistance</b>              | 10 g, 16 ms (IEC 60068-2-27)         |

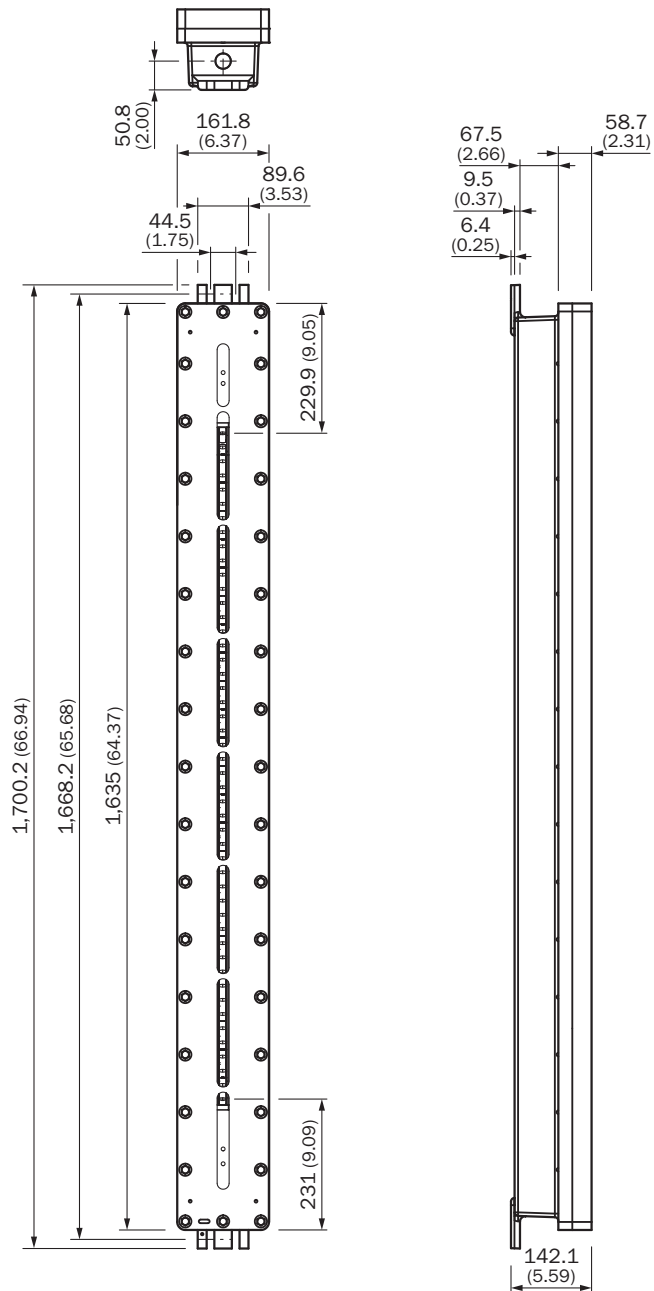
## Classifications

|                   |          |
|-------------------|----------|
| <b>ECI@ss 5.0</b> | 27272704 |
|-------------------|----------|

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.1.4</b>   | 27272704 |
| <b>ECI@ss 6.0</b>     | 27272704 |
| <b>ECI@ss 6.2</b>     | 27272704 |
| <b>ECI@ss 7.0</b>     | 27272704 |
| <b>ECI@ss 8.0</b>     | 27272704 |
| <b>ECI@ss 8.1</b>     | 27272704 |
| <b>ECI@ss 9.0</b>     | 27272704 |
| <b>ECI@ss 10.0</b>    | 27272704 |
| <b>ECI@ss 11.0</b>    | 27272704 |
| <b>ETIM 5.0</b>       | EC002549 |
| <b>ETIM 6.0</b>       | EC002549 |
| <b>ETIM 7.0</b>       | EC002549 |
| <b>UNSPSC 16.0901</b> | 46171620 |

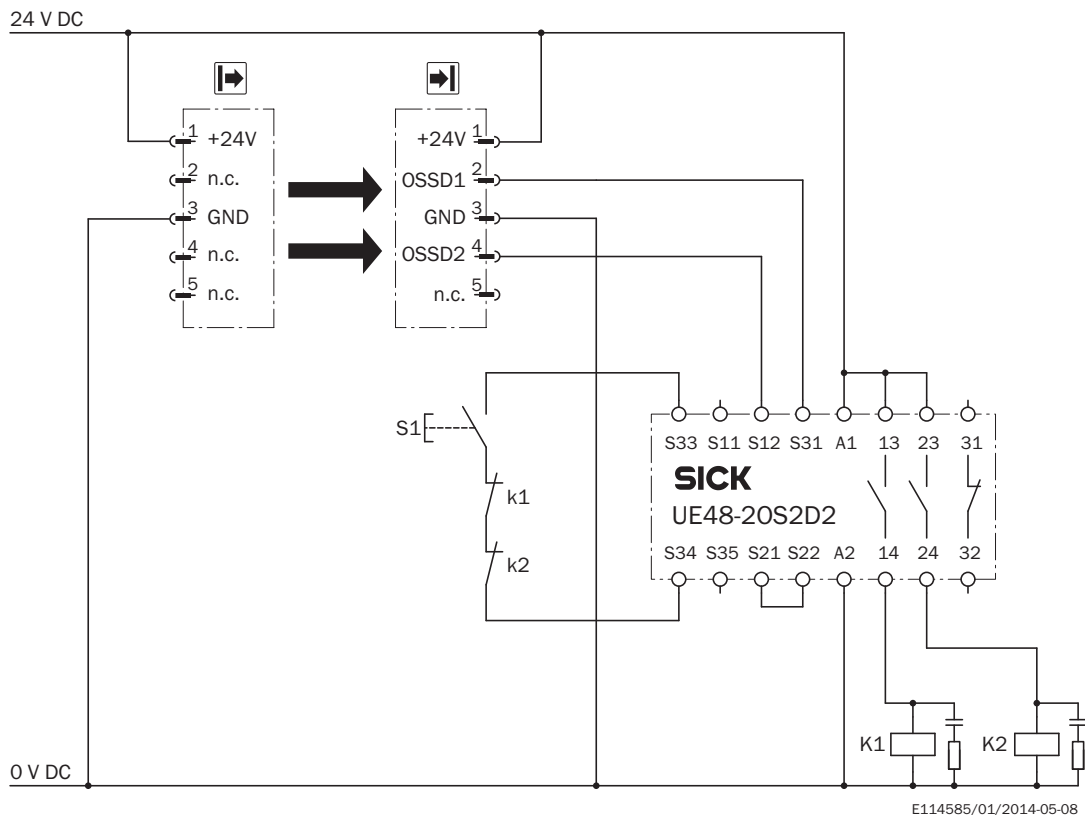
## Dimensional drawing (Dimensions in mm (inch))

deTec4 Core Ex, 1,200 mm



## Connection diagram

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



### Task

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

Operating mode: With restart interlock and external device monitoring

### Mode of operation

When the light path is clear, the OSSD1 and OSSD2 outputs carry voltage. When K1 and K2 are in a fault-free de-energized position, the system can be switched on and waits for an input signal/switch-on signal. The UE48-20S is switched on by pressing and then releasing the S1 pushbutton. The outputs (contacts 13 - 14 and 23 - 24) switch the K1 and K2 contactors on. When one or more light beams are interrupted, the OSSD1 and OSSD2 outputs switch off the UE48-20S. Contactors K1 and K2 are switched off.

### Fault analysis

Cross-circuits and short-circuits of the OSSDs are recognized and lead to the locking state (lock-out). A malfunction with one of the K1 or K2 contactors is detected. The shut-down function is retained. In the event of manipulation (e.g., jamming) of the S1 pushbutton, the UE48-20S will not re-enable the output current circuits.

### Comments

<sup>1)</sup> Output circuits: These contacts must be incorporated into the control such that the dangerous state is brought to an end if the output circuit is open. For categories 4 and 3, they must be incorporated on two channels (x, y paths). Single-channel incorporation into the control (z path) is only possible with a single-channel control and taking the risk analysis into account.

## Recommended accessories

Other models and accessories → [www.sick.com/deTec](http://www.sick.com/deTec)

|                                                                                   | Brief description                                         | Type           | Part no. |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------|----------------|----------|
| Terminal and alignment brackets                                                   |                                                           |                |          |
|  | 2 pieces, alignment bracket for explosion-proof enclosure | BEF-1SHABRST2  | 2072525  |
| Test and monitoring tools                                                         |                                                           |                |          |
|  | 30 mm diameter                                            | Test rod 30 mm | 2022602  |
| Plug connectors and cables                                                        |                                                           |                |          |
|  | Cable gland for the European market                       | Cable gland    | 5329001  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. 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.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our 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 us a reliable supplier and development partner.

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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)