



# M4C-EB03400A10

deTem

**SAFETY MULTIBEAM SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

| Type           | part no. |
|----------------|----------|
| M4C-EB03400A10 | 1089980  |

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



### Detailed technical data

#### Features

|                                    |                                                                                                                                                        |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product version</b>             | deTem4 Core IP69K                                                                                                                                      |
| <b>Application</b>                 | Areas with special hygiene requirements                                                                                                                |
| <b>Functional principle</b>        | Sender/receiver                                                                                                                                        |
| <b>System part</b>                 | Receiver                                                                                                                                               |
| <b>Scanning range category</b>     | Low scanning range                                                                                                                                     |
| <b>Scanning range</b>              | 15.5 m                                                                                                                                                 |
| <b>Dimension of the light path</b> |                                                                                                                                                        |
| Minimum                            | 0.5 m ... 12.5 m                                                                                                                                       |
| Typical                            | 0.5 m ... 15.5 m                                                                                                                                       |
| <b>Number of beams</b>             | 3                                                                                                                                                      |
| <b>Beam separation</b>             | 400 mm                                                                                                                                                 |
| <b>Response time</b>               | 20 ms                                                                                                                                                  |
| <b>Synchronization</b>             | Optical synchronization                                                                                                                                |
| <b>Items supplied</b>              | Receiver in IP69K protective housing with connecting cable, 15 m<br>Safety instruction<br>Mounting instructions<br>Operating instructions for download |

#### Safety-related parameters

|                               |                          |
|-------------------------------|--------------------------|
| <b>Type</b>                   | Type 4 (IEC 61496-1)     |
| <b>Safety integrity level</b> | SIL 3 (IEC 61508)        |
| <b>Category</b>               | Category 4 (ISO 13849-1) |
| <b>Performance level</b>      | PL e (ISO 13849-1)       |

|                                                                           |                                        |
|---------------------------------------------------------------------------|----------------------------------------|
| <b>PFH<sub>D</sub></b> (mean probability of a dangerous failure per hour) | 3 x 10 <sup>-9</sup>                   |
| <b>T<sub>M</sub></b> (mission time)                                       | 20 years (ISO 13849-1)                 |
| <b>Safe state in the event of a fault</b>                                 | At least one OSSD is in the OFF state. |

## Interfaces

|                          |                          |
|--------------------------|--------------------------|
| <b>System connection</b> | Connecting cable, 5-wire |
| Length of cable          | 15 m                     |
| Cable diameter           | 5 mm                     |
| Cable material           | PUR, halogen-free        |
| Conductor cross section  | 0.34 mm <sup>2</sup>     |
| <b>Display elements</b>  | LEDs                     |

## Electronics

|                                                |                                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Protection class</b>                        | III (IEC 61140) <sup>1)</sup>                                                        |
| <b>Supply voltage V<sub>S</sub></b>            | 24 V DC (19.2 V DC ... 28.8 V DC) <sup>2)</sup>                                      |
| <b>Residual ripple</b>                         | ≤ 10 % <sup>3)</sup>                                                                 |
| <b>Power consumption</b>                       | ≤ 150 mA                                                                             |
| <b>Power consumption</b>                       | ≤ 4.32 W (DC)                                                                        |
| <b>Output signal switching devices (OSSDs)</b> | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>4)</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> SELV/PELV safety/protective extra-low voltage.

<sup>2)</sup> 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.

<sup>3)</sup> Within the limits of V<sub>S</sub>.

<sup>4)</sup> Applies to the voltage range between –30 V and +30 V.

## Mechanics

|                                 |                                                |
|---------------------------------|------------------------------------------------|
| <b>Dimensions</b>               | See dimensional drawing                        |
| <b>Housing diameter</b>         | 50 mm                                          |
| <b>Material</b>                 |                                                |
| Housing                         | PMMA                                           |
| End caps                        | Stainless steel 1.4404                         |
| Compensating element (membrane) | PA 6                                           |
| Cable glands                    | Stainless steel 1.4404 including silicone seal |
| <b>Weight</b>                   | 2,200 g (± 50 g)                               |

## Ambient data

|                                      |                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------|
| <b>Enclosure rating</b>              | IP65 (IEC 60529)<br>IP66 (IEC 60529)<br>IP67 (IEC 60529)<br>IP69K (ISO 20653) |
| <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 ... 150 Hz, 3,5 mm / 1 g (EN 60068-2-6) |
| <b>Shock resistance</b>     | 15 g / 6 ms (EN 60068-2-27)               |
| <b>Class</b>                | 3M4 (IEC TR 60721-4-3)                    |

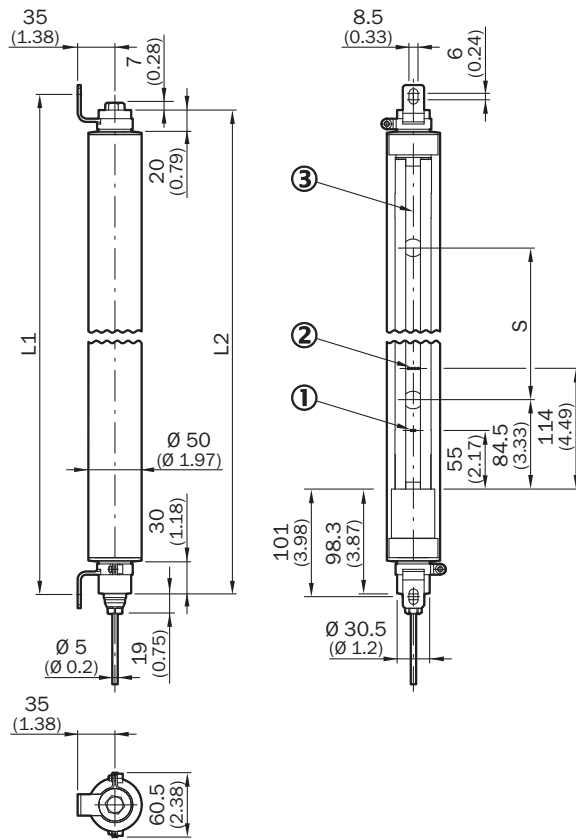
#### Certificates

|                                                                              |   |
|------------------------------------------------------------------------------|---|
| <b>EU declaration of conformity</b>                                          | ✓ |
| <b>UK declaration of conformity</b>                                          | ✓ |
| <b>ACMA declaration of conformity</b>                                        | ✓ |
| <b>Moroccan declaration of conformity</b>                                    | ✓ |
| <b>China RoHS</b>                                                            | ✓ |
| <b>ECOLAB certificate</b>                                                    | ✓ |
| <b>UK-Type-Examination approval</b>                                          | ✓ |
| <b>ULus approval</b>                                                         | ✓ |
| <b>cUL approval</b>                                                          | ✓ |
| <b>diversey certificate</b>                                                  | ✓ |
| <b>EC-Type-Examination approval</b>                                          | ✓ |
| <b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b> | ✓ |

#### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27272703 |
| <b>ECLASS 5.1.4</b>   | 27272703 |
| <b>ECLASS 6.0</b>     | 27272703 |
| <b>ECLASS 6.2</b>     | 27272703 |
| <b>ECLASS 7.0</b>     | 27272703 |
| <b>ECLASS 8.0</b>     | 27272703 |
| <b>ECLASS 8.1</b>     | 27272703 |
| <b>ECLASS 9.0</b>     | 27272703 |
| <b>ECLASS 10.0</b>    | 27272703 |
| <b>ECLASS 11.0</b>    | 27272703 |
| <b>ECLASS 12.0</b>    | 27272703 |
| <b>ETIM 5.0</b>       | EC001832 |
| <b>ETIM 6.0</b>       | EC001832 |
| <b>ETIM 7.0</b>       | EC001832 |
| <b>ETIM 8.0</b>       | EC001832 |
| <b>UNSPSC 16.0901</b> | 46171620 |

## Dimensional drawing

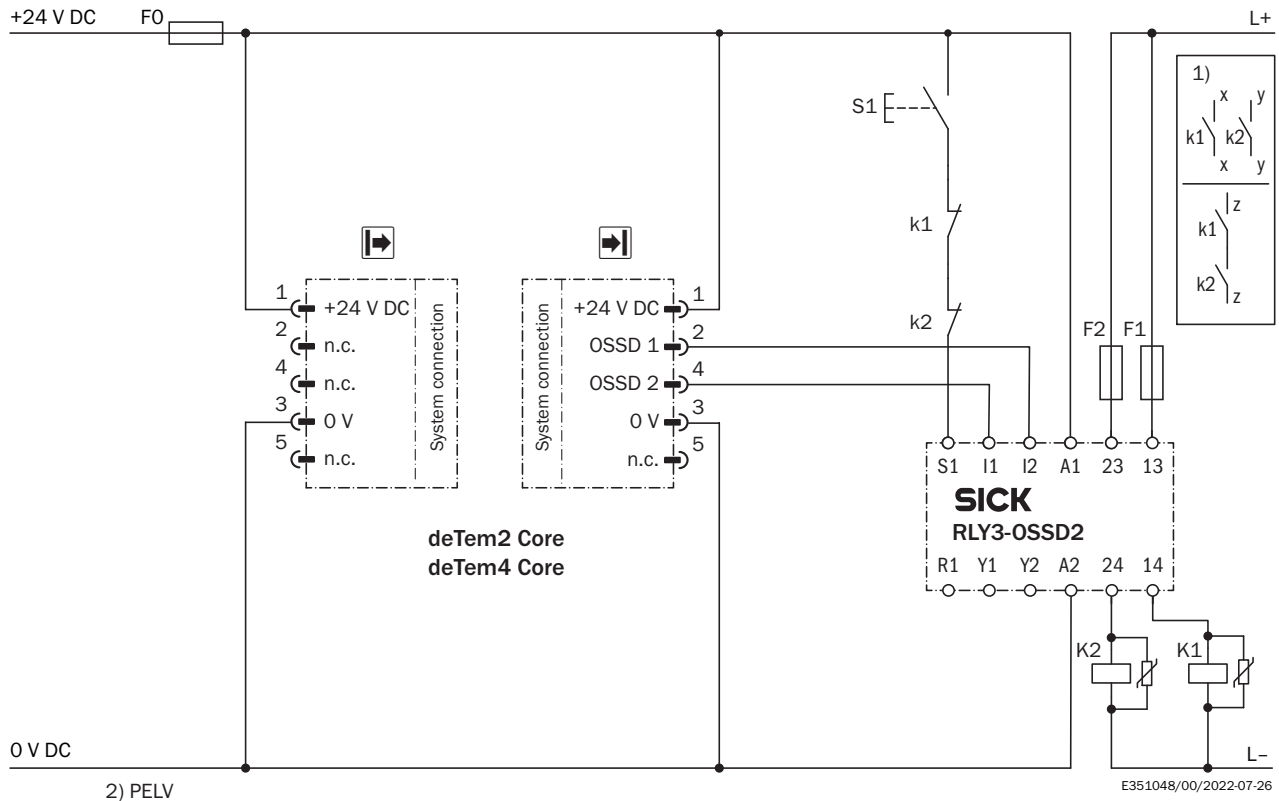


Dimensions in mm (inch)

- ① Operating indicator
- ② Alignment indicator
- ③ Optical axis

|   |     | <b>L1</b> | <b>L2</b> |
|---|-----|-----------|-----------|
| 2 | 500 | 828       | 813       |
| 3 | 400 | 1,128     | 1,113     |
| 4 | 300 | 1,228     | 1,213     |

deTem4 Core IP69K safety multibeam sensor to RLY3-OSSD2 safety relay



**task**

Connection of a deTem4 Core IP69K or deTem2 Core IP69K safety multibeam sensor to RLY3-OSSD2.

Operating mode: With restart interlock and external device monitoring.

**Mode of operation**

When the protective field is clear, the OSSD1 and OSSD2 outputs carry voltage. The system can be switched on when K1 and K2 are in a fault-free de-energized position. The RLY3-OSSD2 is switched on by pressing S1 (pushbutton is pressed and released). The outputs (contacts 13-14 and 23-24) switch the K1 and K2 contactors on. When the protective field is interrupted, the OSSD1 and OSSD2 outputs switch the RLY3-OSSD2 off. Contactors K1 and K2 are switched off.

**Fault analysis**

Cross-circuits and short-circuits of the OSSDs are recognized and lead to the locking status (lock-out). A malfunction with one of the K1 or K2 contactors is detected. The switch-off function is retained. In the event of manipulation (e.g., jamming) of the S1 pushbutton, the RLY3-OSSD2 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 dual channels (x, y paths). Type 2 devices are suitable for use up to PL c. Single-channel incorporation into the control (z path) is only possible with a single-channel control and taking the risk analysis into account.

<sup>2)</sup> SELV/PELV safety extra-low voltage.

| Connection | Color-coded connecting cable | Sender   | Receiver |
|------------|------------------------------|----------|----------|
| 1          | Brown                        | +24 V DC | +24 V DC |
| 2          | White                        | Reserved | OSSD 1   |
| 3          | Blue                         | 0 V DC   | 0 V DC   |
| 4          | Black                        | Reserved | OSSD 2   |
| 5          | Gray                         | -        | -        |

## Recommended accessories

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

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Type          | part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|
| Safety relays                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |          |
|    | <ul style="list-style-type: none"> <li><b>Applications:</b> Evaluation unit</li> <li><b>Compatible sensor types:</b> Safety sensors with OSSDs</li> <li><b>Connection type:</b> Front connector with spring terminals</li> <li><b>Restart interlock:</b> yes</li> <li><b>External device monitoring (EDM):</b> Integrated</li> <li><b>Outputs:</b> 2 enabling current paths (safe), 2 application diagnostic outputs (not safe), 1 test pulse output (not safe)</li> <li><b>Housing width:</b> 18 mm</li> </ul> | RLY3-OSSD200  | 1085344  |
|    | <ul style="list-style-type: none"> <li><b>Applications:</b> Evaluation unit</li> <li><b>Compatible sensor types:</b> Safety sensors with OSSDs</li> <li><b>Connection type:</b> Front connector with spring terminals</li> <li><b>Restart interlock:</b> yes</li> <li><b>External device monitoring (EDM):</b> Integrated</li> <li><b>Outputs:</b> 3 enabling current paths (safe), 2 application diagnostic outputs (not safe), 1 test pulse output (not safe)</li> <li><b>Housing width:</b> 18 mm</li> </ul> | RLY3-OSSD300  | 1099969  |
| Mounting systems                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |          |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Stainless steel bracket, rotatable</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4350, stainless steel 1.4301</li> <li><b>Packing unit:</b> 4 pieces</li> </ul>                                                                                                                                                                                                                                               | BEF-2SMMEAES4 | 2023708  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Stainless steel support bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4350</li> <li><b>Packing unit:</b> 2 pieces</li> </ul>                                                                                                                                                                                                                                                                          | BEF-2AAAADES2 | 2026849  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Reinforced stainless steel bracket, rotatable</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4350, stainless steel 1.4301</li> <li><b>Packing unit:</b> 4 pieces</li> </ul>                                                                                                                                                                                                                                    | BEF-2SMMVAES4 | 2026850  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Reinforced stainless steel bracket, rotatable</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4350, stainless steel 1.4301</li> <li><b>Packing unit:</b> 2 pieces</li> </ul>                                                                                                                                                                                                                                    | BEF-2SMMVAES2 | 2048373  |

## 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)