



DATA SHEET

# OD1-B100H50U25

OD Mini  
Displacement Sensors

# SICK

Sensor Intelligence



DISPLACEMENT SENSORS

OD1-B100H50U25

ORDERING INFORMATION

| Type           | part no. |
|----------------|----------|
| OD1-B100H50U25 | 6050514  |

Further device versions and accessories at [www.sick.com/OD\\_Mini](http://www.sick.com/OD_Mini)



DETAILED TECHNICAL DATA

FEATURES

|                                 |                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring range                 | 50 mm ... 150 mm                                                                                                                                                                                                                                                                                                                                                                    |
| Repeatability                   | 20 µm <sup>1) 2)</sup>                                                                                                                                                                                                                                                                                                                                                              |
| Linearity                       | ± 100 µm <sup>3)</sup>                                                                                                                                                                                                                                                                                                                                                              |
| Response time                   | ≥ 2 ms <sup>4)</sup>                                                                                                                                                                                                                                                                                                                                                                |
| Measuring frequency             | ≤ 2 kHz                                                                                                                                                                                                                                                                                                                                                                             |
| Output time                     | ≥ 0.5 ms                                                                                                                                                                                                                                                                                                                                                                            |
| Emitted beam                    |                                                                                                                                                                                                                                                                                                                                                                                     |
| Light source                    | Laser, red                                                                                                                                                                                                                                                                                                                                                                          |
| Typ. light spot size (distance) | 700 µm x 600 µm (100 mm)                                                                                                                                                                                                                                                                                                                                                            |
| Key laser figures               |                                                                                                                                                                                                                                                                                                                                                                                     |
| Normative reference             | IEC 60825-1:2014, EN 60825-1:2014                                                                                                                                                                                                                                                                                                                                                   |
| Laser class                     | 1 <sup>5)</sup><br>6)                                                                                                                                                                                                                                                                                                                                                               |
| Additional function             | Averaging 1 ... 512x<br>Automatic or manual sensitivity adjustment<br>Analog outputs can be taught in<br>Digital outputs can be taught in<br>Invertable digital output<br>Switching mode: window (Wnd)<br>Switching mode: distance to object (DtO)<br>Switching mode: object between sensor and background (ObSB)<br>Multifunctional input: laser-off / external teach-in / trigger |
| General notes                   |                                                                                                                                                                                                                                                                                                                                                                                     |

<sup>1)</sup> Averaging function set to: 512.

<sup>2)</sup> Constant ambient conditions.

<sup>3)</sup> Measurement on 90 % remission (ceramic, white).

<sup>4)</sup> With fixed sensitivity adjustment and averaging setting = 1. With automatic sensitivity and measuring rate 500 µs: 2 ... 7.5 ms response time/measuring rate 1,000 µs: 4 ... 15 ms response time.

<sup>5)</sup> Wavelength: 655 nm, max. output: 390 µW (laser class 1) / < 1 mW (laser class 2).

<sup>6)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

|                           |                   |                                                  |
|---------------------------|-------------------|--------------------------------------------------|
|                           | Note              | Not free of paint wetting impairment substances. |
| Safety-related parameters |                   |                                                  |
|                           | MTTF <sub>D</sub> | 101 years                                        |
|                           | DC <sub>avg</sub> | 0%                                               |

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## INTERFACES

|                            |            |                          |
|----------------------------|------------|--------------------------|
| Digital output             | Number     | 1                        |
|                            | Type       | PNP/NPN, selectable      |
| Analog output              | Number     | 1                        |
|                            | Type       | Voltage output           |
|                            | Voltage    | 0 V ... 10 V, > 10,000 Ω |
|                            | Resolution | 13.4 bit                 |
| Multifunctional input (MF) |            | 1 x <sup>1)</sup>        |

<sup>1)</sup> MF can be used as laser-off, trigger, external teach-in or deactivated.

## ELECTRONICS

|                               |                                                            |
|-------------------------------|------------------------------------------------------------|
| Supply voltage U <sub>s</sub> | DC 12 V (-5 %) ... DC 24 V (+10 %)                         |
| Power consumption             | ≤ 1.92 W <sup>1)</sup>                                     |
| Warm-up time                  | ≤ 5 min                                                    |
| Display                       | 4-digit 7-segment display (plus 4 LEDs for status display) |
| Enclosure rating              | IP67                                                       |
| Protection class              | III                                                        |
| Connection type               | Cable with male connector, M12, 5-pin, 30 cm               |

<sup>1)</sup> Without load, with current output.

## MECHANICS

|                        |                           |
|------------------------|---------------------------|
| Dimensions (W x H x D) | 17.8 mm x 44.4 mm x 31 mm |
| Control elements       | 4 buttons                 |
| Housing material       | Stainless steel           |
| Window material        | Plastic (PPSU)            |
| Weight                 | 70 g                      |

## AMBIENT DATA

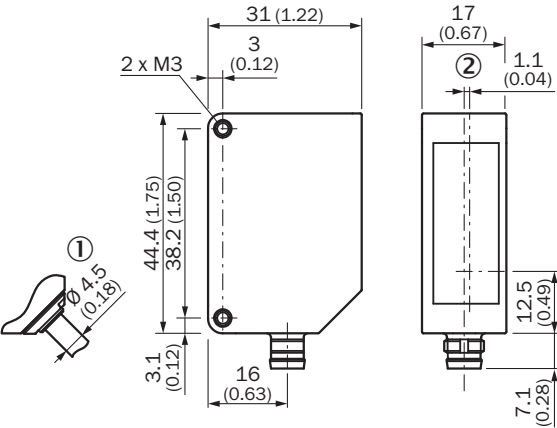
|                                     |                                                             |
|-------------------------------------|-------------------------------------------------------------|
| Ambient temperature, operation      | -10 °C ... +50 °C                                           |
| Ambient temperature, storage        | -20 °C ... +60 °C                                           |
| Min. rel. humidity (not condensing) | 35 %                                                        |
| Max. rel. humidity (not condensing) | 95 %                                                        |
| Temperature drift                   | ± 0.08 % FS/K (FS = Full Scale = Measuring range of sensor) |
| Typ. Ambient light immunity         | Artificial light: ≤ 3,000 lx<br>Sunlight: ≤ 10,000 lx       |

|                      |                                                                 |
|----------------------|-----------------------------------------------------------------|
| Vibration resistance | 10 Hz ... 55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours each) |
| Shock resistance     | 50 G (x, y, z axis 3 times each)                                |

CERTIFICATES

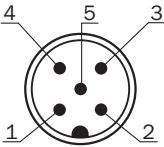
|                                                     |   |
|-----------------------------------------------------|---|
| EU declaration of conformity                        | ✓ |
| UK declaration of conformity                        | ✓ |
| ACMA declaration of conformity                      | ✓ |
| Moroccan declaration of conformity                  | ✓ |
| China RoHS                                          | ✓ |
| China Compulsory Product Certification (CCC) exempt | ✓ |

DIMENSIONAL DRAWING STAINLESS STEEL HOUSING

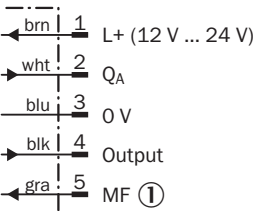


Dimensions in mm (inch)  
① variant with 30 cm cable with M12, 5-pin connector  
② Optical axis

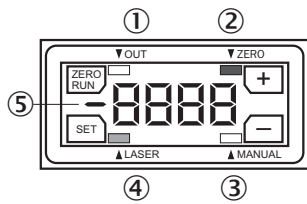
CONNECTION TYPE



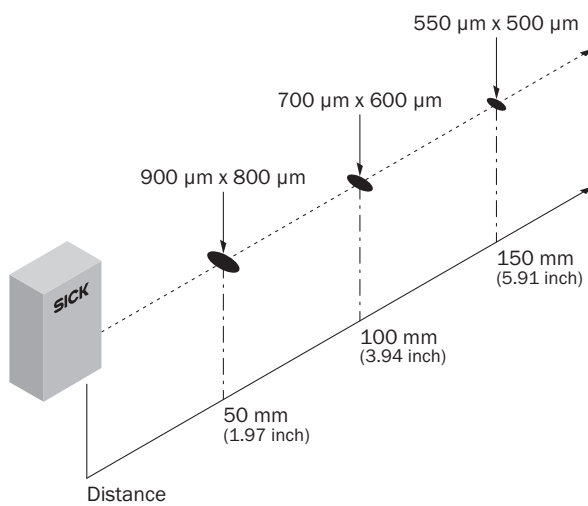
CONNECTION DIAGRAM



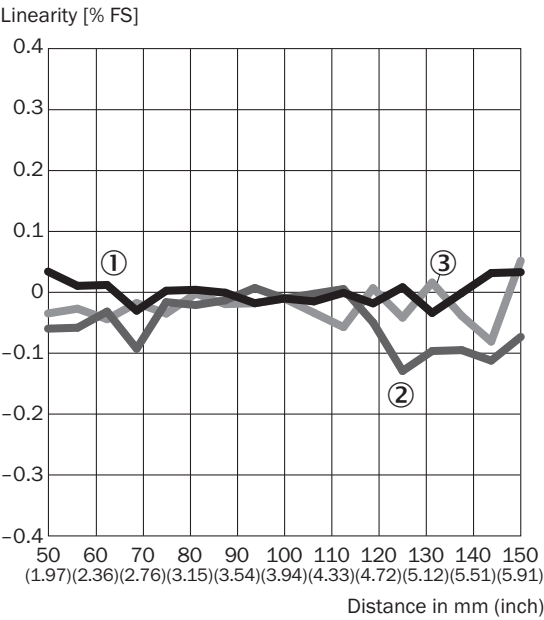
① Multifunctional input (MF)

**ADJUSTMENTS**

- ① digital output status indicator
- ② Zero offset status indicator
- ③ Teach mode status indicator
- ④ Laser status indicator
- ⑤ Minus sign for measured value indicator

**LIGHT SPOT SIZE OD MINI PRIME 50 MM ... 150 MM**

LINEARITY



- ① White ceramic
- ② stainless steel
- ③ black rubber

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at [www.sick.com/6050514](http://www.sick.com/6050514)



SICK AG  
WALDKIRCH  
GERMANY  
SICK.COM

# SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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