Online data sheet


# PSD02-2301, M40Z-043023TB0

## M4000 Advanced A/P

**MULTIPLE LIGHT BEAM SAFETY DEVICES**

SICK
Sensor Intelligence.

## Ordering information

| System part | Type | Part no. |
|---|---|---|
| Deflector unit | PSD02-2301 | 1027908 |
| Sender/receiver in one housing | M40Z-043023TB0 | 1200131 |

Other models and accessories ➜ www.sick.com/M4000_Advanced_A_P

## Detailed technical data

### Features

| | |
|---|---|
| **Scanning range** | 0.5 m ... 4.5 m |
| **Number of beams** | 4 |
| **Beam separation** | 300 mm |
| **Response time** | 10 ms |
| **Synchronization** | Optical synchronisation |
| **End cap with integrated LED** | ✓ |

### Safety-related parameters

| | |
|---|---|
| **Type** | Type 4 (IEC 61496) |
| **Safety integrity level** | SIL3 (IEC 61508)<br>SILCL3 (EN 62061) |
| **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 |
|---|---|---|
| **Restart interlock** | ✓ | Internal |
| **External device monitoring (EDM)** | ✓ | Activated |
| **Beam coding** | ✓ | Uncoded |
| **Configurable application diagnostic output** | ✓ | Contamination (OWS) |
| **Safe SICK device communication via EFI** | ✓ | |
| **Muting** | ✓ | |

## Interfaces

| | |
|---|---|
| **System connection** | |
| Connection type | Hirschmann male connector M26, 12-pin |
| Permitted cable length | ≤ 50 m [1] |
| Permitted cross-section | ≥ 0.75 mm² |
| **Extension connection** | |
| Connection type | Male connector M12, 5-pin |
| **Configuration method** | PC with CDS (Configuration and Diagnostic Software) |
| **Configuration connection** | |
| Connection type | Female connector M8, 4-pin |
| **Display elements** | LEDs<br>7-segment display |
| **Fieldbus, industrial network** | |
| Integration via EFI gateways | CANopen, Ethernet, PROFIBUS DP, PROFIBUS PROFIsafe, PROFINET PROFIsafe [2] |
| Integration via Flexi Soft safety controller | CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET [3] |

[1] Depending on load, power supply and wire cross-section. The technical specifications must be observed.
[2] For a suitable EFI-gateway see modules and gateways in the accessory section of connection systems.
[3] For additional information on Flexi Soft -> www.sick.com/Flexi_Soft.

## Electrical data

| | |
|---|---|
| **Protection class** | III (EN 50178) |
| **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] |
| **Safety outputs (OSSD)** | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored [4] |
| Switching voltage HIGH | 24 V DC ($V_S$ – 2.25 V DC ... $V_S$) |
| Switching voltage LOW | ≤ 2 V DC |
| Switching current | ≤ 500 mA |
| **Diagnostic outputs** | |
| Type of output | PNP semiconductor, short-circuit protected |
| Switching voltage HIGH | 24 V DC ($V_S$ – 4.2 V DC ... $V_S$) |
| Switching voltage LOW | High resistance |
| Switching current | ≤ 100 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.

## Mechanical data

| | |
|---|---|
| **Housing cross-section** | 52 mm x 55.5 mm |
| **Housing material** | Aluminum alloy ALMGSI 0.5 |
| **Surface treatment** | Powder coated |
| **Front screen material** | 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 (IEC 60068-2-6) |
| **Shock resistance** | 10 g, 16 ms (IEC 60068-2-29) |

## Other information

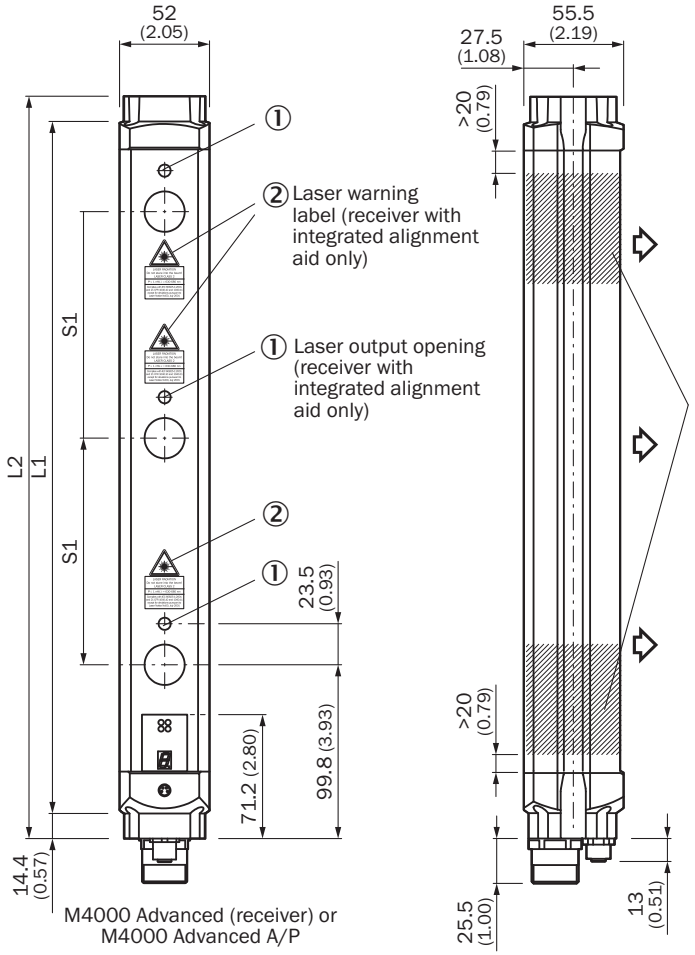
| | |
|---|---|
| **Wave length** | 850 nm |

## Classifications

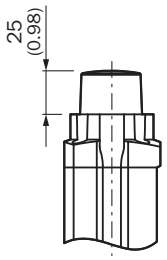
| | |
|---|---|
| **ECl@ss 5.0** | 27272703 |
| **ECl@ss 5.1.4** | 27272703 |
| **ECl@ss 6.0** | 27272703 |
| **ECl@ss 6.2** | 27272703 |
| **ECl@ss 7.0** | 27272703 |
| **ECl@ss 8.0** | 27272703 |
| **ECl@ss 8.1** | 27272703 |
| **ECl@ss 9.0** | 27272703 |
| **ETIM 5.0** | EC001832 |
| **ETIM 6.0** | EC001832 |
| **UNSPSC 16.0901** | 46171620 |

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

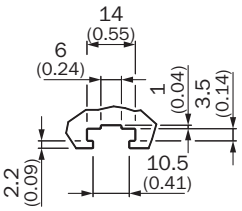
M4000 Advanced



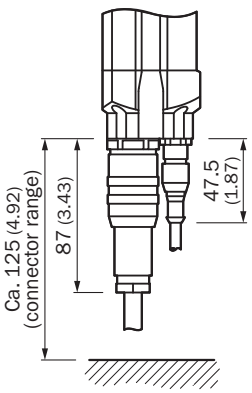

M4000 Advanced (receiver) or M4000 Advanced A/P




Optional (receiver only) design with integrated LED

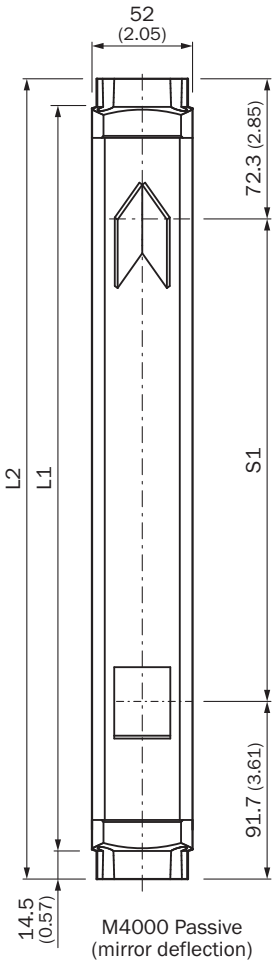



Sliding nut groove for side mounting

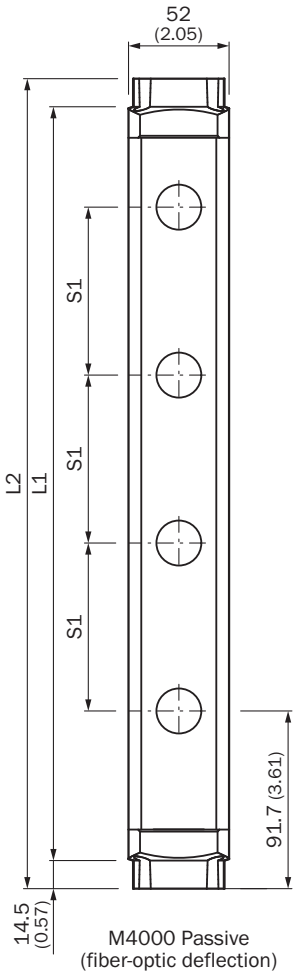



Cable socket M26 with crimp contacts (for DIN 43651, left) and cable plug M12 with cable (right, only on receiver)

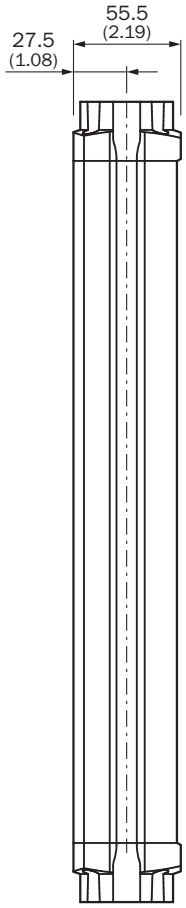
Deflector units for M4000 Standard A/P

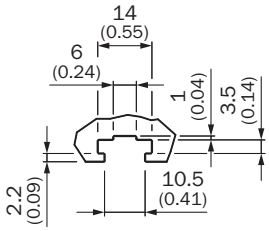



M4000 Passive
(mirror deflection)




M4000 Passive
(fiber-optic deflection)




Sliding nut groove
for side mounting

| Number of beams | Beam separation S1 | L1 | L2 |
|---|---|---|---|
| 2 | 500 (19.69) | 635 (25.00) | 664 (26.14) |
| 4 | 300 (11.81) | 1,035 (40.75) | 1,064 (41.89) |

## Recommended accessories

Other models and accessories ➜ www.sick.com/M4000_Advanced_A_P

| | Brief description | Type | Part no. |
|---|---|---|---|
| Mounting brackets and plates | | | |
|  | 4 pieces, Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers | BEF-3WNGBAST4 | 7021352 |
| Terminal and alignment brackets | | | |
|  | 4 pieces, Mounting kit 6, side bracket, rotatable, Zinc diecast | BEF-1SHABAZN4 | 2019506 |

| | Brief description | Type | Part no. |
|---|---|---|---|
|  | 4 pieces, Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount, including spacer discs | BEF-2SMGEAAL4 | 2044846 |
|  | 4 pieces, Mounting kit 12, rotatable, swivel mount | BEF-2SMGEAKU4 | 2030510 |
| Switching amplifiers | | | |
|  | UE403 muting switching amplifier | UE403-A0930 | 1026287 |
| Plug connectors and cables | | | |
|  | Head A: female connector, M26, 12-pin, straight<br>Head B: cable<br>Cable: PVC, unshielded, 5 m | DOL-0612G05M075KM0 | 2022545 |
|  | Head A: female connector, M26, 12-pin, straight<br>Head B: -<br>Cable: unshielded | DOS-0612G000GA3KM0 | 6020757 |
|  | Head A: female connector, M26, 12-pin, angled<br>Head B: -<br>Cable: unshielded | DOS-0612W000GA3KM0 | 6020758 |
| Alignment aids | | | |
|  | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
|  | Adapter AR60 for M4000 and M4000 Curtain | AR60 adapter, M4000 | 4040006 |
| Muting accessories | | | |
|  | Parallel muting (2 sensors), muting sensor brackets for mounting on M4000 housing profile or device columns with external mounting grooves | Muting arm kit M4000, 2 sensors, parallel muting | 2060157 |

# 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.”**

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