Data sheet

# M40E-025000RT0

## M4000 Standard

**SAFETY MULTIBEAM SENSORS**

SICK
Sensor Intelligence.

Illustration may differ

## Ordering information

| Type | part no. |
|---|---|
| M40E-025000RT0 | 1201233 |

Other models and accessories ➜ www.sick.com/M4000_Standard

## Detailed technical data

### Features

| | |
|---|---|
| **Specialty** | With extension connection Reset |
| **Functional principle** | Sender/receiver |
| **System part** | Receiver |
| **Scanning range** | 0.5 m ... 70 m, configurable |
| **Low scanning range** | 0.5 m ... 20 m |
| **Great scanning range** | 9 m ... 70 m |
| **Number of beams** | 2 |
| **Beam separation** | 500 mm |
| **Response time** | 10 ms |
| **Synchronization** | Optical synchronization |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496-1) |
| **Safety integrity level** | SIL 3 (IEC 61508) |
| **Category** | Category 4 (EN ISO 13849) |
| **Performance level** | PL e (EN ISO 13849) |
| **$PFH_D$ (mean probability of a dangerous failure per hour)** | $6.6 \times 10^{-9}$ (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 |
|---|---|---|
| **Beam coding** | ✓ | Uncoded |
| **Restart interlock** | ✓ | Internal |

| | | |
|---|---|---|
| **External device monitoring (EDM)** | ✓ | Activated |
| **Configurable scanning range** | ✓ | 0.5 m ... 20 m |
| **Configurable application diagnostic output** | ✓ | Contamination (OWS) |

## Interfaces

| | |
|---|---|
| **System connection** | Male connector M12, 8-pin |
| Permitted cable length | 15 m [1] |
| Permitted cross-section | ≥ 0.25 mm² |
| **Reset connection** | Female connector M12, 5-pin |
| **Configuration method** | Configuration buttons |
| **Display elements** | LEDs<br>7-segment display |

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

## Electronics

| | |
|---|---|
| **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] |
| **Power consumption** | ≤ 0.6 A [3] |
| **Output signal switching devices (OSSDs)** | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [4] |
| 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 |

[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] Without load.
[4] Applies to the voltage range between –30 V and +30 V.

## Mechanics

| | |
|---|---|
| **Dimensions** | See dimensional drawing |
| **Housing cross-section** | 52 mm x 55.5 mm |
| **Material** | |
| Housing | Aluminum alloy ALMGSI 0.5, powder coated |
| Front screen | Polycarbonate, scratch-resistant coating |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP65 (EN 60529) |
| **Ambient operating temperature** | –30 °C ... +55 °C |
| **Storage temperature** | –30 °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** | 850 nm |

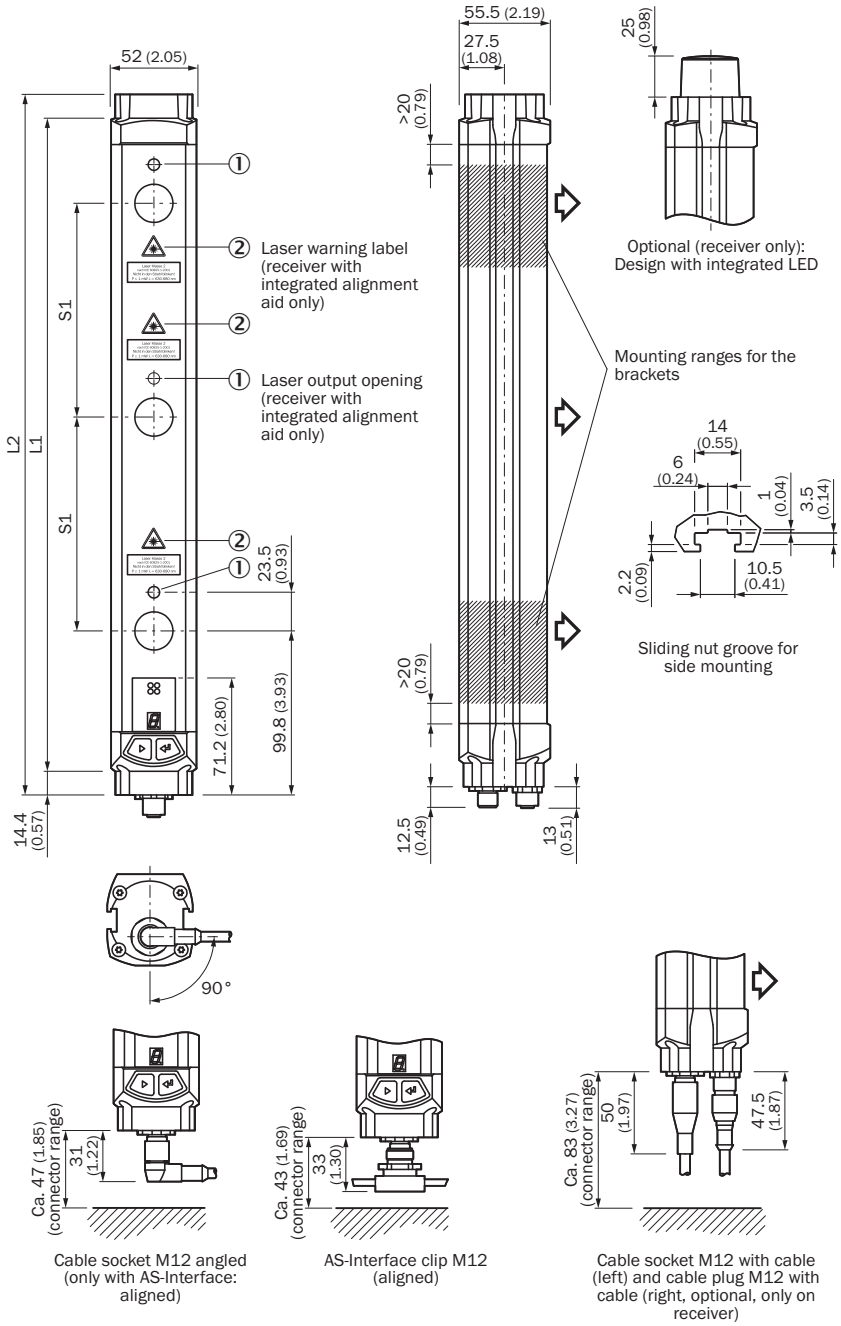
## Certificates

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

## Classifications

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

## Dimensional drawing



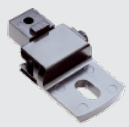

Dimensions in mm (inch)
illustration sender (receiver mirror image)

| Number of beams | Beam separation S1 | L1 | L2 |
|---|---|---|---|
| 2 | 500 (19.69) | 643 (25.31) | 672 (26.46) |
| | 600 (23.62) | 743 (29.25) | 772 (30.39) |
| 3 | 220 (8.66) | 583 (22.95) | 612 (24.09) |
| | 400 (15.75) | 943 (37.13) | 972 (38.27) |
| | 450 (17.72) | 1,043 (41.06) | 1,072 (42.20) |
| 4 | 220 (8.66) | 803 (31.61) | 832 (32.76) |

| Number of beams | Beam separation S1 | L1 | L2 |
|---|---|---|---|
| | 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

| | Brief description | Type | part no. |
|---|---|---|---|
| Mounting systems | | | |
|  | • **Description:** Mounting kit 6, side bracket, rotatable<br>• **Material:** Zinc diecast<br>• **Details:** Zinc diecast<br>• **Packing unit:** 4 pieces<br>• **Suitable for:** All protective field heights | BEF-1SHABAZN4 | 2019506 |
| | • **Description:** Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers<br>• **Packing unit:** 4 pieces<br>• **Suitable for:** All protective field heights | BEF-3WNGBAST4 | 7021352 |
| | • **Description:** Mounting kit 12, rotatable, swivel mount<br>• **Packing unit:** 4 pieces<br>• **Suitable for:** All protective field heights | BEF-2SMGEAKU4 | 2030510 |
| Commissioning aids and test equipment | | | |
| | • **Product:** Alignment aids<br>• **Dimensions (W x H x L):** 19 mm<br>67.3 mm<br>66.9 mm<br>• **Description:** Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
| | • **Product:** Alignment aids<br>• **Description:** Adapter AR60 for M4000 and M4000 Curtain | AR60 adapter, M4000 | 4040006 |

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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.”**

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