



TIM320-1131000S02

TiM

2D LIDAR SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type              | Part no. |
|-------------------|----------|
| TIM320-1131000S02 | 1067919  |

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



### Detailed technical data

#### Features

|                              |                                       |
|------------------------------|---------------------------------------|
| <b>Measurement principle</b> | HDDM <sup>+</sup>                     |
| <b>Application</b>           | Indoor                                |
| <b>Light source</b>          | Infrared (850 nm)                     |
| <b>Laser class</b>           | 1 (IEC 60825-1:2014, EN 60825-1:2014) |
| <b>Aperture angle</b>        | Horizontal 270°                       |
| <b>Scanning frequency</b>    | 15 Hz                                 |
| <b>Angular resolution</b>    | 1°                                    |
| <b>Working range</b>         | 0.05 m ... 4 m                        |
| <b>Scanning range</b>        | At 10% remission factor 2 m           |

#### Mechanics/electronics

|                               |   |
|-------------------------------|---|
| <b>Connection type</b>        | 1 x M12 12-pin male connector (0.8 m)             |
| <b>Supply voltage</b>         | 9 V DC ... 28 V DC                                |
| <b>Power consumption</b>      | Typ. 4 W, 16 W with 4 max. loaded digital outputs |
| <b>Output current</b>         | ≤ 100 mA  |
| <b>Housing color</b>          | Light blue (RAL 5012)                             |
| <b>Enclosure rating</b>       | IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013)         |
| <b>Protection class</b>       | III (IEC 61140:2016-1)                            |
| <b>Weight</b>                 | 150 g, without connecting cables                  |
| <b>Dimensions (L x W x H)</b> | 60 mm x 60 mm x 79 mm                             |
| <b>MTBF</b>                   | > 100 years                                       |

#### Safety-related parameters

|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 100 years |
|-------------------------|-----------|

## Performance

|                                      |  |
|--------------------------------------|--|
| <b>Response time</b>                 | 1 scan, typ. 67 ms<br>2 scans, ≤ 134 ms <sup>1)</sup>  |
| <b>Detectable object shape</b>       | Almost any   |
| <b>Systematic error</b>              | ± 40 mm <sup>2)</sup>  |
| <b>Statistical error</b>             | < 30 mm <sup>2)</sup>  |
| <b>Integrated application</b>        | Field evaluation with flexible fields  |
| <b>Number of field sets</b>          | 16 field triples (48 fields, 1 triple (3 flexible fields) can be configured directly at the scanner) |
| <b>Simultaneous evaluation cases</b> | 1 (3 fields)   |

<sup>1)</sup> At +45° to +225° of the working range; max. 150 ms at -45° to +45° of the working range.

<sup>2)</sup> Typical value at 90% remission up to maximum scanning range; real value depends on ambient conditions.

## Interfaces

|                           |  |
|---------------------------|--|
| <b>USB</b>                | ✓                                      |
| Remark                    | Micro USB                              |
| Function                  | Service interface, parameterization    |
| <b>Digital inputs</b>     | 4                                      |
| <b>Digital outputs</b>    | 3 (NPN, additional 1 x "Device Ready") |
| <b>Delay time</b>         | 67 ms ... 30,000 ms (configurable)     |
| <b>Dwell time</b>         | 67 ms ... 600,052 ms (configurable)    |
| <b>Optical indicators</b> | 2 LEDs (ON, switching status)          |

## Ambient data

|  |   |
|--|---|
| <b>Object remission</b>                    | 4 % ... 1,000 % (reflectors)  |
| <b>Electromagnetic compatibility (EMC)</b> |   |
| Emitted radiation                          | Residential area (EN 61000-6-3:2007+AMD:A1:2011)  |
| Electromagnetic immunity                   | Industrial environment (EN 61000-6-2:2005)  |
| <b>Vibration resistance</b>                |   |
| Sine resonance scan                        | 10 Hz ... 1,000 Hz <sup>1)</sup>  |
| Sine test                                  | 10 Hz ... 500 Hz, 5 g, 10 frequency cycles <sup>1)</sup>  |
| Noise test                                 | 10 Hz ... 250 Hz, 4.24 g RMS, 5 h <sup>2)</sup>   |
| <b>Shock resistance</b>                    | 50 g, 11 ms, ± 3 single shocks/axis <sup>3)</sup><br>25 g, 6 ms, ± 1,000 continuous shocks/axis <sup>3)</sup><br>50 g, 3 ms, ± 5,000 continuous shocks/axis <sup>3)</sup> |
| <b>Ambient operating temperature</b>       | -10 °C ... +50 °C <sup>4)</sup>   |
| <b>Storage temperature</b>                 | -30 °C ... +70 °C <sup>4)</sup>   |
| <b>Switch-on temperature</b>               | -10 °C ... +50 °C   |
| <b>Temperature change</b>                  | -10 °C ... +50 °C, 10 cycles <sup>5)</sup>  |

<sup>1)</sup> IEC 60068-2-6:2007.

<sup>2)</sup> IEC 60068-2-64:2008.

<sup>3)</sup> IEC 60068-2-27:2008.

<sup>4)</sup> IEC 60068-2-14:2009.

<sup>5)</sup> EN 60068-2-14:2009.

<sup>6)</sup> EN 60068-2-30:2005.

|                                      |   |
|--------------------------------------|---|
| <b>Damp heat</b>                     | +25 °C ... +55 °C, 95 % RH, 6 cycles <sup>6)</sup>    |
| <b>Permissible relative humidity</b> | Operation < 80 %, Non-condensing (EN 60068-2-30:2005) |
|                                      | Storage ≤ 90 %, Non-condensing (EN 60068-2-30:2005)   |
| <b>Ambient light immunity</b>        | 80,000 lx   |

<sup>1)</sup> IEC 60068-2-6:2007.

<sup>2)</sup> IEC 60068-2-64:2008.

<sup>3)</sup> IEC 60068-2-27:2008.

<sup>4)</sup> IEC 60068-2-14:2009.

<sup>5)</sup> EN 60068-2-14:2009.

<sup>6)</sup> EN 60068-2-30:2005.

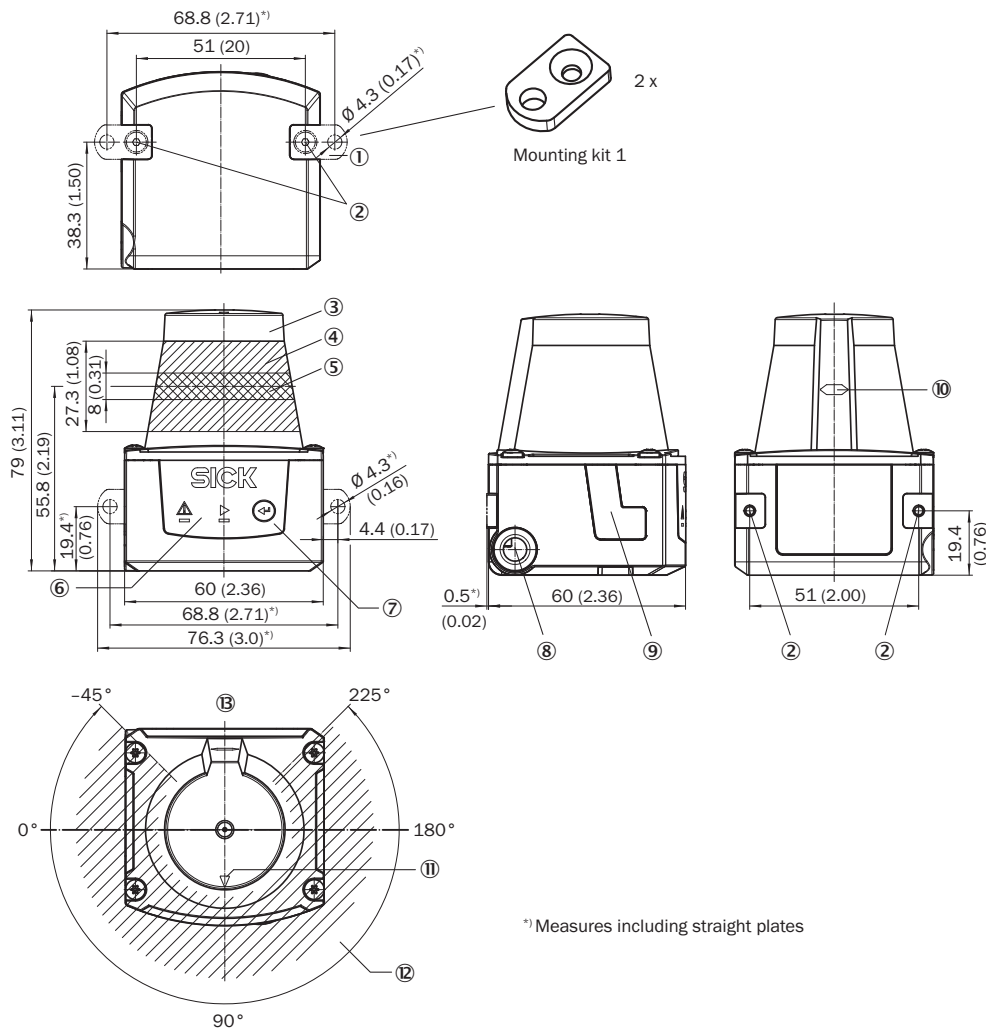
General notes

|                    |   |
|--------------------|---|
| <b>Note on use</b> | The sensor does not constitute a safety component as defined by relevant legislation on machine safety. |
|--------------------|---|

Classifications

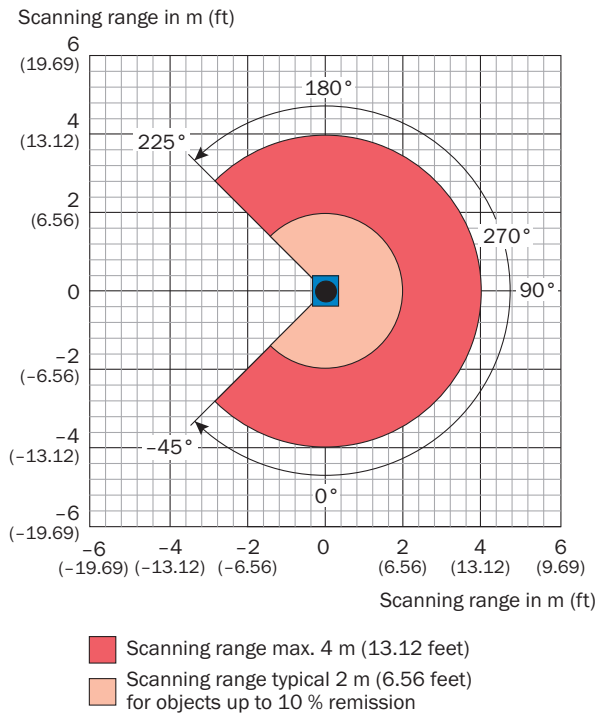
|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270990 |
| <b>ECLASS 5.1.4</b>   | 27270990 |
| <b>ECLASS 6.0</b>     | 27270913 |
| <b>ECLASS 6.2</b>     | 27270913 |
| <b>ECLASS 7.0</b>     | 27270913 |
| <b>ECLASS 8.0</b>     | 27270913 |
| <b>ECLASS 8.1</b>     | 27270913 |
| <b>ECLASS 9.0</b>     | 27270913 |
| <b>ECLASS 10.0</b>    | 27270913 |
| <b>ECLASS 11.0</b>    | 27270913 |
| <b>ECLASS 12.0</b>    | 27270913 |
| <b>ETIM 5.0</b>       | EC002550 |
| <b>ETIM 6.0</b>       | EC002550 |
| <b>ETIM 7.0</b>       | EC002550 |
| <b>ETIM 8.0</b>       | EC002550 |
| <b>UNSPSC 16.0901</b> | 41111615 |

Dimensional drawing (Dimensions in mm (inch))



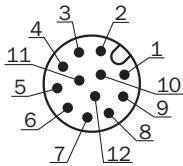
- ① 2 x straight plates with M3 x 4 mm screw (included in delivery)
- ② M3 threaded mounting hole, 2.8 mm deep (blind hole thread), max. tightening torque 0.8 Nm
- ③ Optical hood
- ④ Receiving range (light inlet)
- ⑤ Transmission range (light emission)
- ⑥ Red and green LED (status displays)
- ⑦ Function button for teach-in
- ⑧ Connecting cable outlet (connection for power/digital inputs/outputs)
- ⑨ Micro USB female connector, type B
- ⑩ Marking for the position of the light emission level
- ⑪ Bearing marking to support alignment (90° axis)
- ⑫ Aperture angle 270° (scanning angle)
- ⑬ Area in which no reflective surfaces are allowed for mounted devices

### Working range diagram



### PIN assignment

Power I/O connection





Connecting cable with male connector or M12 male connector, 12-pin, A-coded

- ① GND
- ② DC 9 V ... 28 V
- ③ In<sub>1</sub>
- ④ In<sub>2</sub>
- ⑤ OUT1
- ⑥ OUT2
- ⑦ OUT3
- ⑧ OUT4
- ⑨ PNP: INGND, NPN: IN 9 V ... 28 V
- ⑩ In<sub>3</sub>
- ⑪ In<sub>4</sub>
- ⑫ nc

## Recommended accessories

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

|   | Brief description   | Type         | Part no. |
|---|---|--------------|----------|
| Mounting brackets and plates  |   |              |          |
|  | Mounting kit with shock absorber, Anodized aluminum, mounting hardware included   | Mounting kit | 2086074  |
| Plug connectors and cables  |   |              |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, USB-A</li> <li>• <b>Connection type head B:</b> Male connector, Micro-B</li> <li>• <b>Signal type:</b> USB 2.0</li> <li>• <b>Cable:</b> 2 m</li> <li>• <b>Description:</b> USB 2.0, unshielded</li> </ul> | USB cable    | 6036106  |

## Recommended services

Additional services → [www.sick.com/TiM](http://www.sick.com/TiM)

|  | Type   | Part no. |
|--|--|----------|
| Maintenance  |  |          |
| <ul style="list-style-type: none"> <li>• <b>Product area:</b> 2D LiDAR sensors, 3D LiDAR sensors</li> <li>• <b>Range of services:</b> Inspection, analysis and restoring of defined functions, Inspection and adaptation of basic settings, parameters of field application, filters for raw data output, and product-specific configuration</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> </ul>   | Maintenance of LiDAR sensors                                   | 1682593  |
| Commissioning  |  |          |
| <ul style="list-style-type: none"> <li>• <b>Product area:</b> 2D LiDAR sensors, 3D LiDAR sensors</li> <li>• <b>Range of services:</b> Inspection of connection, fine adjustment, configuration of monitored areas, configuration and optimization of parameters as well as tests, Setup of previously defined functions of basic settings, parameters of field application, filters for raw data output and product-specific configuration</li> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> </ul> | Commissioning LiDAR sensors                                    | 1680672  |
| Extended warranty  |  |          |
| <ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</li> <li>• <b>Duration:</b> Five-year warranty from delivery date.</li> </ul>   | Extended warranty for a total of five years from delivery date | 1680671  |

## 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)