



# M40E-034010IRO

M4000 Standard

**SAFETY MULTIBEAM SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

| Scanning range               | Number of beams | Beam separation | System part | Type           | Part no. |
|------------------------------|-----------------|-----------------|-------------|----------------|----------|
| 0.5 m ... 70 m, configurable | 3               | 400 mm          | Receiver    | M40E-034010IRO | 1201556  |

Other models and accessories → [www.sick.com/M4000\\_Standard](http://www.sick.com/M4000_Standard)

Illustration may differ



### Detailed technical data

#### Features

|                                       |                              |
|---------------------------------------|------------------------------|
| <b>Scanning range</b>                 | 0.5 m ... 70 m, configurable |
| <b>Low scanning range</b>             | 0.5 m ... 20 m               |
| <b>Great scanning range</b>           | 9 m ... 70 m                 |
| <b>Number of beams</b>                | 3                            |
| <b>Beam separation</b>                | 400 mm                       |
| <b>Response time</b>                  | 10 ms                        |
| <b>Synchronization</b>                | Optical synchronisation      |
| <b>Integrated laser alignment aid</b> | ✓                            |
| <b>Specialty</b>                      | Without additional options   |

#### 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 (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> | $6.6 \times 10^{-9}$ (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. |

#### Functions

|   | Functions | Delivery status     |
|---|-----------|---------------------|
| <b>Beam coding</b>                                | ✓         | Uncoded             |
| <b>Restart interlock</b>                          | ✓         | Internal            |
| <b>External device monitoring (EDM)</b>           | ✓         | Deactivated         |
| <b>Configurable scanning range</b>                | ✓         | 9 m ... 70 m        |
| <b>Configurable application diagnostic output</b> | ✓         | Contamination (OWS) |

## Interfaces

|                             |                           |
|-----------------------------|---------------------------|
| <b>System connection</b>    | Male connector M12, 8-pin |
| Permitted cable length      | 15 m <sup>1)</sup>        |
| Permitted cross-section     | ≥ 0.25 mm <sup>2</sup>    |
| <b>Configuration method</b> | Configuration buttons     |
| <b>Display elements</b>     | LEDs<br>7-segment display |

<sup>1)</sup> Depending on load, power supply and wire cross-section. The technical specifications must be observed.

## Electrical data

|  |  |
|--|--|
| <b>Protection class</b>                        | III (IEC 61140)  |
| <b>Supply voltage <math>V_S</math></b>         | 24 V DC (19.2 V DC ... 28.8 V DC) <sup>1)</sup>                                      |
| <b>Residual ripple</b>                         | ≤ 10 % <sup>2)</sup>   |
| <b>Power consumption</b>                       | ≤ 0.6 A <sup>3)</sup>  |
| <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 ( $V_S - 2.25$ V DC ... $V_S$ )  |
| OFF state, switching voltage LOW               | ≤ 2 V DC   |
| Current-carrying capacity per OSSD             | ≤ 500 mA   |

<sup>1)</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>2)</sup> Within the limits of  $V_S$ .

<sup>3)</sup> Without load.

<sup>4)</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> | 52 mm x 55.5 mm                          |
| <b>Material</b>              |  |
| Housing                      | Aluminum alloy ALMGSI 0.5, powder coated |
| Front screen                 | Polycarbonate, scratch-resistant coating |

## Ambient data

|                                      |                               |
|--------------------------------------|-------------------------------|
| <b>Enclosure rating</b>              | IP65 (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>Shock resistance</b>              | 10 g, 16 ms (IEC 60068-2-29)  |

## Other information

|                                       |  |
|---------------------------------------|--|
| <b>Wave length</b>                    | 850 nm                                   |
| <b>Integrated laser alignment aid</b> | ✓  |
| Laser class                           | 2 (IEC 60825-1), do not stare into beam! |
| Light source                          | LED                                      |
| Type of light                         | Visible red light                        |
| Wave length                           | 630 nm ... 680 nm                        |
| Power consumption                     | ≤ 1 mW                                   |

### Classifications

|                       |          |
|-----------------------|----------|
| <b>eCl@ss 5.0</b>     | 27272703 |
| <b>eCl@ss 5.1.4</b>   | 27272703 |
| <b>eCl@ss 6.0</b>     | 27272703 |
| <b>eCl@ss 6.2</b>     | 27272703 |
| <b>eCl@ss 7.0</b>     | 27272703 |
| <b>eCl@ss 8.0</b>     | 27272703 |
| <b>eCl@ss 8.1</b>     | 27272703 |
| <b>eCl@ss 9.0</b>     | 27272703 |
| <b>eCl@ss 10.0</b>    | 27272703 |
| <b>eCl@ss 11.0</b>    | 27272703 |
| <b>eCl@ss 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))



Illustration sender (receiver mirror image)

| Number of beams | Beam separation S1 | L1          | L2          |
|-----------------|--------------------|-------------|-------------|
| 2               | 500 (19.69)        | 643 (25.31) | 672 (26.46) |

| Number of beams | Beam separation S1 | L1            | L2            |
|-----------------|--------------------|---------------|---------------|
| 3               | 600 (23.62)        | 743 (29.25)   | 772 (30.39)   |
|                 | 220 (8.66)         | 583 (22.95)   | 612 (24.09)   |
|                 | 400 (15.75)        | 943 (37.13)   | 972 (38.27)   |
| 4               | 450 (17.72)        | 1,043 (41.06) | 1,072 (42.20) |
|                 | 220 (8.66)         | 803 (31.61)   | 832 (32.76)   |
|                 | 300 (11.81)        | 1,043 (41.06) | 1,072 (42.20) |
| 5               | 220 (8.66)         | 1,023 (40.28) | 1,052 (41.42) |
| 6               |                    | 1,243 (48.94) | 1,272 (50.08) |
| 7               |                    | 1,462 (57.56) | 1,491 (58.70) |
| 8               |                    | 1,682 (66.22) | 1,711 (67.36) |

### Recommended accessories

Other models and accessories → [www.sick.com/M4000\\_Standard](http://www.sick.com/M4000_Standard)

|   | Brief description   | Type                | Part no. |
|---|---|---------------------|----------|
| <b>Alignment aids</b>   |   |                     |          |
|   | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!, 19 mm x 67.3 mm x 66.9 mm | AR60                | 1015741  |
|  | Adapter AR60 for M4000 and M4000 Curtain  | AR60 adapter, M4000 | 4040006  |
| <b>Mounting brackets and plates</b>   |   |                     |          |
|  | 4 pieces, Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers                          | BEF-3WNGBAST4       | 7021352  |
| <b>Terminal and alignment brackets</b>  |   |                     |          |
|  | 4 pieces, Mounting kit 6, side bracket, rotatable, zinc diecast   | BEF-1SHABAZN4       | 2019506  |
|  | 4 pieces, Mounting kit 12, rotatable, swivel mount  | BEF-2SMGEAKU4       | 2030510  |

## 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)